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Site Name:	VCC-WINSTON-SALEM
Subsite:	
Site Name: *Do not enter text.*	NCN000410344
Full Site Name (Subject): *Do not enter text.*	VCC-WINSTON-SALEM
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Description:	General Correspondence, 2010
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Program (Document Group):	FRB CERCLA (FRBCERCLA)
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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, December 17, 2010 11:05 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 12/17/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued working on response to EPA/NCDENR comments on Removal Action Completion Report.
2. Sent Draft revised Post-Removal Action text to EPA for review.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue working on comment responses/report revisions.
2. Submit comment responses and Report revisions pending EPA review of draft Post-Removal Action text revisions.

ACTION ITEMS/OTHER

1. Schedule January 2011 meeting with NCDENR to discuss regulatory program for VCC sites in North Carolina.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, December 10, 2010 11:18 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 12/10/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued working on response to EPA/NCDENR comments on Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue working on comment responses/report revisions.

ACTION ITEMS/OTHER

1. Schedule January 2011 meeting with NCDENR to discuss regulatory program for VCC sites in North Carolina.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, December 03, 2010 11:57 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 12/3/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued working on response to EPA/NCDENR comments on Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue working on comment responses/report revisions.

ACTION ITEMS/OTHER

1. Schedule January 2011 meeting with NCDENR to discuss regulatory program for VCC sites in North Carolina.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Monday, November 29, 2010 6:56 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 11/26/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued working on response to EPA/NCDENR comments on Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue working on comment responses/report revisions.

ACTION ITEMS/OTHER

1. Schedule January 2011 meeting with NCDENR to discuss regulatory program for VCC sites in North Carolina.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, November 19, 2010 8:10 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Had call with EPA, NCDENR, ExxonMobil, and ARCADIS to discuss post-removal site control plan and groundwater monitoring.
2. Continued working on response to EPA/NCDENR comments on Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue working on comment responses/report revisions.

ACTION ITEMS/OTHER

1. Schedule January 2011 meeting with NCDENR to discuss regulatory program for VCC sites in North Carolina.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, November 12, 2010 7:50 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 11/12/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Received EPA/NCDENR comments on Removal Action Completion Report.
2. Began working on response to EPA/NCDENR comments on Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue working on comment responses/report revisions.
2. Schedule call to discuss post-removal site control plan.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, October 29, 2010 3:09 PM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 10/29/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Waiting for EPA comment/approval of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Receive EPA comments on Removal Action Completion Report.
2. Begin work on comment responses/report revisions as needed.
3. Schedule call to discuss post-removal site control plan.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, October 22, 2010 11:58 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Waiting for EPA comment/approval of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Receive EPA comments on Removal Action Completion Report.
2. Being work on comment responses/report revisions as needed.
3. Schedule call to discuss post-removal site control plan.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Monday, October 18, 2010 12:53 PM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 10/15/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Waiting for EPA comment/approval of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Wait for EPA comment/approval of Removal Action Completion Report.
2. Schedule call to discuss post-removal site control plan.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, October 08, 2010 2:40 PM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; Germann, Geoff; steven.p.schmidt@exxonmobil.com; Beswick.Kevin@epamail.epa.gov; Bowman, Matthew
Subject: 10/8/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Waiting for EPA comment/approval of Removal Action Completion Report.
2. Discussed setting up a call with EPA, NCDENR, Exxon, and ARCADIS to discuss post-removal site control plan.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Wait for EPA comment/approval of Removal Action Completion Report.
2. Schedule call to discuss post-removal site control plan.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-3104

10/05/2010

4SF-SRSEB

Mr. Matt Pelton
ARCADIS
11000 Regency Parkway
West Tower, Suite 105
Cary, North Carolina 27518-8518

SUBJ: EPA and NCDENR Comments on the Removal Action Completion Report
For the VCC Winston-Salem Site, Winston-Salem, North Carolina

Dear Mr. Pelton:

I have reviewed the Removal Action Completion Report for the VCC Winston-Salem site in Winston-Salem, North Carolina, and have the following comments. Also attached to this email is a file with comments from NCDENR. Please provide a response to these comments.

Section 3 states that Institutional Controls (ICs) will be implemented and annual inspections will be made. I recommend that ExxonMobil, ARCADIS, EPA, and NCDENR have a conference call in the near future to discuss which type(s) of property-use limitations/restrictions are appropriate for the Site (i.e., future land use restrictions, future groundwater use restrictions, etc.), how and when the ICs will be implemented, and how the annual inspections will be conducted and reported to EPA and NCDENR. Once these decisions are made, I'd like to see a more-detailed description either provided in the Removal Action Completion Report, or described in a separate Post-Removal Site Control Plan.

If you have any questions, please feel to call me at 404-562-8802.

Sincerely,

McKenzie Mallary

McKenzie Mallary
Remedial Project Manager

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

September 29, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Removal Action Completion Report
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

Dear Mr. Mallary:

The North Carolina Department of Environment and Natural Resources (NC DENR) Superfund Section has received the *Removal Action Completion Report* for the Former Virginia-Carolina Chemical Company Winston-Salem Site. The NC DENR Superfund Section has reviewed this document and offers the following attached comments.

The NC DENR Superfund Section appreciates the opportunity to comment on this document. If you have any questions or comments, please feel free to contact me at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

Removal Action Completion Report
Former Virginia-Carolina Chemical Company Winston-Salem Site

Section 1.3 Report Organization

1. Please revise the first paragraph of Section 1.3 to correctly describe the contents of the *Removal Action Completion Report.*

2. Please revise the first bullet item of the second paragraph of Section 1.3 to state that "Appendix A contains photographs taken **before, during and after** the soil removal action..."

Section 2.4 Soil Removal Activities

3. Please supplement Section 2.4 with a separate appendix containing an electronic scanned copy of the field notes documenting the soil removal activities.

Section 2.4.7 Soil Stabilization and Stockpiling

4. Please revise the first paragraph of Section 2.4.7 to indicate that the purpose of soil stabilization activities was to also reduce the leachable concentrations of **arsenic** to less than 5 milligrams per liter (mg/L).

5. Please supplement Section 2.4.7 with a figure depicting those areas requiring stabilization prior to transportation and disposal.

6. Please revise the second paragraph of Section 2.4.7 to more completely describe Enviroblend and the mixture ratios required to achieve stabilization.

Section 2.4.8 Dust Monitoring Program

7. Please provide additional details regarding the implementation of the dust monitoring program (i.e., how many, how frequent, duration of sampling, where located, warning alarms, etc.)

8. Please supplement Section 2.4.8 with a section describing the health and safety program and its implementation.

Section 2.4.9 Water Management

9. Please append Section 2.4.9 with a description of how the stormwater was managed when the water did come in contact with contaminated soils.

Section 2.5.1 Confirmation Sampling

10. Please supplement the third paragraph of this section with a figure depicting those impacted soils that were left in place and all X-ray fluorescence (XRF) field screening results and confirmation soil sample analytical results.

Section 2.5.2 Waste Stabilization Stockpile Sampling

11. Please revise the second paragraph of Section 2.5.2 to include a description of the location of the area represented by the stockpile described in this paragraph (i.e., grid number, etc).

Section 2.5.3 Backfill Material Sampling Activities

12. Please revise the fourth sentence of Section 2.5.3 to state "The fill materials **were** approved for use by both USEPA and NCDENR."

Section 2.6 Site Restoration

13. Please supplement the second bullet item of Section 2.6 with figures depicting both pre-excavation and post-excavation topographical surveys.

Section 4 Groundwater

14. Please revise Section 4 to include provisions for a more robust assessment of groundwater at the Site.

Table 2-1 Summary of Confirmation Soil Sample Analytical Results

15. Please supplement Table 2-1 with a separate appendix containing an electronic scanned copy of the laboratory analytical results summarized in Table 2-1.

16. Please supplement Table 2-1 with a separate figure depicting the locations where the confirmation soil samples were located (i.e., specific locations for discrete samples and areas used for composite samples).

Table 2-2 Summary of Soil Stabilization Sample Analytical Results

17. Please supplement Table 2-1 with a separate appendix containing an electronic scanned copy of the laboratory analytical results summarized in Table 2-2.

Figure 2-1A Site Plan Showing Limits of Soil Removal – North of Highway 52/SR-8

18. Please revise Figure 2-1A to include the depths of excavation for each area.

Figure 2-1B Site Plan Showing Limits of Soil Removal – South of Highway 52/SR-8

19. Please revise Figure 2-1B to include the depths of excavation for each area.

Appendix B Soil Disposal Log

20. Please supplement Appendix B with an electronic scanned copy of the Waste Manifests summarized in the table included as Appendix B.

Appendix C Air Monitoring Results

21. Please supplement Appendix C with an electronic scanned copy of the laboratory analytical results summarized in the table included as Appendix C.

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Infrastructure, environment, buildings

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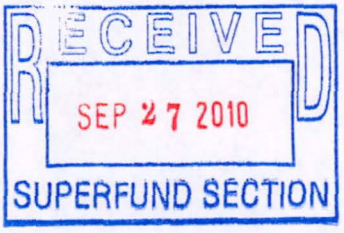
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676
www.arcadis-us.com

Mr. Ken Mallary
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960



Subject:
Former VCC Winston-Salem Site: Removal Action Completion Report
Winston-Salem, North Carolina

Date:
September 23, 2010

Dear Mr. Mallary:

Please find enclosed for your review three (3) copies of the *Removal Action Completion Report* (RACR) for the Former VCC Winston-Salem Site (Site) located in Winston-Salem, Forsyth County, North Carolina. This RACR has been prepared by ARCADIS U.S., Inc. (ARCADIS) on behalf of ExxonMobil Environmental Services Company (EMES) to document soil removal activities conducted at the Site. If you have any questions, please feel free to call me or Steve Schmidt of EMES at 703.846.1005.

Contact:
Matthew Pelton

Phone:
919.415.2308

Email:
matthew.pelton@
arcadis-us.com

Our ref:
B0085732

Sincerely,

ARCADIS

Matthew T. Pelton, P.E.
Senior Environmental Engineer

Copies:
David Mattison, NCDENR
Steve Schmidt, ExxonMobil
Geoff Germann, ARCADIS

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, September 10, 2010 11:04 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 9/10/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued preparation of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue preparation of Removal Action Completion Report.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, September 03, 2010 11:03 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; Schmidt, Steve (steven.p.schmidt@exxonmobil.com); Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 9/3/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued preparation of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue preparation of Removal Action Completion Report.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, August 27, 2010 8:43 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 8/27/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued preparation of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue preparation of Removal Action Completion Report.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

August 24, 2010

Sent PDF via Email

Bruce Parris
Environmental Supervisor II, Western Region
North Carolina Department of Environment and Natural Resources
Division of Waste Management- Inactive Hazardous Sites Branch
Mooresville Regional Office
610 East Center Street, Suite 301
Mooresville, NC 28115

Subject: NCDOT Bridge Replace Project on US 52 at Liberty Street in Winston Salem, Forsyth County and Contaminated Soil Related to the former Virginia Carolina Chemical and Carolina Ore Facilities

Dear Mr. Parris:

As you are aware, NCDOT is currently in the process of replacing the bridge on US 52 over Liberty Street and the NSRR tracks in Forsyth County. The project right-of-way crosses property that is known as the former Virginia Carolina Chemical (VCC) and Carolina Ore properties. The property is currently owned by Waste Management, Atlantic Scrap and Processing, and the NCDOT. ExxonMobil is the responsible party for the arsenic and lead contaminated soil related to the former VCC facility. Pursuant to an agreement between USEPA and ExxonMobil with oversight by the Federal Remediation Branch of the North Carolina Super Fund Section, ExxonMobil has been performing a voluntary soil removal action. Also, pursuant to an agreement between ExxonMobil and NCDOT, ExxonMobil has removed contaminated soil from the newly acquired right of way on this active construction project.

Recently, while excavating for their voluntary removal action, ExxonMobil discovered contamination that it believes is not their responsibility. Testing performed jointly by our consultant, Hart and Hickman, and personnel from the Inactive Hazardous Sites Branch, has been completed in this area. The results show levels of arsenic and lead that are above worker safety levels. The in situ contaminated soil have magenta coloration and is contiguous to the area recently excavated by ExxonMobil's contractor. It is our desire that this contaminated soil be removed prior to the construction of this project, however in conversations with USEPA and your Division; it is evident that there are questions as who should be responsible for this contaminated soil.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237
www.ncdot.gov/doh/preconstruct/highway/geotech

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

In order for our construction to continue in a timely manner, NCDOT plans to safely cover the contaminated soils within the construction limits of the project with a minimum of twelve (12) inches of clean soil to protect the construction workers and prevent surface runoff from entering Bowen Branch and its tributaries. This work will be conducted by Hart and Hickman and their subcontractor EVO, who are both well versed in handling contaminated materials. They will clear the construction limits of vegetation leaving the larger root balls in place to minimize soil disturbance, cover the area with a visual marker to warn workers in the event that any future excavations are performed in the area, and place a minimum of twelve (12) inches of clean soil over the contaminated soil. The concrete foundations of the former Carolina Ore facility in the construction area will be removed to approximately twelve (12) inches below the existing ground surface and will also be covered with a minimum of twelve (12) inches of clean fill material over the existing grade. Once the clean soil is in place, construction will resume in this area. The contaminated area will also be documented in the As-Built Construction Plans.

NCDOT is leaving the contaminated soil in situ, and will not discharge, deposit, transfer or arrange for the disposal of the contaminated soil. The vegetation cleared from the construction limits will be disposed of properly. NCDOT does not consider itself a responsible party or owner for purposes of liability of remedial actions relating to the contamination. By performing this work, NCDOT does not accept any liability for possible future remediation of the contamination. If in the future, remediation is required by the appropriate responsible party, NCDOT will allow the responsible party on to the NCDOT right of way by way of an encroachment agreement to perform any necessary remediation of the contamination.

We trust you understand our position in this matter. If there is any additional information we can provide in the future, please do not hesitate to call.

Sincerely,

Cyrus F. Parker, LG, PE
NC Department of Transportation
GeoEnvironmental Supervisor
Geotechnical Engineering Unit

Cc:
Ken Mallary, US EPA, Superfund
Dave Mattison, NCDENR, DWM, Superfund
Matt Bramblett, Hart and Hickman
Njoroge Wainaina, NCDOT, Geotechnical Engineering Unit
Wright Archer, NCDOT, Resident Engineer
Paul Gundlach, NCDOT, Industrial Hygienist
Scott Slusser, NC Department of Justice

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, August 20, 2010 10:37 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 8/20/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued preparation of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue preparation of Removal Action Completion Report.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, August 13, 2010 12:29 PM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 8/13/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued preparation of Removal Action Completion Report.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue preparation of Removal Action Completion Report.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Loomis, Brian [Brian.Loomis@arcadis-us.com]
Sent: Saturday, August 07, 2010 9:28 AM
To: mallary.ken@epamail.epa.gov; neal.timothy@epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; beswick.kevin@epamail.epa.gov; Pelton, Matthew
Subject: 8/06/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Brian Loomis on behalf of Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Initiated preparation of Removal Action Completion Report.

Soil Removal Status	
Removal Area	% Complete
1	100%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue preparation of Removal Action Completion Report

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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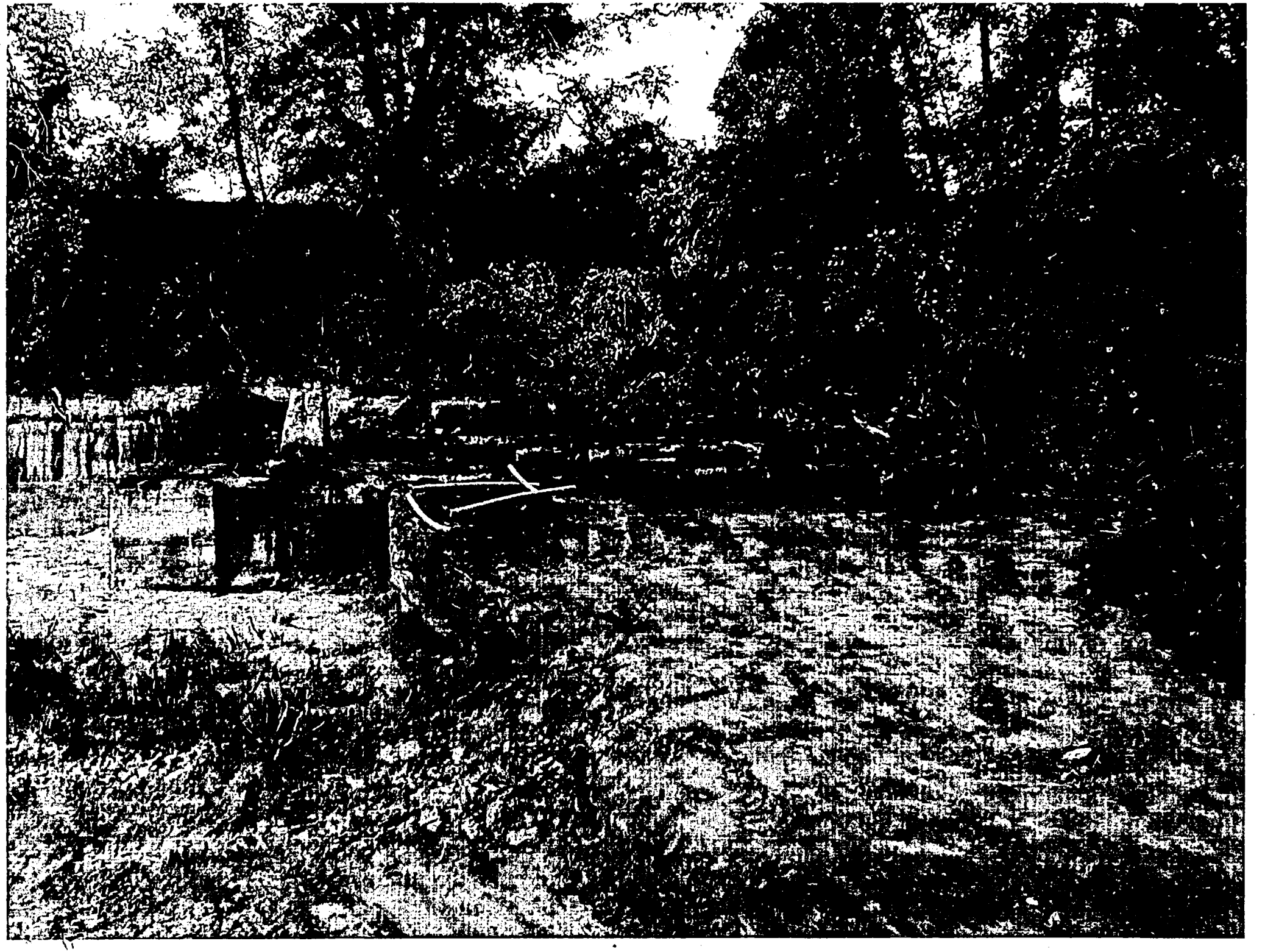
Mattison, David

From: Day, Collin
Sent: Friday, July 30, 2010 3:12 PM
To: Matt Bramblett; Parker, Cyrus F
Cc: Mattison, David; fridge@infionline.net
Subject: Third Area of Magenta Soil Found-Former Carolina Ore Site
Attachments: CUT3 Magenta Soil Closeup 7-30-10.JPG; Distant View North CUT3 Magenta Soil With Carolina Ore in foreground.JPG

Matt and Cyrus:

In the process of trying to obtain coordinates this afternoon on the magenta soil areas, we found a third location where magenta soil is present on the area formerly occupied by Carolina Ore. Attached are two photographs showing this third location. We could not get our GPS Unit to work again this afternoon. We will get something else newer than the old GeoExplorer 2 and locate these points next week. Have a good weekend.

Collin Day
Hydrogeologist
NC DENR Winston-Salem Regional Office
Division of Waste Management, Superfund Section-IHSB
585 Waughtown Street
Winston-Salem, NC 27107
Voice: (336) 771-5281
FAX: (336) 771-4632



Mattison, David

From: Loomis, Brian [Brian.Loomis@arcadis-us.com]
Sent: Friday, July 30, 2010 2:44 PM
To: mallary.ken@epamail.epa.gov; Bowman, Matthew; steven.p.schmidt@exxonmobil.com; Germann, Geoff; neal.timothy@epa.gov; beswick.kevin@epamail.epa.gov; Mattison, David
Cc: Pelton, Matthew
Subject: 7/30/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Brian Loomis

ACTIVITIES PERFORMED DURING PERIOD

1. Complete post-excavation surveys.
2. Complete backfill of completed removal areas on northeast side of highway.
3. Complete final restoration and seeding.
4. Demobilize from the site.

Soil Removal Status	
Removal Area	% Complete
1	100%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. None

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Brian Loomis | Senior Project Scientist | brian.loomis@arcadis-us.com

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| M. 313.510.6278| F. 919.469.5676

www.arcadis-us.com

CHMM

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Mattison, David

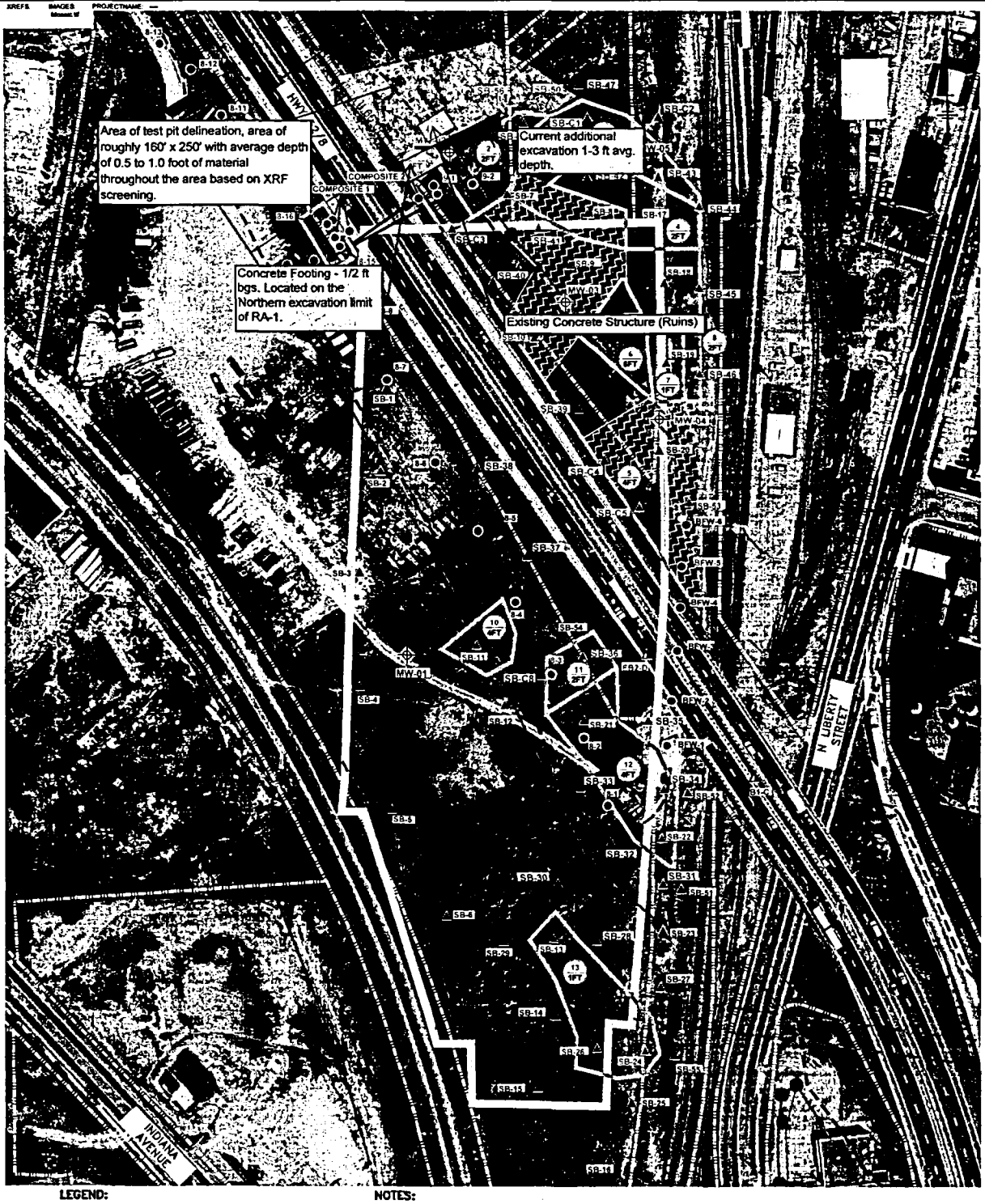
From: Day, Collin
Sent: Thursday, July 29, 2010 1:56 PM
To: fridge@infionline.net
Cc: Mattison, David
Subject: Impact area and Pictures from 7-29-10 Site Visit
Attachments: Impact Area 1 and 2 Carolina Ore Sketch 7 15 10.pdf; Magenta Soil Stratification.JPG; Closeup of Magenta Soil North of Carolina Ore Ruins.JPG; Distant View Magenta Stratification Carolina Ore.JPG; Downed Tree Showing Slag on Roots Carolina Ore Site.JPG; Magenta Soil Near Ditch Carolina Ore.JPG; Magenta Soil North of Carolina Ore Ruins.JPG

Bill:

Attached is the impact area that ARCADIS estimates is present on the Carolina Ore Property. I am also attaching pictures of the magenta soil that appears to be located within the former Carolina Ore site boundaries. These pictures were taken this morning during our site visit and discussion with DOT personnel working in the area. We collected three soil samples this morning and are asking the NCDENR Division of Water Quality Lab to expedite the analysis of the samples for a quick turnaround.

Additionally, I am copying David Mattison on my message so that he is aware of what we have found at the site. I will phone him as well because we will need to discuss the developments and how they impact clean up in the area.

Collin Day
Hydrogeologist
NC DENR Winston-Salem Regional Office
Division of Waste Management, Superfund Section-IHSB
585 Waughtown Street
Winston-Salem, NC 27107
Voice: (336) 771-5281
FAX: (336) 771-4632



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009)
- SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)
- SOILS EXCEED TCLP CRITERIA FOR LEAD

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "SS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 120' 240'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REQUEST FOR PROPOSAL

SOIL REMOVAL AREAS

ARCADIS

FIGURE 3

Mattison, David

From: Day, Collin
Sent: Thursday, July 29, 2010 2:18 PM
To: fridge@infionline.net
Cc: Mattison, David
Subject: Additional Picture
Attachments: Magenta Soil North of Carolina Ore Ruins.JPG

Bill and Dave:

I failed to attach one picture that shows the location of the northernmost area of magenta soil in relation to the VC Chemical and Carolina Ore sites. I paced the area off and it is about 150 feet from the corner of the ruins in the woods. As my GPS unit was not functioning this morning, the DOT personnel with me indicated that their surveyor will be onsite either this afternoon or tomorrow and will provide a location for the material.

Collin Day
Hydrogeologist
NC DENR Winston-Salem Regional Office
Division of Waste Management, Superfund Section-IHSB
585 Waughtown Street
Winston-Salem, NC 27107
Voice: (336) 771-5281
FAX: (336) 771-4632

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Wednesday, July 28, 2010 9:28 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; Parker, Cyrus F; Archer, Wright R; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Loomis, Brian
Subject: Winston-Salem Soil Removal Update

Ken/David – just wanted to let you know that Exxon's soil removal activities at the Winston-Salem VCC site have been completed. All restoration outside of the DOT ROW has been completed and ENTACT/ARCADIS have demobilized from the site as of yesterday.

Wright – we understand Blythe is actively working on filling in the excavation areas on the north side of Highway 52. Please let us know if fill will extend above original grades around any of our monitoring wells in that area so that we can coordinate well modifications with their work. Otherwise, we've asked Blythe to protect the wells as they work around them to avoid any damage.

Please note I will be out on vacation starting this afternoon and will not return until August 11th. Please feel free to contact other team members as needed during this period if you have any questions. Thanks.

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Infrastructure, environment, buildings

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Fax 919.469.5676
www.arcadis-us.com

Mr. Craig Zeller
Superfund Division
USEPA – Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Subject:
Removal Site Evaluation Report
VCC Site - Charlotte, North Carolina

Date:
July 26, 2010

Dear Mr. Zeller:

Inadvertently, the Removal Site Evaluation Report for the former Virginia-Carolina Chemical Corporation Site located in Charlotte, North Carolina was submitted last week without a complete signature page. A replacement signature page is attached. If you have any questions or concerns, please feel free to call me or Steven Schmidt of EMES at 703-846-1005.

Sincerely,

ARCADIS G&M of North Carolina, Inc.

Matthew Pelton, P.E.
Senior Environmental Engineer

Contact:
Matthew Pelton

Phone:
919-415-2308

Email:
Matthew.pelton@
Arcadis-us.com

Our ref:
B0085793

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869

Copies:
David Mattison, NCDENR (2 copies)
Steven Schmidt, ExxonMobil
Geoff Germann, ARCADIS
Kirstyn White, ARCADIS
File: 85793

ARCADIS

Kirstyn White, P.E.
Environmental Engineer

Matthew T. Pelton P.E.
Senior Environmental Engineer

Geoffrey G. Germann, P.E.
Principal Engineer

Removal Site Evaluation Report

Former Virginia-Carolina Chemical Corporation Site, Charlotte, Mecklenburg County, North Carolina

Prepared for:
ExxonMobil Environmental Services Company
Fairfax, Virginia

Prepared by:
ARCADIS G&M of North Carolina, Inc.
11000 Regency Parkway
West Tower
Suite 205
Cary
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676

Our Ref.:
B0085793

Date:
July 2010

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869

ARCADIS

Kirstyn White, P.E.
Environmental Engineer

Matthew T. Pelton P.E.
Senior Environmental Engineer

Geoffrey G. Germann, P.E.
Principal Engineer

Removal Site Evaluation Report

Former Virginia-Carolina Chemical Corporation Site, Charlotte, Mecklenburg County, North Carolina

Prepared for:
ExxonMobil Environmental Services Company
Fairfax, Virginia

Prepared by:
ARCADIS G&M of North Carolina, Inc.
11000 Regency Parkway
West Tower
Suite 205
Cary
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676

Our Ref.:
B0085793

Date:
July 2010

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869

Mattison, David

From: Day, Collin
Sent: Tuesday, July 27, 2010 2:38 PM
To: Mattison, David; Parker, Cyrus F; Matt Bramblett
Subject: Deed Information
Attachments: Carolina Ore Property Deed Information.pdf

Dave:

The scanned copy came in pretty clear. It does show that while VC Chemical owned the property in 1903 they ended up selling a 3-acre tract to Carolina Ore in 1910. I checked the 1912 Sanborn map and it does show a 35-inch pipe from the VC facility. The pipe exits out the extreme northern portion near the acid chamber and runs north towards Bowen Branch. The map notes state that the pipe does run to the creek, although they do not state the name of the creek. The pipe, therefore, evidently, just ran across Carolina Ore property having been installed prior to the sale. Hence, it really has no relevance concerning the matter before us. Have a good one.

Collin Day
Hydrogeologist
NC DENR Winston-Salem Regional Office
Division of Waste Management, Superfund Section-IHSB
585 Waughtown Street
Winston-Salem, NC 27107
Voice: (336) 771-5281
FAX: (336) 771-4632

After 1927 no record VC/Car. Oil

General Index to Real Estate Conveyances—Forsyth County, N. C.—GRANTOR

SIFTO LOCATE NAMES OPEN AT SURNAME INITIAL TAB AND REFER TO BUFF SUB-INDEX SHEETS FOR PAGE REFERENCE

TO DECEMBER 31st. 1927

Edwards and Broughton Co. Selling Agents, Raleigh, N. C.

CITY CO. UNIVERSAL INDEX, OWNED AND MANUFACTURED BY WALKER, EVANS & COGSWELL CO., CHARLESTON, S. C.

Date of Inst.	GRANTORS SURNAMES	GIVEN NAMES ABCDEFGH	GIVEN NAMES IJKLMNO	GIVEN NAMES PQRSTUVWXYZ	GRANTEES	Kind of Instrument	Book	Page	BRIEF DESCRIPTION	Cancelled
1927	Zimmerman		J U Lula		L V & Florida Calloway	Deed	271	294	Lt 12 A T Zimmerman Prop	
1927	Do	G L	Lena		Alan S O'Neal Tr	D of T	219	168	Part: Lt 76 Central Terrace	
1926	Do	Esther		Robt L	Wach Bk & Tr Co Tr	D of T	198	248	Lt 4 Blk 5 Wach Dev Co	
1926	Do	Esther		Robt L	H A Pfohl etal	Deed	278	2	Lt 4 Blk 5 Wach Dev Co	
1927	Do	E R			Sou Bell Tel & Tel Co	R of W	279	210	- - -	
1927	Do		J U Lula		Chas R Helsabeck Tr	D of T	224	30	Lt 11 A T Zimmerman Prop	CAN
1927	Do		Nora	Raymond	E T & Emma J Crater	Deed	285	209	Lt 451 Central Terrace Co	
1903	Virginia-Carolina	Chemical Co			Southern Ry Co	R of W	69	111	- - - Pg 1	
1908	Do	Do	Do		Central Tr Co of N Y Tr	D of T	63	1	For Cancellation See M B 152	
1910	Do	Do	etal		Oscar B Eaton etal	Deed & Release	100	151	28+ A Old Town Tp	
1910	Do	Do	etal		Ralph T Holbrook etal	Deed & Release	100	151	28+ A Old Town Tp	
1908	Do	Do			Piedmont Park Co	Deed	89	477	28+ A	
1910	Do	Do			Carolina Ore Co	Deed	100	415	3+ A 3 Tcts	
1916	Do	Do			J L & T E Day etal	Agmnt	D T 106	120	Prop North of W-Salem	
1916	Do	Do			Sou Power Co	R of W	145	171	- - -	
1917	Do	Do			Sou Bell Tel & Tel Co	R of W	153	17	- - -	
1918	Do	Do			W T Brown	Deed	157	159	2+ A Germanton Rd	
1921	Do	Do			W T & R L Brown	Deed	191	117	Lt D Liberty St	
1922	Do	Do			Central Union Tr Co of N Y Tr	D of T	152	5	14 A 2 Lts Old Town Rd Known As Original Pl Standifer Pl	
1922	Do	Do			Do Do Tr	D of T	152	5	36 A except 2+ A & 230 ft strips-166 A Wilson Tct	
1922	Do	Do			Do Do Tr	D of T	152	5	except 28+ A Lt C Norwood St	
1923	Do	Do	etal		Norfolk & Western Ry Co	Deed	225	54	2 A	
1926	Do	Do	etal by Recd		Va Carolina Chemical Co Rf	Deed Q C D &	264	151	19 Parcels with exceptions	
1926	Do	Do	Corp		R L Brown	Agmnt	264	182	Release of Sts & Rds	
1927	Do	Do	Do		Richard J Reynolds	Deed	279	122	179+ A 3 Tcts Middle Fork Tp	

1893 - 1927

Virginia Carolina Chem. owned property that they sold to Carolina Ore Co.

North Carolina Geological and Economic Survey
Economic Paper No. 38 1912

As will be seen from the above analyses, there is considerable variation in the metallic contents of the ore, but the iron content is good, and as they are all comparatively low in sulphur, phosphorus, and titanium, they will, therefore, make iron ores of high value.

Analyses I and II of ore from the Calloway property are low in iron, but they represent samples taken across the full width of the ore deposit, including gangue and waste. By hand cobbing this ore can readily be raised to a 55 to 60 per cent iron ore. The magnetite portion of the vein gives as high as 65 per cent metallic iron.

The ores represented by analyses III, IV, and VIII-A can also be easily concentrated by hand cobbing.

All the ores tested are a splendid grade of magnetite, and should make a pig iron of exceptional quality.

1911-12 Article

WATAUGA COUNTY IRON ORE.

About 7 miles southeast of Boone, Watauga County, and near Cook's Gap, there is an iron ore deposit known as the "Bull Ruffin." The ore is a magnetite, which is very pure, of rather schistose structure, with small octahedral crystals disseminated through it. This ore body is now attracting some attention on account of the construction of the Watauga and Yadkin River Railroad, which will pass near this property, and it is now being developed to determine something accurate about the quantity of ore that the deposit will contain.

A company known as "The Carolina Ore Company" of WinstonSalem was recently organized for the purpose of converting the refuse from a sulphuric acid plant into ore briquettes or nodules, which can be shipped to the iron furnace in Virginia. This company has made contracts with a number of other plants for their iron oxide refuse, with which they will make iron ore. In the manufacture of sulphuric acid from pyrite, if the ore is thoroughly roasted so that the sulphur is nearly completely driven off, the refuse, which is an iron oxide, will make a good ore of iron. In many instances the distance of transportation of this material to a blast furnace has prevented its being used as a source of iron.

PRODUCTION.

In 1911 and 1912 the production of iron ore for North Carolina was obtained entirely from the Cranberry Mine of Avery County. In 1911 this amounted to 84,782 long tons, valued at $148,369; in 1912, to 68,322 long tons, valued at $186,264.

There is given in the table below the production and value of iron ore for North Carolina from 1900 to 1912, inclusive:

Reference

The Mining Industry NC During 1911 & 1912
Joseph Hyde Pratt
State Geologist

Mail to: Brenner & Leslie F. Erquiaga (Name) (Street and Number) (City) (State) (Zip)

THIS DEED Made this the 27th day of February, 1974 by MORRIS BRENNER and wife, GERTRUDE P. BRENNER, and ABE BRENNER and wife, MIRIAM P. BRENNER

part ies of the first part, to BRENNER IRON AND METAL COMPANY, a North Carolina corporation of Forsyth County, North Carolina, part Y of the second part; Witnesseth that the said part ies of the first part, in consideration of ($ 1.00) One Dollar and the exchange of real estate to them paid by the said part Y of the second part, the receipt of which is hereby acknowledged, have bargained and sold, and by these presents do bargain, sell and convey unto the said part Y of the second part and its successors and assigns a tract or parcel of land in Forsyth County, North Carolina, in Winston Township, and bounded as follows:

See Exhibit A attached hereto and incorporated herein by reference.

The above land was conveyed to grantor by (See Book No. Page)

TO HAVE AND TO HOLD the aforesaid tract or parcel of land all privileges and appurtenances thereunto belonging to the said party of the second part and its successors heirs and assigns forever. And the said part ies of the first part do covenant that they is/are seized of said premises in fee and have the right to convey the same in fee simple; that the same are free from encumbrances; and that they will warrant and defend the said title to the same against the claims of all persons whatsoever, except easements, rights-of-way, restrictive covenants of record and 1974 ad valorem taxes.

IN TESTIMONY WHEREOF the said part ies of the first part have hereunto set their hands and seals

(Seal) (Seal)

(Seal) (Seal)

STATE OF NORTH CAROLINA — Forsyth County

I, Edith C. Preaster a Notary Public of Forsyth County, North Carolina, do hereby certify that MORRIS BRENNER and wife, GERTRUDE P. BRENNER and ABE BRENNER and wife, MIRIAM P. BRENNER grantor(s), each personally appeared before me this day and acknowledged the execution of the foregoing deed of conveyance.

(Notarial Stamp or Seal) Witness my hand and notarial seal or stamp this the 28 day of February, 1974

My commission expires August 25, 1975, 19 , Notary Public

STATE OF NORTH CAROLINA — Forsyth County

I, a Notary Public of Forsyth County, North Carolina, do hereby certify that grantor(s), each personally appeared before me this day and acknowledged the execution of the foregoing deed of conveyance.

(Notarial Stamp or Seal) Witness my hand and notarial seal or stamp this the day of , 19

My commission expires , 19 , Notary Public

STATE OF NORTH CAROLINA — Forsyth County

The foregoing (or annexed) certificate of Edith C. Preaster N.P. Forsyth Co., N.C. (here give name and official title of the officer signing the certificate passed upon) is (are) certified to be correct. This 28 day of February, 1974

STAMPS $ —

Probate and filing fee $ 3.50 paid

Drafted by:

Permanent address of grantee(s):

PRESENTED FOR REGISTRATION AND RECORDED FEB 28 4:45 PM '74

EUNICE AYERS REGISTER OF DEEDS FORSYTH CTY. N.C.

Eunice Ayers, Register of Deeds

By Janet Bottoms Deputy-Assistant

BOOK 1122 PAGE 209

424 RV-2

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, July 23, 2010 9:07 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 7/23/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Site visit conducted by David Mattison of NCDENR on Tuesday, July 20th.
2. Completed soil stabilization activities in Removal Area 5.
3. Completed soil removal in Removal Area 5, pending final confirmation sample results.
4. Continued post-excavation survey of Removal Area 5.
5. Continued backfill of completed removal areas on northeast side of highway.

Soil Removal Status	
Removal Area	% Complete
1	100%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Complete post-excavation surveys.
2. Complete backfill of completed removal areas on northeast side of highway.
3. Complete final restoration and seeding.
4. Demobilize from the site.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Infrastructure, environment, buildings

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North Carolina 27518
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Mr. Craig Zeller
Superfund Division
USEPA – Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Subject:
Removal Site Evaluation Report
VCC Site - Charlotte, North Carolina

Date:
July 21, 2010

Dear Mr. Zeller:

Enclosed for your review are three (3) copies of the Removal Site Evaluation Report for the former Virginia-Carolina Chemical Corporation Site located in Charlotte, North Carolina. This report was prepared by ARCADIS G&M of North Carolina, Inc. on behalf of Exxon Mobil Environmental Services (EMES). If you have any questions or concerns, please feel free to call me or Steven Schmidt of EMES at 703-846-1005.

Sincerely,

ARCADIS G&M of North Carolina, Inc.

Matthew Pelton, P.E.
Senior Environmental Engineer

Copies:
David Mattison, NCDENR (2 copies)
Steven Schmidt, ExxonMobil
Geoff Germann, ARCADIS
Kirstyn White, ARCADIS
File: 85793

Contact:
Matthew Pelton

Phone:
919-415-2308

Email:
Matthew.pelton@
Arcadis-us.com

Our ref:
B0085793

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, July 16, 2010 4:36 PM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Bowman, Matthew; Germann, Geoff; Beswick.Kevin@epamail.epa.gov
Subject: 7/16/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Completed soil removal in Removal Areas 1, 2, and 6.
2. Continued soil stabilization activities in Removal Area 5.
3. Continued soil removal in Removal Area 5.
4. Conducted post-excavation survey of Removal Areas 1, 2, and 6.
5. Continued post-excavation survey of Removal Area 5.
6. Continued backfill of completed removal areas on northeast side of highway.
7. Completed backfill of Removal Area 13.

Soil Removal Status	
Removal Area	% Complete
1	100%
2	100%
3	100%
4	100%
5	75%
6	100%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue soil stabilization activities on northeast side of highway.
2. Continue soil removal activities on northeast side of highway.
3. Continue backfill of completed removal areas on northeast side of highway.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, July 09, 2010 11:24 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 7/9/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Completed soil removal in Removal Areas 7 and 8.
2. Continued soil stabilization activities in Removal Area 5.
3. Continued soil removal in Removal Areas 5 and 6.
4. Conducted post-excavation survey of Removal Areas 7 and 8.
5. Continued post-excavation survey of Removal Area 5.
6. Started soil removal in Removal Areas 1 and 2.
7. Started backfill of Removal Areas 7 and 8.

Soil Removal Status	
Removal Area	% Complete
1	100%
2	50%
3	100%
4	100%
5	60%
6	50%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue soil stabilization activities on northwest side of highway.
2. Continue soil removal activities on northwest side of highway.
3. Continue backfill of completed removal areas on northwest side of highway.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Thursday, July 01, 2010 11:38 AM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 7/1/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Completed soil removal in Removal Area 3.
2. Continued soil stabilization activities in Removal Area 5.
3. Continued soil removal in Removal Area 5.
4. Start soil removal in Removal Area 6.
5. Continued post-excavation survey of portions of Removal Area 5.

Soil Removal Status	
Removal Area	% Complete
1	0%
2	0%
3	100%
4	100%
5	30%
6	35%
7	0%
8	0%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue soil stabilization activities on northwest side of highway.
2. Continue soil removal activities on northwest side of highway.
3. Continue backfill of completed removal areas on northwest side of highway.

ACTION ITEMS/OTHER

1. Ken Mallary and David Mattison to make site visit on July 7.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Documentation of Site 31FY1160**, Proposed Improvements to US 52 from I-40 Bypass to NC 65, Winston-Salem, Forsyth County

NCDOT TIP U-2826B; Federal Aid No. NHF-52(4);
ER # 05-0934

By Caleb Smith

N.C. Department of Transportation,
Project Development and Environmental Analysis Branch,
Human Environment Unit

July 2008

Management Summary

On April 3, 2008 North Carolina Department of Transportation (NCDOT) archaeologists Caleb Smith and Ben Jackson inspected site 31FY1160**, the remains of a structure located near the proposed US 52 improvements in Winston-Salem (NCDOT TIP U-2826B). The proposed improvements to US 52 will improve intersections at a number of streets in the vicinity of US 52, close several on- and off-ramps, convert US 52 shoulder lanes to traffic lanes, replace two of the US 52 bridges, and improve Martin Luther King Drive. It will not impact any landforms with the potential for intact archaeological resources. The North Carolina State Historic Preservation Office (HPO) recommended no archaeological investigations for the project on February 15, 2007 (ER 05-0934).

This project was not an archaeological survey, and the goal was not to conduct a field survey of the Area of Potential Effects (A.P.E.). A survey had not previously been conducted for the US 52 improvement projects because the HPO had not requested one, and NCDOT archaeologists were not involved until NCDOT Natural Environment Unit (NEU) personnel identified the structural remains during the delineation of wetlands and streams for the project. The goal was therefore to investigate the structure, record its physical aspects, determine its age, origin, and purpose, and evaluate it for potential inclusion on the National Register of Historic Places (NRHP).

The structure is located on the east side of US 52 approximately 518 meters (1,700 feet) south of where it crosses over Glenn Avenue. It is a short distance (2 meters [6 feet]) outside of the existing US 52 right of way (ROW) and will not be impacted by the improvement project. It is a cement structure approximately 30 meters (100 feet) long and 10 meters (33 feet) wide, with arched windows and an arched entrance. Background research concluded the structure may have been the foundation of a rotary kiln in the Carolina Ore Company Nodulating Plant. The rotary kiln operated from circa 1912 to the late 1920s.

Site 31FY1160** is recommended ineligible for the NRHP due to a lack of integrity. This is actually a part of a larger structure, and that was only one of several that made up an industrial complex. Almost all of the structures were removed when the company shut down, and/or they were destroyed by the construction of US 52. This site has been disturbed and is not an intact resource. The foundation alone cannot add much to our knowledge of the Carolina Ore Company, of Winston-Salem's industrial past, or the workings of a nodulating plant. Because of all these factors the structure is recommended ineligible for the NRHP and no further archaeological work is recommended.

Table of Contents

List of Figures

Chapter 1: Introduction

On April 3, 2008 North Carolina Department of Transportation (NCDOT) Archaeologists Caleb Smith and Ben Jackson inspected the remains of a structure (site 31FY1160**) located near the proposed US 52 improvement project (NCDOT TIP U-2826B) in Winston-Salem (Figure 1). The project will include improving intersections at a number of streets in the vicinity of US 52, closing several on- and off-ramps, converting US 52 shoulder lanes to traffic lanes, replacing two of the US 52 bridges, and improving Martin Luther King Drive. The structure is located on the east side of US 52 approximately 518 meters (1,700 feet) south of Glenn Avenue. Two of the improvements will be implemented in the vicinity of the structure (Figure 2). Alternative 9 will include changes to the interchange at Akron Drive located approximately 900 meters (2,953 feet) north of the structure. The replacement of the US 52 bridge over the Norfolk-Southern Railroad is located approximately 400 meters (1,312 feet) south of the structure. Both of these improvements will be conducted within the existing right of way (ROW) of US 52 and will not impact the structure.

The US 52 improvement project will receive Federal funding and permits. Therefore the Federal Highway Administration (FHwA), with the NCDOT acting as its agent, must consider the protection of historic and archaeological resources in the decision-making process of transportation projects. The NCDOT, in consultation with the State Historic Preservation Office (HPO), must make a "reasonable and good faith effort" to identify historic properties that may be effected, and gather sufficient information to evaluate their eligibility for inclusion on the National Register of Historic Places (NRHP). The NCDOT began consultation with the HPO when the Project Development Engineer provided information about the project on April 28, 2005. An Area of Potential Effects (A.P.E.) had not yet been determined, so the HPO was given a large study area. HPO recommended that a historic background research report be prepared to identify all potentially historic resources within that study area on August 22, 2005 (ER 05-0934). However, NCDOT archaeologists narrowed down the study area by providing additional information about the improvements to HPO on November 20, 2006. This showed the A.P.E. consisted of disturbed ROW in a heavily developed part of Winston-Salem. HPO recommended no archaeological investigations for the project on February 15, 2007.

This archaeological project was conducted because NCDOT's Natural Environment Unit personnel reported structural remains adjacent to the project area, not because of a survey request from HPO. This report describes the investigation of the structure and the efforts to identify its origin, age, and purpose, only. It was not an archaeological survey of the A.P.E. of the US 52 project.

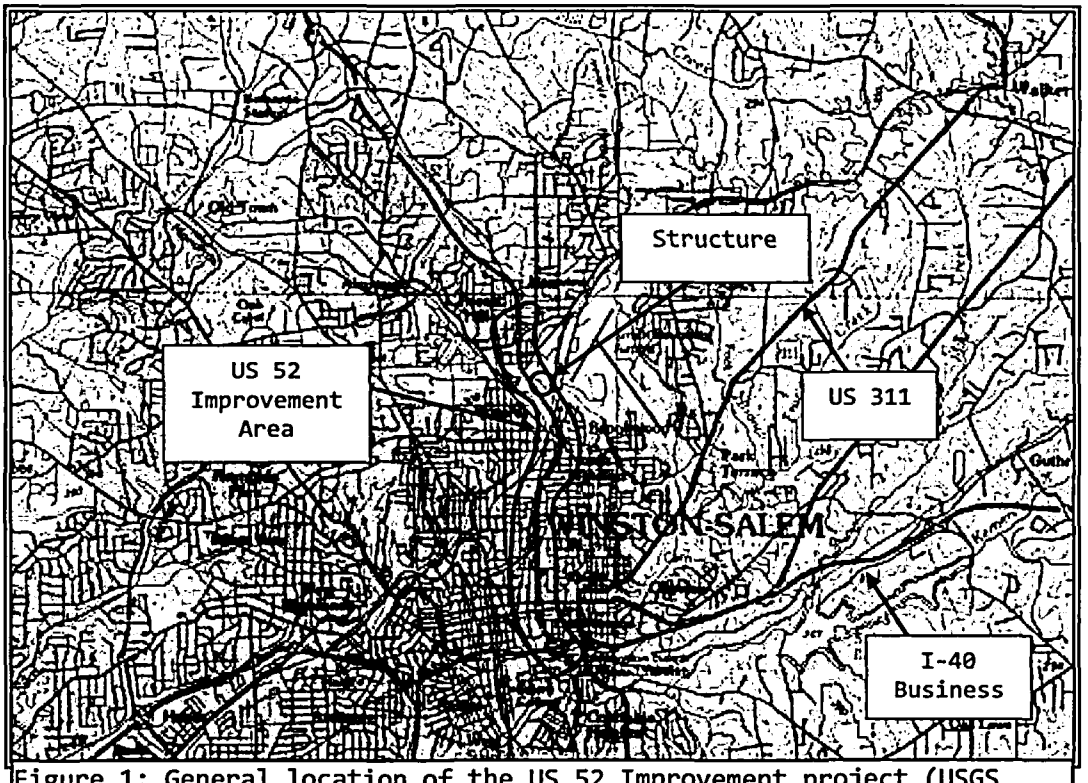


Figure 1: General location of the US 52 Improvement project (USGS 1985 *Winston-Salem, N.C.* 1:100,000 scale topographic map).

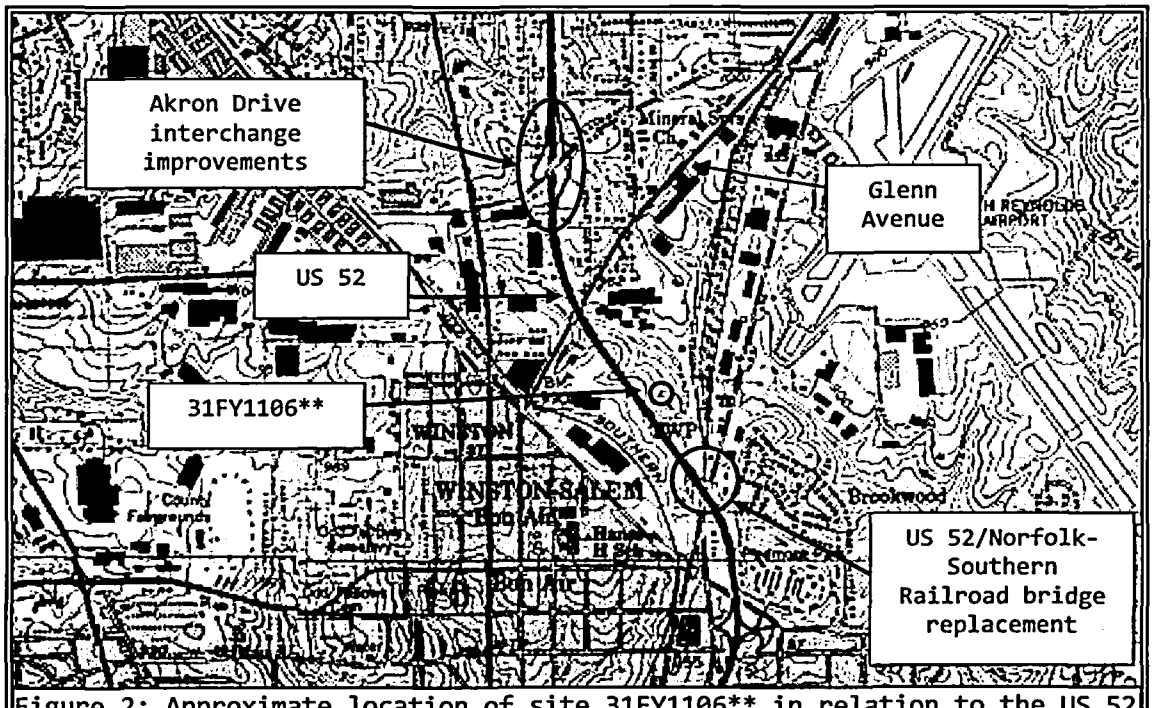


Figure 2: Approximate location of site 31FY1106** in relation to the US 52 improvements (USGS 1971 *Walkertown, N.C.* 1:24,000 scale topographic map).

Chapter 2: Field Inspection

NCDOT archaeologists Ben Jackson and Caleb Smith inspected 31FY1160** on April 3, 2008 (Figures 3 and 4). The field inspection was not an archaeological survey of the A.P.E. of the US 52 improvement project. As described in Chapter 1, HPO had recommended no archaeological survey because of the limited extent of the improvements, and because the improvements would not impact any landforms with archaeological potential. This field inspection was conducted solely in response to the report by NCDOT NEU personnel in February 2008. It was a visual examination only and no shovel tests were excavated.

The structure is shown on the public hearing map for the US 52 project (Figure 5). The structure is located approximately 10 meters (33 feet) east of the US 52 pavement and 20 meters (65 feet) west of a gravel road. (For the purposes of this description both US 52 and the railroad tracks are "grid" north although US 52 is actually 330° [northwest].) The gravel road provides access to the structure from the north. There is a locked gate from the Recycling Industries of Winston-Salem facility located to the north on Glenn Avenue. The structure is located approximately 100 meters (328 feet) south of the gate. The gravel road continues south to the US 52 bridge over the Norfolk and Western Railroad tracks.

The structure measures approximately 30 meters (100 feet) long (east/west) and 10 meters (32 feet) wide (north/south). There is no roof over the eastern three-fourths of the structure and no visible evidence of roof supports. The western quarter of the structure does have a roof (or the floor of an upper story?). The outer walls of the structure are cement made with large gravel (Figure 6). Steel rails are located along the top edge of some of the walls. The walls are 30-centimeters (1-foot) thick and have built-in column supports that measure 61 centimeters (2 feet) square. The building has an arched entrance on the east side and four arched windows each on the north and south walls.

Visual examination did not provide many clues about the building's age or purpose. It is constructed of cement, a building material that is difficult to use as an indication of age. It does not appear to be modern because there are no modern construction materials like cinderblocks or cored bricks (with holes in them). About the only clues are the arched windows and doors that could indicate the "Romanesque Revival" style of the late nineteenth century (Taylor 1981:237). There are several hardwood trees growing inside of the structure. Based on their size they appear to be 20-30 years old.

There is a small cement pad (foundation?) located approximately 5 meters (16 feet) to the south. Coal is scattered around this area, and there are two small cement pylons located on the south side of the pad. Each pylon has a piece of rebar or a bolt sticking out of the top. The pylons are shaped like pyramids and are approximately 1 meter (3 feet) tall. They may have been supports for some kind of machinery like a conveyor or sluice.

Figure 3: Northwest view of the structure.

Figure 4: South view of the structure.

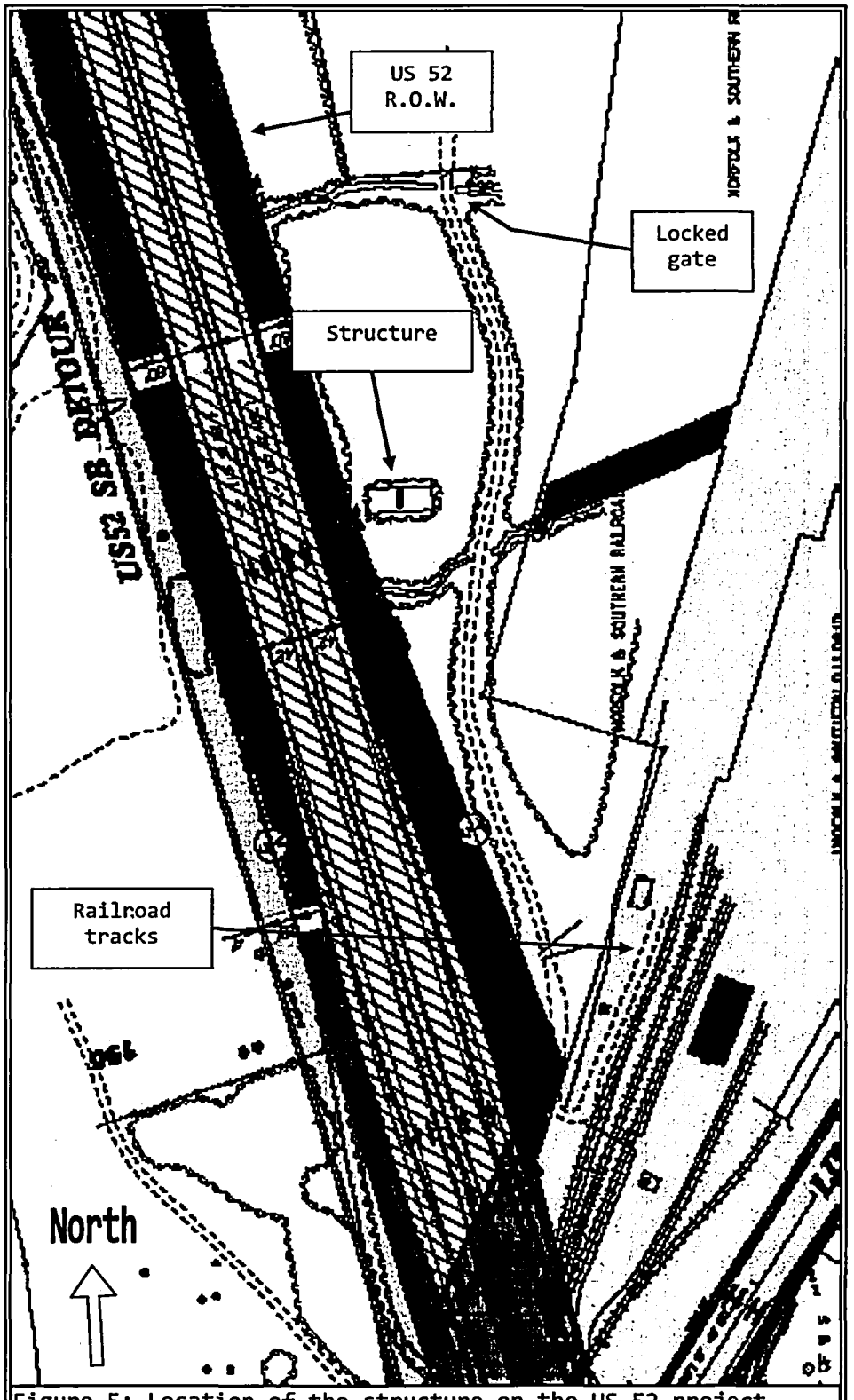


Figure 5: Location of the structure on the US 52 project Public Hearing Map.

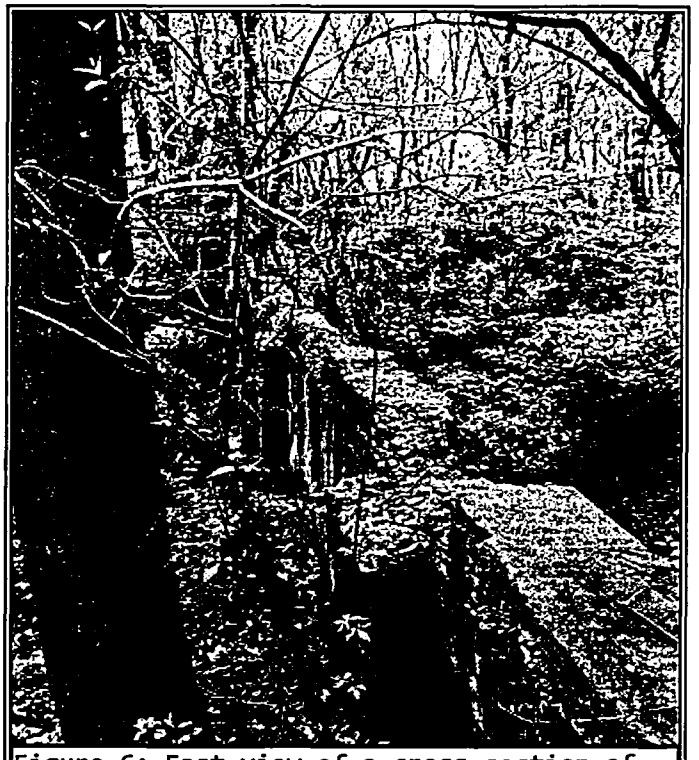


Figure 6: East view of a cross-section of the structure walls.

There are several drainage ditches and/or creek beds in the area, some of which could be man-made drainage for US 52. The 1951 edition of the topographic map shows two permanent streams in this area. A deep east/west ditch is located approximately 40 meters (131 feet) south of the structure. This could be a natural stream bed or a US 52 drainage ditch.

The area is very overgrown so it was hard to see any other surface features (Figure 8). While I did not inspect all of the surrounding area, there are several disturbed areas along the gravel road from the gate south to the railroad tracks. It was assumed that this location would be disturbed to some extent because it is between US 52 and the railroad tracks, and this was the primary reason the HPO did not recommend an archaeological survey. In general, developed areas have little potential for intact archaeological sites due to disturbance from construction, maintenance, and landscaping. The disturbance at this location could have also been caused either by construction of other buildings or from the dumping of construction rubble. For example, during the initial search for the structure I climbed on top of a mound of building rubble located inside the fence to the north of the structure. Also, the ground in many places feels unstable as if there was a landfill underneath, and examination of drainage cut banks and road cuts show building materials eroding out of the soil.

Figure 7: Southwest view of the dense undergrowth around the structure.

There are several plastic pipes sticking out of the ground at various locations. The pipes are anchored in cement and have padlocks on them. NCDOT Natural Environment Unit staff led me to the Superfund Section of the North Carolina Department of the Environment and Natural Resources (NCDENR) in Winston-Salem. According to Mr. Collin Day, staff with the Superfund Section, the pipes are groundwater monitoring wells installed in summer 2005 (personal communication 2008). Mr. Day provided much helpful information about the environmental conditions at the site as well as about the origin of the structure. Mr. Day has long been interested in the structure and has researched the history of this area. He provided a copy of an Environmental Assessment of a nearby tract of land that used to be owned by the NCDOT (CLP Services [CLP] 2005). This report has an extensive section about the industrial history of this area, and it will be discussed more in the next sections.

Chapter 3: Background Research

Methods

The background research section is presented after the fieldwork section because the project was conducted in that order. It began as a response to a report from NCDOT NEU personnel about structural ruins near the project area. The examination of the structure and surrounding area raised many questions about its age, origin, and purpose.

The background research effort included a review of previously recorded archaeological sites in the area, and the examination of historic maps, histories of Forsyth County and Winston-Salem, and other documentary sources about the industrial development of this area. The review of previous archaeology was conducted at the North Carolina Office of State Archaeology in Raleigh. There are no previously recorded archaeological sites in the vicinity. Historic maps used for this project included Fries (1898), Miller (1907), Sanborn-Ferris Map Company (1900), Sanborn Map Company (1907, 1912, 1917), U.S. Department of Agriculture (USDA [1913]), and USGS (1951). Not all of these maps will be included in the report because some were not very helpful. Published histories of Winston-Salem and Forsyth County are located at the State Archives Library in Raleigh. These included Fries et al. (1976), Rondthaler (1928), Taylor (1981), Shirley (1994), Brownlee (1977), Mellman and Tise (1976), and Smith (1977).

Background research also included an examination of a collection of records about the Southern Chemical Company/ Virginia-Carolina Chemical Company. These are located at the Special Collections Department of the William Madison Randall Library at the University of North Carolina in Wilmington. The special collection (#105) is called "Documents Relating to the Fertilizer Industry". It contains files about the companies including specific information about the Forsyth County factory located adjacent to the project area. The Forsyth County information is located in 66 folders within Box 6 of Special Collection 105, so the information will be referenced by collection (105), box (66), and file number.

The environmental evaluation report of an adjacent tract of land (CLP 2005) included a land use history that was extremely helpful for this project. Mr. Fambrough Brownlee, librarian at the Forsyth County Library Central Branch's North Carolina Room, provided information about the Carolina Ore Company.

Historic Maps

Since the field examination identified the remains of an historic structure the first step was to examine maps of the Winston-Salem area from the late 1800s through the mid 1900s. The map by Miller (1907) is a very detailed map of the area (Figure 8). It shows roads, railroads, major streams, and structures, including the name of the business or resident. The main landmark that can be used to locate the project area is the place on the north side of Winston where the two railroads separate. The Northwestern North Carolina Railroad continues

to the northwest and the Roanoke-Southern Railroad turns to the northeast. The project area is located between the railroads to the north of where they part ways.

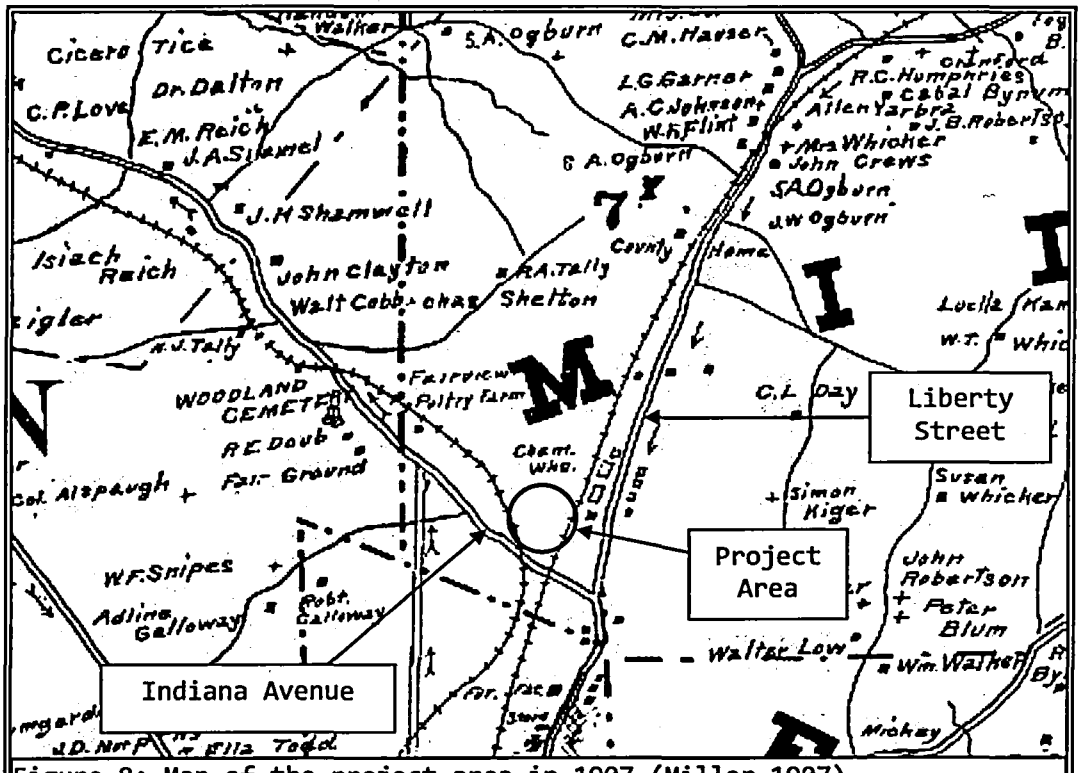


Figure 8: Map of the project area in 1907 (Miller 1907).

The road that would later become Liberty Street runs along the east side of the *Roanoke and Southern,* and the road that would become Indiana Avenue runs along the southwest side of the *Northwestern North Carolina.* The project area is located to the north of where future Indiana Avenue crosses the railroad tracks. No structures are shown in the project area. There are several large buildings located to the east between Liberty Street and the railroad tracks labeled "Chem. Whs."

The 1913 soil map (USDA 1913) is a detailed map that shows soil types, roads, railroads, streams, and structures (Figure 9). There may be a structure in the project area but it is hard to tell because the map is somewhat crowded at that point. The map shows that there was not much development near the project area at that time.

The Sanborn Fire Insurance maps of Winston-Salem are extremely detailed depictions of almost every building and house in the city. The 1900 map (Sanborn-Ferris Map Company 1900) shows the Southern Chemical Company Fertilizer Works at this general location. Later Sanborn maps (Sanborn Map Company 1907, 1912, 1917) show the fertilizer works belonging to the Virginia-

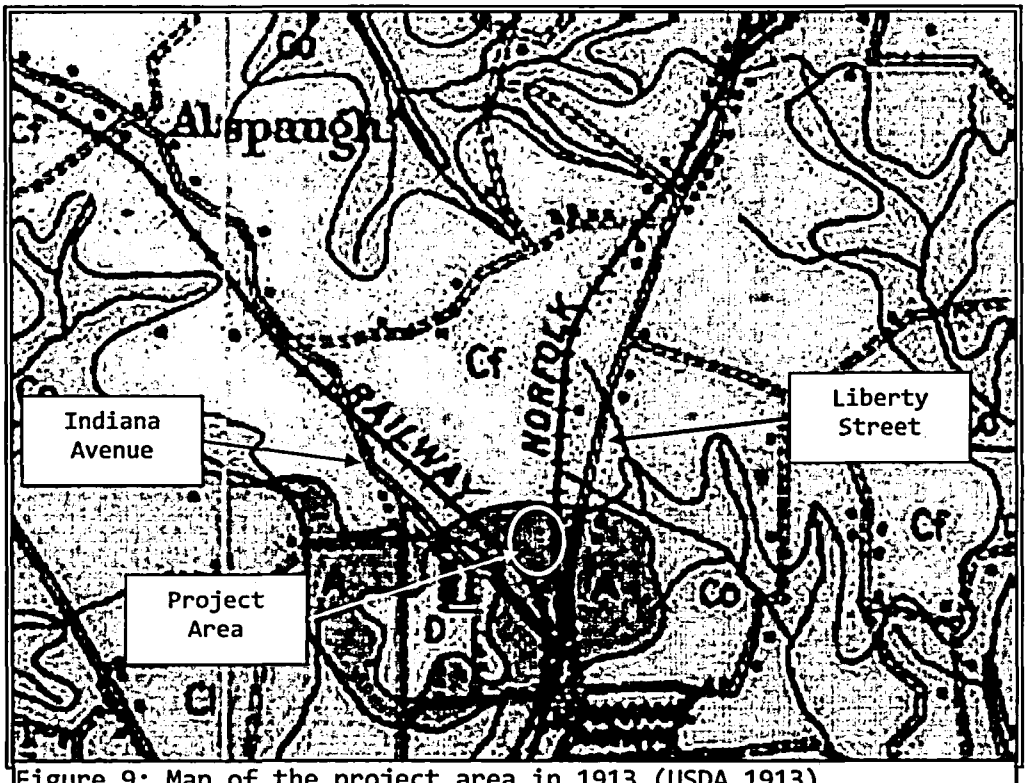


Figure 9: Map of the project area in 1913 (USDA 1913).

Carolina Chemical Company. The chemical factory facility is shown on the Sanborn maps until 1917 (Figure 10). These maps provide detailed diagrams of the fertilizer factory from 1900 to 1917. There is a group of buildings located to the northwest of the factory labeled the Carolina Ore Company Nodulating Plant. The Carolina Ore Company appears on the Sanborn maps from 1912 to 1917.

The structure may be one of the buildings shown on the Sanborn maps but it is difficult to identify which one. There are few reliable landmarks to use for reference. Today the major feature is US 52, but it was not constructed until sometime after 1951.

Identification of the Structure

The maps indicate site 31FY1160** was probably one of the Virginia-Carolina Chemical Company or Carolina Ore Company buildings. A landmark that is shown on the Sanborn maps and the modern maps is needed to identify which building it may have been. Although the Sanborn maps have accurate scales and direction, the task is challenging because the construction of US 52 destroyed, disturbed, and rearranged many of the natural and man-made features in the area.

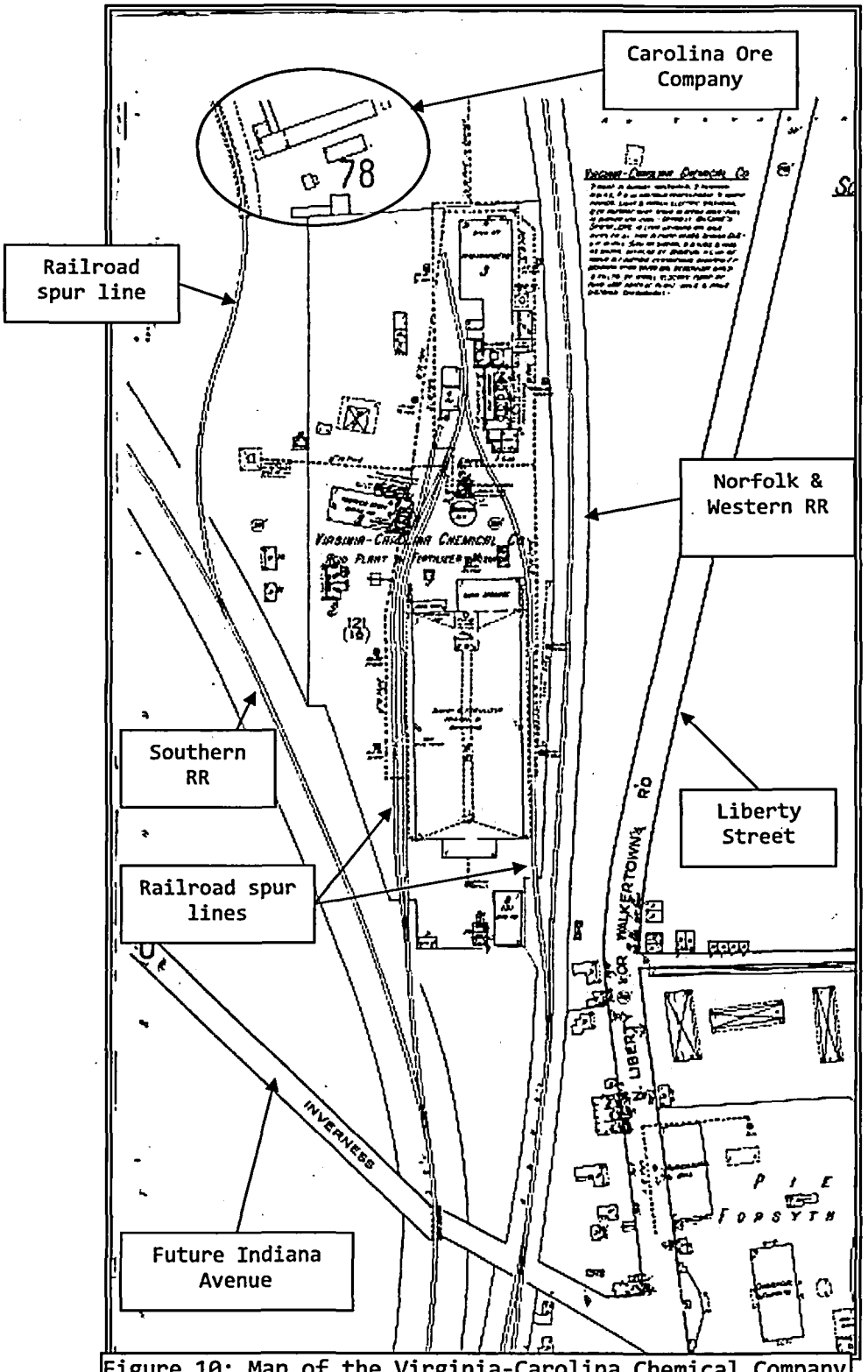


Figure 10: Map of the Virginia-Carolina Chemical Company fertilizer works in 1917 (Sanborn Map Company 1917).

The Sanborn maps show the fertilizer plant located along the west side of the Norfolk & Western Railroad. The distance from the railroad as shown on the Sanborn map may not be reliable because it has expanded to approximately five rail lines since the early 1900s, and it is not known whether the expansion was west or east from the original line. The records of the Virginia-Carolina Chemical Company indicate the railroad companies built several spur lines into the factory complex. When the factory shut down the company removed the buildings and the railroad removed their spur lines and purchased several tracts of land within or adjacent to the factory. Figure 11 is a property map showing a 2-acre section of land along the east side of the railroad (between it and Liberty Street) that was sold to the *Norfolk and Western* in 1923 (105/6/52). This indicates the railroad probably expanded in that direction.

Liberty Street is another landmark that can be used for orientation. It is not shown on the 1900 and 1907 Sanborn maps, and only the southern part is shown on the 1912 map. In the early 1900s the project area was located at the northern edge of development so the Sanborn maps did not include much of the surrounding area. The 1917 map shows Liberty Street in the same general location as today (along the eastern side of the railroad), but it is difficult to identify which part of Liberty from which to take a measurement. Liberty Street gradually moves away (east) from the railroad tracks as it continues to the north, so there is no recognizable point on the street from which to measure. Also, it has almost certainly been expanded and/or realigned since then. For instance, the 1920s property map in Figure 11 shows an old version of Liberty Street ("abandoned Germanton Road") located along the west side of what was then the "new concrete road (Liberty Street)." This may have replaced the version of Liberty Street (also called Walkertown Road) shown on the 1917 Sanborn map. The route of Liberty Street has probably been altered since then with the expansion of the railroad and the construction of the airport. Liberty has probably been realigned to some extent to accommodate the entrance and exit ramps for US 52, also.

The 1917 Sanborn map shows a road called "Inverness" that crosses the railroad tracks to the south of the factory. This road was presumably named for the Inverness Cotton Mill established in 1910 (Rondthaler 1928:2981). The cotton mill is shown on Figure 11 but the road is named Old Town Road. In any case, the road appears to be the one that would become Indiana Avenue. If Indiana Road is has remained in approximately the same location, the intersection of it and the railroad tracks would be a good landmark to use for measurement.

It is difficult to use the modern topographic map because the structure is not shown on it. Likewise the public hearing map in Figure 5 can't be used because it doesn't show the intersection of Indiana Avenue and the railroad. The modern aerial photograph does show the intersection, but the structure is not visible (Figure 12). (The red line in this photograph is <u>not</u> the A.P.E.) The location of the structure can be identified by using a measurement taken in the field from two landmarks that are visible in the photograph, the access gate and gravel road from the recycling center. Field measurements indicate the structure is located approximately 100 meters (328 feet) south of the gate and 20 meters (66 feet) west of the gravel road. This places the structure

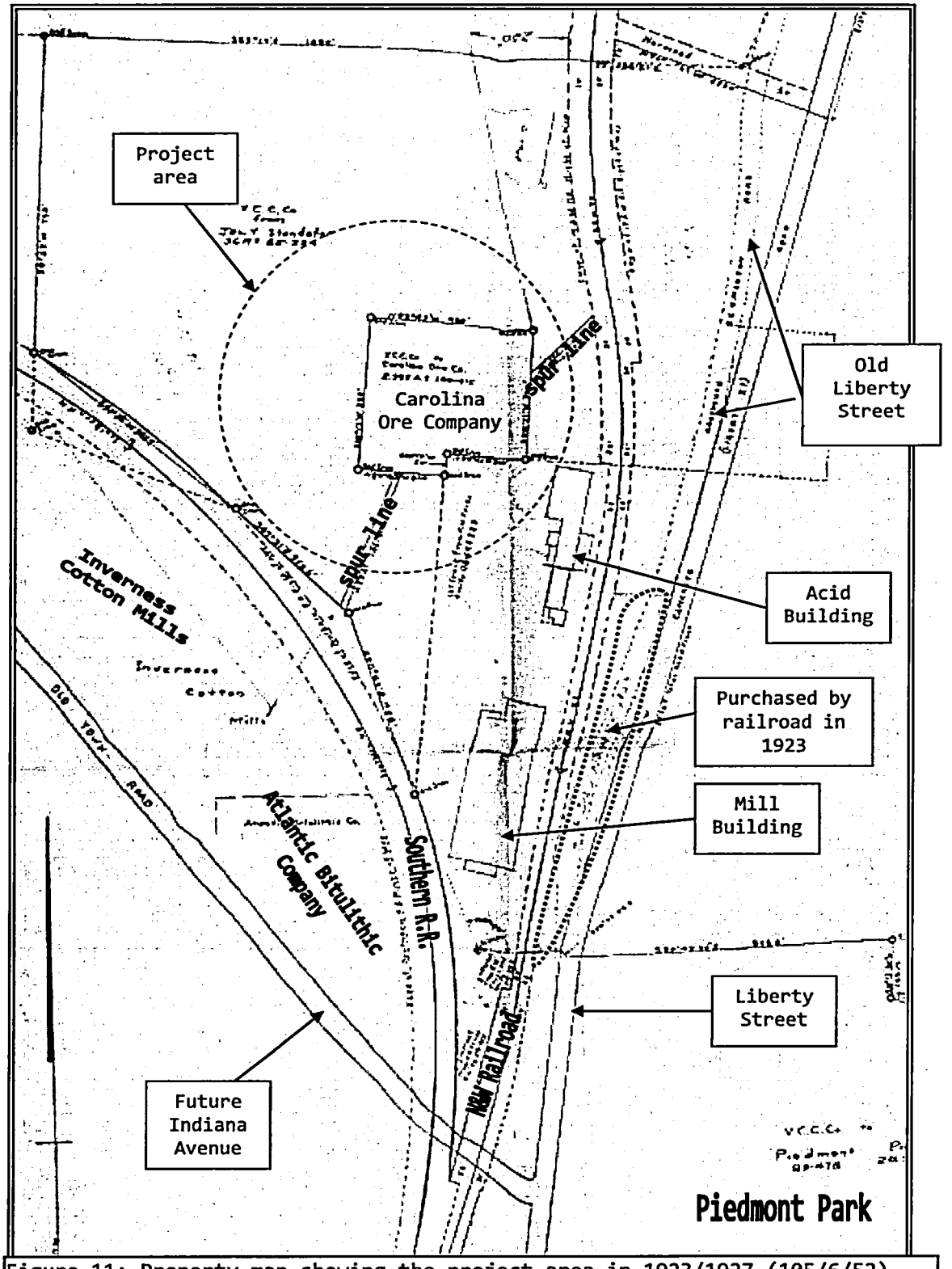


Figure 11: Property map showing the project area in 1923/1927 (105/6/52).

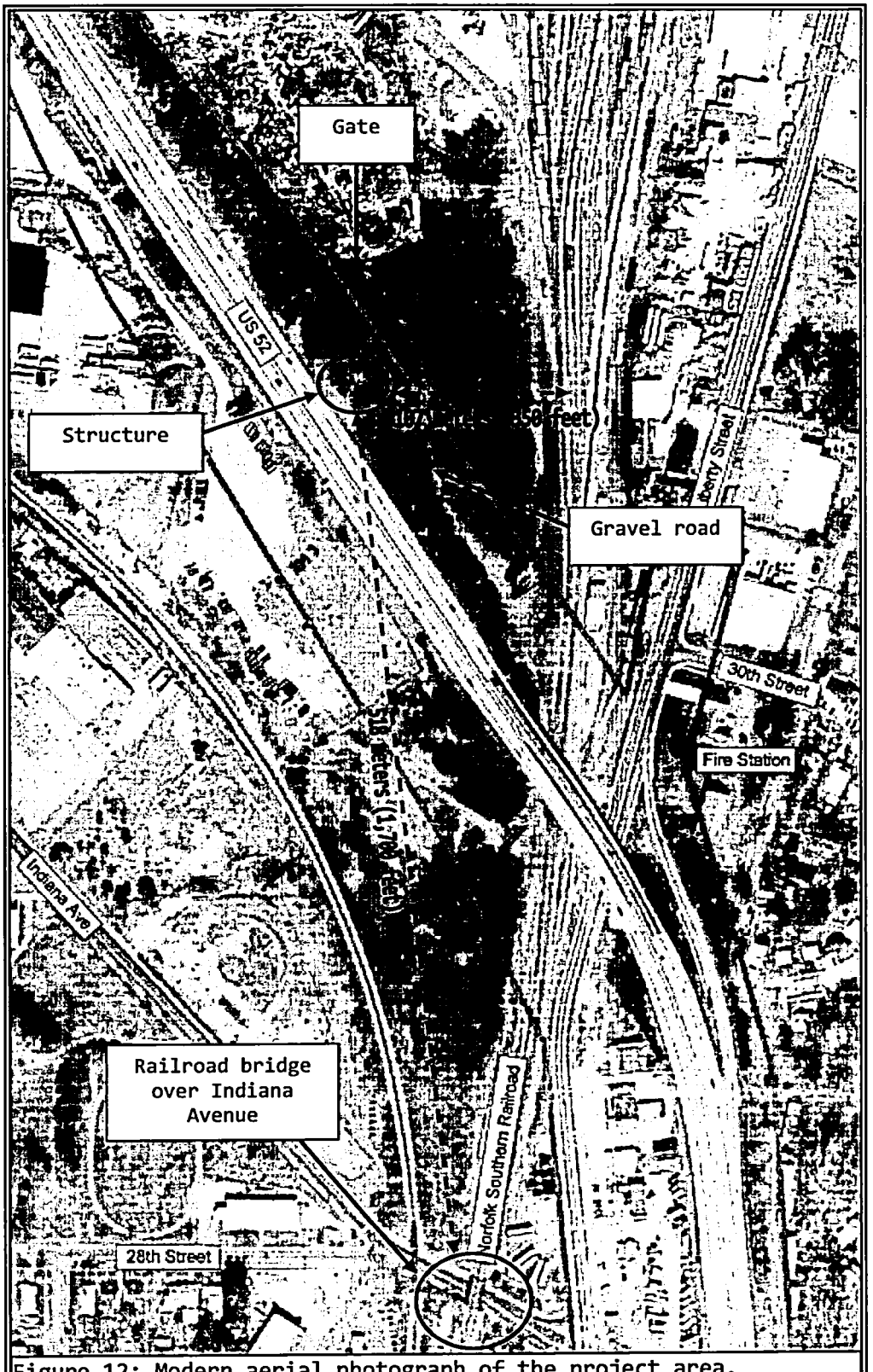


Figure 12: Modern aerial photograph of the project area.

approximately 518 meters (1,700 feet) north of the railroad bridge over Indiana Avenue and approximately 107 meters (350 feet) west of the railroad tracks. If those scale measurements are correct and are applied to the Sanborn maps, the structure would be located within the Carolina Ore Company nodulating plant located on the north side of Virginia-Carolina. However, this conclusion is tentative because the two factories were only separated by approximately 60 meters (200 feet). Historic map measurements should always involve some margin of error, and 60 meters (200 feet) is certainly within the margin.

The comprehensive environmental report (CLP 2005) discusses the industrial contaminants that could have been produced by the former industries located at an old asphalt testing facility located across US 52 from the project area. In order to track potential pollution sources it provides a detailed land use history of the Virginia-Carolina Chemical Company property, the area along the Norfolk Southern Railway, and the Carolina Ore Company property. It bases much of the land history on the Sanborn maps and aerial photographs taken in the 1960s. The aerial photographs show the project area before, during, and after the construction of US 52 (CLP 2005: Figures 20, 22, 24, 26). The 1960 aerial shows the former location of the Virginia-Carolina acid building, the outlines of several other buildings, and railroad spur lines. As described above all buildings and spur lines had been removed from the factory property by the late 1920s. But most important is that the aerial photographs clearly show the outline of the structure that is the subject of this report (Figures 13 and 14). They identify the building as the Carolina Ore Company's "rotary kiln foundation."

The Carolina Ore Company Rotary Kiln

CLP (2005) concluded that the structure was the foundation of the rotary kiln of the Carolina Ore Company nodulating plant. This agrees with the results of my analysis in the previous section. However, my conclusions were tentative because of the considerable disturbance that has occurred in this area, the shortage of reliable landmarks, and the margin of error that should be accepted when using historic maps. The authors of the CLP (2005) report do not support their conclusion. Perhaps it was not necessary since the subject of the report, "Site 54," was located on the other side of US 52. My background research cannot confirm that the structure was one of the buildings in the Carolina Ore Company nodulating plant, but it is the working hypothesis.

The Carolina Ore Company was organized in 1910 with $125,000 capital stock and it filed capital reports with the North Carolina Corporations Commission until 1912. Its charter was revoked in 1924 because of failure to file (CLP 2005:32-33). The company is mentioned in Rondthaler (1928:28), who states it was established in 1910 "to convert the by-products of the fertilizer plants of this section into high-grade furnace ore." According to Pratt (1914:72):

> "A company known as the 'Carolina Ore Company' of Winston-Salem was recently organized for the purpose of converting the refuse from a

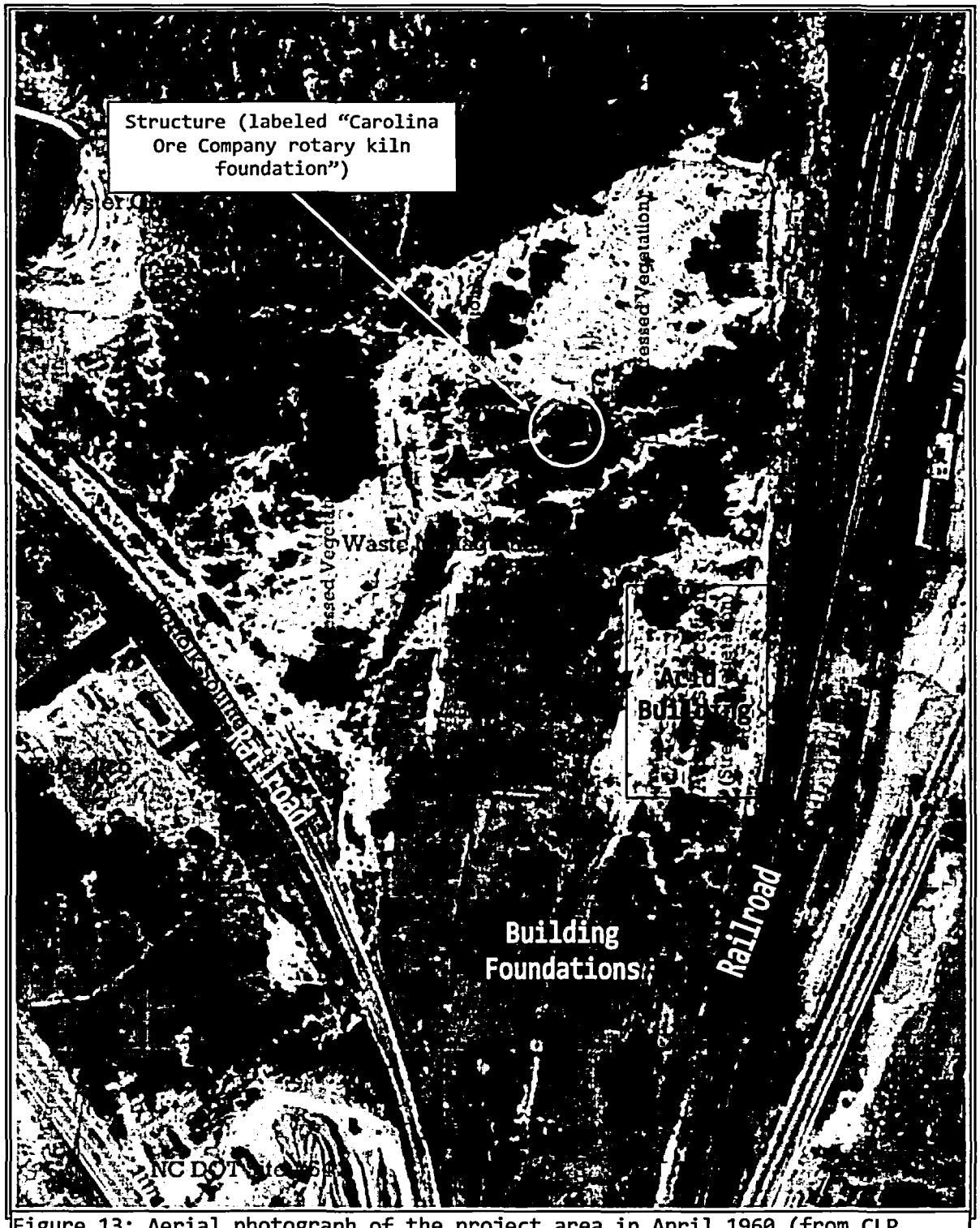


Figure 13: Aerial photograph of the project area in April 1960 (from CLP 2005: Figure 38).

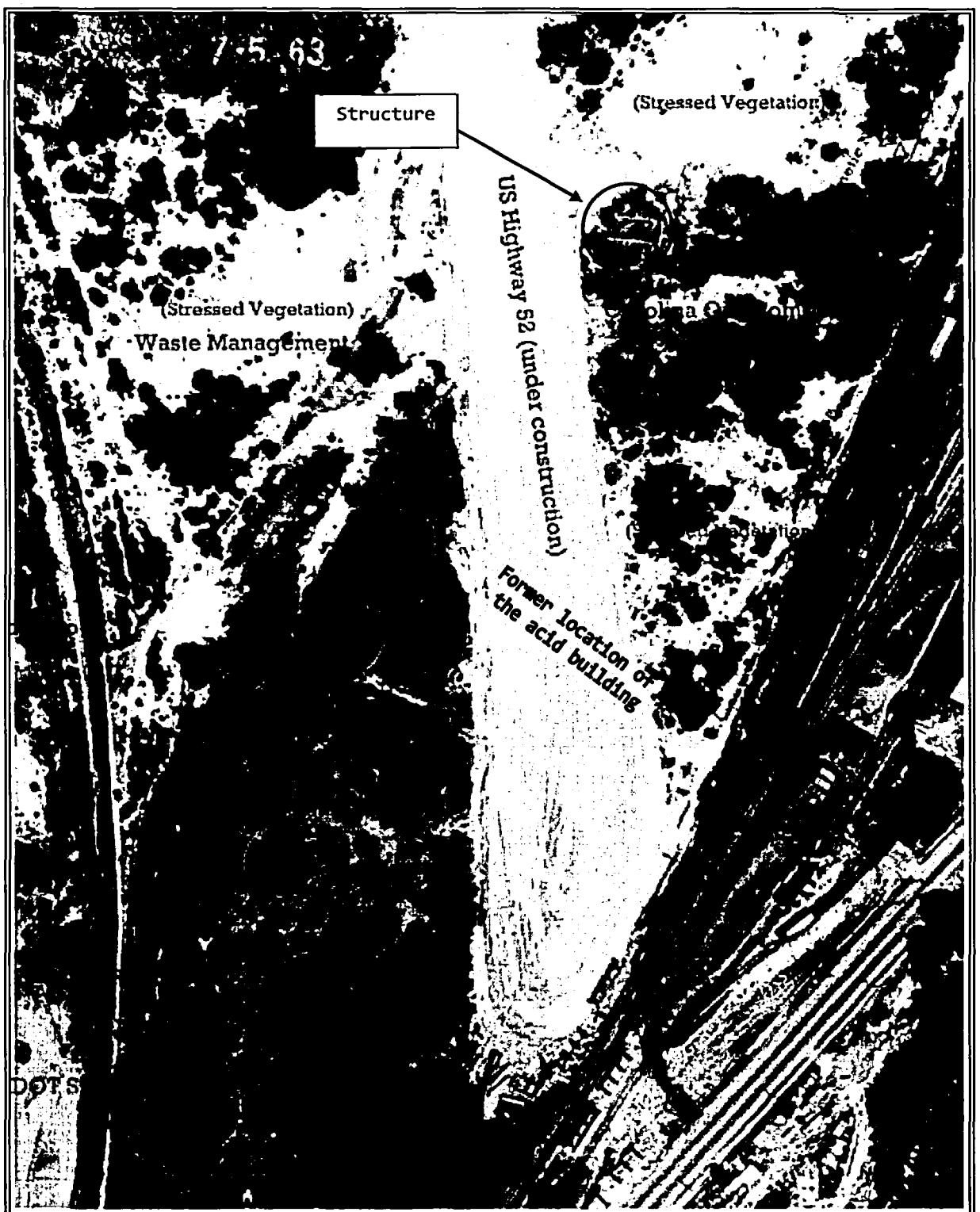


Figure 14: Aerial photograph of the project area in July 1963 (from CLP 2005: Figure 24).

> sulphuric acid plant into ore briquettes or nodules, which can be shipped to the iron furnace in Virginia. This company has made contracts with a number of other plants for their iron oxide refuse, with which they will make iron ore."

Carolina Ore is listed in the Winston-Salem City Directories from 1911 through 1923. The directories list J.L. Ludlow as President and W.T. Brown as Secretary/Treasurer. It may have been a subsidiary of the Virginia-Carolina Fertilizer Company. Virginia-Carolina was a huge corporation that had dozens of subsidiaries (United States Federal Trade Commission [FTC] 1916:182), and it would be a logical relationship since Carolina Ore did use the byproducts of the fertilizer factory. Virginia-Carolina did have several affiliated companies that were not involved in fertilizer manufacturing, including several phosphate mining companies (FTC 1916:191). Another link is that Carolina Ore's Secretary/Treasurer, William T. Brown, was on the Board of Directors of the Southern Chemical Company and was President of the Union Guano Company, both owned by Virginia-Carolina. Also, City Directories show that Virginia-Carolina, Union Guano, and Carolina Ore had offices in the same building, the Masonic Temple. An argument against a connection is that there is no mention of this relationship in any of the Virginia-Carolina company papers, and the industry report by FTC (1916) does not mention any connection between them, either. According to Pratt (1914:72):

> "In the manufacture of sulfuric acid from pyrite, if the ore is thoroughly roasted so that the sulfur is nearly driven off, the refuse, which is an iron oxide, will make a good ore of iron. In many instances the distance of transportation of this material to a blast furnace has prevented its being used as a source of iron."

The iron oxide refuse was then cooked and dried to avoid excess freight charges and/or to prepare it for additional processes (Raymond 1917:84-88). *Sintering* was one of several drying processes that were used to prepare the iron ore for the blast furnace. When this was done using a revolving cylinder the process was called *nodulizing*. The process of *briquetting* involved grinding the ore into a powder and adding milk of lime (Raymond 1917:88). This mixture was formed into small round cakes (briquettes) that could be easily shipped.

Figure 15 is a 1917 diagram of an iron ore nodulizing kiln. According to a contemporary description of the process (Harbison-Walker Refractories 1911:80-81):

> "The nodulizing kiln consists of an almost horizontal cylindrical steel shell approximately 100' in length and possibly 8' in diameter, lined with a high grade fire brick, this high grade material being especially necessary at the hot or discharge end. The kiln is placed at a slight angle with the horizontal and rotates during its operation so that the charge is continually working toward the lower end. At this discharge end a pipe is introduced conveying powdered coal which is ignited, giving intense heat, and the feed end of the kiln is connected with a stack giving sufficient draft."

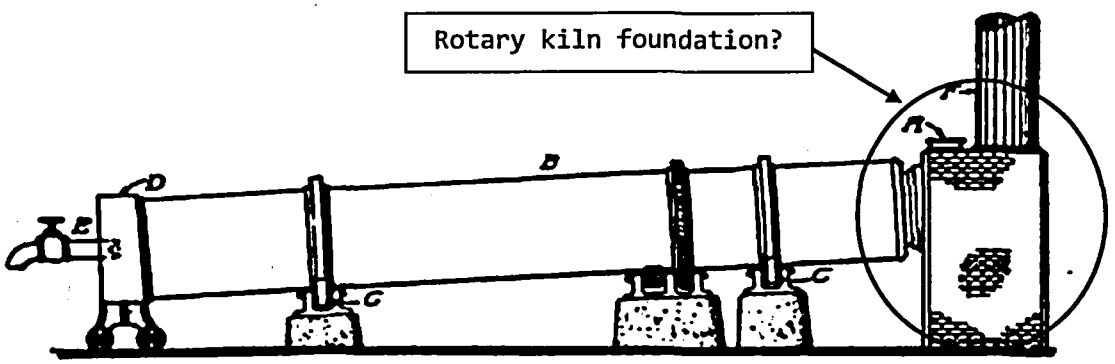


Fig. 12. Iron-Ore Nodulising Kiln. *A*—Feed; *B*—Rotating Furnace; *C*—Rollers; *D*—Discharge Hood; *E*—Gas Burner; *F*—Stack

Figure 15: Diagram of an iron ore nodulising kiln (Raymond 1917:Figure 12).

I could not find much information about nodulizing plants, possibly because it was a fringe industry that used the byproduct of one factory (fertilizer) to make a product for another (iron production). Figure 16 is a photograph of a concentrating and nodulizing plant in Lebanon, Pennsylvania. Unfortunately it does not show any of the structural features in detail. Research indicates that rotary kilns are used not only in the process of turning the byproduct of fertilizer, iron oxide, into iron ore, but also the cement industry. Cement is made with lime (as is fertilizer), and the lime is made by burning limestone. The rotary kiln is used to burn the limestone. There is no evidence that cement was made at this site. Photographs of historic cement kilns do indeed look similar to the structure. Figure 17 depicts a group of "upright" kilns, not rotary kilns. The beds of the kilns were accessed via arched doors that look very familiar. Limestone was loaded into the top and cooked until the finished product (lime in this case) ended up in the bottom (bed). The lime was removed via the arched entrances. Another photograph shows the ruins of a cement kiln that also has an arched doorway (Figure 18).

The Sanborn maps show the various components of the rotary kiln building and several support buildings (Figures 19-20). The main building appears to have been a long structure that surrounded or supported an iron tube labeled "rotary kiln" at the west end and "rotary cooler" at the east end. The building had a rectangular section at the west end that housed an electric motor and a flue. A railroad trestle was located near the west side of the building. The rotary kiln had a "cooler" at the east end of the tube, and an elevator and hopper rotary kiln tube. The tube slowly rotated and heated the iron ore using the "pulverized, gaseous soft coal" contained in the building to the south. The heated product slowly slid down to the cooler located at the east end of the tube. The finished product was fed into the elevator that lifted it up to the hopper and then into cars on the railroad line at the east side of the building.

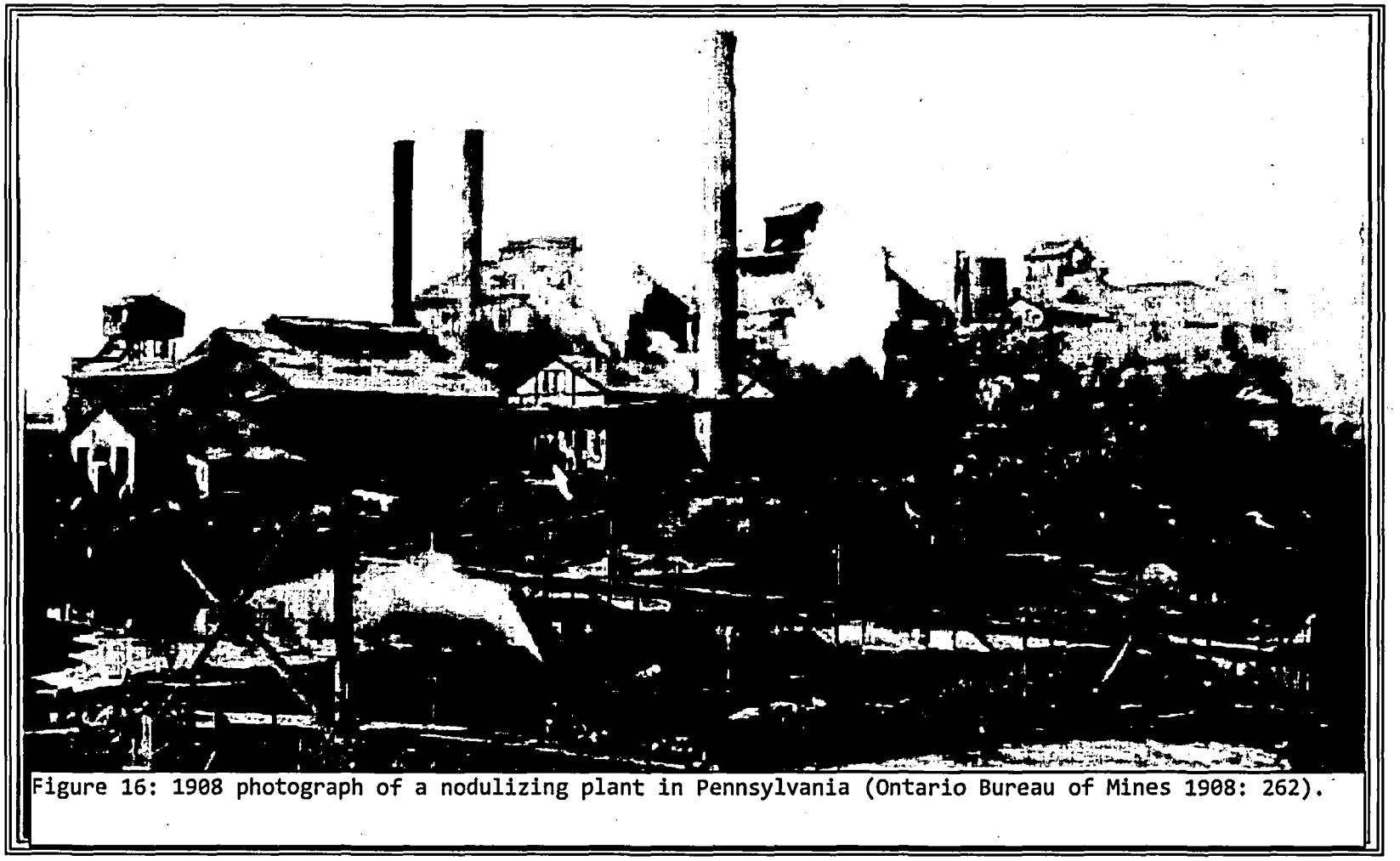
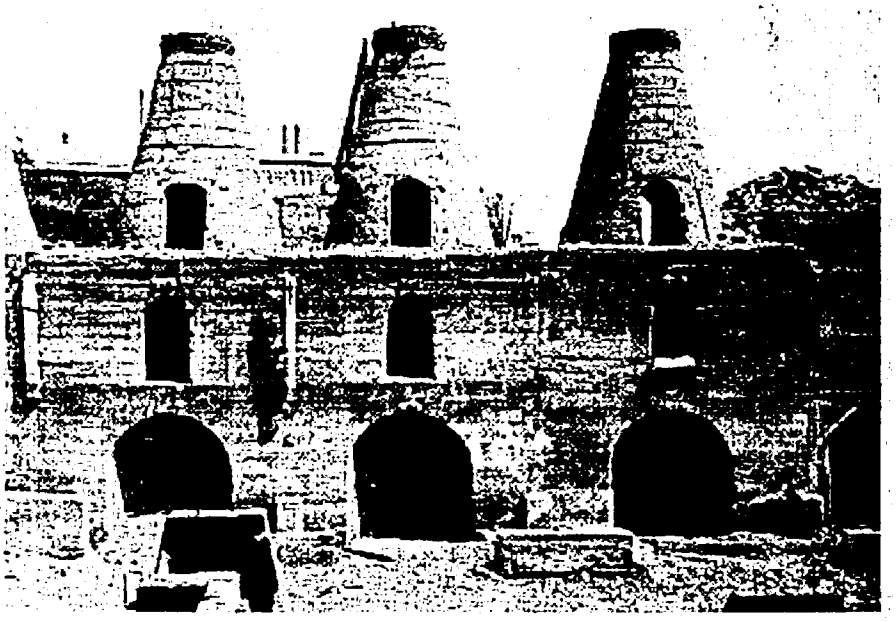


Figure 16: 1908 photograph of a nodulizing plant in Pennsylvania (Ontario Bureau of Mines 1908: 262).



B. Close view of upright kilns of the Coplay Cement Manufacturing Co.

Figure 17: Historic photograph of the upright kilns of the Coplay Cement Company in Pennsylvania (photograph from Miller 1941).

Figure 18: Photograph of the ruins of a kiln structure at the American Cement Company in California, New York (photograph from Williams 2007).

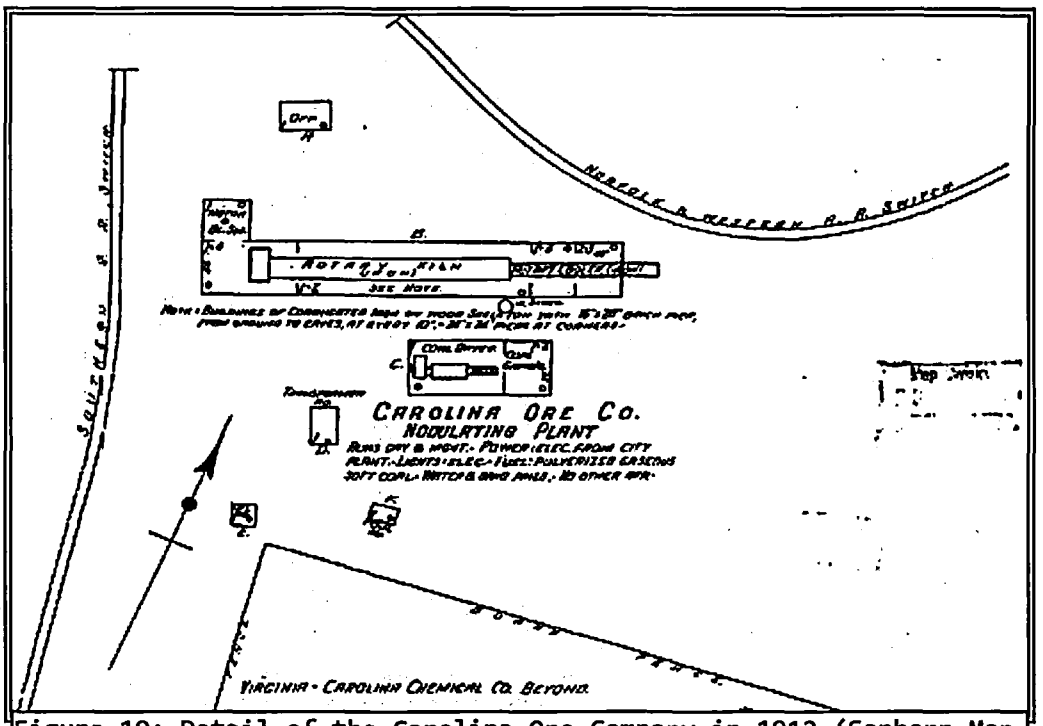


Figure 19: Detail of the Carolina Ore Company in 1912 (Sanborn Map Company 1912).

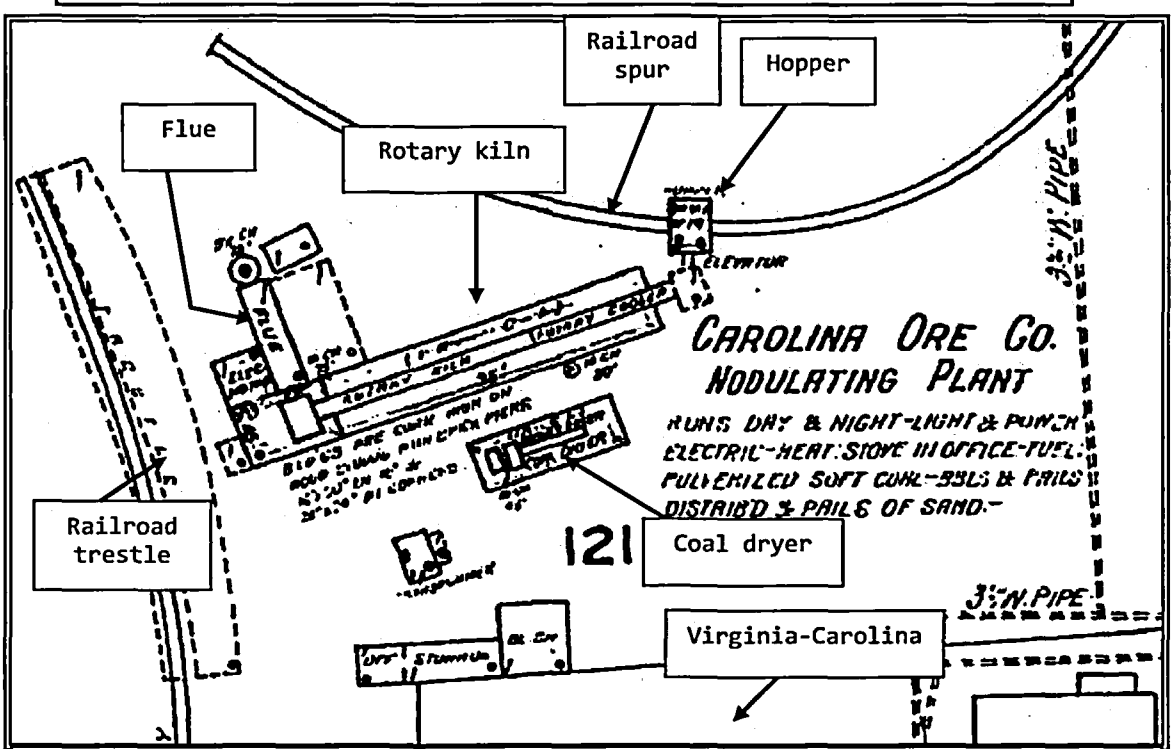


Figure 20: Detail of the Carolina Ore Company in 1917 (Sanborn Map Company 1917).

It should be noted that the 1912 Sanborn map has a note describing what materials the buildings were made of. It says "Buildings of corrugated iron on wood skeleton with 16" x 20" brick pier, from ground to eaves, at every 10', 24" x 24" piers at corners." The structure is made of solid cement, yet the map does not describe any buildings being made of cement. However, if the structure is indeed a foundation then it may not have been considered a separate building. Perhaps the building was not made of cement but the foundation that held the rotary kiln was.

NRHP Evaluation

The final task is to evaluate site 31FY1160** for potential inclusion on the NRHP. The NRHP was created by the National Historic Preservation Act (NHPA 1966, as amended 1992) to be the official list of the nation's significant cultural resources that should be considered for protection. Section 106 says that if a Federal agency's undertaking will have an effect on a NRHP-listed or -eligible property, it must afford the State Historic Preservation Office (and, if necessary, the Advisory Council on Historic Preservation) an opportunity to comment.

Archaeological sites are evaluated based on criteria specified in the U.S. Code of Federal Regulations Title 36, Part 60: *National Register of Historic Places* and *National Register Bulletin 15* (National Park Service [NPS] 1998) describes how to evaluate them. Cultural resources can be defined as significant if they possess integrity of location, design, setting, materials, workmanship, feeling and association, and if they:

a- Are associated with events that have made a significant contribution to the broad pattern of history; or,
b- Are associated with the lives of persons significant in the past; or,
c- Embody the distinctive characteristic of a type, period, or method of construction, or represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or,
d- Have yielded, or may be likely to yield, information important in prehistory or history.

Archaeological sites are usually evaluated based on criterion d, information potential. The National Park Service (National Park Service [NPS] 1998:21) gives two requirements for archaeological sites to be eligible under Criterion d:

1) The site must have, or have had, information to contribute to our understanding of human history or prehistory, and
2) The information must be important.

The data is considered important when it can be applied to a research design that either addresses current data gaps, or supports alternative theories that challenge existing ones. The site must possess "configurations of artifacts, soil strata, structural remains, or other features that make it possible to:

1) Test a hypothesis or hypotheses about events, groups, or processes in the past that bear on important research questions in the social or natural sciences or the humanities; or
2) Corroborate or amplify currently available information suggesting that a hypothesis is either true or false; or
3) Reconstruct the sequence of archaeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archaeological record for a particular area" (NPS 1998:21).

Site 31FY1160** does not have many of the attributes that would make it eligible for listing on the NRHP. For instance, while it does posses integrity of "location" (since it has not been moved), it does not possess integrity of design, setting, materials, workmanship, feeling or association. Also, the structure is actually a part a structure, not an entire structure. The diagram in Figure 15 and the Sanborn maps in Figures 19-20 show it would have had several more parts including a long building that supported or surrounded an iron tube, a "rotary cooler," an engine room, a flue, a railroad trestle, an elevator, and a hopper. It is missing a significant portion of the original rotary kiln so its design is certainly not intact. The industrial setting of the site no longer exists, either. The Sanborn maps show the rotary kiln was surrounded by several other Carolina Ore Company buildings, railroad spur lines, and the Virginia-Carolina Fertilizer Factory. Most or all of the structures and railroads were removed when the industries shut down, and any that remained have probably been destroyed by the construction of US 52. For the same reasons, the integrity of materials, workmanship, feeling, and association of the site no longer exist. Other than the rotary kiln foundation, all of the structures and infrastructure associated with the original industries are gone.

Because the site has no integrity it is not possible to apply any of the NRHP criteria to 31FY1160**. If all or most of the Carolina Ore Company buildings were intact it may have been possible to apply criterion A because it was associated with a broad pattern of history, the industrial development of Winston-Salem. While the company was not directly associated with any famous people, it may have been possible to apply criterion B because several prominent Winston-Salem industrialists/financiers sat on the Board of Directors of the Virginia-Carolina Fertilizer Company, and perhaps the Carolina Ore Company, also. If the complex were intact it might have been possible to apply criterion C because it could have embodied the distinctive architecture and/or arrangement of an early twentieth-century factory. Finally, if it had been intact it could have been possible to apply criterion D to the site. Background research found that not much research has been conducted about twentieth century industries of this type in Winston-Salem. Other industries like the tobacco and textile mills have been studied, but no one has shown much interest in the fertilizer and iron ore nodulization industries. It could be an interesting subject because these industries were apparently quite lucrative. The Virginia-Carolina Fertilizer Company was a major corporation with profits of many millions of dollars and dozens of subsidiary companies. There are few known research questions or hypotheses about these particular industries so some sort of historic context would need to be developed.

Chapter 4: Conclusions and Recommendations

In summary, NCDOT archaeologists identified the remains of a structure (site 31FY1106**) along the east side of US 52 in northern Winston-Salem. Visual examination of the structure and extensive background research concluded that it was most likely a foundation for the rotary kiln at the Carolina Ore Company that operated from circa 1910 to 1924.

While my research could not confirm this theory, it is an educated guess. Unfortunately there is little information available about the Carolina Ore Company. I could not find any photographs of old rotary kilns to compare, but the structure does look like the "bed" of cement kilns shown in several historic photographs. This landscape has undergone substantial physical changes since the early 1900s. The area is at the junction of two major railroads, and the Southern Chemical Company, the Virginia-Carolina Chemical Company, and the Carolina Ore Company have each operated here. The major landscape change was the construction of US 52 that cut a wide path through the middle of the former locations of the industries. All of this activity has probably destroyed most or all of the buildings that were once associated with the rotary kiln.

No additional fieldwork is recommended at this location for several reasons. The first reason is that the proposed improvements to US 52 will not physically impact the structure. It is not threatened with destruction by this road project. Second, an intensive archaeological field survey would not accomplish anything other than perhaps to delineate the extent of the industrial remains in the area. It could possibly identify some structure foundations, old driveways, and possibly old railroad spur lines, but we already have several detailed maps of the factories. Third, the data collected by field survey would be difficult to analyze because the area has doubtlessly been disturbed by the removal of the buildings in the late 1920s, the expansion of the railroads, and the construction of US 52 in the early 1960s. It would be difficult to determine what is intact and what isn't. In a related matter, the dirt is probably contaminated with various industrial chemicals and it is not a good idea to disturb it. For all of these reasons no archaeological field work is recommended.

Site 31FY1160** is recommended ineligible for the NRHP. The area has been disturbed and it is not possible to apply any of the NRHP criteria to the site. The structure is only a part of a larger structure that would have been part of a much larger industrial complex. The attributes necessary in order for a site to be eligible for listing on the NRHP no longer exist at this location. No further work is recommended for the proposed improvements to US 52.

References Cited

Brownlee, Fambrough L.
1977 *Winston-Salem: A Pictorial History*. The Donning Company Publishers, Norfolk, Virginia.

CLP Services, P.C.
2005 *Comprehensive Site Assessment Addendum and Corrective Action Plan for the N.C. Department of Transportation Priority Site No. 54 (Thomas Arthur Paving Company)*. Report prepared for the N.C. Department of Transportation Roadside Environmental Unit, Raleigh. CLP Services, P.C., Raleigh.

Fries, Adelaide L.
1898 *Forsyth County*. Stewarts' Printing House, Winston-Salem, North Carolina.

Fries, Adelaide, Stuart Thurman Wright, and J. Edwin Hendricks
1976 *Forsyth: The History of a County on the March*. University of North Carolina Press, Chapel Hill.

Harbison-Walker Refractories Company
1911 *A Study of the Blast Furnace*. Harbison-Walker Refractories Company, Pittsburgh, Pennsylvaia.

Mellman, Manly Wade and Larry Edward Tise
1976 *Industry and Commerce: 1766-1896*. Winston-Salem in History Volume 7. Historic Winston, Winston-Salem, North Carolina.

Miller, C.M.
1907 *Map of Forsyth County, North Carolina*. Salisbury, North Carolina.

National Park Service (NPS)
1998 *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation*. United States Department of the Interior, National Park Service, Interagency Resources Division, Washington, D.C.

Ontario Bureau of Mines
1908 *Seventeenth Annual Report of the Bureau of Mines, Volume XVII*. L.K. Cameron, Printer to the King's Most Excellent Majesty, Toronto.

Pratt, Joseph Hyde
1914 *The Mining Industry in North Carolina During 1911 and 1912*. North Carolina Geological Survey Economic Paper No. 34. State Printers and Binders, Raleigh.

Raymond, Howard Monroe
1917 *Modern Shop Practice, Volume II*. American Technical Society, Chicago, Illinois.

Rondthaler, Edward
1928 *The Memorabilia of Fifty Years: 1877-1927.* Edwards and Broughton Company, Raleigh, North Carolina.

Sanborn-Perris Map Company
1900 *Insurance Maps of Winston-Salem, North Carolina.* Sanborn-Perris Map Company, New York.

Sanborn Map Company
1907 *Insurance Maps of Winston-Salem, North Carolina.* Sanborn-Perris Map Company, New York.

1912 *Insurance Maps of Winston-Salem, North Carolina.* Sanborn Map Company, New York.

1917 *Insurance Maps of Winston-Salem, North Carolina,* Volume One-A. Sanborn Map Company, New York.

Smith, James Howell
1977 *Industry and Commerce: 1898-1975.* Winston-Salem in History Volume 8. Historic Winston, Winston-Salem, North Carolina.

Taylor, Gwynne Stephens
1981 *From Frontier to Factory: An Architectural History of Forsyth County.* North Carolina Department of Cultural Resources, Division of Archives and History, Raleigh.

United States Department of Agriculture (USDA)
1913 *Soil Map of Forsyth County.* U.S. Department of Agriculture, Bureau of Soils, Washington, D.C.

United States Federal Trade Commission (FTC)
1916 *Federal Trade Commission Report on the Fertilizer Industry.* Government Printing Office, Washington, D.C.

United States Geological Survey (USGS)
1951 *Walkertown, N.C.* 1:24,000-scale topographic map. United States Department of Agriculture, Geological Survey, Washington, D.C.

University of Miami Digital Initiatives
2008 Cuban Heritage Collection: Manuel R. Bustamante Photograph Collection. "Nodulating Plant-Convert Ore into Nodules" (1921). Visited on July 7, 2008.

Williams, Cliff
2007 The American Cement Company. Electronic document located at www.cement.towpathers.com/cement.htm. Visited on June 2, 2008.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Thursday, June 24, 2010 2:25 PM
To: Mallary.Ken@epamail.epa.gov; Neal.Timothy@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 6/24/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Completed soil removal in Removal Area 4.
2. Continued soil stabilization activities in Removal Areas 3 and 5.
3. Continued soil removal in Removal Area 3 and 5.
4. Disconnected utilities in removal areas on northwest side of highway.
5. Continued post-excavation survey of portions of Removal Areas 3, 4, and 5.

Soil Removal Status	
Removal Area	% Complete
1	0%
2	0%
3	75%
4	100%
5	2%
6	0%
7	0%
8	0%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue soil stabilization activities on northwest side of highway.
2. Continue soil removal activities on northwest side of highway.
3. Continue backfill of completed removal areas on northwest side of highway.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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www.arcadis-us.com

Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

ARCADIS
Infrastructure, environment, buildings

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www.arcadis-us.com

Mr. Ken Mallary
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Subject:
Addendum No. 1 to Site Delineation Report/Removal Action Work Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winston-Salem, Forsyth County, North Carolina

Date:
June 22, 2010

Contact:
Matthew Pelton

Phone:
919.415.2308

Email:
matthew.pelton@arcadis-us.com

Our ref:
B0085732

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869
NC Surveying License # C-1869

Dear Mr. Mallary:

This letter presents an addendum (Addendum No. 1) to the *Site Delineation Work Plan Former Virginia-Carolina Chemical Company Winston-Salem Site, Winston-Salem, Forsyth County, North Carolina* (Work Plan). Revision 1 of the Work Plan was submitted on February 5, 2010. On April 22-23, 2010, ARCADIS collected additional soil samples to delineate arsenic- and lead-containing soils in the vicinity of Removal Area 9. This addendum provides a text summary, tables, and figures that present the new Removal Area 9 data. Please include this addendum as part of the Work Plan for future reference.

Soil Delineation Sampling

A total of 29 samples were collected from 6 soil borings (WS-SB-57 through WS-SB-62) near Removal Area 9. In general, samples were collected from 0-0.5 feet, 0.5-2 feet, and in 2-foot intervals until vertical delineation was achieved or until auger refusal was encountered. Arsenic was detected in one soil sample at a concentration of 24.1 milligrams per kilogram (mg/kg), which exceeds the site-specific action level (SSAL) of 22 mg/kg. Lead was detected in five soil samples from two soil boring locations at concentrations exceeding the SSAL of 270 mg/kg. The maximum arsenic concentration was 24.1 mg/kg, which was measured in the sample collected from soil boring WS-SB-57 at a depth of 0.5 to 2 feet bgs. The maximum lead concentration was 1,420 mg/kg, which was measured in the sample collected from soil boring WS-SB-60 at a depth of 2 to 4 feet bgs. A summary of the soil samples is presented in the attached Table 2-1 addendum. Soil sample analytical results are presented in the attached Table 3-1 addendum. Soil sample locations and results

are presented on the revised Figures 2-1 and 3-1, respectively. Revised Figure 4-1A depicts the revised horizontal and vertical soil removal limits at Removal Area 9. Revised Tables 5-1 and 5-2 are also included with updated Removal Area 9 surface area, volume, and tonnage estimations.

Waste Characterization Sampling

Three composite soil samples (WS-WC-22 through WS-WC-24) were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) arsenic and lead during the April 2010 sampling activities in order to characterize the soil for off-site disposal. None the three soil samples contained detectable concentrations of arsenic in the TCLP leachate. Lead was not detected in any of the waste characterization samples at concentrations exceeding the Resource Conservation and Recovery Act (RCRA) standard of 5.0 milligrams per liter (mg/L) for lead. A summary of waste characterization results is presented in the attached Table 3-2 addendum and sample locations are depicted on revised Figure 3-1.

Investigation-Derived Waste Sampling and Disposal

One drum containing soil/debris/personal protective equipment (PPE) was generated during the April 2010 delineation activities at the Site. Investigation-derived waste (IDW) results from the April 2010 delineation activities are presented in the attached Table 3-4 addendum. Based on the laboratory analytical results, the waste was classified as non-hazardous material. Haz-Mat Transportation and Disposal, Inc. transported and disposed of the waste materials at the Allied CMS Landfill in Concord, North Carolina. A copy of the waste manifest is attached.

Field Quality Control Samples

Field quality control samples were collected in order to check the adequacy of equipment decontamination procedures and to allow for the evaluation of potential cross-contamination of samples due to the equipment. Field quality control sample results are presented in the attached Table 3-6 addendum.

If you have any questions or comments, please feel free to contact me at 919.415.2308.

Sincerely,

ARCADIS G&M of North Carolina, Inc.

Matthew T. Pelton, P.E.
Senior Environmental Engineer

Copies:
David Mattison, NCDENR
Cyrus Parker, NCDOT
Steve Schmidt, ExxonMobil
Geoff Germann, ARCADIS

ARCADIS

Tables

Table 2-1 - Addendum No. 1
Summary of Sampling Program
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample Identification	Depth (ft bgs)	Sample Date	Arsenic and Lead Field Screening[a]	Laboratory Analyte: Arsenic and Lead	pH	TCLP Arsenic and Lead	TCLP Metals	Comments
Soil								
WS-SB-57 (0-0.5')	0-0.5	04/22/10	X	X	X			
WS-SB-57 (0.5-2')	0.5-2	04/22/10	X	X	X			
QAQC-DUP_01	0.5-2	04/22/10	X	X	X			Field Duplicate of WS-SB-57 (0.5-2')
WS-SB-57 (2-4')	2-4	04/22/10	X	X	X			
WS-SB-58 (0-0.5')	0-0.5	04/22/10	X	X	X			
WS-SB-58 (0.5-2')	0.5-2	04/22/10	X	X	X			
WS-SB-58 (2-4')	2-4	04/22/10	X	X	X			MS/MSD
WS-SB-58 (4-6')	4-6	04/22/10	X	X	X			
WS-SB-58 (6-8')	6-8	04/22/10	X	X	X			
WS-SB-59 (0-0.5')	0-0.5	04/22/10	X	X	X			
WS-SB-59 (0.5-2')	0.5-2	04/22/10	X	X	X			
WS-SB-59 (2-4')	2-4	04/22/10	X	X	X			
WS-SB-59 (4-6')	4-6	04/22/10	X	X	X			
WS-SB-59 (6-8')	6-8	04/22/10	X	X	X			MS/MSD
WS-SB-60 (0-0.5')	0-0.5	04/22/10	X	X	X			
WS-SB-60 (0.5-2')	0.5-2	04/22/10	X	X	X			
WS-SB-60 (2-4')	2-4	04/22/10	X	X	X			
QAQC-DUP_02	2-4	04/22/10	X	X	X			Field Duplicate of WS-SB-60 (2-4')
WS-SB-60 (4-6')	4-6	04/22/10	X	X	X			
WS-SB-60 (6-8')	6-8	04/22/10	X	X	X			
WS-SB-60 (8-10')	8-10	04/22/10	X	X	X			
WS-SB-61 (0-0.5')	0-0.5	04/23/10	X	X	X			
WS-SB-61 (0.5-2')	0.5-2	04/23/10	X	X	X			
WS-SB-61 (2-4')	2-4	04/23/10	X	X	X			
WS-SB-61 (4-6')	4-6	04/23/10	X	X	X			
WS-SB-61 (6-8')	6-8	04/23/10	X	X	X			
WS-SB-62 (0-0.5')	0-0.5	04/23/10	X	X	X			
WS-SB-62 (0.5-2')	0.5-2	04/23/10	X	X	X			
WS-SB-62 (2-4')	2-4	04/23/10	X	X	X			
WS-SB-62 (4-6')	4-6	04/23/10	X	X	X			
WS-SB-62 (6-8')	6-8	04/23/10	X	X	X			
Waste Characterization								
WS-WC-22	0 - 4	04/22/10			X	X		Composite of WS-SB-57 (0-4')
WS-WC-23	0 - 6	04/22/10			X	X		Composite of WS-SB-60 (0-6')
WS-WC-24	0 - 8	04/23/10			X	X		Composite of WS-SB-61 (0-8')

Table 2-1 - Addendum No. 1
Summary of Sampling Program
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample Identification	Depth (ft bgs)	Sample Date	Arsenic and Lead Field Screening[a]	Laboratory Analyte: Arsenic and Lead	Laboratory Analyte: pH	Laboratory Analyte: TCLP Arsenic and Lead	Laboratory Analyte: TCLP Metals	Comments
Field Quality Control								
QAQC_EB_01	NA	04/22/10		X	X			Field Equipment Blank
QAQC_EB_02	NA	04/23/10		X	X			Field Equipment Blank
Investigative Derived Waste								
WS-IDW-Soil	NA	04/22/10					X	

Notes:

a. Field screening data obtained using a portable Niton XLT 898 unit.

1. Sample depths are measured in feet below ground surface (ft bgs).
2. Laboratory analyses were performed by TestAmerica, Inc. of Nashville, Tennessee.

NA - not applicable
MS/MSD - matrix spike/matrix spike duplicate
TCLP - Toxicity Characteristic Leaching Procedure
TAL - Target analyte list

Table 3-1 - Addendum No. 1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-SB-57	0 - 0.5	4/22/2010	5.7	6.62	73.1
	0.5 - 2	4/22/2010	5.1 [5.0]	13.6 [24.1]	269 [430]
	2 - 4	4/22/2010	5.0	4.36	280
WS-SB-58	0 - 0.5	4/22/2010	4.9	6.33	74.7
	0.5 - 2	4/22/2010	4.7	11.6	56.7
	2 - 4	4/22/2010	4.6	11.9	56.4
	4 - 6	4/22/2010	4.4	13.1	86.6
	6 - 8	4/22/2010	4.8	7.61	217
WS-SB-59	0 - 0.5	4/22/2010	5.5	2.89	34.2
	0.5 - 2	4/22/2010	6.3	3.5	17.3
	2 - 4	4/22/2010	6.8	15.7	108
	4 - 6	4/22/2010	5.1	9.83	33.2
	6 - 8	4/22/2010	4.8	3.41	42.4
WS-SB-60	0 - 0.5	4/22/2010	5.1	4.16	43.6
	0.5 - 2	4/22/2010	5.1	11.0	1,160
	2 - 4	4/22/2010	5.0 [4.8]	1.34 J [7.52 J]	837 [1,420]
	4 - 6	4/22/2010	4.8	5.06 J	954
	6 - 8	4/22/2010	4.8	3.31 J	437
	8 - 10	4/22/2010	4.9	0.983 UJ	192
WS-SB-61	0 - 0.5	4/23/2010	4.8	18.0 J	179
	0.5 - 2	4/23/2010	4.3	2.47 J	87.9
	2 - 4	4/23/2010	4.3	1.55 J	55.2
	4 - 6	4/23/2010	4.4	1.01 UJ	118
	6 - 8	4/23/2010	4.3	0.874 UJ	54.5
WS-SB-62	0 - 0.5	4/23/2010	5.7	17.9 J	231
	0.5 - 2	4/23/2010	4.6	1.84 J	26.7
	2 - 4	4/23/2010	4.5	1.92 J	37.0
	4 - 6	4/23/2010	4.5	1.21 J	32.4
	6 - 8	4/23/2010	4.5	1.89 J	42.0

Notes:
mg/kg - milligrams per kilogram
ft bgs - feet below ground surface
J - estimated value
U - not detected
Duplicate sample concentrations are in brackets
Arsenic screening value of 22 mg/kg is based on NCDENR site-specific screening levels.
Lead screening value of 270 mg/kg is based on NCDENR site-specific screening levels.
Shaded values exceed screening levels.

Table 3-2 - Addendum No. 1
Summary of Waste Characterization Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Analyte	Regulatory Standard	Units	Concentration in Sample: WS-WC-22 0 - 4 ft bgs 4/22/2010	WS-WC-23 0 - 6 ft bgs 4/22/2010	WS-WC-24 0 - 8 ft bgs 4/23/2010
TCLP Metals					
Arsenic	5	mg/L	0.0400 U	0.0400 U	0.0400 U
Lead	5	mg/L	0.162	0.503	0.240

Notes:
NA - not analyzed
mg/kg - milligrams per kilogram
ft bgs - feet below ground surface
U - not detected
TCLP - Toxicity Characteristic Leaching Procedure

Table 3-4 - Addendum No. 1
Summary of Investigation-Derived Waste - Solid Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Analyte	Regulatory Standard	Units	WS-IDW-Soil 4/22/10
TCLP Metals			
Arsenic	5	mg/L	0.04 U
Barium	100	mg/L	0.594
Cadmium	1	mg/L	0.006 U
Chromium	5	mg/L	0.026 U
Lead	5	mg/L	0.078
Mercury	0.2	mg/L	0.001 U
Selenium	1	mg/L	0.056 J
Silver	5	mg/L	0.028 U
Miscellaneous			
pH	--	SU	NA

Notes:
mg/L - milligrams per liter
SU - standard units
U - not detected
J - estimated value
TCLP - toxicity characteristic leaching procedure
NA - not analyzed

Table 3-6 - Addendum No. 1
Summary of Field Quality Control Sample Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Date Collected	pH	Arsenic (mg/L)	Lead (mg/L)
QAQC-EB-01	4/22/2010	7.1 J	0.00360 U	0.00210 U
QAQC-EB-02	4/23/2010	6.3 J	0.00360 U	0.0102

Notes:
U - not detected
mg/L - milligrams per liter

Table 5-1 - Addendum No. 1
Summary of Excavation Areas and Volumes
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Removal Area ID	Approximate Surface Area of Impacted Soil to be Removed (ft^2)	Approximate Depth of Impacted Soil to be Removed (ft bgs)	Estimated In-Place Excavation Quantities	
			cubic yards	tons
Areas North of US-52/SR-8				
1	3,050	5	565	960
2	8,260	2	612	1,040
3	19,000	1	704	1,196
4	10,830	2	802	1,364
5	62,800	4	9,304	15,816
6	6,560	6	1,458	2,478
7	3,840	1	142	242
8	1,940	2	144	244
Subtotal	**116,280**		**13,730**	**23,341**
Areas South of US-52/SR-8				
9	3,210	8	951	1,617
10	4,560	4	676	1,148
11	4,750	2	352	598
12	16,670	4	2,470	4,198
13	15,360	1	569	967
Subtotal	**44,550**		**5,017**	**8,529**
Total of all Areas	**160,830**		**18,747**	**31,870**

Notes:

ft^2 - square feet

ft bgs - feet below ground surface

The calculation of cubic yards to tons is based on a conversion factor of 1.7

* - Surface area estimates are based on inferred limits. Limits will be refined in the field.

Table 5-2 - Addendum No. 1
Summary of Confirmation Sampling Program
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Removal Area ID	Approximate Surface Area of Impacted Soil to be Removed (ft^2)	Estimated Number of 5-point Confirmation Samples[1]	Estimated Number of Confirmation Sample Locations[2]
Areas North of US-52/SR-8			
1	3,050	1	5
2	8,260	2	10
3	19,000	4	20
4	10,830	3	15
5	62,800	13	65
6	6,560	2	10
7	3,840	1	5
8	1,940	1	5
Areas South of US-52/SR-8			
9	3,210	1	5
10	4,560	1	5
11	3,310	1	5
12	16,670	4	20
13	15,360	4	20

Notes:

ft^2 - square feet

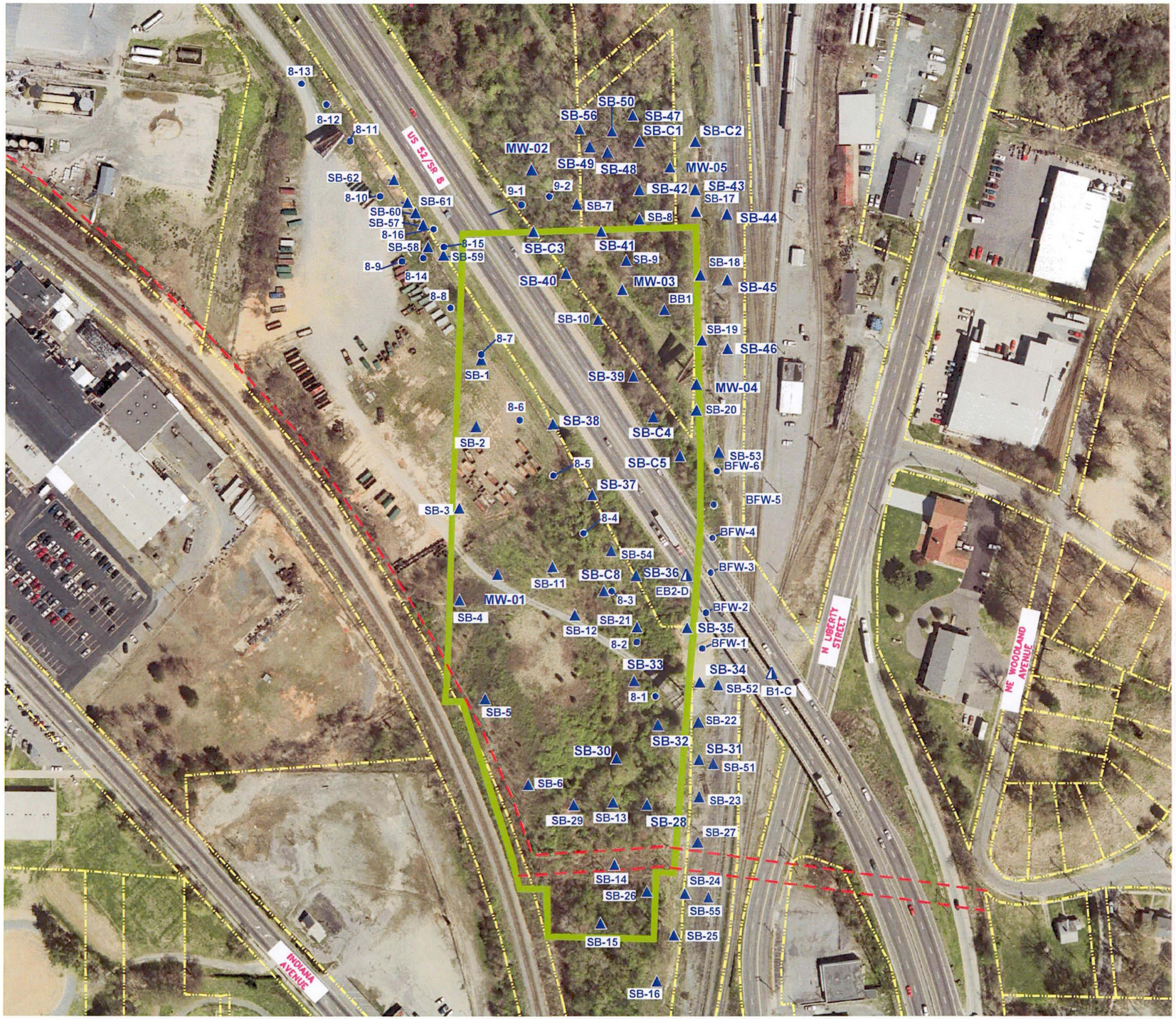
Surface area estimates are based on inferred limits. Limits will be refined in the field.

[1] One confirmation sample will be collected per 5,000 square feet of excavation.

[2] Confirmation samples will be collected as 5-point composites.

ARCADIS

Figures



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009 AND 2010)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2009)
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. LOCATIONS 47 - 55 APPROXIMATE ONLY, NOT SURVEYED.
8. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:

INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 160' 320'
GRAPHIC SCALE

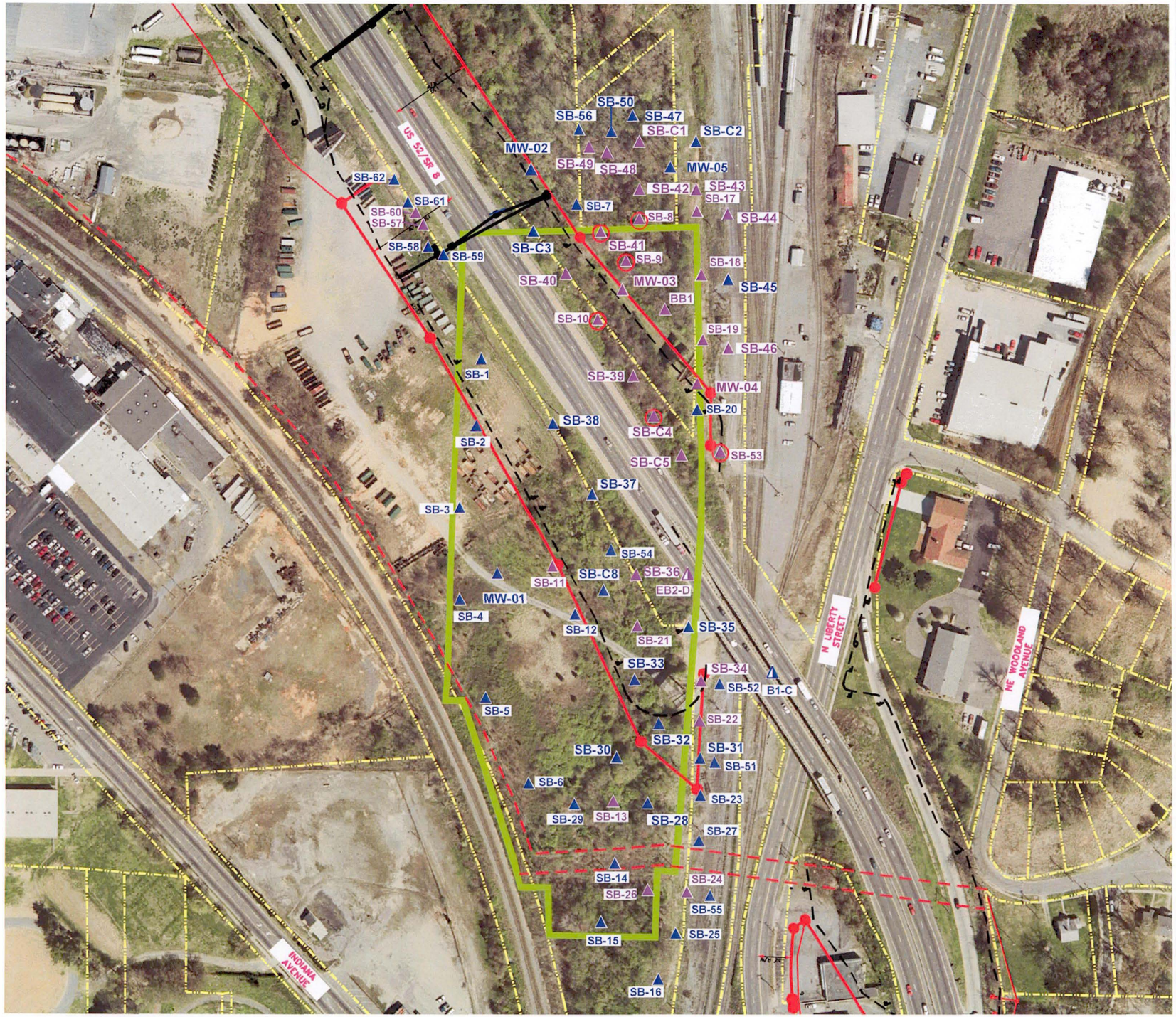
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN ADDENDUM NO. 1

SOIL SAMPLE LOCATIONS

ARCADIS

FIGURE
2-1

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Read) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Cary\ACT\B0085732\1003\00008\NONE\857320G06.dwg LAYOUT: 2 SAVED: 6/15/2010 11:48 AM ACADVER: 17.1S (LMS TECH)PAGESETUP: ----PLOTSTYLETABLE: PLTFULL.CTBPLOTTED: 6/17/2010 3:06 PMBY: ELLIS, LEKOREY
XREFS: IMAGES: PROJECTNAME: ----
857320X00 Mosaic.tif



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009 AND 2010)
- APPROXIMATE LOCATION OF SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (ARCADIS, 2008)
- APPROXIMATE LOCATION OF SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- SOIL BORING WITH LEAD CONCENTRATION EXCEEDING TOXICITY CHARACTERISTIC LEACHING PROCEDURE CRITERIA

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
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FORMER STREET NAMES:

INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN ADDENDUM NO. 1

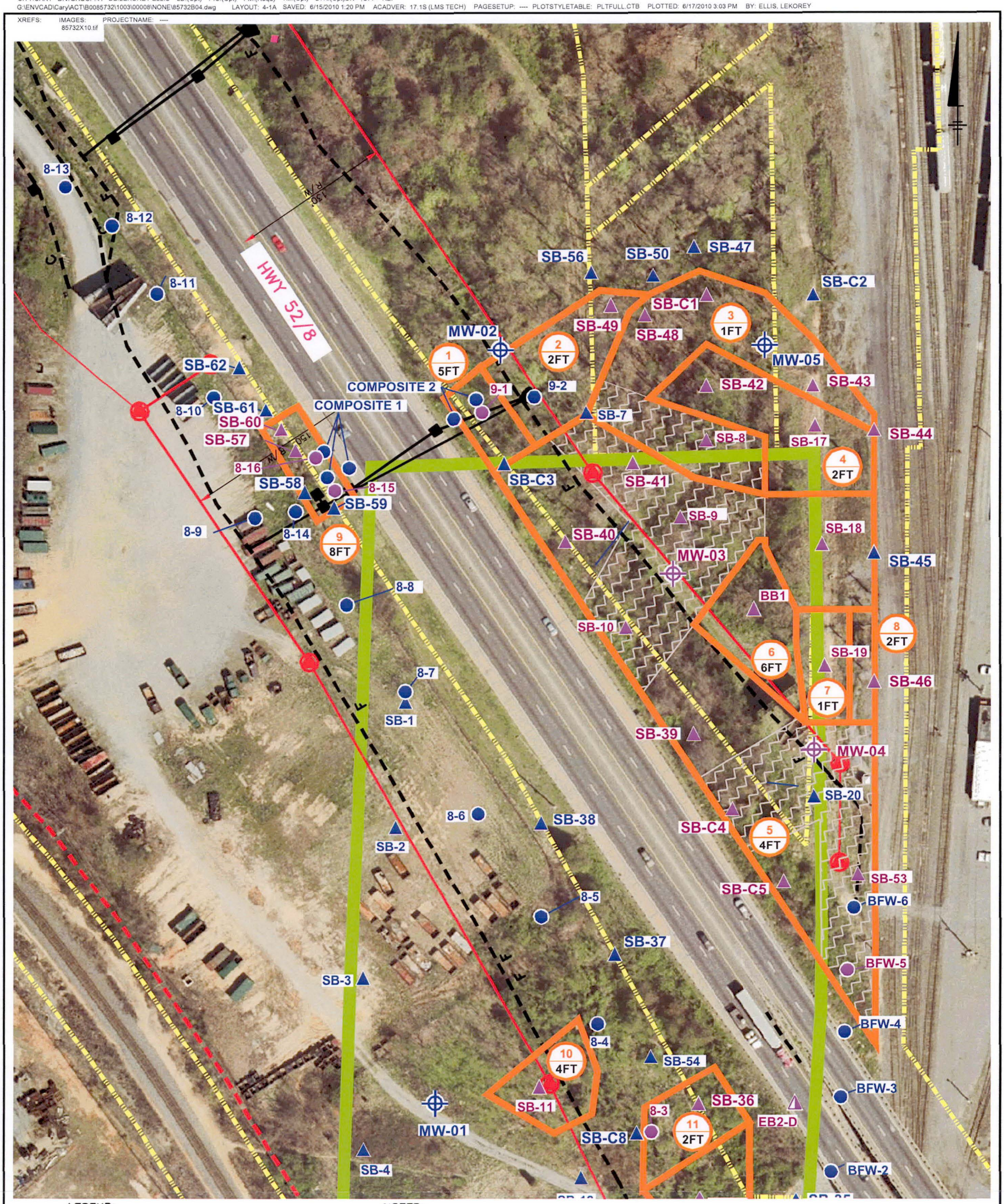
LOCATIONS OF SOIL SAMPLES EXCEEDING SCREENING LEVELS

ARCADIS

FIGURE
3-1

CITY:CARY DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Cary\ACTIVE\85732\1003\00008\NONE\85732G07.dwg LAYOUT: 2 SAVED: 6/15/2010 1:05 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ----PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/17/2010 3:07 PM BY: ELLIS, LEKOREY
XREFs: 85732X00 IMAGES: Mosaic.tif PROJECTNAME: ----

CITY:CARY DIV/GROUP:41 DB:LEKOREY ELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Cary\ACT\B0085732\1003\00008\NONE\85732B04.dwg LAYOUT: 4-1A SAVED: 6/15/2010 1:20 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/17/2010 3:03 PM BY: ELLIS, LEKOREY
XREFS: IMAGES: PROJECTNAME: ----
85732X10.tif



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009 AND 2010)
- SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2009)
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)
- SOILS EXCEED TCLP CRITERIA FOR LEAD

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:

INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 80' 160'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA

REMOVAL ACTION WORK PLAN ADDENDUM NO. 1

SOIL REMOVAL AREAS AND DEPTHS - NORTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE 4-1A

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, June 18, 2010 12:19 PM
To: 'Mallary.Ken@epamail.epa.gov'; 'Timothy Neal (Neal.Timothy@epamail.epa.gov)'
Cc: Mattison, David; 'steven.p.schmidt@exxonmobil.com'; Germann, Geoff; Bowman, Matthew; 'Beswick.Kevin@epamail.epa.gov'; Pelton, Matthew
Subject: 6/18/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Ken Mallary made site visit on June 16th
2. Completed clearing activities on northwest side of highway.
3. Started soil stabilization activities in Removal Areas 3 and 5.
4. Continued soil removal in Removal Area 3, and started soil removal in Removal Area 4.
5. Disconnected utilities in removal areas on northwest side of highway.
6. Started backfill in Removal Areas 3 and 4, adjacent to railroad.
7. Completed pre-excavation topographic survey on northwest side of highway.
8. Performed post-excavation survey of portions of Removal Areas 3, 4, and 5.

Soil Removal Status	
Removal Area	% Complete
1	0%
2	0%
3	75%
4	50%
5	0%
6	0%
7	0%
8	0%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue soil stabilization activities on northwest side of highway.
2. Continue soil removal activities on northwest side of highway.
3. Continue backfill of completed removal areas on northwest side of highway.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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www.arcadis-us.com

Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, June 11, 2010 3:12 PM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 6/11/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Start clearing activities on northwest side of highway.
2. Completed soil removal in Removal Areas 11, 12, and 13.
3. Completed post-excavation topographic survey of Removal Areas 11, 12, and 13.
4. DOT performed backfill in Removal Areas 10, 11, and 12.
5. Started soil removal in Removal Areas 3 and 5.

Soil Removal Status	
Removal Area	% Complete
1	0%
2	0%
3	0%
4	0%
5	0%
6	0%
7	0%
8	0%
9	100%
10	100%
11	100%
12	100%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue site preparation activities on northeast side of highway.
2. Continue soil removal activities on northwest side of highway.
3. Backfill Removal Area 13.

ACTION ITEMS/OTHER

1. Ken Mallary to make site visit next week on June 16th and 17th.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, June 04, 2010 12:51 PM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 6/4/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Continued site preparation activities.
2. Completed soil removal in Removal Area 9, results of confirmation sample pending.
3. Completed soil removal in Removal Area 13, results of confirmation samples pending.
4. Completed post-excavation topographic survey of Removal Areas 9 and 10.
5. DOT started backfill of Removal Area 10.
6. Started soil removal in Removal Areas 11 and 12.

Soil Removal Status	
Removal Area	% Complete
1	0%
2	0%
3	0%
4	0%
5	0%
6	0%
7	0%
8	0%
9	100%
10	100%
11	0%
12	35%
13	100%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue site preparation activities on northeast side of highway.
2. Continue soil removal activities on southwest side of highway and move to northeast side of highway.

ACTION ITEMS/OTHER

1. None

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Spalvins.Erik@epamail.epa.gov
Sent: Thursday, June 03, 2010 5:53 PM
To: robert.pounds@tronox.com
Cc: Beswick.Kevin@epamail.epa.gov; David.Mattison@ncmail.net; Striggow.Brian@epamail.epa.gov
Subject: Notice of planned sampling at Kerr-McGee Navassa the week of June 14, 2010

Robert,

The EPA is planning to conduct sampling at the Kerr-McGee Superfund Site in Navassa, North Carolina the week of June 14, 2010. Our original plan was to sample soil in ditches and yards across the street from the facility and to sample irrigation wells on the south side of Navassa
Creek. These sampling locations are not located on Tronox property.

However, after discussion with EPA's geologist in charge of the sampling, EPA is now planning to bring a small geoprobe rig to sample soil and sediment at the edge of the marsh. The goal of the geoprobe work is to collect data on contaminant distribution and to help EPA's geologists understand the working conditions at the site. This is in preparation for an October sampling event, which will involve a similar geoprobe rig mounted on a "swamp-buggy"-type work platform.

I apologize for such short notice that EPA will be working on Tronox property. As our work schedule firms up, I will keep you posted.
Please let me know if Tronox will send personnel to observe the work, if so, we can try to accommodate the work schedule to their travel plans.
If Tronox is interested in any split samples, please let me know. We will send a copy of the documentation of the work conducted, including copies of reports and photos of the work.

EPA's Athens lab is finalizing the work plan for the June sampling event and I will forward you a draft as soon as it is ready. We welcome and encourage your input to the sampling plan.

Please feel free to contact me with any questions.

Thanks,
Erik

Erik Spalvins
Remedial Project Manager
Superfund Division
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street SW
Atlanta, Georgia 30303
(404) 562-8938 office
(404) 909-0345 cell
(404) 562-8896 fax

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Wednesday, June 02, 2010 9:44 PM
To: Zeller.Craig@epamail.epa.gov
Cc: Mallary.Ken@epamail.epa.gov; Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; White, Kirstyn
Subject: VCC Durham RSE Sampling Notification

Craig/Ken – this email is being sent to provide notification that ARCADIS, on behalf of ExxonMobil, plans to initiate sampling activities at the VCC Durham site on Monday, May 7th in accordance with the EPA-approved RSE Work Plan. If you have any questions please let me know, thanks.

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, May 28, 2010 1:15 PM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: steven.p.schmidt@exxonmobil.com; Mattison, David; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 5/28/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Completed mobilization activities.
2. Continued site preparation activities.
3. Completed survey staking of boundaries for removal areas 9, 10, 11, 12, and 13.
4. Completed pre-construction topographic survey of removal areas 9 and 10.
5. Completed clearing and grubbing of trees and brush in removal areas 10, 11, 12, and 13.
6. Completed soil removal in removal area 10, results of confirmation sample pending.
7. Held site visit with Ken Mallary of USEPA and David Mattison of NCDENR.

Soil Removal Status	
Removal Area	% Complete
1	0%
2	0%
3	0%
4	0%
5	0%
6	0%
7	0%
8	0%
9	0%
10	100%
11	0%
12	0%
13	0%

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue site preparation activities.
2. Continue soil removal activities on southwest side of highway.

ACTION ITEMS/OTHER

1. Based on discussion with Ken Mallary and David Mattison, the soil removal limits along Highway 52 for Removal Areas 11 and 12 will be adjusted by moving the limits down the highway embankment to the toe of the slope to avoid excavation of highway fill material and potential undermining of the highway. The originally mapped limits were drawn on the Removal

Action Work Plan figure 4-1B prior to clearing and site survey, final limits based on this adjustment will be provided in the Final Report. Similar adjustments may also be made in other removal areas if the original limits extend above the toe of the highway embankment.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, May 21, 2010 2:45 PM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 5/21/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Submitted Entact HASP.
2. Held Project Kickoff meeting on Monday, May 17th.
3. Begin mobilization activities.
4. Begin site preparation activities.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Site visit with USEPA.
2. Continue site preparation activities.
3. Begin soil removal activities.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

May 20, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: ENTACT Health & Safety Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

Dear Mr. Mallary:

The North Carolina Department of Environment and Natural Resources (NC DENR) Superfund Section has received the *ENTACT Health & Safety Plan* for the Former Virginia-Carolina Chemical Company Winston-Salem Site. The NC DENR Superfund Section has reviewed this document and offers the following attached comments.

The NC DENR Superfund Section appreciates the opportunity to comment on this document. If you have any questions or comments, please feel free to contact me at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

David B Mattison

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

ENTACT Health & Safety Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site

1. Please append the *ENTACT Health & Safety Plan* with a list of acronyms and their respective definitions.

Section 4.3 Medical Monitoring

2. Please revise the first and last sentences of the second paragraph of Section 4.3 as cadmium is NOT a constituent of concern (COC) for the Site.

Section 5.2.5 Weather
Tornado Related Weather

3. Please correct the second sentence of the second paragraph to reference **Forsyth County**.

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

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May 20, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Site Operations Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

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Sincerely,

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

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Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

Site Operations Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site

1. Please append the *Site Operations Plan* with a list of acronyms and their respective definitions.

Section 1.3 Selected Removal Action Criteria

2. Please correct the last sentence of the second paragraph of Section 1.3 and the first sentence of the third paragraph of Section 1.3 to reference Section 6.0 – *Site Layout Map* rather than Figure 3 (which is not included in the *Site Operations Plan*).

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

May 20, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

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Former Virginia-Carolina Chemical Company Winston-Salem Site
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Sincerely,

David B Mattison

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

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Former Virginia-Carolina Chemical Company Winston-Salem Site

1. Please append the *ENTACT Health & Safety Plan* with a list of acronyms and their respective definitions.

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2. Please revise the first and last sentences of the second paragraph of Section 4.3 as cadmium is NOT a constituent of concern (COC) for the Site.

Section 5.2.5 Weather
Tornado Related Weather

3. Please correct the second sentence of the second paragraph to reference **Forsyth County**.

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

May 20, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Site Operations Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

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Sincerely,

David B Mattison

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

Site Operations Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site

1. Please append the *Site Operations Plan* with a list of acronyms and their respective definitions.

Section 1.3 Selected Removal Action Criteria

2. Please correct the last sentence of the second paragraph of Section 1.3 and the first sentence of the third paragraph of Section 1.3 to reference Section 6.0 – *Site Layout Map* rather than Figure 3 (which is not included in the *Site Operations Plan*).

ARCADIS
Infrastructure, environment, facilities

ExxonMobil Environmental Services Company
Former Virginia Carolina Chemical Company Winston-Salem Site
Winston-Salem, North Carolina
Project Kickoff and Orientation Meeting Agenda

Date: Monday, May 17, 2010

Time: 1300 (Eastern Standard Time)

Location: Project Trailers/Norfolk Southern Maintenance Garage parking lot – 799 Gaynor Street, Winston-Salem NC

1. **Safety Moment and Introductions**

2. **Overview of Scope of Work**

3. **Construction Schedule**

    - Standard hours of operation
    - Rotation schedule
    - Holiday schedule (Memorial Day, July 4, local races)

4. **ExxonMobil Guidelines and Expectations**

5. **Health and Safety**

    - Health and Safety Plans (HASPs) and JLAs
    - LPO Schedule
    - Best Practices Review
    - Morning and Afternoon Safety Meetings
    - LPS Orientation for Truck Drivers
    - Short Service Employee Program
    - Training, Medical, and A/D Certifications
    - Equipment Maintenance Program
    - Utility Clearance and Management of Existing Utilities
    - Traffic Routes and Signage
    - Dust and Air Monitoring

- OIMS Binder
- Site Access and Security

6. Engineering Support, Construction Quality Assurance, and Project Logistics

- Project Start Notification
- Permits Status – City of Winston
- Project Notifications
- Coordination with DOT, WM, Atlantic Scrap
- Heavy Equipment and Fuel
- Trailer, Utilities, and Port-a-lets
- Disposal Facility Coordination
- Transportation
- XRF and Confirmation Sampling
- Waste Manifesting
- Record Survey
- Backfill Material
- Backfill Material Sampling

7. Project Communications

- Weekly Progress Report
- Weekly Progress Meetings
- Contact List
- Public Relations
- Emergency Notifications
- Interaction with Regulatory Agencies – USEPA and NCDENR

8. Other Discussion Items

ARCADIS
Infrastructure, environment, buildings

ARCADIS
11000 Regency Parkway
West Tower
Suite 205
Cary
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676
www.arcadis-us.com

ENVIRONMENT

Mr. John Thomas
U. S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive
Suite 105
Wake Forest, NC 27587

Subject:
CERCLA Soil Removal Project Near Unnamed Intermittent Stream
Winston-Salem, North Carolina

Date:
May 11, 2010

Contact:
Matthew Pelton

Phone:
919.415.2308

Email:
matthew.pelton
@arcadis-us.com

Our ref:
B0085732

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869
NC Surveying License # C-1869

Dear Mr. Thomas:

Thank you for talking with Ken Mallary of United States Environmental Protection Agency (USEPA), David Mattison of North Carolina Department of Environment and Natural Resources (NCDENR), me yesterday regarding the permitting requirements for soil removal activities to be conducted along an unnamed intermittent stream in Winston-Salem, NC. As requested, this letter provides information related to this project in support of work being conducted in accordance with the general requirements of Nationwide Permit (38), but without formal pre-construction notification (PCN) being made to the U.S. Army Corps of Engineers (USACE).

The project site is located at 3303 N. Glenn Avenue in Winston-Salem, Forsyth County, NC. Attached Figure 1-1 shows the location of the Site on the USGS quad maps for Walkertown and Winston-Salem East, North Carolina. Attached Figure 1-2 shows Bowen Branch located north of the project area. Attached Figure 1-3 shows the current and historical site features. The site is a former fertilizer manufacturing site with arsenic and lead impacts in the soil, this project involves the excavation and offsite disposal of these impacted soils. Soil removal activities are being conducted on behalf of Exxon Mobil Environmental Services Company (EMES) in accordance with the USEPA-approved *Site Delineation Report and Removal Action Work Plan, Revision 1* (ARCADIS, February 2010) and per the Administrative Order on Consent issued by USEPA.

The AOC Docket # for the Site is CERCLA-04-2010-3763 with an effective date of March 30, 2010. Mr. Ken Mallary is the Remedial Project Manager (RPM) for the project and can be reached at 404-562-8802. Mr. Tim Neal is the On-Scene Coordinator (OSC) for the project and can be reached at 404-562-8796.

ExxonMobil has entered into the AOC with USEPA to address the arsenic and lead impacts. Approximately 30,000 tons of impacted soil exists at the Site and will be removed during the removal action. Soil removal areas and depths are shown on attached Figures 4-1A and 4-1B. The intermittent stream in question runs through Removal Areas 1 and 2 on Figure 4-1A.

As referenced above, this project is being conducted under USEPA's CERCLA program. As described in 40 CFR Part 300, Section 400, Paragraph (e), CERCLA projects are exempt from all federal, state, and local permits. Furthermore, as described in the Nationwide Permit (38) itself, "Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by Authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act." Therefore, a Nationwide Permit is not required for this project. However, because this project includes work along the banks, and potentially within the channel, of the identified intermittent stream to remove impacted soils and restore the Site, EMES intends to meet the substantive requirements of the NWP 38 permit.

Erosion control measures, including silt fence, check dams, etc., will be used as needed to protect the stream and prevent the erosion of soils during storm events. Following soil removal the stream banks will be graded and restored to prevent future erosion. Restoration may include grading the banks to 2H:1V or 3H:1V slopes, placement of erosion control fabric along the banks, and seeding to establish a vegetative cover.

We appreciate your assistance with our earlier discussion. If you need any additional information please let me know. You may reach me at 919.415.2308.

Sincerely,

ARCADIS

Matthew Pelton, P.E.
Senior Environmental Engineer

Copies:
Ken Mallary, USEPA
Tim Neal, USEPA
David Mattison, NCDENR
Steve Schmidt, EMES
File

REFERENCE: USGS 7.5 MIN. QUAD., WALKERTOWN/WINSTON-SALEM EAST, N.C., 1951 PHOTOREVISED 1997

LEGEND:

APPROXIMATE LOCATION OF FORMER PLANT FENCE LINE (APPROXIMATE BOUNDARIES OF THE FIRST LOT OF THE ORIGINAL PLACE)

AREA LOCATION

NOTE:

1. PLANT FENCE LINE DRAWN AS DESCRIBED IN WINSTON-SALEM PROPERTY REPORT DATED MARCH, 2006. THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE APPROXIMATES THE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE.

0 2000' 4000'

APPROXIMATE GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

SITE LOCATION MAP

ARCADIS

FIGURE 1-1

CITY:ELLIS DIV/GROUP:41 DB:LELLIS LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*OFF=*REF*
G:\ENVCAD\Carry\ACT\B0085732\001\100\01\MAP\REPORT\SDRR\WP\85732N01.dwg LAYOUT: 1-1 SAVED: 8/10/2009 8:35 AM ACADVER: 17.1S (LMS TECH) PAGESETUP: -- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 12/1/2009 4:02 AM BY: ELLIS, LEKOREY
XREFS: PROJECTNAME: -
IMAGES: 85587X111.jpg
85587X112.jpg
85732X01

LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1907)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1917 ADDITIONS)
- APPROXIMATE LOCATION OF FORMER RAILROAD SIDINGS (1907 & 1917 PLANT FEATURES)
- APPROXIMATE LOCATION OF SURFACE WATER FEATURES
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2007 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. SURFACE WATER LINE SEGMENTS WERE DIGITIZED FROM A VARIETY OF SOURCES INCLUDING THE USGS 7.5 MIN. QUAD., WALKERTOWN, NC (1951 PHOTOREVISED 1997), FORSYTH COUNTY TAX SHEET 636886 (23-OCT-2000), AND 2002 USGS AERIAL PHOTOGRAPH.
5. ALL LOCATIONS ARE APPROXIMATE.

FORMER STREET NAMES:

NE PATTERSON AVE. (FKA DEPOT ST.)
NORFOLK SOUTHERN RAILROAD (FKA SOUTHERN RR AND ROANOKE SOUTHERN RR)
INDIANA AVE. (FKA INVERNESS AVE.)
FARMALL ST. (FKA OGBURN ST.)
LIBERTY ST. (FKA WALKERTOWN RD.)
FAIRCHILD RD. (FKA NORWOOD ST.)
NORFOLK AND SOUTHERN RAIL YARD AND MAIN LINES (FKA NORFOLK AND WESTERN RAILWAY CO.)

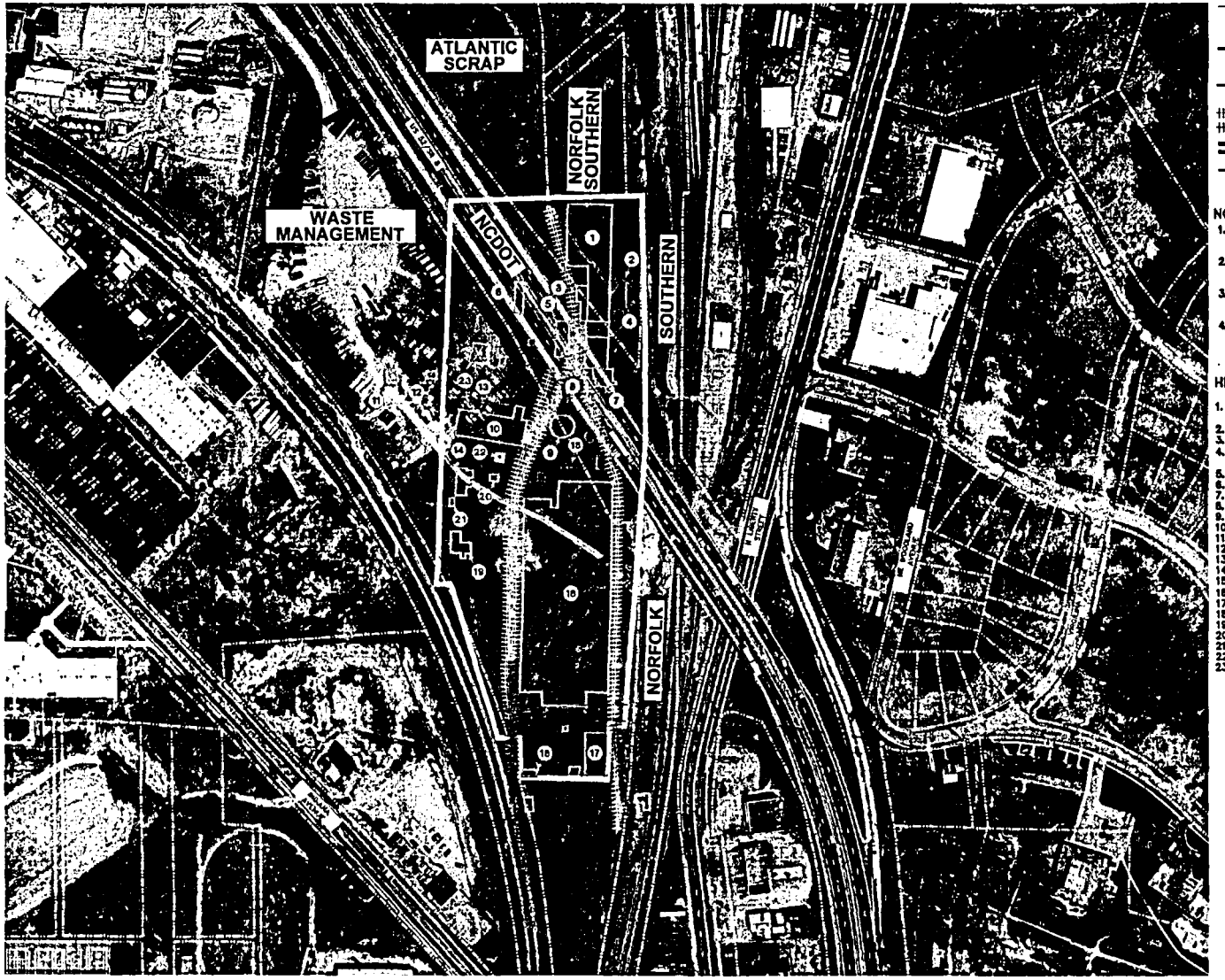
0 450' 900'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND
REMOVAL ACTION WORK PLAN

SITE MAP

ARCADIS

FIGURE 1-2



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1907)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1917 ADDITIONS)
- APPROXIMATE LOCATION OF FORMER RAILROAD SIDINGS (1907 & 1917 PLANT FEATURES)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.

HISTORICAL BUILDING KEY: (#)

1. ACID CHAMBER (BUILT ON AN OLDER ACID CHAMBER, AS SHOWN IN 1900 SANBORN MAP)
2. COMPRESSOR ROOM
3. BURNERS
4. BURNER ROOM (BUILT ON AN OLDER BURNER ROOM, AS SHOWN IN 1900 SANBORN MAP)
5. PYRITES HOUSE
6. NITRE HOUSE
7. BOILER ROOM
8. PUMP HOUSE
9. 100,000 GALLON RESERVOIR
10. TOBACCO STEM WAREHOUSE
11. 54,000 GALLON WATER TOWER
12. STORAGE
13. DRYER
14. OFFICE
15. OIL HOUSE
16. MILL BUILDING (GRINDING, MIXING, STORAGE AND BAGGING OF FERTILIZER)
17. BAG HOUSE
18. LIME HOUSE
19. STORAGE
20. TRANSFORMER HOUSE
21. SCALES
22. 8,000 GALLON TANK
23. CORN CRIB

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

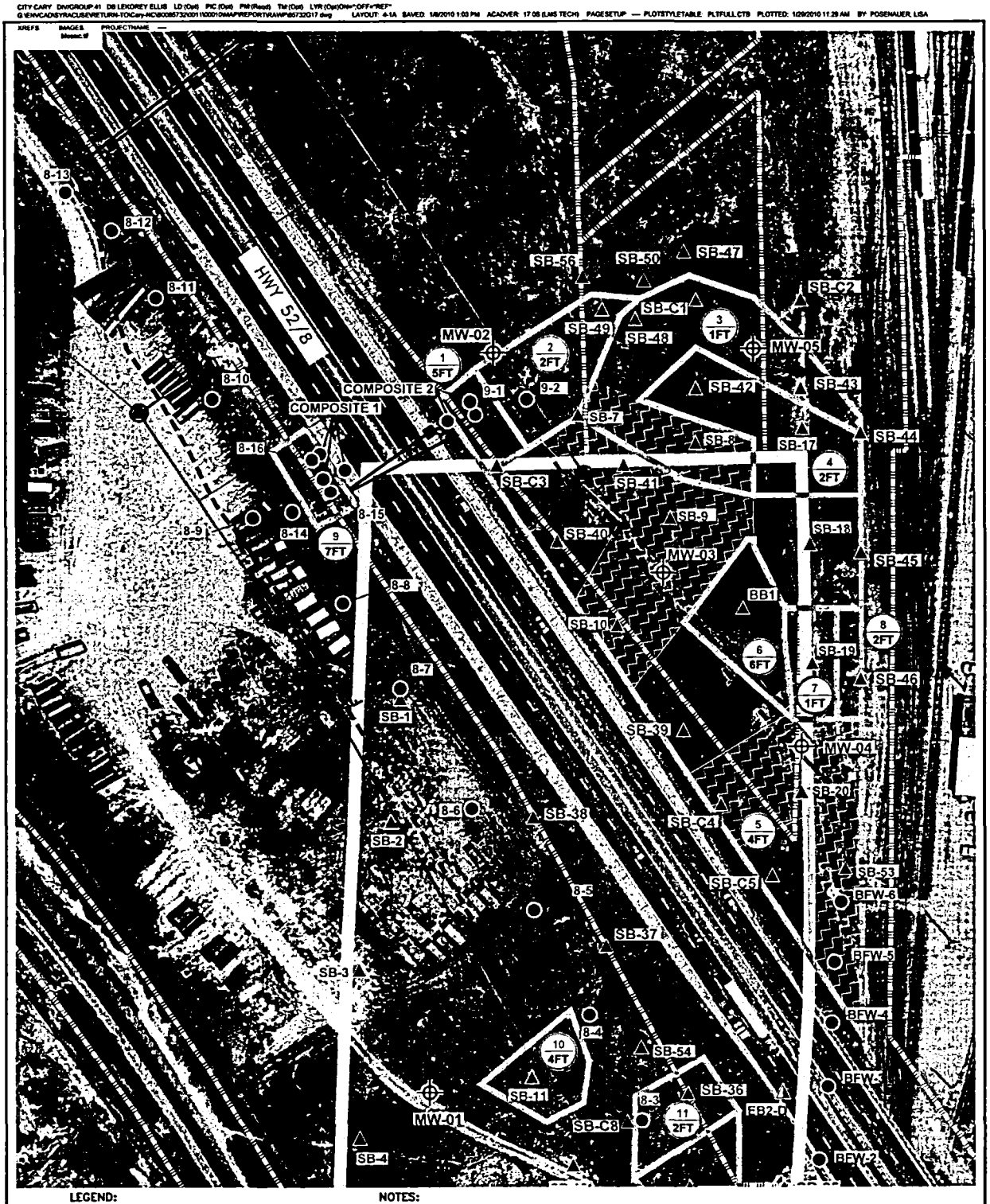
0 200' 400'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

CURRENT AND HISTORICAL SITE FEATURES

ARCADIS

FIGURE 1-3



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009)
- SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)
- SOILS EXCEED TCLP CRITERIA FOR LEAD

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "HS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

0 80' 160'
GRAPHIC SCALE

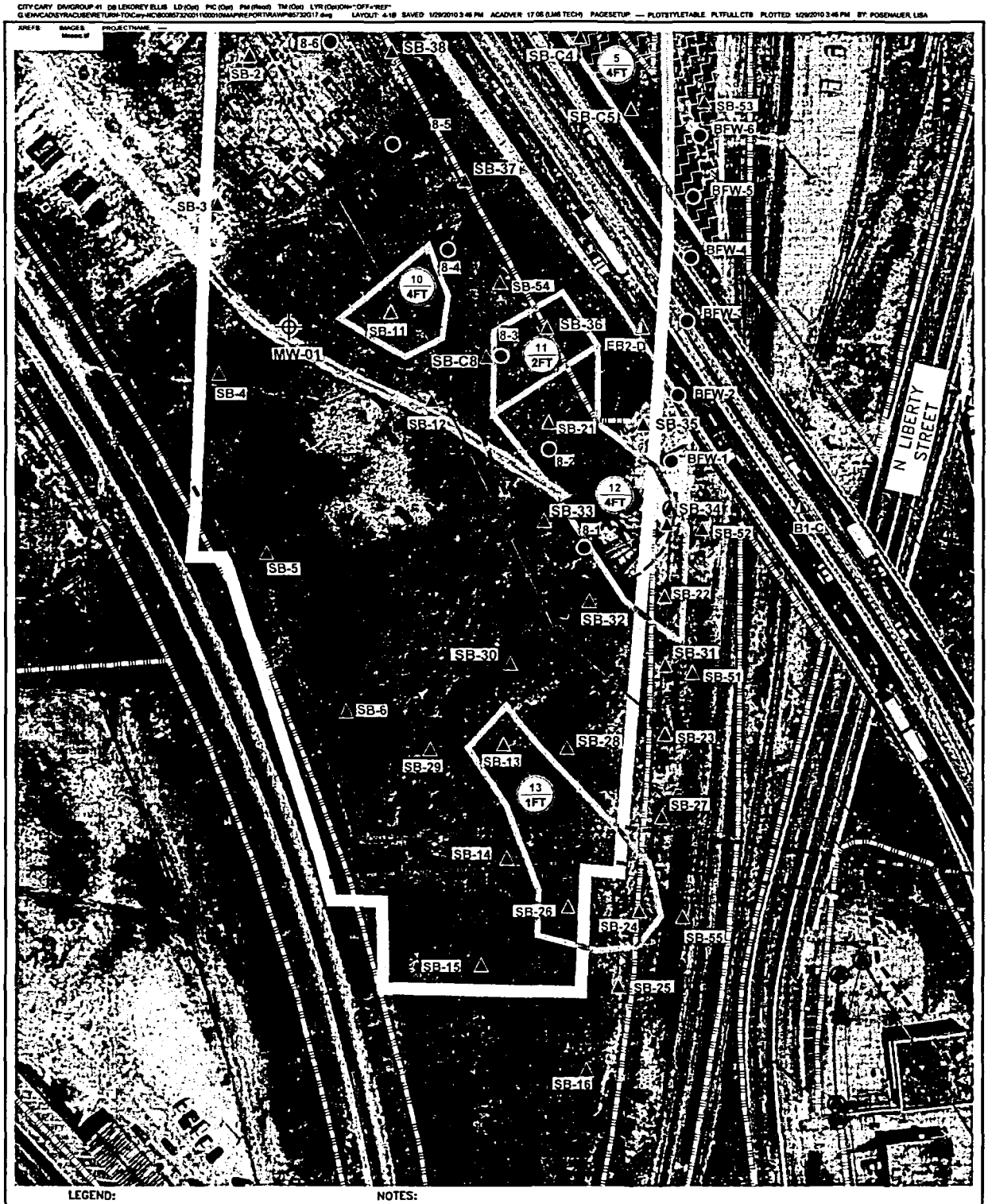
FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

SOIL REMOVAL AREAS AND DEPTHS - NORTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE 4-1A



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "MS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

0 80' 160'
GRAPHIC SCALE

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

SOIL REMOVAL AREAS AND DEPTHS - SOUTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE
4-1B

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, May 14, 2010 6:55 PM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David
Subject: 5/14/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Submitted Entact SOP to EPA, HASP is being revised and will be submitted next week.
2. Completed and signed contract with Entact.
3. Attended meetings with property owners from Waste Management and Atlantic Scrap, as well as with DOT and their contractor, to discuss access logistics for the project.
4. Construction planning, procurement, and logistics.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Submit Entact HASP to EPA.
2. Hold Project Kickoff meeting on Monday, May 17th.
3. Begin mobilization activities.
4. Begin site preparation activities.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

FORMER VIRGINIA-CAROLINA CHEMICAL SITE
WINSTON-SALEM, NORTH CAROLINA

SITE OPERATIONS PLAN

By: ENTACT
699 S. Friendswood Drive
Suite 101
Friendswood, Texas 77546

May 10, 2010

ENTACT
environmental tactics in waste management

SITE OPERATIONS PLAN
Former Virginia-Carolina Chemical Site
Winston-Salem, North Carolina

Table of Contents

1.0 INTRODUCTION

This Site Operations Plan (SOP) for the former Virginia-Carolina Chemical Corporation (VCC) Winston-Salem Site (the Site) in Winston-Salem, North Carolina, has been developed by ENTACT to provide the Site operational controls and procedures that will be used to implement the approved soil Removal Action (RA) as outlined in the 2010 Request for Proposal.

The objective of the soil RA is to remove soils that have been found to contain arsenic and/or lead at levels over the Site-specific action levels (SSALs), as described in the Arcadis February 2010 *Site Delineation Report and Removal Action Work Plan* (SDR/RAWP).

The following sections of this document are organized as follows:

- Section 1 present the Site location and background information, the chemicals of concern at the Site and the performance standards governing the Removal Action;
- Section 2 presents the Site operations procedures detailing the soil removal, management, and handling procedures of the materials;
- Section 3 presents the Transport and Disposal Plan.
- Section 4 presents the Work Documents to be submitted during and following the Removal Action.
- Section 5 present the Project Schedule

The Site-Specific Health and Safety Plan (HASP), also prepared by ENTACT will be submitted concurrently with the SOP under a separate cover.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located near the intersection of Indiana Avenue and two separate branches of the Norfolk Southern railroad in Winston-Salem, Forsyth County, North Carolina; as shown on the United States Geological Survey (USGS) 7.5-minute quadrangle maps for Walkertown and Winston-Salem East, North Carolina. The property that contains most of the Winston-Salem site has a street address of 3301 Glenn Avenue; however, the former plant site is located at the far southern end of this property closer to Indiana Avenue between two branches of the Norfolk Southern Railroad. The Site is bisected from northwest to southeast by the US 52 / SR 8 right-of-way (ROW).

1.2 SITE BACKGROUND

Historically, this Site was used as a phosphate fertilizer production facility until 1927. The north and central portions of the Site are the probable location of the main operations associated with the former phosphate fertilizer plant. Debris and impacted soil in these areas are the subject of this removal action. The Site consists of approximately 7.7 acres of mostly undeveloped land bounded to the east by the Norfolk Southern railway. A North Carolina Department of Transportation (NCDOT) transportation corridor and right-of-way for Highway 52/SR 8 bifurcates the site. Land to the north of the NCDOT corridor is owned by Atlantic Scrap and Processing LLC. Land to the south of the NCDOT corridor is owned by Waste Management of

the Carolinas. Access to the site is provided by gravel access roads from the Atlantic Scrap and Waste Management properties. The approximate geographical location of the center of the Site is at 36.1270° North latitude and 80.2342° West longitude (North American Datum of 1983 [NAD83]).

Historical information indicates that a fertilizer plant was constructed at the Site by Southern Chemical Company between 1895 and 1900, and was continuously operated through 1927. Virginia-Carolina Chemical Company acquired the plant from Southern Chemical Company in 1902. The Site has undergone little to no development since the VCC operations ceased and is mainly undeveloped and heavily vegetated.

Site investigation activities conducted on behalf of EMES and other parties indicate that elevated concentrations of arsenic and lead are present in soil in several areas.

1.3 SELECTED REMOVAL ACTION CRITERIA

The objective for the RA at the Site is to remove soils with lead and/or arsenic concentrations exceeding the SSALs of 270 milligrams per kilogram (mg/kg) for lead and 22 mg/kg for arsenic from thirteen (13) distinct removal areas located on four properties covering a total area of approximately 3.65 acres. Based on information provided by ARCADIS, the total volume of soils requiring removal and disposal is estimated to be 31,000 tons.

Soils that contain Toxicity Characteristic Leaching Procedure (TCLP) arsenic and lead concentrations below 5 milligrams per liter (mg/L) shall be disposed of off-site at an EMES-approved, Subtitle D land disposal facility. Soil that contains TCLP arsenic or lead concentrations at or above 5 mg/L shall be stabilized on site prior to disposal at an off-site, EMES-approved, Subtitle D land disposal facility. In the event that stabilization is not effective in reducing the leachable concentrations of arsenic and lead to below 5 mg/L, these materials shall be disposed of off-site at an EMES-approved, Subtitle C land disposal facility. Composite samples of the stabilized materials will be collected and analyzed to ensure that leachable concentrations of arsenic and lead are below 5 mg/L prior to off-site disposal in a Subtitle D facility. Soil removal areas where TCLP lead concentrations exceed 5 mg/L are illustrated in Figure 3; existing data indicates that TCLP concentrations of arsenic were not detected above 5 mg/L.

Upon completion of excavation activities to the initial target depths illustrated in Figure 3, the Engineer shall collect confirmation soil samples at the base of the excavation areas to determine the concentrations of arsenic and lead. Confirmation soil samples will be screened in the field by the Engineer using a portable X-ray fluorescence (XRF) analyzer. Confirmation soil samples will also be submitted to the laboratory and analyzed on an expedited basis for confirmation of the field screening results. In the event that confirmation soil samples contain arsenic and/or lead above the SSALs, additional soil excavation and sampling will be performed. Excavation will continue until confirmation soil sample results for arsenic and lead are below the SSALs, or the base of the excavation reaches the groundwater table. The RAC shall be notified of the confirmation soil sample results within 5 business days of sample collection. Field screening and confirmation soil sampling will be performed by the Engineer, and laboratory analyses will be conducted by an EMES-approved laboratory. The use of field screening and laboratory

analyses to guide excavation activities is described in the *Site Delineation Report/Removal Action Work Plan, Former VCC Winston-Salem Site – Winston-Salem, North Carolina* (SDR/RAWP) (ARCADIS, January 2010).

2.0 EXCAVATION AND HANDLING PROCEDURES

The excavation and handling procedures have been designed to ensure that all steps of the RA meet all applicable regulations for the management and disposal of contaminated soils.

2.1 PRE-EXCAVATION ACTIVITIES

2.1.1 Permits

All required federal, state and local permits and approvals will be obtained prior to implementation of the RA. ENTACT will contact the following Agencies, to obtain the permits necessary prior to initiation of the work:

- City of Winston-Salem (Grading, NPDES)

2.1.2 Stormwater Management Plan

Stormwater control measures will be implemented before the management of material is initiated at the Site to minimize the volume of water accumulated in soil areas containing elevated metals concentrations. Controlling and minimizing run-on to active work areas will be accomplished through the proper design, construction and maintenance of soil berms. Silt fence or other appropriate measures will be implemented to supplement and protect the soil berms.

Soil berms will be constructed of clean backfill soils, outside of the excavation limits, to prevent cross-contamination of soils to remain onsite. For Removal Areas within the NCDOT ROW, an appropriate quantity of clean backfill soil will be needed from the DOT Contractor to construct the soil berms. In areas where slopes adjacent to the removal areas will not allow for additional soil placement, such as along the western limits of Removal Areas 1 and 5, silt fence or other measures may be utilized to divert the maximum amount of stormwater away from the Removal Areas.

Soil berms may also be constructed within the excavation limits to segregate stormwater that collects in previously excavated areas awaiting confirmation sample results from stormwater that has contacted impacted soils.

Water contacting impacted soils will not be discharged. Contact water may be utilized as dust control for soils targeted for removal, but will not come in contact with soils that are to remain onsite. Contact water will be handled with dedicated equipment that is not used for handling clean water. Any remaining contact water will be collected, sampled, and characterized prior to off-Site disposal. Collection devices may range from 55 gallon drums to poly tanks or totes to 21,000 gallon frac tanks depending on the quantity of water to be handled.

If excavation below the groundwater table becomes necessary, contact water will be handled in a similar manner as described above.

Water that does not come into contact with disturbed soils will be routed to the appropriate drainage feature at or near the Site.

2.1.3 Erosion and Sedimentation Control Plan

Erosion control measures will be implemented in areas as needed to prevent accelerated erosion of areas subject to removal and to prevent excess sedimentation in drainage pathways in accordance with the Erosion and Sedimentation Control Plan (ESCP) prepared by ARCADIS on behalf of EMES. These measures will include use of silt fencing and other controls to prevent impacted soils from being transported to clean areas or off-Site and contain sedimentation and address disposal of contained/pooled water on Removal Areas and temporary staging areas. These measures will be inspected, maintained and upgraded daily and after any rainfall during Site removal activities and until a stable condition has been reached on the restored areas. Inspections will be documented in a log book and on the proper forms provided in the ESCP.

2.1.4 Dust Control and Monitoring Plan

ENTACT will perform excavation activities in a manner to control dust emissions to protect on-Site workers and the public from potential exposure to dust. Site preparations will include positioning and implementing dust suppression and engineering control measures to ensure that air emissions are maintained at "no visible emissions" at the Site perimeter during the construction phase of the RA.

ENTACT will utilize water trucks with a pump and hose system. As a preemptive measure during any extended dry weather periods, ENTACT may reduce dust issues by pre-soaking Removal Areas up to two days prior to beginning removal. This method simulates a rain event creating moist soil that will not create dusty conditions. Also, if dusty conditions arise, the water truck will have a spray bar or larger spray device which can be used to spray large areas by driving the truck over such areas as well as a hose connection to be sprayed directly on potential dust areas. This method has been proven to be highly effective in controlling dust in similar type projects where mitigation of potential fugitive dust generation is a priority. Arrangements will be made for a connection to the local, potable water supply to provide clean water for dust control measures.

Other dust suppression methods utilized during the removal actions may consist of water misting in excavation areas using high-pressure, low-volume sprayers. These misters will be hand operated by ENTACT personnel and/or situated as stationary devices directed at specific areas having the potential to produce dust.

Real time monitoring for respirable dust will be performed using a field-portable monitor that displays airborne dust concentrations immediately and continuously on a digital LCD screen in units of milligrams per cubic meter of air (mg/m3) with a data logging feature. These units use optical light scattering and has a built-in power source. These units are sometimes referred to as real-time aerosol monitors (RAM) or personal dataRAM (PDR.) Calibration of the RAM will be

in accordance with the manufacturer's instructions. Monitoring will be performed as needed, such as for newly detected particulates which were not previously detected or anticipated. Two PDR units will be utilized at each active excavation area, one downwind of work area and one downwind at the site perimeter. Readings above 0.5 mg/m^3 at the work area, or 0.15 mg/m^3 at the site perimeter, will require additional dust suppression. Dust suppression may be accomplished by slowing or stopping the work activity, increased application of water and the use of less aggressive techniques for mixing and excavating soils. Speed limits on the site will be set to control generation of road dust. Note that the standard site work practice is for dust suppression to begin whenever dust is visible.

NIOSH method samples will be collected using air sampling pumps with pre-weighed MCE filter (NIOSH Method 0500 and 7300) and submitted to Galson Laboratory for analysis of total dust, lead, and arsenic. Each sampling location will also be monitored for total particulates in real time using a MIE DataRAM. Samples will be collected from the following general locations:

- 1 downwind of the excavation, soil stabilization and soil staging area
- 1 upwind of site perimeter
- 1 downwind of site perimeter (note that perimeter monitoring may also be performed by the Engineer to confirm dust levels at the perimeter of the Site)
- 1 personal monitor on personnel working at the site.

Samples will be collected until 5 consecutive days of results have been obtained that verify the AL was not exceeded. During the first 10 work days of NIOSH method sampling, sample media will be shipped priority overnight each day with a requested 24 hour turnaround time from the laboratory. After 5 consecutive days of results below the AL, NIOSH method sampling will continue at a rate of 20% (1 sample every 5 workdays) for all removal activities. NIOSH method sample media will be shipped every other day with standard turnaround time requested from the laboratory. If at any time, TWA ALs are exceeded, 100% NIOSH method sampling with 24 hour turnaround will be instituted until 5 consecutive days of results below the AL are achieved. Prior to starting soil removal, a background NIOSH samples will be collected to establish appropriate background readings for the site. Action Levels for TWA NIOSH method sampling is 0.005 mg/m^3 for Arsenic and 0.030 mg/m^3 for Lead at the work area and 0.0015 mg/m^3 for both constituents at the site perimeter.

2.1.5 Noise Control Plan

Work involving the use of mechanized equipment will be conducted between 7:00 a.m. and 5:00 p.m. with additional hours as needed, not to exceed the available daylight. In the case that vacuum excavation is implemented, equipment will be staged in areas to minimize noise to adjacent off-Site interests and monitoring equipment will be used to determine employee exposure levels and potential off-Site impact. Alternative equipment will be used if unacceptable noise levels occur. Refer to Section 5.2.4 of the Site-specific HASP.

2.1.6 Protection of Subsurface Utilities and Other Obstructions

Prior to beginning heavy equipment operations, ENTACT will file utility line locate requests with the North Carolina One Call Center (NCOCC) for underground utilities at least 72 hours before onsite activities are started. Locate Ticket information will be provided to EMES before initiating on-site activities. Locate Tickets will be updated every 13 business days, as required, throughout the project, until all intrusive activities are completed. The locations of these lines will be confirmed by a private utility contractor and through visual inspections of nearby manholes, water meters, catch basins, utility poles, pedestals, markers and other above ground utility indicators. ENTACT will identify subsurface utilities within the Removal Areas prior to excavation. Existing underground power lines that prevent remedial activities may be relocated prior to excavation activities. The affected property owners will be provided notice at least a minimum of 24 hours prior to the interruption in service due to any temporary relocation of subsurface utilities.

Caution and awareness of power lines and other utility services that remain in place will be part of the daily work health and safety meetings if the planned activities require working in the proximity of these lines.

Compliance with the Subsurface Utility Checklist identified in EMES's OIMS requirements will be verified and documented in a log book maintained onsite. Locations and elevations subsurface utilities that are encountered within the Removal Areas will be documented via surveying.

2.1.7 Survey Control

An independent licensed Land Surveyor in the State of North Carolina will perform detailed horizontal and vertical control surveys to determine: the limits of the removal areas and existing grade elevations at a grid spacing of 25 feet; Elevations at the base of the excavations prior to backfilling at a grid spacing of 25 feet; locations and elevations of subsurface utilities within the Removal Areas; limits of the demarcation barrier placed over impacted soils left in place; ;and finish grade elevations and horizontal extent of excavations. Additional survey shots will be obtained, as needed, to document changes in elevation or other site features not aligned with the 25 foot grid spacing.

Prior to initiating removal and/or stabilization activities, a coordinate grid system (CGS) will be established over the delineated removal area in order to provide a coordinate system for tracking excavation activity in the field. The CGS will employ square grids of approximately 25 feet by 25 feet superimposed over the Removal areas of the Site. This coordinate system will be used to provide benchmark locations and reference markers during excavation for documentation. Record Drawings will be kept current to identify the results of remedial action activities.

A set of deliverables will be submitted to the Engineer upon completion of each of the three phases of work: Pre-Excavation; Base Excavation (including demarcation liner); and Post-Excavation. Each deliverable set will consist of three paper copies that are signed and sealed by a North Carolina licensed Land Surveyor and one electronic copy.

2.1.8 Tree and Brush Removal

Following set up of the work zones, the Removal Areas will be prepared for excavation by removing the above ground trees and brush. The above ground portions of the trees, to include the tree trunks and branches, etc., that is not in direct contact with the soil may be handled to prevent contact with impacted soils, moved out of the Removal Area, and chipped for reuse onsite during restoration activities or hauled offsite and disposed of or reused. A Feller-buncher, or excavator with grapple will be employed to safely and efficiently remove the trees and limit contact with the impacted soils. Wood chips to remain onsite will be staged outside of the Removal Areas, in an area acceptable to the property owner, until needed for restoration. The below ground portions of the trees and brush, including the stump and root mass, will be combined with the impacted soil and disposed of off-Site with the excavated soil.

2.1.9 Traffic Management Plan

ENTACT will control vehicular traffic to ensure activities are performed safely and efficiently. All excavated material will be transported via surface streets directly to the off-Site disposal facility. Proposed traffic routes will be determined and based on sequencing of removal methods and Removal Areas to be remediated. Sequencing of removal areas will be done in a manner that allows for safe and efficient haul routes for disposal trucks and also minimizes potential cross contamination of clean removal areas. In order to minimize disturbance to the property owners daily operations, ENTACT will plan and schedule truck activity to decrease and eliminate demurrage time to the best of our ability. A journey management plan (JMP) will be completed by the Contractor before work begins and will be updated or revised as necessary for on-going work activities.

Site access and traffic management will be coordinated with each of the property owners. Truck routes will be adequately marked with signs, traffic cones, arrows, or other means to ensure clear and concise directions for all traffic entering and leaving the Site. Trucks will enter the Site from Glenn Ave and proceed to the appropriate staging area to queue for loadout. Staging areas will be delineated to reduce congestion and limit any disruption to the property owners. Trucks will be routed such that backing will be reduced or eliminated, if possible.

Escort vehicles may be utilized to lead trucks through the Site to the appropriate staging area or Removal Area. Loaded trucks will exit the Site immediately following proper manifesting, documentation, placarding, and visual inspection for cleanliness. Transport vehicle traffic will leave the Site onto Glenn Ave. on the west side of the Site. A flagman may be provided at Glenn Ave, if necessary, to allow transport vehicles to safely enter the flow of traffic. Transport vehicles will utilize city or state paved roads to transport waste materials to the appropriate off-Site disposal facility in accordance with the JMP.

A Site speed limit of 15 mph will be established and enforced to minimize dust generation. All trucks hauling excavated soil will be tarped, manifested and display the appropriate placards during transportation.

During the course of the project, as the overlapping DOT project progresses, access may be available to the Site directly from US-52. If this situation develops, the appropriate coordination with all parties will be necessary to ensure the continued safety of all personnel.

2.1.10 Coordination with Billboard Owner

ENTACT will coordinate the applicable Site work activities with Fairway Outdoor Advertising personnel to allow removal and replacement of the foundation, utilities, and billboard at the Northwest intersection of US-52 and the NSRR.

2.1.11 Contingency Plan

All materials brought to the Site will be in appropriate and labeled containers. Materials will be stored in the designated staging area and protected from damage and weather. Gasoline, diesel fuel, and other oils and hazardous materials will be stored in double-wall tanks, secondary containments, and/or other appropriate storage areas such as flammable storage cabinets.

Should an unexpected need arise due to incident or other emergency, during or after normal work hours, the appropriate parties, as described and listed in the SSHASP will be notified.

Emergency vehicles will be met by an escort vehicle at Glenn Ave and led along the normal truck route through the Site to ensure timely response and avoid confusion with the operations of the property owners.

Emergency evacuation procedures will be dependent on the nature and severity of the emergency, location of the hazards, wind direction, and other access restrictions and constraints. Generally, the muster area will be the office trailer/support zone with the Site entrance on Glenn Ave as the alternative. If access to these areas is deemed unsafe, the alternative muster point will be the RR parking lot at Liberty Ave.

Emergency contact personnel are listed in the SSHASP. This contact list will also be posted in the office/support trailer along with maps and directions to the nearest hospital.

2.2 MOBILIZATION AND SITE PREPARATION

2.2.1 Logistical Support

Prior to full-scale mobilization to the Site, ENTACT will perform various logistical preparation activities to ensure an efficient startup of field activities. Logistical preparation activities to be performed include, but are not limited to, the following:

- Arrange for Delivery of Equipment, Supplies, and Materials;
- Confirm Backfill Source(s);
- Coordinate Efforts with Subcontractors;
- Establish Transportation Routes;
- Coordinate Schedule with Landfill

- Contact Local Property Owners, Officials, Agencies, Hospitals, etc., as necessary.

Support Facilities

ENTACT will mobilize the necessary project personnel and equipment to the Site to accomplish the scope of work. An administrative office structure will be established in the support zone and will have the facilities to allow for direction of Site operations, telephone and facsimile communications, a controlled environment for computer equipment, and a point of contact location. Sanitary and wash facilities will be provided in the support zones.

2.2.2 Pre-Construction Meeting with Property Owner and Engineer

ARCADIS will obtain property access agreements from the property owners prior to the commencement of remedial activities. ENTACT will schedule and attend a pre-construction meeting with the Engineer and the property owner prior to the start of work. During the meeting, ENTACT will describe work activities, health and safety, schedule, service relocation and interruption, and provide management contact information in the event an issue arises outside of working hours. ENTACT will also perform a walk-through of the property at this time with the owners further discussing the work and fielding any questions or concerns.

2.2.3 Pre-Excavation Survey and Photo/Video Documentation

A pre-existing conditions inventory will be performed at each property to establish the restoration requirements for the property owners. The inventory will include a record of Site vegetation, personal property, fencing and other pertinent information. The inventory will include pre-restoration photos and/or video of the property and the vegetation to be removed and replaced. Copies of the documentation will be provided to the Engineer before work begins. All changes to existing conditions will be information documented in a Land Restoration Agreement for each property. The Land Restoration Agreement is an ENTACT agreement that documents changes or modifications to the restoration of the property to ensure that ENTACT and the owner are in agreement on the terms of restoration.

The pre-excavation survey will be performed by an independent licensed Land Surveyor in the State of North Carolina. Copies of the survey will be provided in both paper and electronic format. In order to compress the project schedule and avoid delays to the adjacent DOT project, excavation of the initial Removal Areas will proceed following submittal of the survey crew field notes to the engineer with the formal submittal of the pre-excavation survey deliverables within 5 business days of field survey completion.

2.2.4 Site Security Plan

ENTACT will implement Site security prior to soil excavation activities being performed. This will entail placement of orange safety fence, chain-link fence, cones, caution tape, or other suitable demarcation device in all areas surrounding the active Removal Area, other work areas and material staging areas that would not affect the process of excavation and load-out. The work area perimeter will be delineated with orange safety fencing. Warning signs will be placed at 50 ft intervals to discourage entry by unauthorized persons. The areas will be prepared by

removing or relocating any movable objects (fences, debris, temporary structures, etc.) that may inhibit the excavation process. Security at these areas would be upgraded at the end of the day by placing the fence in all remaining open areas. Security devices will be monitored throughout the shift by on-site personnel and repaired, replaced, or upgraded as needed.

Additional fencing or other warning devices may be needed on the DOT right-of-way line to further delineate and separate activities of the various parties sharing the Site.

A security guard may be present at the work area for all off-work hours in order to patrol equipment areas and work areas and prevent access to the Site.

2.3 EXCAVATION AND MATERIAL HANDLING ACTIVITIES

The Removal Areas to be addressed have been identified by ARCADIS during previous investigations. Upon completion of preparation activities, ENTACT will begin soil removal activities at the designated locations beginning with Removal Area 9. Sequencing of removal areas will be done in a manner that allows for safe and efficient haul routes for disposal trucks and also minimizes potential cross contamination of clean removal areas. ENTACT has prepared a tentative project schedule showing actual soil removal activities.

Excavation at each Removal Area will be performed to the lines and grades as shown in the RAWP and as directed by engineer. An X-Ray Fluorescence Analyzer (XRF) will be used by ARCADIS as a screening tool to determine whether or not the initial recommended depth has successfully met the performance criteria. If XRF confirmatory soil analysis determines the presence of lead or arsenic in concentrations exceeding the SSALs, the excavation will proceed in 0.5-foot increments and re-screened. Excavation will continue until either the cleanup goal has been reached or the maximum depth has been attained. In the event that the maximum depth is reached and lead or arsenic concentrations still exceed the cleanup goal, a visible marker barrier will be installed on the excavation floor prior to initiation of backfill operations.

Soil sampling will be performed by ARCADIS upon completion of excavation to the initial depths identified. In the event that soil samples contain arsenic and/or lead above SSALs, additional rounds of soil excavation and sampling will be performed until soil sample results do not contain arsenic or lead above SSALs or additional excavation is not possible due to the infiltration of groundwater or sloping requirements or constraints. Prior to backfilling the excavations, ARCADIS will perform on-bottom confirmation soil sampling and provide the testing results within 5 business days of sample collection.

To ensure the integrity of existing structures, the slope of the sidewalls of the excavations adjacent to these features will be a minimum of 1:2 (vertical to horizontal). A structural analysis will be performed prior to the start of work to determine if less aggressive sloping is necessary. The structural analysis will be certified by a Professional Engineer registered in the State of North Carolina. If any sloping/benching is required outside of excavation limits, soils removed from outside the excavation limits will be used as fill in the same removal area.

Standard excavation equipment such as excavators, loaders, and dozers will be utilized during the removal activities. Specialty equipment and hand excavation will be implemented within 2.5

feet of marked underground utilities and other areas that require delicate removal. A track-mounted excavator will be utilized to achieve excavation bottom grades. The impacted soil will be loaded directly into on-road haul trucks for off-site disposal whenever possible. To avoid driving on impacted soils with on-road haul trucks, some Removal Areas will require one excavator to cut to grade and relay the material to a second excavator loading the on-road haul trucks. An on-site haul truck may be utilized to relay material for loadout.

2.4 SOIL STABILIZATION

Soils to be excavated from portions of Removal Area 3 and Removal Area 5 will require stabilization prior to off-Site disposal to reduce TCLP lead concentrations below 5 mg/L. EnviroBlend 90/10 will be mixed in at a rate of 3% by weight of existing soils to be stabilized. Stabilization will be performed in 200 Ton batches to ensure uniform blending of the stabilization agent and the soils. A representative composite sample of the stabilized soils will be provided to engineer for every 600 Tons of treated soil. Prior to removal of treated soils off-Site, ARCADIS will provide the testing results within 7 business days of sample collection to confirm that TCLP lead and arsenic concentrations are below 5 mg/L.

Based on the relatively small volume of reagent expected to be needed, the EnviroBlend 90/10 will be packaged and delivered to the site in 2,000# supersacks, staged in the support zone and delivered to the mixing area via wheel loader with forks. A 2-3 day supply of reagent will be staged and available for use. Additional deliveries will be scheduled to avoid delays, but reduce the amount of product stored at the site. Proper dispersion of the reagent can effectively be accomplished by adding the appropriate quantity of 2,000# sacks for a given excavation area/mixing batch.

As an example: for RA5, approximately 800sf of surface area, excavated 4ft deep will yield 200 tons of soil. For a 3% by weight ratio, 6 each 2,000# sacks of Enviroblend 90/10 will be mixed into this batch size. For improved blending efficiency, a single sack will be spread over the mixing batch every 33Tons. Based on an excavator bucket capacity of 4Tons, 8 buckets of soils will be placed onto the mixing pad followed by 1 sack of EnviroBlend 90/10. This process will continue 6 times until 200Tons of soil and 6Tons of EnviroBlend 90/10 are on the mixing pad. This recipe will be blended further with the excavator bucket to ensure all of the soil is treated with reagent. The mixed soil will then be transferred from the mixing pad to the adjacent staging area. Three 200Ton batches will be staged together as a 600Ton sample batch and covered with visqueen sheeting until laboratory analysis has confirmed the TCLP for lead and arsenic to be less than 5mg/L. In the event that a TCLP sample fails following the initial mixing, the sample batch may be re-blended to ensure thorough EnviroBlend distribution and resampled. Based on the results of the sampling events and the effectiveness of the stabilization process, the batch may then be treated with additional reagent and resampled or disposed of at the Subtitle C Landfill.

The stabilization area, including the mixing area and the stockpile area, will be setup within the footprint of the TCLP lead impacted material. Soil to be stabilized will be relayed to mixing area with excavators or trucks without impacting the soils that do not require stabilization. Stockpiled soil will be covered with visqueen at the end of each shift for weather protection and dust control.

2.5 SITE RESTORATION

After receiving confirmation that the cleanup criteria have been met, Removal Areas will be backfilled with clean general fill and/or topsoil to the original property conditions. The backfill materials will have been previously sampled to ensure compliance with the Specifications. Fill materials will be placed and graded to pre-remedial contours or better to provide for optimal drainage. Temporarily relocated appurtenances will be reinstalled following soil removal activities.

After preparation of the excavation floor, backfill will be placed in loose lifts, and if necessary, compacted by mechanical methods. In areas outside of the NS ROW, general fill will be placed in the excavation up to 6-inches below the original grade. If necessary, the surface of the general fill will be loosened in preparation for placement of the topsoil. Topsoil will be evenly spread up to original grade. For areas within the NS ROW, clean fill will be placed to original grade and compacted to NS specifications. Geotechnical and analytical test results for the backfill and topsoil materials will be submitted to the engineer for approval prior to delivery of the materials to the site.

Following placement of topsoil, the areas will be revegetated by planting seed. Fertilizer will be applied, if necessary, to the topsoil prior to, or in conjunction with, the seed. Seeded areas will be watered, as needed, to ensure establishment. ENTACT will guarantee all installed vegetation for a period of one year. Seed tags, and application and maintenance instructions for all seed and fertilizer materials will be submitted to the engineer prior to delivery of the materials to the site.

2.6 EQUIPMENT CLEANING PROCEDURES

The first line of defense in prevention of tracking soil is to keep the vehicle tires clean by maintaining clean access roads and ensuring all vehicles remain on the clean roads. A tracking pad, consisting of a 12' wide x 100' long area covered with 2-3" course aggregate, will be constructed along the site exit roads. The purpose of this tracking pad is to shake any loose soil off of the vehicle tires prior to exiting the site. The aggregate surface will be regularly turned over to maintain a clean running surface.

All vehicles will be inspected prior to leaving the site to prevent tracking of site soils onto public roads. A portable truck wash pad will be setup to power wash truck tires, if needed. A skid steer loader equipped with a power broom attachment will be available to broom clean impervious road surfaces, if needed.

For equipment and materials being transferred from the work area subject to impacted soil excavation, a visual inspection will be performed. Any visible materials or debris will be removed and disposed of in a manner consistent with the materials being excavated from the area. EMES's representative will be given the opportunity to inspect each piece prior to removal from the work area.

Equipment leaving the site will be decontaminated prior to demobilization. Dry decontamination methods, using shovel, brooms, and scrapers, will be implemented for all equipment. Wet

decontamination methods may be needed for equipment handling impacted materials. A portable truck wash pad will be available to contain the water spray utilized during wet decontamination. All rinse water will be collected and handled consistent with the other impacted waters onsite.

2.7 DEMOBILIZATION

Upon completion of the removal activities, a Pre-final Inspection will be scheduled to review and inspect the removal action work completed. The purpose of the inspection is to determine whether all aspects of the RAWP have been implemented at the Site, and whether the RA meets the performance standards and is in compliance with all applicable federal, state, and local regulations and requirements.

Upon completion of all Site activities, all temporary construction facilities and utilities will be removed or disconnected. All trash, debris, and extra soil shall be removed from the Site. Temporary safety fences will also be removed at this time.

3.0 TRANSPORT AND DISPOSAL

This section describes the procedures to be implemented for the off-Site transportation and disposal of waste materials to be disposed off-Site. The Site is located in back property of two active facilities with limited area for truck staging. The Site logistics for managing truck traffic will be determined by a visual inspection of the Site, discussion with the property owners, and assessment of the available access, prior to mobilization. Excavated material will be placed into trucks for transport to the designated landfill. Trucks will be loaded by either a loader or excavator. In order to minimize disturbance and impact to the property owners, ENTACT will plan and schedule Removal Areas to reduce truck traffic.

3.1 CONTAINERS AND METHODS FOR TRANSPORT

All waste stream materials will be transported from the Site by tandem truck, tractor-trailer, roll-off box, or similar truck transport system. Open top trailers will be covered with a suitable tarpaulin prior to leaving the Site to prevent wind dispersal of waste materials. Neither free liquids nor saturated soils will be placed in truck beds. Loading of trucks will not be performed during heavy rain events. Decontamination water or dust suppression water requiring off-Site disposal will be containerized in a temporary tank for transport or will be transported by a vacuum equipped transport vehicle.

Trucks utilized for transport of impacted soils will be inspected, and decontaminated as needed, prior to hauling non-impacted materials such as clean fill and topsoil. Decontamination / inspection reports will be completed for any trucks that fit this description and for all trucks hauling impacted soils at the conclusion of each trucks service at the Site.

3.2 EQUIPMENT AND CONTAINERS FOR LOADING

The transportation vehicles will enter the Site at the entrance/exit locations on Glenn Ave. Transport vehicles will proceed to the excavation area where waste materials will be loaded into the tandem trucks, roll-off boxes or tractor-trailers with loaders and trackhoes. Vehicles will not be loaded in excess of the approved axle rating of the transport vehicle and care will be taken to prevent the contamination of transport vehicles during load out. Dust suppression systems, consisting of water misting and spraying devices, will be used, if necessary, to prevent airborne dust emissions from leaving the load out area. Upon the completion of load out activities, transport vehicles will be decontaminated at the load out area and inspected and manifested, as necessary.

3.3 VEHICLE DECONTAMINATION AND INSPECTION

Care will be taken to prevent the contamination of transport vehicles during load out for off-Site disposal. All vehicles exiting the Exclusion Zone will be decontaminated outside the Exclusion Zone. Dry decontamination procedures will be used for all vehicles that travel over contaminated materials prior to leaving the Site. Administrative, transport, and other vehicles not cross-trafficking over contaminated areas will not be decontaminated prior to exiting the Site. The dry decontamination process will consist of a scraping and brushing the tires with shovels and stiff-bristled brooms to remove any excess soils from the wheel wells, or tires.

Based on visual inspection, a wheel wash may be required to remove heavier accumulations of dirt or mud. A wheel wash station will be available for use as necessary to ensure contaminated material does not leave the Exclusion Zone. The water will be contained and pumped into temporary tanks and used on-Site for dust control in areas requiring remediation. All equipment used in decontamination will be routinely cleaned to prevent contaminating equipment.

Prior to leaving the Site, transport vehicles will be securely covered with a suitable tarpaulin. Tailgate locks will be inspected to ensure that they are secure and will prevent the release of waste/recyclable material from the vehicle during transportation.

All vehicles, especially trucks, leaving the site will drive over the tracking pads to remove any loose soils. Trucks requiring further attention will proceed to the designated decontamination pad for pressure washing of the tires. Wash water from the decon pad will be disposed of as contact water. It is anticipated that the aggregate construction exits will ensure the cleanliness of all vehicles leaving the site and wet decontamination methods will not be required.

3.4 TRANSPORTATION ROUTES AND SITE TRAFFIC CONTROL

Transport vehicle traffic will leave the Site on Glenn Ave. A flagman will be provided, if necessary, to allow transport vehicles to safely enter the flow of traffic. Escort vehicles may be deployed, if needed, to safely guide the transport vehicle through the Site. Transport vehicles will utilize city or state paved roads to transport waste materials to the appropriate off-Site disposal facility. The Site Traffic Control Plan will be implemented during transport.

3.5 OFF-SITE EMERGENCY SPILL RESPONSE

The transport route from the Site to the designated disposal facility will be inspected periodically by ENTACT personnel. Transport vehicle drivers will be advised to observe the designated route and immediately report any spills attributable to the transport of waste materials to the Project Manager.

In the event of an off-Site spill incident, the transporter will be responsible for ensuring that the appropriate cleanup is conducted. ENTACT will be responsible for the oversight and cleanup of all spills of transported material within Site boundaries. In general, spill clean-up procedures for transport vehicle spills that may occur during transport between the Site and the designated disposal facility will include the consolidation of spilled material and reloading of the material onto the transport vehicle. If waste material is spilled onto pavement, the impacted area will be swept visibly clean. If waste material is spilled onto a non-paved surface adjacent to the road, the loose material will be collected and the impacted area will be excavated, as appropriate, to ensure that spilled waste materials and potentially impacted soils are removed. Depending on the quantity of material spilled, hand tools and/or heavy equipment will be used to clean the spill area. If a spill occurs in a high traffic area, traffic cones, flares, signs, and flag persons will be mobilized, as necessary, to direct and control traffic.

3.6 TRANSPORTATION CONTRACTORS

ENTACT will load all excavated material into trucks for transportation and disposal at an approved, off-Site landfill.

3.7 DISPOSAL FACILITIES

Prior to the removal of any waste material from the Site, ENTACT will obtain the appropriate approvals from the landfill facility for the off-Site disposal of the designated waste streams. The written approval will include a list of the acceptance criteria the disposal facility will use in determining whether the loads will be accepted or rejected. ENTACT will finalize the selection of the disposal facility for each waste stream and provide the appropriate information before the material is transported off-Site. Soils shown to be nonhazardous by analytical testing will be transported to the RCRA Subtitle D landfill for disposal. Hazardous soils, upon approval and direction of the engineer, will be transported to the RCRA Subtitle C facility. Disposal facilities to be used for this removal action include:

RCRA Subtitle D landfill
BFI / Charlotte Motor Speedway Landfill
5105 Moorehead Road
Concord, NC 28027
704-782-2004

RCRA Subtitle C landfill
Chemical Waste Management
Highway 17 North, Mile Marker 163
Emelle, AL 35459
205-652-8156

3.8 DOCUMENTATION

The appropriate documentation will be generated and maintained for all material transported from the Site to an off-Site disposal/reclamation facility. A waste shipment record, waste manifest or bill of lading which identifies the generator, transporter and disposal facility and corresponding identification number, the nature of the material, the date and time the material was transported from the Site, and the estimated weight or volume of material will be provided with each loaded transport vehicle. The manifest or bill of lading will be signed by the EMES representative or designee, and the transport vehicle driver before the material is transported from the Site.

Upon receipt of the material, the disposal facility will be required to sign the manifest. A copy of the signed manifest will be returned to the EMES representative for record-keeping purposes.

Weight tickets will be obtained from the disposal/reclamation facility to verify the quantity of material transported from the Site for each workday. ENTACT will maintain a spreadsheet at the field office to track the quantities of generated waste materials requiring off-Site disposal or reclamation.

4.0 WORK PRODUCTS

4.1 DAILY, WEEKLY AND MONTHLY REPORTS

ENTACT will prepare and maintain daily work reports and other records to summarize all Site activities performed during completion of removal activities. At a minimum, the daily work reports will include a listing of personnel on-Site, equipment utilized, work performed, problems encountered (if any) and resolutions, and related information.

ENTACT will prepare status reports on a weekly basis to summarize activities performed at the Site during the previous week.

ENTACT will also prepare written monthly progress reports that:

- Describe the actions which have taken place during the month;
- Include a summary of all results of sampling and tests and all other data received or generated during the month;
- Identify all documents completed and submitted during the month;
- Describe all actions which are scheduled for the next six weeks, and information regarding construction progress;
- Include any Workplan modifications proposed/approved.

An authorized representative of ENTACT will sign all reports (other than the monthly progress report described above).

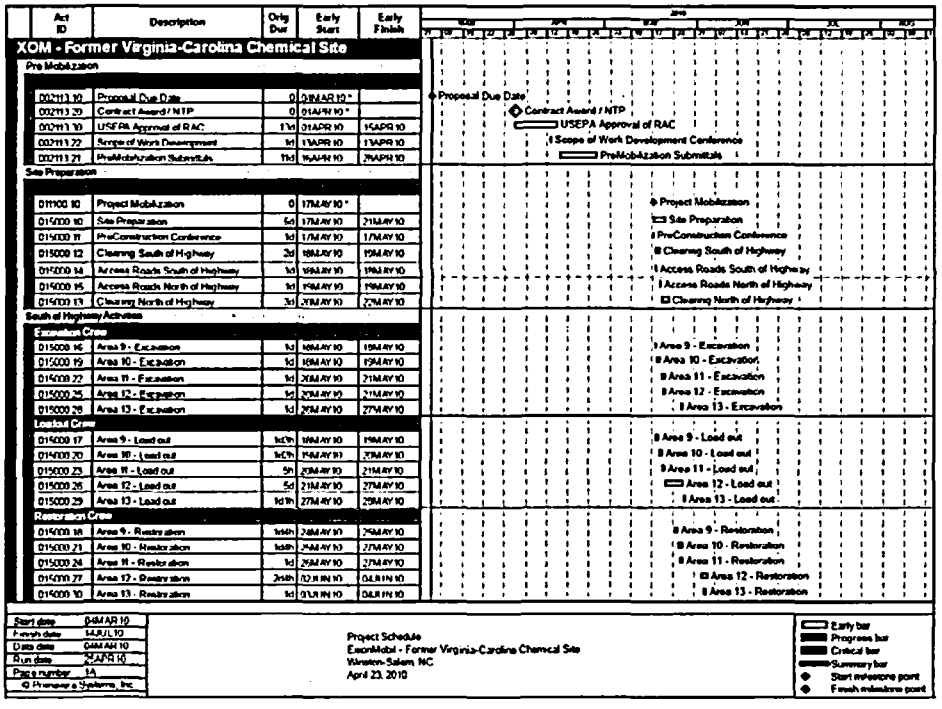
4.2 PHOTOGRAPHIC/DRAWING DOCUMENTATION

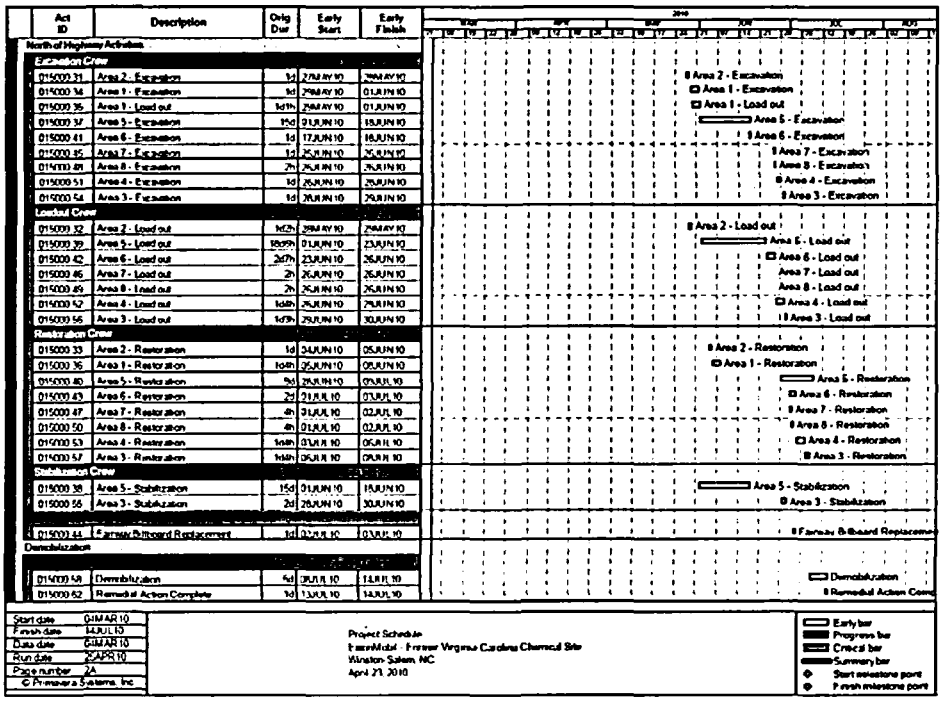
One set of the Site Drawings will be kept at the work area to accurately show any changes during implementation. Changes will be neatly and clearly marked. Drawings will be kept current with the progression of work performed. Upon completion of the contract, ENTACT will deliver one complete, accurate and legible set of Record Drawings to EMES's representative.

Photographs will be taken in order to serve as a pictorial record of work progress, problems, and mitigation activities. ENTACT's file at the Site will contain color photos, labeled with the date and subject of the photograph.

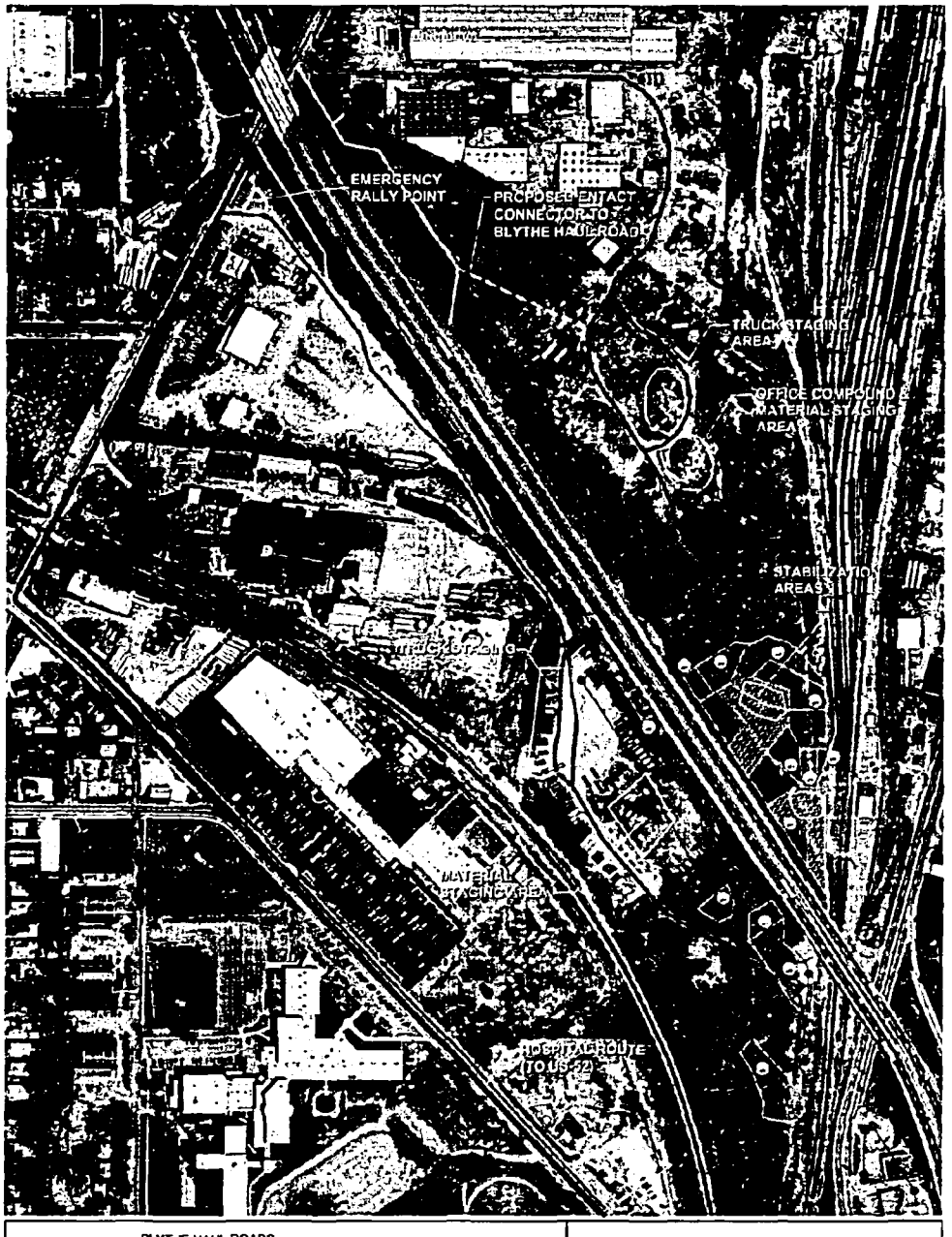
5.0 PROJECT SCHEDULE

A project schedule detailing the duration and sequence of the RA tasks is presented here.





6.0 SITE LAYOUT MAP



Mattison, David

From: Mallary.Ken@epamail.epa.gov
Sent: Tuesday, May 04, 2010 8:53 AM
To: Pelton, Matthew; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Mattison, David; Mattison, David; Neal.Timothy@epamail.epa.gov
Subject: Fw: CERCLA Off-Site Acceptability of Republic Charlotte Motor Speedway Landfill

Gentlemen - the purpose of this email is to approve the Republic Charlotte Motor Speedway Landfill for use during the Removal Action at the VCC Winston-Salem Site.

Below is some information that a co-worker in the RCRA program sent me regarding this issue.

Let me know if you have any questions regarding this issue.

Ken

The OSR acceptability status is dynamic in nature and subject to change, Region 4 has instituted a policy where EPA conducts a verification of continued acceptability (VCA) on facilities that have been previously found acceptable under the CERCLA Off-Site Rule (OSR) such as the Republic Charlotte Motor Speedway Landfill facility. The purpose of a VCA is to provide a periodic check to assure that the facility continues to be acceptable. VCAs are conducted when a request for OSR status is received and the previous VCA had been conducted more than 60 days prior. VCA are valid for 60 days.

A VCA was completed for the Republic Charlotte Motor Speedway Landfill facility on April 30, 2010, so the VCA is valid until June 30, 2010.
CERCLA waste shipments sent to the Republic Charlotte Motor Speedway Landfill facility up until June 30th, are in full compliance with the OSR. If CERCLA wastes are planned to be sent after this date, please contact me about a week or so prior to June 30th, so that a new VCA can be conducted at that time.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, April 30, 2010 11:55 AM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Beswick.Kevin@epamail.epa.gov
Subject: 4/30/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Provided comments back to NCDOT on draft meeting minutes DOT prepared, waiting for further response from NCDOT.
2. Reviewed preliminary delineation data for Removal Area 9 and began preparing table and revised figure to summarize data.
3. Continued work on contract with Entact.
4. Continued work on pre-mobilization submittals.
5. Construction planning, procurement, and logistics.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Circulate revised minutes from NCDOT meeting.
2. Provide data table and figure with Removal Area 9 update.
3. Continue work on contract with Entact.
4. Submit SOP and HASP.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
T. 919.415.2308 | M. 919.270.9512 | F. 919.469.5676
www.arcadis-us.com

Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, April 30, 2010 10:36 AM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David; Bowman, Matthew; Germann, Geoff; steven.p.schmidt@exxonmobil.com; Mark Petschke
Subject: Winston-Salem Mobilization

Ken/Tim – just wanted to provide you with an estimated mobilization schedule for Winston-Salem. This is contingent on completing some contractual items with Entact, but we are tentatively planning for the following:

- Initial mobilization on Wednesday May 12th to setup office trailer and begin delivery of equipment.
- Full mobilization on Monday May 17th to start site preparation activities and potentially soil removal later that week.
- We also plan to have a kickoff meeting on Monday the 17th in the afternoon. The meeting will be attended by Entact, ARCADIS, and Exxon personnel. EPA and NCDENR are invited to join as well.

I'll confirm schedule and times when we finalize these items, but wanted to give you some notice to block off the time if you'd like to attend. Thanks.

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Tuesday, April 27, 2010 11:25 AM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Mattison, David
Subject: Winston-Salem VCC Landfill

Ken/Tim: ExxonMobil would like to use the following Subtitle D landfill to dispose of nonhazardous waste generated from the Winston-Salem VCC Site. Please review at your earliest convenience and let me know if you have any objections.

Republic Charlotte Motor Speedway Landfill
5105 Morehead Road
Concord, NC 28027
704-782-2004
EPA Registry ID: NCD 986214880
NCDENR Permit Number: 13-04

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Tuesday, April 27, 2010 12:55 PM
To: Mallary, McKenzie; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew
Subject: Winston-Salem VCC Borrow Source
Attachments: Transmittal 001 - 042610.pdf

Ken/Tim - Attached is an analytical laboratory report for a sample of backfill material obtained from the following source:

Vulcan Materials Company
4401 N. Patterson Ave
Winston-Salem, NC 27105

Please let me know if this borrow source will be acceptable for use at the Winston-Salem VCC site.

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

ENTACT
699 S. FRIENDSWOOD DRIVE, FRIENDSWOOD, TX 77546 TEL (281) 996-9892 FAX (281) 996-9888

TO: ARCADIS U.S., Inc.
11000 Regency Parkway, West Tower, Suite 205
Cary, NC 27518-8518
TEL # : (919) 415-2308
ATTENTION: Matthew Pelton, P.E.

DATE: April 26, 2010
JOB NAME: XOM Former VCC Winston-Salem Site
TRANSMITTAL NUMBER: 001
ENTACT PROJECT #: E-7825

WE ARE SENDING YOU [X] ATTACHED [ ] UNDER SEPARATE COVER VIA _____ THE FOLLOWING ITEMS:

[ ] SHOP DRAWINGS [ ] PRINTS [ ] PLANS [ ] SAMPLES [ ] SPECIFICATIONS

[ ] COPY OF LETTER [ ] CHANGE ORDER [X] Testing Data

COPIES	DATE	DRAWING NO.	REV.	DESCRIPTION	ACTION (*)
1	4/26/10			Analytical Testing Data for Proposed Backfill Material	

ACTION (*)

[ ] AS - AS REQUESTED [X] FA - FOR APPROVAL [ ] _____

[ ] F – FILE [ ] RC - REVIEW & COMMENT [ ] _____

COMMENTS:

SENT VIA:

[X] E-MAIL [ ] MAIL [ ] OVERNIGHT [ ] HAND DELIVERY [ ] OTHER

COPY TO: _____ BY: Mark Petschke

If enclosures are not as noted, please notify us at once.....

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

April 12, 2010 1:14:33PM

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn: Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Nbr: P-7825 / Exxonmobil Winston Salem
P/O Nbr:
Date Received: 04/02/10

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
SS-01	NTD0219-01	04/01/10 15:30

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

North Carolina Certification Number: 387

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Andrea Runnels

Andrea Runnels

Project Manager

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTD0219-01 (SS-01 - Soil) Sampled: 04/01/10 15:30								
General Chemistry Parameters								
% Dry Solids	**64.4**		%	0.500	1	04/07/10 08:33	SW-846	10D0937
Total Metals by EPA 6010C								
Aluminum	**35400**		mg/kg	9.73	1	04/08/10 21:56	SW846 6010C	10D1530
Antimony	ND		mg/kg	9.73	1	04/08/10 21:56	SW846 6010C	10D1530
Arsenic	**3.31**		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Barium	**66.4**		mg/kg	1.95	1	04/08/10 21:56	SW846 6010C	10D1530
Beryllium	ND		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Cadmium	ND		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Calcium	**758**		mg/kg	9.73	1	04/08/10 21:56	SW846 6010C	10D1530
Chromium	**14.1**		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Cobalt	**12.8**		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Copper	**36.7**		mg/kg	1.95	1	04/08/10 21:56	SW846 6010C	10D1530
Iron	**47900**		mg/kg	97.3	10	04/09/10 10:27	SW846 6010C	10D1530
Lead	**9.24**		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Magnesium	**3360**		mg/kg	9.73	1	04/08/10 21:56	SW846 6010C	10D1530
Manganese	**463**		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Nickel	**13.7**		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Potassium	**551**		mg/kg	97.3	1	04/08/10 21:56	SW846 6010C	10D1530
Selenium	ND		mg/kg	1.95	1	04/08/10 21:56	SW846 6010C	10D1530
Silver	ND		mg/kg	0.973	1	04/08/10 21:56	SW846 6010C	10D1530
Sodium	ND		mg/kg	195	1	04/08/10 21:56	SW846 6010C	10D1530
Thallium	ND		mg/kg	1.95	1	04/08/10 21:56	SW846 6010C	10D1530
Vanadium	**87.9**		mg/kg	9.73	1	04/08/10 21:56	SW846 6010C	10D1530
Zinc	**48.9**		mg/kg	9.73	1	04/08/10 21:56	SW846 6010C	10D1530
Mercury by EPA Method 7471B								
Mercury	ND		mg/kg	0.0988	1	04/07/10 16:29	SW846 7471B	10D0999
Organochlorine Pesticides by EPA Method 8081A								
Aldrin	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
delta-BHC	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
alpha-BHC	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
beta-BHC	ND		mg/kg	0.00329	1	04/08/10 01:35	SW846 8081A	10D0564
gamma-BHC (Lindane)	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
alpha-Chlordane	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
gamma-Chlordane	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Chlordane	ND		mg/kg	0.0666	1	04/08/10 01:35	SW846 8081A	10D0564
4,4'-DDD	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
4,4'-DDE	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
4,4'-DDT	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Dieldrin	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Endosulfan I	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTD0219-01 (SS-01 - Soil) - cont. Sampled: 04/01/10 15:30								
Organochlorine Pesticides by EPA Method 8081A - cont.								
Endosulfan II	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Endosulfan sulfate	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Endrin	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Endrin aldehyde	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Endrin ketone	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Heptachlor	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Heptachlor epoxide	ND		mg/kg	0.00170	1	04/08/10 01:35	SW846 8081A	10D0564
Methoxychlor	ND		mg/kg	0.00329	1	04/08/10 01:35	SW846 8081A	10D0564
Toxaphene	ND		mg/kg	0.0666	1	04/08/10 01:35	SW846 8081A	10D0564
Surr: Tetrachloro-meta-xylene (22-150%)	*64 %*					*04/08/10 01:35*	*SW846 8081A*	*10D0564*
Surr: Decachlorobiphenyl (25-150%)	*62 %*					*04/08/10 01:35*	*SW846 8081A*	*10D0564*
Polychlorinated Biphenyls by EPA Method 8082								
PCB-1016	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
PCB-1221	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
PCB-1232	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
PCB-1242	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
PCB-1248	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
PCB-1254	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
PCB-1260	ND		mg/kg	0.0331	1	04/07/10 22:18	SW846 8082	10D0590
Surr: Tetrachloro-meta-xylene (19-147%)	*44 %*					*04/07/10 22:18*	*SW846 8082*	*10D0590*
Surr: Decachlorobiphenyl (20-150%)	*64 %*					*04/07/10 22:18*	*SW846 8082*	*10D0590*
Volatile Organic Compounds by EPA Method 8260B								
Acetone	**0.104**		mg/kg	0.0369	1	04/08/10 03:45	SW846 8260B	10D0567
Benzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Bromochloromethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Bromodichloromethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Bromoform	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Bromomethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
2-Butanone	ND		mg/kg	0.0369	1	04/08/10 03:45	SW846 8260B	10D0567
Carbon disulfide	ND		mg/kg	0.00369	1	04/08/10 03:45	SW846 8260B	10D0567
Carbon Tetrachloride	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Chlorobenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Chlorodibromomethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Chloroethane	ND		mg/kg	0.00369	1	04/08/10 03:45	SW846 8260B	10D0567
Chloroform	**0.00194**	B	mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Chloromethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Cyclohexane	ND		mg/kg	0.00739	1	04/08/10 03:45	SW846 8260B	10D0567
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.00369	1	04/08/10 03:45	SW846 8260B	10D0567
1,2-Dibromoethane (EDB)	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Methylcyclohexane	ND		mg/kg	0.00739	1	04/08/10 03:45	SW846 8260B	10D0567
1,2-Dichlorobenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Number: P-7825 / Exxonmobil Winston Salem
Received: 04/02/10 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTD0219-01 (SS-01 - Soil) - cont. Sampled: 04/01/10 15:30								
Volatile Organic Compounds by EPA Method 8260B - cont.								
1,3-Dichlorobenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,4-Dichlorobenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Dichlorodifluoromethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,2-Dichloroethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,1-Dichloroethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,1-Dichloroethene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
trans-1,2-Dichloroethene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,1,2-Trifluorotrichloroethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
cis-1,2-Dichloroethene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,2-Dichloropropane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
trans-1,3-Dichloropropene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
cis-1,3-Dichloropropene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Ethylbenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
2-Hexanone	ND		mg/kg	0.0369	1	04/08/10 03:45	SW846 8260B	10D0567
Isopropylbenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Methyl Acetate	ND		mg/kg	0.00739	1	04/08/10 03:45	SW846 8260B	10D0567
Methyl tert-Butyl Ether	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Methylene Chloride	ND		mg/kg	0.00739	1	04/08/10 03:45	SW846 8260B	10D0567
4-Methyl-2-pentanone	ND		mg/kg	0.0369	1	04/08/10 03:45	SW846 8260B	10D0567
Styrene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Tetrachloroethene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Toluene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,2,4-Trichlorobenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,2,3-Trichlorobenzene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,1,1-Trichloroethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
1,1,2-Trichloroethane	ND		mg/kg	0.00369	1	04/08/10 03:45	SW846 8260B	10D0567
Trichloroethene	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Trichlorofluoromethane	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Vinyl chloride	ND		mg/kg	0.00148	1	04/08/10 03:45	SW846 8260B	10D0567
Xylenes, total	ND		mg/kg	0.00369	1	04/08/10 03:45	SW846 8260B	10D0567
Surr: 1,2-Dichloroethane-d4 (67-138%)	*108 %*					*04/08/10 03:45*	*SW846 8260B*	*10D0567*
Surr: Dibromofluoromethane (75-125%)	*99 %*					*04/08/10 03:45*	*SW846 8260B*	*10D0567*
Surr: Toluene-d8 (76-129%)	*106 %*					*04/08/10 03:45*	*SW846 8260B*	*10D0567*
Surr: 4-Bromofluorobenzene (67-147%)	*124 %*					*04/08/10 03:45*	*SW846 8260B*	*10D0567*
Semivolatile Organic Compounds by EPA Method 8270C								
Acenaphthene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Acenaphthylene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Anthracene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Benzo (a) anthracene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Benzo (a) pyrene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Benzo (b) fluoranthene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

ANALYTICAL REPORT

Sample ID: NTD0219-01 (SS-01 - Soil) - cont. Sampled: 04/01/10 15:30

Semivolatile Organic Compounds by EPA Method 8270C - cont.

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Benzo (g,h,i) perylene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Benzo (k) fluoranthene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
4-Bromophenyl phenyl ether	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Butyl benzyl phthalate	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Carbazole	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
4-Chloro-3-methylphenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
4-Chloroaniline	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Bis(2-chloroethoxy)methane	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Bis(2-chloroethyl)ether	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2-Chloronaphthalene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2-Chlorophenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
4-Chlorophenyl phenyl ether	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Chrysene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Dibenz (a,h) anthracene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Dibenzofuran	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Di-n-butyl phthalate	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
1,4-Dichlorobenzene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
1,2-Dichlorobenzene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
1,3-Dichlorobenzene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
3,3-Dichlorobenzidine	ND		mg/kg	0.648	1	04/07/10 19:31	SW846 8270C	10D0584
2,4-Dichlorophenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Diethyl phthalate	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2,4-Dimethylphenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Dimethyl phthalate	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
2,4-Dinitrophenol	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
2,6-Dinitrotoluene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2,4-Dinitrotoluene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Di-n-octyl phthalate	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Fluoranthene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Fluorene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Hexachlorobenzene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Hexachlorobutadiene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Hexachlorocyclopentadiene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Hexachloroethane	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Indeno (1,2,3-cd) pyrene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Isophorone	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2-Methylnaphthalene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2-Methylphenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
3/4-Methylphenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTD0219-01 (SS-01 - Soil) - cont. Sampled: 04/01/10 15:30								
Semivolatile Organic Compounds by EPA Method 8270C - cont.								
Naphthalene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
3-Nitroaniline	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
2-Nitroaniline	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
4-Nitroaniline	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
Nitrobenzene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
4-Nitrophenol	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
2-Nitrophenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
N-Nitrosodiphenylamine	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
N-Nitrosodi-n-propylamine	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Pentachlorophenol	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
Phenanthrene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Phenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
Pyrene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
1,2,4-Trichlorobenzene	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2,4,6-Trichlorophenol	ND		mg/kg	0.324	1	04/07/10 19:31	SW846 8270C	10D0584
2,4,5-Trichlorophenol	ND		mg/kg	0.810	1	04/07/10 19:31	SW846 8270C	10D0584
Surr: Terphenyl-d14 (18-120%)	*36 %*					*04/07/10 19:31*	*SW846 8270C*	*10D0584*
Surr: 2,4,6-Tribromophenol (19-120%)	*49 %*					*04/07/10 19:31*	*SW846 8270C*	*10D0584*
Surr: Phenol-d5 (18-120%)	*55 %*					*04/07/10 19:31*	*SW846 8270C*	*10D0584*
Surr: 2-Fluorobiphenyl (14-120%)	*25 %*					*04/07/10 19:31*	*SW846 8270C*	*10D0584*
Surr: 2-Fluorophenol (17-120%)	*51 %*					*04/07/10 19:31*	*SW846 8270C*	*10D0584*
Surr: Nitrobenzene-d5 (17-120%)	*40 %*					*04/07/10 19:31*	*SW846 8270C*	*10D0584*

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	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
Mercury by EPA Method 7471B							
SW846 7471B	10D0999	NTD0219-01	0.61	100.00	04/07/10 14:35	MB	EPA 7471
Organochlorine Pesticides by EPA Method 8081A							
SW846 8081A	10D0564	NTD0219-01	30.06	10.00	04/05/10 13:05	AJF	EPA 3550B
Polychlorinated Biphenyls by EPA Method 8082							
SW846 8082	10D0590	NTD0219-01	30.18	10.00	04/05/10 11:20	AJF	EPA 3550B/3665A
Semivolatile Organic Compounds by EPA Method 8270C							
SW846 8270C	10D0584	NTD0219-01	30.87	1.00	04/05/10 10:35	AJF	EPA 3550B
Total Metals by EPA 6010C							
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
SW846 6010C	10D1530	NTD0219-01	0.51	100.00	04/08/10 15:45	DEA	EPA 3051A/6010
Volatile Organic Compounds by EPA Method 8260B							
SW846 8260B	10D0567	NTD0219-01	6.77	5.00	04/01/10 15:30	CHH	EPA 5035

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Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Total Metals by EPA 6010C						
10D1530-BLK1						
Aluminum	<5.83		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Antimony	<0.478		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Arsenic	<0.669		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Barium	<0.0956		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Beryllium	<0.0956		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Cadmium	<0.191		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Calcium	33.6	B1	mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Chromium	<0.478		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Cobalt	<0.860		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Copper	<0.478		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Iron	<9.46		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Lead	<0.382		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Magnesium	<3.63		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Manganese	<0.478		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Nickel	<0.669		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Potassium	<48.8		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Selenium	<0.669		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Silver	<0.478		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Sodium	<156		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Thallium	<1.53		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Vanadium	<1.05		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Zinc	1.53		mg/kg	10D1530	10D1530-BLK1	04/08/10 21:49
Mercury by EPA Method 7471B						
10D0999-BLK1						
Mercury	<0.0400		mg/kg	10D0999	10D0999-BLK1	04/07/10 16:04
Organochlorine Pesticides by EPA Method 8081A						
10D0564-BLK1						
Aldrin	<0.000500		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
delta-BHC	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
alpha-BHC	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
beta-BHC	<0.00110		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
gamma-BHC (Lindane)	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
alpha-Chlordane	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
gamma-Chlordane	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Chlordane	<0.0167		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
4,4'-DDD	<0.000600		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
4,4'-DDE	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
4,4'-DDT	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23

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Client:	Entact LLC (448850)	Work Order:	NTD0219
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	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Organochlorine Pesticides by EPA Method 8081A						
10D0564-BLK1						
Dieldrin	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Endosulfan I	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Endosulfan II	<0.000500		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Endosulfan sulfate	<0.000400		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Endrin	<0.000500		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Endrin aldehyde	<0.000800		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Endrin ketone	<0.000700		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Heptachlor	<0.000500		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Heptachlor epoxide	<0.000500		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Methoxychlor	<0.000600		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Toxaphene	<0.0167		mg/kg	10D0564	10D0564-BLK1	04/08/10 00:23
Surrogate: Tetrachloro-meta-xylene	72%			10D0564	10D0564-BLK1	04/08/10 00:23
Surrogate: Decachlorobiphenyl	94%			10D0564	10D0564-BLK1	04/08/10 00:23
Polychlorinated Biphenyls by EPA Method 8082						
10D0590-BLK1						
PCB-1016	<0.0190		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
PCB-1221	<0.0110		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
PCB-1232	<0.0200		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
PCB-1242	<0.0140		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
PCB-1248	<0.0110		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
PCB-1254	<0.0190		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
PCB-1260	<0.0140		mg/kg	10D0590	10D0590-BLK1	04/07/10 20:50
Surrogate: Tetrachloro-meta-xylene	80%			10D0590	10D0590-BLK1	04/07/10 20:50
Surrogate: Decachlorobiphenyl	118%			10D0590	10D0590-BLK1	04/07/10 20:50
Volatile Organic Compounds by EPA Method 8260B						
10D0567-BLK1						
Acetone	<0.0250		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Benzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Bromochloromethane	<0.00102		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Bromodichloromethane	<0.000400		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Bromoform	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Bromomethane	<0.000640		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
2-Butanone	<0.0170		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
tert-Butylbenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
n-Butylbenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
sec-Butylbenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Carbon disulfide	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Carbon Tetrachloride	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42

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	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B						
10D0567-BLK1						
Chlorobenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Chlorodibromomethane	<0.000380		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Chloroethane	<0.000420		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Chloroform	0.0140		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Chloromethane	<0.00100		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Cyclohexane	<0.000430		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2-Dibromo-3-chloropropane	<0.00340		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2-Dibromoethane (EDB)	<0.000520		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Methylcyclohexane	<0.00330		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2-Dichlorobenzene	<0.000430		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,3-Dichlorobenzene	<0.000430		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,4-Dichlorobenzene	<0.000720		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Dichlorodifluoromethane	<0.00160		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2-Dichloroethane	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,1-Dichloroethane	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,1-Dichloroethene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
trans-1,2-Dichloroethene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,1,2-Trifluorotrichloroethane	<0.000590		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
cis-1,2-Dichloroethene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2-Dichloropropane	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
trans-1,3-Dichloropropene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
cis-1,3-Dichloropropene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Ethylbenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
2-Hexanone	<0.0170		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Isopropylbenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
p-Isopropyltoluene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Methyl Acetate	<0.00200		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Methyl tert-Butyl Ether	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Methylene Chloride	0.00625		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
4-Methyl-2-pentanone	<0.00290		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Naphthalene	<0.00170		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
n-Propylbenzene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Styrene	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,1,2,2-Tetrachloroethane	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Tetrachloroethene	<0.000400		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Toluene	<0.000400		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2,4-Trichlorobenzene	<0.00102		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2,3-Trichlorobenzene	<0.000920		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,1,1-Trichloroethane	<0.000400		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,1,2-Trichloroethane	<0.00111		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B						
10D0567-BLK1						
Trichloroethene	<0.000830		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Trichlorofluoromethane	<0.000670		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,3,5-Trimethylbenzene	<0.000400		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
1,2,4-Trimethylbenzene	<0.000420		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Vinyl chloride	<0.000820		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Xylenes, total	<0.00130		mg/kg	10D0567	10D0567-BLK1	04/08/10 00:42
Surrogate: 1,2-Dichloroethane-d4	117%			10D0567	10D0567-BLK1	04/08/10 00:42
Surrogate: Dibromofluoromethane	101%			10D0567	10D0567-BLK1	04/08/10 00:42
Surrogate: Toluene-d8	99%			10D0567	10D0567-BLK1	04/08/10 00:42
Surrogate: 4-Bromofluorobenzene	99%			10D0567	10D0567-BLK1	04/08/10 00:42
Semivolatile Organic Compounds by EPA Method 8270C						
10D0584-BLK1						
Acenaphthene	<0.0320		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Acenaphthylene	<0.0310		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Anthracene	<0.0330		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Benzo (a) anthracene	<0.0380		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Benzo (a) pyrene	<0.0300		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Benzo (b) fluoranthene	<0.0300		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Benzo (g,h,i) perylene	<0.0300		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Benzo (k) fluoranthene	<0.0300		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4-Bromophenyl phenyl ether	<0.0950		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Butyl benzyl phthalate	<0.0890		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Carbazole	<0.111		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4-Chloro-3-methylphenol	<0.103		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4-Chloroaniline	<0.244		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Bis(2-chloroethoxy)methane	<0.110		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Bis(2-chloroethyl)ether	<0.135		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Bis(2-chloroisopropyl)ether	<0.102		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2-Chloronaphthalene	<0.0680		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2-Chlorophenol	<0.109		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4-Chlorophenyl phenyl ether	<0.111		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Chrysene	<0.0400		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Dibenz (a,h) anthracene	<0.0310		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Dibenzofuran	<0.0890		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Di-n-butyl phthalate	<0.0860		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
1,4-Dichlorobenzene	<0.115		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
1,2-Dichlorobenzene	<0.0880		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
1,3-Dichlorobenzene	<0.0800		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
3,3-Dichlorobenzidine	<0.251		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C						
10D0584-BLK1						
2,4-Dichlorophenol	<0.0870		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Diethyl phthalate	<0.0500		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2,4-Dimethylphenol	<0.281		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Dimethyl phthalate	<0.0880		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4,6-Dinitro-2-methylphenol	<0.115		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2,4-Dinitrophenol	<0.135		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2,6-Dinitrotoluene	<0.0650		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2,4-Dinitrotoluene	<0.0880		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Di-n-octyl phthalate	<0.0620		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Bis(2-ethylhexyl)phthalate	<0.111		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Fluoranthene	<0.0340		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Fluorene	<0.0360		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Hexachlorobenzene	<0.0830		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Hexachlorobutadiene	<0.108		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Hexachlorocyclopentadiene	<0.111		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Hexachloroethane	<0.105		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Indeno (1,2,3-cd) pyrene	<0.0310		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Isophorone	<0.0680		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2-Methylnaphthalene	<0.0330		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2-Methylphenol	<0.134		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
3/4-Methylphenol	<0.155		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Naphthalene	<0.0410		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
3-Nitroaniline	<0.273		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2-Nitroaniline	<0.111		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4-Nitroaniline	<0.252		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Nitrobenzene	<0.106		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
4-Nitrophenol	<0.276		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2-Nitrophenol	<0.197		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
N-Nitrosodiphenylamine	<0.109		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
N-Nitrosodi-n-propylamine	<0.122		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Pentachlorophenol	<0.0780		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Phenanthrene	<0.0340		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Phenol	<0.0620		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Pyrene	<0.0410		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
1,2,4-Trichlorobenzene	<0.0820		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2,4,6-Trichlorophenol	<0.0870		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
2,4,5-Trichlorophenol	<0.0730		mg/kg	10D0584	10D0584-BLK1	04/07/10 16:55
Surrogate: Terphenyl-d14	81%			10D0584	10D0584-BLK1	04/07/10 16:55
Surrogate: 2,4,6-Tribromophenol	74%			10D0584	10D0584-BLK1	04/07/10 16:55
Surrogate: Phenol-d5	60%			10D0584	10D0584-BLK1	04/07/10 16:55

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C						
10D0584-BLK1						
Surrogate: 2-Fluorobiphenyl	64%			10D0584	10D0584-BLK1	04/07/10 16:55
Surrogate: 2-Fluorophenol	60%			10D0584	10D0584-BLK1	04/07/10 16:55
Surrogate: Nitrobenzene-d5	54%			10D0584	10D0584-BLK1	04/07/10 16:55

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Duplicate

Analyte	Orig. Val.	Duplicate	Q	Units	RPD	Limit	Batch	Sample Duplicated	% Rec.	Analyzed Date/Time
General Chemistry Parameters										
10D0937-DUP1										
% Dry Solids	64.4	65.0		%	0.9	20	10D0937	NTD0219-01		04/07/10 08:33

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Total Metals by EPA 6010C								
10D1530-BS1								
Aluminum	800	800		mg/kg	100%	80 - 120	10D1530	04/08/10 21:52
Antimony	40.0	40.2		mg/kg	101%	80 - 120	10D1530	04/08/10 21:52
Arsenic	20.0	19.0		mg/kg	95%	80 - 120	10D1530	04/08/10 21:52
Barium	800	811		mg/kg	101%	80 - 120	10D1530	04/08/10 21:52
Beryllium	20.0	19.3		mg/kg	97%	80 - 120	10D1530	04/08/10 21:52
Cadmium	20.0	19.5		mg/kg	98%	80 - 120	10D1530	04/08/10 21:52
Calcium	2000	1980		mg/kg	99%	80 - 120	10D1530	04/08/10 21:52
Chromium	80.0	79.4		mg/kg	99%	80 - 120	10D1530	04/08/10 21:52
Cobalt	200	187		mg/kg	94%	80 - 120	10D1530	04/08/10 21:52
Copper	100	95.4		mg/kg	95%	80 - 120	10D1530	04/08/10 21:52
Iron	400	430	MNR	mg/kg	108%	80 - 120	10D1530	04/08/10 21:52
Lead	20.0	19.5		mg/kg	98%	80 - 120	10D1530	04/08/10 21:52
Magnesium	2000	2020		mg/kg	101%	80 - 120	10D1530	04/08/10 21:52
Manganese	200	196		mg/kg	98%	80 - 120	10D1530	04/08/10 21:52
Nickel	200	200		mg/kg	100%	80 - 120	10D1530	04/08/10 21:52
Potassium	2000	1830		mg/kg	92%	80 - 120	10D1530	04/08/10 21:52
Selenium	20.0	19.5		mg/kg	97%	80 - 120	10D1530	04/08/10 21:52
Silver	20.0	18.4		mg/kg	92%	75 - 125	10D1530	04/08/10 21:52
Sodium	2000	1940		mg/kg	97%	80 - 120	10D1530	04/08/10 21:52
Thallium	20.0	19.0		mg/kg	95%	80 - 120	10D1530	04/08/10 21:52
Vanadium	200	194		mg/kg	97%	80 - 120	10D1530	04/08/10 21:52
Zinc	200	192		mg/kg	96%	80 - 120	10D1530	04/08/10 21:52
Mercury by EPA Method 7471B								
10D0999-BS1								
Mercury	0.167	0.170		mg/kg	102%	80 - 120	10D0999	04/07/10 16:06
Organochlorine Pesticides by EPA Method 8081A								
10D0564-BS1								
Aldrin	0.0167	0.0150		mg/kg	90%	43 - 150	10D0564	04/08/10 00:38
delta-BHC	0.0167	0.0153		mg/kg	92%	34 - 147	10D0564	04/08/10 00:38
alpha-BHC	0.0167	0.0150		mg/kg	90%	47 - 142	10D0564	04/08/10 00:38
beta-BHC	0.0167	0.0157		mg/kg	94%	52 - 148	10D0564	04/08/10 00:38
gamma-BHC (Lindane)	0.0167	0.0157		mg/kg	94%	53 - 142	10D0564	04/08/10 00:38
alpha-Chlordane	0.0167	0.0183		mg/kg	110%	50 - 148	10D0564	04/08/10 00:38
gamma-Chlordane	0.0167	0.0160		mg/kg	96%	46 - 150	10D0564	04/08/10 00:38
4,4'-DDD	0.0167	0.0173		mg/kg	104%	47 - 150	10D0564	04/08/10 00:38
4,4'-DDE	0.0167	0.0160		mg/kg	96%	42 - 150	10D0564	04/08/10 00:38
4,4'-DDT	0.0167	0.0150		mg/kg	90%	38 - 150	10D0564	04/08/10 00:38
Dieldrin	0.0167	0.0157		mg/kg	94%	53 - 142	10D0564	04/08/10 00:38

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Organochlorine Pesticides by EPA Method 8081A								
10D0564-BS1								
Endosulfan I	0.0167	0.0157		mg/kg	94%	50 - 143	10D0564	04/08/10 00:38
Endosulfan II	0.0167	0.0163		mg/kg	98%	51 - 150	10D0564	04/08/10 00:38
Endosulfan sulfate	0.0167	0.0160		mg/kg	96%	49 - 143	10D0564	04/08/10 00:38
Endrin	0.0167	0.0157		mg/kg	94%	49 - 150	10D0564	04/08/10 00:38
Endrin aldehyde	0.0167	0.0190		mg/kg	114%	40 - 150	10D0564	04/08/10 00:38
Endrin ketone	0.0167	0.0170		mg/kg	102%	55 - 139	10D0564	04/08/10 00:38
Heptachlor	0.0167	0.0147		mg/kg	88%	49 - 149	10D0564	04/08/10 00:38
Heptachlor epoxide	0.0167	0.0157		mg/kg	94%	53 - 150	10D0564	04/08/10 00:38
Methoxychlor	0.0167	0.0153		mg/kg	92%	43 - 144	10D0564	04/08/10 00:38
Surrogate: Tetrachloro-meta-xylene	0.0167	0.0137			82%	22 - 150	10D0564	04/08/10 00:38
Surrogate: Decachlorobiphenyl	0.0167	0.0167			100%	25 - 150	10D0564	04/08/10 00:38
10D0564-BS2								
Chlordane	0.167	0.113		mg/kg	68%	59 - 150	10D0564	04/08/10 00:52
Toxaphene	0.333	0.287		mg/kg	86%	18 - 150	10D0564	04/08/10 00:52
Surrogate: Tetrachloro-meta-xylene	0.0167	0.0113			68%	22 - 150	10D0564	04/08/10 00:52
Surrogate: Decachlorobiphenyl	0.0167	0.0153			92%	25 - 150	10D0564	04/08/10 00:52
Polychlorinated Biphenyls by EPA Method 8082								
10D0590-BS1								
PCB-1016	0.167	0.152		mg/kg	91%	64 - 122	10D0590	04/07/10 21:12
PCB-1260	0.167	0.178		mg/kg	107%	56 - 150	10D0590	04/07/10 21:12
Surrogate: Tetrachloro-meta-xylene	0.0167	0.0113			68%	19 - 147	10D0590	04/07/10 21:12
Surrogate: Decachlorobiphenyl	0.0167	0.0190			114%	20 - 150	10D0590	04/07/10 21:12
Volatile Organic Compounds by EPA Method 8260B								
10D0567-BS1								
Acetone	250	181		ug/kg	72%	60 - 150	10D0567	04/07/10 23:40
Benzene	50.0	45.1		ug/kg	90%	78 - 126	10D0567	04/07/10 23:40
Bromochloromethane	50.0	43.1		ug/kg	86%	78 - 126	10D0567	04/07/10 23:40
Bromodichloromethane	50.0	49.6		ug/kg	99%	75 - 129	10D0567	04/07/10 23:40
Bromoform	50.0	45.7		ug/kg	91%	74 - 133	10D0567	04/07/10 23:40
Bromomethane	50.0	43.4		ug/kg	87%	50 - 150	10D0567	04/07/10 23:40
2-Butanone	250	197		ug/kg	79%	68 - 149	10D0567	04/07/10 23:40
tert-Butylbenzene	50.0	56.0		ug/kg	112%	80 - 129	10D0567	04/07/10 23:40
n-Butylbenzene	50.0	59.2		ug/kg	118%	73 - 143	10D0567	04/07/10 23:40
sec-Butylbenzene	50.0	55.9		ug/kg	112%	76 - 135	10D0567	04/07/10 23:40
Carbon disulfide	50.0	41.4		ug/kg	83%	80 - 132	10D0567	04/07/10 23:40
Carbon Tetrachloride	50.0	49.3		ug/kg	99%	70 - 138	10D0567	04/07/10 23:40
Chlorobenzene	50.0	51.3		ug/kg	103%	80 - 123	10D0567	04/07/10 23:40

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B								
10D0567-BS1								
Chlorodibromomethane	50.0	50.9		ug/kg	102%	80 - 127	10D0567	04/07/10 23:40
Chloroethane	50.0	43.5		ug/kg	87%	55 - 150	10D0567	04/07/10 23:40
Chloroform	50.0	59.0		ug/kg	118%	70 - 127	10D0567	04/07/10 23:40
Chloromethane	50.0	39.5		ug/kg	79%	36 - 137	10D0567	04/07/10 23:40
Cyclohexane	50.0	42.0		ug/kg	84%	67 - 126	10D0567	04/07/10 23:40
1,2-Dibromo-3-chloropropane	50.0	44.9		ug/kg	90%	62 - 150	10D0567	04/07/10 23:40
1,2-Dibromoethane (EDB)	50.0	48.9		ug/kg	98%	80 - 131	10D0567	04/07/10 23:40
Methylcyclohexane	50.0	42.6		ug/kg	85%	74 - 122	10D0567	04/07/10 23:40
1,2-Dichlorobenzene	50.0	58.7		ug/kg	117%	80 - 127	10D0567	04/07/10 23:40
1,3-Dichlorobenzene	50.0	56.5		ug/kg	113%	80 - 131	10D0567	04/07/10 23:40
1,4-Dichlorobenzene	50.0	55.8		ug/kg	112%	80 - 129	10D0567	04/07/10 23:40
Dichlorodifluoromethane	50.0	35.1		ug/kg	70%	30 - 150	10D0567	04/07/10 23:40
1,2-Dichloroethane	50.0	49.2		ug/kg	98%	70 - 139	10D0567	04/07/10 23:40
1,1-Dichloroethane	50.0	46.8		ug/kg	94%	71 - 126	10D0567	04/07/10 23:40
1,1-Dichloroethene	50.0	41.7		ug/kg	83%	70 - 125	10D0567	04/07/10 23:40
trans-1,2-Dichloroethene	50.0	46.5		ug/kg	93%	73 - 128	10D0567	04/07/10 23:40
1,1,2-Trifluorotrichloroethane	50.0	44.0		ug/kg	88%	61 - 134	10D0567	04/07/10 23:40
cis-1,2-Dichloroethene	50.0	47.4		ug/kg	95%	75 - 126	10D0567	04/07/10 23:40
1,2-Dichloropropane	50.0	45.8		ug/kg	92%	75 - 120	10D0567	04/07/10 23:40
trans-1,3-Dichloropropene	50.0	52.5		ug/kg	105%	73 - 128	10D0567	04/07/10 23:40
cis-1,3-Dichloropropene	50.0	52.7		ug/kg	105%	74 - 136	10D0567	04/07/10 23:40
Ethylbenzene	50.0	51.9		ug/kg	104%	79 - 130	10D0567	04/07/10 23:40
2-Hexanone	250	229		ug/kg	92%	65 - 150	10D0567	04/07/10 23:40
Isopropylbenzene	50.0	59.1		ug/kg	118%	65 - 121	10D0567	04/07/10 23:40
p-Isopropyltoluene	50.0	55.6		ug/kg	111%	76 - 133	10D0567	04/07/10 23:40
Methyl Acetate	50.0	57.2		ug/kg	114%	11 - 150	10D0567	04/07/10 23:40
Methyl tert-Butyl Ether	50.0	46.4		ug/kg	93%	70 - 128	10D0567	04/07/10 23:40
Methylene Chloride	50.0	48.3		ug/kg	97%	69 - 140	10D0567	04/07/10 23:40
4-Methyl-2-pentanone	250	215		ug/kg	86%	67 - 147	10D0567	04/07/10 23:40
Naphthalene	50.0	53.9		ug/kg	108%	72 - 150	10D0567	04/07/10 23:40
n-Propylbenzene	50.0	54.2		ug/kg	108%	76 - 133	10D0567	04/07/10 23:40
Styrene	50.0	53.1		ug/kg	106%	80 - 140	10D0567	04/07/10 23:40
1,1,2,2-Tetrachloroethane	50.0	51.2		ug/kg	102%	75 - 135	10D0567	04/07/10 23:40
Tetrachloroethene	50.0	46.6		ug/kg	93%	76 - 130	10D0567	04/07/10 23:40
Toluene	50.0	48.1		ug/kg	96%	76 - 126	10D0567	04/07/10 23:40
1,2,4-Trichlorobenzene	50.0	59.2		ug/kg	118%	64 - 150	10D0567	04/07/10 23:40
1,2,3-Trichlorobenzene	50.0	58.0		ug/kg	116%	75 - 150	10D0567	04/07/10 23:40
1,1,1-Trichloroethane	50.0	50.5		ug/kg	101%	70 - 132	10D0567	04/07/10 23:40
1,1,2-Trichloroethane	50.0	43.3		ug/kg	87%	73 - 133	10D0567	04/07/10 23:40
Trichloroethene	50.0	44.0		ug/kg	88%	79 - 129	10D0567	04/07/10 23:40

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Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B								
10D0567-BS1								
Trichlorofluoromethane	50.0	42.8		ug/kg	86%	52 - 148	10D0567	04/07/10 23:40
1,3,5-Trimethylbenzene	50.0	56.0		ug/kg	112%	80 - 134	10D0567	04/07/10 23:40
1,2,4-Trimethylbenzene	50.0	55.8		ug/kg	112%	80 - 132	10D0567	04/07/10 23:40
Vinyl chloride	50.0	39.0		ug/kg	78%	53 - 142	10D0567	04/07/10 23:40
Xylenes, total	150	157		ug/kg	105%	80 - 130	10D0567	04/07/10 23:40
Surrogate: 1,2-Dichloroethane-d4	50.0	54.2			108%	67 - 138	10D0567	04/07/10 23:40
Surrogate: Dibromofluoromethane	50.0	50.8			102%	75 - 125	10D0567	04/07/10 23:40
Surrogate: Toluene-d8	50.0	50.0			100%	76 - 129	10D0567	04/07/10 23:40
Surrogate: 4-Bromofluorobenzene	50.0	49.0			98%	67 - 147	10D0567	04/07/10 23:40
Semivolatile Organic Compounds by EPA Method 8270C								
10D0584-BS1								
Acenaphthene	1.67	1.05		mg/kg	63%	49 - 120	10D0584	04/07/10 17:14
Acenaphthylene	1.67	1.14		mg/kg	68%	52 - 120	10D0584	04/07/10 17:14
Anthracene	1.67	1.40		mg/kg	84%	58 - 120	10D0584	04/07/10 17:14
Benzo (a) anthracene	1.67	1.29		mg/kg	78%	57 - 120	10D0584	04/07/10 17:14
Benzo (a) pyrene	1.67	1.36		mg/kg	82%	55 - 120	10D0584	04/07/10 17:14
Benzo (b) fluoranthene	1.67	1.31		mg/kg	78%	51 - 123	10D0584	04/07/10 17:14
Benzo (g,h,i) perylene	1.67	1.28		mg/kg	77%	49 - 121	10D0584	04/07/10 17:14
Benzo (k) fluoranthene	1.67	1.15		mg/kg	69%	42 - 129	10D0584	04/07/10 17:14
4-Bromophenyl phenyl ether	1.67	1.21		mg/kg	72%	49 - 120	10D0584	04/07/10 17:14
Butyl benzyl phthalate	1.67	1.37		mg/kg	82%	59 - 124	10D0584	04/07/10 17:14
Carbazole	1.67	1.30		mg/kg	78%	54 - 120	10D0584	04/07/10 17:14
4-Chloro-3-methylphenol	1.67	1.16		mg/kg	70%	49 - 120	10D0584	04/07/10 17:14
4-Chloroaniline	1.67	1.18		mg/kg	71%	41 - 120	10D0584	04/07/10 17:14
Bis(2-chloroethoxy)methane	1.67	1.04		mg/kg	62%	37 - 120	10D0584	04/07/10 17:14
Bis(2-chloroethyl)ether	1.67	0.913		mg/kg	55%	29 - 120	10D0584	04/07/10 17:14
Bis(2-chloroisopropyl)ether	1.67	0.910		mg/kg	55%	28 - 120	10D0584	04/07/10 17:14
2-Chloronaphthalene	1.67	1.04		mg/kg	63%	45 - 120	10D0584	04/07/10 17:14
2-Chlorophenol	1.67	1.09		mg/kg	65%	42 - 120	10D0584	04/07/10 17:14
4-Chlorophenyl phenyl ether	1.67	1.10		mg/kg	66%	52 - 120	10D0584	04/07/10 17:14
Chrysene	1.67	1.18		mg/kg	71%	55 - 120	10D0584	04/07/10 17:14
Dibenz (a,h) anthracene	1.67	1.39		mg/kg	84%	50 - 123	10D0584	04/07/10 17:14
Dibenzofuran	1.67	1.14		mg/kg	69%	54 - 120	10D0584	04/07/10 17:14
Di-n-butyl phthalate	1.67	1.45		mg/kg	87%	58 - 120	10D0584	04/07/10 17:14
1,4-Dichlorobenzene	1.67	0.954		mg/kg	57%	15 - 120	10D0584	04/07/10 17:14
1,2-Dichlorobenzene	1.67	0.976		mg/kg	59%	17 - 120	10D0584	04/07/10 17:14
1,3-Dichlorobenzene	1.67	0.963		mg/kg	58%	13 - 120	10D0584	04/07/10 17:14
3,3-Dichlorobenzidine	1.67	1.13		mg/kg	68%	54 - 120	10D0584	04/07/10 17:14
2,4-Dichlorophenol	1.67	1.12		mg/kg	67%	43 - 120	10D0584	04/07/10 17:14

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C								
10D0584-BS1								
Diethyl phthalate	1.67	1.29		mg/kg	77%	52 - 120	10D0584	04/07/10 17:14
2,4-Dimethylphenol	1.67	0.976		mg/kg	59%	47 - 120	10D0584	04/07/10 17:14
Dimethyl phthalate	1.67	1.25		mg/kg	75%	55 - 120	10D0584	04/07/10 17:14
4,6-Dinitro-2-methylphenol	1.67	1.21		mg/kg	73%	27 - 134	10D0584	04/07/10 17:14
2,4-Dinitrophenol	1.67	1.30		mg/kg	78%	15 - 145	10D0584	04/07/10 17:14
2,6-Dinitrotoluene	1.67	1.18		mg/kg	71%	56 - 120	10D0584	04/07/10 17:14
2,4-Dinitrotoluene	1.67	1.12		mg/kg	67%	55 - 122	10D0584	04/07/10 17:14
Di-n-octyl phthalate	1.67	1.53		mg/kg	92%	48 - 131	10D0584	04/07/10 17:14
Bis(2-ethylhexyl)phthalate	1.67	1.37		mg/kg	82%	51 - 127	10D0584	04/07/10 17:14
Fluoranthene	1.67	1.33		mg/kg	80%	58 - 120	10D0584	04/07/10 17:14
Fluorene	1.67	1.13		mg/kg	68%	54 - 120	10D0584	04/07/10 17:14
Hexachlorobenzene	1.67	1.22		mg/kg	73%	56 - 120	10D0584	04/07/10 17:14
Hexachlorobutadiene	1.67	1.19		mg/kg	72%	19 - 120	10D0584	04/07/10 17:14
Hexachlorocyclopentadiene	1.67	1.08		mg/kg	65%	11 - 120	10D0584	04/07/10 17:14
Hexachloroethane	1.67	0.998		mg/kg	60%	14 - 120	10D0584	04/07/10 17:14
Indeno (1,2,3-cd) pyrene	1.67	1.34		mg/kg	80%	50 - 122	10D0584	04/07/10 17:14
Isophorone	1.67	1.06		mg/kg	64%	43 - 120	10D0584	04/07/10 17:14
2-Methylnaphthalene	1.67	1.54		mg/kg	93%	36 - 120	10D0584	04/07/10 17:14
2-Methylphenol	1.67	1.08		mg/kg	65%	47 - 120	10D0584	04/07/10 17:14
3/4-Methylphenol	1.67	1.10		mg/kg	66%	53 - 135	10D0584	04/07/10 17:14
Naphthalene	1.67	1.03		mg/kg	62%	28 - 120	10D0584	04/07/10 17:14
3-Nitroaniline	1.67	1.23		mg/kg	74%	54 - 120	10D0584	04/07/10 17:14
2-Nitroaniline	1.67	1.18		mg/kg	71%	59 - 120	10D0584	04/07/10 17:14
4-Nitroaniline	1.67	1.22		mg/kg	73%	55 - 121	10D0584	04/07/10 17:14
Nitrobenzene	1.67	1.33		mg/kg	80%	30 - 120	10D0584	04/07/10 17:14
4-Nitrophenol	1.67	1.20		mg/kg	72%	44 - 133	10D0584	04/07/10 17:14
2-Nitrophenol	1.67	1.08		mg/kg	65%	36 - 120	10D0584	04/07/10 17:14
N-Nitrosodiphenylamine	1.67	1.43		mg/kg	86%	56 - 120	10D0584	04/07/10 17:14
N-Nitrosodi-n-propylamine	1.67	1.04		mg/kg	62%	45 - 120	10D0584	04/07/10 17:14
Pentachlorophenol	1.67	1.32		mg/kg	79%	42 - 135	10D0584	04/07/10 17:14
Phenanthrene	1.67	1.21		mg/kg	73%	56 - 120	10D0584	04/07/10 17:14
Phenol	1.67	0.996		mg/kg	60%	45 - 120	10D0584	04/07/10 17:14
Pyrene	1.67	1.19		mg/kg	71%	56 - 120	10D0584	04/07/10 17:14
1,2,4-Trichlorobenzene	1.67	0.977		mg/kg	59%	22 - 120	10D0584	04/07/10 17:14
2,4,6-Trichlorophenol	1.67	1.20		mg/kg	72%	50 - 120	10D0584	04/07/10 17:14
2,4,5-Trichlorophenol	1.67	1.20		mg/kg	72%	54 - 120	10D0584	04/07/10 17:14
Surrogate: Terphenyl-d14	1.67	1.08			65%	18 - 120	10D0584	04/07/10 17:14
Surrogate: 2,4,6-Tribromophenol	1.67	1.08			65%	19 - 120	10D0584	04/07/10 17:14
Surrogate: Phenol-d5	1.67	0.960			58%	18 - 120	10D0584	04/07/10 17:14
Surrogate: 2-Fluorobiphenyl	1.67	0.804			48%	14 - 120	10D0584	04/07/10 17:14

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Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C								
10D0584-BS1								
Surrogate: 2-Fluorophenol	1.67	0.793			48%	17 - 120	10D0584	04/07/10 17:14
Surrogate: Nitrobenzene-d5	1.67	0.693			42%	17 - 120	10D0584	04/07/10 17:14

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Mercury by EPA Method 7471B												
10D0999-BSD1												
Mercury		0.163		mg/kg	0.167	98%	80 - 120	4	20	10D0999		04/07/10 16:09
Semivolatile Organic Compounds by EPA Method 8270C												
10D0584-BSD1												
Acenaphthene		1.17		mg/kg	1.67	70%	49 - 120	11	40	10D0584		04/07/10 17:53
Acenaphthylene		1.22		mg/kg	1.67	73%	52 - 120	7	30	10D0584		04/07/10 17:53
Anthracene		1.40		mg/kg	1.67	84%	58 - 120	0.2	50	10D0584		04/07/10 17:53
Benzo (a) anthracene		1.25		mg/kg	1.67	75%	57 - 120	3	30	10D0584		04/07/10 17:53
Benzo (a) pyrene		1.36		mg/kg	1.67	81%	55 - 120	0.2	33	10D0584		04/07/10 17:53
Benzo (b) fluoranthene		1.19		mg/kg	1.67	71%	51 - 123	9	42	10D0584		04/07/10 17:53
Benzo (g,h,i) perylene		1.27		mg/kg	1.67	76%	49 - 121	0.8	32	10D0584		04/07/10 17:53
Benzo (k) fluoranthene		1.24		mg/kg	1.67	74%	42 - 129	7	39	10D0584		04/07/10 17:53
4-Bromophenyl phenyl ether		1.28		mg/kg	1.67	77%	49 - 120	6	31	10D0584		04/07/10 17:53
Butyl benzyl phthalate		1.39		mg/kg	1.67	83%	59 - 124	1	37	10D0584		04/07/10 17:53
Carbazole		1.31		mg/kg	1.67	78%	54 - 120	0.4	29	10D0584		04/07/10 17:53
4-Chloro-3-methylphenol		1.26		mg/kg	1.67	76%	49 - 120	8	34	10D0584		04/07/10 17:53
4-Chloroaniline		1.23		mg/kg	1.67	74%	41 - 120	4	43	10D0584		04/07/10 17:53
Bis(2-chloroethoxy)methane		1.09		mg/kg	1.67	66%	37 - 120	5	41	10D0584		04/07/10 17:53
Bis(2-chloroethyl)ether		0.949		mg/kg	1.67	57%	29 - 120	4	41	10D0584		04/07/10 17:53
Bis(2-chloroisopropyl)ether		0.959		mg/kg	1.67	58%	28 - 120	5	50	10D0584		04/07/10 17:53
2-Chloronaphthalene		1.12		mg/kg	1.67	67%	45 - 120	7	34	10D0584		04/07/10 17:53
2-Chlorophenol		1.13		mg/kg	1.67	68%	42 - 120	4	45	10D0584		04/07/10 17:53
4-Chlorophenyl phenyl ether		1.20		mg/kg	1.67	72%	52 - 120	9	31	10D0584		04/07/10 17:53
Chrysene		1.20		mg/kg	1.67	72%	55 - 120	2	34	10D0584		04/07/10 17:53
Dibenz (a,h) anthracene		1.26		mg/kg	1.67	76%	50 - 123	10	31	10D0584		04/07/10 17:53
Dibenzofuran		1.24		mg/kg	1.67	75%	54 - 120	8	39	10D0584		04/07/10 17:53
Di-n-butyl phthalate		1.47		mg/kg	1.67	88%	58 - 120	1	29	10D0584		04/07/10 17:53
1,4-Dichlorobenzene		0.970		mg/kg	1.67	58%	15 - 120	2	50	10D0584		04/07/10 17:53
1,2-Dichlorobenzene		1.00		mg/kg	1.67	60%	17 - 120	3	50	10D0584		04/07/10 17:53
1,3-Dichlorobenzene		0.978		mg/kg	1.67	59%	13 - 120	2	50	10D0584		04/07/10 17:53
3,3-Dichlorobenzidine		1.15		mg/kg	1.67	69%	54 - 120	1	35	10D0584		04/07/10 17:53
2,4-Dichlorophenol		1.19		mg/kg	1.67	71%	43 - 120	6	35	10D0584		04/07/10 17:53
Diethyl phthalate		1.33		mg/kg	1.67	80%	52 - 120	3	33	10D0584		04/07/10 17:53
2,4-Dimethylphenol		1.38		mg/kg	1.67	83%	47 - 120	34	50	10D0584		04/07/10 17:53
Dimethyl phthalate		1.34		mg/kg	1.67	80%	55 - 120	6	31	10D0584		04/07/10 17:53
4,6-Dinitro-2-methylphenol		1.24		mg/kg	1.67	75%	27 - 134	2	50	10D0584		04/07/10 17:53
2,4-Dinitrophenol		1.46		mg/kg	1.67	87%	15 - 145	11	50	10D0584		04/07/10 17:53
2,6-Dinitrotoluene		1.22		mg/kg	1.67	73%	56 - 120	3	34	10D0584		04/07/10 17:53
2,4-Dinitrotoluene		1.18		mg/kg	1.67	71%	55 - 122	5	31	10D0584		04/07/10 17:53
Di-n-octyl phthalate		1.51		mg/kg	1.67	91%	48 - 131	2	31	10D0584		04/07/10 17:53

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
LCS Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C												
10D0584-BSD1												
Bis(2-ethylhexyl)phthalate		1.37		mg/kg	1.67	82%	51 - 127	0.05	32	10D0584		04/07/10 17:53
Fluoranthene		1.34		mg/kg	1.67	80%	58 - 120	0.3	35	10D0584		04/07/10 17:53
Fluorene		1.25		mg/kg	1.67	75%	54 - 120	10	37	10D0584		04/07/10 17:53
Hexachlorobenzene		1.28		mg/kg	1.67	77%	56 - 120	4	28	10D0584		04/07/10 17:53
Hexachlorobutadiene		1.25		mg/kg	1.67	75%	19 - 120	5	50	10D0584		04/07/10 17:53
Hexachlorocyclopentadiene		1.24		mg/kg	1.67	74%	11 - 120	14	50	10D0584		04/07/10 17:53
Hexachloroethane		0.998		mg/kg	1.67	60%	14 - 120	0.03	50	10D0584		04/07/10 17:53
Indeno (1,2,3-cd) pyrene		1.30		mg/kg	1.67	78%	50 - 122	3	32	10D0584		04/07/10 17:53
Isophorone		1.14		mg/kg	1.67	69%	43 - 120	8	36	10D0584		04/07/10 17:53
2-Methylnaphthalene		1.63		mg/kg	1.67	98%	36 - 120	5	50	10D0584		04/07/10 17:53
2-Methylphenol		1.13		mg/kg	1.67	68%	47 - 120	4	41	10D0584		04/07/10 17:53
3/4-Methylphenol		1.18		mg/kg	1.67	71%	53 - 135	6	39	10D0584		04/07/10 17:53
Naphthalene		1.07		mg/kg	1.67	64%	28 - 120	4	34	10D0584		04/07/10 17:53
3-Nitroaniline		1.27		mg/kg	1.67	76%	54 - 120	3	35	10D0584		04/07/10 17:53
2-Nitroaniline		1.27		mg/kg	1.67	76%	59 - 120	7	28	10D0584		04/07/10 17:53
4-Nitroaniline		1.28		mg/kg	1.67	77%	55 - 121	5	36	10D0584		04/07/10 17:53
Nitrobenzene		1.37		mg/kg	1.67	82%	30 - 120	3	44	10D0584		04/07/10 17:53
4-Nitrophenol		1.28		mg/kg	1.67	77%	44 - 133	6	47	10D0584		04/07/10 17:53
2-Nitrophenol		1.14		mg/kg	1.67	68%	36 - 120	5	43	10D0584		04/07/10 17:53
N-Nitrosodiphenylamine		1.47		mg/kg	1.67	88%	56 - 120	3	30	10D0584		04/07/10 17:53
N-Nitrosodi-n-propylamine		1.05		mg/kg	1.67	63%	45 - 120	1	41	10D0584		04/07/10 17:53
Pentachlorophenol		1.36		mg/kg	1.67	82%	42 - 135	3	32	10D0584		04/07/10 17:53
Phenanthrene		1.22		mg/kg	1.67	73%	56 - 120	0.7	32	10D0584		04/07/10 17:53
Phenol		1.02		mg/kg	1.67	61%	45 - 120	2	42	10D0584		04/07/10 17:53
Pyrene		1.20		mg/kg	1.67	72%	56 - 120	0.6	40	10D0584		04/07/10 17:53
1,2,4-Trichlorobenzene		1.01		mg/kg	1.67	61%	22 - 120	3	46	10D0584		04/07/10 17:53
2,4,6-Trichlorophenol		1.34		mg/kg	1.67	80%	50 - 120	11	34	10D0584		04/07/10 17:53
2,4,5-Trichlorophenol		1.32		mg/kg	1.67	79%	54 - 120	9	33	10D0584		04/07/10 17:53
Surrogate: Terphenyl-d14		1.12		mg/kg	1.67	67%	18 - 120			10D0584		04/07/10 17:53
Surrogate: 2,4,6-Tribromophenol		1.15		mg/kg	1.67	69%	19 - 120			10D0584		04/07/10 17:53
Surrogate: Phenol-d5		0.958		mg/kg	1.67	57%	18 - 120			10D0584		04/07/10 17:53
Surrogate: 2-Fluorobiphenyl		0.848		mg/kg	1.67	51%	14 - 120			10D0584		04/07/10 17:53
Surrogate: 2-Fluorophenol		0.824		mg/kg	1.67	49%	17 - 120			10D0584		04/07/10 17:53
Surrogate: Nitrobenzene-d5		0.721		mg/kg	1.67	43%	17 - 120			10D0584		04/07/10 17:53

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Total Metals by EPA 6010C										
10D1530-MS1										
Aluminum	2240	4410	M7	mg/kg	783	278%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Antimony	ND	39.2		mg/kg	39.1	100%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Arsenic	9.37	22.8	M8	mg/kg	19.6	68%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Barium	13.9	768		mg/kg	783	96%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Beryllium	0.196	18.8		mg/kg	19.6	95%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Cadmium	ND	17.9		mg/kg	19.6	91%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Calcium	21400	66700	M7	mg/kg	1960	2310%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Chromium	3.14	80.8		mg/kg	78.3	99%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Cobalt	3.12	198		mg/kg	196	100%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Copper	14.9	98.0		mg/kg	97.8	85%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Lead	7.47	24.7		mg/kg	19.6	88%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Magnesium	5390	17400	MHA	mg/kg	1960	615%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Manganese	96.8	362	M7	mg/kg	196	135%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Nickel	11.7	210		mg/kg	196	101%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Potassium	855	2860		mg/kg	1960	102%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Selenium	ND	18.8		mg/kg	19.6	96%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Silver	ND	19.2		mg/kg	19.6	98%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Sodium	186	2060		mg/kg	1960	96%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Thallium	ND	18.2		mg/kg	19.6	93%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Vanadium	10.9	204		mg/kg	196	99%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Zinc	65.9	212		mg/kg	196	75%	75 - 125	10D1530	NTD0243-01	04/08/10 22:02
Mercury by EPA Method 7471B										
10D0999-MS1										
Mercury	0.0670	0.233		mg/kg	0.167	100%	75 - 125	10D0999	NTD0197-01	04/07/10 16:24
Organochlorine Pesticides by EPA Method 8081A										
10D0564-MS1										
Aldrin	ND	0.0120		mg/kg	0.0167	72%	34 - 150	10D0564	NTD0321-02	04/08/10 01:07
delta-BHC	ND	0.0133		mg/kg	0.0167	80%	15 - 147	10D0564	NTD0321-02	04/08/10 01:07
alpha-BHC	ND	0.0140		mg/kg	0.0167	84%	35 - 143	10D0564	NTD0321-02	04/08/10 01:07
beta-BHC	ND	0.0147		mg/kg	0.0167	88%	21 - 175	10D0564	NTD0321-02	04/08/10 01:07
gamma-BHC (Lindane)	ND	0.0140		mg/kg	0.0167	84%	36 - 147	10D0564	NTD0321-02	04/08/10 01:07
alpha-Chlordane	0.00233	0.0157		mg/kg	0.0167	80%	36 - 148	10D0564	NTD0321-02	04/08/10 01:07
gamma-Chlordane	0.00133	0.0130		mg/kg	0.0167	70%	31 - 150	10D0564	NTD0321-02	04/08/10 01:07
4,4'-DDD	ND	0.0120		mg/kg	0.0167	72%	27 - 166	10D0564	NTD0321-02	04/08/10 01:07
4,4'-DDE	ND	0.0120		mg/kg	0.0167	72%	32 - 150	10D0564	NTD0321-02	04/08/10 01:07

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike - Cont.

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Organochlorine Pesticides by EPA Method 8081A										
10D0564-MS1										
4,4'-DDT	ND	0.0130		mg/kg	0.0167	78%	36 - 150	10D0564	NTD0321-02	04/08/10 01:07
Dieldrin	ND	0.0120		mg/kg	0.0167	72%	26 - 157	10D0564	NTD0321-02	04/08/10 01:07
Endosulfan I	ND	0.0123		mg/kg	0.0167	74%	28 - 151	10D0564	NTD0321-02	04/08/10 01:07
Endosulfan II	ND	0.0123		mg/kg	0.0167	74%	28 - 166	10D0564	NTD0321-02	04/08/10 01:07
Endosulfan sulfate	ND	0.0127		mg/kg	0.0167	76%	34 - 149	10D0564	NTD0321-02	04/08/10 01:07
Endrin	ND	0.0133		mg/kg	0.0167	80%	24 - 173	10D0564	NTD0321-02	04/08/10 01:07
Endrin aldehyde	ND	0.0137		mg/kg	0.0167	82%	26 - 166	10D0564	NTD0321-02	04/08/10 01:07
Endrin ketone	ND	0.0133		mg/kg	0.0167	80%	44 - 152	10D0564	NTD0321-02	04/08/10 01:07
Heptachlor	ND	0.0127		mg/kg	0.0167	76%	33 - 160	10D0564	NTD0321-02	04/08/10 01:07
Heptachlor epoxide	ND	0.0127		mg/kg	0.0167	76%	38 - 150	10D0564	NTD0321-02	04/08/10 01:07
Methoxychlor	ND	0.0117		mg/kg	0.0167	70%	10 - 175	10D0564	NTD0321-02	04/08/10 01:07
Surrogate: Tetrachloro-meta-xylene		0.0133		mg/kg	0.0167	80%	22 - 150	10D0564	NTD0321-02	04/08/10 01:07
Surrogate: Decachlorobiphenyl		0.0103		mg/kg	0.0167	62%	25 - 150	10D0564	NTD0321-02	04/08/10 01:07
Polychlorinated Biphenyls by EPA Method 8082										
10D0590-MS1										
PCB-1016	ND	0.0945		mg/kg	0.166	57%	20 - 175	10D0590	NTD0219-01	04/07/10 21:34
PCB-1260	ND	0.0995		mg/kg	0.166	60%	51 - 159	10D0590	NTD0219-01	04/07/10 21:34
Surrogate: Tetrachloro-meta-xylene		0.00829		mg/kg	0.0166	50%	19 - 147	10D0590	NTD0219-01	04/07/10 21:34
Surrogate: Decachlorobiphenyl		0.00796		mg/kg	0.0166	48%	20 - 150	10D0590	NTD0219-01	04/07/10 21:34
Volatile Organic Compounds by EPA Method 8260B										
10D0567-MS1										
Acetone	0.228	0.275	M8	mg/kg	0.246	19%	29 - 181	10D0567	NTD0321-01	04/08/10 07:49
Benzene	0.000961	0.0457		mg/kg	0.0492	91%	42 - 141	10D0567	NTD0321-01	04/08/10 07:49
Bromochloromethane	ND	0.0440		mg/kg	0.0492	89%	41 - 146	10D0567	NTD0321-01	04/08/10 07:49
Bromodichloromethane	ND	0.0444		mg/kg	0.0492	90%	32 - 155	10D0567	NTD0321-01	04/08/10 07:49
Bromoform	ND	0.0353		mg/kg	0.0492	72%	10 - 155	10D0567	NTD0321-01	04/08/10 07:49
Bromomethane	ND	0.0549		mg/kg	0.0492	111%	10 - 199	10D0567	NTD0321-01	04/08/10 07:49
2-Butanone	0.0205	0.208		mg/kg	0.246	76%	38 - 161	10D0567	NTD0321-01	04/08/10 07:49
tert-Butylbenzene	ND	0.0606		mg/kg	0.0492	123%	11 - 165	10D0567	NTD0321-01	04/08/10 07:49
n-Butylbenzene	ND	0.0448		mg/kg	0.0492	91%	10 - 183	10D0567	NTD0321-01	04/08/10 07:49
sec-Butylbenzene	ND	0.0543		mg/kg	0.0492	110%	10 - 170	10D0567	NTD0321-01	04/08/10 07:49
Carbon disulfide	0.00201	0.0484		mg/kg	0.0492	94%	50 - 136	10D0567	NTD0321-01	04/08/10 07:49
Carbon Tetrachloride	ND	0.0524		mg/kg	0.0492	107%	30 - 159	10D0567	NTD0321-01	04/08/10 07:49
Chlorobenzene	ND	0.0422		mg/kg	0.0492	86%	25 - 151	10D0567	NTD0321-01	04/08/10 07:49
Chlorodibromomethane	ND	0.0461		mg/kg	0.0492	94%	27 - 150	10D0567	NTD0321-01	04/08/10 07:49

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Number: P-7825 / Exxonmobil Winston Salem
Received: 04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike - Cont.

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B										
10D0567-MS1										
Chloroethane	ND	0.0513		mg/kg	0.0492	104%	15 - 197	10D0567	NTD0321-01	04/08/10 07:49
Chloroform	0.00260	0.0741		mg/kg	0.0492	145%	33 - 148	10D0567	NTD0321-01	04/08/10 07:49
Chloromethane	ND	0.0477		mg/kg	0.0492	97%	10 - 166	10D0567	NTD0321-01	04/08/10 07:49
Cyclohexane	0.00215	0.0463		mg/kg	0.0492	90%	26 - 165	10D0567	NTD0321-01	04/08/10 07:49
1,2-Dibromo-3-chloropropane	ND	0.0349		mg/kg	0.0492	71%	10 - 167	10D0567	NTD0321-01	04/08/10 07:49
1,2-Dibromoethane (EDB)	ND	0.0468		mg/kg	0.0492	95%	30 - 155	10D0567	NTD0321-01	04/08/10 07:49
Methylcyclohexane	ND	0.0424		mg/kg	0.0492	86%	11 - 151	10D0567	NTD0321-01	04/08/10 07:49
1,2-Dichlorobenzene	ND	0.0339		mg/kg	0.0492	69%	10 - 168	10D0567	NTD0321-01	04/08/10 07:49
1,3-Dichlorobenzene	ND	0.0397		mg/kg	0.0492	81%	10 - 173	10D0567	NTD0321-01	04/08/10 07:49
1,4-Dichlorobenzene	ND	0.0390		mg/kg	0.0492	79%	10 - 170	10D0567	NTD0321-01	04/08/10 07:49
Dichlorodifluoromethane	ND	0.0408		mg/kg	0.0492	83%	10 - 188	10D0567	NTD0321-01	04/08/10 07:49
1,2-Dichloroethane	ND	0.0499		mg/kg	0.0492	101%	32 - 155	10D0567	NTD0321-01	04/08/10 07:49
1,1-Dichloroethane	ND	0.0501		mg/kg	0.0492	102%	51 - 135	10D0567	NTD0321-01	04/08/10 07:49
1,1-Dichloroethene	ND	0.0449		mg/kg	0.0492	91%	46 - 141	10D0567	NTD0321-01	04/08/10 07:49
trans-1,2-Dichloroethene	ND	0.0498		mg/kg	0.0492	101%	41 - 146	10D0567	NTD0321-01	04/08/10 07:49
1,1,2-Trifluorotrichloroethane	ND	0.0511		mg/kg	0.0492	104%	30 - 169	10D0567	NTD0321-01	04/08/10 07:49
cis-1,2-Dichloroethene	ND	0.0494		mg/kg	0.0492	100%	32 - 150	10D0567	NTD0321-01	04/08/10 07:49
1,2-Dichloropropane	ND	0.0437		mg/kg	0.0492	89%	34 - 139	10D0567	NTD0321-01	04/08/10 07:49
trans-1,3-Dichloropropene	ND	0.0488		mg/kg	0.0492	99%	24 - 151	10D0567	NTD0321-01	04/08/10 07:49
cis-1,3-Dichloropropene	ND	0.0528		mg/kg	0.0492	107%	23 - 152	10D0567	NTD0321-01	04/08/10 07:49
Ethylbenzene	ND	0.0485		mg/kg	0.0492	98%	21 - 165	10D0567	NTD0321-01	04/08/10 07:49
2-Hexanone	ND	0.202		mg/kg	0.246	82%	13 - 174	10D0567	NTD0321-01	04/08/10 07:49
Isopropylbenzene	ND	0.0497		mg/kg	0.0492	101%	20 - 139	10D0567	NTD0321-01	04/08/10 07:49
p-Isopropyltoluene	ND	0.0510		mg/kg	0.0492	104%	10 - 164	10D0567	NTD0321-01	04/08/10 07:49
Methyl Acetate	ND	0.0607		mg/kg	0.0492	123%	10 - 200	10D0567	NTD0321-01	04/08/10 07:49
Methyl tert-Butyl Ether	ND	0.0484		mg/kg	0.0492	98%	34 - 154	10D0567	NTD0321-01	04/08/10 07:49
Methylene Chloride	ND	0.0557		mg/kg	0.0492	113%	36 - 163	10D0567	NTD0321-01	04/08/10 07:49
4-Methyl-2-pentanone	ND	0.230		mg/kg	0.246	94%	19 - 176	10D0567	NTD0321-01	04/08/10 07:49
Naphthalene	ND	0.00880		mg/kg	0.0492	18%	10 - 160	10D0567	NTD0321-01	04/08/10 07:49
n-Propylbenzene	ND	0.0599		mg/kg	0.0492	122%	16 - 174	10D0567	NTD0321-01	04/08/10 07:49
Styrene	ND	0.00139	M8	mg/kg	0.0492	3%	10 - 177	10D0567	NTD0321-01	04/08/10 07:49
1,1,2,2-Tetrachloroethane	ND	0.0555		mg/kg	0.0492	113%	27 - 163	10D0567	NTD0321-01	04/08/10 07:49
Tetrachloroethene	ND	0.0485		mg/kg	0.0492	99%	33 - 155	10D0567	NTD0321-01	04/08/10 07:49
Toluene	0.00211	0.0514		mg/kg	0.0492	100%	45 - 145	10D0567	NTD0321-01	04/08/10 07:49
1,2,4-Trichlorobenzene	ND	0.0146		mg/kg	0.0492	30%	10 - 175	10D0567	NTD0321-01	04/08/10 07:49
1,2,3-Trichlorobenzene	ND	0.0122		mg/kg	0.0492	25%	10 - 182	10D0567	NTD0321-01	04/08/10 07:49

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Number: P-7825 / Exxonmobil Winston Salem
Received: 04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike - Cont.

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B										
10D0567-MS1										
1,1,1-Trichloroethane	ND	0.0520		mg/kg	0.0492	106%	39 - 148	10D0567	NTD0321-01	04/08/10 07:49
1,1,2-Trichloroethane	ND	0.0428		mg/kg	0.0492	87%	43 - 145	10D0567	NTD0321-01	04/08/10 07:49
Trichloroethene	ND	0.0440		mg/kg	0.0492	89%	39 - 150	10D0567	NTD0321-01	04/08/10 07:49
Trichlorofluoromethane	ND	0.0489		mg/kg	0.0492	99%	25 - 174	10D0567	NTD0321-01	04/08/10 07:49
1,3,5-Trimethylbenzene	ND	0.0542		mg/kg	0.0492	110%	38 - 148	10D0567	NTD0321-01	04/08/10 07:49
1,2,4-Trimethylbenzene	ND	0.0503		mg/kg	0.0492	102%	22 - 164	10D0567	NTD0321-01	04/08/10 07:49
Vinyl chloride	ND	0.0440		mg/kg	0.0492	89%	32 - 163	10D0567	NTD0321-01	04/08/10 07:49
Xylenes, total	0.00173	0.136		mg/kg	0.148	91%	31 - 159	10D0567	NTD0321-01	04/08/10 07:49
Surrogate: 1,2-Dichloroethane-d4		53.3		ug/kg	50.0	107%	67 - 138	10D0567	NTD0321-01	04/08/10 07:49
Surrogate: Dibromofluoromethane		51.3		ug/kg	50.0	103%	75 - 125	10D0567	NTD0321-01	04/08/10 07:49
Surrogate: Toluene-d8		56.3		ug/kg	50.0	113%	76 - 129	10D0567	NTD0321-01	04/08/10 07:49
Surrogate: 4-Bromofluorobenzene		62.7		ug/kg	50.0	125%	67 - 147	10D0567	NTD0321-01	04/08/10 07:49
Semivolatile Organic Compounds by EPA Method 8270C										
10D0584-MS1										
Acenaphthene	ND	1.13		mg/kg	1.66	68%	42 - 120	10D0584	NTD0323-01	04/07/10 18:13
Acenaphthylene	ND	1.18		mg/kg	1.66	71%	32 - 120	10D0584	NTD0323-01	04/07/10 18:13
Anthracene	ND	1.42		mg/kg	1.66	85%	10 - 200	10D0584	NTD0323-01	04/07/10 18:13
Benzo (a) anthracene	ND	1.32		mg/kg	1.66	80%	41 - 120	10D0584	NTD0323-01	04/07/10 18:13
Benzo (a) pyrene	ND	1.39		mg/kg	1.66	84%	33 - 121	10D0584	NTD0323-01	04/07/10 18:13
Benzo (b) fluoranthene	ND	1.32		mg/kg	1.66	80%	26 - 137	10D0584	NTD0323-01	04/07/10 18:13
Benzo (g,h,i) perylene	ND	1.34		mg/kg	1.66	81%	21 - 124	10D0584	NTD0323-01	04/07/10 18:13
Benzo (k) fluoranthene	ND	1.24		mg/kg	1.66	75%	14 - 140	10D0584	NTD0323-01	04/07/10 18:13
4-Bromophenyl phenyl ether	ND	1.27		mg/kg	1.66	77%	39 - 120	10D0584	NTD0323-01	04/07/10 18:13
Butyl benzyl phthalate	ND	1.45		mg/kg	1.66	88%	47 - 124	10D0584	NTD0323-01	04/07/10 18:13
Carbazole	ND	1.39		mg/kg	1.66	84%	37 - 120	10D0584	NTD0323-01	04/07/10 18:13
4-Chloro-3-methylphenol	ND	1.26		mg/kg	1.66	76%	38 - 120	10D0584	NTD0323-01	04/07/10 18:13
4-Chloroaniline	ND	1.22		mg/kg	1.66	74%	20 - 120	10D0584	NTD0323-01	04/07/10 18:13
Bis(2-chloroethoxy)methane	ND	1.05		mg/kg	1.66	63%	32 - 120	10D0584	NTD0323-01	04/07/10 18:13
Bis(2-chloroethyl)ether	ND	0.868		mg/kg	1.66	52%	25 - 120	10D0584	NTD0323-01	04/07/10 18:13
Bis(2-chloroisopropyl)ether	ND	0.881		mg/kg	1.66	53%	23 - 120	10D0584	NTD0323-01	04/07/10 18:13
2-Chloronaphthalene	ND	1.05		mg/kg	1.66	63%	39 - 120	10D0584	NTD0323-01	04/07/10 18:13
2-Chlorophenol	ND	1.10		mg/kg	1.66	66%	28 - 120	10D0584	NTD0323-01	04/07/10 18:13
4-Chlorophenyl phenyl ether	ND	1.17		mg/kg	1.66	71%	43 - 120	10D0584	NTD0323-01	04/07/10 18:13
Chrysene	ND	1.25		mg/kg	1.66	76%	28 - 123	10D0584	NTD0323-01	04/07/10 18:13
Dibenz (a,h) anthracene	ND	1.33		mg/kg	1.66	80%	25 - 127	10D0584	NTD0323-01	04/07/10 18:13
Dibenzofuran	ND	1.24		mg/kg	1.66	75%	40 - 120	10D0584	NTD0323-01	04/07/10 18:13

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Number: P-7825 / Exxonmobil Winston Salem
Received: 04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike - Cont.

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C										
10D0584-MS1										
Di-n-butyl phthalate	ND	1.51		mg/kg	1.66	91%	32 - 124	10D0584	NTD0323-01	04/07/10 18:13
1,4-Dichlorobenzene	ND	0.734		mg/kg	1.66	44%	10 - 120	10D0584	NTD0323-01	04/07/10 18:13
1,2-Dichlorobenzene	ND	0.777		mg/kg	1.66	47%	10 - 120	10D0584	NTD0323-01	04/07/10 18:13
1,3-Dichlorobenzene	ND	0.714		mg/kg	1.66	43%	10 - 120	10D0584	NTD0323-01	04/07/10 18:13
3,3-Dichlorobenzidine	ND	1.16		mg/kg	1.66	70%	13 - 120	10D0584	NTD0323-01	04/07/10 18:13
2,4-Dichlorophenol	ND	1.13		mg/kg	1.66	68%	33 - 120	10D0584	NTD0323-01	04/07/10 18:13
Diethyl phthalate	ND	1.39		mg/kg	1.66	84%	34 - 120	10D0584	NTD0323-01	04/07/10 18:13
2,4-Dimethylphenol	ND	0.862		mg/kg	1.66	52%	29 - 120	10D0584	NTD0323-01	04/07/10 18:13
Dimethyl phthalate	ND	1.36		mg/kg	1.66	82%	43 - 120	10D0584	NTD0323-01	04/07/10 18:13
4,6-Dinitro-2-methylphenol	ND	1.28		mg/kg	1.66	77%	10 - 134	10D0584	NTD0323-01	04/07/10 18:13
2,4-Dinitrophenol	ND	1.40		mg/kg	1.66	85%	10 - 145	10D0584	NTD0323-01	04/07/10 18:13
2,6-Dinitrotoluene	ND	1.30		mg/kg	1.66	79%	43 - 120	10D0584	NTD0323-01	04/07/10 18:13
2,4-Dinitrotoluene	ND	1.26		mg/kg	1.66	76%	42 - 122	10D0584	NTD0323-01	04/07/10 18:13
Di-n-octyl phthalate	ND	1.61		mg/kg	1.66	97%	34 - 135	10D0584	NTD0323-01	04/07/10 18:13
Bis(2-ethylhexyl)phthalate	ND	1.44		mg/kg	1.66	87%	40 - 127	10D0584	NTD0323-01	04/07/10 18:13
Fluoranthene	ND	1.39		mg/kg	1.66	84%	38 - 120	10D0584	NTD0323-01	04/07/10 18:13
Fluorene	ND	1.25		mg/kg	1.66	75%	41 - 120	10D0584	NTD0323-01	04/07/10 18:13
Hexachlorobenzene	ND	1.30		mg/kg	1.66	79%	44 - 120	10D0584	NTD0323-01	04/07/10 18:13
Hexachlorobutadiene	ND	0.957		mg/kg	1.66	58%	17 - 120	10D0584	NTD0323-01	04/07/10 18:13
Hexachlorocyclopentadiene	ND	1.05		mg/kg	1.66	63%	10 - 120	10D0584	NTD0323-01	04/07/10 18:13
Hexachloroethane	ND	0.732		mg/kg	1.66	44%	10 - 120	10D0584	NTD0323-01	04/07/10 18:13
Indeno (1,2,3-cd) pyrene	ND	1.37		mg/kg	1.66	83%	25 - 123	10D0584	NTD0323-01	04/07/10 18:13
Isophorone	ND	1.13		mg/kg	1.66	68%	32 - 120	10D0584	NTD0323-01	04/07/10 18:13
2-Methylnaphthalene	ND	1.53		mg/kg	1.66	92%	11 - 120	10D0584	NTD0323-01	04/07/10 18:13
2-Methylphenol	ND	1.07		mg/kg	1.66	65%	41 - 120	10D0584	NTD0323-01	04/07/10 18:13
3/4-Methylphenol	ND	1.12		mg/kg	1.66	68%	36 - 127	10D0584	NTD0323-01	04/07/10 18:13
Naphthalene	ND	0.933		mg/kg	1.66	56%	25 - 120	10D0584	NTD0323-01	04/07/10 18:13
3-Nitroaniline	ND	1.33		mg/kg	1.66	80%	36 - 120	10D0584	NTD0323-01	04/07/10 18:13
2-Nitroaniline	ND	1.30		mg/kg	1.66	79%	46 - 120	10D0584	NTD0323-01	04/07/10 18:13
4-Nitroaniline	ND	1.32		mg/kg	1.66	80%	35 - 121	10D0584	NTD0323-01	04/07/10 18:13
Nitrobenzene	ND	1.31		mg/kg	1.66	79%	26 - 120	10D0584	NTD0323-01	04/07/10 18:13
4-Nitrophenol	ND	1.37		mg/kg	1.66	83%	19 - 136	10D0584	NTD0323-01	04/07/10 18:13
2-Nitrophenol	ND	1.09		mg/kg	1.66	66%	26 - 120	10D0584	NTD0323-01	04/07/10 18:13
N-Nitrosodiphenylamine	ND	1.51		mg/kg	1.66	91%	43 - 120	10D0584	NTD0323-01	04/07/10 18:13
N-Nitrosodi-n-propylamine	ND	1.01		mg/kg	1.66	61%	34 - 120	10D0584	NTD0323-01	04/07/10 18:13
Pentachlorophenol	ND	1.39		mg/kg	1.66	84%	15 - 135	10D0584	NTD0323-01	04/07/10 18:13

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike - Cont.

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C										
10D0584-MS1										
Phenanthrene	ND	1.26		mg/kg	1.66	76%	37 - 120	10D0584	NTD0323-01	04/07/10 18:13
Phenol	ND	1.02		mg/kg	1.66	61%	38 - 120	10D0584	NTD0323-01	04/07/10 18:13
Pyrene	ND	1.23		mg/kg	1.66	74%	29 - 125	10D0584	NTD0323-01	04/07/10 18:13
1,2,4-Trichlorobenzene	ND	0.859		mg/kg	1.66	52%	22 - 120	10D0584	NTD0323-01	04/07/10 18:13
2,4,6-Trichlorophenol	ND	1.31		mg/kg	1.66	79%	32 - 120	10D0584	NTD0323-01	04/07/10 18:13
2,4,5-Trichlorophenol	ND	1.33		mg/kg	1.66	80%	39 - 120	10D0584	NTD0323-01	04/07/10 18:13
Surrogate: Terphenyl-d14		1.12		mg/kg	1.66	68%	18 - 120	10D0584	NTD0323-01	04/07/10 18:13
Surrogate: 2,4,6-Tribromophenol		1.15		mg/kg	1.66	70%	19 - 120	10D0584	NTD0323-01	04/07/10 18:13
Surrogate: Phenol-d5		1.03		mg/kg	1.66	62%	18 - 120	10D0584	NTD0323-01	04/07/10 18:13
Surrogate: 2-Fluorobiphenyl		0.868		mg/kg	1.66	52%	14 - 120	10D0584	NTD0323-01	04/07/10 18:13
Surrogate: 2-Fluorophenol		0.900		mg/kg	1.66	54%	17 - 120	10D0584	NTD0323-01	04/07/10 18:13
Surrogate: Nitrobenzene-d5		0.854		mg/kg	1.66	52%	17 - 120	10D0584	NTD0323-01	04/07/10 18:13

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	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Total Metals by EPA 6010C												
10D1530-MSD1												
Aluminum	2240	6220	M7, R3	mg/kg	775	514%	75 - 125	34	20	10D1530	NTD0243-01	04/08/10 22:06
Antimony	ND	38.4		mg/kg	38.8	99%	75 - 125	2	20	10D1530	NTD0243-01	04/08/10 22:06
Arsenic	9.37	23.2	M8	mg/kg	19.4	71%	75 - 125	2	20	10D1530	NTD0243-01	04/08/10 22:06
Barium	13.9	754		mg/kg	775	95%	75 - 125	2	20	10D1530	NTD0243-01	04/08/10 22:06
Beryllium	0.196	18.4		mg/kg	19.4	94%	75 - 125	2	20	10D1530	NTD0243-01	04/08/10 22:06
Cadmium	ND	17.2		mg/kg	19.4	89%	75 - 125	4	20	10D1530	NTD0243-01	04/08/10 22:06
Calcium	21400	79000	M7	mg/kg	1940	2970%	75 - 125	17	20	10D1530	NTD0243-01	04/08/10 22:06
Chromium	3.14	80.1		mg/kg	77.5	99%	75 - 125	0.9	20	10D1530	NTD0243-01	04/08/10 22:06
Cobalt	3.12	197		mg/kg	194	100%	75 - 125	0.9	20	10D1530	NTD0243-01	04/08/10 22:06
Copper	14.9	96.9		mg/kg	96.9	85%	75 - 125	1	20	10D1530	NTD0243-01	04/08/10 22:06
Lead	7.47	25.4		mg/kg	19.4	93%	75 - 125	3	20	10D1530	NTD0243-01	04/08/10 22:06
Magnesium	5390	23500	MHA,	mg/kg	1940	933%	75 - 125	30	20	10D1530	NTD0243-01	04/08/10 22:06
Manganese	96.8	420	M7	mg/kg	194	167%	75 - 125	15	20	10D1530	NTD0243-01	04/08/10 22:06
Nickel	11.7	208		mg/kg	194	101%	75 - 125	1	20	10D1530	NTD0243-01	04/08/10 22:06
Potassium	855	3560	M7, R3	mg/kg	1940	139%	75 - 125	22	20	10D1530	NTD0243-01	04/08/10 22:06
Selenium	ND	17.9		mg/kg	19.4	92%	75 - 125	5	20	10D1530	NTD0243-01	04/08/10 22:06
Silver	ND	19.2		mg/kg	19.4	99%	75 - 125	0.06	20	10D1530	NTD0243-01	04/08/10 22:06
Sodium	186	2070		mg/kg	1940	97%	75 - 125	0.3	20	10D1530	NTD0243-01	04/08/10 22:06
Thallium	ND	17.8		mg/kg	19.4	92%	75 - 125	2	20	10D1530	NTD0243-01	04/08/10 22:06
Vanadium	10.9	204		mg/kg	194	100%	75 - 125	0.08	20	10D1530	NTD0243-01	04/08/10 22:06
Zinc	65.9	213		mg/kg	194	76%	75 - 125	0.2	20	10D1530	NTD0243-01	04/08/10 22:06
Mercury by EPA Method 7471B												
10D0999-MSD1												
Mercury	0.0670	0.232		mg/kg	0.163	101%	75 - 125	0.6	20	10D0999	NTD0197-01	04/07/10 16:26
Organochlorine Pesticides by EPA Method 8081A												
10D0564-MSD1												
Aldrin	ND	0.0136		mg/kg	0.0166	82%	34 - 150	13	36	10D0564	NTD0321-02	04/08/10 01:21
delta-BHC	ND	0.0143		mg/kg	0.0166	86%	15 - 147	7	40	10D0564	NTD0321-02	04/08/10 01:21
alpha-BHC	ND	0.0150		mg/kg	0.0166	90%	35 - 143	7	38	10D0564	NTD0321-02	04/08/10 01:21
beta-BHC	ND	0.0156		mg/kg	0.0166	94%	21 - 175	6	50	10D0564	NTD0321-02	04/08/10 01:21
gamma-BHC (Lindane)	ND	0.0150		mg/kg	0.0166	90%	36 - 147	7	39	10D0564	NTD0321-02	04/08/10 01:21
alpha-Chlordane	0.00233	0.0170		mg/kg	0.0166	88%	36 - 148	8	37	10D0564	NTD0321-02	04/08/10 01:21
gamma-Chlordane	0.00133	0.0143		mg/kg	0.0166	78%	31 - 150	10	39	10D0564	NTD0321-02	04/08/10 01:21
4,4'-DDD	ND	0.0133		mg/kg	0.0166	80%	27 - 166	10	43	10D0564	NTD0321-02	04/08/10 01:21
4,4'-DDE	ND	0.0136		mg/kg	0.0166	82%	32 - 150	13	37	10D0564	NTD0321-02	04/08/10 01:21
4,4'-DDT	ND	0.0150		mg/kg	0.0166	90%	36 - 150	14	45	10D0564	NTD0321-02	04/08/10 01:21
Dieldrin	ND	0.0130		mg/kg	0.0166	78%	26 - 157	8	39	10D0564	NTD0321-02	04/08/10 01:21
Endosulfan I	ND	0.0133		mg/kg	0.0166	80%	28 - 151	8	39	10D0564	NTD0321-02	04/08/10 01:21

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Organochlorine Pesticides by EPA Method 8081A												
10D0564-MSD1												
Endosulfan II	ND	0.0136		mg/kg	0.0166	82%	28 - 166	10	44	10D0564	NTD0321-02	04/08/10 01:21
Endosulfan sulfate	ND	0.0130		mg/kg	0.0166	78%	34 - 149	2	40	10D0564	NTD0321-02	04/08/10 01:21
Endrin	ND	0.0140		mg/kg	0.0166	84%	24 - 173	5	48	10D0564	NTD0321-02	04/08/10 01:21
Endrin aldehyde	ND	0.0146		mg/kg	0.0166	88%	26 - 166	7	46	10D0564	NTD0321-02	04/08/10 01:21
Endrin ketone	ND	0.0140		mg/kg	0.0166	84%	44 - 152	5	44	10D0564	NTD0321-02	04/08/10 01:21
Heptachlor	ND	0.0140		mg/kg	0.0166	84%	33 - 160	10	38	10D0564	NTD0321-02	04/08/10 01:21
Heptachlor epoxide	ND	0.0136		mg/kg	0.0166	82%	38 - 150	7	34	10D0564	NTD0321-02	04/08/10 01:21
Methoxychlor	ND	0.0130		mg/kg	0.0166	78%	10 - 175	11	50	10D0564	NTD0321-02	04/08/10 01:21
Surrogate: Tetrachloro-meta-xylene		0.00931		mg/kg	0.0166	56%	22 - 150			10D0564	NTD0321-02	04/08/10 01:21
Surrogate: Decachlorobiphenyl		0.00698		mg/kg	0.0166	42%	25 - 150			10D0564	NTD0321-02	04/08/10 01:21
Polychlorinated Biphenyls by EPA Method 8082												
10D0590-MSD1												
PCB-1016	ND	0.105		mg/kg	0.163	64%	20 - 175	10	50	10D0590	NTD0219-01	04/07/10 21:56
PCB-1221	ND	ND		mg/kg			17 - 175		50	10D0590	NTD0219-01	04/07/10 21:56
PCB-1232	ND	ND		mg/kg			17 - 175		50	10D0590	NTD0219-01	04/07/10 21:56
PCB-1260	ND	0.117		mg/kg	0.163	72%	51 - 159	16	36	10D0590	NTD0219-01	04/07/10 21:56
Surrogate: Tetrachloro-meta-xylene		0.00881		mg/kg	0.0163	54%	19 - 147			10D0590	NTD0219-01	04/07/10 21:56
Surrogate: Decachlorobiphenyl		0.00881		mg/kg	0.0163	54%	20 - 150			10D0590	NTD0219-01	04/07/10 21:56
Volatile Organic Compounds by EPA Method 8260B												
10D0567-MSD1												
Acetone	0.228	0.263	M8	mg/kg	0.239	15%	29 - 181	5	50	10D0567	NTD0321-01	04/08/10 08:19
Benzene	0.000961	0.0435		mg/kg	0.0479	89%	42 - 141	5	50	10D0567	NTD0321-01	04/08/10 08:19
Bromochloromethane	ND	0.0415		mg/kg	0.0479	87%	41 - 146	6	50	10D0567	NTD0321-01	04/08/10 08:19
Bromodichloromethane	ND	0.0421		mg/kg	0.0479	88%	32 - 155	5	50	10D0567	NTD0321-01	04/08/10 08:19
Bromoform	ND	0.0336		mg/kg	0.0479	70%	10 - 155	5	43	10D0567	NTD0321-01	04/08/10 08:19
Bromomethane	ND	0.0500		mg/kg	0.0479	104%	10 - 199	9	46	10D0567	NTD0321-01	04/08/10 08:19
2-Butanone	0.0205	0.207		mg/kg	0.239	78%	38 - 161	0.7	50	10D0567	NTD0321-01	04/08/10 08:19
tert-Butylbenzene	ND	0.0522		mg/kg	0.0479	109%	11 - 165	15	50	10D0567	NTD0321-01	04/08/10 08:19
n-Butylbenzene	ND	0.0361		mg/kg	0.0479	75%	10 - 183	21	50	10D0567	NTD0321-01	04/08/10 08:19
sec-Butylbenzene	ND	0.0470		mg/kg	0.0479	98%	10 - 170	14	50	10D0567	NTD0321-01	04/08/10 08:19
Carbon disulfide	0.00201	0.0460		mg/kg	0.0479	92%	50 - 136	5	48	10D0567	NTD0321-01	04/08/10 08:19
Carbon Tetrachloride	ND	0.0488		mg/kg	0.0479	102%	30 - 159	7	44	10D0567	NTD0321-01	04/08/10 08:19
Chlorobenzene	ND	0.0404		mg/kg	0.0479	84%	25 - 151	4	50	10D0567	NTD0321-01	04/08/10 08:19
Chlorodibromomethane	ND	0.0437		mg/kg	0.0479	91%	27 - 150	5	48	10D0567	NTD0321-01	04/08/10 08:19
Chloroethane	ND	0.0481		mg/kg	0.0479	101%	15 - 197	6	50	10D0567	NTD0321-01	04/08/10 08:19
Chloroform	0.00260	0.0690		mg/kg	0.0479	139%	33 - 148	7	50	10D0567	NTD0321-01	04/08/10 08:19
Chloromethane	ND	0.0427		mg/kg	0.0479	89%	10 - 166	11	44	10D0567	NTD0321-01	04/08/10 08:19
Cyclohexane	0.00215	0.0438		mg/kg	0.0479	87%	26 - 165	5	40	10D0567	NTD0321-01	04/08/10 08:19

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Number: P-7825 / Exxonmobil Winston Salem
Received: 04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B												
10D0567-MSD1												
1,2-Dibromo-3-chloropropane	ND	0.0364		mg/kg	0.0479	76%	10 - 167	4	45	10D0567	NTD0321-01	04/08/10 08:19
1,2-Dibromoethane (EDB)	ND	0.0453		mg/kg	0.0479	95%	30 - 155	3	45	10D0567	NTD0321-01	04/08/10 08:19
Methylcyclohexane	ND	0.0382		mg/kg	0.0479	80%	11 - 151	11	27	10D0567	NTD0321-01	04/08/10 08:19
1,2-Dichlorobenzene	ND	0.0330		mg/kg	0.0479	69%	10 - 168	3	50	10D0567	NTD0321-01	04/08/10 08:19
1,3-Dichlorobenzene	ND	0.0367		mg/kg	0.0479	77%	10 - 173	8	50	10D0567	NTD0321-01	04/08/10 08:19
1,4-Dichlorobenzene	ND	0.0373		mg/kg	0.0479	78%	10 - 170	5	50	10D0567	NTD0321-01	04/08/10 08:19
Dichlorodifluoromethane	ND	0.0368		mg/kg	0.0479	77%	10 - 188	10	50	10D0567	NTD0321-01	04/08/10 08:19
1,2-Dichloroethane	ND	0.0480		mg/kg	0.0479	100%	32 - 155	4	50	10D0567	NTD0321-01	04/08/10 08:19
1,1-Dichloroethane	ND	0.0482		mg/kg	0.0479	101%	51 - 135	4	50	10D0567	NTD0321-01	04/08/10 08:19
1,1-Dichloroethene	ND	0.0411		mg/kg	0.0479	86%	46 - 141	9	50	10D0567	NTD0321-01	04/08/10 08:19
trans-1,2-Dichloroethene	ND	0.0473		mg/kg	0.0479	99%	41 - 146	5	40	10D0567	NTD0321-01	04/08/10 08:19
1,1,2-Trifluorotrichloroethane	ND	0.0469		mg/kg	0.0479	98%	30 - 169	9	46	10D0567	NTD0321-01	04/08/10 08:19
cis-1,2-Dichloroethene	ND	0.0467		mg/kg	0.0479	98%	32 - 150	6	50	10D0567	NTD0321-01	04/08/10 08:19
1,2-Dichloropropane	ND	0.0415		mg/kg	0.0479	87%	34 - 139	5	50	10D0567	NTD0321-01	04/08/10 08:19
trans-1,3-Dichloropropene	ND	0.0471		mg/kg	0.0479	98%	24 - 151	4	48	10D0567	NTD0321-01	04/08/10 08:19
cis-1,3-Dichloropropene	ND	0.0499		mg/kg	0.0479	104%	23 - 152	6	50	10D0567	NTD0321-01	04/08/10 08:19
Ethylbenzene	ND	0.0447		mg/kg	0.0479	93%	21 - 165	8	50	10D0567	NTD0321-01	04/08/10 08:19
2-Hexanone	ND	0.202		mg/kg	0.239	84%	13 - 174	0.2	50	10D0567	NTD0321-01	04/08/10 08:19
Isopropylbenzene	ND	0.0438		mg/kg	0.0479	92%	20 - 139	12	50	10D0567	NTD0321-01	04/08/10 08:19
p-Isopropyltoluene	ND	0.0439		mg/kg	0.0479	92%	10 - 164	15	50	10D0567	NTD0321-01	04/08/10 08:19
Methyl Acetate	ND	0.0582		mg/kg	0.0479	121%	10 - 200	4	50	10D0567	NTD0321-01	04/08/10 08:19
Methyl tert-Butyl Ether	ND	0.0468		mg/kg	0.0479	98%	34 - 154	4	50	10D0567	NTD0321-01	04/08/10 08:19
Methylene Chloride	ND	0.0530		mg/kg	0.0479	111%	36 - 163	5	50	10D0567	NTD0321-01	04/08/10 08:19
4-Methyl-2-pentanone	ND	0.227		mg/kg	0.239	95%	19 - 176	2	45	10D0567	NTD0321-01	04/08/10 08:19
Naphthalene	ND	0.00859		mg/kg	0.0479	18%	10 - 160	2	50	10D0567	NTD0321-01	04/08/10 08:19
n-Propylbenzene	ND	0.0528		mg/kg	0.0479	110%	16 - 174	13	50	10D0567	NTD0321-01	04/08/10 08:19
Styrene	ND	0.00151	M8	mg/kg	0.0479	3%	10 - 177	9	50	10D0567	NTD0321-01	04/08/10 08:19
1,1,2,2-Tetrachloroethane	ND	0.0540		mg/kg	0.0479	113%	27 - 163	3	45	10D0567	NTD0321-01	04/08/10 08:19
Tetrachloroethene	ND	0.0441		mg/kg	0.0479	92%	33 - 155	10	50	10D0567	NTD0321-01	04/08/10 08:19
Toluene	0.00211	0.0480		mg/kg	0.0479	96%	45 - 145	7	50	10D0567	NTD0321-01	04/08/10 08:19
1,2,4-Trichlorobenzene	ND	0.0143		mg/kg	0.0479	30%	10 - 175	2	50	10D0567	NTD0321-01	04/08/10 08:19
1,2,3-Trichlorobenzene	ND	0.0120		mg/kg	0.0479	25%	10 - 182	2	50	10D0567	NTD0321-01	04/08/10 08:19
1,1,1-Trichloroethane	ND	0.0483		mg/kg	0.0479	101%	39 - 148	7	41	10D0567	NTD0321-01	04/08/10 08:19
1,1,2-Trichloroethane	ND	0.0403		mg/kg	0.0479	84%	43 - 145	6	50	10D0567	NTD0321-01	04/08/10 08:19
Trichloroethene	ND	0.0411		mg/kg	0.0479	86%	39 - 150	7	50	10D0567	NTD0321-01	04/08/10 08:19
Trichlorofluoromethane	ND	0.0456		mg/kg	0.0479	95%	25 - 174	7	47	10D0567	NTD0321-01	04/08/10 08:19
1,3,5-Trimethylbenzene	ND	0.0487		mg/kg	0.0479	102%	38 - 148	11	50	10D0567	NTD0321-01	04/08/10 08:19
1,2,4-Trimethylbenzene	ND	0.0457		mg/kg	0.0479	95%	22 - 164	10	50	10D0567	NTD0321-01	04/08/10 08:19
Vinyl chloride	ND	0.0411		mg/kg	0.0479	86%	32 - 163	7	39	10D0567	NTD0321-01	04/08/10 08:19
Xylenes, total	0.00173	0.127		mg/kg	0.144	87%	31 - 159	7	50	10D0567	NTD0321-01	04/08/10 08:19

Client: Entact LLC (448850)
1010 Executive Court, Suite 280
Westmont, IL 60559
Attn Mark Petschke

Work Order: NTD0219
Project Name: NC Site
Project Number: P-7825 / Exxonmobil Winston Salem
Received: 04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8260B												
10D0567-MSD1												
Surrogate: 1,2-Dichloroethane-d4		54.7		ug/kg	50.0	109%	67 - 138			10D0567	NTD0321-01	04/08/10 08:19
Surrogate: Dibromofluoromethane		50.5		ug/kg	50.0	101%	75 - 125			10D0567	NTD0321-01	04/08/10 08:19
Surrogate: Toluene-d8		54.2		ug/kg	50.0	108%	76 - 129			10D0567	NTD0321-01	04/08/10 08:19
Surrogate: 4-Bromofluorobenzene		60.2		ug/kg	50.0	120%	67 - 147			10D0567	NTD0321-01	04/08/10 08:19
Semivolatile Organic Compounds by EPA Method 8270C												
10D0584-MSD1												
Acenaphthene	ND	1.10		mg/kg	1.64	67%	42 - 120	3	40	10D0584	NTD0323-01	04/07/10 18:32
Acenaphthylene	ND	1.15		mg/kg	1.64	70%	32 - 120	2	30	10D0584	NTD0323-01	04/07/10 18:32
Anthracene	ND	1.39		mg/kg	1.64	84%	10 - 200	2	50	10D0584	NTD0323-01	04/07/10 18:32
Benzo (a) anthracene	ND	1.30		mg/kg	1.64	79%	41 - 120	2	30	10D0584	NTD0323-01	04/07/10 18:32
Benzo (a) pyrene	ND	1.37		mg/kg	1.64	83%	33 - 121	2	33	10D0584	NTD0323-01	04/07/10 18:32
Benzo (b) fluoranthene	ND	1.29		mg/kg	1.64	79%	26 - 137	2	42	10D0584	NTD0323-01	04/07/10 18:32
Benzo (g,h,i) perylene	ND	1.31		mg/kg	1.64	80%	21 - 124	2	32	10D0584	NTD0323-01	04/07/10 18:32
Benzo (k) fluoranthene	ND	1.21		mg/kg	1.64	74%	14 - 140	2	39	10D0584	NTD0323-01	04/07/10 18:32
4-Bromophenyl phenyl ether	ND	1.23		mg/kg	1.64	75%	39 - 120	3	31	10D0584	NTD0323-01	04/07/10 18:32
Butyl benzyl phthalate	ND	1.47		mg/kg	1.64	89%	47 - 124	0.8	37	10D0584	NTD0323-01	04/07/10 18:32
Carbazole	ND	1.32		mg/kg	1.64	81%	37 - 120	5	29	10D0584	NTD0323-01	04/07/10 18:32
4-Chloro-3-methylphenol	ND	1.20		mg/kg	1.64	73%	38 - 120	5	34	10D0584	NTD0323-01	04/07/10 18:32
4-Chloroaniline	ND	1.19		mg/kg	1.64	73%	20 - 120	3	43	10D0584	NTD0323-01	04/07/10 18:32
Bis(2-chloroethoxy)methane	ND	1.00		mg/kg	1.64	61%	32 - 120	5	41	10D0584	NTD0323-01	04/07/10 18:32
Bis(2-chloroethyl)ether	ND	0.816		mg/kg	1.64	50%	25 - 120	6	41	10D0584	NTD0323-01	04/07/10 18:32
Bis(2-chloroisopropyl)ether	ND	0.852		mg/kg	1.64	52%	23 - 120	3	50	10D0584	NTD0323-01	04/07/10 18:32
2-Chloronaphthalene	ND	1.05		mg/kg	1.64	64%	39 - 120	0.2	34	10D0584	NTD0323-01	04/07/10 18:32
2-Chlorophenol	ND	1.03		mg/kg	1.64	63%	28 - 120	6	45	10D0584	NTD0323-01	04/07/10 18:32
4-Chlorophenyl phenyl ether	ND	1.15		mg/kg	1.64	70%	43 - 120	3	31	10D0584	NTD0323-01	04/07/10 18:32
Chrysene	ND	1.21		mg/kg	1.64	74%	28 - 123	4	34	10D0584	NTD0323-01	04/07/10 18:32
Dibenz (a,h) anthracene	ND	1.28		mg/kg	1.64	78%	25 - 127	4	31	10D0584	NTD0323-01	04/07/10 18:32
Dibenzofuran	ND	1.18		mg/kg	1.64	72%	40 - 120	5	39	10D0584	NTD0323-01	04/07/10 18:32
Di-n-butyl phthalate	ND	1.50		mg/kg	1.64	92%	32 - 124	0.5	29	10D0584	NTD0323-01	04/07/10 18:32
1,4-Dichlorobenzene	ND	0.763		mg/kg	1.64	46%	10 - 120	4	50	10D0584	NTD0323-01	04/07/10 18:32
1,2-Dichlorobenzene	ND	0.825		mg/kg	1.64	50%	10 - 120	6	50	10D0584	NTD0323-01	04/07/10 18:32
1,3-Dichlorobenzene	ND	0.774		mg/kg	1.64	47%	10 - 120	8	50	10D0584	NTD0323-01	04/07/10 18:32
3,3-Dichlorobenzidine	ND	1.15		mg/kg	1.64	70%	13 - 120	0.9	35	10D0584	NTD0323-01	04/07/10 18:32
2,4-Dichlorophenol	ND	1.12		mg/kg	1.64	68%	33 - 120	0.8	35	10D0584	NTD0323-01	04/07/10 18:32
Diethyl phthalate	ND	1.36		mg/kg	1.64	83%	34 - 120	3	33	10D0584	NTD0323-01	04/07/10 18:32
2,4-Dimethylphenol	ND	1.14		mg/kg	1.64	69%	29 - 120	27	50	10D0584	NTD0323-01	04/07/10 18:32
Dimethyl phthalate	ND	1.34		mg/kg	1.64	81%	43 - 120	2	31	10D0584	NTD0323-01	04/07/10 18:32
4,6-Dinitro-2-methylphenol	ND	1.26		mg/kg	1.64	77%	10 - 134	2	50	10D0584	NTD0323-01	04/07/10 18:32
2,4-Dinitrophenol	ND	1.27		mg/kg	1.64	77%	10 - 145	10	50	10D0584	NTD0323-01	04/07/10 18:32

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup - Cont.

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C												
10D0584-MSD1												
2,6-Dinitrotoluene	ND	1.24		mg/kg	1.64	75%	43 - 120	5	34	10D0584	NTD0323-01	04/07/10 18:32
2,4-Dinitrotoluene	ND	1.22		mg/kg	1.64	74%	42 - 122	3	31	10D0584	NTD0323-01	04/07/10 18:32
Di-n-octyl phthalate	ND	1.58		mg/kg	1.64	96%	34 - 135	2	31	10D0584	NTD0323-01	04/07/10 18:32
Bis(2-ethylhexyl)phthalate	ND	1.40		mg/kg	1.64	85%	40 - 127	3	32	10D0584	NTD0323-01	04/07/10 18:32
Fluoranthene	ND	1.35		mg/kg	1.64	82%	38 - 120	3	35	10D0584	NTD0323-01	04/07/10 18:32
Fluorene	ND	1.19		mg/kg	1.64	73%	41 - 120	4	37	10D0584	NTD0323-01	04/07/10 18:32
Hexachlorobenzene	ND	1.25		mg/kg	1.64	76%	44 - 120	4	28	10D0584	NTD0323-01	04/07/10 18:32
Hexachlorobutadiene	ND	1.04		mg/kg	1.64	63%	17 - 120	8	50	10D0584	NTD0323-01	04/07/10 18:32
Hexachlorocyclopentadiene	ND	1.08		mg/kg	1.64	65%	10 - 120	3	50	10D0584	NTD0323-01	04/07/10 18:32
Hexachloroethane	ND	0.792		mg/kg	1.64	48%	10 - 120	8	50	10D0584	NTD0323-01	04/07/10 18:32
Indeno (1,2,3-cd) pyrene	ND	1.34		mg/kg	1.64	82%	25 - 123	2	32	10D0584	NTD0323-01	04/07/10 18:32
Isophorone	ND	1.08		mg/kg	1.64	66%	32 - 120	4	36	10D0584	NTD0323-01	04/07/10 18:32
2-Methylnaphthalene	ND	1.51		mg/kg	1.64	92%	11 - 120	0.9	50	10D0584	NTD0323-01	04/07/10 18:32
2-Methylphenol	ND	1.04		mg/kg	1.64	64%	41 - 120	3	41	10D0584	NTD0323-01	04/07/10 18:32
3/4-Methylphenol	ND	1.09		mg/kg	1.64	67%	36 - 127	3	39	10D0584	NTD0323-01	04/07/10 18:32
Naphthalene	ND	0.963		mg/kg	1.64	59%	25 - 120	3	42	10D0584	NTD0323-01	04/07/10 18:32
3-Nitroaniline	ND	1.29		mg/kg	1.64	78%	36 - 120	3	35	10D0584	NTD0323-01	04/07/10 18:32
2-Nitroaniline	ND	1.25		mg/kg	1.64	76%	46 - 120	4	28	10D0584	NTD0323-01	04/07/10 18:32
4-Nitroaniline	ND	1.28		mg/kg	1.64	78%	35 - 121	3	36	10D0584	NTD0323-01	04/07/10 18:32
Nitrobenzene	ND	1.28		mg/kg	1.64	78%	26 - 120	3	44	10D0584	NTD0323-01	04/07/10 18:32
4-Nitrophenol	ND	1.36		mg/kg	1.64	83%	19 - 136	0.4	47	10D0584	NTD0323-01	04/07/10 18:32
2-Nitrophenol	ND	1.05		mg/kg	1.64	64%	26 - 120	4	43	10D0584	NTD0323-01	04/07/10 18:32
N-Nitrosodiphenylamine	ND	1.45		mg/kg	1.64	89%	43 - 120	4	30	10D0584	NTD0323-01	04/07/10 18:32
N-Nitrosodi-n-propylamine	ND	0.994		mg/kg	1.64	61%	34 - 120	1	41	10D0584	NTD0323-01	04/07/10 18:32
Pentachlorophenol	ND	1.33		mg/kg	1.64	81%	15 - 135	4	32	10D0584	NTD0323-01	04/07/10 18:32
Phenanthrene	ND	1.20		mg/kg	1.64	73%	37 - 120	5	32	10D0584	NTD0323-01	04/07/10 18:32
Phenol	ND	0.967		mg/kg	1.64	59%	38 - 120	5	42	10D0584	NTD0323-01	04/07/10 18:32
Pyrene	ND	1.20		mg/kg	1.64	73%	29 - 125	2	40	10D0584	NTD0323-01	04/07/10 18:32
1,2,4-Trichlorobenzene	ND	0.897		mg/kg	1.64	55%	22 - 120	4	46	10D0584	NTD0323-01	04/07/10 18:32
2,4,6-Trichlorophenol	ND	1.25		mg/kg	1.64	76%	32 - 120	5	34	10D0584	NTD0323-01	04/07/10 18:32
2,4,5-Trichlorophenol	ND	1.28		mg/kg	1.64	78%	39 - 120	4	33	10D0584	NTD0323-01	04/07/10 18:32
Surrogate: Terphenyl-d14		1.01		mg/kg	1.64	61%	18 - 120			10D0584	NTD0323-01	04/07/10 18:32
Surrogate: 2,4,6-Tribromophenol		1.06		mg/kg	1.64	65%	19 - 120			10D0584	NTD0323-01	04/07/10 18:32
Surrogate: Phenol-d5		0.970		mg/kg	1.64	59%	18 - 120			10D0584	NTD0323-01	04/07/10 18:32
Surrogate: 2-Fluorobiphenyl		0.785		mg/kg	1.64	48%	14 - 120			10D0584	NTD0323-01	04/07/10 18:32
Surrogate: 2-Fluorophenol		0.798		mg/kg	1.64	49%	17 - 120			10D0584	NTD0323-01	04/07/10 18:32
Surrogate: Nitrobenzene-d5		0.779		mg/kg	1.64	47%	17 - 120			10D0584	NTD0323-01	04/07/10 18:32

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

CERTIFICATION SUMMARY

TestAmerica Nashville

Method	Matrix	AIHA	Nelac	North Carolina
SW846 6010C	Soil		X	X
SW846 7471B	Soil		X	X
SW846 8081A	Soil	N/A	X	X
SW846 8082	Soil	N/A	X	X
SW846 8260B	Soil	N/A	X	X
SW846 8270C	Soil	N/A	X	X
SW-846	Soil			

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Client:	Entact LLC (448850)	Work Order:	NTD0219
	1010 Executive Court, Suite 280	Project Name:	NC Site
	Westmont, IL 60559	Project Number:	P-7825 / Exxonmobil Winston Salem
Attn	Mark Petschke	Received:	04/02/10 08:00

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
B1	Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
M7	The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
MNR	No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
R3	The RPD exceeded the acceptance limit due to sample matrix effects.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RECE

NTD0219

Cooler Received/Opened On_04//02/10 @ 08:00
0

1. Tracking #_____2626_____(last 4 digits, Fe.

Courier: ___FED-EX IR Gun ID___97310166

2. Temperature of rep. sample or temp blank when opened: 0.7 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES (NO) NA

4. Were custody seals on outside of cooler? (YES)...NO...NA

If yes, how many and where: (-FRONT

5. Were the seals intact, signed, and dated correctly? (YES)..NO...NA

6. Were custody papers inside cooler? (YES)..NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES (NO) and Intact YES...NO...(NA)

Were these signed and dated correctly? YES...NO...(NA)

8. Packing mat'l used? (Bubblewrap) Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: (Ice) Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? (YES)..NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? (YES)..NO...NA

12. Did all container labels and tags agree with custody papers? (YES)..NO...NA

13a. Were VOA vials received? (YES)..NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...(NA)

14. Was there a Trip Blank in this cooler? YES...NO...(NA) If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO...(NA)

b. Did the bottle labels indicate that the correct preservatives were used (YES)..NO...NA

16. Was residual chlorine present? YES...NO...(NA)

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? (YES)..NO...NA

18. Did you sign the custody papers in the appropriate place? (YES)..NO...NA

19. Were correct containers used for the analysis requested? (YES)..NO...NA

20. Was sufficient amount of sample sent in each container? (YES)..NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES..(NO) Was a PIPE generated? YES..(NO)..#_____

BIS = Broken in shipment

NTD0219
04/13/10 23:59

TestAmerica
ANALYTICAL TESTING CORPORATION

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring _____

Client Name: ENTACT Client #: _____
Address: 1010 Executive Court Suite 280
City/State/Zip Code: Westmont, IL 60559
Project Manager: Mark A. Petchke, ~~PE~~ PE
Telephone Number: 972-580-1323 Fax: 815-836-3923
Sampler Name: (Print Name) Shawn J Todaro
Sampler Signature: Shawn J Todaro

Project Name: Exxon Mobil Winston Salem
Project #: P-7825
Site/Location ID: Yulan; WS, NC State: NC
Report To: Mark Petchke
Invoice To: _____
Quote #: _____ PO#: _____

TAT
___ Standard
___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y N

QC Deliverables
___ None
___ Level 2 (Batch QC)
___ Level 3
___ Level 4
Other: _____

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: VOC 8260 B	SVOC 8270C	Pesticides 8081B	PCB 8082	TAL Inorganics MESRD (list)					REMARKS
SS-01	4/1/10	3:35pm		N	S								X	X	X	X	X			NTD0219-01		Per mark P Direction

Special Instructions:

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 0.7c
Custody Seals: Y N N/A
Bottles Supplied by Test America: Y N
Method of Shipment:

	Date:	Time:		Date:	Time:
Relinquished By: Shawn Todaro	4/1/10	4:32pm	Received By:		
Relinquished By:			Received By:		
Relinquished By:			Received By:	4-2-10	0800

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Tuesday, April 27, 2010 11:25 AM
To: Mallary.Ken@epamail.epa.gov; Timothy Neal (Neal.Timothy@epamail.epa.gov)
Cc: steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Mattison, David
Subject: Winston-Salem VCC Landfill

Ken/Tim: ExxonMobil would like to use the following Subtitle D landfill to dispose of nonhazardous waste generated from the Winston-Salem VCC Site. Please review at your earliest convenience and let me know if you have any objections.

Republic Charlotte Motor Speedway Landfill
5105 Morehead Road
Concord, NC 28027
704-782-2004
EPA Registry ID: NCD 986214880
NCDENR Permit Number: 13-04

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, April 23, 2010 11:22 AM
To: Timothy Neal (Neal.Timothy@epamail.epa.gov); Mallary.Ken@epamail.epa.gov
Cc: 'steven.p.schmidt@exxonmobil.com'; Germann, Geoff; Bowman, Matthew; Mattison, David; Beswick.Kevin@epamail.epa.gov
Subject: 4/23/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Held meeting with NCDOT on April 19th to discuss project coordination and logistics.
2. Performed delineation soil sampling activities around Removal Area 9.
3. Continued work on contract with Entact.
4. Continued work on pre-mobilization submittals.
5. Construction planning, procurement, and logistics.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Circulate minutes from NCDOT meeting.
2. Continue work on contract with Entact.
3. Continue work on pre-mobilization submittals.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

April 23, 2010

*** REVISED ***

CONTRACT: C202129
WBS: 34871.3.2
F.A. NO.: BRNHS-52(19)
T.I.P. NO.: U-2826A
COUNTY: FORSYTH
LOCATION: BRIDGES #256 & #257 OVER NORFOLK SOUTHERN RAILROAD AND APPROACHES ON US-52 IN WINSTON-SALEM

SUBJECT: Contaminated Soil Meeting

Dan Lenzen
Blythe Construction, Inc.
PO Box 31635
Charlotte, NC 28231-1635

Dear Mr. Lenzen:

A meeting to discuss the contaminated soil issues on the above project was held on Monday, April 19, 2010. Representing the Contractor were Messrs: Dan Lenzen, Raymond Foster, and Casey Jones of Blythe Construction along with Mr. John Sharpe of Cat-A-Hula Haulers, Mr. Mark Petschke of ENTACT Environmental Services, Mr. David Graham of Hart & Hickman, Messrs: Matthew Pelton & Matt Bowman (via phone) of ARCADIS. Representing the railroad was Mr. Stan Miller of Neel-Schaffer. Representing the Department of Environment & Natural Resources Superfund Section was Mr. David Mattison. Representing the Department of Transportation were Messrs: Wright Archer, Ross Pishdadi, Scott Wyrick, Tray Gaymon, David Trantham, David Lanier, Paul Gundlach and Cyrus Parker.

The following items were discussed:

- Wright Archer thanked everyone for attending and asked for an overview of what is being proposed in regards to the contaminated soil on this project.
- Matthew Pelton indicated that several areas of the project are contaminated with arsenic and lead due to the operations of previous occupants (fertilizer and ore plants). Most of the contaminated soil is outside of the project limits. However, there are identified contaminated areas ranging from 1' - 7' in depth within the work areas of this project. ARCADIS and ENTACT will remove these materials from the project and Norfolk Southern's right-of-way as identified on the Soil Removal Areas Plan provided by ARCADIS. Matthew also said that there are 3 monitoring wells, flush within the existing ground, within the work area. He requested that the contractor do his best to protect them. They are planning to coordinate soil removal work with Blythe Construction starting from the jack & bore area at –L- Sta. 50+00± on both sides and then they will move to the areas located on the left side of –L- between Sta. 41+00± to 45+00±. They will be monitoring the contaminants as they are removing them. At the bottom of each excavation area ARCADIS will take a soil sample for chemical analysis of the levels and existence of contaminants. The results of these tests samples will be back

Division of Highways ♦ Division Nine ♦ 375 Silas Creek Parkway, Winston-Salem, NC 27127
Telephone (336) 761-5995 ♦ Fax (336) 761-5998 ♦ Courier Box 13-12-04

within a few days. If the results are ok then Blythe can backfill the area within the project limits.

- Dan Lenzen asked how long before they can start the soil removal. Matthew replied that they have to submit their procedures to the EPA and it will take approximately 2 weeks for approval. Dan asked about the work schedule and approximate time to remove the contaminated soil on the southbound side of US-52. Mark Petschke replied that they will work Monday through Friday and it will take approximately 2 days per location.
- Wright asked who will be responsible for maintaining the excavation area while we are waiting for the test results. Matthew said they will maintain the hole. There should not be any rain runoff into the hole except what falls into it and that will most likely percolate through.
- Wright asked if they will have any problems if they jump around from the southbound side to the northbound side and back to the southbound side of the –L- line in order to remove the contaminated soil. Matthew said no.
- Wright asked Blythe to submit a copy of the Hazard Communication Plan to DOT in regards to the contaminated soil. Dan said they have already submitted it but he will send in another copy.
- Stan Miller asked if the contaminated soil within the railroad right-of-way will also be removed and if so, how close to the railroad tracks will they come. Matthew said yes, and they will not come any closer than 20' to any railroad tracks.
- Raymond Foster expressed concern as to how ARCADIS will access the soil removal areas. Dan said they will be training their personnel and asked if he could have a copy of ARCADIS's Procedures and Hazard Communication Methods. Matthew said he will give Blythe a copy as soon as things have been approved by the EPA.
- Wright asked about a contact person and Matthew said he will let everyone know soon.
- Raymond asked if ENTACT will wear protective suits while working. Mark replied not at the current expected contaminant levels. They will continuously monitor the excavation and if levels change they may use the suits and/or other safety items as needed.
- Wright asked if ARCADIS had an approved borrow source to use outside the DOT project limits. Matt said they will use an already approved borrow source.
- A sample of the contaminated soils was passed around for information and education.
- Wright asked if ARCADIS would locate the contaminated areas prior to the excavation because depending on the location and depth of cut, some areas adjacent to US-52 may require shoring. Matt said they will locate the areas. Dan and David Trantham asked to have a copy of the location coordinates. Dan said the Blythe Survey Party will mark the areas.
- Cyrus Parker said there are some fuel tanks just outside of the right-of-way and they have leaked in the past so petroleum contaminated soil may be encountered when the Waste Management driveway is relocated. If anyone smells petroleum they need to stop and let Wright know.
- Paul Gundlach asked for a copy of the Approved Methods and Hazard Communication Procedures from ARCADIS in order to train NCDOT personnel.

This concluded the meeting. These minutes are completed as noted. Any discrepancies to the content of the minutes should be provided in writing to the Resident Engineer. If no discrepancies are noted, this will indicate concurrence with the minutes as noted.

Sincerely,

W. R. Archer, III, PE
Resident Engineer

WRA/RP/dm

cc: Mr. S. P. Ivey, PE, Mr. R. A. Hancock, PE, Mr. L. L. Puckett, Jr, PE, Mr. R. M. Freeman, PE, Mr. Jason Maag, Mr. Ronnie Doss, Mr. Gregg Parris, File

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, April 23, 2010 10:19 AM
To: Archer, Wright R; Parker, Cyrus F
Subject: Minutes Comments

Wright – please see ARCADIS/Exxon comments on these meeting minutes below. Let me know what the best format is to convey this to the group, I can respond to the entire group on the original email if you think that is most appropriate.

Bullet #5 – While Entact expects to be able to work both sides of the road to facilitate the initial jack bore, jumping back and forth from both sides of the road will typically not be possible during the rest of the project. Following completion of work to facilitate the jack and bore Entact intends to complete all remaining work on the south/west side of the road prior to conducting further work on the north/east side of the road.

Bullet #8 – This point is not clear, based on our recollection Raymond's question related to physically accessing the north/east side of the road. Matthew informed him that Exxon had an access agreement in place with Atlantic Scrap to allow us access from N. Glenn Ave. We are not sure how this relates to the referenced training of Blythe personnel. Dan Lenzen with Blythe indicated that Blythe personnel would be kept out of soil removal areas until confirmation data documents them as being clean, so not clear what training of their personnel will be done. We will provide a copies of the ARCADIS and Entact HASPs, as well as Entact's Site Operations Plan to Blythe for their review and understanding after submittal has been made to EPA, however, Blythe personnel should remain out of soil removal areas until all soil removal has been completed.

Bullet #11 – While Entact currently expects to use the permitted Vulcan borrow source, analytical data on this source will need to be approved by USEPA and NCDER prior to use for fill on this project, this has not yet occurred.

Bullet #12 – the material passed around by David Graham of Hart & Hickman was a slag material, not soil. This material is evident on the ground surface near the existing ruins, and may be related to the former Carolina Ore Company processes that operated adjacent to the VCC site. Carolina Ore formerly operated a nodulating plant and rotary kiln at this location that processed waste materials and cinders from various industrial processes into iron ore briquettes and nodules. This slag material is not necessarily related to VCC operations and may not be indicative of arsenic or lead impacts in the soil. The nearest ARCADIS soil borings to this area, MW-2 and SB-56, had arsenic and lead concentrations below the site action levels. The removal actions to be performed by ARCADIS/Entact are based on soils containing arsenic and lead above the agency-approved action levels.

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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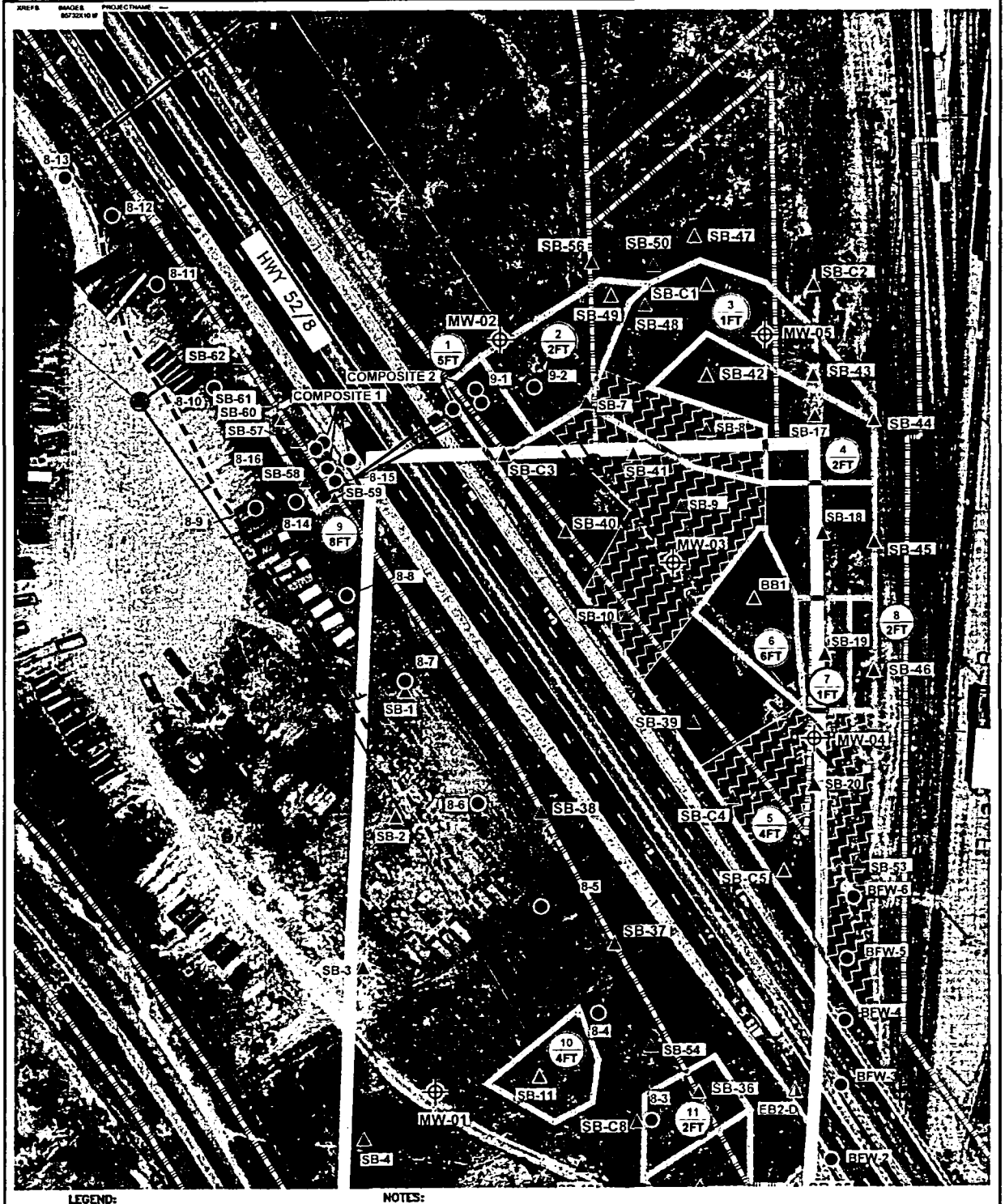
Draft

Table 1
Summary of Soil Sample Analytical Results
Removal Area 9 Delineation Sampling
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-SB-57	0 - 0.5	4/22/2010	5.7	6.62	73.1
	0.5 - 2	4/22/2010	5.1 [5.0]	13.6 [24.1]	269 [430]
	2 - 4	4/22/2010	5.0	4.36	280
WS-SB-58	0 - 0.5	4/22/2010	4.9	6.33	74.7
	0.5 - 2	4/22/2010	4.7	11.6	56.7
	2 - 4	4/22/2010	4.6	11.9	56.4
	4 - 6	4/22/2010	4.4	13.1	86.6
	6 - 8	4/22/2010	4.8	7.61	217
WS-SB-59	0 - 0.5	4/22/2010	5.5	2.89	34.2
	0.5 - 2	4/22/2010	6.3	3.5	17.3
	2 - 4	4/22/2010	6.8	15.7	108
	4 - 6	4/22/2010	5.1	9.83	33.2
	6 - 8	4/22/2010	4.8	3.41	42.4 B
WS-SB-60	0 - 0.5	4/22/2010	5.1	4.16	43.6
	0.5 - 2	4/22/2010	5.1	11.0	1,160
	2 - 4	4/22/2010	5.0 [4.8]	1.34 [7.52]	837 B [1,420 B]
	4 - 6	4/22/2010	4.8	5.06	954 B
	6 - 8	4/22/2010	4.8	3.34	437 B
	8 - 10	4/22/2010	4.9	0.983 U	192 B
WS-SB-61	0 - 0.5	4/23/2010	4.8	18.0	179 B
	0.5 - 2	4/23/2010	4.3	2.47	87.9 B
	2 - 4	4/23/2010	4.3	1.55	55.2 B
	4 - 6	4/23/2010	4.4	1.01 U	118 B
	6 - 8	4/23/2010	4.3	0.874 U	54.5 B
WS-SB-62	0 - 0.5	4/23/2010	5.7	17.9	231 B
	0.5 - 2	4/23/2010	4.6	1.84	26.7 B
	2 - 4	4/23/2010	4.5	1.92	37.0 B
	4 - 6	4/23/2010	4.5	1.21 J	32.4 B
	6 - 8	4/23/2010	4.5	1.89	42.0 B

Notes:
mg/kg - milligrams per kilogram
ft bgs - feet below ground surface
J - estimated value
U - not detected
B - Analyte was detected in the associated Method Blank
Duplicate sample concentrations are in brackets
Arsenic screening value of 22 mg/kg is based on NCDENR site-specific screening levels.
Lead screening value of 270 mg/kg is based on NCDENR site-specific screening levels.
Shaded values exceed screening levels.



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2008/2010)
- SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & K, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)
- SOILS EXCEED TCLP CRITERIA FOR LEAD

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg – MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "B3-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

DRAFT

0 80' 160'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

SOIL REMOVAL AREAS AND DEPTHS - NORTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE 4-1A

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, April 16, 2010 8:12 AM
To: Timothy Neal (Neal.Timothy@epamail.epa.gov); Mallary.Ken@epamail.epa.gov
Cc: steven.p.schmidt@exxonmobil.com; Germann, Geoff; Bowman, Matthew; Mattison, David; Beswick.Kevin@epamail.epa.gov
Subject: 4/16/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Confirmed coordination meeting date with NCDOT for April 19, 2010 at 1 PM at onsite job trailer.
2. Continued work on contract with Entact.
3. Continued work on pre-mobilization submittals.
4. Construction planning, procurement, and logistics.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Attend NCDOT meeting.
2. Continue work on contract with Entact.
3. Continue work on pre-mobilization submittal preparation.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Monday, April 12, 2010 2:57 PM
To: Zeller.Craig@epamail.epa.gov
Cc: Mattison, David; steven.p.schmidt@exxonmobil.com; Germann, Geoff; White, Kirstyn
Subject: VCC Charlotte RSE Sampling Notification

Craig – I'm writing to notify you that we plan to start the RSE sampling at the VCC Charlotte site on Monday, April 19th. All work will be done in accordance with the EPA-approved RSE Work Plan. Please let me know if you have any questions, thanks.

Matt

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Friday, April 09, 2010 2:43 PM
To: Timothy Neal (Neal.Timothy@epamail.epa.gov); Mallary.Ken@epamail.epa.gov
Cc: steven.p.schmidt@exxonmobil.com; Beswick.Kevin@epamail.epa.gov; Mattison, David; Germann, Geoff; Bowman, Matthew
Subject: 4/9/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the required weekly report for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. Submitted information required by AOC on Project Coordinator.
2. Submitted information required by AOC on Contractor, including qualifications and Quality Management Plan.
3. Tentatively scheduled coordination meeting with NCDOT for April 19, 2010.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Continue work on contract with Entact.
2. Continue work on pre-mobilization submittal preparation.
3. Confirm details for NCDOT meeting.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518
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www.arcadis-us.com

Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Wednesday, April 07, 2010 8:33 AM
To: Timothy Neal (Neal.Timothy@epamail.epa.gov); Mallary.Ken@epamail.epa.gov
Cc: steven.p.schmidt@exxonmobil.com; Beswick.Kevin@epamail.epa.gov; Mattison, David; Germann, Geoff; Bowman, Matthew
Subject: 4/2/10 Weekly Status Report: VCC Winston-Salem, NC

Ken/Tim - This email provides the first of the required weekly reports for the VCC-Winston-Salem, NC site. Please let me know if you have any questions or if you need any additional information.

Regards-
Matt Pelton

ACTIVITIES PERFORMED DURING PERIOD

1. AOC for the site became effective on March 30th.
2. Exxon awarded the construction portion of the work to Entact on April 1st.
3. All access agreements needed for the soil removal have been executed.

ACTIVITIES TO BE PERFORMED DURING NEXT PERIOD

1. Execute contract with Entact and begin pre-mobilization submittal preparation.
2. Submit contractor qualifications and Contractor Quality Management Plan to EPA.
3. Submit title, contact information, and qualifications of Project Coordinator to EPA.

ACTION ITEMS/OTHER

1. None.

END OF REPORT

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com

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Professional Registration / PE-NC, 29382 | PE-GA, 30611

ARCADIS, Imagine the result
Please consider the environment before printing this email.

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

March 29, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: State Concurrence with the Request for a Time-Critical Removal Action
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winston-Salem, Forsyth County, North Carolina

Dear Mr. Mallary:

The State of North Carolina has reviewed the attached *Request for a Time-Critical Removal Action* at the Former Virginia-Carolina Chemical Company Winston-Salem Site ("Site"). The State of North Carolina concurs with the *Request for a Time-Critical Removal Action*, subject to the following conditions:

1. State concurrence on the *Request for a Time-Critical Removal Action* ("Request") and the selected remedy for the Site is based solely on the information contained in the subject Request. Should the State receive new or additional information that significantly affects the conclusions or remedy selection contained in the Request, it may modify or withdraw this concurrence with written notice to the United States Environmental Protection Agency (US EPA) Region IV.

2. State concurrence on this Request in no way binds the State to concur in future decisions or commits the State to participate, financially or otherwise, in the cleanup of the Site. The State reserves the right to review, overview, comment, and make independent assessment of all future work relating to this Site.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

3. If, after remediation is complete, the total residual risk level exceeds 10^{-6}, the State may require deed recordation/restriction to document the presence of residual contamination and possibly limit future use of the property as specified in NCGS 130A-310.8.

The State of North Carolina appreciates the opportunity to comment on the *Request for a Time-Critical Removal Action* for the subject Site and looks forward to working with the US EPA on the final remedy. If you have any questions or comments, please feel free to contact David Mattison at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

Jack Butler

Jack Butler, Chief
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

ARCADIS
Infrastructure, environment, buildings

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Fax 919.469.5676
www.arcadis-us.com

ENVIRONMENTAL

Mr. Cyrus Parker
NC Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, NC 27699-1589

Subject:
Response to NC DOT Comments
Site Delineation Report/Remedial Action Work Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winston-Salem, Forsyth County, North Carolina

Date:
March 17, 2010

Contact:
Matthew T. Pelton

Phone:
919.415.2308

Email:
matthew.pelton@
arcadis-us.com

Our ref:
B0085732

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869
NC Surveying License # C-1869

Dear Mr. Parker:

This letter provides responses to comments received from the North Carolina Department of Transportation (NC DOT) (received February 4, 2010) on the *Site Delineation Work Plan, Former Virginia-Carolina Chemical Company Winston-Salem Site, Winston-Salem, Forsyth County, North Carolina* (SDR/RAWP) dated January 2010. NC DOT comments are provided in bold typeface followed by the response in standard typeface.

Please note that the SDR/RAWP was previously revised and resubmitted to USEPA and NCDENR on February 5, 2010, you were copied on the email submittals. The SDR/RAWP was approved by USEPA on March 11,2010.

COMMENTS

1. **impacted soils should be removed to approximately 1 to 2 feet below impacted areas.**

   Response:

   The SSALs for arsenic and lead at this site are 22 milligrams per kilogram (mg/kg) and 270 mg/kg, respectively, as described in the SDR/RAWP. As stated in Section 5.3.7 of the SDR/RAWP, field screening will be conducted with an x-ray fluorescence (XRF) instrument at the base of soil excavation. If the XRF screening results indicate that arsenic and/or lead concentrations are greater than the Site-Specific Action Levels (SSALs) specified in the SDR/RAWP, additional rounds of soil removal and XRF screening will be

conducted, as appropriate, to verify that sufficient soil has been removed from the excavation. Confirmation samples will also be collected from individual sub areas excavated to the same depth at a frequency of one sample (5-point composite) per 5,000 square feet of excavation. If analyses indicate arsenic and lead concentrations are below the SSALs, the excavation area will be backfilled and restored as described in Section 5.3.10 of the SDR/RAWP. However, if arsenic or lead are detected at concentrations above the SSALs, additional rounds of vertical soil removal and confirmation sampling will be conducted as appropriate.

2. **Post excavation confirmation samples should be analyzed for specific PAHs and/or metals detected during the site assessment phase.**

   Response:

   Site characterization at other former VCC Sites in USEPA Region 4 established that site-related constituents of concern (COCs) are arsenic and lead. At this Site, arsenic and lead are the COCs that EMES has responsibility for; therefore, the EMES soil removal action will only address these metals. Additional samples for expanded analysis for waste characterization have been collected as required by the disposal facility, and those data are presented in the SDR/RAWP.

   EMES will coordinate with NCDOT should NCDOT wish to have their contractor collect samples for additional analysis, however, EMES will not be responsible for costs associated with those analyses, or with additional remedial activities that may be deemed necessary based on COCs other than arsenic or lead.

3. **Expand excavation Area 9 and Area 11 to address Environmental Investigation's Boring P8GP3 and Hart and Hickman's boring 8-3, respectively.**

   Response:
   As stated in Section 1.3.1 of the SDR/RAWP, the exact locations of soil borings collected during the 2005 Environmental Investigation (EI) activities are unknown because the boring locations were not surveyed and the map that provided the locations was not of a high enough quality to determine the exact sample locations; therefore, results of the EI sampling activities were not used to establish the soil removal areas at the site. While the exact location of soil sample P8GP3 is unknown, it is known to have been collected at a depth of 8 feet below ground surface and to have contained lead at a low concentration of 342 mg/kg, below the NCDENR PSRG for lead of 400 mg/kg. The lead concentration is slightly above the NCDENR Protection of Groundwater SRG for lead of 270 mg/kg, however, due the unknown location and depth EMES believes any future evaluation of

groundwater impacts at the site will adequately address this location. EI samples collected at shallower depths with arsenic or lead above SSALs all appear to be within proposed removal areas based on available mapping.

Soil boring location 8-3 was mistakenly omitted from adjacent Removal Area 11. Figure 4-1A has been revised to include this sample location within the removal area. Table 5-1 and appropriate sections of the text have also been revised to reflect the correct surface area based on this revision. These changes were included in the revised SDR/RAWP submitted to USEPA and NCDENR, and copied to NCDOT, on February 5, 2010.

4. **Post excavation sampling should be performed at a higher frequency than proposed.**

Response:
Consistent with a similar comment from NCDENR, the confirmation sampling frequency has been doubled and confirmation samples will now be collected as 5-point composites at a frequency not to exceed one 5-point composite per 5,000 square feet of excavation. Each removal area will have a minimum of one 5-point composite sample. In addition to the composite samples being submitted to the analytical laboratory for analysis of arsenic and lead, each individual composite aliquot will be screened in the field using an XRF to ensure it is below the SSALs. Table 5-2 (Summary of Confirmation Sampling Program) has been added to the revised SDR/RAWP to present the estimated number of confirmation soil samples to be collected from each removal area. Section 5.3.7 has been revised to refer the reader to Table 5-2.

If you have any questions or comments, please feel free to contact me at 919.415.2308.

Sincerely,

ARCADIS

Matthew T. Pelton, P.E.
Senior Environmental Engineer

Copies:
Ken Mallary, USEPA
David Mattison, NCDENR
Steve Schmidt, EMES

July 14, 2009

NCDOT Widening of US 52 in Winston-Salem, NC and
Impacts to the former Virginia Carolina Chemical (VCC) et al Facilities

Agenda

Introductions

Description of the DOT Bridge Project – Cyrus Parker Bid – Feb 2010 90 day Bid processing
Duration – 2-3 yrs

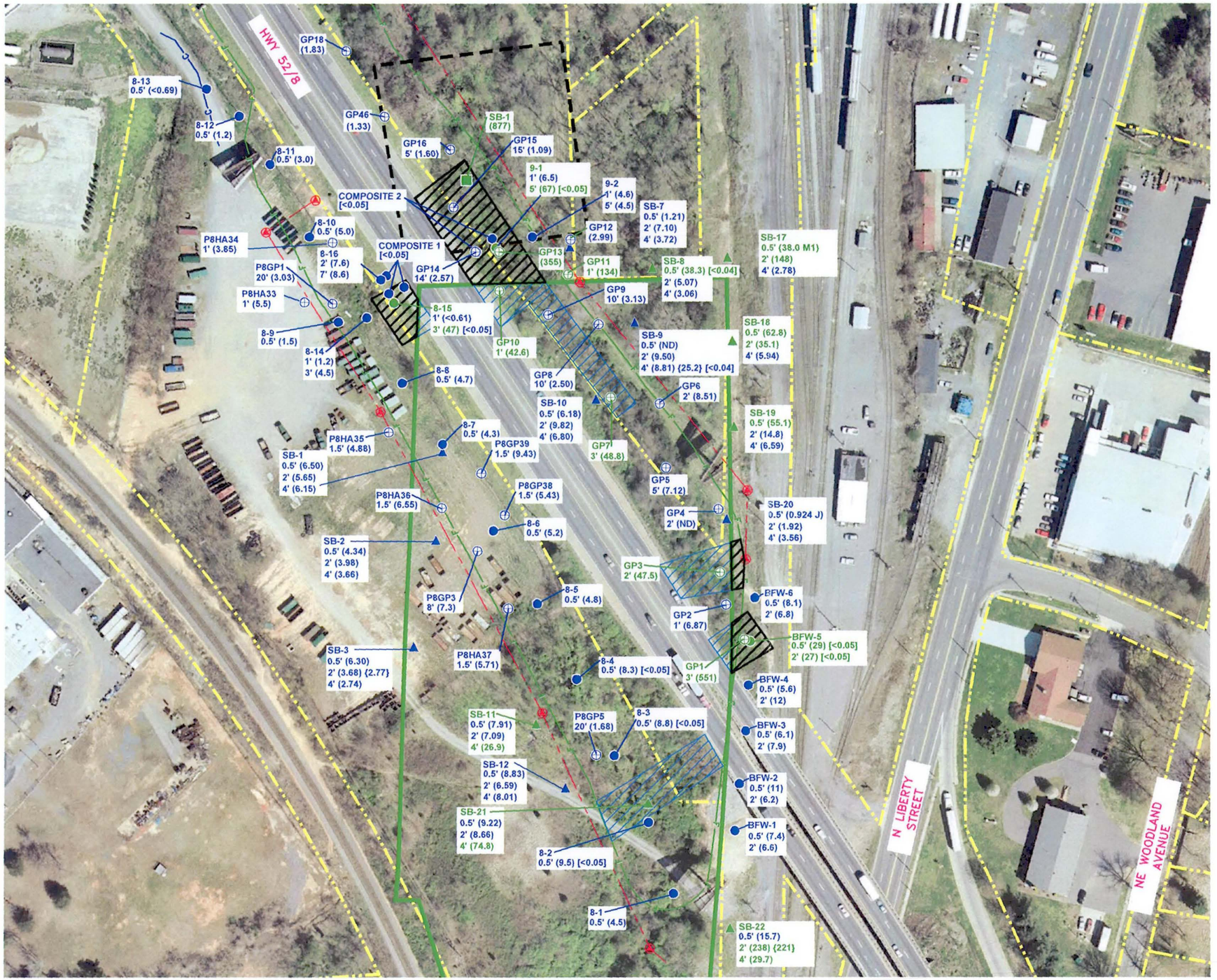
Project Status & Timeframes – Cyrus Parker

Environmental Issues associated with the Bridge Project –
VCC Site – Geoff Germann/Matt Pelton/Steven Schmidt
Non VCC Sites – Matt Bramblett/Collin Day

Roles, Responsibilities & Expectations
VCC Site – Ken Mallary/Steven Schmidt
Non VCC Sites – Bruce Parris

Means of Addressing Environmental Concerns
VCC Site – Geoff Germann/Matt Pelton/Steven Schmidt
Non VCC Sites – Cyrus Parker/Matt Bramblett

Discussion



LEGEND:

- APPROXIMATE LOCATION OF THE FORMER VCC–2 PLANT FENCE LINE (APPROXIMATE BOUNDARIES OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- SOIL BORING LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (H & H, 2009)
- SOIL BORING LOCATION (EI, 2005)
- SOIL BORING LOCATION (NCDENR, 2005)
- APPROXIMATE LOCATION OF SOIL BORING WITH ARSENIC ABOVE GROUNDWATER PROTECTION CRITERIA
- APPROXIMATE LOCATION OF SOIL BORING WITH ARSENIC BELOW GROUNDWATER PROTECTION CRITERIA
- PROPOSED RIGHT–OF–WAY
- C — PROPOSED CUT LINE
- F — PROPOSED FILL LINE
- APPROXIMATE BOUNDARY OF FORMER CAROLINA ORE

J	ESTIMATED VALUE
M1	THE MS AND/OR MSD WERE ABOVE THE ACCEPTANCE LIMITS DUE TO SAMPLE MATRIX INTERFERENCE
{ }	DUPLICATE SAMPLE RESULT
ND	NOT DETECTED
(250)	TOTAL ARSENIC CONCENTRATION (mg/kg)
[<0.05]	TCLP ARSENIC CONCENTRATION (mg/L)

- AREA OF POTENTIAL SOIL REMOVAL OUTSIDE VCC LIMITS PRIOR TO DOT WORK BASED ON ARSENIC DATA
- AREA OF POTENTIAL SOIL REMOVAL INSIDE VCC LIMITS PRIOR TO DOT WORK BASED ON ARSENIC DATA

NOTES:

1. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
2. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
3. ALL LOCATIONS ARE APPROXIMATE.
4. NCDENR PROTECTION OF GROUNDWATER CRITERIA FOR ARSENIC IS 26.2 PPM
5. TCLP SCREENING LEVEL FOR ARSENIC IS 5 mg/L.

DRAFT

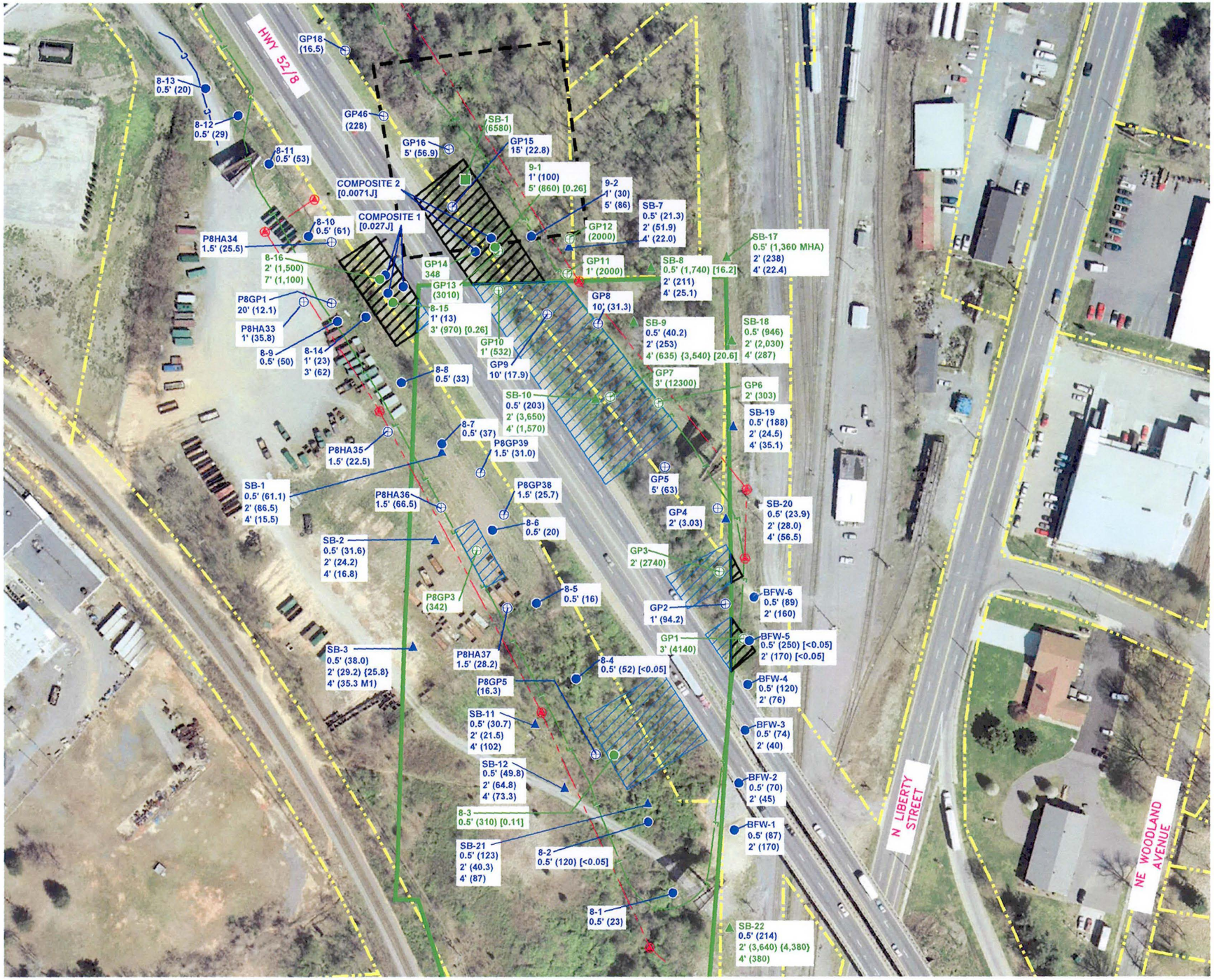
0 125' 250'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA

SOIL BORING LOCATIONS, ARSENIC CONCENTRATIONS, AND APPROXIMATE REMOVAL AREAS PER NCDENR GROUNDWATER PROTECTION CRITERIA

ARCADIS

FIGURE 1



DRAFT

0 125' 250'

GRAPHIC SCALE

LEGEND:

- APPROXIMATE LOCATION OF THE FORMER VCC-2 PLANT FENCE LINE (APPROXIMATE BOUNDARIES OF THE FIRST LOT OF THE ORIGINAL PLACE)
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- SOIL BORING LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (H & H, 2009)
- SOIL BORING LOCATION (EI, 2005)
- SOIL BORING LOCATION (NCDENR, 2005)
- APPROXIMATE LOCATION OF SOIL BORING WITH LEAD ABOVE GROUNDWATER PROTECTION CRITERIA
- APPROXIMATE LOCATION OF SOIL BORING WITH LEAD BELOW GROUNDWATER PROTECTION CRITERIA
- PROPOSED RIGHT-OF-WAY
- C — PROPOSED CUT LINE
- F — PROPOSED FILL LINE
- APPROXIMATE BOUNDARY OF FORMER CAROLINA ORE

J	ESTIMATED VALUE
M1	THE MS AND/OR MSD WERE ABOVE THE ACCEPTANCE LIMITS DUE TO SAMPLE MATRIX INTERFERENCE
{ }	DUPLICATE SAMPLE RESULT
ND	NOT DETECTED
MHA	DUE TO HIGH LEVELS OF ANALYTE IN THE SAMPLE, THE MS/MSD CALCULATION DOES NOT PROVIDE USEFUL SPIKE RECOVERY INFORMATION
(250)	TOTAL LEAD CONCENTRATION (mg/kg)
[<0.05]	TCLP LEAD CONCENTRATION (mg/L)

- AREA OF POTENTIAL SOIL REMOVAL OUTSIDE VCC LIMITS PRIOR TO DOT WORK BASED ON LEAD DATA
- AREA OF POTENTIAL SOIL REMOVAL INSIDE VCC LIMITS PRIOR TO DOT WORK BASED ON LEAD DATA

NOTES:

1. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
2. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
3. ALL LOCATIONS ARE APPROXIMATE.
4. NCDENR PROTECTION OF GROUNDWATER CRITERIA FOR LEAD IS 270 PPM.
5. TCLP SCREENING LEVEL FOR LEAD IS 5 mg/L.

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA

SOIL BORING LOCATIONS, LEAD CONCENTRATIONS, AND APPROXIMATE REMOVAL AREAS PER NCDENR GROUNDWATER PROTECTION CRITERIA

ARCADIS

FIGURE 2

LEGEND:

- APPROXIMATE LOCATION OF THE FORMER VCC-2 PLANT FENCE LINE (APPROXIMATE BOUNDARIES OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- PROPOSED RIGHT-OF-WAY
- PROPOSED CUT LINE
- PROPOSED FILL LINE
- APPROXIMATE BOUNDARY OF FORMER CAROLINA ORE
- AREA OF POTENTIAL SOIL REMOVAL OUTSIDE VCC LIMITS PRIOR TO DOT WORK BASED ON ARSENIC AND LEAD DATA
- AREA OF POTENTIAL SOIL REMOVAL INSIDE VCC LIMITS PRIOR TO DOT WORK BASED ON ARSENIC AND LEAD DATA

NOTES:

1. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
2. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
3. ALL LOCATIONS ARE APPROXIMATE.

DRAFT

0 125' 250'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA

APPROXIMATE SOIL REMOVAL AREAS WITHIN DOT WORK ZONE PER NCDENR GROUNDWATER PROTECTION CRITERIA

ARCADIS

FIGURE 3

CITY: SYRACUSE, NY DIV/GROUP: 141/ENVCAD DB: L.POSENAUER LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(On)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B00857320011\000007\DWG\GWPRO\857320303.dwg LAYOUT: 3SAVED: 7/2/2009 4:34 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: ---PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/2/2009 5:14 PM BY: POSENAUER, LISA
XREFS: IMAGES: *PROJECTNAME: ---
857320200 857320X01.tif
857320X01

file

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

February 17, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Request for Identification of State ARARs
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

Dear Mr. Mallary:

The North Carolina Department of Environment and Natural Resources (NC DENR) Superfund Section has received the *Request for Identification of State ARARs* for the Former Virginia-Carolina Chemical Company Winston-Salem Site located in Winton-Salem, Forsyth County, North Carolina. The following attached North Carolina Applicable or Relevant and Appropriate Requirements (ARARs) are to be met at this Site.

The NC DENR Superfund Section appreciates the opportunity to respond to this request. If you have any questions or comments, please feel free to contact me at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

Request for Identification of State ARARs
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

State Action-Specific ARARs:

Standard, Requirement, Criteria, or Limitation	Citation	Requirements Synopsis	Comment
Procedures For Permits: Approvals	15A North Carolina Administrative Code (NCAC) 2H .1000	Stormwater Management	Applicable
Sedimentation Control	15A NCAC 4B .0100	Erosion And Sediment Control	Applicable
Hazardous Waste Management	15A NCAC 13A .0100	Establishes standards for characterization, storage, treatment, and disposal of hazardous waste.	Applicable

Solid Waste Management	15A NCAC 13B .0100	Establishes standards for characterization, storage, treatment, and disposal of solid waste.	Applicable
Sedimentation Pollution Control Act	North Carolina General Statute (NCGS) Chapter 113A, Article 4	Provides for the creation, administration, and enforcement of a program and for the adoption of minimal mandatory standards which will permit development of this State to continue with the least detrimental effects from pollution by sedimentation.	Applicable
NC Solid Waste Management Act	NCGS 130A, Article 9		
	Part 1	Definitions	Applicable
	Part 2	Solid and Hazardous Waste Management	Applicable
	Part 2A	Nonhazardous Solid Waste Management	Applicable
	Part 3	Inactive Hazardous Sites	Relevant and Appropriate
	Part 4	Superfund Program	Applicable

Water and Air Resources statute	NCGS Chapter 143, Article 21	Public policies of the State to maintain, protect, and enhance water quality with North Carolina.	Potentially Applicable
	Part 1	Organization and Powers Generally; Control of Pollution	Potentially Applicable
	Part 7	Water and Air Quality Reporting	Potentially Applicable
Oil Pollution and Hazardous Substances Control Act of 1978	NCGS Chapter 143, Article 21A	Establishes criteria for protecting the land and the waters over which this State has jurisdiction from pollution by oil, oil products, oil by-products, and other hazardous substances.	Applicable
	Part 1	General Provisions	Applicable
	Part 2	Oil Discharge Controls	Applicable
Inactive Hazardous Sites Program	*Guidelines for Assessment and Cleanup*	Provides guidance for the voluntary assessment and cleanup of inactive hazardous sites in the State.	To Be Considered

State Location-Specific ARARs:

Standard, Requirement, Criteria, or Limitation	Citation	Requirements Synopsis	Comment
NC Recordation of Inactive Hazardous Substance or Waste Disposal Sites Statute	NCGS 130A-310.8	State requirement for recordation of inactive hazardous sites.	Potentially Applicable

State Chemical-Specific ARARs:

Standard, Requirement, Criteria, or Limitation	Citation	Requirements Synopsis	Comment
Inactive Hazardous Sites Program	*Guidelines for Assessment and Cleanup* Health-Based Soil Remediation Goals	Provides numerical standards, based in part on EPA guidance, for allowable levels of contaminants in soil, for both direct contact exposure to soils as well as the protection of groundwater.	To Be Considered

Dave

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
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February 17, 2010

Mr. McKenzie Mallary
Remedial Project Manager
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Sincerely,

David B Mattison

David B. Mattison
Environmental Engineer
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Sedimentation Pollution Control Act	North Carolina General Statute (NCGS) Chapter 113A, Article 4	Provides for the creation, administration, and enforcement of a program and for the adoption of minimal mandatory standards which will permit development of this State to continue with the least detrimental effects from pollution by sedimentation.	Applicable
NC Solid Waste Management Act	NCGS 130A, Article 9		
	Part 1	Definitions	Applicable
	Part 2	Solid and Hazardous Waste Management	Applicable
	Part 2A	Nonhazardous Solid Waste Management	Applicable
	Part 3	Inactive Hazardous Sites	Relevant and Appropriate
	Part 4	Superfund Program	Applicable

Water and Air Resources statute	NCGS Chapter 143, Article 21	Public policies of the State to maintain, protect, and enhance water quality with North Carolina.	Potentially Applicable
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	Part 7	Water and Air Quality Reporting	Potentially Applicable
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Mattison, David

From: Mallary.Ken@epamail.epa.gov
Sent: Tuesday, March 16, 2010 3:59 PM
To: Pelton, Matthew; steven.p.schmidt@exxonmobil.com
Cc: Mattison, David
Subject: EPA/DENR Responses to NC DOT's comments on VCC Winston-Salem Removal Design

Matt, Steven - I talked with David Mattison yesterday about NCDOT's comments on the VCC Winston-Salem Removal Design. Below are responses to NCDOT's comments.

Comment regarding the removal of 1 to 2 feet of soil beneath each excavation

David and I agree that excavating and removing an additional 1 to 2 feet of soil beneath each excavation is not warranted. David and I agree the combination of visual inspection, XRF screening, and soil verification sampling that will be performed during the Removal Action is adequate to ensure that lead and arsenic contamination is not left in the bottoms of the excavations at levels above the EPA and State Removal Action levels established for the Site.

Comment regarding analyzing post-excavation confirmation samples for the specific PAHs and/or metals detected during the site assessment phase

David and I agree the post-excavation confirmation sampling for lead and arsenic is warranted, and post-excavation confirmation sampling for PAHs and other metals is not warranted, during the Removal Action at the Site, for the following reasons. Lead and arsenic contamination in soil is well-documented as being related with former phosphate fertilizer facilities that used the lead acid chamber process. Post-excavation confirmation sampling for lead and arsenic is consistent with the confirmation sampling approach used at other removal actions in Region 4 to address former phosphate fertilizer sites, as lead and arsenic are consistently the main "risk-drivers" for these sites. David and I agree that constituents such as PAHs are not commonly associated with former phosphate fertilizer manufacturing. David and I also agree that the presence of PAHs in Site soils may be due to the fact that other potential sources of PAHs exist on the properties surrounding the Site.

Comment regarding expanding excavation area 9 and Area 11 to address boring location P8GP3 and Hart and Hickman boring 8-3

David and I do not agree with NCDOT's comment regarding expanding the excavation area to include boring location P8GP3. This is based on the fact that the historical data indicates the contamination at P8GP3 is an isolated occurrence at a depth of 8 feet below land surface, which is not considered to be a direct contact risk to humans or a significant threat to groundwater quality. David and I agree with NCDOT's comment that Hart and Hickman boring location 8-3 should be included in the area to be addressed during the Removal Action.

Comment recommending the post-excavation confirmation sampling should be performed at a higher frequency than proposed

David and I agree with NCDOT's comment. Increasing the frequency of post-excavation confirmation sampling should increase the level of confidence that the soil in the bottoms of the excavations does not exceed the EPA and State removal action levels established for the Site.

You can contact me at (404) 562-8802 if you have questions or comments regarding the information in this email.

Ken

Mattison, David

From: Pelton, Matthew [Matthew.Pelton@arcadis-us.com]
Sent: Thursday, March 11, 2010 4:56 PM
To: Mallary.Ken@epamail.epa.gov
Cc: steven.p.schmidt@exxonmobil.com; Mattison, David; James.Tonya@epamail.epa.gov; Germann, Geoff
Subject: RE: Winston RAWP

Thank you Ken, the revised RAWP does contain the final Figures.

Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com
ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518 T. 919.415.2308 | M. 919.270.9512 | F. 919.469.5676 www.arcadis-us.com Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611 ARCADIS, Imagine the result Please consider the environment before printing this email.

-----Original Message-----
From: Mallary.Ken@epamail.epa.gov [mailto:Mallary.Ken@epamail.epa.gov]
Sent: Thursday, March 11, 2010 4:52 PM
To: Pelton, Matthew
Cc: steven.p.schmidt@exxonmobil.com; Mattison, David; James.Tonya@epamail.epa.gov
Subject: Re: Winston RAWP

Matt - the purpose of this email is to approve the RAWP for the VCC Winston-Salem Site.

Let me know if you would like for me to send you a separate approval letter.

For my clarification, does the revised RAWP that you sent me include the final drawings and figures?

FYI - I will be working with Tonya James to place a copy of the Final RAWP in the information repository in Winston-Salem along with the signed Action Memo and AOC once it is signed (which hopefully will be in the next week or so). Once these documents are in place, EPA will publish a notice informing the local community about the upcoming Removal Action and to announce the 30-day comment period that is required.

While holding a public availability session is not a requirement for a Time Critical Removal Action, EPA, NCDENR, and ExxonMobil can decide whether or not to have an public availability session based on the amount of public feedback we get.

Ken

From: "Pelton, Matthew" <Matthew.Pelton@arcadis-us.com>

To: Ken Mallary/R4/USEPA/US@EPA

Date: 03/11/2010 03:46 PM

Subject: Winston RAWP

Hello Ken, just wanted to check in with you and give you an update on Winston. Our bids are all in we're in the process of reviewing them.
Hopefully Exxon will be able to select a contractor within the next week or so, we'll keep you posted.

Also wanted to check on status of the RAWP. We'd like to send copies out to the property owners, but would prefer to have approval on the document before we do that. Please let me know if you have any further questions, thanks.

Matt
Matthew T. Pelton, P.E. | Senior Environmental Engineer | matthew.pelton@arcadis-us.com
ARCADIS U.S., Inc. | 11000 Regency Parkway, West Tower, Suite 205 | Cary, NC 27518-8518 T. 919.415.2308 | M. 919.270.9512 | F. 919.469.5676 www.arcadis-us.com Professional Affiliate / ARCADIS G&M of North Carolina, Inc.
Professional Registration / PE-NC, 29382 | PE-GA, 30611 ARCADIS, Imagine the result Please consider the environment before printing this email.

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To: Ken Mallary/R4/USEPA/US@EPA

Date: 03/11/2010 03:46 PM

Subject: Winston RAWP

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Matt
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Professional Registration / PE-NC, 29382 | PE-GA, 30611 ARCADIS, Imagine the result Please consider the environment before printing this email.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 Forsvth Street. S.W.

ENFORCEMENT ACTION MEMORANDUM

Subject: Request for a Time-Critical Removal Action at the Virginia Carolina Chemical Company Site, Winston-Salem, Forsyth County, North Carolina

From: Tim Neal, On-Scene Coordinator 2/17/10
Emergency Response and Removal Branch

McKenzie Mallary, Remedial Project Manager MCKM - 2/17/2010
Superfund Remedial and Site Evaluation Branch

Thru: Shane Hitchcock, Chief
Emergency Response and Removal Branch

To: Franklin E. Hill, Director FEH
Superfund Division

I. Purpose

The purpose of this Action Memorandum, pursuant to Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), is to request and document approval of the proposed enforcement-lead Time-Critical Removal Action described herein for the Virginia-Carolina Chemical Company (VCC) Site ("the Site"), located in Winston-Salem, Forsyth County, North Carolina.

The Site poses a potential threat to public health and the environment that meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300-415(b) (2) criteria for a Time-Critical Removal Action. ExxonMobil Oil Corporation is the corporate successor to VCC. This Removal Action will be enforcement-lead pursuant to an Administrative Order on Consent (AOC) with ExxonMobil Corporation.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

Site ID#: A4YD
Type: Time Critical Removal Action

The Site is the location of a former phosphate fertilizer plant in Winston-Salem, North Carolina. The plant was constructed by Southern Chemical Company between 1895 and 1900, and was continuously operated through 1927.

Phosphate fertilizer manufacturing at the Site generally involved reacting phosphate ores with sulfuric acid to produce phosphoric acid, the building block of Nitrogen-Phosphorus-Potassium (N-P-K) agricultural fertilizers. Sulfuric acid was made at the Site and stored in lead-lined chambers. Environmental impacts typically associated with phosphate-based fertilizer manufacturing facilities include acidic pH conditions and elevated concentrations of metals, including lead and arsenic in soil, groundwater, sediment, and surface water.

A review of the available Sanborn Fire Insurance maps confirmed that the former VCC Winston-Salem plant was a complete factory with acid production facilities throughout its entire operational history. At various times throughout the plant's history, its features included an acid chamber structure, compressor room, pyrite burners, a pyrite house, acid towers, a nitre house, a boiler room, a pump house, various water towers, a 100,000-gallon reservoir, a tobacco stem and grinding warehouse and associated drying furnace, a transformer house, rock sheds, a mill building (for grinding, mixing, storage, and bagging of fertilizer), a bag house, a motor printing press, several storage warehouses, scales, a corn crib, and an office.

VCC acquired the plant from Southern Chemical Company in 1902, merged into Socony Mobil Oil Company, Inc., in 1963, and the company name changed to Mobil Oil Corp. in 1966. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil became ExxonMobil Oil Corporation, the corporate successor to VCC, and subsidiary to Exxon Mobil Corporation.

1. Removal Site Evaluation

Several investigations have been conducted at the Site. In 2005, the North Carolina Department of Environment and Natural Resources (NCDENR) and Environmental Investigations, Inc. (EI), on behalf of the North Carolina Department of Transportation (NCDOT)), collected soil samples from 29 locations from the ground surface to a maximum depth of 20 feet below the ground surface. Arsenic and lead were detected in soil samples at concentrations exceeding the EPA Region 4 Removal Action Levels (RALs) of 40 ppm and 400 ppm, respectively.

In November 2008, ARCADIS, on behalf of ExxonMobil Environmental Services (EMES), and in coordination with NCDOT, collected soil samples from the Site as described in the *VCC Winston-Salem Site: Soil Screening and Sampling Event Summary Report* (ARCADIS, 2009). A total of 38 soil samples were collected and analyzed to determine the extent of arsenic and lead concentrations in the soil that potentially lie within or adjacent to the Site boundaries and beneath US Hwy 52/SR-8. Arsenic and lead were detected in soil at concentrations exceeding the EPA Region 4 RALs. Arsenic was detected in one sample collected from a depth of 38.5 to 40 feet below the surface beneath US Hwy 52/SR-8 at a concentration of 121 mg/kg. Lead was detected in one soil sample collected from a depth of 3 to 5 feet beneath US Hwy 52/SR-8 at a concentration of 278 mg/kg.

In March 2009, Hart & Hickman (H&H), on behalf of NCDOT, collected a total of 35 soil samples within the proposed NCDOT right-of-way along US Hwy 52/SR-8. Arsenic and lead were detected in soil at concentrations exceeding the EPA Region 4 RALs.

In May 2009, ARCADIS, on behalf of EMES, conducted a Removal Site Evaluation (RSE) at the Site. A total of 71 soil samples were collected and analyzed from 24 soil boring locations during the RSE. Arsenic and lead were detected in soil at concentrations exceeding EPA Region 4 RALs. The majority of the elevated arsenic and lead concentrations in soil was detected in the northeastern and eastern portions of the Site. The maximum arsenic and lead concentrations detected in soil samples collected north of Hwy 52/SR-8 were 364 mg/kg and 20,100 mg/kg, respectively. The maximum arsenic and lead concentrations detected in soil samples collected south of Hwy 52/SR-8 were 238 mg/kg and 4,380 mg/kg, respectively.

Based on the analytical results from the May 2009 investigation, additional delineation activities were conducted by ARCADIS, on behalf of EMES, in October and November 2009. These activities included the collection of an additional 142 soil samples from 48 soil boring locations, the installation of five groundwater monitoring wells, and the collection of groundwater samples from four of the wells. Toxicity Characteristic Leaching Procedure (TCLP) arsenic and lead analyses were also performed on 23 soil samples collected and composited from 25 soil boring locations where arsenic and/or lead concentrations exceeded the EPA Region 4 RALs. In addition, two of the composite waste characterization samples were analyzed for TCLP metals, TCLP volatile organic compounds (VOCs), TCLP benzene, toluene, ethylbenzene, and xylene (BTEX), TCLP semi-volatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs). These analyses were performed to provide data to determine appropriate soil disposal requirements when evaluating potential soil removal response actions.

2. Physical Location

The Site is located in Winston-Salem, Forsyth County, North Carolina (Figure 1-1). The Site is in an old industrial area located northeast of downtown Winston-Salem.

The Site is bounded to the north by Norfolk Southern's rail yard and the Atlantic Scrap facility, to the east by the Norfolk Southern Railroad (and north Liberty Street beyond), to the south by vacant industrial land (and Indiana Avenue beyond), to the southwest by the Norfolk Southern railroad (and NCDOT Site No. 54 beyond), and to the west by a rolling storage yard owned by Waste Management of the Carolinas, Inc. The Site is bisected from northwest to southeast by US Hwy 52/SR-8. The approximate geographical center of the Site is 36.1270° North Latitude and 80.2342° West Longitude.

Currently, the Site is occupied by two tax parcel maps. Current property boundary information was obtained from the 2007 Forsyth County tax map.

3. Site Characteristics

The Site lies within the upstate region of North Carolina along the US Hwy 52/SR-8 corridor. The Site lies within the Piedmont Physiographic Province of North Carolina, which is characterized by generally rolling and well-rounded hills and ridges. Elevations at the Site vary from approximately 937 to 970 feet above mean sea level. The Site is underlain by gneiss and schist of the Charlotte Belt, which consists of fine-grained biotite-quartz-feldspar gneiss and some inter-layered augen gneiss. Amphibolite layers occur locally and intrusive dikes of pegmatite and granite are also present.

The majority of the Site is heavily-vegetated. Portions of the Site that are not vegetated are covered by asphalt and gravel roads, parking areas, and railroad corridors. Surface water runoff generally flows to the northeast towards the Bowen Branch of Brushy Fork Creek located approximately 700 feet north of the Site. Bowen Branch flows easterly and discharges to Brushy Fork, and in turn, Brushy Fork discharges to Salem Creek on the east site of Winston-Salem. Salem Creek flows westerly through downtown Winston-Salem and discharges to the Yadkin River. On a regional scale, the Site is located within the Yadkin-Pee Dee River Basin.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

The RSE, conducted in May 2009, and subsequent delineation activities conducted in October and November 2009, are the most recent sampling investigations conducted at the Site. The following is a brief bullet summary of the RSE:

- A total of 213 soil samples were collected and analyzed from 72 soil boring locations;
- Arsenic was detected in 14 soil samples at concentrations exceeding the EPA Region 4 RAL of 40 mg/kg;
- Lead was detected in 15 soil samples at concentrations exceeding the EPA Region 4 RAL of 400 mg/kg;

- The maximum arsenic and lead concentrations detected in soil samples collected north of US Hwy 52/SR-8 were 364 mg/kg and 20,100 mg/kg, respectively;

- The maximum arsenic and lead concentrations detected in soil samples collected south of US Hwy 52/SR-8 were 238 mg/kg and 4,380 mg/kg, respectively;

- Twenty-one soil samples were analyzed for TCLP arsenic and lead; none of the samples contained detectable concentrations of arsenic; six (6) samples contained TCLP lead at concentrations above the standard of 5.0 mg/L;

- Groundwater samples were collected from 4 groundwater monitoring wells; arsenic was not detected in any of the groundwater samples; lead was detected in one well at a concentration exceeding the North Carolina 2L Drinking Water Standard; and

- The Time-Critical Removal Action will address the Site-related contamination prior to the NCDOT's highway expansion project along US 52/SR-8, scheduled for summer 2010.

5. National Priorities List (NPL) Status

As part of the Phosphate Fertilizer Initiative, ExxonMobil is voluntarily working with EPA and the State to address the soil contamination at the Site. This Site is not on the NPL, but EPA considers this Site to be NPL-equivalent. A ranking package could be prepared in the future, and the Site could be proposed to the NPL, if needed.

6. Maps, Pictures, and Graphic Representations

Figures 1-1, 4-1A, and 4-1B from the SDR/RAWP are attached to this Action Memorandum as Attachments 1, 2, and 3. Attachment 4 is the State's ARARs letter and ARARs tables, and Attachment 5 is the RAWP. Figure 1-1 is a Site location map, while 4-1A and 4-1B show the areas to be addressed during the Removal Action.

B. Other Actions To Date

1. Previous Actions

There have been no known actions taken at the Site to investigate the presence of Site-related contamination, or mitigate conditions, other than the investigations described in section II (A) (1) of this document.

2. Current Actions

Before the Removal Action begins at the Site, EPA and ExxonMobil will finalize an Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) which will provide for implementation of the Removal Action at the Site, as well as continued investigations of the Site (if needed).

C. State and Local Authorities' Role

1. State and local Actions to Date

EPA and NCDENR have provided oversight during the Site Delineation and Removal Site Evaluation, and will continue to work together to coordinate oversight responsibilities during the Removal Action.

EPA will communicate with local officials throughout the Removal Action. The local officials have been notified about the 30-day comment period to be held prior to and/or during the Removal Action.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

According to the criteria listed in Section 300.415 of the National Contingency Plan (NCP), the Site meets the requirements for initiating a Time-Critical Removal Action. Specifically, these include the following determinations:

A. <u>Threats to Public Health or Welfare</u>

Section 300.415(b)(2)(iv) - "*soil with high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate*". EPA has determined the following conditions exist at the Site which meet the requirements for initiating a Time-Critical Removal Action. Arsenic levels as high as 364 mg/kg or parts-per-million (ppm) exist in surface and/or subsurface soil; lead levels as high as 20,100 ppm exist in surface and/or subsurface soil. These levels of arsenic and lead in soil exceed EPA Region 4's RALs of 40 ppm and 400 ppm, respectively, for the protection of human health through direct contact exposure.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

Due to the inherent uncertainties associated with the removal options evaluated for use at the Site, the On-Scene Coordinator, and EPA's designated Project Manager, in a manner consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), remain obligated to modify removal procedures as conditions warrant.

1. Description of Proposed Response Actions

An estimated 18,504 cubic yards of Site-related soil contamination and debris (e.g., concrete, brick, railroad ties, etc.) exceeding the EPA Region 4 RALs will be excavated. Construction debris over one cubic yard in size will be left in place, or will be cleaned and left on-Site. Actual excavation limits will be determined in the field based on the confirmation sampling program. The soil removal areas encompass a total area of approximately 3.7 acres, and range in depth from 1 to 7 feet below land surface. ExxonMobil will treat and/or dispose of the contaminated soils and debris according to appropriate industry and regulatory standards.

Soils with TCLP arsenic and/or lead concentrations greater than or equal to 5.0 mg/l will either be stabilized and transported to a RCRA Subtitle D landfill for disposal, or transported to a RCRA Subtitle C landfill without being stabilized. Stabilization will be achieved via mixing of a phosphate-based stabilization agent with the soil in batches of approximately 200 tons so that efficient and uniform blending can be achieved.

Institutional Controls (i.e., a restrictive covenant) will be applied to the Site property to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

ExxonMobil will restore areas which are disturbed by the Removal Action to their pre-removal state to the maximum extent practicable. Areas that overlap with the NCDOT's highway expansion project along highway 52/SR-8, scheduled for summer 2010, will be restored consistent with NCDOT's project objectives. The need for additional groundwater monitoring at the Site will be determined once the Soil Removal Action is complete.

The preferred response action to address soil contamination is selected for use at the Site for the following reasons:

A. The preferred response action is considered technically feasible because it has been successfully implemented at other sites, and the materials and qualified commercial contractors are readily available;

B. The preferred response action offers a balance between effectiveness and cost, (i.e., it is a cost-effective method of providing protection of human health and the environment; and

C. EPA and NCDENR concur on the use of the preferred response action to address soil contamination at the Site.

2. Contribution to Remedial Performance

The proposed Time-Critical Removal Action will address the potential threats discussed in Section III, which meet the removal criteria established in Section 300.415(b)(2) of the NCP. Although future action under the EPA's Remedial program is unlikely, the Removal Action contemplated in this Action Memorandum is considered to be consistent with any future Remedial Action.

3. Engineering Evaluation/Cost Analysis (EE/CA)

This proposed action is a Time-Critical Removal Action and does not require an EE/CA.

4. Pre-Design Investigations/Removal Site Evaluation

Pre-Design investigations, including the Removal Site Evaluation (RSE) were conducted at the Site. The Final SDR/RAWP report, dated February 2010, is attached to this Action Memorandum – see Attachment 5.

5. Applicable or Relevant and Appropriate Requirements (ARARS)

On-site removal activities conducted under CERCLA are required to attain ARARs to the extent practical considering the exigencies of the situation. Off-site removal activities need only comply with all applicable Federal and State laws, unless there is an emergency. EPA requested and received a list of state ARARs from NCDENR – see Attachment 4. All waste transferred off-site will follow the CERCLA Off-site Rule.

6. Project Schedule

The design document for the Time-Critical Removal Action, referred to the SDR/RAWP, has been finalized. The Time-Critical Removal Action is scheduled to begin at the Site in March 2010.

VI EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the Removal Action is significantly delayed or not taken at the Site, the potential threats explained in Section III of this Action Memorandum will continue to exist.

VII. OUTSTANDING POLICY ISSUES

EPA has chosen to address the contamination at the Site using EPA's Removal authority. EPA has extensive experience using Removal authority to investigate and implement removal actions to address contamination at former phosphate fertilizer plant sites located in Region 4. Contamination at the Site consists of lead and arsenic in the surface and subsurface soil, sediment, and groundwater, and conventional removal techniques will be utilized during the NTCRA to address the contamination.

Slightly-acidic pH conditions in the groundwater at the Site may have resulted in the mobilization of metals where they are present in the subsurface soil; however, only one groundwater monitoring well at the Site has contained a lead concentration above the North Carolina 2L drinking water standard. None of the groundwater samples have contained arsenic at concentrations above the North Carolina 2L drinking water standard.

ICs will be required for the Site in the form of a restrictive covenant. ExxonMobil will be responsible for placing the restrictive covenant on the property deed for the Site. The ICs will help to ensure the integrity of the Time-Critical Removal Action is not compromised, thereby ensuring the long-term protection of human health and the environment. The ICs will remain on the property deed until such time that EPA and/or NCDENR determine the ICs are not needed to protect human health and the environment.

VIII. ENFORCEMENT

As the corporate successor to the Virginia-Carolina Chemical Company (VCC), ExxonMobil Oil Corporation has been identified as the potentially responsible party (PRP) for the Site. EPA and ExxonMobil, parent to the ExxonMobil Oil Corporation, are currently negotiating the terms of the AOC for conducting the Removal Action. EPA expects ExxonMobil will sign the AOC, thereby agreeing to fund and conduct the Time-Critical Removal Action.

IX. RECOMMENDATIONS

This decision document sets forth the selected Time-Critical Removal Action for the Virginia-Carolina Chemical Company (VCC) Winston-Salem Site ("the Site"), located in Winston-Salem, Forsyth County, North Carolina. This Action Memorandum has been developed in accordance with CERCLA, as amended, and is consistent with the

NCP. The selection of the preferred response actions is based on the Administrative Record for the Site.

Conditions at the Site meet the NCP section 300.415 (b) (2) criteria for a Time-Critical Removal Action. In addition, the Time-Critical Removal Action will address the Site-related contamination prior to the NCDOT's highway expansion project along US 52/SR-8, scheduled for summer 2010.

I recommend your approval of the proposed Time-Critical Removal Action.

(Approval) _____ Date: 2/15/2010

(Disapproval) _____ Date: _____

Franklin E. Hill, Director
Superfund Division

Attachments

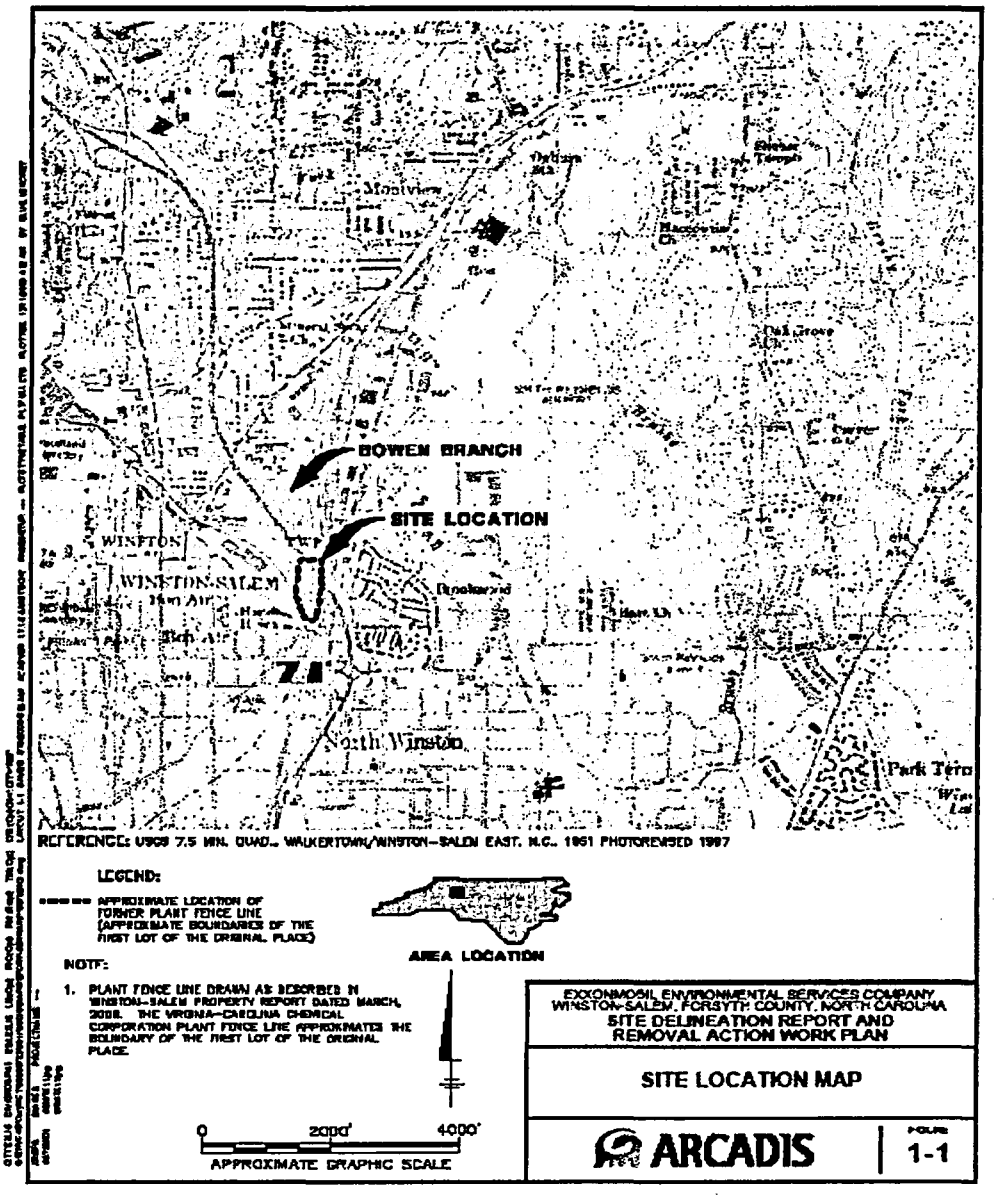
Attachment 1 – Site Location Map

Attachment 2 – Soil Excavation Areas North of Hwy 52

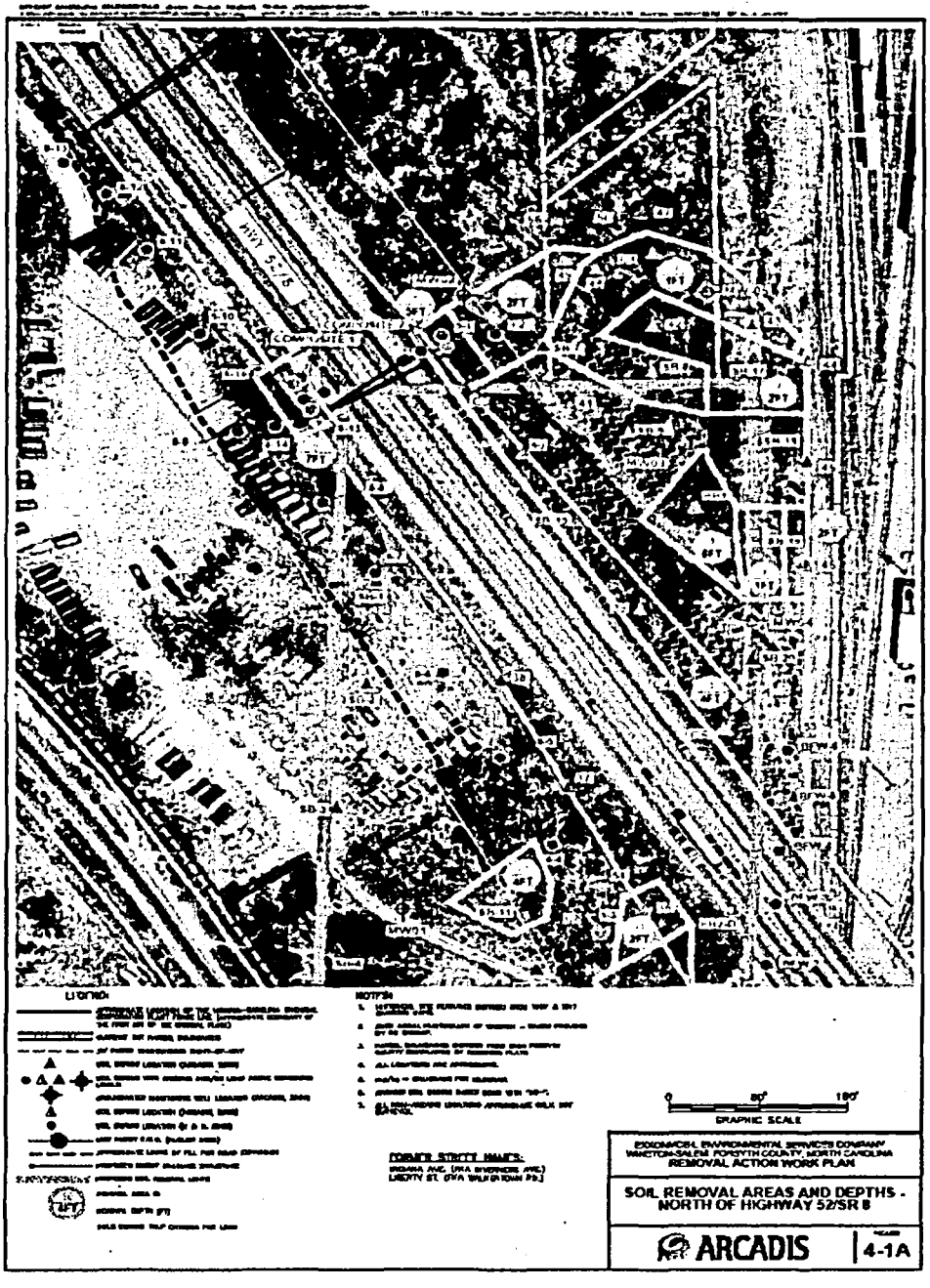
Attachment 3 – Soil Excavation Areas South of Hwy 52

Attachment 4 – State ARARs Letter and ARARs Tables

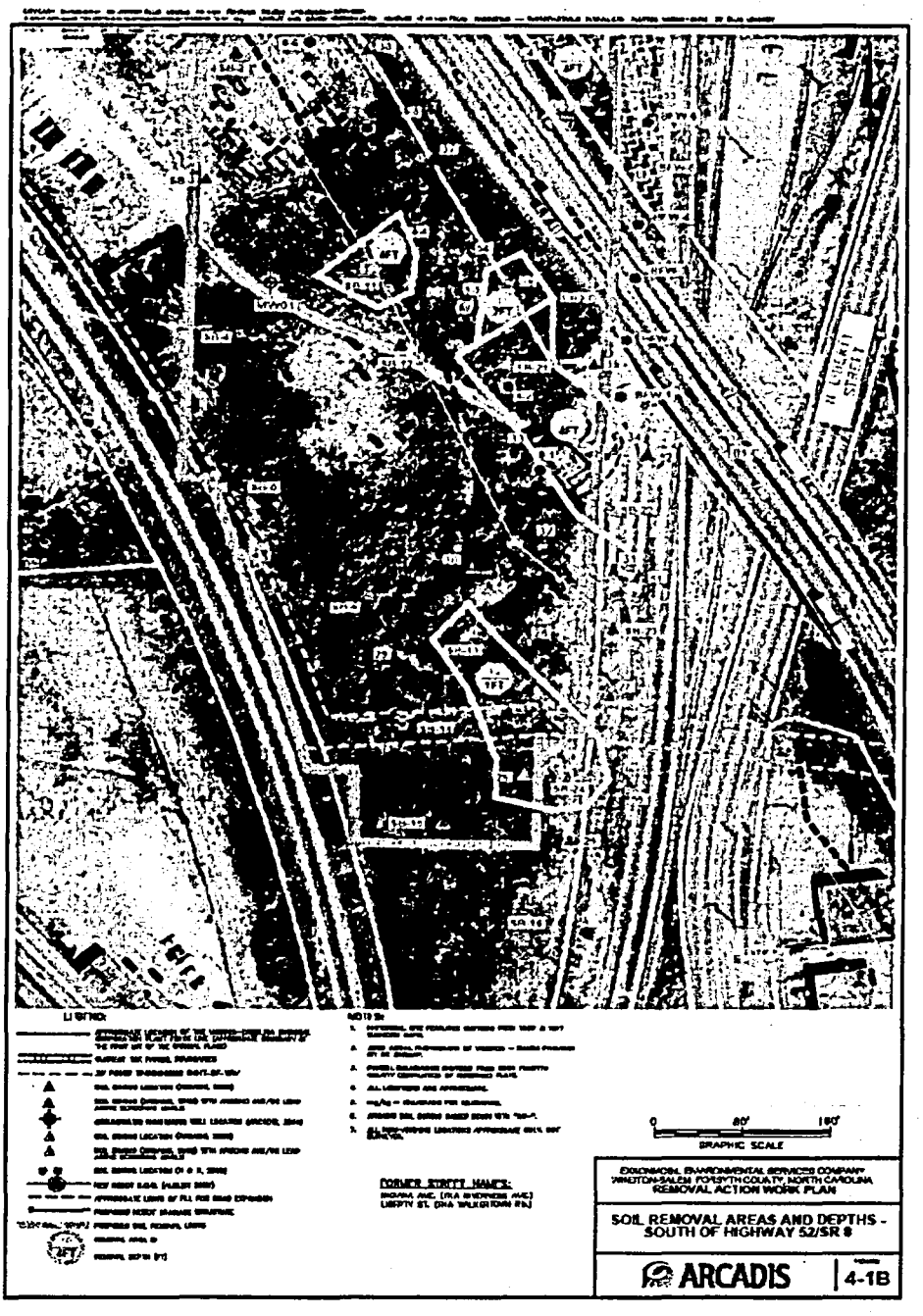
Attachment 5 – Removal Action Work Plan (RAWP)



Attachment 1 –Site Location Map



Attachment 2 – Soil Excavation Areas North of Hwy 52



Attachment 3 – Soil Excavation Areas South of Hwy 52

North Carolina Department of Environment and Natural Resources
Division of Waste Management
Beverly Eaves Perdue Dexter R. Matthews
Governor Director

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Request for Identification of State ARARs
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

Dear Mr. Mallary:
The North Carolina Department of Environment and Natural Resources (NC DENR) Superfund Section has received the *Request for Identification of State ARARs* for the Former Virginia-Carolina Chemical Company Winston-Salem Site located in Winton-Salem, Forsyth County, North Carolina. The following attached North Carolina Applicable or Relevant and Appropriate Requirements (ARARs) are to be met at this Site.
The NC DENR Superfund Section appreciates the opportunity to respond to this request. If you have any questions or comments, please feel free to contact me at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment
Mr. McKenzie Mallary Request for Identification of State ARARs Former Virginia-Carolina Chemical Company Winston-Salem Site Winton-Salem, Forsyth County, North Carolina February 17, 2010

Attachment 4 – State ARAR Letter and ARARs Tables

Request for Identification of State ARARs
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

State Action-Specific ARARs:

Standard, Requirement, Criteria, or Limitation	Citation	Requirements Synopsis	Comment
Procedures For Permits: Approvals	15A North Carolina Administrative Code (NCAC) 2H.1000	Stormwater Management	Applicable
Sedimentation Control	15A NCAC 4B.0100	Erosion And Sediment Control	Applicable
Hazardous Waste Management	15A NCAC 13A .0100	Establishes standards for characterization, storage, treatment, and disposal of hazardous waste.	Applicable
Solid Waste Management	15A NCAC 13B .0100	Establishes standards for characterization, storage, treatment, and disposal of solid waste.	Applicable
Sedimentation Pollution Control Act	North Carolina General Statute (NCGS) Chapter 113A, Article 4	Provides for the creation, administration, and enforcement of a program and for the adoption of minimal mandatory standards which will permit development of this State to continue with the least detrimental effects from pollution by sedimentation.	Applicable
NC Solid Waste Management Act	NCGS 130A, Article 9		
	Part 1	Definitions	Applicable
	Part 2	Solid and Hazardous Waste Management	Applicable
	Part 2A	Nonhazardous Solid Waste Management	Applicable
	Part 3	Inactive Hazardous Sites	Relevant and Appropriate
	Part 4	Superfund Program	Applicable

State Action-Specific ARARs (continued)

Water and Air Resources statute	NCGS Chapter 143, Article 21	Public policies of the State to maintain, protect, and enhance water quality with North Carolina.	Potentially Applicable
	Part 1	Organization and Powers Generally; Control of Pollution	Potentially Applicable
	Part 7	Water and Air Quality Reporting	Potentially Applicable
Oil Pollution and Hazardous Substances Control Act of 1978	NCGS Chapter 143, Article 21A	Establishes criteria for protecting the land and the waters over which this State has jurisdiction from pollution by oil, oil products, oil by-products, and other hazardous substances.	Applicable
	Part 1	General Provisions	Applicable
	Part 2	Oil Discharge Controls	Applicable
Inactive Hazardous Sites Program	*Guidelines for Assessment and Cleanup*	Provides guidance for the voluntary assessment and cleanup of inactive hazardous sites in the State.	To Be Considered

State Location-Specific ARARs:

Standard, Requirement, Criteria, or Limitation	**Citation**	**Requirements Synopsis**	**Comment**
NC Recordation of Inactive Hazardous Substance or Waste Disposal Sites Statute	NCGS 130A-310.8	State requirement for recordation of inactive hazardous sites.	Potentially Applicable

State Chemical-Specific ARARs:

Standard, Requirement, Criteria, or Limitation	**Citation**	**Requirements Synopsis**	**Comment**
Inactive Hazardous Sites Program	*Guidelines for Assessment and Cleanup* Health-Based Soil Remediation Goals	Provides numerical standards, based in part on EPA guidance, for allowable levels of contaminants in soil, for both direct contact exposure to soils as well as the protection of groundwater.	To Be Considered

Attachment 5 – Removal Action Work Plan (RAWP)

ARCADIS
Infrastructure, environment, buildings

ARCADIS
11000 Regency Parkway
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Suite 205
Cary
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676
www.arcadis-us.com

ENVIRONMENTAL

Mr. Ken Mallary
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Subject:
Response to USEPA and NCDENR Comments
Site Delineation Report/Remedial Action Work Plan
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winston-Salem, Forsyth County, North Carolina

Date:
February 5, 2010

Contact:
Matthew T. Pelton

Phone:
919.415.2308

Email:
matthew.pelton@
arcadis-us.com

Our ref:
B0085732

ARCADIS G&M of North Carolina, Inc.
NC Engineering License # C-1869
NC Surveying License # C-1869

Dear Mr. Mallary:

This letter provides responses to comments received from the United States Environmental Protection Agency (USEPA) (received January 26, 2010) and North Carolina Department of Environment and Natural Resources (NCDENR) (received January 22, 2010) on the *Site Delineation Work Plan, Former Virginia-Carolina Chemical Company Winston-Salem Site, Winston-Salem, Forsyth County, North Carolina* (Work Plan) dated January 2010. USEPA and NCDENR comments are provided in bold typeface followed by the response in standard typeface. Revision No. 1 of the Work Plan is enclosed.

RESPONSE TO USEPA COMMENTS

1. **General Comments – The sample designations in the text of the SDR/RAWP do not match the sample designations on the Figures. Please add language to the document, and in the legend of each figure, that explains the discrepancy in the sample designation.**

   Response:
   As shown in the Work Plan text and tables, all ARCADIS sample designations begin with the prefix "WS-". Soil boring sample designations (with the exception of WS-EB2-D and WS-B1-C) are identified as "WS-SB-XX", where XX is the soil boring number. Monitoring well sample designations are identified as "WS-MW-XX", where XX is the monitoring well number. Figures 2-1, 2-2, 3-1, 3-2, 4-1A, and 4-1B have been revised to reflect this change. To minimize print on the figures the "WS-" has been omitted on the figures.

2. **Page 6, Section 1.3.2 – In the second paragraph, third sentence, the abbreviation "US-52/SR-8" is used twice. Please correct.**

   Response:
   Section 1.3.2 has been revised to delete the second "US-52/SR-8" abbreviation.

3. **Page 16, Section 3.3.2, first paragraph – should sample WS-WS-53 be WS-SB-53?**

   Response:
   Yes. Section 3.3.2 has been revised to reflect "WS-SB-53" as the correct sample designation.

4. **Page 20, Section 4.1 – Eliminate the gap in the second sentence.**

   Response:
   The gap in the second sentence has been removed.

5. **Page 21, Section 4.2 – In the second paragraph, the document states the excavation of soil will take place on 4 properties with a total area of 4.6 acres, yet on page 20, the document states the soil removal areas encompass a total area of 3.6 acres. Please correct the discrepancy.**

   Response:
   As stated in the response to NCDENR Comment #9, approximately 3.67 acres are to be excavated during removal activities. The first sentence of the second paragraph of Section 4.2 has been revised to reflect the correct removal area acreage.

6. **Page 22, Section 4.2.1 – In the first full paragraph, the document states that the areas with samples containing greater than 5 mg/L TCLP lead will be addressed either by stabilizing the soil or transporting the soil off-site for disposal. However, Figure 4-1A shows sample locations C-2, C-8, and SB-12 as areas that will not be addressed during the Removal Action. If these areas will not be addressed during the Removal Action, please add language to the document explaining why. Ife these areas will be addressed during the Removal Action, please modify Figure 4-1A to indicate that these areas will be addressed.**

Response:
As presented in Table 3-1, soil samples collected from locations WS-SB-C2, WS-SB-C8, and WS-SB-12 contain concentrations of arsenic and lead below the NCDENR-determined site-specific screening levels of 22 mg/kg and 270 mg/kg for arsenic and lead, respectively; therefore, these areas will not be address during the removal action.

Note that waste characterization samples have different nomenclature than delineation soil sample locations. As stated in the third paragraph of Section 4.2.1, only waste characterization samples WS-WC-3, WS-WC-7, WS-WC-8, WS-11, WS-WC-12, and WS-WC-13 contained TCLP lead concentrations above 5.0 mg/L. As presented in Table 2-1, these waste characterization samples correspond to the following soil boring locations:

- WS-WC-3 was collected from location WS-SB-8;
- WS-WC-7 was collected from location WS-SB-9;
- WS-WC-8 was collected from location WS-SB-10;
- WS-WC-11 was collected from location WS-SB-41;
- WS-WC-12 was collected from location WS-SB-53; and
- WS-WC-13 was collected from location WS-SB-C4.

Figure 3-1 depicts a red circle around the soil boring symbol for these locations to designate that sample concentrations exceed TCLP lead criteria. As shown on Figure 4-1A, these areas will be addressed during the removal action.

The second paragraph of Section 3.4 and the third paragraph of Section 4.2.1 have been revised to clarify the waste characterization sampling results.

7. **Page 22, first sentence – in the event a demarcation liner is used during the removal action, I recommend that language be added to the IC document which describes in detail the location and depths of the liner.**

   Response:
   ARCADIS agrees with this recommendation. Section 5.5 of the SDR/RAWP text has been revised to include a bullet item stating that the institutional controls will provide the location, depth, and description of any demarcation liners used during the removal action.

8. **Page 22, last paragraph – I recommend the groundwater investigation be completed at the Site, and a determination made regarding potential groundwater-use restrictions, before we generate an IC document for the Site.**

Response:
The fourth paragraph of Section 4.1 has been revised to state that further evaluation of the extent and magnitude of groundwater impacts at the Site will be conducted by EMES following the completion of NCDOT construction activities and prior to the implementation of any institutional controls at the Site.

9. Page 24, Section 5.1, 3rd paragraph – **A Post-Removal Site Control Plan needs to be developed which identifies all post-removal monitoring for the Site. The Post-Removal Site Control Plan will be reviewed and approved by EPA and NCDENR before the EPA approves the Final Removal Action Report for the Site.**

Response:
The third paragraph of Section 5.1 has been revised to indicate the Post-Removal Site Control Plan Requirement. In addition, Section 5.4.2 "Post-Removal Site Control Plan" has been added to the Work Plan text to re-iterate this reporting requirement.

10. Figure 4-1A – **shows sample location "8-3" as a soil boring (collected by Hart and Hickman in 2009) with arsenic and/or lead above screening levels, but the sample location is not included in an area to be addressed during the removal action. Please explain why this location will not be addressed during the Removal Action. If the sample location will be addressed during the Removal Action, please modify Figure 4-1A to indicate that it will be addressed.**

Response:
This location was mistakenly omitted from adjacent Removal Area 11. Figure 4-1A has been revised to include this sample location within the removal area. Table 5-1 and appropriate sections of the text have also been revised to reflect the correct surface area based on this revision.

RESPONSE TO NCDENR COMMENTS

1. Section 1.2 Site Description and Background – **Please revise Section 1.2 to include a new separate section describing the North Carolina Department of Environment and Natural Resources (NC DENR) Inactive Hazardous Sites Branch (IHSB) Soil Remediation Goals (SRGs) for the Site-related constituents of concern (COCs), arsenic and lead.**

The Preliminary Health Based Soil Remediation Goals (PSRGs) for arsenic and lead are 4.4 milligrams per kilogram (mg/kg) and 400 mg/kg, respectively. However, arsenic poses both carcinogenic risk and non-carcinogenic risk. The PSRG for arsenic is based on its non-carcinogenic properties. The PSRG for arsenic is also based on the assumption that there are four other chemicals at the Site in addition to the arsenic with the same critical effect. However, since there are no other COCs at the Site with the same critical effect, the PSRG for arsenic is actually 22 mg/kg (or 5x4.4mg/kg). This corresponds to a risk of 7 in 100,000 which is acceptable for residential usage. The PSRG for lead is based on United States Environmental Protection Agency (US EPA) guidance on lead cleanup levels and cannot be adjusted.

The Protection of Groundwater Soil Remediation Goals for arsenic and lead are 5.4 mg/kg and 270 mg/kg, respectively. Both health-based and protection of groundwater remediation goals must be met. However, the protection of groundwater remediation goals given in Guidelines for Assessment and Cleanup (NC DENR IHSB, October 2009) are only one alternative for achieving protection of groundwater criteria. Additional information on protection of groundwater remediation goals, procedures for adjusting preliminary remedial goals and other criteria that may affect remediation goals (e.g., ecological receptors, cross-media contamination) may be found in the Guidelines for Assessment and Cleanup. Since arsenic was not detected in groundwater above the groundwater standards promulgated under Chapter 2L, Title 15A of the North Carolina Administrative Code (15A NCAC 2L), the Protection of Groundwater Soil Remediation Goal for arsenic does not apply. However, since lead was detected in one groundwater sample above the 15A NCAC 2L groundwater standard for lead, the Protection of Groundwater Soil Remediation Goal for lead does apply. Furthermore, because the Protection of Groundwater Soil Remediation Goal for lead is more conservative than the Preliminary Health Based Soil Remediation Goal for lead, the Protection of Groundwater Soil Remediation Goal will be employed for lead.

Lastly, ExxonMobil Environmental Services Company (EMES) desires to accomplish all soil removal objectives required by both the US EPA and the NC DENR at the Site on a one-time basis to avoid future soil removal actions at the Site. Therefore, EMES has committed itself to

employing the NC DENR IHSB Preliminary Health Based Soil Remediation Goal for arsenic (22 mg/kg) and the NC DENR IHSB Protection of Groundwater Soil Remediation Goal for lead (270 mg/kg) as not only initial screening values but as final remediation goals for the Site.

Response:
Section 1.2.6 - *NCDENR Inactive Hazardous Sites Branch Soil Remediation Goals* has been created to include the provided text regarding NCDENR Inactive Hazardous Sites Branch (IHSB) Soil Remediation Goals (SRGs) for the Site-related constituents of concern (COCs), arsenic and lead. The List of Acronyms and Abbreviations at the beginning of the Work Plan has been updated to include acronyms used in Section 1.2.6.

2. **Section 1.3.1 Other Party Sampling – Please revise the third sentence of the second paragraph of Section 1.3.1 to refer the reader to the new subsection in Section 1.2 – *Site Description and Background* for a complete description as to how the screening levels for lead and arsenic were determined.**

   Response:
   The third sentence of Section 1.3.1 has been revised to refer the reader to Section 1.2.6 - *NCDENR Inactive Hazardous Sites Branch Soil Remediation Goals.*

3. **Section 1.3.2 November 2008 Soil Sampling – Please revise the fourth paragraph of Section 1.3.2 to refer the reader to the new subsection in Section 1.2 – *Site Description and Background* for a complete description as to how the screening levels for lead and arsenic were determined.**

   Response:
   The fourth paragraph of Section 1.3.2 has been revised to refer the reader to Section 1.2.6 - *NCDENR Inactive Hazardous Sites Branch Soil Remediation Goals.*

4. **Section 1.3.3 March 2009 Sampling (Hart & Hickman, PC) – Please revise the second paragraph of Section 1.3.3 to refer the reader to the new subsection in Section 1.2 – *Site Description and Background* for a**

complete description as to how the screening levels for lead and arsenic were determined.

Response:
The second paragraph of Section 1.3.3 has been revised to refer the reader to Section 1.2.6 - *NCDENR Inactive Hazardous Sites Branch Soil Remediation Goals.*

5. **Section 1.3.4 May 2009 RSE Sampling – Please revise the third paragraph of Section 1.3.4 to refer the reader to the new subsection in Section 1.2 – *Site Description and Background* for a complete description as to how the screening levels for lead and arsenic were determined.**

   Response:
   The third paragraph of Section 1.3.4 has been revised to refer the reader to Section 1.2.6 - *NCDENR Inactive Hazardous Sites Branch Soil Remediation Goals.*

6. **Section 3.2.1 Soil Standards – Please revise the Section 3.2.1 to reiterate the information given in the above comment #1 for a complete description as to how the screening levels and ultimately the final soil remediation goals for lead and arsenic were determined for the Site.**

   Response:
   Section 3.2.1 has been revised to reiterate the information given in Comment #1, which provides a complete description as to how the screening levels and final soil remediation goals for lead and arsenic were determined for the Site.

7. **Section 3.7 Investigation-Derived Waste Sampling and Disposal – The first sentence of Section 3.7 indicates that a total of 25 drums (8 containing decontamination fluids/purge water and 17 containing soil/debris/personal protective equipment) were generated during the 2009 sampling activities at the Site. However, the Waste Manifest submitted as Appendix D – Waste Manifests indicates that a total of 23 drums (4 containing decontamination fluids, 3 containing purge water, 15 containing soil cuttings and 1 containing debris/personal protective equipment). Please clarify these discrepancies.**

Response:
A cumulative total of 25 drums (8 containing decontamination fluids/purge water and 17 containing soil/debris/personal protective equipment [PPE] were generated during 2009 sampling activities at the Site. A waste manifest for the two drums (1 containing decontamination fluids and 1 containing soil/PPE) generated during the May 2009 RSE sampling activities was included in the *Removal Site Evaluation Report, Former Virginia-Carolina Chemical Company Winston-Salem Site, Winston-Salem, Forsyth County, North Carolina* (ARCADIS 2009).

Section 3.7 has been revised to clarify that 23 drums (7 containing decontamination fluids/purge water and 16 containing soil/debris/PPE) were generated during October/November 2009 site delineation sampling activities. The first sentence of Section 2.6 has also been revised to specify that the 23 drums were generated during October/November 2009 site delineation sampling activities.

8. **Section 4.1 Introduction - Please revise the third paragraph of Section 4.1 to indicate that although the impacts to groundwater at the Site are not considered significant, groundwater at the Site does exhibit the presence of lead in excess of the 15A NCAC 2L groundwater standards. Furthermore, please revise this section to indicate that the remedial objective for groundwater at the Site is to restore the groundwater to its beneficial use for consumptive purposes. Lastly, please revise this section to reflect that EMES fully intends to complete its investigation of the extent and magnitude of groundwater impacts to the Site from Site-related COCs upon the conclusion of NC Department of Transportation (NC DOT) construction activities at the Site.**

Response:
Section 4.1 has been revised to indicate that groundwater at the Site does exhibit the presence of lead in excess of 15A NCAC 2L groundwater standards, and that EMES will continue its investigation of groundwater impacts at the Site following the completion of NC DOT construction activities at the Site.

9. **Section 4.2 Removal Action - The first sentence of the second paragraph of Section 4.2 indicates that approximately 4.6 acres are to be excavated. However, the second sentence of the second paragraph of Section 4.1 indicates that approximately 3.6 acres are to be excavated. Please clarify this discrepancy.**

Response:
Approximately 3.67 acres are to be excavated during removal activities. The first sentence of the second paragraph of Section 4.2 has been revised to reflect the correct removal area acreage.

10. **Section 5.3.7 Confirmation Sampling Plan – Base of Excavation Sampling - This section indicates that individual confirmation samples will be collected from individual sub areas excavated to the same depth at a frequency not to exceed one sample (5-point composite) per 10,000 square feet of excavation. However this frequency does not appear to be robust enough. Please supplement this section with a table depicting the number of confirmation soil samples to be collected from each numbered sub area.**

    Response:
    Table 5-2 (Summary of Confirmation Sampling Program) has been added to present the estimated number of confirmation soil samples to be collected from each removal area. Confirmation samples will be collected as 5-point composites at a frequency not to exceed one 5-point composite per 5,000 square feet of excavation. Each removal area will have a minimum of one 5-point composite sample. In addition the composite samples being submitted to the analytical laboratory for analysis of arsenic and lead, each individual composite aliquot will be screened in the field using an XRF to ensure it is below the Site-Specific Action Levels (SSALs). Table 5-2 has been prepared to list the estimated number of confirmation samples per removal area. Section 5.3.7 has been revised to refer the reader to Table 5-2.

11. **Table 3-1 Summary of Soil Sample Analytical Results - The Notes of Table 3-1 indicate that the shaded values exceed screening levels. However, the shading was inadvertently omitted. Please correct this oversight.**

    Response:
    Shading of concentrations exceeding screening levels was not omitted; however, it has been observed that after reproduction of the hard copies of the report the shading is not clearly visible. Table 3-1 has been re-printed and presents clearly visible shading of concentrations exceeding screening levels.

12. **Table 3-2 Summary of Waste Characterization Analytical Results - The Notes of Table 3-2 indicate that the shaded values exceed screening levels. However, the shading was inadvertently omitted. Please correct this oversight.**

Response:
Shading of concentrations exceeding screening levels was not omitted; however, it has been observed that after reproduction of the hard copies of the report the shading is not clearly visible. Table 3-2 has been re-printed and presents clearly visible shading of concentrations exceeding screening levels.

13. **Table 3-3 Summary of Groundwater Analytical Results and Field Parameter Measurements – The Notes of Table 3-3 indicate that the shaded values exceed screening levels. However, the shading was inadvertently omitted. Please correct this oversight.**

Response:
Shading of concentrations exceeding screening levels was not omitted; however, it has been observed that after reproduction of the hard copies of the report the shading is not clearly visible. Table 3-3 has been re-printed and presents clearly visible shading of concentrations exceeding screening levels.

14. **Appendix A – Visual Soil Classifications – The Soil Boring Identification for SB-6 was inadvertently omitted. Please correct this oversight.**

Response:
Appendix A has been revised to include the Soil Boring Identification for SB-6.

If you have any questions or comments, please feel free to contact me at 919.415.2308.

Sincerely,

ARCADIS

Matthew T. Pelton
Senior Environmental Engineer

Copies:
David Mattison, NCDENR
Cyrus Parker, NCDOT
Steve Schmidt, EMES

ARCADIS

Figures

REFERENCE: USGS 7.5 MIN. QUAD., WALKERTOWN/WINSTON-SALEM EAST, N.C., 1951 PHOTOREVISED 1997

LEGEND:

----- APPROXIMATE LOCATION OF FORMER PLANT FENCE LINE (APPROXIMATE BOUNDARIES OF THE FIRST LOT OF THE ORIGINAL PLACE)

AREA LOCATION

NOTE:

1. PLANT FENCE LINE DRAWN AS DESCRIBED IN WINSTON-SALEM PROPERTY REPORT DATED MARCH, 2006. THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE APPROXIMATES THE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE.

0 2000' 4000'

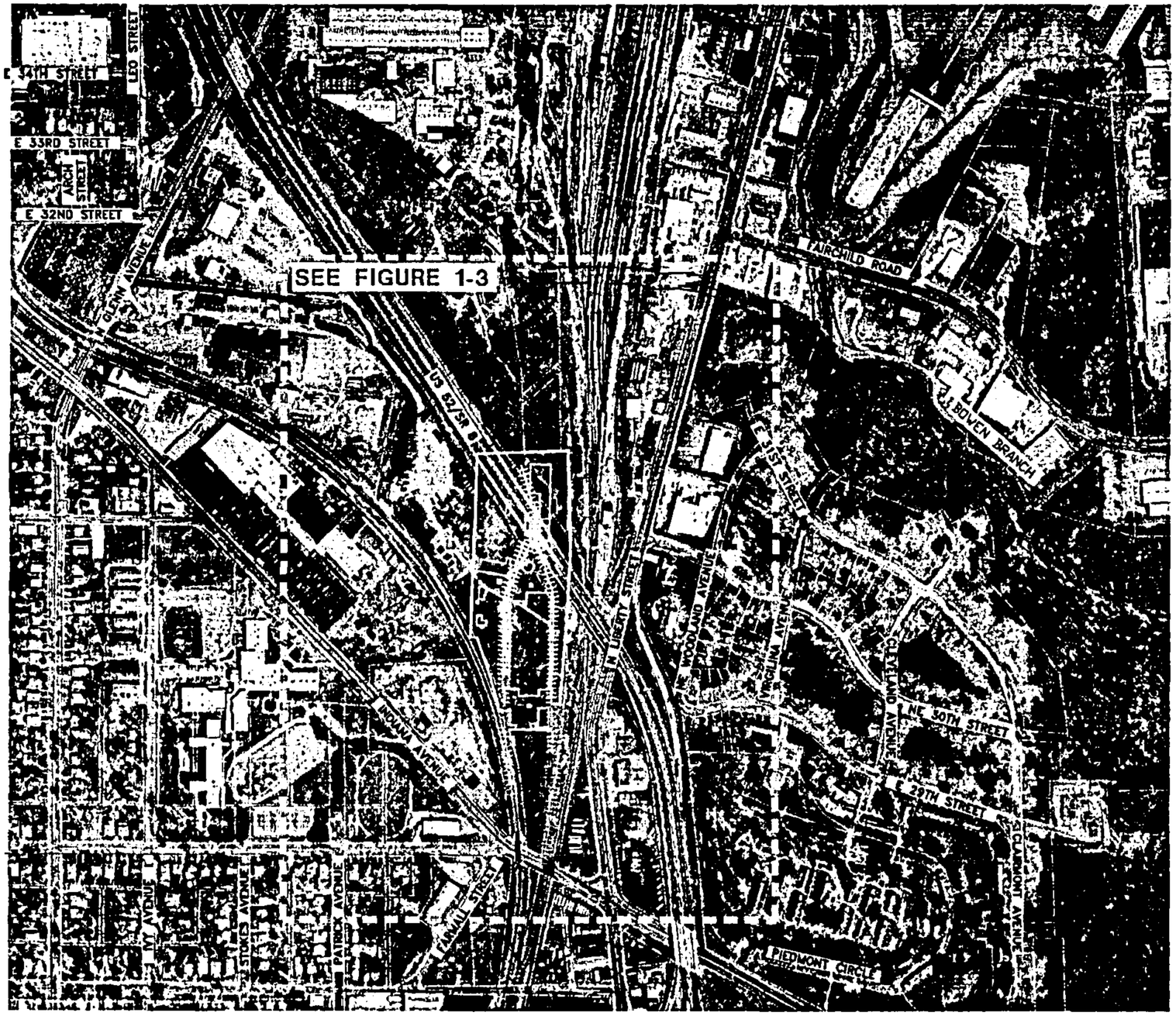
APPROXIMATE GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

SITE LOCATION MAP

ARCADIS

FIGURE 1-1



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1907)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1917 ADDITIONS)
- APPROXIMATE LOCATION OF FORMER RAILROAD SIDINGS (1907 & 1917 PLANT FEATURES)
- APPROXIMATE LOCATION OF SURFACE WATER FEATURES
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2007 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. SURFACE WATER LINE SEGMENTS WERE DIGITIZED FROM A VARIETY OF SOURCES INCLUDING THE USGS 7.5 MIN. QUAD., WALKERTOWN, NC (1951 PHOTOREVISED 1987), FORSYTH COUNTY TAX SHEET 636866 (23-OCT-2000), AND 2002 USGS AERIAL PHOTOGRAPH.
5. ALL LOCATIONS ARE APPROXIMATE.

FORMER STREET NAMES:

NE PATTERSON AVE. (FKA DEPOT ST.)
NORFOLK SOUTHERN RAILROAD (FKA SOUTHERN RR AND ROANOKE SOUTHERN RR)
INDIANA AVE. (FKA INVERNESS AVE.)
FARMALL ST. (FKA OGBURN ST.)
LIBERTY ST. (FKA WALKERTOWN RD.)
FAIRCHILD RD. (FKA NORWOOD ST.)
NORFOLK AND SOUTHERN RAIL YARD AND MAIN LINES (FKA NORFOLK AND WESTERN RAILWAY CO.)

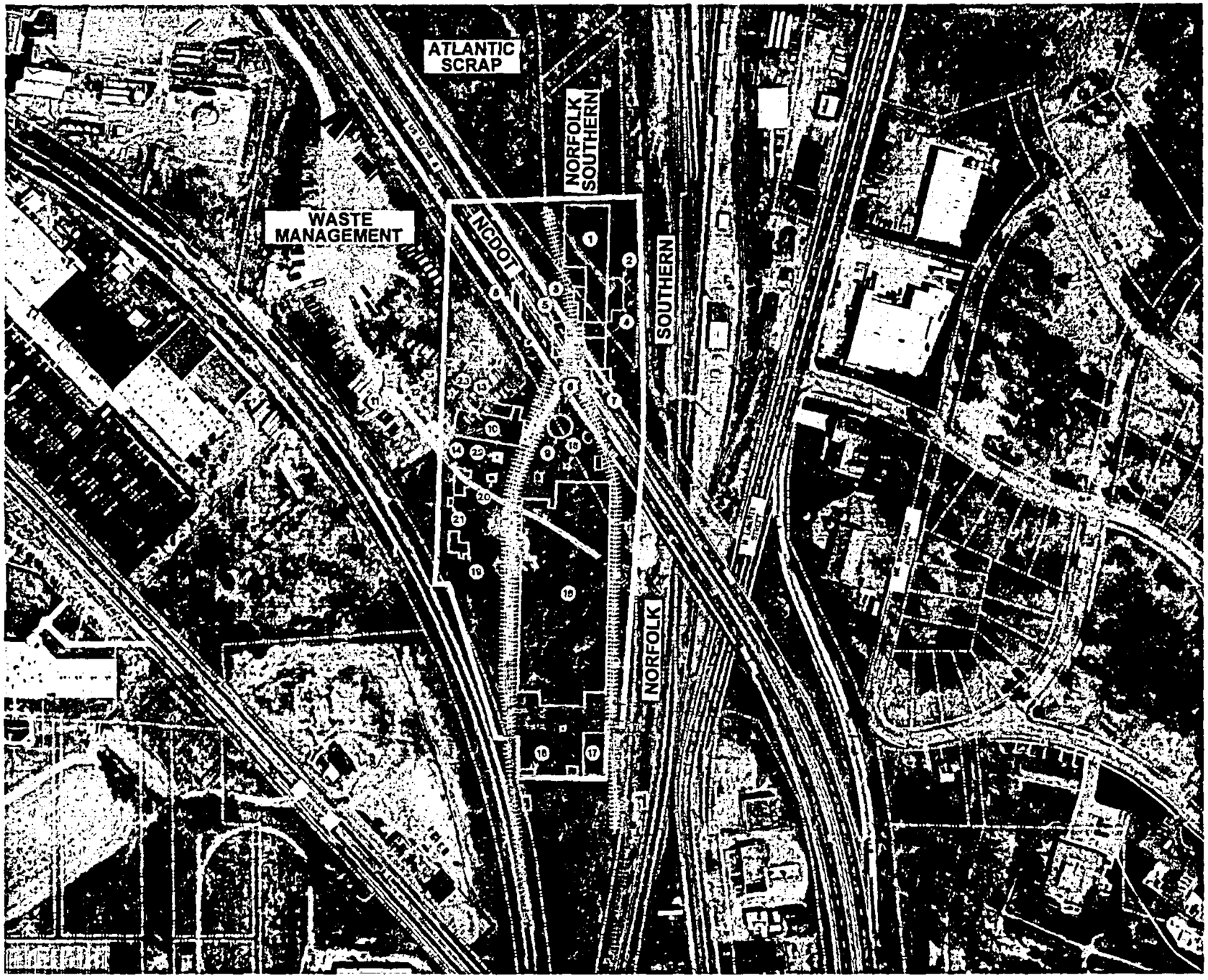
0 450' 900'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND
REMOVAL ACTION WORK PLAN

SITE MAP

ARCADIS

FIGURE 1-2



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1907)
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES (1917 ADDITIONS)
- APPROXIMATE LOCATION OF FORMER RAILROAD SIDINGS (1907 & 1917 PLANT FEATURES)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.

HISTORICAL BUILDING KEY: (#)

1. ACID CHAMBER (BUILT ON AN OLDER ACID CHAMBER, AS SHOWN IN 1900 SANBORN MAP)
2. COMPRESSOR ROOM
3. BURNERS
4. BURNER ROOM (BUILT ON AN OLDER BURNER ROOM, AS SHOWN IN 1900 SANBORN MAP)
5. PYRITES HOUSE
6. NITRE HOUSE
7. BOILER ROOM
8. PUMP HOUSE
9. 100,000 GALLON RESERVOIR
10. TOBACCO STEM WAREHOUSE
11. 54,000 GALLON WATER TOWER
12. STORAGE
13. DRYER
14. OFFICE
15. OIL HOUSE
16. MILL BUILDING (GRINDING, MIXING, STORAGE AND BAGGING OF FERTILIZER)
17. BAG HOUSE
18. LIME HOUSE
19. STORAGE
20. TRANSFORMER HOUSE
21. SCALES
22. 8,000 GALLON TANK
23. CORN CRIB

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 200' 400'
GRAPHIC SCALE

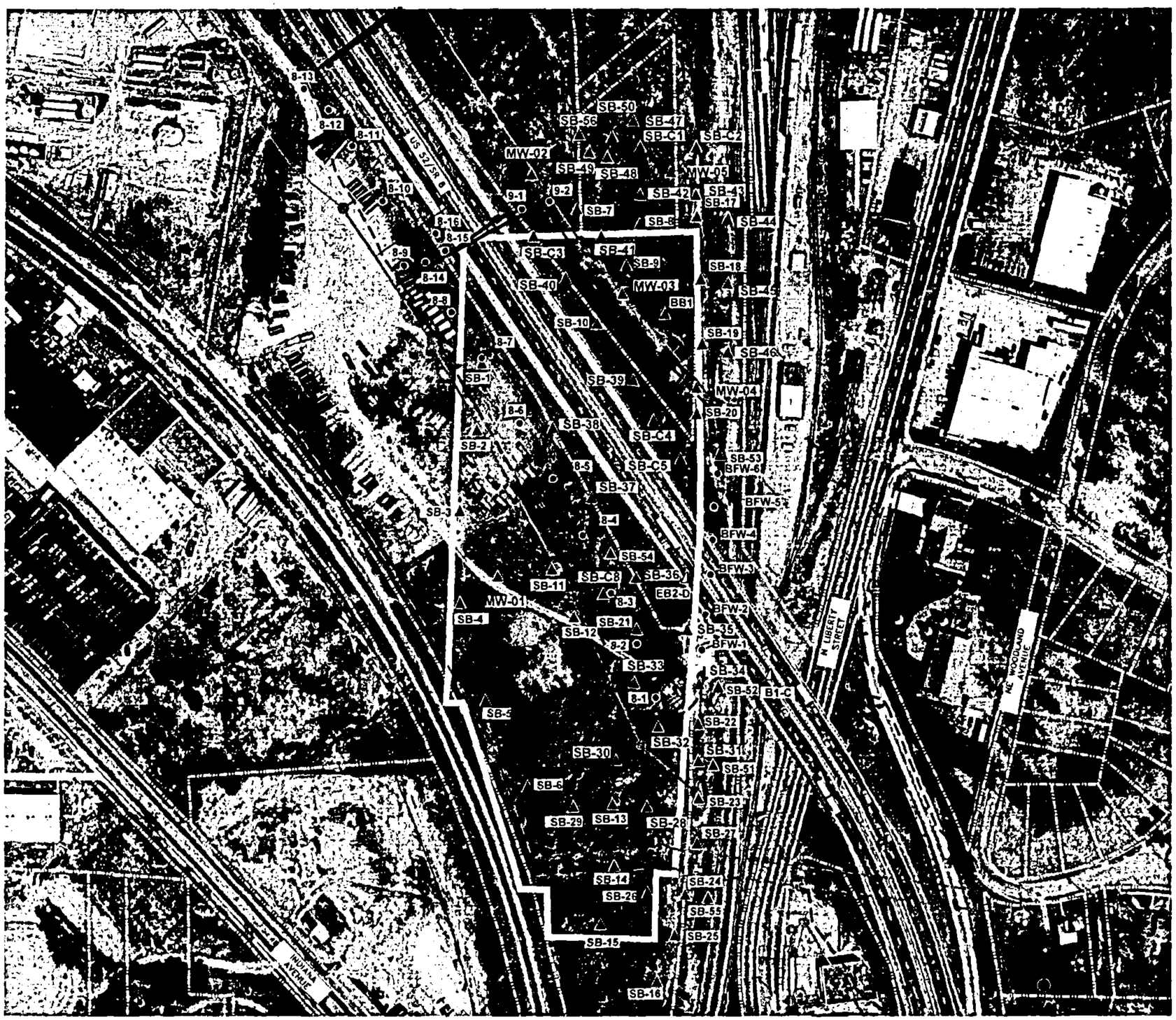
EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

CURRENT AND HISTORICAL SITE FEATURES

ARCADIS

FIGURE 1-3

CITY:CARY DIVGROUP:#1 DB:LELLIS LD:(Opt) PC:(Opt) PM:Rem0 TM:(Opt) LYR:(Opt)ON*;OFF*;REF*
G:\ENVCAD\Cary\ACTIVE\60057270\01100\01\MAP\REPORTS\SDR\MXD\60273200s.dwg LAYOUT: 2 SAVED: 10/7/2010 5:22 PM ACADVER: 17.1s (LMS TECH)
USER: 60172000 IMAGES: PROJECTNAME: —



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2009)
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. LOCATIONS 47 – 55 APPROXIMATE ONLY, NOT SURVEYED.
8. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

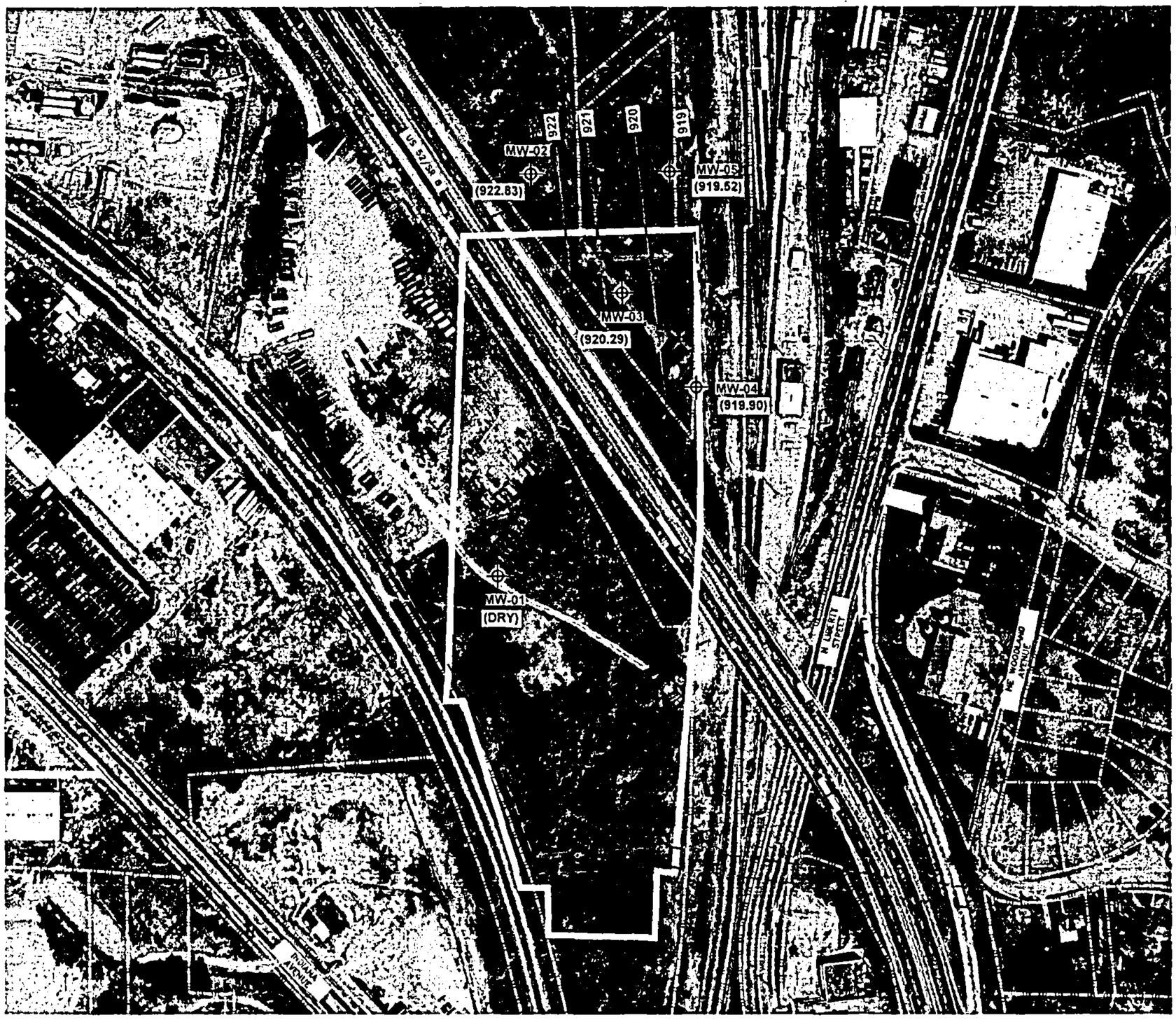
FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

SOIL SAMPLE LOCATIONS

ARCADIS | FIGURE 2-1



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA–CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- GROUNDWATER MONITORING WELL (ARCADIS, 2009)
- (919.52) GROUNDWATER ELEVATION (FT AMSL)
- 920 GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED 11/10/09.
6. MONITORING WELL NAMES BEGIN WITH "WS-".

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

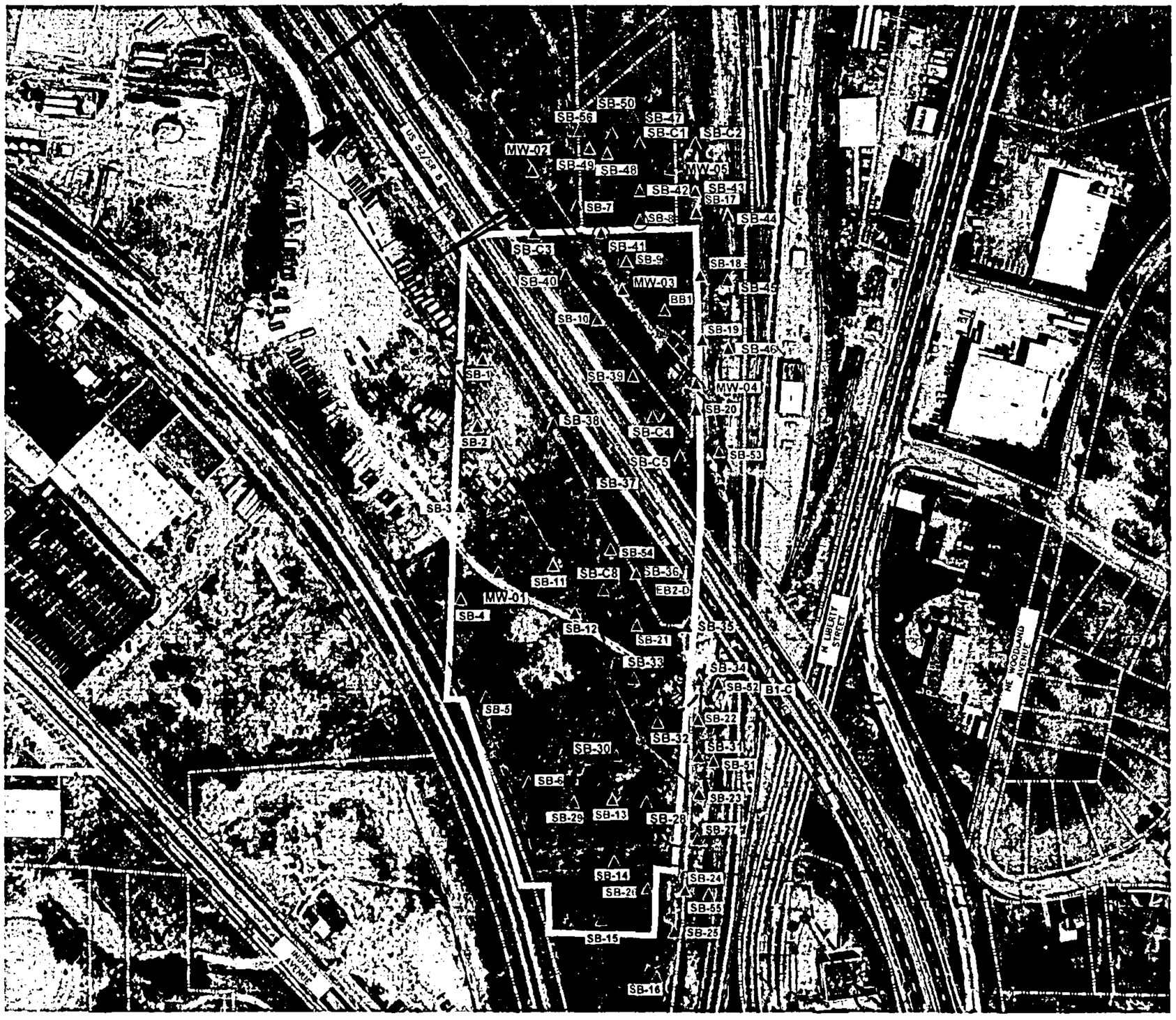
0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

GROUNDWATER MONITORING WELL LOCATIONS

ARCADIS

FIGURE 2-2



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- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009)
- APPROXIMATE LOCATION OF SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (ARCADIS, 2008)
- APPROXIMATE LOCATION OF SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- SOIL BORING WITH LEAD CONCENTRATION EXCEEDING TOXICITY CHARACTERISTIC LEACHING PROCEDURE CRITERIA

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. LOCATIONS 47 – 55 APPROXIMATE ONLY, NOT SURVEYED.
8. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:

INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 160' 320'

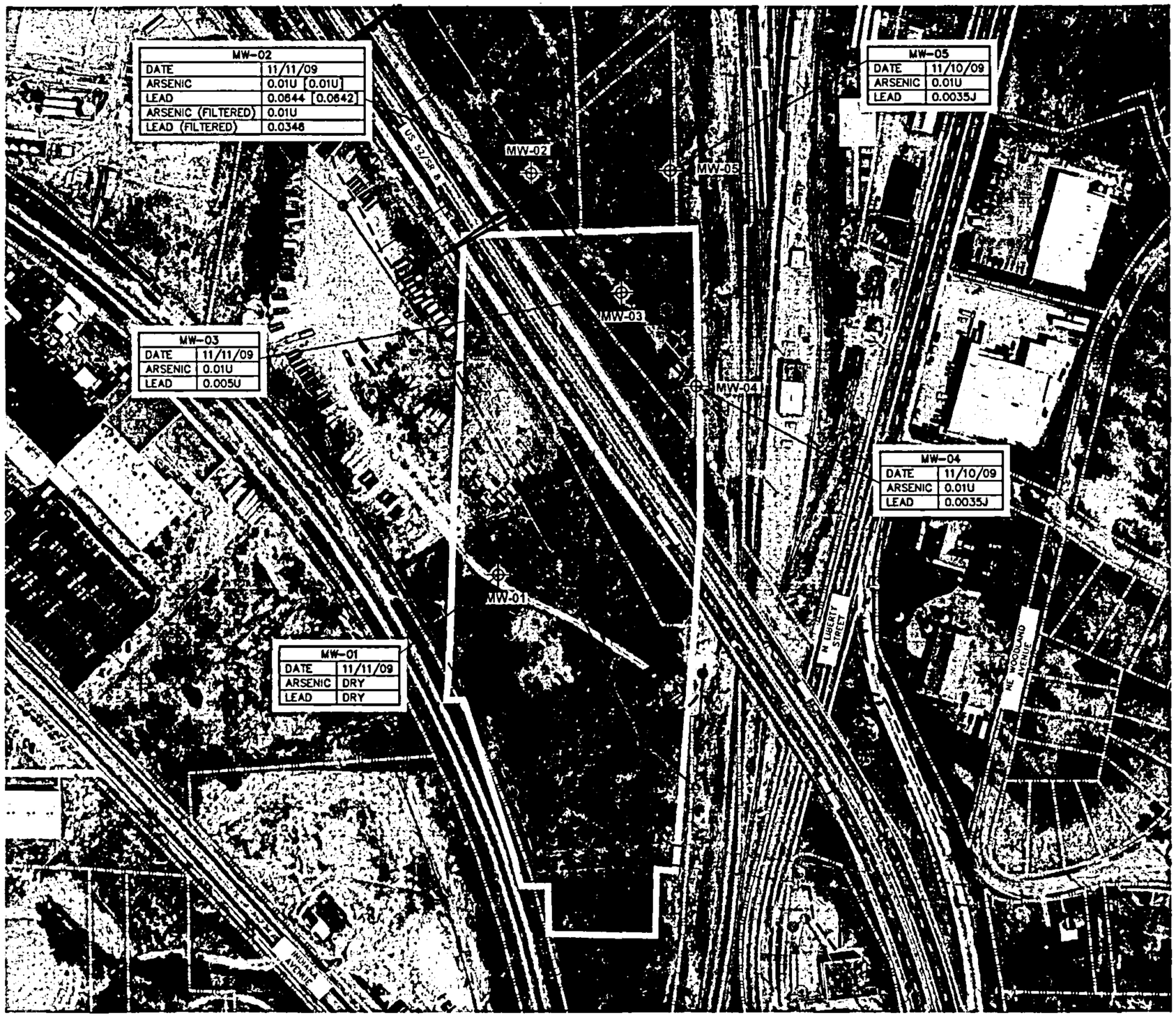
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

LOCATIONS OF SOIL SAMPLES EXCEEDING SCREENING LEVELS

ARCADIS

FIGURE 3-1



LEGEND:

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- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- GROUNDWATER MONITORING WELL (ARCADIS, 2009)
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE

ACTION LEVELS	NC 2L
ARSENIC	0.05
LEAD	0.015

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. U = THE COMPOUND WAS NOT DETECTED.
6. J = THE CONCENTRATION IS AN ESTIMATED VALUE.
7. GROUNDWATER RESULTS ARE PRESENTED IN MILLIGRAMS PER LITER (mg/L).
8. GROUNDWATER ACTION LEVELS ARE THE NCDENR NC 2L GROUNDWATER LEVELS.
9. HIGHLIGHTED VALUES EXCEED THE ACTION LEVEL.
10. MONITORING WELL NAMES BEGIN WITH "WS-".

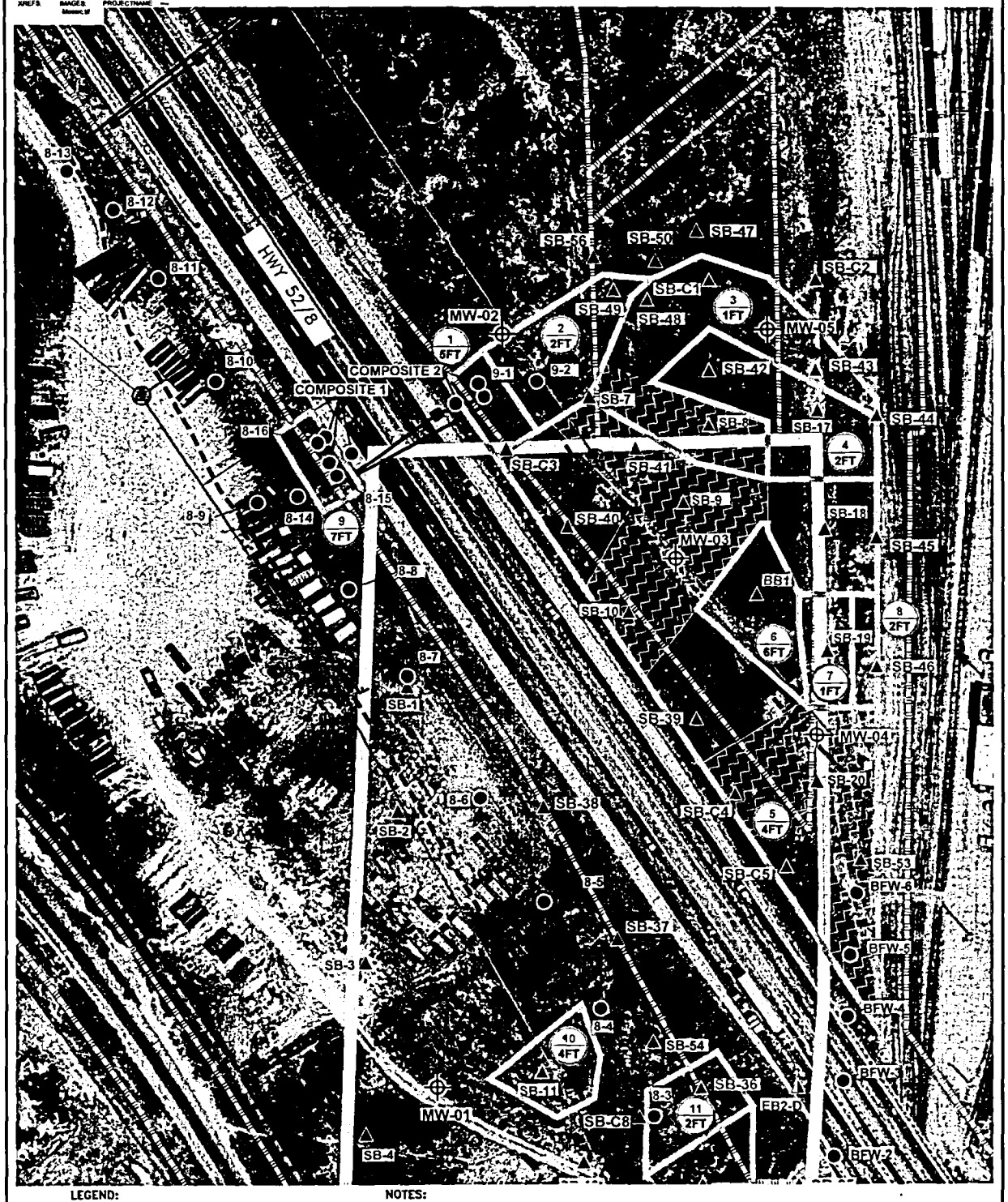
FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

GROUNDWATER ANALYTICAL DATA

ARCADIS | FIGURE 3-2



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- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)
- SOILS EXCEED TCLP CRITERIA FOR LEAD

NOTES:

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2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

0 80' 160'
GRAPHIC SCALE

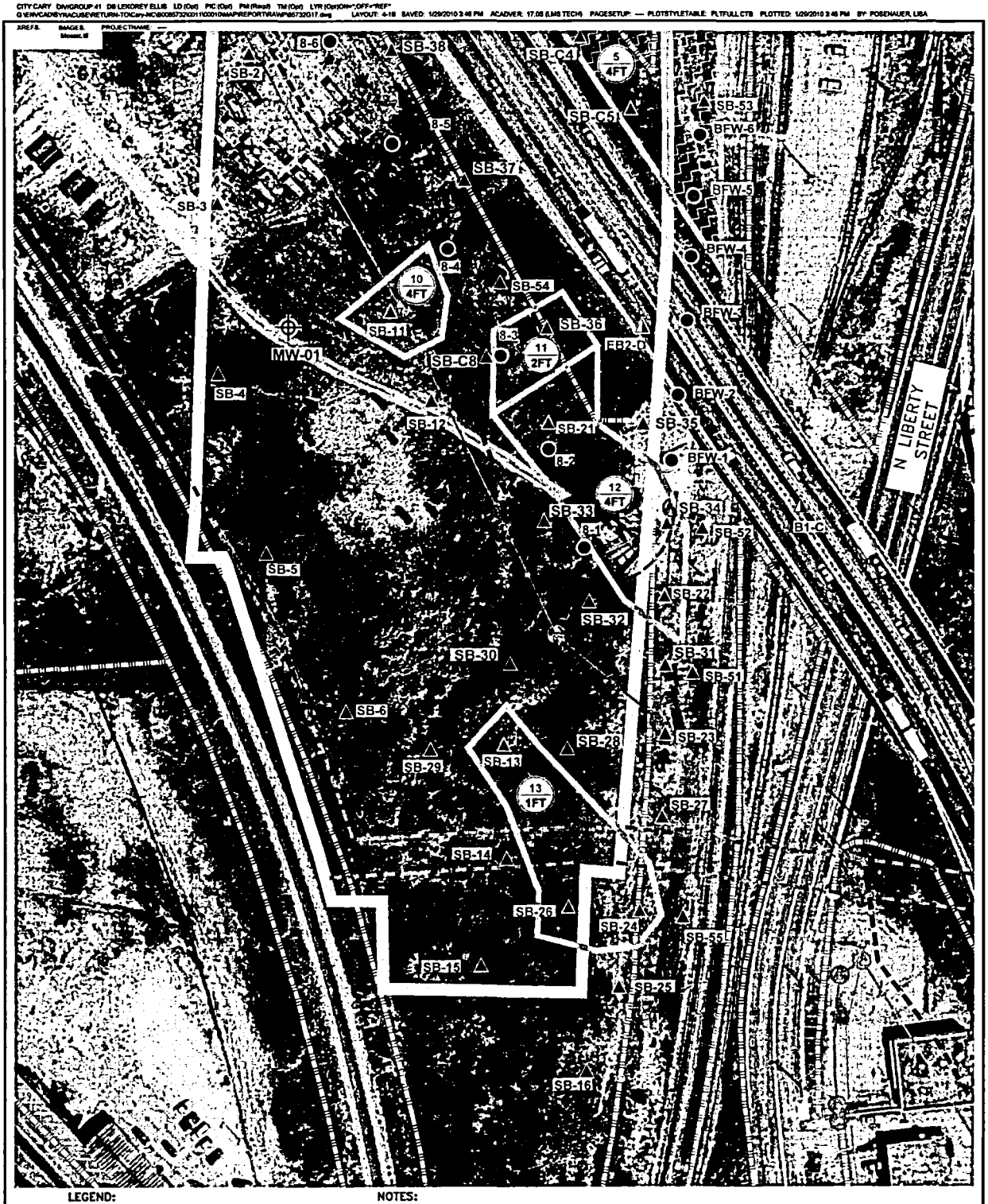
FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

SOIL REMOVAL AREAS AND DEPTHS - NORTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE 4-1A



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- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)

NOTES:

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2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
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6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

0 80' 160'
GRAPHIC SCALE

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

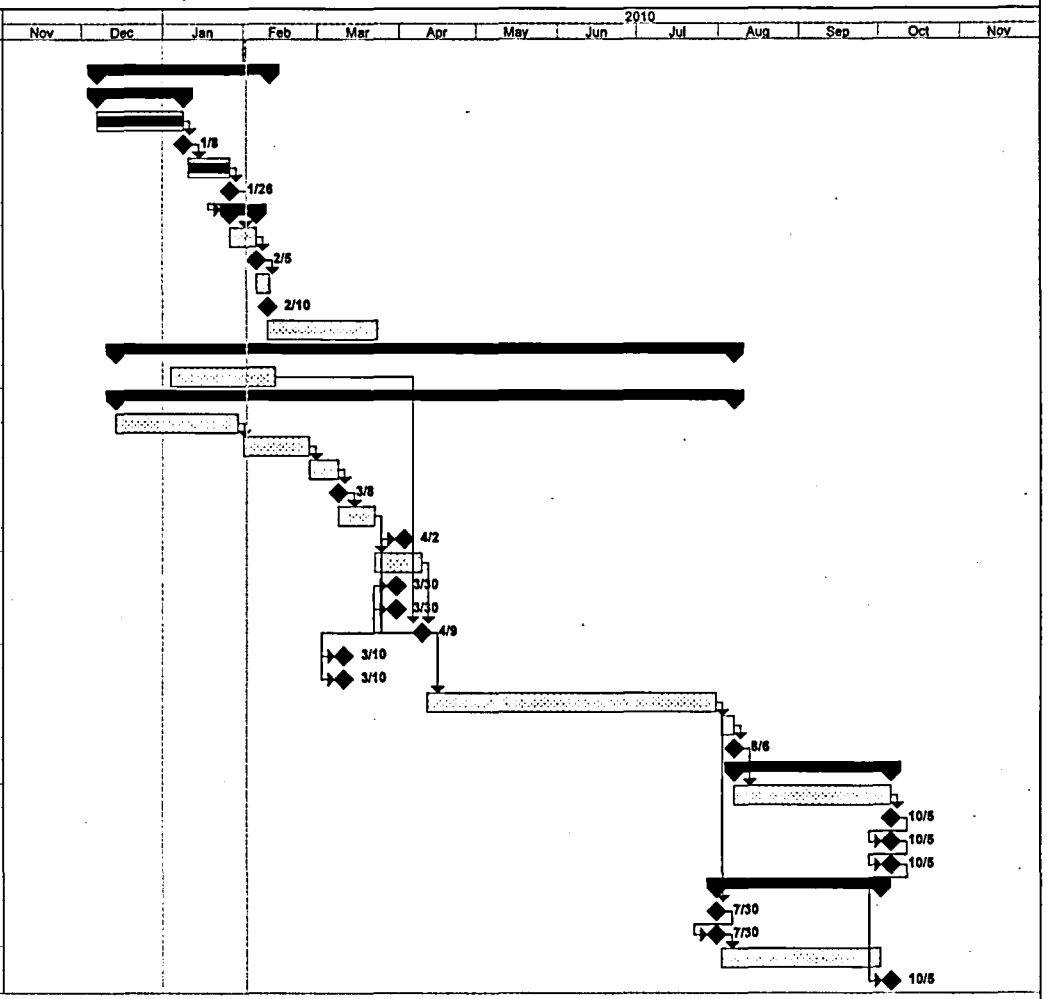
SOIL REMOVAL AREAS AND DEPTHS - SOUTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE
4-1B

Figure 5-1
Project Schedule
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

ID	Task Name	Duration	Start Date	Finish Date
1	**AOC Effective Date**	1 d	Mon 2/1/10	Mon 2/1/10
2	**Site Delineation Report and Removal Action Work Plan (RAWP)**	48 d	Mon 12/7/09	Wed 2/10/10
3	**Prepare SDR/RAWP**	25 d	Mon 12/7/09	Fri 1/8/10
4	Prepare Draft SDR/RAWP	25 d	Mon 12/7/09	Fri 1/8/10
5	Submit Draft Data SDR/RAWP to USEPA and NCDENR	0 d	Fri 1/8/10	Fri 1/8/10
6	USEPA and NCDENR Review	12 d	Mon 1/11/10	Tue 1/26/10
7	USEPA and NCDENR Submits Comments	0 d	Tue 1/26/10	Tue 1/26/10
8	**Prepare Final SDR/RAWP**	8 d	Wed 1/27/10	Fri 2/5/10
9	Prepare Final SDR/RAWP	8 d	Wed 1/27/10	Fri 2/5/10
10	Submit Revised SDR/RAWP to USEPA and NCDENR	0 d	Fri 2/5/10	Fri 2/5/10
11	USEPA and NCDENR Review Revised SDR/RAWP	5 ed	Fri 2/5/10	Wed 2/10/10
12	USEPA Approves SDR/RAWP	0 d	Wed 2/10/10	Wed 2/10/10
13	**Public Comment Period**	30 d	Wed 2/10/10	Tue 3/23/10
14	**Removal Action**	170 d	Mon 12/14/09	Fri 8/6/10
15	Obtain Access Agreements for Removal	40 ed	Mon 1/4/10	Sat 2/13/10
16	**Implement Removal Action**	170 d	Mon 12/14/09	Fri 8/6/10
17	Prepare Contractor Bid Documents	35 d	Mon 12/14/09	Fri 1/29/10
18	Contractor Bid Period	19 d	Mon 2/1/10	Thu 2/25/10
19	Evaluate/Select Contractor	7 d	Fri 2/26/10	Mon 3/8/10
20	Submit Contractor Name/Quals. to USEPA	0 d	Mon 3/8/10	Mon 3/8/10
21	USEPA Approves Contractor	10 d	Tue 3/9/10	Mon 3/22/10
22	Submit Contractor Insurance Certs. To USEPA	0 d	Fri 4/2/10	Fri 4/2/10
23	Contractor Submittal Process	14 d	Tue 3/23/10	Fri 4/9/10
24	Notify USEPA of Onset of Construction	0 d	Tue 3/30/10	Tue 3/30/10
25	Notify Residents of Onset of Construction	0 d	Tue 3/30/10	Tue 3/30/10
26	Mobilize to Site	0 d	Fri 4/9/10	Fri 4/9/10
27	Obtain USEPA Cert. of Waste Receiving Facility	0 d	Wed 3/10/10	Wed 3/10/10
28	Notify EPA of Waste Shipments	0 d	Wed 3/10/10	Wed 3/10/10
29	Perform Removal Action	4 mons	Mon 4/12/10	Fri 7/30/10
30	Demobilize from Site	5 d	Mon 8/2/10	Fri 8/6/10
31	Removal Action Complete	0 d	Fri 8/6/10	Fri 8/6/10
32	**Removal Action Summary Report**	42 d	Fri 8/6/10	Tue 10/5/10
33	Prepare Report	60 ed	Fri 8/6/10	Tue 10/5/10
34	Submit Report to USEPA	0 d	Tue 10/5/10	Tue 10/5/10
35	USEPA Reviews Report	0 d	Tue 10/5/10	Tue 10/5/10
36	USEPA Approves Report	0 d	Tue 10/5/10	Tue 10/5/10
37	**Post-Removal Site Control (TBD)**	45 d	Fri 7/30/10	Fri 10/1/10
38	Submit Proposal for Post-Removal Site Control	0 d	Fri 7/30/10	Fri 7/30/10
39	USEPA Approves Post Removal Site Control	0 d	Fri 7/30/10	Fri 7/30/10
40	Secure Agreements for Post Removal Site Controls	45 d	Mon 8/2/10	Fri 10/1/10
41	**Project Completion**	0 d	Tue 10/5/10	Tue 10/5/10



ARCADIS
11000 Regency Parkway, Suite 205
Cary, NC 27518

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

February 4, 2010

EUGENE A. CONTI, JR.
SECRETARY

Steven Schmidt
ExxonMobil Environmental Services Company
3225 Gallows Road (Rm 8B0829)
Fairfax, VA 22037

SENT VIA PDF EMAIL

TIP:	U-2826A
County:	Forsyth
Description:	US 52 Bridge Replacement over Liberty Street and NSRR in Winston Salem

SUBJECT: NCDOT Comments on the Former Virginia Carolina Chemical Site Delineation Report and Removal Action Work Plan

Dear Mr. Schmidt:

NCDOT and our consultant Hart and Hickman have reviewed the Site Delineation Report and Removal Action Work Plan dated January 2010. Our comments are detailed in the enclosed response prepared by Hart and Hickman and are summarized as follows:

- Impacted soils should be removed to approximately 1 to 2 feet below impacted areas.
- Post excavation confirmation samples should be analyzed for the specific PAHs and/or metals detected during the site assessment phase.
- Expand excavation Area 9 and Area 11 to address Environmental Investigation's Boring P8GP3 and Hart and Hickman's boring 8-3 respectively.
- Post excavation confirmation sampling should be performed at a higher frequency than proposed.

Sincerely,

Cyrus Parker, LG, PE
GeoEnvironmental Supervisor
Geotechnical Engineering Unit

Enclosure
CC: Matt Pelton, PE, Arcadis (w/ enclosure)
Matt Bramblett, PE, Hart and Hickman (w/enclosure)
Marty McCracken, NC Attorney General's Office (w/ enclosure)
Roger Thomas, PE, NCDOT Roadway Design (w/ enclosure)
Keith Raulston, PE, NCDOT Construction Engineer (w/ enclosure)
Njoroge Wainaina, PE, NCDOT Geotechnical Engineer (w/ enclosure)
David Mattison, NCDENR (w/ enclosure)

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237

www.ncdot.gov

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Hart & Hickman
A Professional Corporation
Our Clients Demand A Smarter Solution

2923 South Tryon Street
Suite 100 Charlotte, NC
28203-5449

704-586-0007 phone
704-586-0373 fax
www.harthickman.com

Via Email and US Mail

February 3, 2010

NC DOT Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, North Carolina 27610

Attention: Mr. Cyrus Parker, LG and PE

Re: Review of New Target Levels and Arcadis' Excavation Work Plan
Parcels #8 to #11
Winston-Salem, Forsyth County, North Carolina
State Project U-2826A, WBS Element 34871.1.1
H&H Job No. ROW-204

Dear Cyrus:

1.0 Introduction

As requested by the North Carolina Department of Transportation (DOT), Hart and Hickman, PC (H&H) is submitting this letter in response to recent changes in the North Carolina Department of Environment and Natural Resources – Inactive Hazardous Sites Branch (DENR - IHSB) Protection of Groundwater Soil Remediation Goals (POGSRGs) dated January 2010 and to provide comments on Arcadis' excavation work plan. The soil impacts are apparently related to two former fertilizer manufacturing facilities (Virginia Carolina Chemical (VCC) and Royster Clark) and a former ore processing facility (Carolina Ore). DENR has previously expressed a concern to NC DOT regarding removing or filling over impacted soils that are a threat to groundwater quality. H&H is providing comments on Arcadis' *Site Delineation Report and Removal Action Work Plan* (SDR and RAWP) dated January 2010 regarding removal of impacted soils on the former Virginia Carolina Chemical site and near the former Carolina Ore site (to the extent that those removal actions are relevant to NC DOT). A brief background for this project is discussed below.

2.0 Background

NCDOT is planning road improvements along US Highway 52 near the above-referenced parcels. The DOT project will require soil to be removed from certain areas in the ROW and placed in others (cut and fill areas, respectively). NC DOT is proposing to place soil (including impacted soil) in the road bed and road banks (fill areas) of the proposed Southbound Detour Lane, and the proposed northbound and southbound travel lanes in the VCC and non-VCC areas.

Environmental Investigations, Inc. (EI) completed Preliminary Site Assessments (PSAs) dated October 19, 2005 on Parcels 8, 9, 10 and 11. Impacted soils from historical site uses were identified in proposed DOT work areas on these properties during PSA activities. Based on these results, the primary contaminants of concern in DOT work areas are arsenic and lead. However, a number of other constituents were also detected in soil samples collected by EI and are discussed herein.

H&H completed assessment activities in proposed NC DOT right of ways on Parcel 8 to Parcel 11 in March and May 2009. The *Soil Investigation Report* prepared by H&H was submitted to DOT on June 12, 2009. Soil analytical results indicate there are concentrations of arsenic and lead above DENR target levels within proposed DOT work areas. NC DOT's overall plan for addressing these detections is presented in H&H's June 12, 2009 report.

On behalf of ExxonMobil, Arcadis advanced two soil borings in the VCC area in November 2008. Concentrations of lead and arsenic above target levels were detected in the soil samples collected from boring WS-EB2-D located on the western side of Highway 52 in the VCC area. Arcadis completed additional soil sampling in the VCC area in May 2009. Soil analytical results indicated concentrations of arsenic and lead above DENR target levels in the VCC area. Results of the May 2009 assessment activities are provided in Arcadis *Removal Site Evaluation Report* dated August 2009. Arcadis completed additional soil assessment in

October and November 2009 to further delineate soil impacts and to develop a removal action strategy for impacted soils associated with the VCC site. Five monitoring wells were also installed to assess potential impacts to groundwater in the VCC area. Arcadis November and October 2009 assessment data and the removal action work plan for impacted soil in the VCC area are presented in Arcadis' SDR and RAWP dated January 2010.

H&H has reviewed historical assessment data conducted at the site by EI (for NC DOT), H&H (for NC DOT), and Arcadis (for ExxonMobil). The primary contaminants of concern in DOT work areas are arsenic and lead. Based on the new POGSRG for arsenic, many of the soil samples previously collected in the VCC and non-VCC areas contained arsenic concentrations that exceed the new POGSRG for arsenic. However, groundwater data collected by Arcadis in the downgradient portion of the VCC area do not indicate the presence of arsenic above groundwater standards. Therefore, arsenic does not appear to be leaching to groundwater in or near the VCC area, and the POGSRG for arsenic does not apply in that area.

Several other contaminants of concern (not just arsenic and lead) were detected in soil samples collected by EI above their respective POGSRGs in the VCC and non-VCC areas including volatile organic compounds (VOCs), PAHs, and other metals. A copy of the new POGSRG table is included in Appendix A. Relevant POGSRGs are discussed in Section 3.0. H&H comments relevant to Arcadis SDR and RAWP are discussed in Section 4.0.

3.0 Previous Assessment Data Evaluation – VCC and Non-VCC Area

H&H compared historical soil analytical data collected by EI and H&H from Parcels 8 through Parcel 11 to the new POGSRGs. As discussed in Table 1, H&H evaluated the potential for contaminants above the POGSRG to be a threat to groundwater to determine 1) if impacted soil can be used as beneficial fill soil in the nearby proposed Southbound Detour Lane and the proposed northbound and southbound travel lanes and 2) if remaining impacted

soils that are a threat to groundwater may be rendered inaccessible by proposed DOT filling activities.

Soil samples collected by EI and H&H with arsenic detections above the new POGSRG are located on Parcel 8 near the VCC area, near the bridge foundation wall (between Parcel 8 and 9), near the northeastern boundary of the Royster Clark property, and on the east side of Highway 52 on Parcel 9. Based on historical arsenic TCLP leachate analytical results and recent Arcadis groundwater sampling analytical results, arsenic does not appear to be a significant threat to groundwater in these areas. However, because arsenic was previously detected in groundwater samples collected from monitoring wells on the Royster Clark property, additional groundwater sampling for arsenic is recommended to attempt to show that arsenic in soil is not a threat to groundwater near the Royster Clark site. Existing Royster Clark monitoring wells MW-3, MW-5, and/or MW-9 may be available to evaluate arsenic in groundwater. Low turbidity samples should be collected for arsenic analysis. Arsenic results from the groundwater sampling previously conducted by RMT Integrated Environmental Solutions (RMT) on the Royster Clark facility are included in Appendix B.

Other contaminants of concern detected in soil samples collected by EI above the POGSRGs include PCE and selenium. As discussed in Table 1, PCE and selenium do not appear to pose a significant threat to groundwater. Additionally, various metals and VOCs were detected in soil samples above their respective POGSRGs on Parcel 9 and Parcel 11. However, the location of these soil samples are outside of DOT cut and fill work areas, and soils will not be disturbed in those areas.

Specific sample locations, concerns, and evaluations of the above mentioned contaminants are provided in Table 1. EI soil sample locations and analytical results are presented on EI's PSA tables and figures included Appendix C. H&H soil sample locations and analytical results are included in H&H's *Soil Investigation Report* dated June 12, 2009.

4.0 Review of Arcadis' Work Plan Relevant to DOT

H&H has reviewed Arcadis' SDR and RAWP and has prepared these comments based on historical assessment activities conducted at the site (Table 2). Based on Arcadis' SDR and RAWP, arsenic and lead impacted soils will be excavated to various depths within thirteen individual sub-areas in the VCC area and near the former Carolina Ore site. Once impacted soils are removed, soil will be field screened to confirm that impacts have been removed prior to post-excavation soil confirmation sampling and subsequent backfilling. Laboratory confirmation sampling will include analysis for arsenic and lead. H&H's comments provided in Table 2 are presented as they relate to Arcadis proposed impacted soil removal and DOT work areas.

As discussed in Table 2, H&H compared previous assessment data above the POGSRGs and depths of impacted soil to the horizontal and vertical limits of Arcadis proposed soil removal sub-areas. Based on historical assessment data, there are two impacted soil areas located on the west side of Highway 52 in the VCC area where no excavation activities are proposed by Arcadis. Additionally, there are impacted soil areas near the proposed piping on Parcel 8 and Parcel 9 where Arcadis proposed excavation sub-areas do not extend to the depth of impacts or the proposed excavation sub-area ends at the depth of the impacted sample location. Arcadis proposed depth of soil removal is 2 ft near the magenta colored soils. Although the depth and extent of the magenta soils are not defined, Arcadis indicated that they will be excavating the magenta colored soils. Additionally, historical soil sample analytical data indicate that various PAHs and metals were detected above POGSRGs in several soil samples previously collected in the VCC area; however, Arcadis confirmation sampling only includes analysis for arsenic and lead.

Based on these concerns, DOT should ask ExxonMobil to remove impacted soils to approximately 1 to 2 ft below each of the impacted areas as described in Table 2. Because various PAHs and other metals concentrations were detected in several sample locations,

DOT should ask ExxonMobil to include analysis for the specific PAHs and/or metals detected at each location during post excavation confirmation sampling. H&H also recommends that Arcadis collect post-excavation confirmation samples at a higher frequency than proposed to ensure that impacted soils have been adequately removed from the site.

Deep arsenic impacts (in WS-EB2-D 38.5 to 40 ft) were also previously identified beneath the western side of Highway 52 near in the VCC area. Due to the location and depth of impacts in this boring, it is not feasible to remove arsenic impacted soil below the existing highway. There was also a minor lead detection (278 mg/kg) in a shallow soil sample collected from WS-EB2-D that will not be excavated. There are no other known impacts below Highway 52 and no soil removal is planned under Highway 52 or its embankments during DOT road improvements. In addition, groundwater arsenic and lead data collected by Arcadis downgradient of the existing Highway 52 did not contain impacts that would suggest that soils beneath the existing Highway 52 are a significant threat to groundwater.

Specific sample locations and soil removal area concerns and evaluations are presented in Table 2. Historical EI tables and figures are included Appendix C. Relevant tables and figures from Arcadis SDR and RAWP are included in Appendix D.

5.0 Summary

H&H has reviewed historical assessment data conducted in the VCC and non-VCC areas on Parcels 8 through Parcel 11. Based on H&H's evaluation, contaminants above their respective POGSRGs are not likely to be a threat to groundwater. However, because arsenic was detected in groundwater samples near the Royster Clark property, additional groundwater sampling for arsenic is recommended to attempt to show that arsenic in soil is not a threat to groundwater in the area of the former Royster Clark facility.

H&H has also provided comments on Arcadis SDR and RAWP. Based on review of Arcadis proposed excavation sub-areas in the VCC area, additional soil removal should be conducted in several locations. Confirmation sampling should conducted at a higher frequency and include specific analyses for all constituents previously detected above DENR target levels.

Should you have questions or require additional information, please do not hesitate to contact us at 704.586.0007.

Sincerely,
Hart and Hickman, PC

David Graham
Senior Project Geologist

Matt Bramblett, PE
Principal

Attachments

Table 1 (Page 1 of 3)
VCC Area and Non-VCC Area Data Evaluation
State Project U-2826A - WBS Element 34871.1.1
Winston-Salem, North Carolina
H&H Job No. ROW-204

Area	Parcel	Concern	Evaluation
VCC Area	Parcel 8	Arsenic detections soil samples 8-3 (8.8 mg/kg) and 8-4 (8.3 mg/kg) collected by Hart & Hickman (H&H) on the west side of Highway 52 exceed the POGSRG (5.8 mg/kg).	According to Arcadis *Site Delineation Report and Removal Action Work Plan* dated January 2010, no arsenic was detected in downgradient monitoring well MW-4 sampled in November 2009. Based on these data arsenic does not appear to be a threat to groundwater.
VCC Area	Parcel 8	Detections of arsenic in shallow soil samples P8HA36 (6.55 mg/kg) and P8HA39 (9.43 mg/kg) collected by Environmental Investigations, Inc. (EI) on the west side o Highway 52 near the proposed drainage piping area exceed the POGSRG (5.8 mg/kg).	According to Arcadis *Site Delineation Report and Removal Action Work Plan* dated January 2010, no arsenic was detected in downgradient monitoring well MW-2 sampled in November 2009. Based on these data arsenic does not appear to be a threat to groundwater.
VCC Area	Parcel 8	PCE (0.00919 mg/kg) detected in P8GP11 (18-19 ft) on Parcel 8 exceeds the POGSRG (0.005 mg/kg) .	The concentration of PCE does not exceed 20*2L Standard (0.014 ppm).
Royster Clark	Parcel 10 and the Waste Management Property	Arsenic detections ranging from 5.9 mg/kg to 27 mg/kg in soil samples collected by EI and H&H near the northeastern boundary of the Royster Clark property exceed the POGSRG (5.8 mg/kg). Soil samples include P10HA6, P11GP8, P11GP11, and P11HAR (P11GPR on EI map) collected by EI and soil samples collected from soil borings, 10-2 through 10-6 and 10-9 through 10-16 collected by H&H. Based on RMT Integrated Environmental Solutions (RMT)*Results of the June 2004 Groundwater and Surfacewater Sampling Activities* report dated August 31, 2004, arsenic was detected in monitoring wells MW-5, MW-6, and MW-9, located on the Royster Clark property near the subject soil sample locations, above the NC 2L Standard (0.010 mg/L). The arsenic exceedances reported in MW-5 (0.035 mg/L), MW-6 (0.056 mg/L), and MW-9 (0.25 mg/L) may be due to the high turbidity readings measured in each of the collected samples, 700 nephelometric turbidity units (NTUs), 580 NTUs, and 55 NTUs, respectively.	During H&H field activities, the soil sample with the highest arsenic concentration collected in the Royster Clark area was analyzed for TCLP RCRA metals. Arsenic was not detected in the leachate of the sample indicating that arsenic does not appear to be a threat to groundwater (TCLP detection limits were above GW standards). However, because arsenic was detected in nearby monitoring wells in 2004, potentially due to high turbidity readings, these wells should be sampled by DOT with an effort made to to obtain field measured turbidity values of less than 10 NTUs to further show that arsenic detected in soils near Royster Clark are not a threat to groundwater.
Bridge Foundation Wall	Between Parcel 8 and Parcel 9	Arsenic detections ranging from 6.1 mg/kg to 29 mg/kg in soil samples collected from borings BFW-1 through BFW-6 by (H&H) near the existing Bridge Foundation Wall exceed the POGSRG (5.8 mg/kg).	During H&H field activities, the samples (BFW-5 0.5 ft and BFW-5 2 ft) with the highest arsenic concentrations collected near the Bridge Foundation Wall were analyzed for TCLP RCRA metals. Arsenic was not detected in the leachate of the samples indicating that arsenic does not appear to be a threat to groundwater. Additionally, because arsenic was not detected in downgradient monitoring well MW-4 during Arcadis November 2009 sampling event, arsenic does not appear to be a threat to groundwater in this area.

Table 1 (Page 2 of 3)
VCC Area and Non-VCC Area Data Evaluation
State Project U-2826A - WBS Element 34871.1.1
Winston-Salem, North Carolina
H&H Job No. ROW-204

Area	Parcel	Concern	Evaluation
Royster Clark & Atlantic Scrap and Processing, LLC	Parcel 9 and Parcel 11	Selenium detections in soil samples P9GP21 (2.73 mg/kg), P9GP22 (2.22 mg/kg), P9GP23 (2.59 mg/kg), and P9GP25 (2.52 mg/kg) on Parcel 9 and P11GP8 (3.37 mg/kg) collected by EI exceed the POGSRG (5.8 mg/kg).	1995 groundwater data collected at Royster Clark (MW-3) does not indicate selenium impacts in groudwater. Well MW-3 is within 100 ft of the highest selenium detection in soil (P11GP8).
Atlantic Scrap and Processing, LLC	Parcel 9	PCE (0.0102 mg/kg) detected in P9GP-41 (16 ft) collected by EI on the east side of Highway 52 (Parcel 9) exceeds the DENR IHSB POG (0.005 mg/kg).	The concentration of PCE does not exceed 20*2L Standard (0.014 ppm).
Atlantic Scrap and Processing, LLC	Parcel 9	Arsenic (7.01 mg/kg) and lead (343 mg/kg) detected in P9GP23 (14 ft) collected by EI on the east side of Highway 52 (Parcel 9) exceed the POGSRGs (5.8 mg/kg and 270 mg/kg, respectively).	Utilize asenic data from the resampling of upgrdient wells MW-5, MW-6 and MW-9 located on the Royster Clark property to show that arsenic in this area is not a threat to groundwater. Additionally, H&H evaluated the potential for detected leachate concentrations to impact ground water in samples that were analzed for TCLP RCRA metals during H&H field activities. The highest detected TCLP concentration (0.26 mg/L) exceeds the 2L Standard of 0.015 mg/L. Using a default ground water dilution attenuation factor of 20 the resulting lead concentration in ground water (0.013 mg/L) is lower than the 2L standard. Based on these data, lead impacts do not appear to be a threat to ground water.
Project Area	Parcel 8 to Parcel 11	A limited number of chromium detections ranging from 1.14 mg/kg to 49.7 mg/kg were reported in samples collected by EI across the project area.	Literature values indicate the average chromium background concentration in North Carolina is 65 mg/kg. There are no detections above the published value for chromium and detections at the site do not exceed the screening level for chromium III. H&H has no reason to believe that hexavalent chromium may be present. Based on available data, chromium is naturally occurring. Published chromium detections taken from Elements in North American Soils Second Edition, 2005.

Table 1 (Page 3 of 3)
VCC Area and Non-VCC Area Data Evaluation
State Project U-2826A - WBS Element 34871.1.1
Winston-Salem, North Carolina
H&H Job No. ROW-204

Area	Parcel	Concern	Evaluation
Waste Management and Atlantic Scrap and Processing, LLC	Parcel 9 and 11	Parcel 9 Arsenic and lead detected in EI samples P9GP6 - 2 ft (8.51 mg/kg and 303 mg/kg) and P9GP11 - 1 ft (134 mg/kg and 2,000 mg/kg) exceed POGSRGs (5.8 mg/kg and 270 mg/kg, respectively). Arsenic detected in EI samples P9GP33-14 ft (5.92 mg/kg) and P9GP39-5 ft (8.76mg/kg) exceed the POGSRG (5.4 mg/kg). PCE (0.0695 mg/kg) detected in EI sample P9GP40 (5 - 6 ft) exceeds the POGSRG (0.005 mg/kg). Selenium detections in samples P9GP6, P9GP32, P9GP38, P9GP39, P9GP40, P9GP45 ranging from 2.18 mg/kg to 2.87 mg/kg collected by EI exceed the POGSRG (2.1 mg/kg). Parcel 11 Arsenic (12.7 mg/kg), PCE (0.00941 mg/kg), and 1,2-dichloropropane (0.0141 mg/kg) detected in EI sample P11GP4 (20 ft) exceed POGSRGs (5.8 mg/kg, 0.0050 mg/kg and 0.0033 mg/kg, respectively) Selenium detction in P11GP3 (3.51 mg/kg) collected by EI exceeds the POGSRG (2.1 mg/kg).	The locations of these soil samples are outside of DOT cut and fill work areas.

Table 2 (Page 1 of 3)
Review of Arcadis Work Plan Relavent to NC DOT
State Project U-2826A - WBS Element 34871.1.1
Winston-Salem, North Carolina
H&H Job No. ROW-204

Concern	Evaluation
Lead detecton (310 mg/kg) in soil sample 8-3 0.5 ft collected by H&H on the west side of Highway 52 in the VCC area on Parcel 8 exceeds the POGSRG (270 mg/kg).	Arcadis is removing impacted soils to a depth of 2 ft approximately 20 ft to the east of this location; however, no excavation is planned at sample location 8-3. A concentration of lead (0.11 mg/L) was also detected in the TCLP leacheate tha was analyzed from sample 8-3 above the 2L Standard (0.015 mg/L). However, using a default groundwater attenuation factor of 20 the potential lead concentration in groundwater (0.0055 mg/L) is below the 2L Standard. Additionally, no lead concentrations were detected above the DENR IHSB POG in nearby Arcadis sample SB-C8. Although the lead concentration from boring 8 3 does not appear to be a threat to groundwater, DOT should ask ExxonMobil to excavate impacted soil to a depth of 1 - 2 ft at sample 8-3 (0.5 ft).
Arsenic (7.3 mg/kg) and lead (342 mg/kg) detectons in soil sample P8GP3 (8 ft) collected by EI near the proposed drainage piping in the VCC area or Parcel 8 exceeds POGSRGs (5.8 mg/kg and 270 mg/kg, respectively).	Arcadis is removing impacted soils to a depth of 7 ft in the nearby proposed piping area; however, no excavation is planned near EI sample location P8GP3. DOT should ask ExxonMobil to excavate impacted soil to a depth of 9 - 10 ft in this area and collect post excavation confirmation samples for analysis of arsenic and lead.
Lead detections in H&H soil sample 8-16 (1,500 mg/kg - 2 ft and 1,100 mg/kg - 7 ft) on Parcel 8 and sample 9-1 (860 mg/kg - 5 ft) on Parcel 9 exceed the POGSRG (270 mg/kg).	Arcadis plans to excavate impacted soils in these areas to depths of 7 ft on Parcel 8 and 5 ft on Parcel 9. DOT should ask ExxonMobil to excavate soils at least 1 ft below the depths of previously detected impacts in these areas prior to collection of confirmation samples.
The lead detecton (348 mg/kg) in soil sample P9GP14 (14 ft) collected by EI in the VCC area on Parcel 9 exceeds the POGSRG (270 mg/kg).	Arcadis is removing impacted soils to a depth of 5 ft in this area; however, the depth of the lead impacted soil is 14 ft bgs. DOT should ask ExxonMobil to further evaluate the potential for lead leaching at P9GP14 or excavate impacted soil to a depth of 15 to 16 ft in this area.
Detections of naphthalene (0.735 mg/kg), arsenic (355 mg/kg), barium (1,450 mg/kg), lead (3,010 mg/kg), selenium (3.61 mg/kg), and silver (14 mg/kg) were detected in soil sample P9GP13 (13 -14 ft) collected by EI near the proposed piping area on Parcel 9 above their respective POGSRGs (0.21 mg/kg, 5.8 mg/kg, 580 mg/kg, 270 mg/kg, 2.1 mg/kg, and 3.4 mg/kg, respectively).	Arcadis is only removing impacted soils to a depth of 5 ft in this area and confirmation sampling will only include analyses for arsenic and lead. DOT should ask ExxonMobil to further evaluate these detections via sampling or to excavate impacted soils to a depth of 15 to 16 ft. DOT should also ask ExxonMobil to include analysis for naphthalene and analysis for barium, selenium, and silver in post excavation confirmation samples collected in this area.

Table 2 (Page 2 of 3)
Review of Arcadis Work Plan Relavent to NC DOT
State Project U-2826A - WBS Element 34871.1.1
Winston-Salem, North Carolina
H&H Job No. ROW-204

Concern	Evaluation
Various PAHs including benzo[a]anthracene (5.95 mg/kg), benzo[a]pyrene (7.56 mg/kg), benzo[b]fluoranthene (9.01 mg/kg) , dibenzo[a,h]anthracene (9.66 mg/kg), and indeno(1,2,3-cd)pyrene (4.6 mg/kg) exceed their POGSRGs (0.18 mg/kg, 0.059 mg/kg, 0.60 mg/kg, 0.19 mg/kg, and 2.0 mg/kg, respectively) in soil sample P9GP1 (3 ft) collected by EI near the Bridge Foundation Wall on Parcel 9. Metals including arsenic (551 mg/kg), barium (1,540 mg/kg), lead (4,140 mg/kg), mercury (7.87 mg/kg), selenium (6.39 mg/kg), and silver (9.08 mg/kg) were also detected above their POGSRGs (5.8 mg/kg, 580 mg/kg, 270 mg/kg, 1.0 mg/kg, 2.1 mg/kg, and 3.4 mg/kg, respectively) in sample P9GP1.	Arcadis is removing impacted soils to a depth of 4 ft in this area; however, confirmation sampling will only include analysis of arsenic and lead. DOT should ask ExxonMobil to include analyses for the specific PAHs and metals that are above their respective POGSRGs in post excavation confirmation samples collected in this area.
Metals including arsenic (48.8 mg/kg), lead (12,300 mg/kg), and selenium (10.5 mg/kg) were detected in soil sample P9GP7 (3 ft) collected by EI in the VCC area on Parcel 9 exceed their respective POGSRGs (5.8 mg/kg, 270 mg/kg, and 2.1 mg/kg, respectively).	Arcadis is removing impacted soils to a depth of 4 ft in this area; however, confirmation sampling will only include analyses for arsenic and lead. DOT should ask ExxonMobil to include analysis for selenium in post excavation confirmation samples collected in this area.
Detections of selenium ranging from 3.03 mg/kg to 4.3 mg/kg in shallow samples P9GP2-1 ft, P9GP3-2 ft, P9GP10-1 ft, and P9GP11-1 ft collected by EI are above the POGSRG (2.1 mg/kg).	Arcadis is removing impacted soils in these areas; however, confirmation sampling will only include analyses for arsenic and lead. DOT should ask ExxonMobil to include analysis for selenium in post excavation confirmation samples collected in these areas.
Magenta colored soils and slag material near the former Carolina Ore ruins on Parcel 9.	Arcadis is removing impacted soils to a depth of 2 ft in this area; however, the depth of the impacted soils may extend beyond 2 ft bgs. DOT should ask ExxonMobil to excavate the vertical extent of impacted magenta colored soils in this area.
Concentrations of lead (278 mg/kg) and arsenic (121 mg/kg) were detected in Arcadis soil sample WS-EB2-D at 3 to 5 ft and 38.5 to 40 ft bgs, respectively, above their POGSRGs (5.8 mg/kg and 270 mg/kg, respectively). Soil boring WS-EB2-D is located along the western side of Highway 52 in the VCC area.	Due to the location and depth of impacts in boring WS-EB2-D, it is not feasible to remove impacted soil below the existing highway. There are no other known impacts below Highway 52 and no soil removal is planned under Highway 52 or its embankments during DOT road improvements.

Table 2 (Page 3 of 3)
Review of Arcadis Work Plan Relavent to NC DOT
State Project U-2826A - WBS Element 34871.1.1
Winston-Salem, North Carolina
H&H Job No. ROW-204

Concern	Evaluation
Arcadis proposes to collect post excavation confirmation samples at a frequency not to exceed one sample (5 point composite) per 10,000 square feet from each individual sub-excavation area.	DOT should request ExxonMobil to increase the frequnecy of composite samples collected per 10,000 square feet to ensure that impacted soils have been removed from the site.

Appendix A

DENR – IHSB – Soil Remediation Goals

INACTIVE HAZARDOUS SITES BRANCH
SOIL REMEDIATION GOALS (SRG)
JANUARY 2010

Both health-based and protection of groundwater remediation goals must be met. The protection of groundwater remediation goals listed on this table are only one alternative for achieving protection of groundwater criteria. Please refer to REC or State-lead Guidance documents for additional information on protection of groundwater remediation goals, procedures for adjusting preliminary remedial goals and other criteria that may affect remediation goals (e.g. ecological receptors, cross-media contamination). In addition, if sensitive environments are present, the branch may require the adjustment of remediation goals and/or the proposed remedial alternative.

Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
ALAR	1596-84-5	2.7E+01	C			
Acephate	30560-19-1	4.9E+01	N			
Acetaldehyde	75-07-0	1.0E+01	C*			
Acetochlor	34256-82-1	2.4E+02	N			
Acetone	67-64-1	1.2E+04	N		2.4E+01	3
Acetone Cyanohydrin	75-86-5	4.1E+01	N			
Acetonitrile	75-05-8	1.7E+02	N			
Acetophenone	98-86-2	1.6E+03	N			
Acetylaminofluorene, 2-	53-96-3	1.3E-01	C			
Acrolein	107-02-8	3.1E-02	N			
Acrylamide	79-06-1	1.1E-01	C		3.3E-05	3
Acrylic Acid	79-10-7	6.0E+03	N			
Acrylonitrile	107-13-1	2.4E-01	C*			
Adiponitrile	111-69-3	1.7E+06	N			
Alachlor	15972-60-8	8.7E+00	C*			
Aldicarb	116-06-3	1.2E+01	N			
Aldicarb Sulfone	1646-88-4	1.2E+01	N			
Aldrin	309-00-2	2.9E-02	C*			
Ally	74223-64-6	3.1E+03	N			
Allyl Alcohol	107-18-6	6.1E+01	N			
Allyl Chloride	107-05-1	3.6E-01	C			
Aluminum	7429-90-5	1.5E+04	N			
Aluminum Phosphide	20859-73-8	6.3E+00	N			
Amdro	67485-29-4	3.7E+00	N			
Ametryn	834-12-8	1.1E+02	N			
Aminobiphenyl, 4-	92-67-1	2.3E-02	C			
Aminophenol, m-	591-27-5	9.8E+02	N			
Aminophenol, p-	123-30-8	2.4E+02	N			
Amitraz	33089-61-1	3.1E+01	N			
Ammonium Perchlorate	7790-98-9	1.1E+01	N			
Ammonium Sulfamate	7773-06-0	3.1E+03	N			
Aniline	62-53-3	8.5E+01	C*			
Antimony (metallic)	7440-36-0	6.3E+00	N			
Antimony Pentoxide	1314-60-9	7.8E+00	N			
Antimony Potassium Tartrate	11071-15-1	1.4E+01	N			
Antimony Tetroxide	1332-81-6	6.3E+00	N			
Antimony Trioxide	1309-64-4	5.7E+04	N			
Apollo	74115-24-5	1.6E+02	N			
Aramite	140-57-8	1.9E+01	C			
Arsenic, Inorganic	7440-38-2	4.4E+00	N	5	5.8E+00	3
Arsine	7784-42-1	5.5E-02	N			
Assure	76578-14-8	1.1E+02	N			

INACTIVE HAZARDOUS SITES BRANCH
SOIL REMEDIATION GOALS (SRG)
JANUARY 2010

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Asulam	3337-71-1	6.1E+02	N			
Atrazine	1912-24-9	2.1E+00	C		2.5E-02	3
Auramine	492-80-8	7.3E-01	C			
Avermectin B1	65195-55-3	4.9E+00	N			
Azobenzene	103-33-3	5.2E+00	C			
Barium	7440-39-3	3.1E+03	N		5.8E+02	3
Baygon	114-26-1	4.9E+01	N			
Bayleton	43121-43-3	3.7E+02	N			
Baythroid	68359-37-5	3.1E+02	N			
Benefin	1861-40-1	3.7E+03	N			
Benomyl	17804-35-2	6.1E+02	N			
Bentazon	25057-89-0	3.7E+02	N			
Benzaldehyde	100-52-7	1.2E+03	Csat	6		
Benzene	71-43-2	1.1E+00	C*		7.3E-03	3
Benzenethiol	108-98-5	1.6E-01	N			
Benzidine	92-87-5	5.0E-04	C,M			
Benzoic Acid	65-85-0	4.9E+04	N		1.3E+02	3
Benzotrichloride	98-07-7	4.9E-02	C			
Benzyl Alcohol	100-51-6	1.2E+03	N			
Benzyl Chloride	100-44-7	1.0E+00	C*			
Beryllium and compounds	7440-41-7	3.1E+01	C			
Bidrin	141-66-2	1.2E+00	N			
Bifenox	42576-02-3	1.1E+02	N			
Biphenthrin	82657-04-3	1.8E+02	N			
Biphenyl, 1,1'-	92-52-4	2.1E+02	Csat		4.3E+01	3
Bis(2-chloro-1-methylethyl) ether	108-60-1	4.6E+00	C			
Bis(2-chloroethoxy)methane	111-91-1	3.7E+01	N			
Bis(2-chloroethyl)ether	111-44-4	2.1E-01	C		1.4E-04	3
Bis(2-ethylhexyl)phthalate	117-81-7	3.5E+01	C*		7.2E+00	3
Bis(chloromethyl)ether	542-88-1	7.7E-05	C			
Bisphenol A	80-05-7	6.1E+02	N			
Boron And Borates Only	7440-42-8	3.1E+03	N		4.5E+01	3
Boron Trifluoride	7637-07-2	6.3E+02	N			
Bromate	15541-45-4	9.1E-01	C			
Bromo-2-chloroethane, 1-	107-04-0	2.4E-02	C			
Bromobenzene	108-86-1	5.9E+01	N			
Bromodichloromethane	75-27-4	2.7E-01	C		2.9E-03	3
Bromoform	75-25-2	6.2E+01	C*		1.9E-02	3
Bromomethane	74-83-9	1.5E+00	N			
Bromophos	2104-96-3	6.1E+01	N			
Bromoxynil	1689-84-5	2.4E+02	N			
Bromoxynil Octanoate	1689-99-2	2.4E+02	N			

INACTIVE HAZARDOUS SITES BRANCH
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Both health-based and protection of groundwater remediation goals must be met. The protection of groundwater remediation goals listed on this table are only one alternative for achieving protection of groundwater criteria. Please refer to REC or State-lead Guidance documents for additional information on protection of groundwater remediation goals, procedures for adjusting preliminary remedial goals and other criteria that may affect remediation goals (e.g. ecological receptors, cross-media contamination). In addition, if sensitive environments are present, the branch may require the adjustment of remediation goals and/or the proposed remedial alternative.

Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Butadiene, 1,3-	106-99-0	5.4E-02	C			
n- Butyl Benzene	104-57-8	N/A			4.3E+00	3
sec-Butyl Benzene	135-98-8	N/A			3.3E+00	3
tert-Butyl Benzene	104-51-8	N/A			3.4E+00	3
Butanol, N-	71-36-3	1.2E+03	N			
Butyl Benzyl Phthlate	85-68-7	2.6E+02	C		1.5E+02	3
Butyl alcohol, sec-	78-92-2	3.1E+04	N			
Butylate	2008-41-5	6.1E+02	N			
Butylated hydroxyanisole	25013-16-5	3.2E+03	C			
Butylphthalyl Butylglycolate	85-70-1	1.2E+04	N			
Cacodylic Acid	75-60-5	2.4E+02	N			
Cadmium	7440-43-9	1.4E+01	C		3.0E+00	3
Caprolactam	105-60-2	6.1E+03	N		1.8E+01	3
Captafol	2425-06-1	3.2E+00	C*			
Captan	133-06-2	2.1E+02	C*			
Carbaryl	63-25-2	1.2E+03	N			
Carbofuran	1563-66-2	6.1E+01	N		2.4E-01	3
Carbon Disulfide	75-15-0	1.6E+02	N		3.8E+00	3
Carbon Tetrachloride	56-23-5	2.5E-01	C		2.0E-03	3
Carbosulfan	55285-14-8	1.2E+02	N			
Carboxin	5234-68-4	1.2E+03	N			
Ceric oxide	1306-38-3	2.6E+05	N			
Chloral Hydrate	302-17-0	1.2E+03	N			
Chloramben	133-90-4	1.8E+02	N			
Chloranil	118-75-2	1.2E+00	C			
Chlordane	12789-03-6	1.6E+00	C*		6.8E-02	3
Chlordecone (Kepone)	143-50-0	4.9E-02	C			
Chlorfenvinphos	470-90-6	8.6E+00	N			
Chlorimuron, Ethyl-	90982-32-4	2.4E+02	N			
Chlorine	7782-50-5	1.5E+03	N			
Chlorine Dioxide	10049-04-4	4.7E+02	N			
Chlorite (Sodium Salt)	7758-19-2	4.7E+02	N			
Chloro-1,1-difluoroethane, 1-	75-68-3	1.2E+03	Csat			
Chloro-1,3-butadiene, 2-	126-99-8	1.7E+00	N			
Chloro-2-methylaniline HCl, 4-	3165-93-3	1.1E+00	C			
Chloroacetic Acid	79-11-8	2.4E+01	N			
Chloroacetophenone, 2-	532-27-4	8.5E+03	N			
Chloroaniline, p-	106-47-8	2.4E+00	C			
Chlorobenzene	108-90-7	5.9E+01	N		4.5E-01	3
Chlorobenzilate	510-15-6	4.4E+00	C			
Chlorobenzoic Acid, p-	74-11-3	3.7E+02	N			
Chlorobenzotrifluoride, 4-	98-56-6	4.3E+01	N			

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Chlorobutane, 1-	109-69-3	6.3E+02	N	6		
Chlorodifluoromethane	75-45-6	1.7E+03	Csat			
Chloroform	67-66-3	3.0E-01	C		3.4E-01	3
Chloromethane	74-87-3	2.4E+01	N		1.5E-02	3
Chloromethyl Methyl Ether	107-30-2	1.9E-02	C			
Chloronaphthalene, Beta-	91-58-7	1.8E+02	Csat			
Chloronitrobenzene, o-	88-73-3	1.6E+00	C*			
Chloronitrobenzene, p-	100-00-5	1.2E+01	C			
Chlorophenol, 2-	95-57-8	7.8E+01	N		4.1E-03	3
Chloropicrin	76-06-2	1.1E+05	N			
Chlorothalonil	1897-45-6	1.6E+02	C*			
Chlorotoluene, o-	95-49-8	3.1E+02	N	6	1.2E+00	3
Chlorotoluene, p-	106-43-4	2.5E+02	Csat			
Chlorozotocin	54749-90-5	2.7E-03	C			
Chlorpropham	101-21-3	2.4E+03	N			
Chlorpyrifos	2921-88-2	3.7E+01	N			
Chlorpyrifos Methyl	5598-13-0	1.2E+02	N			
Chlorsulfuron	64902-72-3	6.1E+02	N			
Chlorthiophos	60238-56-4	9.8E+00	N			
Chromium(III), Insoluble Salts	16065-83-1	2.3E+04	N		3.6E+5	
Chromium(VI)	18540-29-9	2.9E-01	C*		3.8	3
Cobalt	7440-48-4	4.7E+00	C			
Copper	7440-50-8	6.3E+02	N		7.0E+02	3
Cresol, m-	108-39-4	6.1E+02	N		4.0E+00	3
Cresol, o-	95-48-7	6.1E+02	N			
Cresol, p-	106-44-5	6.1E+01	N		4.0E-01	3
Cresol, p-chloro-m-	59-50-7	1.2E+03	N			
Cresols	1319-77-3	1.5E+03	N			
Crotonaldehyde, trans-	123-73-9	3.4E-01	C			
Cumene	98-82-8	2.7E+02	Csat		1.3E+00	3
Cupferron	135-20-6	2.9E+00	N			
Cyanazine	21725-46-2	5.8E-01	N			
Cyanides						
~Calcium Cyanide	592-01-8	6.3E+02	N			
~Copper Cyanide	544-92-3	7.8E+01	N			
~Cyanide (CN-)	57-12-5	3.1E+02	N		2.8E-01	3
~Cyanogen	460-19-5	6.3E+02	N			
~Cyanogen Bromide	506-68-3	1.4E+03	N			
~Cyanogen Chloride	506-77-4	7.8E+02	N			
~Hydrogen Cyanide	74-90-8	3.8E+00	N			
~Potassium Cyanide	151-50-8	7.8E+02	N			
~Potassium Silver Cyanide	506-61-6	3.1E+03	N			

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
~Silver Cyanide	506-64-9	1.6E+03	N			
~Sodium Cyanide	143-33-9	6.3E+02	N			
~Thiocyanate	463-56-9	3.1E+00	N			
~Zinc Cyanide	557-21-1	7.8E+02	N			
Cyclohexane	110-82-7	1.2E+02	Csat			
Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	2.1E+01	C			
Cyclohexanone	108-94-1	6.1E+04	N			
Cyclohexylamine	108-91-8	2.4E+03	N			
Cyhalothrin/karate	68085-85-8	6.1E+01	N			
Cypermethrin	52315-07-8	1.2E+02	N			
Cyromazine	66215-27-8	9.2E+01	N			
DDD	72-54-8	2.0E+00	C		2.4E-01	3
DDE, p,p'-	72-55-9	1.4E+00	C			
DDT	50-29-3	1.7E+00	C*		3.4E-01	3
Dacthal	1861-32-1	1.2E+02	N			
Dalapon	75-99-0	3.7E+02	N			
Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5	8.6E+01	N			
Demeton	8065-48-3	4.9E-01	N			
Di(2-ethylhexyl)adipate	103-23-1	4.1E+02	C*			
Diallate	2303-16-4	8.0E+00	C			
Diazinon	333-41-5	8.6E+00	N			
Dibromo-3-chloropropane, 1,2-	96-12-8	5.4E-03	C,M		2.5E-04	3
Dibromobenzene, 1,4-	106-37-6	1.2E+02	N			
Dibromochloromethane	124-48-1	6.8E-01	C		1.9E-03	3
Dibromoethane, 1,2-	106-93-4	3.4E-02	C		9.7E-05	3
Dibromomethane (Methylene Bromide)	74-95-3	4.9E+00	N			
Dibutyl Phthalate	84-74-2	1.2E+03	N		1.9E+01	3
Dibutyltin Compounds	N/A	3.7E+00	N			
Dicamba	1918-00-9	3.7E+02	N			
Dichloro-2-butene, 1,4-	764-41-0	6.5E-03	C			
Dichloro-2-butene, cis-1,4-	1476-11-5	6.9E-03	C			
Dichloro-2-butene, trans-1,4-	110-57-6	6.9E-03	C			
Dichloroacetic Acid	79-43-6	9.7E+00	C*			
Dichlorobenzene, 1,2-	95-50-1	3.8E+02	Csat		2.4E-01	3
Dichlorobenzene, 1,3-	541-73-1	N/A			7.6E+00	3
Dichlorobenzene, 1,4-	106-46-7	2.4E+00	C		7.0E-02	3
Dichlorobenzidine, 3,3'-	91-94-1	1.1E+00	C			
Dichlorobenzophenone, 4,4'-	90-98-2	1.1E+02	N			
Dichlorodifluoromethane	75-71-8	3.7E+01	N		2.9E+01	3
Dichloroethane, 1,1-	75-34-3	3.3E+00	C		3.0E-02	3
Dichloroethane, 1,2-	107-06-2	4.3E-01	N		2.0E-03	3
Dichloroethylene, 1,1-	75-35-4	4.9E+01	N		4.6E-02	3

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0	1.4E+02	N			
Dichloroethylene, 1,2-cis-	156-59-2	1.6E+02	N		3.6E-01	3
Dichloroethylene, 1,2-trans-	156-60-5	3.1E+01	N		5.1E-01	3
Dichlorophenol, 2,4-	120-83-2	3.7E+01	N			
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	1.4E+02	N		3.2E-01	3
Dichlorophenoxy)butyric Acid, 4-(2,4-	94-82-6	9.8E+01	N			
Dichloropropane, 1,2-	78-87-5	9.0E-01	C*		3.3E-03	3
Dichloropropane, 1,3-	142-28-9	3.1E+02	N			
Dichloropropanol, 2,3-	616-23-9	3.7E+01	N			
Dichloropropene, 1,3-	542-75-6	1.7E+00	C*		2.3E-03	3
Dichlorvos	62-73-7	1.7E+00	C*			
Dicyclopentadiene	77-73-6	5.4E+00	N			
Dieldrin	60-57-1	3.0E-02	C		8.1E-04	3
Diethanolamine	111-42-2	8.5E+05	N			
Diethyl Phthalate	84-66-2	9.8E+03	N		3.7E+01	3
Diethylene Glycol Monobutyl Ether	112-34-5	3.6E+02	N			
Diethylene Glycol Monoethyl Ether	111-90-0	7.3E+02	N			
Diethylformamide	617-84-5	1.2E+01	N			
Diethylstilbestrol	56-53-1	1.4E-03	C			
Difenzoquat	43222-48-6	9.8E+02	N			
Diflubenzuron	35367-38-5	2.4E+02	N			
Difluoroethane, 1,1-	75-37-6	1.4E+03	Csat			
Dihydrosafrole	94-58-6	1.5E+01	C			
Diisopropyl Ether (isopropyl ether)	108-20-3	2.7E+02	N		3.2E-01	3
Diisopropyl Methylphosphonate	1445-75-6	5.3E+02	Csat			
Dimethipin	55290-64-7	2.4E+02	N			
Dimethoate	60-51-5	2.4E+00	N			
Dimethoxybenzidine, 3,3'-	119-90-4	3.5E+01	C			
Dimethyl methylphosphonate	756-79-6	2.9E+02	C*			
Dimethylamino azobenzene [p-]	60-11-7	1.1E-01	C			
Dimethylaniline HCl, 2,4-	21436-96-4	8.4E-01	C			
Dimethylaniline, 2,4-	95-68-1	6.5E-01	C			
Dimethylaniline, N,N-	121-69-7	3.1E+01	N			
Dimethylbenzidine, 3,3'-	119-93-7	4.4E-02	C			
Dimethylformamide	68-12-2	1.2E+03	N			
Dimethylhydrazine, 1,1-	57-14-7	1.2E+00	N			
Dimethylhydrazine, 1,2-	540-73-8	8.8E-04	C			
Dimethylphenol, 2,4-	105-67-9	2.4E+02	N		1.4E+00	3
Dimethylphenol, 2,6-	576-26-1	7.3E+00	N			
Dimethylphenol, 3,4-	95-65-8	1.2E+01	N			
Dimethylterephthalate	120-61-6	5.5E+00	Csat			
Dimethylvinylchloride	513-37-1	1.4E+01	C			

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Dinitro-o-cresol, 4,6-	534-52-1	1.2E+00	N			
Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5	2.4E+01	N			
Dinitrobenzene, 1,2-	528-29-0	1.2E+00	N			
Dinitrobenzene, 1,3-	99-65-0	1.2E+00	N			
Dinitrobenzene, 1,4-	100-25-4	1.2E+00	N			
Dinitrophenol, 2,4-	51-28-5	2.4E+01	N			
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	7.1E-01	C			
Dinitrotoluene, 2,4-	121-14-2	1.6E+00	C*			
Dinitrotoluene, 2,6-	606-20-2	1.2E+01	N			
Dinitrotoluene, 2-Amino-4,6-	35572-78-2	3.1E+01	N			
Dinitrotoluene, 4-Amino-2,6-	19406-51-0	3.1E+01	N			
Dinoseb	88-85-7	1.2E+01	N			
Di-n-octylphthalate	117-84-0	N/A			3.8E+01	3
Dioxane, 1,4-	123-91-1	4.4E+01	C		1.2E-02	3
Dioxins & Chlorinated Furans						
~Hexachlorodibenzo-p-dioxin, Mixture	N/A	9.4E-05	C			
~TCDD, 2,3,7,8-	1746-01-6	1.0E-03	C	7	1.0E-06	3
Diphenamid	957-51-7	3.7E+02	N			
Diphenyl Sulfone	127-63-9	9.8E+00	N			
Diphenylamine	122-39-4	3.1E+02	N			
Diphenylhydrazine, 1,2-	122-66-7	6.1E-01	C			
Diquat	85-00-7	2.7E+01	N			
Direct Black 38	1937-37-7	6.6E-02	C			
Direct Blue 6	2602-46-2	6.6E-02	C			
Direct Brown 95	16071-86-6	7.3E-02	C			
Disulfoton	298-04-4	4.9E-01	N		6.2E-03	3
Dithiane, 1,4-	505-29-3	1.2E+02	N			
Diuron	330-54-1	2.4E+01	N			
Dodine	2439-10-3	4.9E+01	N			
EPTC	759-94-4	3.9E+02	C	6		
Endosulfan	115-29-7	7.3E+01	N		5.6E+00	3
Endothall	145-73-3	2.4E+02	N			
Endrin	72-20-8	3.7E+00	N		8.1E-01	3
Epichlorohydrin	106-89-8	4.1E+00	C		1.7E-02	3
Epoxybutane, 1,2-	106-88-7	3.4E+01	C			
Ethephon	16672-87-0	6.1E+01	N			
Ethion	563-12-2	6.1E+00	N			
Ethoxyethanol Acetate, 2-	111-15-9	3.7E+03	N			
Ethoxyethanol, 2-	110-80-5	4.9E+03	N			
Ethyl Acetate	141-78-6	1.1E+04	Csat		1.2E+01	3
Ethyl Acrylate	140-88-5	1.3E+01	C			
Ethyl Chloride (Chloroethane)	75-00-3	2.1E+03	Csat		1.6E+01	3

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Ethyl Ether	60-29-7	3.1E+03	N	6		
Ethyl Methacrylate	97-63-2	1.1E+03	Csat			
Ethyl-p-nitrophenyl Phosphonate	2104-64-5	1.2E-01	N			
Ethylbenzene	100-41-4	5.4E+00	C	6	8.1E+00	3
Ethylene Cyanohydrin	109-78-4	3.7E+02	N			
Ethylene Diamine	107-15-3	1.1E+03	N			
Ethylene Glycol	107-21-1	2.4E+04	N		4.0E+01	3
Ethylene Glycol Monobutyl Ether	111-76-2	6.1E+03	N			
Ethylene Oxide	75-21-8	1.7E-01	C			
Ethylene Thiourea	96-45-7	9.8E-01	N			
Ethyleneimine	151-56-4	9.8E-03	C			
Ethylphthalyl Ethyl Glycolate	84-72-0	3.7E+04	N			
Express	101200-48-0	9.8E+01	N			
Fenamiphos	22224-92-6	3.1E+00	N			
Fenpropathrin	39515-41-8	3.1E+02	N			
Fluometuron	2164-17-2	1.6E+02	N			
Fluoride	16984-48-8	6.3E+02	N			
Fluorine (Soluble Fluoride)	7782-41-4	9.4E+02	N		6.0E+03	3
Fluridone	59756-60-4	9.8E+02	N			
Flurprimidol	56425-91-3	2.4E+02	N			
Flutolanil	66332-96-5	7.3E+02	N			
Fluvalinate	69409-94-5	1.2E+02	N			
Folpet	133-07-3	1.4E+02	C*			
Fomesafen	72178-02-0	2.6E+00	C			
Fonofos	944-22-9	2.4E+01	N			
Formaldehyde	50-00-0	2.4E+03	C		2.4E+00	3
Formic Acid	64-18-6	2.4E+04	N			
Fosetyl-AL	39148-24-8	3.7E+04	N			
Furans		0.0E+00	N			
~Dibenzofuran	132-64-9	1.6E+01	N			
~Furan	110-00-9	1.6E+01	N			
Furazolidone	67-45-8	1.3E-01	C			
Furfural	98-01-1	3.7E+01	N			
Furium	531-82-8	3.2E-01	C			
Furmecyclox	60568-05-0	1.6E+01	C			
Glufosinate, Ammonium	77182-82-2	4.9E+00	N			
Glutaraldehyde	111-30-8	2.3E+04	N			
Glycidyl	765-34-4	4.9E+00	N			
Glyphosate	1071-83-6	1.2E+03	N			
Goal	42874-03-3	3.7E+01	N			
Guthion	86-50-0	3.7E+01	N			
Haloxyfop, Methyl	69806-40-2	6.1E-01	N			

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Harmony	79277-27-3	1.6E+02	N			
Heptachlor	76-44-8	1.1E-01	C		6.6E-03	3
Heptachlor Epoxide	1024-57-3	5.3E-02	C*		8.2E-04	3
Hexabromobenzene	87-82-1	2.4E+01	N			
Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2	3.1E+00	N			
Heptane, N	142-82-5	N/A			1.1E+02	3
Hexachlorobenzene	118-74-1	3.0E-01	C		2.6E-03	3
Hexachlorobutadiene	87-68-3	6.2E+00	C*		8.7E-03	3
Hexachlorocyclohexane, Alpha-	319-84-6	7.7E-02	C			
Hexachlorocyclohexane, Beta-	319-85-7	2.7E-01	C			
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	5.2E-01	C*		1.8E-03	3
Hexachlorocyclohexane, Technical	608-73-1	2.7E-01	C		1.2E-03	3
Hexachlorocyclopentadiene	77-47-4	7.3E+01	N			
Hexachloroethane	67-72-1	1.2E+01	N			
Hexachlorophene	70-30-4	3.7E+00	N			
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	5.5E+00	C*			
Hexamethylene Diisocyanate, 1,6-	822-06-0	6.7E-01	N			
Hexane, N-	110-54-3	1.1E+02	N	6	5.4E+01	3
Hexanedioic Acid	124-04-9	2.4E+04	N			
Hexanone, 2-	591-78-6	4.2E+01	N		1.2E+00	4
Hexazinone	51235-04-2	4.0E+02	N			
Hydrazine	302-01-2	2.1E-01	C			
Hydrazine Sulfate	10034-93-2	2.1E-01	C			
Hydrogen Chloride	7647-01-0	5.7E+06	N			
Hydrogen Fluoride	7664-39-3	6.3E+02	N			
Hydrogen Sulfide	7783-06-4	5.7E+05	N			
Hydroquinone	123-31-9	8.1E+00	C			
Imazalil	35554-44-0	1.6E+02	N			
Imazaquin	81335-37-7	3.1E+03	N			
Iodine	7553-56-2	1.6E+02	N			
Iprodione	36734-19-7	4.9E+02	N			
Iron	7439-89-6	1.1E+04	N		1.5E+02	3
Isobutyl Alcohol	78-83-1	4.7E+03	N	6		
Isophorone	78-59-1	5.1E+02	C*		2.1E-01	3
Isopropalin	33820-53-0	1.8E+02	N			
Isopropanol	67-63-0	2.0E+09	N			
Isopropyl Methyl Phosphonic Acid	1832-54-8	1.2E+03	N			
Isoxaben	82558-50-7	6.1E+02	N			
JP-7	N/A	8.5E+07	N			
Kerb	23950-58-5	9.2E+02	N			
Lactofen	77501-63-4	2.4E+01	N			
Lead Compounds						

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
~Lead and Compounds	7439-92-1	4.0E+02		8	2.7E+02	3
~Tetraethyl Lead	78-00-2	1.2E-03	N			
Lead acetate	301-04-2	2.3E+00	C			
Lead subacetate	1335-32-6	1.7E+01	C			
Linuron	330-55-2	2.4E+01	N			
Lithium	7439-93-2	3.1E+01	N			
Lithium Perchlorate	7791-03-9	1.1E+01	N			
Londax	83055-99-6	2.4E+03	N			
MCPA	94-74-6	6.1E+00	N			
MCPB	94-81-5	1.2E+02	N			
MCPP	93-65-2	1.2E+01	N			
Malathion	121-75-5	2.4E+02	N			
Maleic Anhydride	108-31-6	1.2E+03	N			
Maleic Hydrazide	123-33-1	6.1E+03	N			
Malononitrile	109-77-3	1.2E+00	N			
Mancozeb	8018-01-7	3.7E+02	N			
Maneb	12427-38-2	6.1E+01	N			
Manganese	7439-96-5	3.7E+02	N		6.5E+01	3
Mephosfolan	950-10-7	1.1E+00	N			
Mepiquat Chloride	24307-26-4	3.7E+02	N			
Mercury Compounds						
~Mercuric Chloride	7487-94-7	4.7E+00	N			
~Mercuric Sulfide	1344-48-5	4.7E+00	N			
~Mercury (elemental)	7439-97-6	1.1E+00	N			
~Mercury, Inorganic Salts	N/A	4.7E+00	N		1.0E+00	3
~Methyl Mercury	22967-92-6	1.6E+00	N			
~Phenylmercuric Acetate	62-38-4	9.8E-01	N			
Merphos	150-50-5	3.7E-01	N			
Merphos Oxide	78-48-8	3.7E-01	N			
Metalaxyl	57837-19-1	7.3E+02	N			
Methacrylonitrile	126-98-7	6.3E-01	N			
Methamidophos	10265-92-6	6.1E-01	N			
Methanol	67-56-1	6.1E+03	N		1.6E+01	3
Methidathion	950-37-8	1.2E+01	N			
Methomyl	16752-77-5	3.1E+02	N			
Methoxy-5-nitroaniline, 2-	99-59-2	9.9E+00	C			
Methoxychlor	72-43-5	6.1E+01	N		2.2E+01	3
Methoxyethanol Acetate, 2-	110-49-6	2.4E+01	N			
Methoxyethanol, 2-	109-86-4	3.7E+01	N			
Methyl Acetate	79-20-9	1.6E+04	N	6		
Methyl Acrylate	96-33-3	4.7E+02	N			
Methyl Ethyl Ketone (2-Butanone)	78-93-3	5.6E+03	N		1.6E+01	3

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	1.1E+03	N	6		
Methyl Isocyanate	624-83-9	2.8E+05	N			
Methyl Methacrylate	80-62-6	9.5E+02	N			
Methyl Parathion	298-00-0	3.1E+00	N			
Methyl Phosphonic Acid	993-13-5	7.3E+02	N			
Methyl Styrene (Mixed Isomers)	25013-15-4	4.9E+01	N			
Methyl methanesulfonate	66-27-3	4.9E+00	C			
Methyl tert-Butyl Ether (MTBE)	1634-04-4	4.3E+01	C		8.5E-02	3
Methyl-5-Nitroaniline, 2-	99-55-8	1.5E+01	C			
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	7.7E-02	C			
Methylaniline Hydrochloride, 2-	636-21-5	3.7E+00	C			
Methylarsonic acid	124-58-3	1.2E+02	N			
Methylcholanthrene, 3-	56-49-5	2.2E-02	C			
Methylene Chloride	75-09-2	1.1E+01	C		2.3E-02	3
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	1.2E+00	C,M			
Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	1.1E+01	C			
Methylenebisbenzenamine, 4,4'-	101-77-9	3.0E-01	C			
Methylenediphenyl Diisocyanate	101-68-8	1.7E+05	N			
Methylstyrene, Alpha-	98-83-9	5.0E+02	C			
Metolachlor	51218-45-2	1.8E+03	N			
Metribuzin	21087-64-9	3.1E+02	N			
Mineral oils	8012-95-1	4.7E+04	N			
Mirex	2385-85-5	2.7E-02	C			
Molinate	2212-67-1	2.4E+01	N			
Molybdenum	7439-98-7	7.8E+01	N			
Monochloramine	10599-90-3	1.6E+03	N			
Monomethylaniline	100-61-8	2.4E+01	N			
N,N'-Diphenyl-1,4-benzenediamine	74-31-7	3.7E+00	N			
Naled	300-76-5	2.4E+01	N			
Naphtha, High Flash Aromatic (HFAN)	64724-95-6	4.7E+02	N			
Naphthylamine, 2-	91-59-8	2.7E-01	C			
Napropamide	15299-99-7	1.2E+03	N			
Nickel Carbonyl	13463-39-3	7.4E+02	N			
Nickel Oxide	1313-99-1	7.6E+02	N			
Nickel Refinery Dust	N/A	7.4E+02	C			
Nickel Soluble Salts	7440-02-0	3.1E+02	C		1.3E+02	3
Nickel Subsulfide	12035-72-2	3.8E-01	C			
Nitrate	14797-55-8	2.5E+04	N			
Nitrite	14797-65-0	1.6E+03	N			
Nitroaniline, 2-	88-74-4	1.2E+02	N			
Nitroaniline, 4-	100-01-6	2.4E+01	C			
Nitrobenzene	98-95-3	2.4E+01	C*			

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Nitrocellulose	9004-70-0	4.7E+07	N			
Nitrofurantoin	67-20-9	8.6E+02	N			
Nitrofurazone	59-87-0	3.7E-01	C			
Nitroglycerin	55-63-0	1.2E+00	N			
Nitroguanidine	556-88-7	1.2E+03	N			
Nitromethane	75-52-5	4.9E+00	C*			
Nitropropane, 2-	79-46-9	1.3E-02	C			
Nitroso-N-ethylurea, N-	759-73-9	1.8E-02	C			
Nitroso-N-methylurea, N-	684-93-5	4.1E-03	C			
Nitroso-di-N-butylamine, N-	924-16-3	8.7E-02	C			
Nitroso-di-N-propylamine, N-	621-64-7	6.9E-02	C			
Nitrosodiethanolamine, N-	1116-54-7	1.7E-01	C			
Nitrosodiethylamine, N-	55-18-5	7.7E-04	C,M			
Nitrosodimethylamine, N-	62-75-9	2.3E-03	C,M		3.1E-06	3
Nitrosodiphenylamine, N-	86-30-6	9.9E+01	C			
Nitrosomethylethylamine, N-	10595-95-6	2.2E-02	C			
Nitrosomorpholine [N-]	59-89-2	7.3E-02	C			
Nitrosopiperidine [N-]	100-75-4	5.2E-02	C			
Nitrosopyrrolidine, N-	930-55-2	2.3E-01	C			
Nitrotoluene, m-	99-08-1	1.2E+00	N			
Nitrotoluene, o-	88-72-2	2.9E+00	C*			
Nitrotoluene, p-	99-99-0	3.0E+01	C*			
Nonane, n-	111-84-2	4.3E+00	C			
Norflurazon	27314-13-2	4.9E+02	N			
Nustar	85509-19-9	8.6E+00	N			
Octabromodiphenyl Ether	32536-52-0	3.7E+01	N			
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	2691-41-0	7.7E+02	N			
Octamethylpyrophosphoramide	152-16-9	2.4E+01	N			
Oryzalin	19044-88-3	6.1E+02	N			
Oxadiazon	19666-30-9	6.1E+01	N			
Oxamyl	23135-22-0	3.1E+02	N		8.4E-01	3
Paclobutrazol	76738-62-0	1.6E+02	N			
Paraquat Dichloride	1910-42-5	5.5E+01	N			
Parathion	56-38-2	7.3E+01	N			
Pebulate	1114-71-2	6.1E+02	N			
Pendimethalin	40487-42-1	4.9E+02	N			
Pentabromodiphenyl Ether	32534-81-9	2.4E+01	N			
Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99)	60348-60-9	1.6E+00	N			
Pentachlorobenzene	608-93-5	9.8E+00	N			
Pentachloroethane	76-01-7	5.4E+00	C			
Pentachloronitrobenzene	82-68-8	1.9E+00	C*			
Pentachlorophenol	87-86-5	3.0E+00	C		3.1E-02	3

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Pentane, n-	109-66-0	1.8E+02	N			
Perchlorate and Perchlorate Salts	14797-73-0	1.1E+01	N			
Permethrin	52645-53-1	6.1E+02	N			
Phenacetin	62-44-2	2.2E+02	C			
Phenmedipham	13684-63-4	3.1E+03	N			
Phenol	108-95-2	3.7E+03	N		2.3E-01	3
Phenylenediamine, m-	108-45-2	7.3E+01	N			
Phenylenediamine, o-	95-54-5	1.0E+01	C			
Phenylenediamine, p-	106-50-3	2.3E+03	N			
Phenylphenol, 2-	90-43-7	2.5E+02	C			
Phorate	298-02-2	2.4E+00	N		1.3E-02	3
Phosgene	75-44-5	6.6E-02	N			
Phosmet	732-11-6	2.4E+02	N			
Phosphine	7803-51-2	4.7E+00	N			
Phosphoric Acid	7664-38-2	2.8E+06	N			
Phosphorus, White	7723-14-0	3.1E-01	N			
Phthalic Acid, P-	100-21-0	1.2E+04	N			
Phthalic Anhydride	85-44-9	2.4E+04	N			
Picloram	1918-02-1	8.6E+02	N			
Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	1.2E+00	N			
Pirimiphos, Methyl	29232-93-7	1.2E+02	N			
Polybrominated Biphenyls	59536-65-1	1.6E-02	C*			
Polychlorinated Biphenyls (PCBs)		1.00E+00		9		
Polynuclear Aromatic Hydrocarbons (PAHs)				10		
~Acenaphthene	83-32-9	6.9E+02	N		8.4E+00	3
~Acenapthylene	208-96-8	N/A			1.1E+01	3
~Anthracene	120-12-7	3.4E+03	N		6.6E+02	3
~Benz[a]anthracene	56-55-3	1.5E-01	C,M		1.8E-01	3
~Benzo(j)fluoranthene	205-82-3	5.3E-01	C			
~Benzo[a]pyrene	50-32-8	1.5E-02	C,M		5.9E-02	3
~Benzo[b]fluoranthene	205-99-2	1.5E-01	C,M		6.0E-01	3
~Benzo[k]fluoranthene	207-08-9	1.5E+00	C,M		5.9E+00	3
~Benzo (g,h,i) perylene	191-24-2	N/A			3.6E+02	3
~Chrysene	218-01-9	1.5E+01	C,M		1.8E+01	3
~Dibenz[a,h]anthracene	53-70-3	1.5E-02	C,M		1.9E-01	3
~Dibenzofuran	214827-48-2	N/A			4.7E+00	4
~Dibenzo(a,e)pyrene	192-65-4	5.3E-02	C			
~Dimethylbenz(a)anthracene, 7,12-	57-97-6	1.8E-03	C			
~Fluoranthene	206-44-0	4.6E+02	N		3.3E+02	3
~Fluorene	86-73-7	4.6E+02	N		5.6E+01	3
~Indeno[1,2,3-cd]pyrene	193-39-5	1.5E-01	C,M		2.0E+00	3
~Methylnaphthalene, 1-	90-12-0	2.2E+01	C	6		

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
~Methylnaphthalene, 2-	91-57-6	6.3E+01	N		1.6E+00	3
~Naphthalene	91-20-3	3.6E+00	C*		2.1E-01	3
~Nitropyrene, 4-	57835-92-4	5.3E-01	C			
~Phenanthrene	85-01-08	N/A			5.7E+01	3
~Pyrene	129-00-0	3.4E+02	N		2.2E+02	3
Potassium Perchlorate	7778-74-7	1.1E+01	N			
Prochloraz	67747-09-5	3.2E+00	C			
Profluralin	26399-36-0	7.3E+01	N			
Prometon	1610-18-0	1.8E+02	N			
Prometryn	7287-19-6	4.9E+01	N			
Propachlor	1918-16-7	1.6E+02	N			
Propanil	709-98-8	6.1E+01	N			
Propargite	2312-35-8	2.4E+02	N			
Propargyl Alcohol	107-19-7	2.4E+01	N			
Propazine	139-40-2	2.4E+02	N			
Propham	122-42-9	2.4E+02	N			
Propiconazole	60207-90-1	1.6E+02	N			
Propionaldehyde	123-38-6	1.6E+01	N			
Propyl benzene	103-65-1	2.6E+02	Csat		1.5E+00	3
Propylene	115-07-1	8.5E+08	N			
Propylene Glycol	57-55-6	2.4E+05	N			
Propylene Glycol Dinitrate	6423-43-4	1.1E+01	N			
Propylene Glycol Monoethyl Ether	1569-02-4	8.6E+03	N			
Propylene Glycol Monomethyl Ether	107-98-2	8.6E+03	N			
Propylene Oxide	75-56-9	1.9E+00	C			
Pursuit	81335-77-5	3.1E+03	N			
Pydrin	51630-58-1	3.1E+02	N			
Pyridine	110-86-1	1.6E+01	N			
Quinalphos	13593-03-8	6.1E+00	N			
Quinoline	91-22-5	1.6E-01	C			
Refractory Ceramic Fibers	N/A	8.5E+06	N			
Resmethrin	10453-86-8	3.7E+02	N			
Ronnel	299-84-3	6.1E+02	N			
Rotenone	83-79-4	4.9E+01	N			
Safrole	94-59-7	2.2E+00	C			
Savey	78587-05-0	3.1E+02	N			
Selenious Acid	7783-00-8	7.8E+01	N			
Selenium	7782-49-2	7.8E+01	N		2.1E+00	3
Selenium Sulfide	7446-34-6	7.8E+01	N			
Sethoxydim	74051-80-2	1.1E+03	N			
Silica (crystalline, respirable)	7631-86-9	8.5E+05	N			
Silver	7440-22-4	7.8E+01	N		3.4E+00	3

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Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Simazine	122-34-9	4.1E+00	C*		2.8E-02	3
Sodium Acifluorfen	62476-59-9	1.6E+02	N			
Sodium Azide	26628-22-8	6.3E+01	N			
Sodium Diethyldithiocarbamate	148-18-5	1.8E+00	C			
Sodium Fluoride	7681-49-4	7.8E+02	N			
Sodium Fluoroacetate	62-74-8	2.4E-01	N			
Sodium Metavanadate	13718-26-8	1.6E+01	N			
Sodium Perchlorate	7601-89-0	1.1E+01	N			
Stirofos (Tetrachlorovinphos)	961-11-5	2.0E+01	C*			
Strontium, Stable	7440-24-6	9.4E+03	N			
Strychnine	57-24-9	3.7E+00	N			
Styrene	100-42-5	8.7E+02	Csat		9.2E-01	3
Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9	9.8E+00	N			
Sulfuric Acid	7664-93-9	2.8E+05	N			
Systhane	88671-89-0	3.1E+02	N			
TCMTB	21564-17-0	3.7E+02	N			
Tebuthiuron	34014-18-1	8.6E+02	N			
Temephos	3383-96-8	2.4E+02	N			
Terbacil	5902-51-2	1.6E+02	N			
Terbufos	13071-79-9	3.1E-01	N			
Terbutryn	886-50-0	1.2E+01	N			
Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1	1.6E+00	N			
Tetrachlorobenzene, 1,2,4,5-	95-94-3	3.7E+00	N			
Tetrachloroethane, 1,1,1,2-	630-20-6	1.9E+00	C			
Tetrachloroethane, 1,1,2,2-	79-34-5	5.6E-01	C		1.2E-03	3
Tetrachloroethylene	127-18-4	5.5E-01	C		5.0E-03	3
Tetrachlorophenol, 2,3,4,6-	58-90-2	3.7E+02	N		1.3E+01	3
Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1	2.4E-02	C			
Tetraethyl Dithiopyrophosphate	3689-24-5	6.1E+00	N			
Tetrafluoroethane, 1,1,1,2-	811-97-2	1.1E+03	Csat			
Tetryl (Trinitrophenylmethylnitramine)	479-45-8	4.9E+01	N			
Thiobencarb	28249-77-6	1.2E+02	N			
Thiodiglycol	111-48-8	1.1E+03	N			
Thiofanox	39196-18-4	3.7E+00	N			
Thiophanate, Methyl	23564-05-8	9.8E+02	N			
Thiram	137-26-8	6.1E+01	N			
Tin	7440-31-5	9.4E+03	N			
Titanium Tetrachloride	7550-45-0	2.8E+04	N			
Toluene	108-88-3	8.2E+02	Csat		5.5E+00	3
Toluidine, p-	106-49-0	2.6E+00	C			
Toxaphene	8001-35-2	4.4E-01	C		4.6E-02	3
Tralomethrin	66841-25-6	9.2E+01	N			

INACTIVE HAZARDOUS SITES BRANCH
SOIL REMEDIATION GOALS (SRG)
JANUARY 2010

Both health-based and protection of groundwater remediation goals must be met. The protection of groundwater remediation goals listed on this table are only one alternative for achieving protection of groundwater criteria. Please refer to REC or State-lead Guidance documents for additional information on protection of groundwater remediation goals, procedures for adjusting preliminary remedial goals and other criteria that may affect remediation goals (e.g. ecological receptors, cross-media contamination). In addition, if sensitive environments are present, the branch may require the adjustment of remediation goals and/or the proposed remedial alternative.

Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Tri-n-butyltin	688-73-3	3.7E+00	N			
Triallate	2303-17-5	1.6E+02	N			
Triasulfuron	82097-50-5	1.2E+02	N			
Tribromobenzene, 1,2,4-	615-54-3	6.1E+01	N			
Tributyl Phosphate	126-73-8	5.3E+01	C			
Tributyltin Compounds	N/A	3.7E+00	N			
Tributyltin Oxide	56-35-9	3.7E+00	N			
Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1	9.1E+02	Csat		9.2E+03	3
Trichloroaniline HCl, 2,4,6-	33663-50-2	1.7E+01	C			
Trichloroaniline, 2,4,6-	634-93-5	1.4E+01	C			
Trichlorobenzene, 1,2,3-	87-61-6	9.8E+00	N			
Trichlorobenzene, 1,2,4-	120-82-1	1.2E+01	C		2.2E+00	3
Trichloroethane, 1,1,1-	71-55-6	6.4E+02	Csat		1.2E+00	3
Trichloroethane, 1,1,2-	79-00-5	1.1E+00	C			
Trichloroethylene	79-01-6	2.8E+00	C		1.8E-02	3
Trichlorofluoromethane	75-69-4	1.6E+02	N		2.4E+01	3
Trichlorophenol, 2,4,5-	95-95-4	1.2E+03	N			
Trichlorophenol, 2,4,6-	88-06-2	1.2E+01	C			
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	1.2E+02	N			
Trichlorophenoxypropionic acid, -2,4,5	93-72-1	9.8E+01	N		3.8E-01	
Trichloropropane, 1,1,2-	598-77-6	7.8E+01	N			
Trichloropropane, 1,2,3-	96-18-4	5.0E-03	C		3.2E-05	3
Trichloropropene, 1,2,3-	96-19-5	1.6E-01	N			
Tridiphane	58138-08-2	3.7E+01	N			
Triethylamine	121-44-8	2.5E+01	N			
Trifluralin	1582-09-8	6.3E+01	C*			
Trimethyl Phosphate	512-56-1	1.3E+01	C			
Trimethylbenzene, 1,2,4-	95-63-6	1.2E+01	N		6.7E+00	3
Trimethylbenzene, 1,3,5-	108-67-8	1.6E+02	N		6.7E+00	3
Trinitrobenzene, 1,3,5-	99-35-4	4.5E+02	N			
Trinitrotoluene, 2,4,6-	118-96-7	1.9E+01	C			
Triphenylphosphine Oxide	791-28-6	2.4E+02	N			
Tris(2-chloroethyl)phosphate	115-96-8	2.4E+01	C			
Tris(2-ethylhexyl)phosphate	78-42-2	1.5E+02	C*			
Uranium (Soluble Salts)	N/A	4.7E+01	N			
Urethane	51-79-6	6.4E-01	C			
Vanadium Pentoxide	1314-62-1	1.3E+02	N*			
Vanadium Sulfate	36907-42-3	3.1E+02	N			
Vanadium and Compounds	N/A	7.9E+01	N			
Vanadium, Metallic	7440-62-2	1.1E+00	N			
Vernolate	1929-77-7	1.2E+01	N			
Vinclozolin	50471-44-8	3.1E+02	N			

INACTIVE HAZARDOUS SITES BRANCH
SOIL REMEDIATION GOALS (SRG)
JANUARY 2010

Both health-based and protection of groundwater remediation goals must be met. The protection of groundwater remediation goals listed on this table are only one alternative for achieving protection of groundwater criteria. Please refer to REC or State-lead Guidance documents for additional information on protection of groundwater remediation goals, procedures for adjusting preliminary remedial goals and other criteria that may affect remediation goals (e.g. ecological receptors, cross-media contamination). In addition, if sensitive environments are present, the branch may require the adjustment of remediation goals and/or the proposed remedial alternative.

Contaminant	CAS No.	Preliminary Health-Based PSRG[1] mg/kg	Preliminary Health-Based PSRG Basis[11]	Foot Note	Protection of Groundwater PSRG[2] mg/kg	Foot Note
Vinyl Acetate	108-05-4	2.0E+02	N			
Vinyl Bromide	593-60-2	1.1E-01	C*			
Vinyl Chloride	75-01-4	6.0E-02	C,M		1.9E-04	3
Warfarin	81-81-2	3.7E+00	N			
Xylene, Mixture	1330-20-7	1.3E+02	N	6	6.0E+00	3
Xylene, P-	106-42-3	3.9E+02	Csat		6.0E+00	3
Xylene, m-	108-38-3	3.9E+02	Csat		6.0E+00	3
Xylene, o-	95-47-6	4.3E+02	Csat		6.0E+00	3
Zinc (Metallic)	7440-66-6	4.7E+03	N		1.2E+03	3
Zinc Phosphide	1314-84-7	4.7E+00	N			
Zineb	12122-67-7	6.1E+02	N			

* - Contaminant exhibits both carcinogenic and non-carcinogenic effects. The lower of the carcinogenic remediation goal at 1.0E-06 risk or the non-carcinogenic remediation goal at a hazard quotient of 0.2 is listed.

1 - Preliminary Soil Remediation adapted from the December 2009 USEPA Regional Screening Tables. Cleanup below method detection limits using analytical methods prescribed in the guidelines, is not required.

2 - Developed using a soil leachate model using default values appropriate for North Carolina (see pg. 18). For chemicals with no protection of groundwater remediation goal call the Branch or refer to the guidance.

3 - Based on North Carolina 2L as target groundwater concentration.

4 - Based on North Carolina Interim 2L as target groundwater concentration.

5 - The arsenic value is the non-carcinogenic value because the carcinogenic value is below the laboratory method detection limit (MDL).

6 - Adjustment may result in exceedance of the soil saturation concentration (Csat). Check the USEPA Regional Screening Level table for soil saturation concentration (Csat) values when adjusting.

7 - The preliminary remediation goals for dioxins and furans can also be calculated as a toxic equivalency concentration (TEQ) by using the toxicity equivalence factor (TEF) methodology. (See TEF table for dioxins and furans.)

8 - The SRG is based on USEPA guidance on lead cleanup levels. The value cannot be adjusted.

9 - The SRG is based on USEPA policy for cleanup of PCBs at Superfund Sites. The Branch is currently reviewing the PCB remediation goal policy and may issue further guidance at a later date.

10 - Remediation goals for carcinogenic PAHs can also be calculated as a toxic equivalency concentration (TEQ) by using the toxicity equivalence factor (TEF) methodology. (See TEF table for carcinogenic PAHs.)

11 - C - The PSRG is based on the carcinogenic endpoint and corresponds to an excess lifetime cancer risk of 1 in 1,000,000.
N - The PSRG is based on the non-carcinogenic endpoint and corresponds to a hazard quotient of 0.2.
M - Contaminant is a mutagen.
Csat – Soil Saturation Concentration.

N/A- Not available.

INACTIVE HAZARDOUS SITES BRANCH
Toxic Equivalent Factor Tables for Calculation of Soil Remediation Goals

Toxic Equivalent Factor (TEF) Table for Dioxins and Furans

CHEMICAL	CASRN	TEF*
Dioxins and Furans[6]		
CDDs		
2,3,7,8-TetraCDD		1
1,2,3,7,8-PentaCDD		1
1,2,3,4,7,8-HexaCDD		0.1
1,2,3,6,7,8-HexaCDD		0.1
1,2,3,7,8,9-HexaCDD		0.1
1,2,3,4,6,7,8-HeptaCDD		0.01
1,2,3,4,6,7,8,9-OctaCDD		0.0003
CDFs		
2,3,7,8-TetraCDF		0.1
1,2,3,7,8-PentaCDF		0.03
2,3,4,7,8-PentaCDF		0.3
1,2,3,4,7,8-HexaCDF		0.1
1,2,3,6,7,8-HexaCDF		0.1
1,2,3,7,8,9-HexaCDF		0.1
2,3,4,6,7,8-HexaCDF		0.1
1,2,3,4,6,7,8-HeptaCDF		0.01
1,2,3,4,7,8,9-HeptaCDF		0.01
1,2,3,4,6,7,8,9-OctaCDF		0.0003

Toxic Equivalent Factor (TEF) Table for Carcinogenic Polyaromatic Hydrocarbons (PAHs)

CHEMICAL	CASRN	TEF*
Polynuclear aromatic hydrocarbons[9]		
Benzo[a]pyrene	50328	1.0
Benzo[b]fluoranthene	205992	0.1
Benzo[k]fluoranthene	207089	0.01
Benz[a]anthracene	56553	0.1
Chrysene	218019	0.001
Dibenz[a,h]anthracene	53703	1.0
Indeno(1,2,3-cd)pyrene	193395	0.1

*These toxic equivalent factors (TEF) are to be used as per footnotes 7 and 10 on the previous page.

Transport Model Used to Calculate Protection of Groundwater Remediation Goals[2]

$$C_{soil} = C_{gw}\left[k_s + \frac{(\theta_w + \theta_a H')}{P_b}\right]df$$

	Parameters	Default Values	Units
C_{soil}	Calculated Source Concentration for soil	not applicable	mg/kg - soil
C_{gw}	Applicable Groundwater Target Concentration (NC GW Std)	chemical-specific	mg/L - water
Df	Dilution factor (see equation 2)	20 (0.5 acre source size)2	unitless
K_s	Soil-water partition coefficient for organic constituents $k_s = k_{oc}f_{oc}$ for inorganic constituents $ks = k_d$	chemical-specific	L/kg
k_{oc}	Soil organic carbon-water partition coefficient	chemical-specific	L/kg
F_{oc}	Fraction of organic carbon in subsurface vadose soils	0.001 (0.1%)	kg/kg
K_d	Soil-water partition coefficient for inorganics	chemical-specific (pH=5.5)	L/kg
θ_w	Water-filled soil porosity-vadose soils	0.3	L_{water}/L_{soil}
θa	Air-filled soil porosity-vadose soils	0.13	L_{air}/L_{soil}
P_b	Dry bulk density	1.5	kg/L
H'	Henry's Law constant-dimensionless where: H' = Henry's Law constant (atm-m^3/mole) x conversion factor of 41	chemical-specific	unitless

1. From the USEPA 1996 Soil Screening Guidance
2. Default value from the USEPA 1996 Soil Screening Guidance

Appendix B

RMT Integrated Environmental Solutions *Results of the June 2004 Groundwater and Surface Water Sampling Activities report dated August 31, 2004* (Table and Figures)

RMT *Results of the June 2001 Groundwater, Surface Water, Sediment, and Storm Water Sampling report dated May 9, 2002* (Tables)

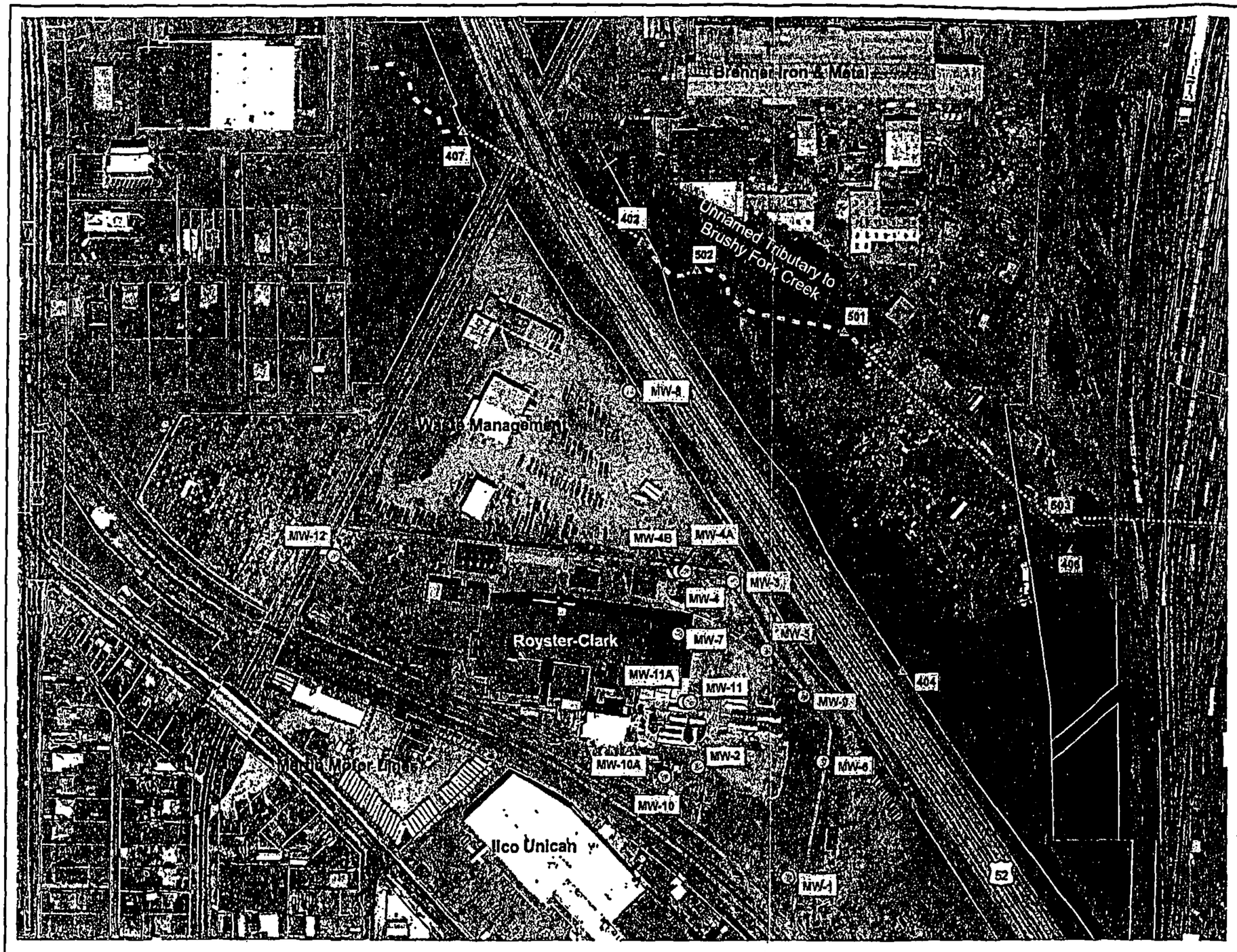
NCD 003424349
Look up James.b...
919-733-2178
Contact: Jim Bateman

Table 1
Summary of Inorganic Groundwater Results and Field Parameters
Royster-Clark, Inc.
Winston-Salem, North Carolina

PARAMETER[1]	GROUNDWATER QUALITY STANDARD[2]	LOCATION/SAMPLE DATE													
		MW-01 06/22/04	MW-02 06/22/04	MW-04A 06/24/04	(DU-0430) MW-04A 06/24/04	MW-04B 06/23/04	MW-05 06/22/04	MW-06 06/23/04	MW-08 06/23/04	MW-09 06/23/04	MW-10 06/24/04	MW-10A 06/24/04	MW-11 06/23/04	MW-11A 06/23/04	MW-12 06/24/04
Metals															
Arsenic	0.01	<0.0050	0.68	0.12	0.12	0.010	0.035	0.056	<0.0050	0.025	0.016	<0.0050	0.018	0.072	0.012
Cadmium	0.005	<0.0010	0.0086	0.0076	0.0071	0.21	0.092	0.0033	<0.0010	0.0034	0.014	<0.0010	0.038	0.016	<0.0010
Manganese	0.05	0.21	11	21	20	26	54	27	1.2	6.6	38	0.17	43	17	0.63
Zinc	2.1	0.13	0.81	<0.042 u	<0.014 u	15	8.6	0.88	<0.041 u	0.86	4.2	<0.041 u	6.7	2.7	<0.058 u
Wet Chemistry															
Chloride	250	43	620	760	770	18000	4700	410	18	39	200	19	1200	350	11
Nitrogen, ammonia	--	<0.10	15	25000	28000	15000	340	8.9	0.97 u	85	15	<0.10	3700	2100	<0.10
Nitrogen, nitrate	10	15	190	92	82	140	160	54	7.6	180	95	12	430	160	7.5
Phosphorus	--	0.143	<0.100	157 l	153 l	<0.100	30.5	<0.100	0.378 l	0.288 l	0.280	<0.100 j	<0.100 j	1.12 l	<0.100 j
Sulfate	250	37	29	12000 l	11000 l	8900 l	1100	80	21	900 l	850	<5.0 j	8300 l	5400 l	20 l
Field Parameters															
Conductance, specific (uS)	--	315	2822	16300	NA	66	5280	1139	211	3052	2686	150	30050	13410	160
pH (SU)	--	4.5	3.5	6.0	NA	6.2	3.6	4.5	5.6	4.0	3.8	4.8	5.5	4.0	4.1
Temperature (°C)	--	17.5	18.6	18.3	NA	18.8	18.2	17.5	15.9	17.2	17.7	19.7	18.1	18.4	19.9
Turbidity (NTU)	--	580	650	0.0	NA	29	700	580	750	55	990	18	490	0.0	86

(1) Analytical results are reported in milligrams per liter (mg/L) unless otherwise noted.
(2) *15A NCAC2L.0202 Groundwater Quality Standards (August 1, 2002)*
< Concentration less than the Quantitation Limit.
j Concentration considered an estimate based on data validation.
l Analyte present; reported value may be biased low.
u Laboratory reported detection not validated during data validation process.
NA Not analyzed

N



LEGEND

- SURFACE WATER SAMPLE LOCATIONS
- MONITORING WELLS
- PARCELS
- ROYSTER-CLARK PROPERTY
- CULVERT
- STREAM

0 200 400 Feet

SCALE

NO.	BY	DATE	REVISION	APP'D.
1.				
2.				
3.				

PROJECT: ROYSTER-CLARK, INC.
WINSTON-SALEM, NC

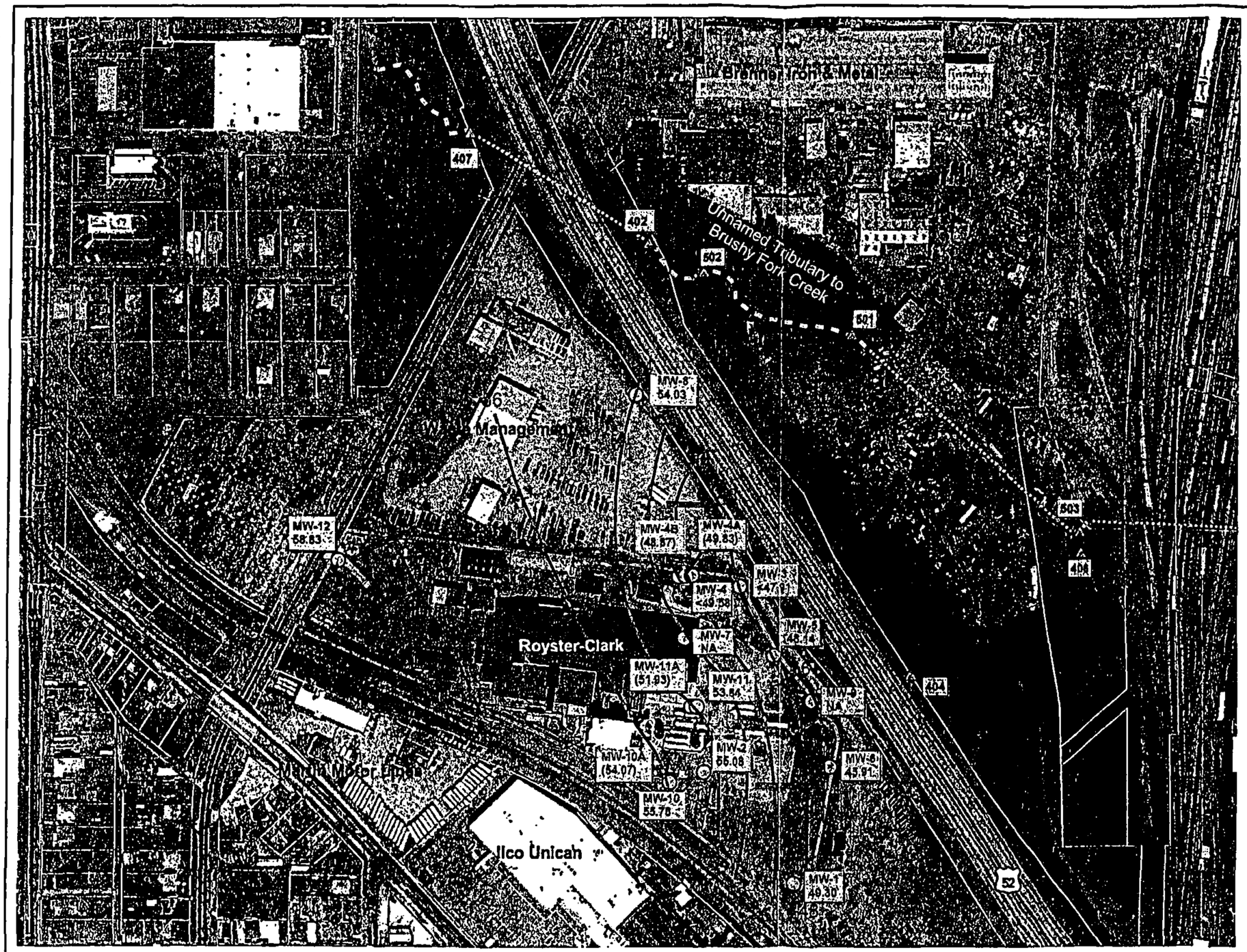
SHEET TITLE: DATA POINT LOCATIONS

DRAWN BY: APR	SCALE AS NOTED	PROJECT NO.:	7027L10
CHECKED BY: LMC		FILE NO.: LFig1_DataPointLocations	
APPROVED BY: LMC	DATE PRINTED: AUGUST 2004	FIGURE: 1	
DATE: JULY 2004			

RMT

Fleetwood Plaza One, Suite 100
36 Fleetwood Drive
Greenville, SC 29615-3536
(864) 281-0030

FILE REFERENCE: p:\hydro\7027l10\Raroviewwinston.apr
LAYOUT: LFig1_DataPointLocations
DATE: Aug 31, 2004 2:08 PM



LEGEND

- SURFACE WATER SAMPLE LOCATIONS
- MONITORING WELLS
- PARCELS
- ROYSTER-CLARK PROPERTY
- CULVERT
- STREAM
- WATER TABLE CONTOURS
- GROUNDWATER FLOW DIRECTION

Note:
Water levels in parenthesis represent deeper aquifer conditions and were not used in the preparation of this map.

0 200 400 Feet
SCALE

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT:
ROYSTER-CLARK, INC.
WINSTON-SALEM, NC

SHEET TITLE: WATER TABLE CONFIGURATION
JUNE 22, 2004

DRAWN BY: AMR	SCALE AS NOTED	PROJECT NO.:	70277.16
CHECKED BY: LMC		FILE NO.:	LP05_DataPoint.esrfprg
APPROVED BY: LMC	DATE PRINTED: AUGUST 2004	FIGURE: 2	
DATE: JULY 2004			

RMT
Patewood Plaza One, Suite 160
20 Patewood Drive
Greenville, SC 29615-3336
(864) 281-0030

FILE REFERENCE: p:\hydro\70277\GIS\arcview\version.apr
LAYOUT: LFig2_WaterTableContours
DATE: Aug 31, 2004 2:24 PM

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Summary of Historical Groundwater Analytical Data

DATED MAY 9, 2002

FROM RMT RESULTS OF 2001 GW. REPORT

PARAMETER[1]	GROUND-WATER QUALITY STANDARD[2]	LOCATION/SAMPLE DATE										
		MW-1				MW-2				MW-3		
		12/28/1994	1/10/1995	1/31/1995	10/25/2001	12/28/1994	1/10/1995	1/31/1995	10/25/2001	12/28/1994	1/10/1995	1/31/1995
Volatile Organics												
Benzene	0.001	NM	NM	NM	<0.001	NM	NM	NM	<0.001	NM	NM	NM
Bromodichloromethane	NA	NM	NM	NM	<0.001	NM	NM	NM	<0.001	NM	NM	NM
Chlorobenzene	0.05	NM	NM	NM	<0.001	NM	NM	NM	<0.001	NM	NM	NM
Chlorodibromomethane	NA	NM	NM	NM	<0.001	NM	NM	NM	<0.001	NM	NM	NM
Chloroform	0.00019	NM	NM	NM	<0.00041	NM	NM	NM	0.0015	NM	NM	NM
1,1-Dichloroethane	0.7	NM	NM	<0.001	0.00088 J	NM	NM	<0.001	<0.001	NM	NM	<0.001
1,2-Dichloroethane	0.00038	NM	NM	NM	<0.00054	NM	NM	NM	<0.00054	NM	NM	NM
1,1-Dichloroethene	0.007	NM	NM	0.012	0.0085	NM	NM	<0.001	<0.001	NM	NM	<0.001
1,2-Dichloroethene, total	0.07[3]	NM	NM	NM	0.082	NM	NM	NM	<0.002	NM	NM	NM
cis-1,2-Dichloroethene	0.07	NM	NM	0.031	NM	NM	NM	<0.001	NM	NM	NM	<0.001
1,2-Dichloropropane	0.00056	NM	NM	NM	<0.00034	NM	NM	NM	<0.00034	NM	NM	NM
Ethylbenzene	0.029	NM	NM	<0.001	<0.001	NM	NM	<0.001	<0.001	NM	NM	<0.001
Methylene chloride	0.005	NM	NM	NM	<0.001	NM	NM	NM	<0.001	NM	NM	NM
Tetrachloroethene	0.0007	NM	NM	6.6 D	7.7 D	NM	NM	<0.001	<0.00041	NM	NM	<0.001
Toluene	1	NM	NM	<0.001	<0.001	NM	NM	<0.001	<0.001	NM	NM	<0.001
1,1,1-Trichloroethane	0.2	NM	NM	0.041	0.028	NM	NM	<0.001	<0.001	NM	NM	<0.001
1,1,2-Trichloroethane	NA	NM	NM	<0.001	0.15	NM	NM	<0.001	<0.001	NM	NM	<0.001
Trichloroethene	0.0028	NM	NM	0.029	0.021	NM	NM	<0.001	<0.001	NM	NM	<0.001
Xylenes, total	0.53	NM	NM	<0.003	NM	NM	NM	<0.003	NM	NM	NM	<0.003
Semivolatile Organics												
2-Methylnaphthalene	NA	NM	NM	<0.01	NM	NM	NM	<0.014	NM	NM	NM	<0.01
Naphthalene	0.021	NM	NM	<0.01	NM	NM	NM	<0.014	NM	NM	NM	<0.01
Phenanthrene	0.21	NM	NM	<0.01	NM	NM	NM	<0.014	NM	NM	NM	<0.01
Inorganics												
Aluminum, total	NA	NM	<0.1	0.24	3.7	NM	41	43	41	NM	1.4	15
Aluminum, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Arsenic, total	0.05	NM	NM	<0.006 S	<0.01	NM	NM	<0.006 S	0.67	NM	NM	0.021 S
Arsenic, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Barium, total	2	0.16	0.15	0.15	NM	29	24	26	NM	<0.05	<0.05	<0.05
Barium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Beryllium, total	0.004[4]	NM	<0.005	<0.004 Z	NM	NM	0.017	0.019	NM	NM	<0.005	<0.004 Z
Beryllium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Cadmium, total	0.005	<0.005	<0.0006 M	0.0012	0.0011 A u	0.011	0.011	0.0096	0.011 A	0.044	0.0068	0.016
Cadmium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Calcium, total	NA	NM	4.4	4.3	6.6	NM	71	80	99	NM	160	120
Calcium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Chromium, total	0.05	<0.01	<0.01	0.012	0.0016 B	<0.01	<0.01	<0.01	<0.015 ED	<0.01	<0.01	<0.01
Chromium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Cobalt, total	NA	NM	NM	<0.02	NM	NM	NM	0.028	NM	NM	NM	0.067
Cobalt, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

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Summary of Historical Groundwater Analytical Data

PARAMETER[1]	GROUND-WATER QUALITY STANDARD[2]	LOCATION/SAMPLE DATE										
		MW-1				MW-2				MW-3		
		12/28/1994	1/10/1995	1/31/1995	10/25/2001	12/28/1994	1/10/1995	1/31/1995	10/25/2001	12/28/1994	1/10/1995	1/31/1995
Copper, total	1	<0.02	<0.02	<0.02	0.0048 BA u	0.036	0.038	0.022	0.06	0.36	0.21	0.57
Copper, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Iron, total	0.3	NM	0.15	0.32	2.7	NM	0.17	1.3	2.2 N	NM	0.48	0.2
Iron, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Iron, total ferric		NM	NM	0.06	NM	NM	NM	1.3	NM	NM	NM	NM
Iron, total ferrous		NM	NM	0.26	NM	NM	NM	<0.1	NM	NM	NM	NM
Lead, total	0.015	0.0035	<0.003	<0.003	0.0062	0.041	0.037	0.035	0.11	0.0084	<0.003	<0.003
Lead, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Magnesium, total	NA	NM	6.3	5.6	NM	NM	120	120	NM	NM	28	19
Magnesium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Manganese, total	0.05	0.63	0.37	0.33	0.3	16	15	16	15	8.3	6.2	7.4
Manganese, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Mercury, total	0.0011	NM	NM	<0.0002	0.0004	NM	NM	0.011	0.00541	NM	NM	<0.0002
Mercury, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Nickel, total	0.1	<0.02	<0.02	<0.02	0.0036 B	0.053	0.055	0.054	0.043	0.08	0.079	0.068
Nickel, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Phosphorus, total	NA	0.12 P	0.55	0.31	<0.50	0.25	0.35	0.31	<0.50	52	110	35
Potassium, total	NA	NM	4.8	4	NM	NM	19	18	NM	NM	590	450
Potassium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Selenium, total	0.05	NM	NM	<0.006 S	NM	NM	NM	<0.006 S	NM	NM	NM	<0.006 S
Selenium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Silver, total	0.018	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sodium, total	NA	NM	45	37	69	NM	55	53	39	NM	33	18
Sodium, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Vanadium, total	NA	NM	NM	<0.02	NM	NM	NM	<0.02	NM	NM	NM	<0.02
Zinc, total	2.1	0.13	0.13	0.12	0.2	1.5	1.3	1.4	1.1	2.4	1.5	6.1
Zinc, dissolved		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Wet Chemistry												
Chloride	250	25	26	24	NM	200	220	200	NM	840 N	830	420
Nitrogen, ammonia	NA	<0.1	<0.1	<0.10	NM	<0.1	140	0.12	NM	460	260	140
Nitrogen, nitrate + nitrite	10[5]	17	19	NM	28	300	300	NM	170	36	37	NM
Nitrogen, nitrate	10	17	NM	NM	NM	300	NM	NM	NM	36	NM	NM
Nitrogen, total Kjeldahl	NA	0.11	0.26	<0.10	<0.72 Au	<0.1	0.17	0.16	21	830	820	520
Sulfate	250	32	40	34	NM	<10	<10	19	NM	2200	2200	1000
Sulfide	NA	NM	NM	<1.0	NM	NM	NM	<1.0	NM	NM	NM	<1.0
Solids, total suspended		91	860	250	NM	130	430	160	NM	610	1800	820

Appendix C

EI Preliminary Site Assessments, October 2005 (Tables and Figures)

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS for 8 RCRA Metals
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
EPA Region 9 PRGs (mg/kg)	0.39	5400	37	210	400	23	390	390
NC HWS SSLs (mg/kg)	5.24	848	2.72	27.2	270	0.0154	12.2	0.223
NC DENR GW Section Soil Clean-up Levels (mg/kg)	NS	848	NS	27	270	NS	NS	NS
Background Concentrations (mg/kg)	5.75	NA	0	5.76	40.4	0	5.26	0
Sample Identification	Laboratory Analysis (mg/kg) RCRA Metals 6010B & 7471							
P8GP1-20	3.03	BQL	BQL	BQL	12.1	0.0253	BQL	BQL
P8GP2-13	BQL	BQL	BQL	BQL	12.7	BQL	BQL	BQL
P8GP3-8	7.30	83.1	BQL	BQL	342	0.0237	BQL	BQL
P8GP4-20	1.97	42.2	BQL	3.56	46.0	BQL	BQL	BQL
P8GP5-20	1.68	BQL	BQL	1.68	16.3	BQL	BQL	BQL
P8GP6-20	NA	NA	NA	NA	NA	NA	NA	NA
P8GFP7-20	NA	NA	NA	NA	NA	NA	NA	NA
P8GP8-20	NA	NA	NA	NA	NA	NA	NA	NA
P8GP9-20	NA	NA	NA	NA	NA	NA	NA	NA
P8GP10-15	NA	NA	NA	NA	NA	NA	NA	NA
P8GP11-8	NA	NA	NA	NA	NA	NA	NA	NA
P8GP12-5	NA	NA	NA	NA	NA	NA	NA	NA
P8GP13-8	NA	NA	NA	NA	NA	NA	NA	NA
P8GP14-18	NA	NA	NA	NA	NA	NA	NA	NA
P8GP15-18	NA	NA	NA	NA	NA	NA	NA	NA
P8GP16-20	NA	NA	NA	NA	NA	NA	NA	NA
P8GP17-14	NA	NA	NA	NA	NA	NA	NA	NA
P8GP18-14	NA	NA	NA	NA	NA	NA	NA	NA
P8GP19-16	NA	NA	NA	NA	NA	NA	NA	NA
P8GP20-13	NA	NA	NA	NA	NA	NA	NA	NA
P8GP21	NA	NA	NA	NA	NA	NA	NA	NA
P8GP22-8	NA	NA	NA	NA	NA	NA	NA	NA
P8GP23-12	NA	NA	NA	NA	NA	NA	NA	NA
P8GP24-12	NA	NA	NA	NA	NA	NA	NA	NA
P8GP25-12	NA	NA	NA	NA	NA	NA	NA	NA
P8GP26-11	NA	NA	NA	NA	NA	NA	NA	NA
P8GP27-11	NA	NA	NA	NA	NA	NA	NA	NA
P8GP28-15	NA	NA	NA	NA	NA	NA	NA	NA
P8GP29-15	NA	NA	NA	NA	NA	NA	NA	NA
P8GP30-15	NA	NA	NA	NA	NA	NA	NA	NA

NS = No Standard
BQL = Below Quantitation Limit
PRGs = Prelim. Remediation Goals
SSLs = Soil Screening Levels
Bold Font = above one or more regulatory standard

TABLE I
SUMMARY OF SOIL ANALYTICAL RESULTS for 8 RCRA Metals
P008, P011-Waste Management of Carolinas, Inc.
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	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
EPA Region 9 PRGs (mg/kg)	0.39	5400	37	210	400	23	390	390
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NC DENR GW Section Soil Clean-up Levels (mg/kg)	NS	848	NS	27	270	NS	NS	NS
Background Concentrations (mg/kg)	5.75	NA	0	5.76	40.4	0	5.26	0
Sample Identification	Laboratory Analysis (mg/kg) RCRA Metals 6010B & 7471							
P8GP31-15	NA	NA	NA	NA	NA	NA	NA	NA
P8GP32-15	NA	NA	NA	NA	NA	NA	NA	NA
P8HA33-1	5.5	36.3	BQL	12.5	35.8	0.0398	BQL	BQL
P8GP34-1.5	3.85	15.3	BQL	12.7	25.5	0.0410	BQL	BQL
P8HA35-1.5	4.88	BQL	BQL	13.6	22.5	0.0589	BQL	BQL
P8HA36-1.5	6.59	21.6	BQL	20.9	88.5	0.142	BQL	BQL
P8HA37-1.5	5.71	33.9	BQL	16.1	28.2	0.144	BQL	BQL
P8HA38-1.5	5.43	21.4	BQL	17.2	25.7	0.0738	BQL	BQL
P8HA39-1.5	9.43	22.9	BQL	23.3	31.0	0.0835	BQL	BQL
P11GP1-10	NA	NA	NA	NA	NA	NA	NA	NA
P11GP2-16	NA	NA	NA	NA	NA	NA	NA	NA
P11GP3-15	5.82	45.5	1.75	13.3	137	0.123	3.51	BQL
P11GP4-20	12.7	87.9	BQL	BQL	12.3	BQL	BQL	BQL
P11GP5-15	3.25	24.2	BQL	BQL	120	BQL	2.08	BQL
P11GP6-15	NA	NA	NA	NA	NA	NA	NA	NA
P11GP7-9	4.55	18.3	BQL	12.2	30.2	0.0888	BQL	BQL
P11GP8-9	14.8	144	BQL	12.4	162	0.120	3.37	BQL
P11GP9-15	2	BQL	BQL	2.29	34.9	BQL	BQL	BQL
P11GP10-1	2.12	BQL	BQL	BQL	3.6	BQL	BQL	BQL
P11GP11-1	18.5	108	BQL	BQL	129	0.0430	BQL	BQL
P11GP12	BQL	BQL	BQL	BQL	26.7	BQL	BQL	BQL
P11GP13-20	NA	NA	NA	NA	NA	NA	NA	NA
P11GP14-15	NA	NA	NA	NA	NA	NA	NA	NA
P11GPA-10	NA	NA	NA	NA	NA	NA	NA	NA
P11GPB-10	NA	NA	NA	NA	NA	NA	NA	NA
P11GPC-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPD-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPE-4	NA	NA	NA	NA	NA	NA	NA	NA
P11GPF-4	NA	NA	NA	NA	NA	NA	NA	NA
P11GPG-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPH-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPI-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPJ-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPK-8	NA	NA	NA	NA	NA	NA	NA	NA
P11GPL-8	NA	NA	NA	NA	NA	NA	NA	NA
P11HAQ-1	4.64	15.8	BQL	15.9	23.5	0.0463	BQL	BQL
P11HAR-1	8.42	18.8	BQL	19.6	22.2	0.05205	BQL	BQL
P11HAS-1.5	0.964	BQL	BQL	1.10	7.31	BQL	BQL	BQL
P11HAT-4	NA	NA	NA	NA	NA	NA	NA	NA
P11HAU-4	NA	NA	NA	NA	NA	NA	NA	NA
P11HAV-3.5	NA	NA	NA	NA	NA	NA	NA	NA

NS = No Standard
BQL = Below Quantitation Limit
PRGs = Prelim. Remediation Goals
SSLs = Soil Screening Levels
Bold Font = above one or more regulatory standard

TABLE 2
Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P8GP1-20	P8GP2-13	P8GP3-8	P8GP4-20	P8GP5-20	P8GP6-20	P8GP7-20	P8GP8-15	P8GP9-20	P8GP10-15	P8GP11-8
Sample Depth - Feet				10.0-11.0	15.0-16.0	15.0-16.0	20.0-21.0	15.0-16.0	15.0-16.0	9.0-10.0	9.0-10.0	16.0-16.0	9.0-10.0	18.0-19.0
Sample Date				8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/26/2005	8/26/2005	8/26/2005	8/26/2005	8/26/2005	8/9/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Analytical Results/ mg/kg										
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)											
Acetone	1564	40880	3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Butanone	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Carbon disulfide	1564	40880	4	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Hexanone	625	16352	1.9	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzene	22	200	0.0054	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Toluene	3200	82000	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Ethylbenzene	1580	40000	0.24	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Xylene	32000	200000	5	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Isopropylbenzene (Cumene)	1564	40880	2	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2,3-Trichloropropane	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
n-Propylbenzene	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,3,5-Trimethylbenzene	782	20440	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2,4-Trimethylbenzene	782	20440	8	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
n-Butylbenzene	156	4088	4	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2-dichloropropane	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	63	1635	0.58	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Tetrachloroethene	12	110	0.0074	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.00919
Methyl-tert-butyl Ether	156	4088	0.52	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Semi-VOC's GCMS 8270				Laboratory Analytical Results mg/kg										
Acenaphthene	940	24000	8	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Anthracene	4500	12200	993	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo(a)anthracene	0.88	8	0.34	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[a]pyrene	0.088	0.78	0.091/0.088	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[b]fluoranthene	0.88	8	1	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[g,h,i]perylene	469	12264	6720	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[k]fluoranthene	9	78	12	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Chrysene	88	780	38	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Dibenzo[a,h]anthracene	NS	NS	0.17/0.088	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Dibenzofuran	82	1635	4.7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluoranthene	820	16400	276	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluorene	820	16400	44	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Indeno(1,2,3-cd)pyrewne	0.88	8	3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Phenol	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	63	1635	0.58	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Methylnaphthalene	63	1635	3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluorene	820	16400	44	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
bis (2-Ethylhexyl)phthalate	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Phenanthrene	469	12264	60	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Pyrene	469	12264	286	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Pesticides EPA 8081				Laboratory Analytical Results mg/kg										
All analytes	NA	NA	NA	BQL	BQL	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

TABLE 2
Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
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EI Project No.: ENMO050015.00

Sample Point Location				P8GP12-5	P8GP13-8	P8GP14-16	P8GP15-18	P8GP16-20	P8GP17-14	P8GP18-14	P8GP19-16	P8GP20-13	P8GP21
Sample Depth - Feet				15.0-16.0	20.0-21.0	15.0-16.0	10.0-11.0	10.0-11.0	8.0-9.0	8.0-9.0	3.5-4.0	3.5-4.0	8.0-9.0
Sample Date				8/9/2005	8/29/2005	8/29/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/8/2005
Field Screening Results-PID [ppm]				0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	*Cleanup Standards (MSCC)*			Laboratory Analytical Results/ mg/kg									
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)										
Acetone	1564	40880	3	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
2-Butanone	NS	NS	NS	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Carbon disulfide	1564	40880	4	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
2-Hexanone	825	18352	1.9	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Benzene	22	200	0.0056	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Toluene	3200	82000	7	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Ethylbenzene	1560	40000	0.24	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Xylene	32000	200000	5	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Isopropylbenzene (Cumene)	1564	40880	2	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
1,2,3-Trichloropropane	NS	NS	NS	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
n-Propylbenzene	NS	NS	NS	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
1,3,5-Trimethylbenzene	782	20440	7	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
1,2,4-Trimethylbenzene	782	20440	8	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
n-Butylbenzene	156	4088	4	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
1,2-dichloropropane	NS	NS	NS	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Naphthalene	63	1635	0.58	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Tetrachloroethene	12	110	0.0074	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Methyl-tert-butyl Ether	156	4088	0.92	BQL	BQL	NA	BQL	NA	BQL	NA	NA	NA	BQL
Semi-VOC's GCMS 8270				**Laboratory Analytical Results mg/kg**									
Acenaphthene	940	24000	8	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Anthracene	4800	12200	995	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Benzo(a)anthracene	0.88	8	0.34	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Benzo(a)pyrene	0.088	0.78	0.091/0.088	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Benzo(b)fluoranthene	0.88	8	1	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Benzo(g,h,i)perylene	469	12264	6720	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Benzo(k)fluoranthene	9	78	12	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Chrysene	88	780	38	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Dibenzo(a,h)anthracene	NS	NS	0.17/0.088	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Dibenzofuran	82	1635	4.7	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Fluoranthene	620	16400	276	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Indeno(1,2,3-cd)pyrene	0.88	8	3	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Phenol	NS	NS	NS	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Naphthalene	63	1635	0.58	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
2-Methylnapthalene	63	1635	3	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
bis (2-Ethylhexyl)phthalate	NS	NS	NS	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Phenanthrene	469	12264	80	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Pyrene	469	12264	286	BQL	BQL	BQL	BQL	NA	BQL	NA	NA	NA	BQL
Pesticides EPA 8081				**Laboratory Analytical Results mg/kg**									
All analytes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

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Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P8GP22	P8GP23	P8GP24	P8GP25	P8GP26	P8GP27	P8GP28	P8GP29	P8GP30	P8GP31	P8GP32
Sample Depth - Feet				8.0-9.0	8.0-9.1	8.0-9.2	8.0-9.3	8.0-9.4	8.0-9.5	8.0-9.6	8.0-9.7	8.0-9.8	8.0-9.9	8.0-9.10
Sample Date				9/8/2005	9/8/2005	9/10/2005	9/11/2005	9/12/2005	9/13/2005	9/14/2005	9/15/2005	9/16/2005	9/17/2005	9/18/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)													
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)	Laboratory Analytical Results/ mg/kg										
Acetone	1564	40880	3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Butanone	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Carbon disulfide	1564	40880	4	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Hexanone	625	16352	1.9	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzene	22	200	0.0058	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Toluene	3200	82000	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Ethylbenzene	1560	40000	0.24	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Xylene	32000	200000	5	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Isopropylbenzene (Cumene)	1564	40880	2	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2,3-Trichloropropane	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
n-Propylbenzene	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,3,5-Trimethylbenzene	782	20440	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2,4-Trimethylbenzene	782	20440	8	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
n-Butylbenzene	155	4088	4	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2-dichloropropane	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	83	1635	0.58	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Tetrachloroethene	12	110	0.0074	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Methyl-tert-butyl Ether	156	4088	0.02	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Semi-VOC's GCMS 8270				**Laboratory Analytical Results mg/kg**										
Acenaphthene	940	24000	8	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Anthracene	4600	12200	995	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo(a)anthracene	0.88	8	0.34	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo(a)pyrene	0.088	0.78	0.091/0.088	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo(b)fluoranthene	0.88	8	1	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo(g,h,i)perylene	469	12264	6720	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo(k)fluoranthene	9	78	12	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Chrysene	88	780	38	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Dibenzo(a,h)anthracene	NS	NS	0.17/0.088	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Dibenzofuran	82	1635	4.7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluoranthene	620	16400	278	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Indeno(1,2,3-cd)pyrewne	0.88	8	3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Phenol	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	83	1635	0.58	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Methylnapthalene	83	1635	3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
bis (2-Ethylhexyl)phthalate	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Phenanthrene	469	12264	60	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Pyrene	469	12264	285	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Pesticides EPA 8081				**Laboratory Analytical Results mg/kg**										
All analytes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

TABLE 2
Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P8HA33-1	P8HA34-1.5	P8HA35-1.5	P8HA36-1.5	P8HA37-1.5	P8HA38-1.5	P8HA39-1.5
Sample Depth - Feet				1.0-2.0	1.5-2.5	1.5-2.54	1.5-2.5	1.5-2.5	1.5-2.5	1.5-2.5
Sample Date				9/28/2005	9/29/2005	9/29/2005	9/20/2005	9/29/2005	9/29/2005	9/29/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)									
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)	Laboratory Analytical Results mg/kg						
Acetone	1564	40880	3	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	1564	40880	4	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	625	16352	1.9	NA	NA	NA	NA	NA	NA	NA
Benzene	22	200	0.0056	NA	NA	NA	NA	NA	NA	NA
Toluene	3200	82000	7	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1560	40000	0.24	NA	NA	NA	NA	NA	NA	NA
Xylene	32000	200000	5	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	1564	40880	2	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	782	20440	7	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	782	20440	8	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	156	4088	4	NA	NA	NA	NA	NA	NA	NA
1,2-dichloropropane	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA
Naphthalene	63	1635	0.58	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	12	110	0.0074	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butyl Ether	156	4088	0.92	NA	NA	NA	NA	NA	NA	NA
Semi-VOC's GCMS 8270				Laboratory Analytical Results mg/kg						
Acenaphthene	940	24000	8	NA	NA	NA	NA	NA	NA	NA
Anthracene	4600	12200	995	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	0.88	8	0.34	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.088	0.78	0.091/0.088	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.88	8	1	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	469	12264	8720	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	9	78	12	NA	NA	NA	NA	NA	NA	NA
Chrysene	88	780	38	NA	NA	NA	NA	NA	NA	NA
Dibenzo[a,h]anthracene	NS	NS	0.17/0.088	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	82	1635	4.7	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	620	16400	278	NA	NA	NA	NA	NA	NA	NA
Fluorene	620	16400	44	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.88	8	3	NA	NA	NA	NA	NA	NA	NA
Phenol	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA
Naphthalene	83	1635	0.58	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	83	1635	3	NA	NA	NA	NA	NA	NA	NA
Fluorene	620	16400	44	NA	NA	NA	NA	NA	NA	NA
bis (2-Ethylhexyl)phthalate	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	469	12264	60	NA	NA	NA	NA	NA	NA	NA
Pyrene	469	12264	286	NA	NA	NA	NA	NA	NA	NA
Pesticides EPA 8081				Laboratory Analytical Results mg/kg						
All analytes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

TABLE 2
Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P11GP1-10	P11GP2-16	P11GP3-15	P11GP4-20	P11GP5-15	P11GP6-15	P11GP7-9	P11GP8-9	P11GP8-15	P11GP10-9	P11GP11-18	P11GP12-15	P11GP13-20
Sample Depth - Feet				10.0-11.0	16.0-17.0	15.0-16.0	20.0-21.0	15.0-16.0	15.0-16.0	9.0-10.0	9.0-10.0	15.0-16.0	9.0-10.0	18.0-19.0	15.0-16.0	20.0-21.0
Sample Date				8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005	8/10/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Analytical Results/ mg/kg												
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)													
Acetone	1564	40880	3	NA	NA	BQL	BQL	BQL	NA	0.471	BQL	BQL	BQL	BQL	BQL	NA
2-Butanone	NS	NS	NS	NA	NA	BQL	BQL	BQL	NA	0.128	BQL	BQL	BQL	BQL	BQL	NA
Carbon disulfide	1564	40880	4	NA	NA	BQL	BQL	BQL	NA	0.00537	BQL	BQL	BQL	BQL	BQL	NA
2-Hexanone	625	16352	1.9	NA	NA	BQL	BQL	BQL	NA	0.0136	BQL	BQL	BQL	BQL	BQL	NA
Benzene	22	200	0.0055	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Toluene	3200	82000	7	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Ethylbenzene	1560	40000	0.24	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Xylene	32000	200000	5	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Isopropylbenzene (Cumene)	1564	40880	2	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
1,2,3-Trichloropropane	NS	NS	NS	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
n-Propylbenzene	NS	NS	NS	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
1,3,5-Trimethylbenzene	782	20440	7	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
1,2,4-Trimethylbenzene	782	20440	8	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
n-Butylbenzene	150	4088	4	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
1,2-dichloropropane	NS	NS	NS	NA	NA	BQL	0.0141	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Naphthalene	53	1635	0.58	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Tetrachloroethene	12	110	0.0074	NA	NA	BQL	0.00941	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Methyl-tert-butyl Ether	156	4088	0.92	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Semi-VOC's GCMS 8270				Laboratory Analytical Results mg/kg												
Acenaphthene	940	24000	8	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Anthracene	4800	12200	995	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Benzo(a)anthracene	0.88	8	0.34	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Benzo(a)pyrene	0.088	0.78	0.091/0.088	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Benzo(b)fluoranthene	0.88	8	1	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Benzo(g,h,i)perylene	469	12264	6720	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Benzo(k)fluoranthene	9	78	12	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Chrysene	88	780	38	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Dibenzo(a,h)anthracene	NS	NS	0.17/0.088	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Dibenzofuran	82	1635	4.7	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Fluoranthene	620	16400	276	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Fluorene	620	16400	44	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Indeno(1,2,3-cd)pyrewne	0.88	8	3	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Phenol	NS	NS	NS	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Naphthalene	53	1635	0.58	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
2-Methylnapthalene	63	1635	3	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Fluorene	620	16400	44	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
bis (2-Ethylhexyl)phthalate	NS	NS	NS	NA	NA	1.04	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Phenanthrene	469	12264	60	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Pyrene	469	12264	266	NA	NA	BQL	BQL	BQL	NA	BQL	BQL	BQL	BQL	BQL	BQL	NA
Pesticides EPA 8081				Laboratory Analytical Results mg/kg												
All analytes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

TABLE 2
Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P11GP14-15	P11GPA-10	P11GPB-10	P11GPC-8	P11GPD-8	P11GPE-4	P11GPF-4	P11GPG-8	P11GPH-8	P11GPI-5	P11GPJ-6	P11GPK-8
Sample Depth - Feet				15.0-16.0	10.0-11.0	10.0-11.0	8.0-9.0	8.0-9.0	4.0-5.0	4.0-5.0	8.0-9.0	8.0-9.0	4.5-5.0	6.0-6.5	8.0-9.0
Sample Date				8/10/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/8/2005	9/8/2005	9/8/2005	9/8/2005	9/8/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Analytical Results/ mg/kg											
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)												
Acetone	1564	40880	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	1564	40880	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	625	16352	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	22	200	0.0056	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	3200	82000	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1560	40000	0.24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene	32000	200000	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	1564	40880	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	782	20440	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	782	20440	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	156	4088	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-dichloropropane	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	63	1635	0.58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	12	110	0.0074	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-tert-butyl Ether	150	4088	0.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-VOC's GCMS 8270				**Laboratory Analytical Results mg/kg**											
Acenaphthene	940	24000	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	4800	12200	595	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	0.88	8	0.34	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.088	0.78	0.091/0.088	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.88	8	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	469	12264	6720	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	9	78	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	88	780	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo[a,h]anthracene	NS	NS	0.17/0.088	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	62	1635	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	620	16400	276	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	620	16400	44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrewne	0.88	8	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	63	1635	0.58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnapthalene	63	1635	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	620	16400	44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis (2-Ethylhexyl)phthalate	NS	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	469	12264	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	469	12264	266	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides EPA 8081				**Laboratory Analytical Results mg/kg**											
All analytes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

TABLE 2
Summary of Soil Analytical Results
VOCs, SVOCs, and Pesticides
P008, P011-Waste Management of Carolinas, Inc.
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P11GPL-8	P11GPM-8	P11GPN-15	P11GPO-15	P11GPP-15	P11HAQ-8	P11HAR-15	P11HAS-15	P11HAT-15	P11HAU-15	P11HAV-15
Sample Depth - Feet				8.0-9.0	8.0-9.0	15.0-16.0	15.0-16.0	15.0-16.0	8.0-9.0	15.0-16.0	15.0-16.0	15.0-16.0	15.0-16.0	15.0-16.0
Sample Date				9/8/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005	9/12/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Analytical Results/ mg/kg										
VOC's GCMS 8260/8021	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)											
Acetone	1564	40880	3	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
2-Butanone	NS	NS	NS	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Carbon disulfide	1564	40880	4	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
2-Hexanone	625	16352	1.9	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Benzene	22	200	0.0058	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Toluene	3200	82000	7	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Ethylbenzene	1560	40000	0.24	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Xylene	32000	200000	5	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Isopropylbenzene (Cumene)	1564	40880	2	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
1,2,3-Trichloropropane	NS	NS	NS	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
n-Propylbenzene	NS	NS	NS	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
1,3,5-Trimethylbenzene	782	20440	7	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
1,2,4-Trimethylbenzene	782	20440	8	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
n-Butylbenzene	156	4088	4	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
1,2-dichloropropane	NS	NS	NS	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Naphthalene	63	1635	0.58	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Tetrachloroethene	12	110	0.0074	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Methyl-tert-butyl Ether	156	4088	0.92	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Semi-VOC's GCMS 8270				Laboratory Analytical Results mg/kg										
Acenaphthene	940	24000	8	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Anthracene	4600	12200	995	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Benzo(a)anthracene	0.88	8	0.34	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Benzo(a)pyrene	0.088	0.78	0.091/0.088	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Benzo(b)fluoranthene	0.88	8	1	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Benzo(g,h,i)perylene	469	12264	6720	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Benzo(k)fluoranthene	9	78	12	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Chrysene	88	780	38	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Dibenzo(a,h)anthracene	NS	NS	0.17/0.088	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Dibenzofuran	62	1635	4.7	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Fluoranthene	620	16400	276	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Fluorene	620	16400	44	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Indeno(1,2,3-cd)pyrewne	0.88	8	3	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Phenol	NS	NS	NS	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Naphthalene	63	1635	0.58	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
2-Methylnaphthalene	63	1635	3	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Fluorene	620	16400	44	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
bis (2-Ethylhexyl)phthalate	NS	NS	NS	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Phenanthrene	469	12264	60	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Pyrene	469	12264	285	NA	BQL	NA	BQL	NA	BQL	NA	BQL	NA	NA	NA
Pesticides EPA 8081				Laboratory Analytical Results mg/kg										
All analytes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not analyzed/applicable
BQL = Below Quantitation Limits

8

Waste Management of Carolinas, Inc.
D.B. 1756 PG. 1313

NAD 83

grass

gravel

approximate property boundary

P8TV-1
P8GP32
P8GP30
P8GP25
P8GP24
P8GP5
P8GP4
P8HA37-1.5
proposed ROW
P8HA36-1.5
P8GP2
P8HA35-1.5
P8HA33-1
P8GP6
P8GP1
P8GP29
P8GP26
P8GP23
P8GP12
P8GP11
P8GP3
P8GP10
P8GP38-1.5
P8GP9
P8HA39-1.5
P8GP8
P8GP7
P8HA34-1.5
P8GP31
P8GP28
P8GP27
P8GP22
treeline
existing ROW
P8GP16
P8GP17
P8GP18
P8GP19
P8GP20
P8GP13
P8GP21
GPH

US 52

US 52

INV. ELEV. = 968.80
TOP ELEV. = 974.38
INV. ELEV. = 968.34

Norfolk Southern Rail

LEGEND:

- building
- property boundary
- chain-link fence
- proposed right-of-way
- existing right-of-way
- proposed drainage piping
- soil test boring
- monitoring well

0' 75' 150'

approximate scale in feet

FIGURE NO.:	3A
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" =75'

SITE MAP
(Inset A)
Parcel 8 & Parcel 11
Waste Management of Carolinas, Inc.
3301, 3303 North Glenn Avenue
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC.

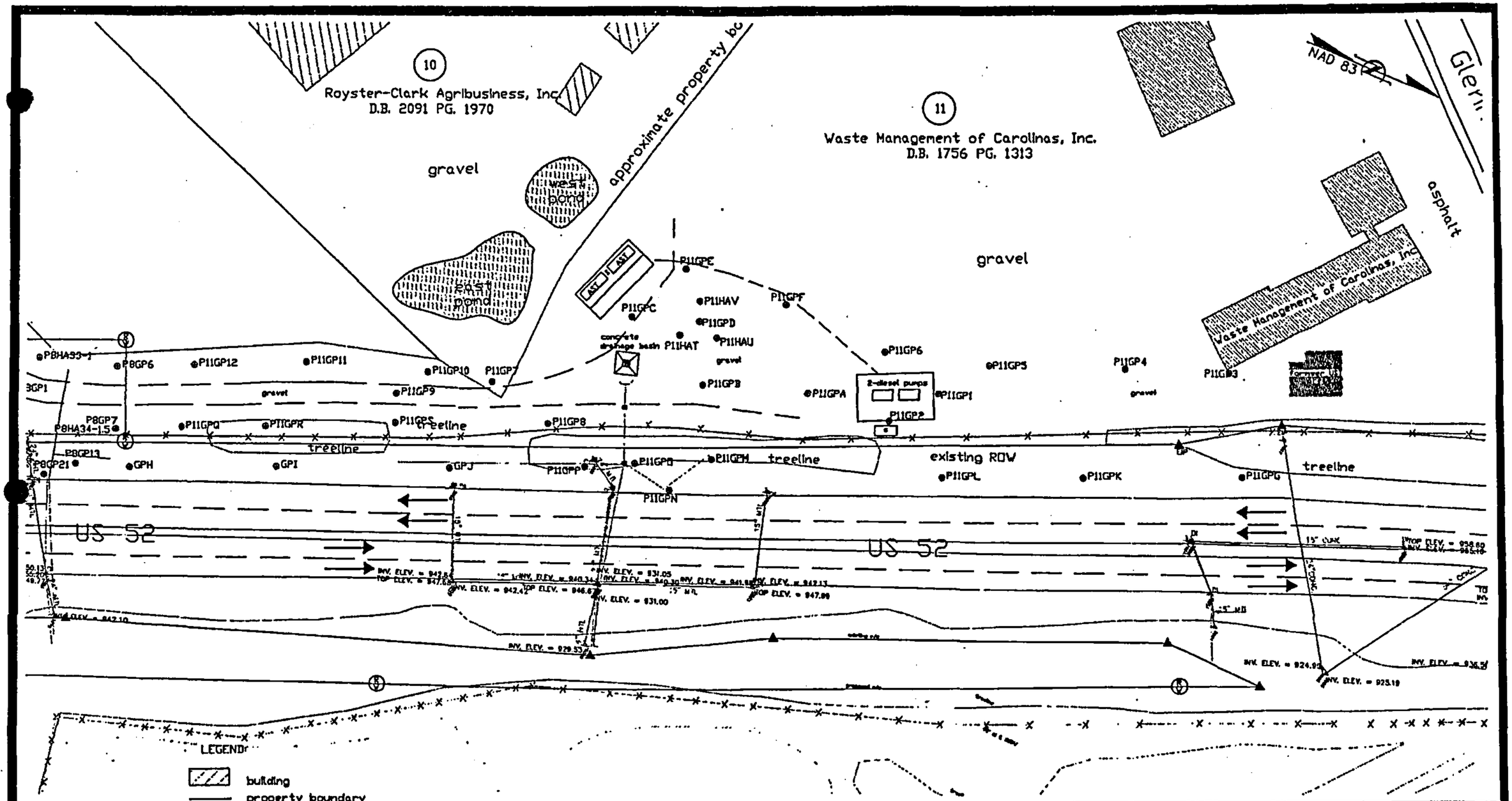

FIGURE NO.:	3B
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 75'

SITE MAP

(Inset B)
Parcel 8 & Parcel 11
Waste Management of Carolinas, Inc.
3301, 3303 North Glenn Avenue
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC.

gravel

NAD 83

approximate property boundary

grass

B

Waste Management of Carolinas, Inc.
D.B. 1756 PG. 1313

gravel

P8TV-1

P8GP32

P8GP30

P8GP25

P8GP24

P8GP5
Pb=16.3

P8GP4 Pb=46.0

P8HA37-1.5
Pb=28.2

proposed ROW

P8GP3
Pb=34.8

P8HA36-1.5
Pb=66.5

P8GP2 Pb=12.7

P8HA35-1.5
Pb=22.5

P8HA33-1
Pb=35.8

P8GP29

P8GP26

P8GP23

P8GP12

P8GP11

P8GP10

P8GP31

P8GP28

P8GP27

P8GP22

treeline

existing ROW

P8GP16

P8GP17

P8GP18

P8GP19

P8GP20

P8GP9

P8HA39-1.5
Pb=31.0

P8GP8

P8GP1
Pb=12.1

P8GP7

P8HA34-1.5
Pb=23.7

P8GP13

P8GP21

US 52

US 52

INV. ELEV. = 968.86

TOP ELEV. = 974.36 INV. ELEV. = 968.34

NO END FOUND

4140 94.2 2740 63 3.03

532 348 17.9 3010 12300 2000 31.3

22.8 56.9

228 16.5 21.3 6.43 7.34

LEGEND:

- building
- property boundary
- chain-link fence
- proposed right-of-way
- existing right-of-way
- proposed drainage piping
- soil test boring
- monitoring well

0' 75' 150'

approximate scale in feet

FIGURE NO.:	4A
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	9/2005
REVISED:	N/A
SCALE:	1" =75'

DISTRIBUTION OF LEAD-IMPACTED SOILS (PARCEL 008)

Waste Management of Carolinas, Inc.
3301, 3303 North Glenn Avenue
Winston-Salem, North Carolina

EI

ENVIRONMENTAL INVESTIGATIONS, INC.

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS for 8 RCRA Metals
P009-Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

8 RCRA Metals 6010B & 7471	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
EPA Region 9 PRGs (mg/kg)	0.39	5400	37	210	400	23	390	390
NC HWS SSLs (mg/kg)	5.24	848	2.72	27.2	270	0.0154	12.2	0.223
NC DENR GW Section Soil Clean-up Levels (mg/kg)	NS	848	NS	27	270	NS	NS	NS
Background Concentrations (mg/kg)	5.75	NA	0	5.76	40.4	0	5.26	0
Sample Identification	Laboratory Analysis (mg/kg)							
P9GP1-3"	551	1540	2.49	7.23	4140	7.87	6.39	9.08
P9GP2-1	6.87	93.4	BQL	49.7	94.2	0.140	3.03	BQL
P9GP3-2	47.5	378	1.54	2.10	2740	0.408	4.18	1.80
P9GP4-2	BQL	154	BQL	14.5	3.03	BQL	BQL	BQL
P9GP5-5	7.12	25.8	BQL	22.7	63.0	0.0502	BQL	BQL
P9GP6-2	8.51	54.7	BQL	5.26	303	0.134	2.28	BQL
P9GP7-3"	48.8	186	BQL	3.76	12300	0.378	10.5	BQL
P9GP8-10	2.50	35.9	BQL	5.49	31.3	BQL	BQL	BQL
P9GP9-10	3.13	BQL	BQL	4.49	17.9	BQL	BQL	BQL
P9GP10-1"	42.6	165	BQL	4.43	532	0.645	4.11	BQL
P9GP11-1	134	72.2	BQL	3.76	2000	BQL	4.30	BQL
P9GP12	2.99	16.1	BQL	1.14	25.4	BQL	BQL	BQL
P9GP13	355	1450	1.90	9.19	3010	0.688	3.81	14.0
P9GP14-14	2.57	BQL	BQL	1.16	348	BQL	BQL	BQL
P9GP15-15	1.09	BQL	BQL	BQL	22.8	BQL	BQL	BQL
P9GP16-5	1.60	BQL	BQL	BQL	56.9	BQL	BQL	BQL
P9GP17	2.37	26.3	BQL	BQL	7.34	BQL	BQL	BQL
P9GP18	1.83	29.7	BQL	BQL	16.5	BQL	BQL	BQL
P9GP19-15	5.40	60.5	BQL	BQL	6.43	BQL	BQL	BQL
P9GP20	1.58	10.9	BQL	BQL	21.3	BQL	BQL	BQL
P9GP21	4.95	14.8	BQL	BQL	46.1	BQL	2.73	BQL

NS = No Standard
BQL = Below Quantitation Limit
PRGs = Prelim. Remediation Goals
SSLs = Soil Screening Levels
BOLD Font = above one or more regulatory standards

TABLE 1

SUMMARY OF SOIL ANALYTICAL RESULTS for 8 RCRA Metals
P009-Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

8 RCRA Metals 6010B & 7471	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
EPA Region 9 PRGs (mg/kg)	0.39	5400	37	210	400	23	390	390
NC HWS SSLs (mg/kg)	5.24	848	2.72	27.2	270	0.0154	12.2	0.223
NC DENR GW Section Soil Clean-up Levels (mg/kg)	NS	848	NS	27	270	NS	NS	NS
Background Concentrations (mg/kg)	5.75	NA	0	5.76	40.4	0	5.26	0
Sample Identification	Laboratory Analysis (mg/kg)							
P9GP22-15	3.15	15.4	BQL	BQL	28.0	BQL	2.22	BQL
P9GP23-14	7.01	14.4	BQL	BQL	343	BQL	2.59	BQL
P9GP24	5.47	13.1	BQL	1.16	82.0	BQL	BQL	BQL
P9GP25-2	4.73	BQL	BQL	2.34	24.2	BQL	2.52	BQL
P9GP26-2	2.22	267	BQL	53.4	30.6	BQL	BQL	BQL
P9GP27-3	1.45	48.6	BQL	27.2	15.5	BQL	BQL	BQL
P9GP28-12	BQL	28.3	BQL	2.84	34.8	BQL	BQL	BQL
P9GP29-12	1.93	BQL	BQL	4.43	14.9	BQL	BQL	BQL
P9GP30-12	3.91	12.3	BQL	3.76	14.8	0.0665	BQL	BQL
P9GP31-14	2.41	BQL	BQL	BQL	16.3	BQL	BQL	BQL
P9GP32-14	3.77	43.2	BQL	3.92	100	0.0267	2.30	BQL
P9GP33-14	5.92	45.0	BQL	14.7	138	BQL	BQL	BQL
P9GP34-14	3.60	BQL	BQL	BQL	116	0.133	BQL	BQL
P9GP35-9	3.07	18.5	BQL	4.37	19.2	0.0483	BQL	BQL
P9GP36-5	1.31	21.1	BQL	4.38	6.05	BQL	2.01	BQL
P9GP37-5	5.48	20.7	BQL	6.94	39.4	0.114	BQL	BQL
P9GP38-5	3.83	144	BQL	27.5	16.5	0.0268	2.63	BQL
P9GP39-5	8.76	85.6	BQL	11.0	59.7	0.0425	2.87	BQL
P9GP40-5	BQL	23.5	BQL	2.41	3.77	BQL	BQL	BQL
P9GP40-5	2.90	BQL	BQL	4.96	36.5	BQL	2.39	BQL
P9GP41-16	1.47	37.3	BQL	BQL	1.61	BQL	BQL	BQL
P9GP42	2.60	75.3	BQL	BQL	3.85	BQL	BQL	BQL
P9GP43-14	5.06	BQL	BQL	1.66	21.2	BQL	BQL	BQL
P9GP45-5	5.42	216	BQL	15.6	15.7	0.0543	2.15	BQL
P9GP44-20	4.89	14.3	BQL	BQL	4.07	BQL	BQL	BQL
P9GP48	1.33	16.5	BQL	BQL	228	0.0489	BQL	BQL

NS = No Standard
BQL = Below Quantitation Limit
PRGs = Prelim. Remediation Goals
SSLs = Soil Screening Levels
BOLD Font = above one or more regulatory standards

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS for 13 Priority Pollutant Metals
P009-Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

8 RCRA Metals 6010B & 7471	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
EPA Region 9 PRGs (mg/kg)	31	0.39	5400	37	210	3100	400	23	1600	390	390	390	390
NC HWS SSLs (mg/kg)	5.42	5.24	848	2.72	27.2	704	270	0.0154	56.4	12.2	0.223	0.223	0.223
NC DENR GW Section Soil Clean-up Levels (mg/kg)	NS	NS	848	NS	27	NS	270	NS	NS	NS	NS	NS	NS
Sample Identification	Laboratory Analysis (mg/kg)												
P9GP50-20	BQL	3.48	BQL	BQL	BQL	BQL	6.69	BQL	BQL	2.69	BQL	BQL	7.03
P9GP51-20	BQL	2.43	BQL	BQL	7.69	6.08	9.13	BQL	BQL	2.78	BQL	BQL	15.0
P9GP52-15	BQL	1.87	1.18	BQL	2.61	BQL	10.3	BQL	BQL	2.64	BQL	BQL	60.6
P9GP53-15	BQL	2.74	BQL	BQL	BQL	BQL	23.8	BQL	BQL	2.47	BQL	BQL	9.01
P9GP54-15	BQL	5.01	1.27	BQL	2.00	10.1	30.9	BQL	BQL	3.03	BQL	BQL	59.8
P9GP55-20	BQL	2.90	BQL	BQL	4.96	5.40	36.5	BQL	BQL	2.39	BQL	BQL	60.2
P9GP56-15	BQL	1.70	1.44	BQL	2.71	4.37	21.9	BQL	BQL	2.42	BQL	BQL	74.3

NS = No Standard
BQL = Below Quantitation Limit
PRGs = Prelim. Remediation Goals
SSLs = Soil Screening Levels
BOLD Font = above one or more regulatory standards

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS for Extractable Lead (TCLP)
P009-Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Identification		P9GP1-3	P9GP7-3	P9GP10-1
Sample Date		8/23/2005	8/23/2005	8/23/2005
Sample Depth (feet)		3.0-3.5	3.0-3.5	1.0-1.5
Target Metal EPA Method 6010B	NC HWS SSLs GW Section SCL (mg/kg)	LABORATORY RESULTS (mg/kg)		
Lead	270	***4,140***	***12,300***	***532***
	Toxicity Characteristic Standards (mg/L)	LABORATORY RESULTS (mg/L)		
	5*	0.183	**123.0**	3.43

NOTE:

Bold Font = In Excess of Toxicity Characteristic Regulatory Level

Bold Font, *Italics* = In Excess of HWS SSL

mg/kg, mg/L = parts per million (ppm)

* = Standard established using the Toxicity Leaching Characteristic Procedure (TCLP)

TABLE 4
Summary of Soil Analytical Results
VOCs and SVOCs
P009-Atlantic Scrap and Processing, LLC
3411 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P9GP1-3	P9GP3-2	P9GP13	P9GP14-14	P9GP19-15	P9GP20	P9GP27-3	P9GP35-9	P9GP40-5	P9GP41-16
Sample Depth - Feet				3.0-4.0	2.0-3.0	13.0-14.0	14.0-15.0	15.0-16.0		3.0-4.0	9.0-10.0	5.0-6.0	16.0-17.0
Sample Date				8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Analytical Results/ mg/kg									
VOC's GCMS 8260/5035	Residential MSCCs (mg/kg)	Industrial/Commercial MSCCs (mg/kg)	Soil-to-GW MSCCs (mg/kg)										
Benzene	22	200	0.0056	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Toluene	3200	82000	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Ethylbenzene	1560	40000	0.24	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Xylene	32000	200000	5	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Isopropylbenzene (Cumene)	1564	40880	2	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2,3-Trichloropropane	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
n-Propylbenzene	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,3,5-Trimethylbenzene	782	20440	7	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
1,2,4-Trimethylbenzene	782	20440	8	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
n-Butylbenzene	156	4088	4	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	63	1635	0.58	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Tetrachloroethene	12	110	0.0074	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.0695	0.0102
Methyl-tert-butyl Ether	156	4088	0.92	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Semi-VOC's GCMS 8270				**Laboratory Analytical Results/ mg/kg**									
Acenaphthene	940	24000	8	1.72	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Anthracene	4800	12200	995	1.63	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[a]anthracene	0.88	8	0.34	5.95	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[a]pyrene	0.088	0.78	0.091/0.088	7.56	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[b]fluoranthene	0.88	8	1	9.01	0.446	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[g,h,i]perylene	469	12264	8720	4.4	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Benzo[k]fluoranthene	9	78	12	3.04	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Chrysene	88	780	38	7.29	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Dibenzo[a,h]anthracene	NS	NS	0.17/0.088	9.66	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Dibenzofuran	62	1635	4.7	0.737	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluoranthene	620	16400	276	13	0.511	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluorene	620	16400	44	1.14	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Indeno(1,2,3-cd)pyrewne	0.88	8	3	4.6	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Phenol	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Naphthalene	63	1635	0.58	BQL	BQL	0.735	BQL	BQL	BQL	BQL	BQL	BQL	BQL
2-Methylnapthalene	63	1635	3	BQL	BQL	1.06	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
bis (2-Ethylhexyl)phthalate	46	410	6.67	BQL	0.627	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Phenanthrene	469	12264	60	8.78	BQL	0.633	BQL	BQL	BQL	BQL	BQL	BQL	BQL
Pyrene	469	12264	286	9.38	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL

* = Health-based level > 100% NS = No Standard NA = Not Applicable BQL = Below Quantitation Limit

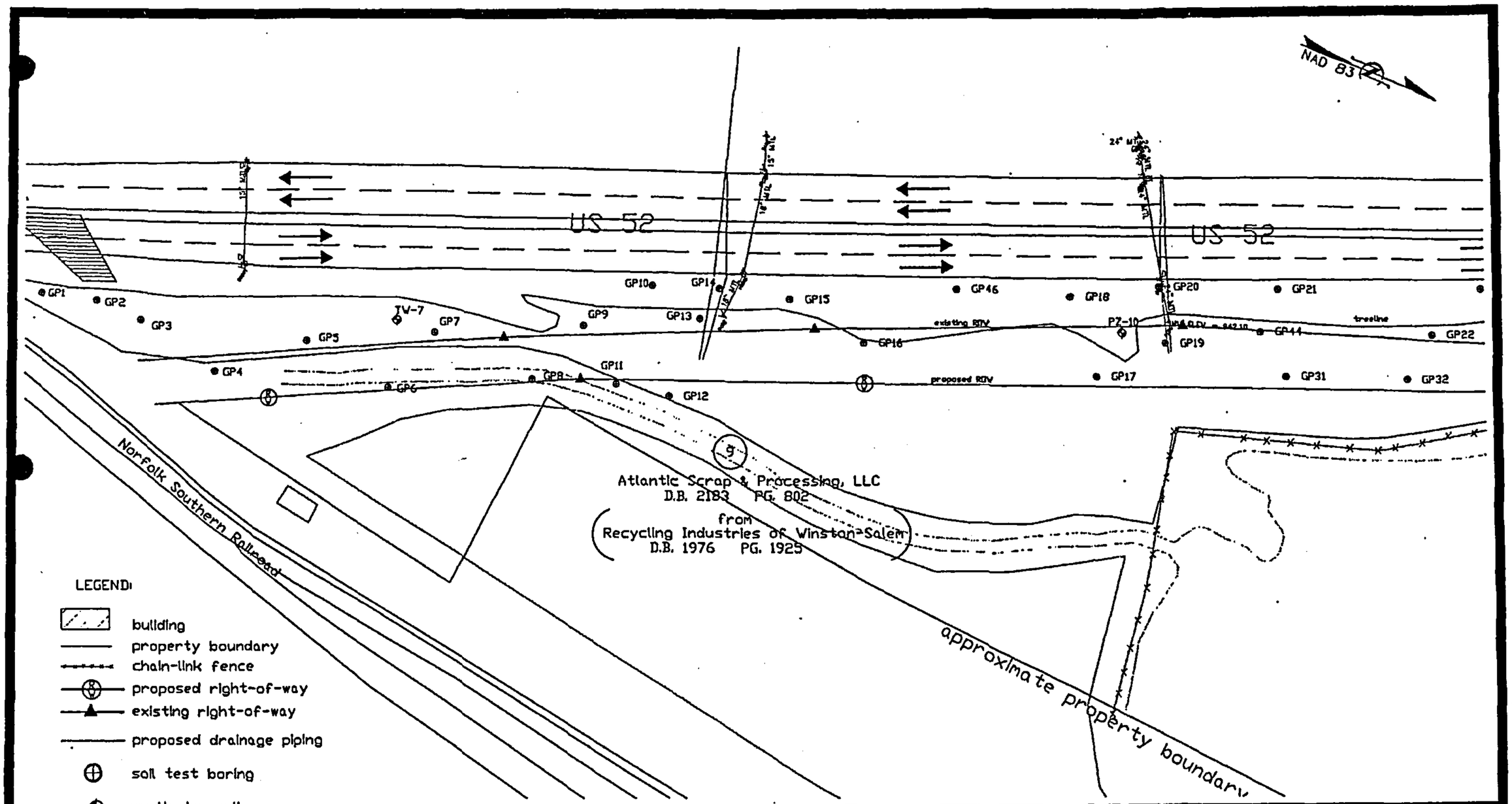

FIGURE NO.:	3A
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" =75'

SITE MAP
(Inset A)

Parcel 9
Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC

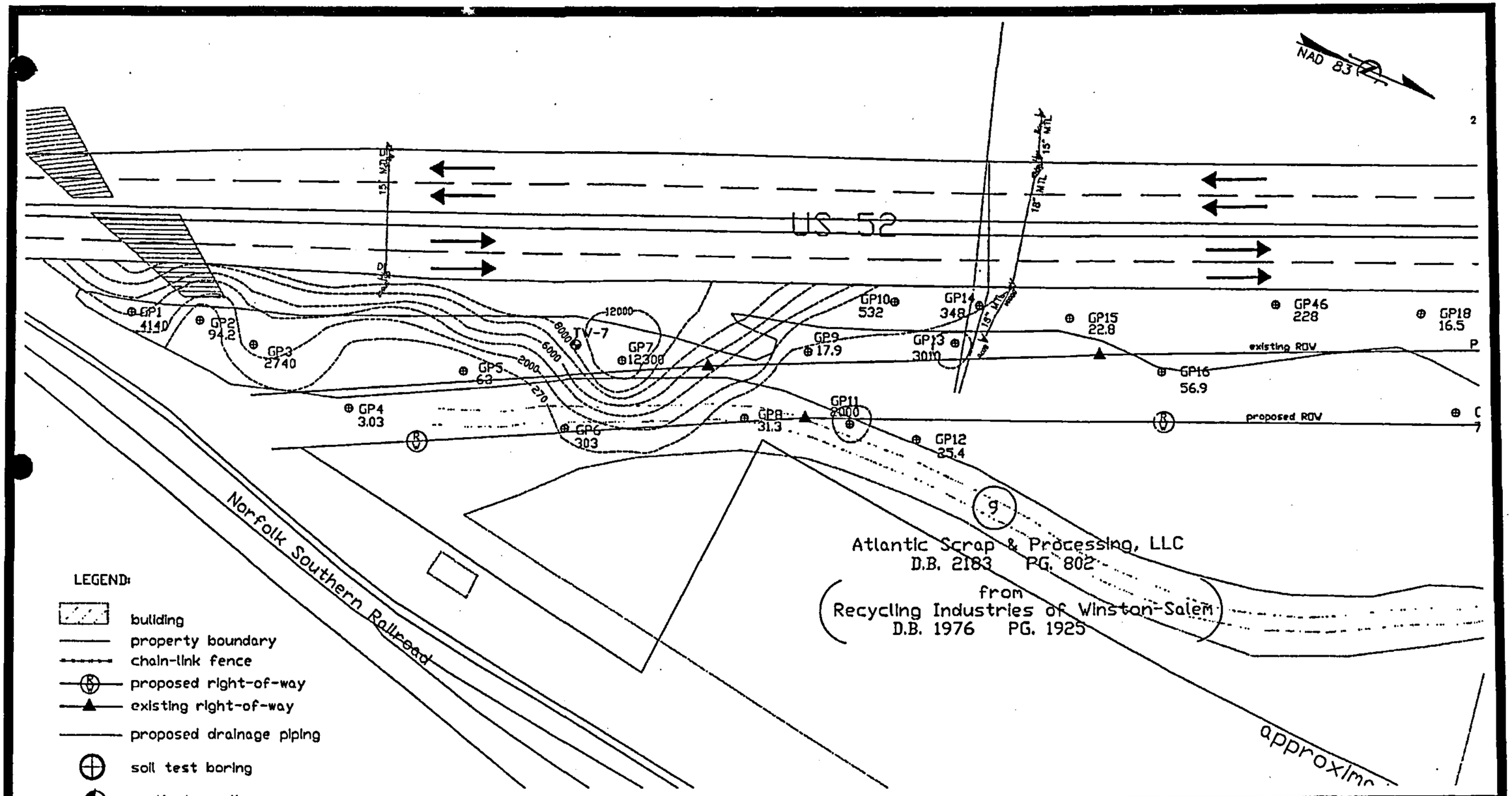

FIGURE NO.:	4A
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 60'

DISTRIBUTION OF LEAD IN SOILS
(Inset A)
Parcel 9
Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC

NAD 83

US 52

GP21 5.1
GP22 28.0
GP23 343
GP24 82
GP25 24.2
GP26 30.6
GP27 15.5
GP28 2.84
GP29 4.43
GP30 3.76
GP31 16.3
GP32 100
GP33 136
GP34 116
GP35 19.2
GP36 6.05
GP37 39.4
GP38 16.5
GP39 59.7
GP40 3.77
GP41 15.1
GP42 3.85
GP43 21.2
GP45 15.7

treeline
existing ROW
proposed ROW
1/2" ci & 3SBV
15" MTL
24" MTL
270

9

Atlantic Scrap & Processing, LLC
D.B. 2183 PG. 802

from
Recycling Industries of Winston-Salem
D.B. 1976 PG. 1925

LEGEND:

- building
- property boundary
- chain-link fence
- proposed right-of-way
- existing right-of-way
- proposed drainage piping
- soil test boring
- monitoring well
- total lead isopleth (mg/kg)

0' 60' 120'
approximate scale in feet

FIGURE NO.:	4B
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 60'

DISTRIBUTION OF LEAD IN SOILS
(Inset B)
Parcel 9
Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem, North Carolina

ENVIRONMENTAL INVESTIGATIONS, INC.

10
Royster-Clark Agribusiness, Inc.
D.B. 2091 PG. 1970

11
Waste Management of Carolinas, Inc.
D.B. 1756 PG. 1313

approximate property boundary

NAD 83

gravel

west pond

east pond

estimated extent of DRO-impacted soils

estimated extent of lead-impacted soils

asphalt

Waste Management of Carolinas, Inc

former US 52

AST

AST

P11GPE
GRO=BQL, DRO=25.9

P11GPC
GRO,DRO=BQL
concrete drainage basin

P11HAV
DRO=BQL

P11GPD GRO=BQL, DRO=116

P11GPF
GRO,DRO=BQL

P11HAT
DRO=BQL

P11HAU
DRO=BQL
gravel

P11GP6
GRO,DRO=BQL

P11GP5
Pb=120

P11GP4
Pb=12.3
gravel

P11GP3
Pb=137

P11GPB
GRO,DRO=BQL

P11GPA
GRO,DRO=BQL

2-diesel pumps

P11GP1
GRO,DRO=BQL

P11GP2
GRO,DRO=BQL

P8GP6

P11GP12
Pb=26.7

P11GP11
Pb=129

P11GP10
Pb=3.6

P11GP7
Pb=30.2

P11GP9
Pb=34.9

gravel

P11GP0
Pb=23.5

P11GPR
Pb=22.1

P11GPS
Pb=7.31

treeline

P11GP8
Pb=162

GPH

GPI

GPJ

P11GPP

P11GPO

P11GPM

treeline

existing ROW

P11GPL

P11GPK

P11GPG

treeline

P11GPN

US 52

INV. ELEV. = 942.64
TOP ELEV. = 947.89

INV. ELEV. = 942.42
TOP ELEV. = 946.87

INV. ELEV. = 940.34

INV. ELEV. = 931.05

INV. ELEV. = 931.00

INV. ELEV. = 940.30

INV. ELEV. = 941.98

TOP ELEV. = 947.89

INV. ELEV. = 924.90

46.1
343
24.2
30.6
15.5
2.84
3.76
21.2
3.85
4.07
28.0
82
4.43
15.7
19.2

LEGEND:

- building
- property boundary
- chain-link fence
- proposed right-of-way
- existing right-of-way
- proposed drainage piping
- soil test boring
- monitoring well

0' 75' 150'
approximate scale in feet

FIGURE NO.:	4B
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 75'

DISTRIBUTION OF
IMPACTED SOILS (PARCEL 011)

Waste Management of Carolinas, Inc.
3301, 3303 North Glenn Avenue
Winston-Salem, North Carolina

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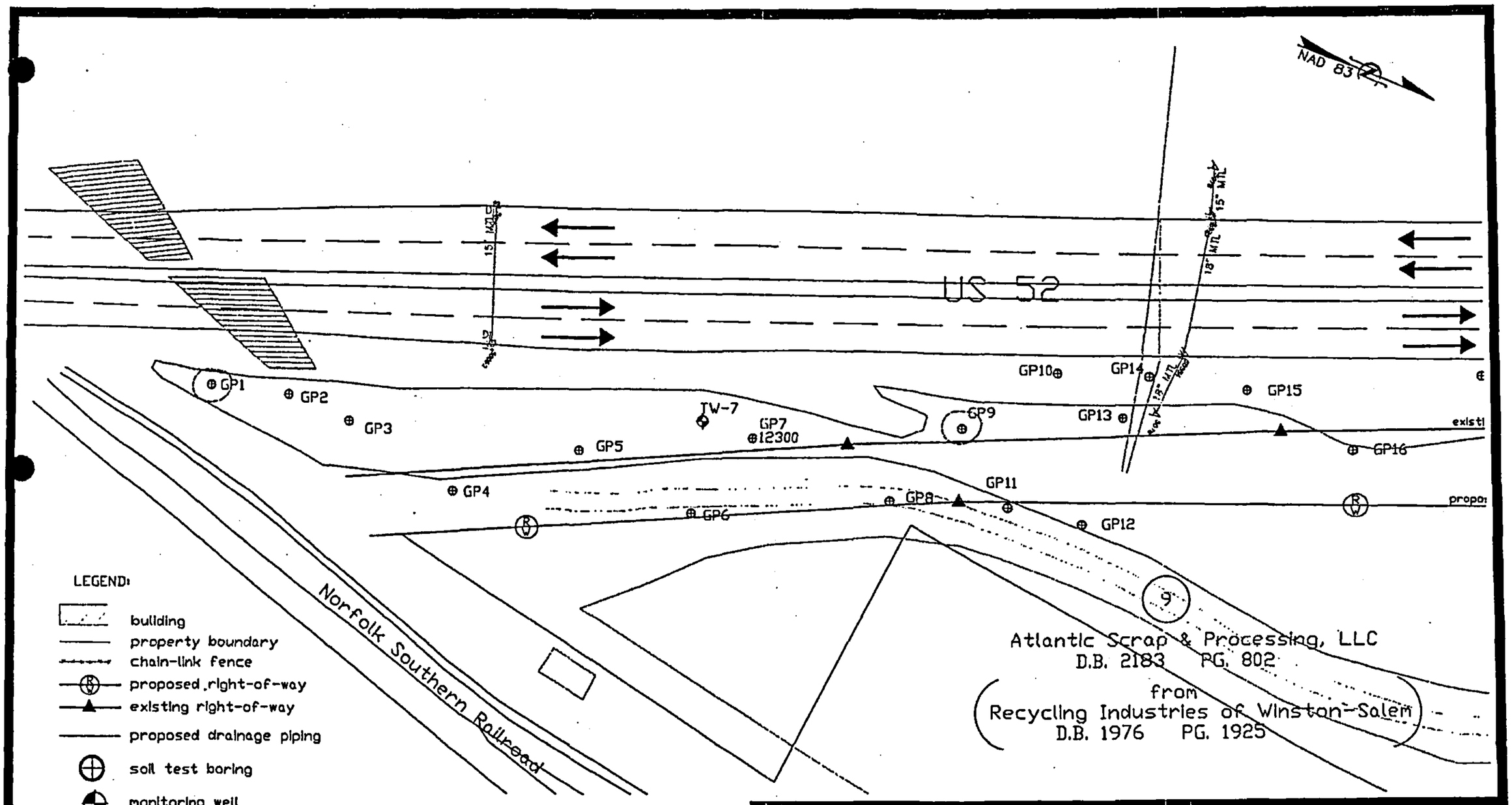

FIGURE NO.:	5A
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 60'

ESTIMATED EXTENT OF SVOCS IN SOILS
(Inset A)
Parcel 9
Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem, North Carolina

ENVIRONMENTAL INVESTIGATIONS, INC.

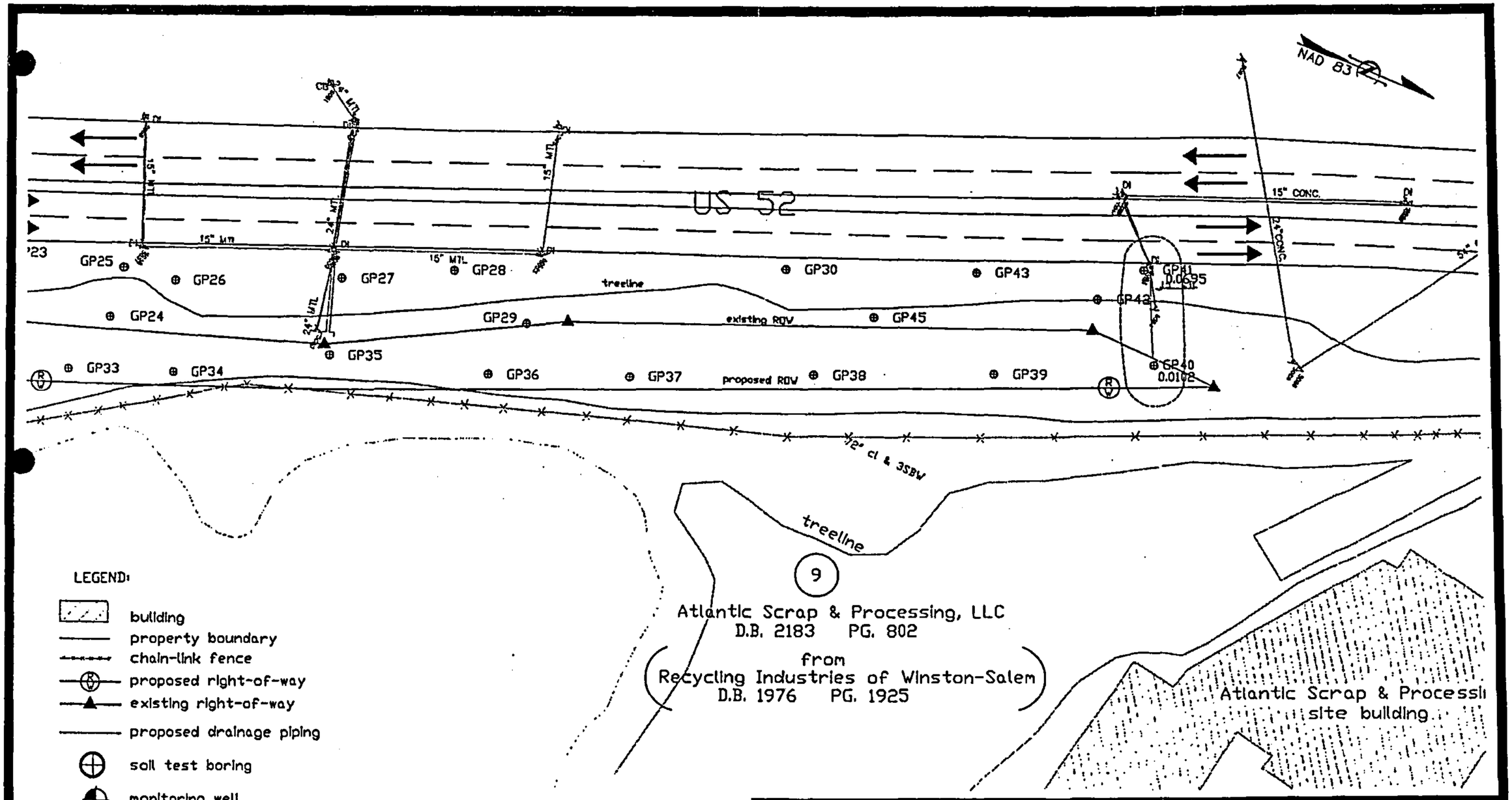

FIGURE NO.:	5B
DRN BY:	DOT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 60'

ESTIMATED EXTENT OF PCE IN SOILS
(Inset B)
Parcel 9
Atlantic Scrap and Processing, LLC
3415 North Glenn Avenue
Winston-Salem, North Carolina

EI
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TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS for 8 RCRA Metals
P010-Royster Clark Agribusiness
3105 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

8 RCRA Metals 6010B & 7471	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
EPA Region 9 PRGs (mg/kg)	0.39	5400	37	210	400	23	390	390
NC HWS SSLs (mg/kg)	5.24	848	2.72	27.2	270	0.0154	12.2	0.223
NC DENR GW Section Soil Clean-up Levels (mg/kg)	NS	848	NS	27	270	NS	NS	NS
Background Concentrations (mg/kg)	5.75	NA	0	5.76	40.4	0	5.26	0
Sample Identification	*Laboratory Analysis (mg/kg)*							
P10GP1-30	NA	NA	NA	NA	NA	NA	NA	NA
P10GP2-28	NA	NA	NA	NA	NA	NA	NA	NA
P10GP3-21	NA	NA	NA	NA	NA	NA	NA	NA
P10GP4-28	NA	NA	NA	NA	NA	NA	NA	NA
P10GP5-30	NA	NA	NA	NA	NA	NA	NA	NA
P10HA6-1.0	12.0	48.9	BQL	5.06	66.2	0.110	BQL	BQL
P10HA7-0.5	4.84	60.2	BQL	10.9	76.9	0.0437	BQL	BQL
P10HA8-0.5	5.71	46.5	BQL	5.77	35.4	0.0368	BQL	BQL
P10HA9-1.0	5.74	49.7	BQL	5.29	41.1	0.0434	BQL	BQL

NS = No Standard; Bold Font = Above one or more standards or background concentrations
BQL = Below Quantitation Limit
PRGs = Prelim. Remediation Goals
SSLs = Soil Screening Levels

TABLE 2
Summary of Soil Analytical Results
VOCs and SVOCs
P010-Royster Clark
3301 North Glenn Avenue
Winston-Salem (Forsyth Co.), NC
EI Project No.: ENMO050015.00

Sample Point Location				P10GP1-30	P10GP2-28	P10GP3-21	P10GP4-28	P10GP5-30	P10HA6-1.0	P10HA7-0.5	P10HA8-0.5	P10HA9-1.0
Sample Depth - Feet				29.5-30.0	28.0-29.0	21.0-21.5	28.0-29.0	28.0-29.0	1.0-2.0	0.5-1.5	0.5-1.5	1.0-2.0
Sample Date				8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	NA	NA	NA	NA
Field Screening Results-PID (ppm)				0	0	0	0	0	0	0	0	0
Laboratory Analysis	Cleanup Standards (MSCC)			Laboratory Analytical Results/ mg/kg								
VOC's GCMS 8260/5035	*Residential* MSCCs (mg/kg)	*Industrial/Commercial* MSCCs (mg/kg)	*Soil-to-GW* MSCCs (mg/kg)									
Benzene	22	200	0.0056	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Toluene	3200	82000	7	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Ethylbenzene	1560	40000	0.24	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Xylene	32000	200000	5	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Isopropylbenzene (Cumene)	1564	40880	2	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
1,2,3-Trichloropropane	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
n-Propylbenzene	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
1,3,5-Trimethylbenzene	782	20440	7	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
1,2,4-Trimethylbenzene	782	20440	8	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
n-Butylbenzene	156	4088	4	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Naphthhalene	63	1635	0.58	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Tetrachloroethene	12	110	0.0074	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Methyl-tert-butyl Ether	156	4088	0.92	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Semi-VOC's GCMS 8270				**Laboratory Analytical Results/ mg/kg**								
Acenaphthene	940	24000	8	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Anthracene	4800	12200	995	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Benzo[a]anthracene	0.88	8	0.34	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Benzo[a]pyrene	0.088	0.78	0.091/0.088	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Benzo[b]fluoranthene	0.88	8	1	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Benzo[g,h,i]perylene	469	12264	6720	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Benzo[k]fluoranthene	9	78	12	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Chrysene	88	780	38	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Dibenzo[a,h]anthracene	NS	NS	0.17/0.088	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Dibenzofuran	62	1635	4.7	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Fluoranthene	620	16400	276	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrewne	0.88	8	3	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Phenol	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Naphthalene	63	1635	0.58	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
2-Methylnaphthalene	63	1635	3	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Fluorene	620	16400	44	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
bis (2-Ethylhexyl)phthalate	NS	NS	NS	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Phenanthrene	469	12264	60	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA
Pyrene	469	12264	285	BQL	BQL	BQL	BQL	BQL	NA	NA	NA	NA

* = Health-based level > 100% NS = No Standard NA = Not Applicable BQL = Below Quantitation Limit

10

Royster-Clark Agribusiness, Inc.
D.B. 2091 PG. 1970

approximate property boundary

approximate property boundary

NAD 83

grass

gravel

west pond

east pond

NOTE: concentrations in mg/kg

MW-6	P10GP5	P10HA9	MW-9	P10GP4	P10HA8	P10GP3	P10HA7	P10GP2	P10-HA6	P10GP1	MW-3
	As=5.74 Ba=49.7 Cr=5.29 Pb=41.1 Hg=0.434			As=5.71 Ba=46.5 Cr=5.77 Pb=35.4 Hg=0.0366		As=4.84 Ba=60.2 Cr=10.9 Pb=76.9 Hg=0.0437		As=12.0 Ba=48.9 Cr=5.06 Pb=66.2 Hg=0.11			

AST

AST

concrete drainage basin

gravel

gravel

gravel

treeline

treeline

treeline

US 52

24" MTL

15" MTL

15" MTL

15" MTL

TOP ELEV. = 947.88

LEGEND:

- building
- property boundary
- chain-link fence
- proposed right-of-way
- existing right-of-way
- proposed drainage piping
- soil test boring
- monitoring well

0' 75' 150'

approximate scale in feet

FIGURE NO.:	4
DRN BY:	DDT/DRL
CHK BY:	DCB
DATE:	8/2005
REVISED:	N/A
SCALE:	1" = 75'

ANALYTICAL RESULTS MAP

FOR SOILS - 8RCRA METALS
Parcel 10
Royster-Clark Agribusiness, Inc.
3105 North Glenn Avenue
Winston-Salem, North Carolina

EI
ENVIRONMENTAL INVESTIGATIONS, INC.

Appendix D

Arcadis *Removal Site Evaluation Report* dated August 2009 (Tables and Figures)

Table 3-1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-B1-C	0 - 0.5	11/20/2008	7.3 [7.2]	1.10 U [0.96 U]	185 J [163]
	0.5 - 2	11/20/2008	7.3	0.96 U	57.3
	2 - 4	11/20/2008	6.3	1.10 U	18.1
WS-EB2-D	1 - 1.5	11/20/2008	6.9	1.54	27.0 J
	1.5 - 3	11/20/2008	7.0	2.19	24.9 J
	3 - 5	11/20/2008	6.0	1.08 U	278 J
	36 - 37.55	11/20/2008	5.4 J	1.02 U	37.0 J
	38.5 - 40	11/20/2008	6.3 J	121	17.6 J
	41 - 42.5	11/20/2008	4.9 J	15.5	16.5 J
WS-SB-1	0 - 0.5	5/18/2009	5.6 J	6.50	61.1
	0.5 - 2	5/18/2009	5.3 J	5.65	86.5
	2 - 4	5/18/2009	4.8 J	6.15	15.5
WS-SB-2	0 - 0.5	5/18/2009	5.2 J	4.34	31.6
	0.5 - 2	5/18/2009	4.4 J	3.98	24.2
	2 - 4	5/18/2009	4.8 J	3.66	16.8
WS-SB-3	0 - 0.5	5/19/2009	5.9 J	6.30	38.0 J
	0.5 - 2	5/19/2009	7.3 J [5.8 J]	3.68 [2.77]	29.2 J [25.8 J]
	2 - 4	5/19/2009	4.7 J	2.74	35.3 J
WS-SB-4	0 - 0.5	5/19/2009	5.3 J	7.35	32.9 J
	0.5 - 2	5/19/2009	4.9 J	4.74	26.9 J
	2 - 4	5/19/2009	5.3 J	2.53	19.6 J
WS-SB-5	0 - 0.5	5/19/2009	5.3 J	5.74	40.5 J
	0.5 - 2	5/19/2009	5.6 J	5.69	26.9 J
	2 - 4	5/19/2009	4.9 J	3.72	27.3 J
WS-SB-6	0 - 0.5	5/19/2009	5.3 J	8.44	53.3 J
	0.5 - 2	5/19/2009	5.3 J	6.20	21.6 J
	2 - 4	5/19/2009	4.4 J	3.94	19.9 J
WS-SB-7	0 - 0.5	5/20/2009	5.0 J	1.21 J	21.3 J
	0.5 - 2	5/20/2009	4.3 J	7.10 J	51.9 J
	2 - 4	5/20/2009	5.1 J	3.72 J	22.0 J
WS-SB-8	0 - 0.5	5/20/2009	4.1 J	38.3 J	1,740 J
	0.5 - 2	5/20/2009	5.5 J	5.07 J	211 J
	2 - 4	5/20/2009	5.6 J	3.06 J	25.1 J
WS-SB-9	0 - 0.5	5/20/2009	4.4 J	0.731 UJ	40.2 J
	0.5 - 2	5/20/2009	4.6 J	9.50 J	253 J
	2 - 4	5/20/2009	4.2 J [4.1 J]	8.81 J [25.2]	635 J [3,540 J]
	4 - 6	10/13/2009	3.5	0.821 U	26.6
WS-SB-10	0 - 0.5	5/20/2009	6.0 J	6.18	203
	0.5 - 2	5/20/2009	6.6 J	9.82	3,650
	2 - 4	5/20/2009	5.0 J	6.80	1,570
	4 - 6	10/13/2009	4.3 J [4 J]	21.9 J [0.800 U]	38.0 [46.0]
WS-SB-11	0 - 0.5	5/19/2009	4.4 J	7.91	30.7
	0.5 - 2	5/19/2009	5.8 J	7.09	21.5
	2 - 4	5/19/2009	5.4 J	26.9	102

Table 3-1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-B1-C	0 - 0.5	11/20/2008	7.3 [7.2]	1.10 U [0.96 U]	185 J [163]
	0.5 - 2	11/20/2008	7.3	0.96 U	57.3
	2 - 4	11/20/2008	6.3	1.10 U	18.1
WS-EB2-D	1 - 1.5	11/20/2008	6.9	1.54	27.0 J
	1.5 - 3	11/20/2008	7.0	2.19	24.9 J
WS-SB-12	0 - 0.5	5/19/2009	5.1 J	8.83	49.8
	0.5 - 2	5/19/2009	5.6 J	6.59	64.8
	2 - 4	5/19/2009	6.2 J	8.01	73.3
WS-SB-13	0 - 0.5	5/19/2009	5.1 J	33.0	40.9
	0.5 - 2	5/19/2009	5.4 J	9.39	23.0
	2 - 4	5/19/2009	5.2 J	7.30	23.6
WS-SB-14	0 - 0.5	5/19/2009	7.2 J	16.1	146
	0.5 - 2	5/19/2009	5.1 J	3.30	18.3
	2 - 4	5/19/2009	5.3 J	2.84	11.0
WS-SB-15	0 - 0.5	5/19/2009	5.6 J	6.19	79.8
	0.5 - 2	5/19/2009	5.2 J	6.75	30.6
WS-SB-16	0 - 0.5	5/19/2009	5.3 J [6.7 J]	7.56 [6.12]	18.5 [15.5 J]
	0.5 - 2	5/19/2009	5.3 J	8.25	21.3
	2 - 4	5/19/2009	5.6 J	4.29	16.7
WS-SB-17	0 - 0.5	5/20/2009	4.9 J	38.0 J	1,360 J
	0.5 - 2	5/20/2009	4.0 J	148 J	238 J
	2 - 4	5/20/2009	4.0 J	2.78 J	22.4 J
WS-SB-18	0 - 0.5	5/20/2009	6.1 J	62.8 J	946 J
	0.5 - 2	5/20/2009	3.1 J	35.1 J	2,030 J
	2 - 4	5/20/2009	5.3 J	5.94 J	287 J
WS-SB-19	0 - 0.5	5/20/2009	4.8 J	55.1 J	188 J
	0.5 - 2	5/20/2009	4.3 J	14.8 J	24.5 J
	2 - 4	5/20/2009	4.00 J	6.59 J	35.1 J
WS-SB-20	0 - 0.5	5/20/2009	7.0 J	0.924 J	23.9
	0.5 - 2	5/20/2009	6.1 J	1.92	28.0
	2 - 4	5/20/2009	5.0 J	3.56	56.5
WS-SB-21	0 - 0.5	5/19/2009	5.5 J	9.22	123
	0.5 - 2	5/19/2009	5.3 J	8.66	40.3
	2 - 4	5/19/2009	5.9 J	74.8	87.0
	4 - 6	10/14/2009	5.1	17.2	16.3 J
WS-SB-22	0 - 0.5	5/19/2009	7.2 J	15.7	214
	0.5 - 2	5/19/2009	6.3 J [7 J]	238 [221]	3,640 [4,380 J]
	2 - 4	5/19/2009	5.0 J	29.7	380
	4 - 6	10/13/2009	4.7 J [4.2]	17.8 J [2.44]	166 J [37.0]
WS-SB-23	0 - 0.5	5/19/2009	7.0 J	12.4	122
	0.5 - 2	5/19/2009	7.2 J	1.50	13.1
	2 - 4	5/19/2009	5.4 J	1.86	19.3
WS-SB-24	0 - 0.5	5/19/2009	6.0 J	60.1	657
	0.5 - 2	5/19/2009	5.1 J	6.73	47.9
	2 - 4	5/19/2009	5.3 J	2.95	14.4

Table 3-1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-B1-C	0 - 0.5	11/20/2008	7.3 [7.2]	1.10 U [0.96 U]	185 J [163]
	0.5 - 2	11/20/2008	7.3	0.96 U	57.3
	2 - 4	11/20/2008	6.3	1.10 U	18.1
WS-EB2-D	1 - 1.5	11/20/2008	6.9	1.54	27.0 J
	1.5 - 3	11/20/2008	7.0	2.19	24.9 J
WS-SB-25	0 - 0.5	10/13/2009	5.5 J	8.03 J	103
	0.5 - 2	10/13/2009	5.2 J	2.51 J	33.8
	2 - 4	10/13/2009	4.7 J	1.26 J	12.6
WS-SB-26	0 - 0.5	10/14/2009	5.2	92.6	1,590
	0.5 - 2	10/14/2009	4.7	1.21	16.8
	2 - 4	10/14/2009	4.5	3.62	26.3 J
WS-SB-27	0 - 0.5	10/13/2009	6.9 J	6.33 J	79.7 J
	0.5 - 2	10/13/2009	4.7 J	2.02 J	10.9 J
	2 - 4	10/13/2009	4.9 J	0.793 UJ	12.8
WS-SB-28	0 - 0.5	10/14/2009	4.8	8.09	60.7
	0.5 - 2	10/14/2009	5.4	5.33	18.4
	2 - 4	10/14/2009	6.6	5.20	16.7
WS-SB-29	0 - 0.5	10/15/2009	6.3	1.76	36.5
	0.5 - 2	10/15/2009	7.1	2.19	28.2
	2 - 4	10/15/2009	6	2.96	36.5
WS-SB-30	0 - 0.5	10/14/2009	5.7	8.71	48.5 J
	0.5 - 2	10/14/2009	5	7.87	48.4 J
	2 - 4	10/14/2009	4.8	7.17	14.4 J
WS-SB-31	0 - 0.5	10/13/2009	6.9 J	17.4 J	138 J
	0.5 - 2	10/13/2009	6.7 J	2.87 J	13.2 J
	2 - 4	10/13/2009	5.1 J	2.12 J	11.2 J
WS-SB-32	0 - 0.5	10/14/2009	5.3	16.5	48.2 J
	0.5 - 2	10/14/2009	4.6	9.56	37.1 J
	2 - 4	10/14/2009	4.8	11.2	56.6 J
WS-SB-33	0 - 0.5	10/15/2009	5.9	10.8	60.7
	0.5 - 2	10/15/2009	5.7	4.22	15.0
	2 - 4	10/15/2009	5.8	5.96	16.4
WS-SB-34	0 - 0.5	10/13/2009	7.5 J	8.91 J	106 J
	0.5 - 2	10/13/2009	7.3 J	132 J	2,240 J
	2 - 4	10/13/2009	5.9 J	65.0 J	749 J
	4 - 6	10/13/2009	6.6 J	10.8 J	70.8 J
	6 - 8	10/13/2009	6.2 J	15.6 J	146 J
WS-SB-35	0 - 0.5	10/15/2009	7.2	1.46	16.7
	0.5 - 2	10/15/2009	7.3	13.8	87.9
	2 - 4	10/15/2009	6.7	2.46	19.9
WS-SB-36	0 - 0.5	10/15/2009	5.9	11.3	202
	0.5 - 2	10/15/2009	6.3 [5.9]	93.4 [64.5]	774 [813]
	2 - 4	10/15/2009	6.7	4.75	102

Table 3-1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-B1-C	0 - 0.5	11/20/2008	7.3 [7.2]	1.10 U [0.96 U]	185 J [163]
	0.5 - 2	11/20/2008	7.3	0.96 U	57.3
	2 - 4	11/20/2008	6.3	1.10 U	18.1
WS-EB2-D	1 - 1.5	11/20/2008	6.9	1.54	27.0 J
	1.5 - 3	11/20/2008	7.0	2.19	24.9 J
WS-SB-37	0 - 0.5	10/15/2009	6.3	5.99	141
	0.5 - 2	10/15/2009	6.6	1.17	34.1
	2 - 4	10/15/2009	5.9	3.09	24.3
WS-SB-38	0 - 0.5	10/15/2009	5.5	0.882 U	112
	0.5 - 2	10/15/2009	6.5	7.50	110
	2 - 4	10/15/2009	6.7	2.05	24.1
WS-SB-39	0 - 0.5	10/13/2009	4.9 J	0.750 UJ	67.7
	0.5 - 2	10/13/2009	4.3 J	10.2 J	488
	2 - 4	10/13/2009	4.3 J	2.30 J	43.7
WS-SB-40	0 - 0.5	10/13/2009	4.7 J	39.6 J	159
	0.5 - 2	10/13/2009	4.3 J	152 J	58.7
	2 - 4	10/13/2009	4.4 J	35.4 J	20.8
	4 - 6	10/29/2009	4.6	2.86	26.8
WS-SB-41	0 - 0.5	10/13/2009	4.4 J	292	3,440
	0.5 - 2	10/13/2009	4.2 J	240	2,280
	2 - 4	10/13/2009	4.2 J [4.7 J]	116 [120]	1,930 [1,800]
	4 - 6	10/29/2009	3.9	5.37	31.3
WS-SB-42	0 - 0.5	10/13/2009	3.7 J	105	1,040
	0.5 - 2	10/13/2009	4.1 J	22.9	97.9
	2 - 4	10/13/2009	3.7 J	4.13	45.9
WS-SB-43	0 - 0.5	10/13/2009	3.8 J	24.7 J	42.2
	0.5 - 2	10/13/2009	3.9 J	7.31 J	63.5
	2 - 4	10/13/2009	3.8 J	0.801 UJ	30.3
WS-SB-44	0 - 0.5	10/12/2009	7.7 J	5.39 J	113 J
	0.5 - 2	10/12/2009	7.5 J	21.2 J	376 J
	2 - 4	10/12/2009	7.8 J	2.17 J	46.9 J
WS-SB-45	0 - 0.5	10/12/2009	7.2 J	7.64 J	184 J
	0.5 - 2	10/12/2009	7.2 J	6.49 J	46.7 J
	2 - 4	10/12/2009	7.2 J	2.32 J	43.6 J
WS-SB-46	0 - 0.5	10/12/2009	7.2 J	4.54 J	68.6 J
	0.5 - 2	10/12/2009	6.8 J	24.2 J	235 J
	2 - 4	10/12/2009	7.2 J	3.78 J	68.0 J
WS-SB-47	0 - 0.5	10/14/2009	4.5	2.94	25.8 J
	0.5 - 2	10/14/2009	4.4	4.87	25.1 J
	2 - 4	10/14/2009	4.6	4.58	31.8 J
WS-SB-48	0 - 0.5	10/14/2009	4.6	133	658 J
	0.5 - 2	10/14/2009	5.7	5.38	20.5 J
	2 - 4	10/14/2009	4.7	5.21	21.3 J

Table 3-1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-B1-C	0 - 0.5	11/20/2008	7.3 [7.2]	1.10 U [0.96 U]	185 J [163]
	0.5 - 2	11/20/2008	7.3	0.96 U	57.3
	2 - 4	11/20/2008	6.3	1.10 U	18.1
WS-EB2-D	1 - 1.5	11/20/2008	6.9	1.54	27.0 J
	1.5 - 3	11/20/2008	7.0	2.19	24.9 J
WS-SB-49	0 - 0.5	10/15/2009	5	6.48	69.1
	0.5 - 2	10/15/2009	5.3	5.26	634
	2 - 4	10/15/2009	5.5	4.84	208
WS-SB-50	0 - 0.5	10/15/2009	5	4.73	40.4
	0.5 - 2	10/15/2009	5.3	5.95	101
WS-SB-51	0 - 0.5	10/15/2009	7.4	12.5	138
	0.5 - 2	10/15/2009	7.5	6.30	65.2
	2 - 4	10/15/2009	7.2	4.86	44.6
WS-SB-52	0 - 0.5	10/15/2009	7	11.7	115
	0.5 - 2	10/15/2009	6.9	8.19	119
	2 - 3	10/15/2009	6	5.64	83.0
WS-SB-53	0 - 0.5	10/15/2009	6.8	12.0	156
	0.5 - 2	10/15/2009	6.3	269	1,640
	2 - 4	10/15/2009	6.6 [6.2]	364 [359]	1,740 [1,550]
	4 - 5	10/15/2009	4.4	21.0	64.0
WS-SB-54	0 - 0.5	10/15/2009	6.2	11.1	170
	0.5 - 2	10/15/2009	6.5	3.25	50.9
	2 - 4	10/15/2009	6.4	2.28	15.0
WS-SB-55	0 - 0.5	10/15/2009	6.4	3.26	29.1
	0.5 - 2	10/15/2009	6.6	1.74	43.1
	2 - 4	10/15/2009	6.4	2.27	124
WS-SB-56	0 - 0.5	10/29/2009	5.0	8.53	77.8
	0.5 - 2	10/29/2009	4.4	4.57	116
	2 - 4	10/29/2009	5.2	7.52	66.4
WS-SB-BB1	0 - 0.5	10/29/2009	4.9	4.18	236
	0.5 - 2	10/29/2009	4.0 [4.0]	22.5 [26.8]	574 [785]
	2 - 4	10/29/2009	3.8	10.1	692
	4 - 6	10/29/2009	4.4	9.16	613
	6 - 8	10/29/2009	3.9	15.2	176
	8 - 10	10/29/2009	3.8	6.31	169
WS-SB-C1	0 - 0.5	10/14/2009	4.5	94.6	588
	0.5 - 2	10/14/2009	4.3	7.25	53.8
	2 - 4	10/14/2009	4.4	1.07 J	20.2
WS-SB-C2	0 - 0.5	10/14/2009	4.5	2.06	37.1
	0.5 - 2	10/14/2009	3.8	0.820 U	20.4
	2 - 4	10/14/2009	4.3	0.841 U	17.1
WS-SB-C3	0 - 0.5	10/13/2009	3.9	7.74	59.5
	0.5 - 2	10/13/2009	4.1	3.08	55.1
	2 - 3	10/13/2009	4	2.77	65.1

Table 3-1
Summary of Soil Sample Analytical Results
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Sample ID	Depth (ft bgs)	Date	pH	As (mg/kg)	Pb (mg/kg)
WS-B1-C	0 - 0.5	11/20/2008	7.3 [7.2]	1.10 U [0.96 U]	185 J [163]
	0.5 - 2	11/20/2008	7.3	0.96 U	57.3
	2 - 4	11/20/2008	6.3	1.10 U	18.1
WS-EB2-D	1 - 1.5	11/20/2008	6.9	1.54	27.0 J
	1.5 - 3	11/20/2008	7.0	2.19	24.9 J
WS-SB-C4	0 - 0.5	10/13/2009	5.7	53.5	20,100
	0.5 - 2	10/13/2009	6.1	33.1	14,800
WS-SB-C5	0 - 0.5	10/14/2009	6.9	11.1	146 J
	0.5 - 2	10/14/2009	6.7 [6.4]	70.2 [85.9]	583 J [612 J]
	2 - 4	10/14/2009	6.4	29.7	114 J
WS-SB-C8	0 - 0.5	10/15/2009	5.3	2.93	33.8
	0.5 - 2	10/15/2009	5.6	6.58	70.7
	2 - 3.5	10/15/2009	6.8	4.54	60.7
WS-MW-01	0 - 0.5	10/26/2009	5.4 J	7.04	58.5 J
	0.5 - 2	10/26/2009	5.8 J [5.4 J]	3.96 [4.05]	19.6 J [19.7 J]
	2 - 4	10/26/2009	5 J	5.74	33.1 J
WS-MW-02	0 - 0.5	10/27/2009	5.9 J	18.3	123 J
	0.5 - 2	10/27/2009	5.7 J	6.66	52.1 J
	2 - 4	10/27/2009	6.3 J	2.38	41.8 J
WS-MW-03	0 - 0.5	10/28/2009	5.5 J	1.48	68.1 J
	0.5 - 2	10/28/2009	4.9 J	33.9	539 J
	2 - 4	10/28/2009	4.2	4.8	20.7
WS-MW-04	0 - 0.5	10/28/2009	5.5 J	1.59	51.8 J
	0.5 - 2	10/28/2009	5.9 J	0.746 U	4.11 J
	2 - 4	10/28/2009	6.5 J	21.6	295 J
WS-MW-05	0 - 0.5	10/27/2009	4.3 J	6.74	43.4 J
	0.5 - 2	10/27/2009	4 J	2.54	21.5 J
	2 - 4	10/27/2009	4.1 J	2.4	34.4 J

Notes:
mg/kg - milligrams per kilogram
ft bgs - feet below ground surface
J - estimated value
U - not detected
Duplicate sample concentrations are in brackets
Arsenic screening value of 22 mg/kg is based on NCDENR site-specific screening levels.
Lead screening value of 270 mg/kg is based on NCDENR site-specific screening levels.
Shaded values exceed screening levels.

Table 3-3
Summary of Groundwater Analytical Results and Field Parameter Measurements
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Analyte	NC 2L Groundwater Standards	Units	Concentration In Sample			
			WS-MW-01	WS-MW-02	WS-MW-02 DUP	WS-MW-03
			NA	11/11/09	11/11/09	11/11/09
Metals						
Arsenic	0.05	mg/L	NS	0.01 U	0.01 U	0.01 U
Lead	0.015	mg/L	NS	0.0644	0.0642	0.005 U
Metals-Dissolved[1]						
Arsenic	0.05	mg/L	NS	0.01 U	NA	NA
Lead	0.015	mg/L	NS	0.0346	NA	NA
Field Parameters						
Dissolved Oxygen	--	mg/L	NS	5.2	NA	6.67
ORP	--	mV	NS	5	NA	145
pH	--	SU	NS	4.88	NA	4.93
Specific Conductance	--	mS/cm	NS	0.222	NA	0.104
Temperature	--	°C	NS	14.88	NA	14.92
Turbidity	--	NTU	NS	55	NA	11

Notes:
U - not detected
J - estimated value
ug/L - micrograms per liter
mg/L - milligrams per liter
mV - millivolt
NA - not analyzed
NS - not sampled; well was dry
SU - standard units
mS/cm - millisiemens per centimeter
°C - degrees Celcius
NTU - nephelometric turbidity units
Shaded values exceed the NC2L Groundwater Standard
1 - Dissolved metals samples were field filtered with a 0.45 µm filter prior to submittal to the laboratory for analysis.

Table 3-3
Summary of Groundwater Analytical Results and Field Parameter Measurements
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Analyte	NC 2L Groundwater Standards	Concentration in Sample: WS-MW-04 11/10/09	WS-MW-05 11/10/09
Metals			
Arsenic	0.05	0.01 U	0.01 U
Lead	0.015	0.0032 J	0.0035 J
Metals-Dissolved[1]			
Arsenic	0.05	NA	NA
Lead	0.015	NA	NA
Field Parameters			
Dissolved Oxygen	--	4.05	5.07
ORP	--	423	282
pH	--	3.82	4.25
Specific Conductance	--	0.580	0.158
Temperature	--	15.46	14.57
Turbidity	--	36	28

Notes:
U - not detected
J - estimated value
ug/L - micrograms per liter
mg/L - milligrams per liter
mV - millivolt
NA - not analyzed
NS - not sampled; well was dry
SU - standard units
mS/cm - millisiemens per centimeter
°C - degrees Celcius
NTU - nephelometric turbidity units
Shaded values exceed the NC2L Groundwater Standard
1 - Dissolved metals samples were field filtered with a 0.45 µm filter prior to submittal to the laboratory for analysis.

Table 5-1
Summary of Excavation Areas and Volumes
Site Delineation Report and Removal Action Work Plan
Former VCC Winston-Salem Site - Winston-Salem, North Carolina

Removal Area ID	Approximate Surface Area of Impacted Soil to be Removed (ft^2)	Approximate Depth of Impacted Soil to be Removed (ft bgs)	Estimated In-Place Excavation Quantities	
			cubic yards	tons
Areas North of US-52/SR-8				
1	3,050	5	565	960
2	8,260	2	612	1,040
3	19,000	1	704	1,196
4	10,830	2	802	1,364
5	62,800	4	9,304	15,816
6	6,560	6	1,458	2,478
7	3,840	1	142	242
8	1,940	2	144	244
Subtotal	**116,280**		**13,730**	**23,341**
Areas South of US-52/SR-8				
9	2,730	7	708	1,203
10	4,560	4	676	1,148
11	3,310	2	245	417
12	16,670	4	2,470	4,198
13	15,360	1	569	967
Subtotal	**42,630**		**4,667**	**7,934**
Total of all Areas	**158,910**		**18,397**	**31,275**

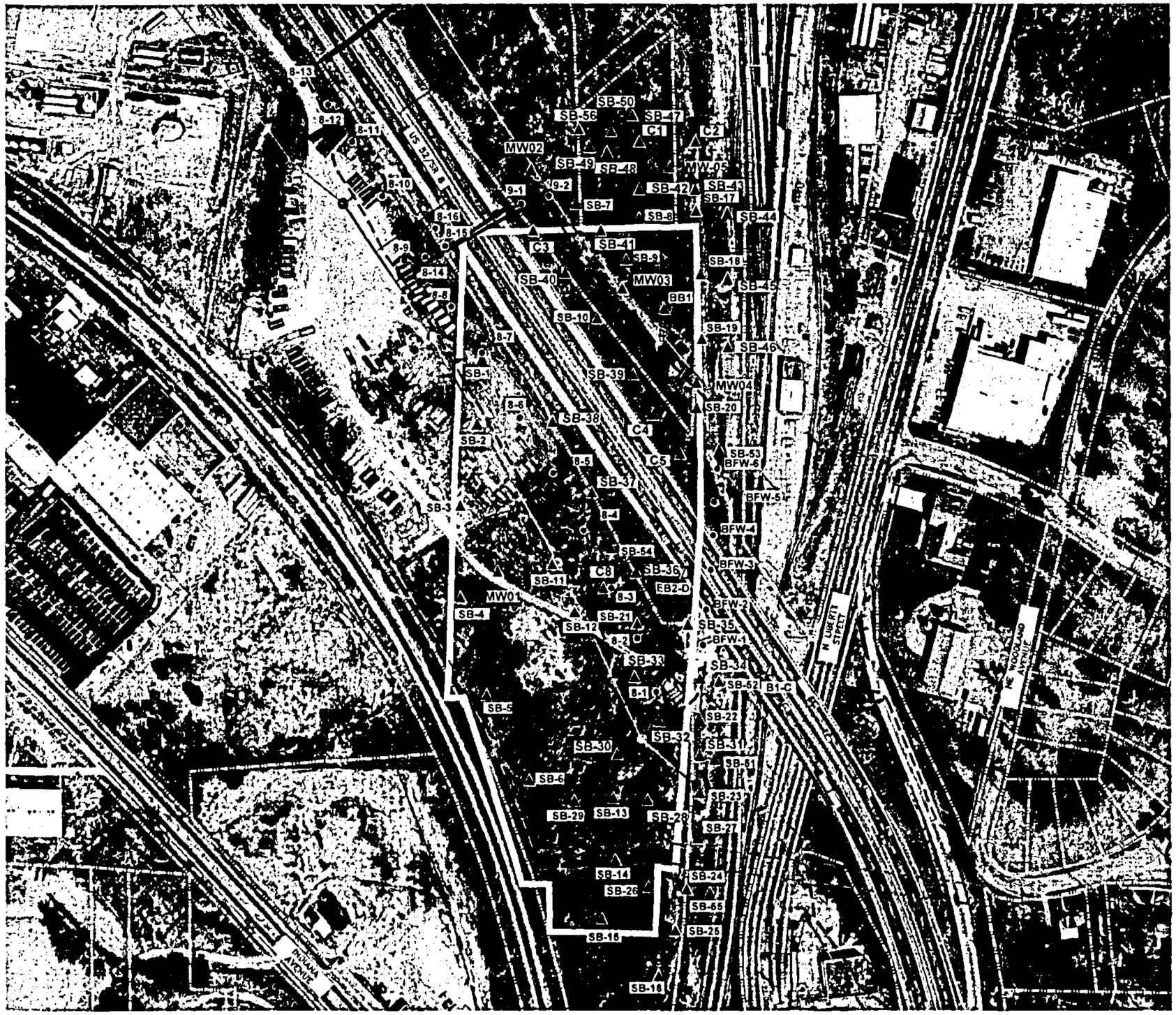
Notes:

ft^2 - square feet

ft bgs - feet below ground surface

The calculation of cubic yards to tons is based on a conversion factor of 1.7

* - Surface area estimates are based on inferred limits. Limits will be refined in the field.



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLAT)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2009)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2006 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. LOCATIONS 47 - 55 APPROXIMATE ONLY, NOT SURVEYED.
8. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

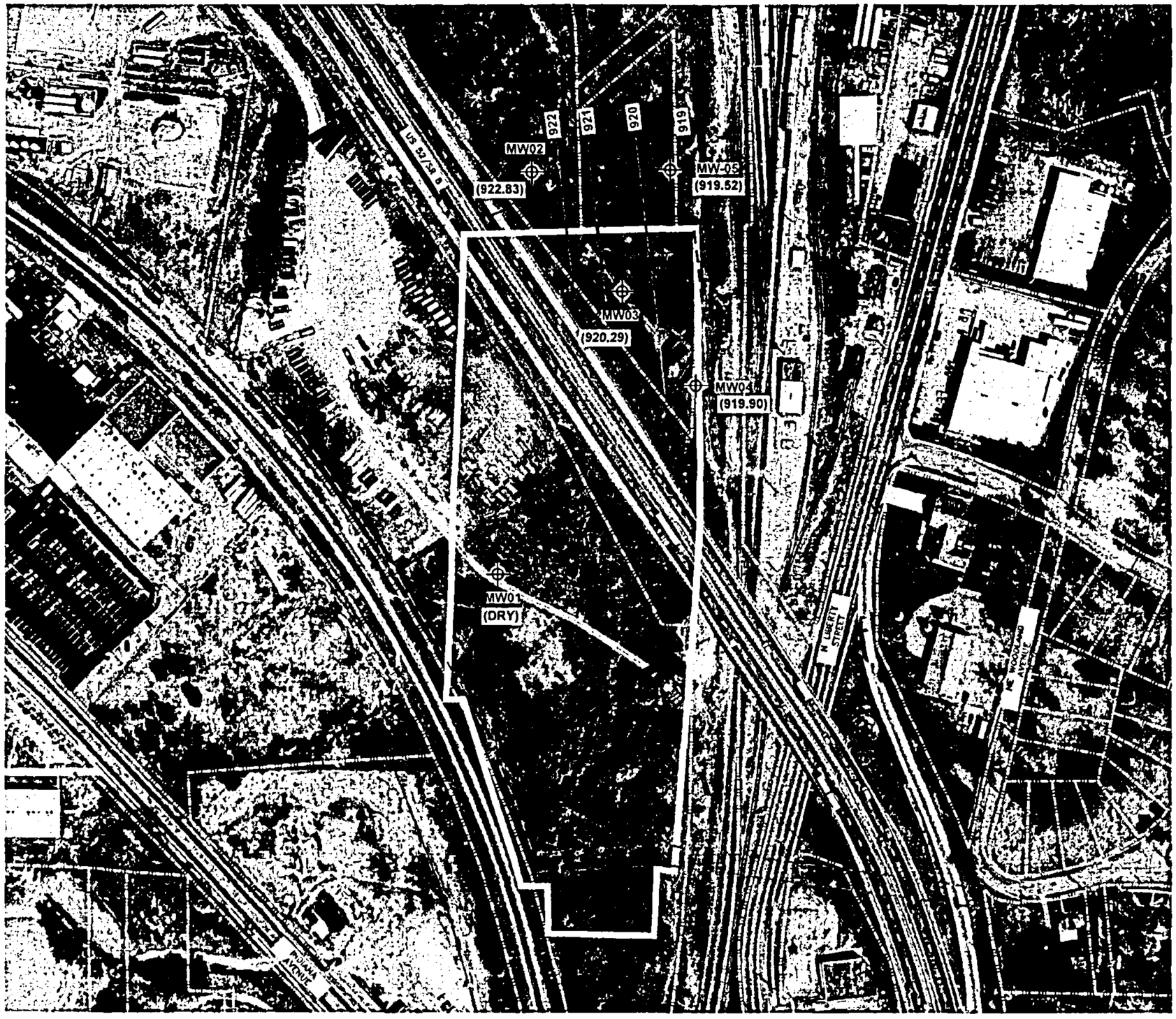
0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

SOIL SAMPLE LOCATIONS

ARCADIS

FIGURE 2-1



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- GROUNDWATER MONITORING WELL (ARCADIS, 2008)
- (919.52) GROUNDWATER ELEVATION (FT AMSL)
- 920 GROUNDWATER ELEVATION CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. GROUNDWATER ELEVATIONS MEASURED 11/10/08.

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

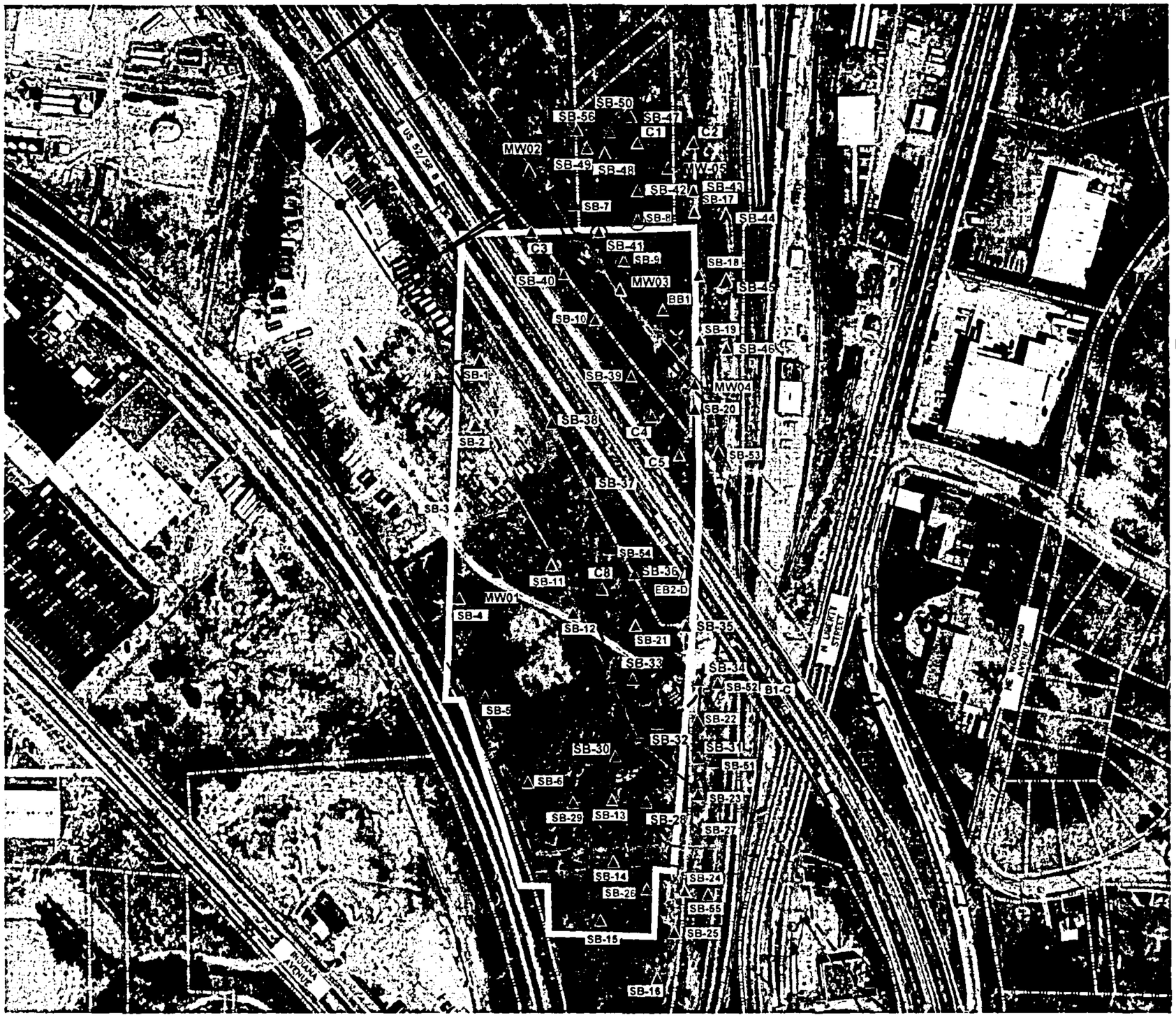
0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND
REMOVAL ACTION WORK PLAN

GROUNDWATER MONITORING WELL LOCATIONS

ARCADIS | FIGURE 2-2

CITY:CARY DIV/GROUP:41 DB:ELLIS LD:(Opt) PC:(Opt) PM:(Reqd) TM:(Opt) LYR:(On/Off/*REF*)
G:\ENVCAD\Cary\ACTIVE\30057320\011000\NAM\REPORT\SDR\RAWFIN\573203.dwg LAYOUT: 2 SAVED: 12/15/2008 4:07 PM ACADVER: 17.1S (LMS TECH) PAGESETUP: —PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/6/2010 2:03 PM BY: ELLIS, LEKOREY
JOB#: 30057320 IMAGES: Model.dl PROJECTNAME: —



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2008)
- APPROXIMATE LOCATION OF SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (ARCADIS, 2008)
- APPROXIMATE LOCATION OF SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- SOIL BORING WITH LEAD CONCENTRATION EXCEEDING TOXICITY CHARACTERISTIC LEACHING PROCEDURE CRITERIA

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAMS.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "WS-".
7. LOCATIONS 47 - 55 APPROXIMATE ONLY, NOT SURVEYED.
8. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

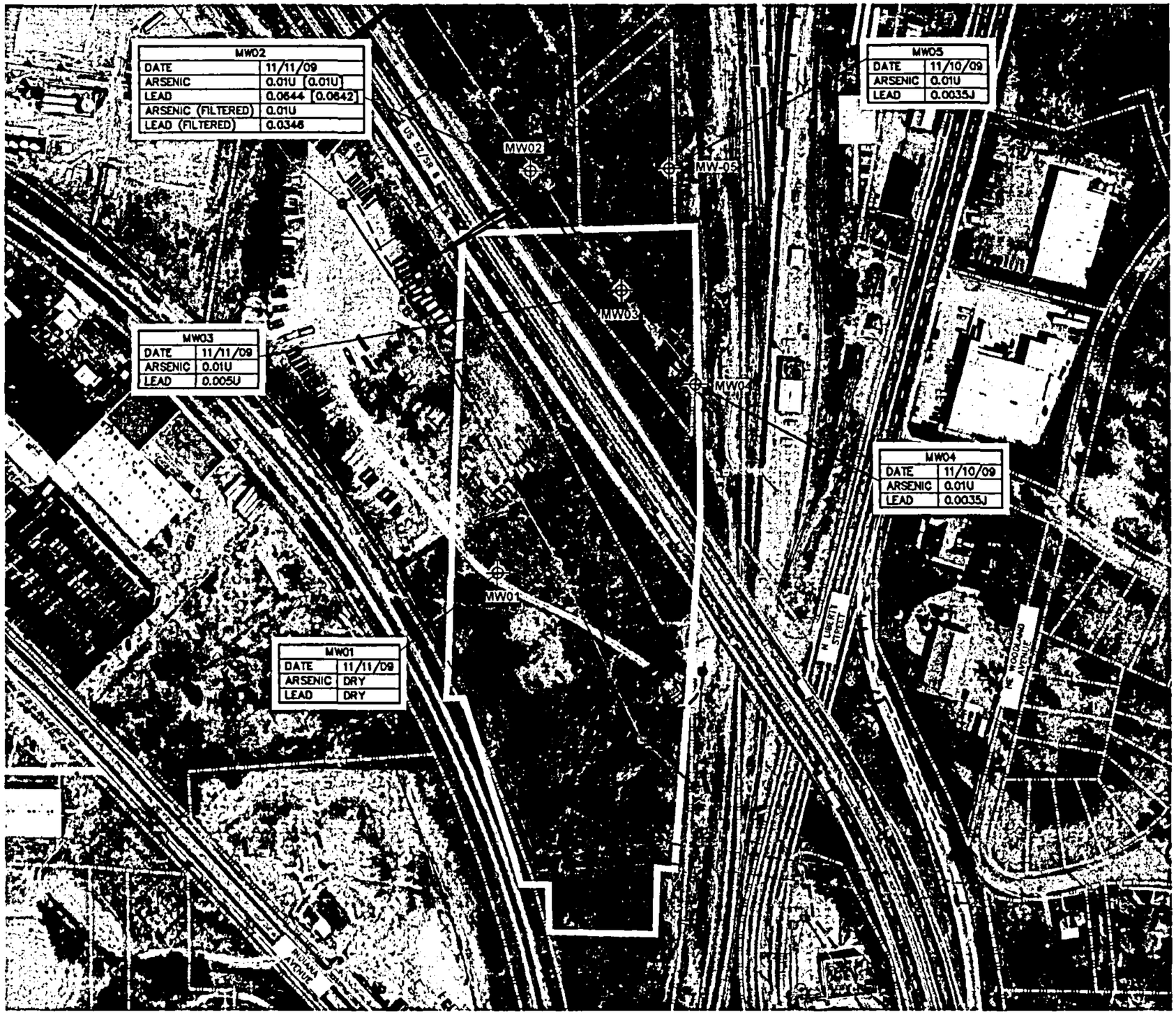
0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND
REMOVAL ACTION WORK PLAN

LOCATIONS OF SOIL SAMPLES EXCEEDING SCREENING LEVELS

ARCADIS

FIGURE 3-1



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLACE)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- GROUNDWATER MONITORING WELL (ARCADIS, 2009)
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE

ACTION LEVELS	NC 2L
ARSENIC	0.05
LEAD	0.015

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2006 AERIAL PHOTOGRAPH OF WINSTON - SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. U = THE COMPOUND WAS NOT DETECTED.
6. J = THE CONCENTRATION IS AN ESTIMATED VALUE.
7. GROUNDWATER RESULTS ARE PRESENTED IN MILLIGRAMS PER LITER (mg/L).
8. GROUNDWATER ACTION LEVELS ARE THE NCDENR NC 2L GROUNDWATER LEVELS.
9. HIGHLIGHTED VALUES EXCEED THE ACTION LEVEL.

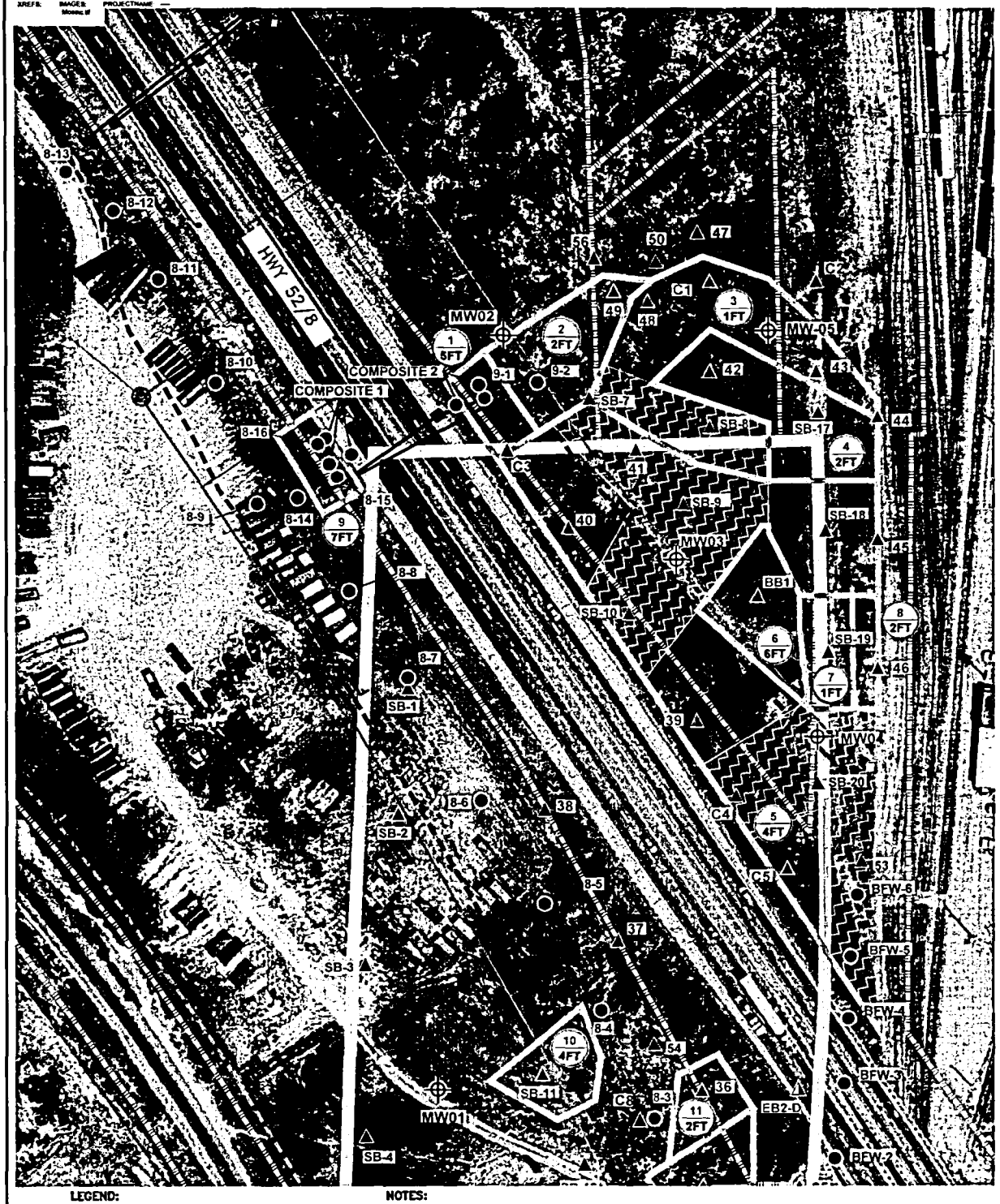
FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

0 160' 320'
GRAPHIC SCALE

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
SITE DELINEATION REPORT AND REMOVAL ACTION WORK PLAN

GROUNDWATER ANALYTICAL DATA

ARCADIS | FIGURE 3-2



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA–CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLAT)
- CURRENT TAX PARCEL BOUNDARIES
- 30' POWER TRANSMISSION RIGHT-OF-WAY
- SOIL BORING LOCATION (ARCADIS, 2009)
- SOIL BORING WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2009)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2008)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)
- SOILS EXCEED TCLP CRITERIA FOR LEAD

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "SS-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

0 80' 160'
GRAPHIC SCALE

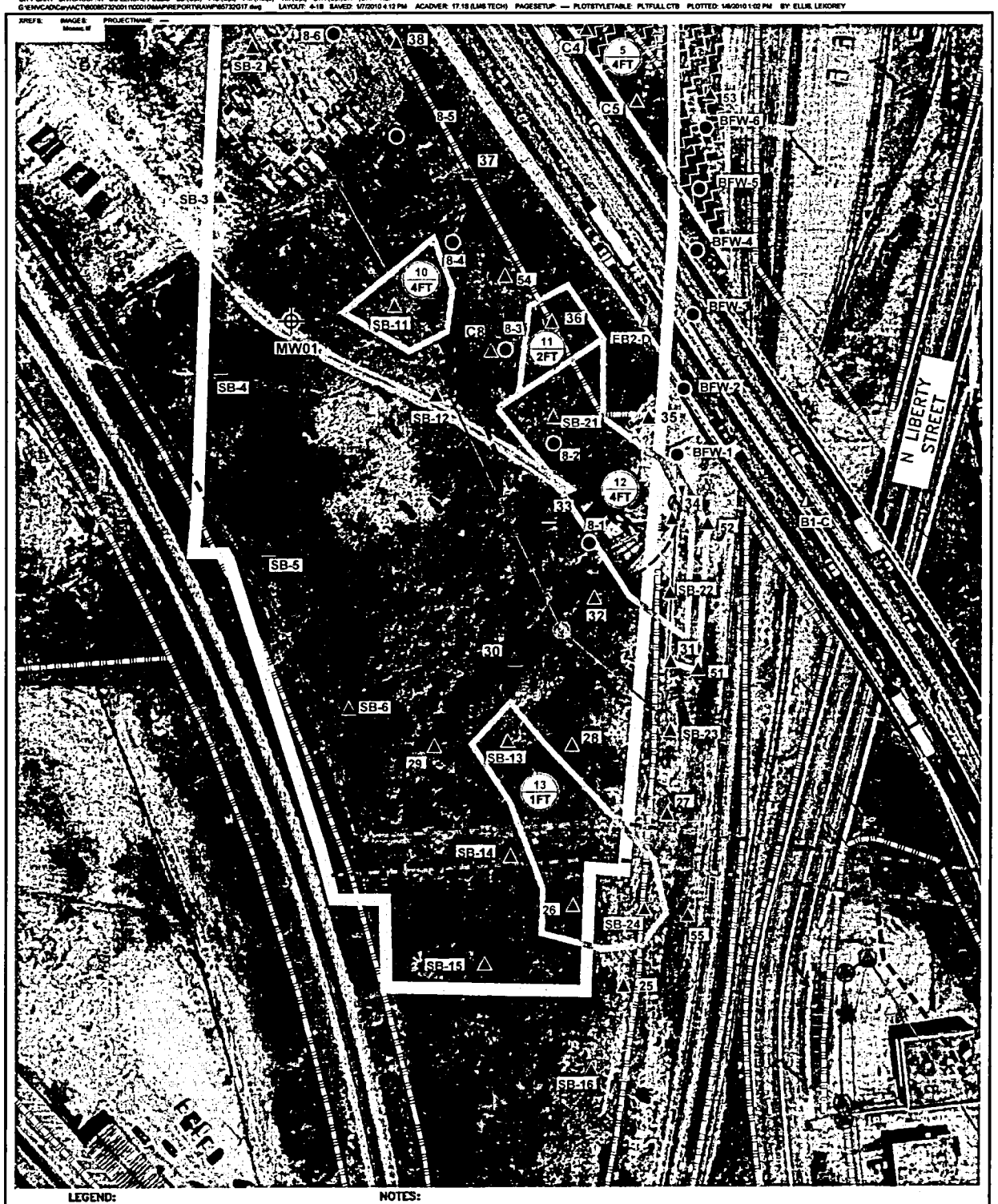
FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

SOIL REMOVAL AREAS AND DEPTHS - NORTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE 4-1A



LEGEND:

- APPROXIMATE LOCATION OF THE VIRGINIA-CAROLINA CHEMICAL CORPORATION PLANT FENCE LINE (APPROXIMATE BOUNDARY OF THE FIRST LOT OF THE ORIGINAL PLAT)
- CURRENT TAX PARCEL BOUNDARIES
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- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- GROUNDWATER MONITORING WELL LOCATION (ARCADIS, 2008)
- SOIL BORING LOCATION (ARCADIS, 2008)
- SOIL BORING (ARCADIS, 2008) WITH ARSENIC AND/OR LEAD ABOVE SCREENING LEVELS
- SOIL BORING LOCATION (H & H, 2008)
- NEW NCDOT R.O.W. (AUGUST 2009)
- APPROXIMATE LIMITS OF FILL FOR ROAD EXPANSION
- PROPOSED NCDOT DRAINAGE STRUCTURE
- PROPOSED SOIL REMOVAL LIMITS
- 10 / 4FT — REMOVAL AREA ID / REMOVAL DEPTH (FT)

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1907 & 1917 SANBORN MAPS.
2. 2005 AERIAL PHOTOGRAPH OF WINSTON – SALEM PROVIDED BY NC ONEMAP.
3. PARCEL BOUNDARIES DIGITIZED FROM 2004 FORSYTH COUNTY COMPILATION OF RECORDED PLATS.
4. ALL LOCATIONS ARE APPROXIMATE.
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. ARCADIS SOIL BORING NAMES BEGIN WITH "B3-".
7. ALL NON-ARCADIS LOCATIONS APPROXIMATE ONLY, NOT SURVEYED.

0 80' 160'
GRAPHIC SCALE

FORMER STREET NAMES:
INDIANA AVE. (FKA INVERNESS AVE.)
LIBERTY ST. (FKA WALKERTOWN RD.)

EXXONMOBIL ENVIRONMENTAL SERVICES COMPANY
WINSTON-SALEM, FORSYTH COUNTY, NORTH CAROLINA
REMOVAL ACTION WORK PLAN

SOIL REMOVAL AREAS AND DEPTHS - SOUTH OF HIGHWAY 52/SR 8

ARCADIS

FIGURE 4-1B

file

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

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

February 2, 2010

Mr. McKenzie Mallary
Remedial Project Manager
Superfund Remedial & Site Evaluation Branch
U. S. Environmental Protection Agency, Region 4
Sam Nunn - Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

RE: Request for a Time-Critical Removal Action
Former Virginia-Carolina Chemical Company Winston-Salem Site
Winton-Salem, Forsyth County, North Carolina

Dear Mr. Mallary:

The North Carolina Department of Environment and Natural Resources (NC DENR) Superfund Section has received the *Request for a Time-Critical Removal Action* for the Former Virginia-Carolina Chemical Company Winston-Salem Site. The NC DENR Superfund Section has reviewed this document and offers the following attached comments.

The NC DENR Superfund Section appreciates the opportunity to comment on this document. If you have any questions or comments, please feel free to contact me at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

FORMER VIRGINIA-CAROLINA CHEMICAL COMPANY WINSTON-SALEM SITE
Request for a Time-Critical Removal Action

II. Site Conditions and Background
A. Site Description
1. Removal Site Evaluation

1. Please revise Section II.A.1. to include a new separate section describing the North Carolina Department of Environment and Natural Resources (NC DENR) Inactive Hazardous Sites Branch (IHSB) Soil Remediation Goals (SRGs) for the Site-related constituents of concern (COCs), arsenic and lead.

   The Preliminary Health Based Soil Remediation Goals (PSRGs) for arsenic and lead are 4.4 milligrams per kilogram (mg/kg) and 400 mg/kg, respectively. However, arsenic poses both carcinogenic risk and non-carcinogenic risk. The PSRG for arsenic is based on its non-carcinogenic properties.. The PSRG for arsenic is also based on the assumption that there are four other chemicals at the Site in addition to the arsenic with the same critical effect. However, since there are no other COCs at the Site with the same critical effect, the PSRG for arsenic is actually 22 mg/kg (or 5x4.4mg/kg). This corresponds to a risk of 7 in 100,000 which is acceptable for residential usage. The PSRG for lead is based on United States Environmental Protection Agency (US EPA) guidance on lead cleanup levels and cannot be adjusted.

   The Protection of Groundwater Soil Remediation Goals for arsenic and lead are 5.4 mg/kg and 270 mg/kg, respectively. Both health-based and protection of groundwater remediation goals must be met. However, the protection of groundwater remediation goals given in *Guidelines for Assessment and Cleanup* (NC DENR IHSB, October 2009) are only one alternative for achieving protection of groundwater criteria. Additional information on protection of groundwater remediation goals, procedures for adjusting preliminary remedial goals and other criteria that may affect remediation goals (e.g., ecological receptors, cross-media contamination) may be found in the *Guidelines for Assessment and Cleanup*. Since arsenic was not detected in groundwater above the groundwater standards promulgated under Chapter 2L, Title 15A of the North Carolina Administrative Code (15A NCAC 2L), the Protection of Groundwater Soil Remediation Goal for arsenic does not apply. However, since lead was detected in one groundwater sample above the 15A NCAC 2L groundwater standard for lead, the Protection of Groundwater Soil Remediation Goal for lead does apply. Furthermore, because the Protection of Groundwater Soil Remediation Goal for lead is more conservative than the Preliminary Health Based Soil Remediation Goal for lead, the Protection of Groundwater Soil Remediation Goal will be employed for lead.

Lastly, ExxonMobil Environmental Services Company (EMES) desires to accomplish all soil removal objectives required by both the US EPA and the NC DENR at the Site on a one-time basis to avoid future soil removal actions at the Site. Therefore, EMES has committed itself to employing the NC DENR IHSB Preliminary Health Based Soil Remediation Goal for arsenic (22 mg/kg) and the NC DENR IHSB Protection of Groundwater Soil Remediation Goal for lead (270 mg/kg) as not only initial screening values but as final remediation goals for the Site.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

2. Please revise the second paragraph of Section II.A.4. to refer the reader to the new section in Section II.A.1. – *Removal Site Evaluation* for a complete description as to how the screening levels for lead and arsenic were determined.

III. Threats to Public Health or Welfare or the Environment and Statutory and Regulatory Authorities

A. Threats to Public Health or Welfare

3. Please revise Section III.A. to refer the reader to the new section in Section II.A.1. – *Removal Site Evaluation* for a complete description as to how the screening levels for lead and arsenic were determined.

V. Proposed Actions and Estimated Costs

A. Proposed Actions

1. Description of Proposed Response Actions

4. Please revise the third paragraph of Section V.A.1. to definitively include provisions for the placement of Institutional Controls (i.e., a restrictive covenant) to the Site property. Although the exact restrictions and language have not been determined by the US EPA or the NC DENR, the presence of lead and arsenic contamination beneath US Highway 52/State Road-8, and the inability to remediate such contamination, necessitate the need for Institutional Controls to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

VII. Outstanding Policy Issues

5. Please revise the fourth paragraph of Section VII. to definitively include provisions for the placement of Institutional Controls (i.e., a restrictive covenant) to the Site property. Although the exact restrictions and language have not been determined by the US EPA or the NC DENR, the presence of lead and arsenic contamination beneath US Highway 52/State Road-8, and the inability to remediate such contamination, necessitate the need for Institutional Controls to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

Dave

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

Beverly Eaves Perdue
Governor

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February 2, 2010

Mr. McKenzie Mallary
Remedial Project Manager
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Former Virginia-Carolina Chemical Company Winston-Salem Site
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The NC DENR Superfund Section appreciates the opportunity to comment on this document. If you have any questions or comments, please feel free to contact me at (919) 508-8466 or at david.mattison@ncdenr.gov.

Sincerely,

David B. Mattison
Environmental Engineer
NC DENR Superfund Section

Attachment

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-508-8400 \ FAX: 919-715-4061 \ Internet: www.wastenotnc.org

FORMER VIRGINIA-CAROLINA CHEMICAL COMPANY WINSTON-SALEM SITE
Request for a Time-Critical Removal Action

II. Site Conditions and Background
A. Site Description
1. Removal Site Evaluation

1. Please revise Section II.A.1. to include a new separate section describing the North Carolina Department of Environment and Natural Resources (NC DENR) Inactive Hazardous Sites Branch (IHSB) Soil Remediation Goals (SRGs) for the Site-related constituents of concern (COCs), arsenic and lead.

   The Preliminary Health Based Soil Remediation Goals (PSRGs) for arsenic and lead are 4.4 milligrams per kilogram (mg/kg) and 400 mg/kg, respectively. However, arsenic poses both carcinogenic risk and non-carcinogenic risk. The PSRG for arsenic is based on its non-carcinogenic properties. The PSRG for arsenic is also based on the assumption that there are four other chemicals at the Site in addition to the arsenic with the same critical effect. However, since there are no other COCs at the Site with the same critical effect, the PSRG for arsenic is actually 22 mg/kg (or 5x4.4mg/kg). This corresponds to a risk of 7 in 100,000 which is acceptable for residential usage. The PSRG for lead is based on United States Environmental Protection Agency (US EPA) guidance on lead cleanup levels and cannot be adjusted.

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4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

2. Please revise the second paragraph of Section II.A.4. to refer the reader to the new section in Section II.A.1. – *Removal Site Evaluation* for a complete description as to how the screening levels for lead and arsenic were determined.

III. Threats to Public Health or Welfare or the Environment and Statutory and Regulatory Authorities

A. Threats to Public Health or Welfare

3. Please revise Section III.A. to refer the reader to the new section in Section II.A.1. – *Removal Site Evaluation* for a complete description as to how the screening levels for lead and arsenic were determined.

V. Proposed Actions and Estimated Costs

A. Proposed Actions

1. Description of Proposed Response Actions

4. Please revise the third paragraph of Section V.A.1. to definitively include provisions for the placement of Institutional Controls (i.e., a restrictive covenant) to the Site property. Although the exact restrictions and language have not been determined by the US EPA or the NC DENR, the presence of lead and arsenic contamination beneath US Highway 52/State Road-8, and the inability to remediate such contamination, necessitate the need for Institutional Controls to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

VII. Outstanding Policy Issues

5. Please revise the fourth paragraph of Section VII. to definitively include provisions for the placement of Institutional Controls (i.e., a restrictive covenant) to the Site property. Although the exact restrictions and language have not been determined by the US EPA or the NC DENR, the presence of lead and arsenic contamination beneath US Highway 52/State Road-8, and the inability to remediate such contamination, necessitate the need for Institutional Controls to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

DRAFT DRAFT DRAFT DRAFT

ENFORCEMENT ACTION MEMORANDUM

Subject: Request for a Time-Critical Removal Action at the former Virginia Carolina Chemical Company~~rporation~~ Site, Winston-Salem, Forsyth County, North Carolina

From: Tim Neal, On-Scene Coordinator
Emergency Response and Removal Branch

McKenzie Mallary, Remedial Project Manager
Superfund Remedial and Site Evaluation Branch

Thru: Shane Hitchcock, Chief
Emergency Response and Removal Branch

To: Franklin E. Hill, Director
Superfund Division

I. Purpose

The purpose of this Action Memorandum, pursuant to Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), is to request and document approval of the proposed enforcement-lead Time-Critical Removal Action described herein for the former Virginia-Carolina Chemical Company (VCC) Site ("the Site"), located in Winston-Salem, Forsyth County, North Carolina. The Site poses a potential threat to public health and the environment that meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300-415(b) (2) criteria for a Time-Critical Removal Action. ExxonMobil Oil Corporation, subsidiary to Exxon Mobil Corporation, is the corporate successor to VCC Corporation. This Removal Action will be enforcement-lead pursuant to an Administrative Order on Consent (AOC) with Exxon Mobil Corporation.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

Site ID#: A4YD
Type: Time Critical Removal Action

The Site is the location of a former phosphate fertilizer plant in Winston-Salem, North Carolina. The plant was constructed by Southern Chemical Company between 1895 and 1900, and was continuously operated through 1927.

Phosphate fertilizer manufacturing at the Site generally involved reacting phosphate ores with sulfuric acid to produce phosphoric acid, the building block of Nitrogen-Phosphorus-Potassium (N-P-K) agricultural fertilizers. Sulfuric acid was made at the Site and stored in lead-lined chambers. Environmental impacts typically associated with phosphate-based fertilizer manufacturing facilities include acidic pH conditions and elevated concentrations of metals, including lead and arsenic in soil, groundwater, sediment, and surface water.

A review of the available Sanborn Fire Insurance maps confirmed that the former VCC Winston-Salem plant was a complete factory with acid production facilities throughout its entire operational history. At various times throughout the plant's history, its features included an acid chamber structure, compressor room, pyrite burners, a pyrite house, acid towers, a nitre house, a boiler room, a pump house, various water towers, a 100,000-gallon reservoir, a tobacco stem and grinding warehouse and associated drying furnace, a transformer house, rock sheds, a mill building (for grinding, mixing, storage, and bagging of fertilizer), a bag house, a motor printing press, several storage/warehouses, scales, a corn crib, and an office.

~~Virginia-Carolina Chemical (VCC) Company~~ acquired the plant from Southern Chemical Company in 1902, and owned the Site until declaring bankruptcy in 1924. ~~.~~ In 1926, Virginia Carolina Chemical Corporation emerged as a new company from the bankruptcy and took ownership of the Site. ~~VCC~~ Virginia Carolina Chemical Corporation merged into Socony Mobil Oil Company, Inc., in 1963, and the company name changed to Mobil Oil Corp. in 1966. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil became ExxonMobil Oil Corporation, the corporate successor to Virginia Carolina Chemical Corporation, and subsidiary to ~~CC.~~ Exxon Mobil Corporation. ~~is the parentresent company of ExxonMobil Oil Corporation.~~

1. Removal Site Evaluation

Several investigations have been conducted at the Site. In 2005, the North Carolina Department of Environment and Natural Resources (NCDENR) and Environmental Investigations, Inc. (EI), on behalf of the North Carolina Department of Transportation (NCDOT)), collected soil samples from 29 locations from the ground surface to a maximum depth of 20 feet below the ground surface. Arsenic was detected in 7 seven soil samples at concentrations exceeding the NCDENR Soil Remediation Goals (SRG)~~screening level~~ of 22 mg/kg. Lead was detected in 11 soil samples at concentrations exceeding the NCDENR SRG~~screening level~~ of 270 mg/kg. The SRGs~~screening levels~~ of 22 mg/kg for arsenic and 270 mg/kg for lead are NCDENR-determined levels~~Site-specific Action Levels (SSALs)~~ documented in an email communication dated December 14, 2009, from Mr. David Mattison (NCDENR) to Mr. Matthew Pelton (ARCADIS).

In November 2008, ARCADIS, on behalf of ExxonMobil Environmental Services (EMES), and in coordination with NCDOT, collected soil samples from the Site as described in the *VCC Winston-Salem Site: Soil Screening and Sampling Event Summary Report* (ARCADIS, 2009). A total of 38 soil samples were collected and analyzed to determine the extent of arsenic and lead concentrations in the soil that potentially lie within or adjacent to the Site boundaries and beneath US Hwy 52/SR-8. Arsenic was detected in one sample collected from a depth of 38.5 to 40 feet below the surface beneath US Hwy 52/SR-8 at a concentration of 121 mg/kg, which exceeds the NCDENR SRG~~screening level~~ of 2~~7~~2 mg/kg. Lead was detected in one soil sample collected from a depth of 3 to 5 feet beneath US Hwy 52/SR-8 at a concentration of 278 mg/kg, which exceeds the NCDENR SRG~~screening level~~ of 270 mg/kg.

In March 2009, Hart & Hickman (H&H), on behalf of NCDOT, collected a total of 35 soil samples within the proposed NCDOT right-of-way along US Hwy 52/SR-8. Arsenic was detected in 4 soil samples from 3 boring locations at concentrations exceeding the NCDENR SRG~~screening level~~ of 22 mg/kg. Lead was detected in 5 soil samples from 4 boring locations at concentrations exceeding the NCDENR SRG~~screening level~~ of 270 mg/kg.

In May 2009, ARCADIS, on behalf of EMES, conducted a Removal Site Evaluation (RSE) at the Site. A total of 71 soil samples were collected and analyzed from 24 soil boring locations during the RSE. Arsenic was detected in 12 soil samples from 9 soil boring locations~~samples~~ at concentrations exceeding the NCDENR SRG~~screening level~~ of 22 mg/kg. Lead was detected in 10 soil samples from 6 soil boring locations at concentrations exceeding the NCDENR SRG~~screening level~~ of 270 mg/kg. ~~The maximum arsenic and lead concentrations detected in soil samples collected north of Hwy 52/SR-8 were 364 mg/kg and 20,100 mg/kg, respectively.~~ The maximum arsenic and lead concentrations detected in soil samples collected during the RSE~~south of Hwy 52/SR-8~~ were 238 mg/kg and 4,380 mg/kg, respectively.

Based on the analytical results from the May 2009 investigation, additional delineation activities were conducted by ARCADIS, on behalf of EMES, in October and November 2009. These activities included the collection of an additional 142 soil samples from 48 soil boring locations, the installation of five groundwater monitoring wells, and the collection of groundwater samples from four of the wells. Toxicity Characteristic Leaching Procedure (TCLP) arsenic and lead analyses were also performed on 23 soil samples collected and composited from 25 soil boring locations where arsenic and/or lead concentrations exceeded the USEPA screening levels. In addition, two of the composite waste characterization samples were analyzed for TCLP metals, TCLP volatile organic compounds (VOCs), TCLP benzene, toluene, ethylbenzene, and xylene (BTEX), TCLP semi-volatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs). These analyses were performed to provide data to determine appropriate soil disposal requirements when evaluating potential soil removal response actions.

Arsenic and lead were detected in 69~~many~~ of the soil samples collected from the Site at concentrations which exceed the NCDENR SRGs of~~SSALs of~~ 272 mg/kg and 270 mg/kg, respectively. The majority of the elevated arsenic and lead concentrations in soil was detected in the northeastern and eastern portions of the Site.

2. Physical Location

The Site is located in Winston-Salem, Forsyth County, North Carolina (Figure 1-1). The Site is in an old industrial area located northeast of downtown Winston-Salem.

The Site is bounded to the north by Norfolk Southern's rail yard and the~~an~~ Atlantic Scrap facility, to the east by the Norfolk Southern Railroad (and north Liberty Street beyond), to the south by vacant industrial land (and Indiana Avenue beyond), to the southwest by the Norfolk Southern railroad (and NCDOT Site No. 54 beyond), and to the west by a rolling storage yard owned by Waste M~~m~~anagement of the Carolinas, Inc.. The Site is bisected from northwest to southeast by US Hwy 52/SR-8. The approximate geographical center of the Site is 36.1270° North Latitude and 80.2342° West Longitude.

Currently, the Site is occupied by two tax parcel~~-maps~~. Current property boundary information was obtained from the 2007 Forsyth County tax map.

3. Site Characteristics

The Site lies within the upstate region of North Carolina along the US Hwy 52/SR-8 corridor. The Site lies within the Piedmont Physiographic P~~p~~rovince of North Carolina, which is characterized by generally rolling and well-rounded hills and ridges. Elevations at the Site vary~~range~~ from approximately 937 to 970 feet above mean sea level. The Site is underlain by gneiss and schist of the Charlotte Belt, which consists of fine-grained biotite-quartz-feldspar gneiss and some inter-layered augen gneiss. Amphibolite layers occur locally and intrusive dikes of pegmatite and granite are also present.

The majority of the Site is heavily-vegetated. Portions of the Site that are not vegetated are covered by asphalt and gravel roads, parking areas, and railroad corridors. Surface water runoff generally flows to the northeast towards the Bowen Branch of Brushy Fork Creek located approximately 700 feet north of the Site. Bowen Branch flows easterly and discharges to Brushy Fork, and in turn, Brushy Fork discharges to Salem Creek on the east site of Winston-Salem. Salem Creek flows westerly through downtown Winston-Salem and discharges to the Yadkin River. On a regional scale, the Site is located within the Yadkin-Pee Dee River Basin.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

The RSE, conducted in May 2009, and subsequent delineation sampling activities conducted in October and November of 2009, are~~is~~ the most recent sampling investigations conducted at the Site. The following is a brief bullet summary of these activities ~~RSE~~:

- A total of 21~~37~~1 soil samples were collected and analyzed from 72~~2~~4 soil boring locations;
- Arsenic was detected in 3~~6~~12 soil samples from 24~~9~~ soil boring locations~~samples~~ at concentrations exceeding the NCDENR SRG~~SSAL~~ of 22 mg/kg;
- Lead was detected in 33~~1~~0 soil samples from 22~~6~~ soil boring locations at concentrations exceeding the NCDENR SRG~~SSAL~~ of 270 mg/kg;
- The maximum arsenic and lead concentrations detected in soil samples collected north of US Hwy 52/SR-8 were 364 mg/kg and 20,100 mg/kg, respectively;
- The maximum arsenic and lead concentrations detected in soil samples collected south of US Hwy 52/SR-8 were 238 mg/kg and 4,380 mg/kg, respectively;
- Twenty-one soil samples were analyzed for TCLP arsenic and lead; none of the samples contained detectable concentrations of arsenic; six (6) samples contained TCLP lead at concentrations above the standard of 5.0 mg/L; and
- Groundwater samples were collected from 4 groundwater monitoring wells; arsenic was not detected in any of the groundwater samples; lead was detected in one well at a concentration exceeding the North Carolina 2L Drinking Water Standard.

The USEPA screening levels for this site for arsenic and lead are 27 milligrams per kilogram (mg/kg), or parts-per-million, and 895 mg/kg, respectively. The NCDENR SRGs for this site ~~Site-specific Action levels (SSALs) established for soil contamination~~ (documented by email communication dated December 14, 2009, from Mr. David Mattison (NCDENR) to Mr. Matthew Pelton (ARCADIS)) for arsenic and lead, are 22 ~~milligrams per kilogram~~ (mg/kg), ~~or parts-per-million,~~ and 270 mg/kg, respectively. The arsenic value of 22 mg/kg in soil is considered by NCDENR to be protective of human health based on potential exposure resulting from dermal contact, inhalation, and/or ingestion. The lead value~~SSAL~~ of 270 mg/kg ~~for lead~~ in soil is considered by NCDENR to be both protective of human health based on potential exposure resulting from dermal contact, inhalation, and/or ingestion, and protective of groundwater.

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The Time-Critical Removal Action will address the Site-related contamination prior to the NCDOT's highway expansion project along US 52/SR-8, scheduled for summer 2010. ExxonMobil's strategy at this site is facilitate NCDOT's project and remove any regulatory uncertainty with implementation and long-term ~~vailbility~~viability. ExxonMobil therefore, intends ~~intends~~ to meet USEPA requirements by removing soils with arsenic and lead above the USEPA screening levels. ExxonMobil also intends to meet the NCDENR requirements by removing soils with arsenic and lead above the NCDENR SRGs. The more conservative NCDENR SRGs will therefore be used as the Site-Specific Action Levels (SSALs) at the site.

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5. National Priorities List (NPL) Status

As part of the Phosphate Fertilizer Initiative, ExxonMobil is voluntarily working with EPA and the State to address contamination at the Site. This Site is not on the NPL, but EPA considers this Site to be NPL-equivalent. A ranking package could be prepared in the future, and the Site could be proposed to the NPL, if needed.

6. Maps, Pictures, and Graphic Representations

Figures 1-1, 4-1A, and 4-1B from the SDR/RAWP are attached to this Action memo. Figure 1-1 is a Site location map, while 4-1A and 4-1B show the areas to be addressed during the Removal Action.

B. Other Actions To Date

1. Previous Actions

There have been no known actions taken at the Site to investigate the presence of Site-related contamination, or mitigate conditions, other than the investigations described in section II (A) (1) of this document.

2. Current Actions

Before the Removal Action begins at the Site, EPA and ExxonMobil will finalize an Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) which will provide for implementation of the Removal Action at the Site, as well as continued investigations of the Site (if needed).

C. State and Local Authorities' Role

1. State and local Actions to Date

EPA and NCDENR have provided oversight during the Site Delineation and Removal Site Evaluation, and will continue to work together to coordinate oversight responsibilities during the Removal Action.

EPA will communicate with local officials throughout the Removal process. The local officials will be notified about the 30-day comment period to be held in February and March 2010, prior to start of the Removal Action in March 2010. [Note to Ken, is public comment period required under the TCRA?]

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III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

According to the criteria listed in Section 300.415 of the National Contingency Plan (NCP), the Site meets the requirements for initiating a Time-Critical Removal Action. Specifically, these include the following determinations:

A. Threats to Public Health or Welfare

Section 300.415(b)(2)(iv) - "*soil with high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate*". EPA has determined the following conditions exist at the Site which meet the requirements for initiating a Time-Critical Removal Action. Arsenic levels as high as 364 mg/kg or parts-per-million (ppm) exist in surface and subsurface soil; lead levels as high as 20,100 ppm exist in surface and subsurface soil. These levels of arsenic and lead in soil exceed the USEPA screening levels~~NCDENR-approved SSALs~~, or cleanup criteria, for protection of human health through direct contact exposure and/or protection of groundwater (i.e., 2~~2~~7 mg/kg arsenic, 895~~270~~ mg/kg lead).

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

Due to the inherent uncertainties associated with the removal options evaluated for use at the Site, the On-Scene Coordinator, and EPA's designated Project Manager, in a manner consistent with the National Oil and Hazardous Substances Pollution

Contingency Plan (NCP), remain obligated to modify removal procedures as conditions warrant.

1. Description of Proposed Response Actions

An estimated 18,504~~397~~ cubic yards of Site-related soil contamination and debris (e.g., concrete, brick, railroad ties, etc.) exceeding ~~NCDENR's~~the SSALs will be excavated to meet the requirements of both USEPA and NCDENR for the soil removal at the site. Construction debris over one cubic yard in size will be left in place, or will be cleaned and left on-Site. Actual excavation limits will be determined in the field based on the confirmation sampling program. The soil removal areas encompass a total area of approximately 3.67 acres, and range in depth from 1 to 7 feet below land surface. ExxonMobil will treat and/or dispose of the contaminated soils and debris according to appropriate industry and regulatory standards.

Soils with TCLP arsenic and/or lead concentrations greater than or equal to 5.0 mg/l will either be stabilized and transported to a RCRA Subtitle D landfill for disposal, or transported to a RCRA Subtitle C landfill without being stabilized. Stabilization will be achieved via mixing of a phosphate-based stabilization agent with the soil in batches of approximately 200 tons so that efficient and uniform blending can be achieved.

If required by EPA and/or NCDENR, Institutional Controls (i.e., a restrictive covenant) will be applied to the Site property to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

ExxonMobil will restore areas which are disturbed by the Removal Action to their pre-removal state to the maximum extent practicable. Areas that overlap with the NCDOT's highway expansion project along US 52/SR-8, scheduled for summer 2010, will be restored consistent with NCDOT's project objectives.

The need for additional groundwater monitoring at the Site will be determined once the sSoil Removal Action is complete.

The preferred response action to address soil contamination is selected for use at the Site for the following reasons:

A. The preferred response action is considered technically feasible because it has been successfully implemented at other sites, and the materials and qualified commercial contractors are readily available;

B. The preferred response action offers a balance between effectiveness and cost, (i.e., it will achieve the removal action objectives at a lower cost than other response actions evaluated for potential use; and

C. EPA and NCDENR concur on the use of the preferred response action to address soil contamination at the Site.

2. Contribution to Remedial Performance

The proposed Time-Critical Removal Action will address the potential threats discussed in Section III, which meet the removal criteria established in Section 300.415(b)(2) of the NCP. Although future action under the EPA's Remedial program is unlikely, the Removal Action contemplated in this Action Memorandum is considered to be consistent with any future Remedial Action.

3. Engineering Evaluation/Cost Analysis (EE/CA)

This proposed action is a Time-Critical Removal Action and does not require an EE/CA.

4. Pre-Design Investigations/Removal Site Evaluation

Pre-Design investigations, including the Removal Site Evaluation (RSE) were conducted at the Site. The Final SDR/RAWP report, dated February~~January~~ 2010, is attached to this Action Memorandum.

5. Applicable or Relevant and Appropriate Requirements (ARARS)

The Time-Critical Removal Action will be conducted in compliance with all Federal and State applicable or relevant and appropriate chemical-, action-, and location-, specific requirements (ARARs).

6. Project Schedule

The design document for the Time-Critical Removal Action, referred to the SDR/RAWP, has been finalized. The Time-Critical Removal Action is scheduled to begin at the Site in March 2010.

VI EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the Removal Action is significantly delayed or not taken at the Site, the potential threats explained in Section III of this Action Memorandum will continue to exist.

VII. OUTSTANDING POLICY ISSUES

EPA has chosen to address the contamination at the Site using EPA's Removal authority. EPA has extensive experience using Removal authority to investigate and implement removal actions to address contamination at former phosphate fertilizer plant

sites located in Region 4. The conventional removal techniques used to address the contamination at these sites are fundamentally the same, allowing for the use of "presumptive" remedies.

Contamination at the Site consists of lead and arsenic in the surface and subsurface soil, and conventional removal techniques will be utilized during the Removal Action to address the soil contamination.

Slightly-acidic pH conditions in the groundwater at the Site may have resulted in the mobilization of metals where they are present in the subsurface soil; however, only one groundwater monitoring well at the Site has contained a lead concentration above the North Carolina 2L drinking water standard. None of the groundwater samples have contained arsenic at concentrations above the North Carolina 2L drinking water standard.

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A determination has not been made by EPA and/or NCDENR on the need for Institutional Controls (ICs) at the Site. However, if it is determined by EPA and/or NCDENR during the Removal Action that ICs are needed, ExxonMobil will be responsible for placing a restrictive covenant on the property deed for the Site. The ICs will help to ensure the integrity of the Time-Critical Removal Action is not compromised, thereby ensuring the long-term protection of human health and the environment. The ICs may include a restriction on the use of groundwater on those portions of the Site known to have Site-related groundwater contamination. The ICs will remain on the property deed until such time that EPA and/or NCDENR determine the ICs are not needed to protect human health and the environment.

VIII. ENFORCEMENT

As the corporate successor to the Virginia-Carolina Chemical ~~Company (VCC)~~Corporation, ~~ExxonMobil~~ ExxonMobil Oil Corporation has been identified as ~~the~~a potentially responsible party (PRP) for the Site. EPA and ExxonMobil, parent to ExxonMobil Oil Corporation, are currently negotiating the terms of the AOC for conducting the Removal Action. EPA expects ExxonMobil will sign the AOC, thereby agreeing to fund and conduct the Time-Critical Removal Action.

IX. RECOMMENDATIONS

This decision document sets forth the selected Time-Critical Removal Action for the former Virginia-Carolina Chemical Company (VCC) Winston-Salem Site ("the Site"), located in Winston-Salem, Forsyth County, North Carolina. This Action Memorandum has been developed in accordance with CERCLA, as amended, and is consistent with the NCP. The selection of the preferred response actions is based on the Administrative Record for the Site. As required, EPA will hold a 30-day comment period [Note to Ken, is public comment period required under a TCRA?] to solicit public input on the selection of the preferred response actions prior to the start of the Removal Action.

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The 30-day comment period is scheduled to begin on February 10, 2010, and end on March 12, 2010, prior to the start of the Removal Action.

Conditions at the Site meet the NCP section 300.415 (b) (2) criteria for a Time-Critical Removal Action. In addition, the Time-Critical Removal Action will address the Site-related contamination prior to the NCDOT's highway expansion project along US 52/SR-8, scheduled for summer 2010.

I recommend your approval of the proposed Time-Critical Removal Action.

(Approval) _____ Date:

(Disapproval) _____ Date:

Franklin E. Hill, Director
Superfund Division

U. S. Environmental Protection Agency

FORMER VIRGINIA CAROLINA CHEMICAL CO. SITE, WINSTON-SALEM, NORTH CAROLINA

February 2010

If you have questions or comments about the Site, please contact EPA by phone at the numbers listed below:

Contact Info:

McKenzie Mallary
Remedial Project Manager
(404) 562-8802
mallary.ken@epa.gov

Tonya James
Community Involvement Coordinator
(404) 562-8633
james.tonya@epa.gov

You can also mail your questions or comments to either contact shown above at the following address:

U.S. EPA
61 Forsyth St.
Atlanta, GA 30303
1-800-435-9233

If you would like to be placed on the EPA's mailing list to receive updates about the site, please see the back of this fact sheet. Provide the requested information, fold the form, and return it to EPA at the address provided. Or if you prefer, do not hesitate to call the contacts above.

Site Location & History

The former Virginia Carolina Chemical Company Site (" the Site") is located in an old industrial area located northeast of downtown Winston-Salem, Forsyth County, North Carolina (see Figure 1-1). The Site is bounded to the north by Norfolk Southern's rail yard and the Atlantic Scrap facility, to the east by the Norfolk Southern Railroad (and north Liberty Street beyond), to the south by vacant industrial land (and Indiana Avenue beyond), to the southwest by the Norfolk Southern railroad, and to the west by a rolling storage yard owned by Waste Management of the Carolinas, Inc. The Site is bisected from northwest to southeast by US Hwy 52/SR-8.

A former phosphate fertilizer plant was constructed at the Site by Southern Chemical Company between 1895 and 1900. Virginia Carolina Chemical Company (VCC) acquired the plant from Southern Chemical Company in 1902. The plant was continuously operated through 1927. In 1963, VCC merged into Socony Mobil Oil Company, Inc. The company name changed to Mobil Oil Corporation in 1966. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil became ExxonMobil Oil Corporation, the corporate successor to VCC, a subsidiary to Exxon Mobil Corporation.

Removal Site Evaluation

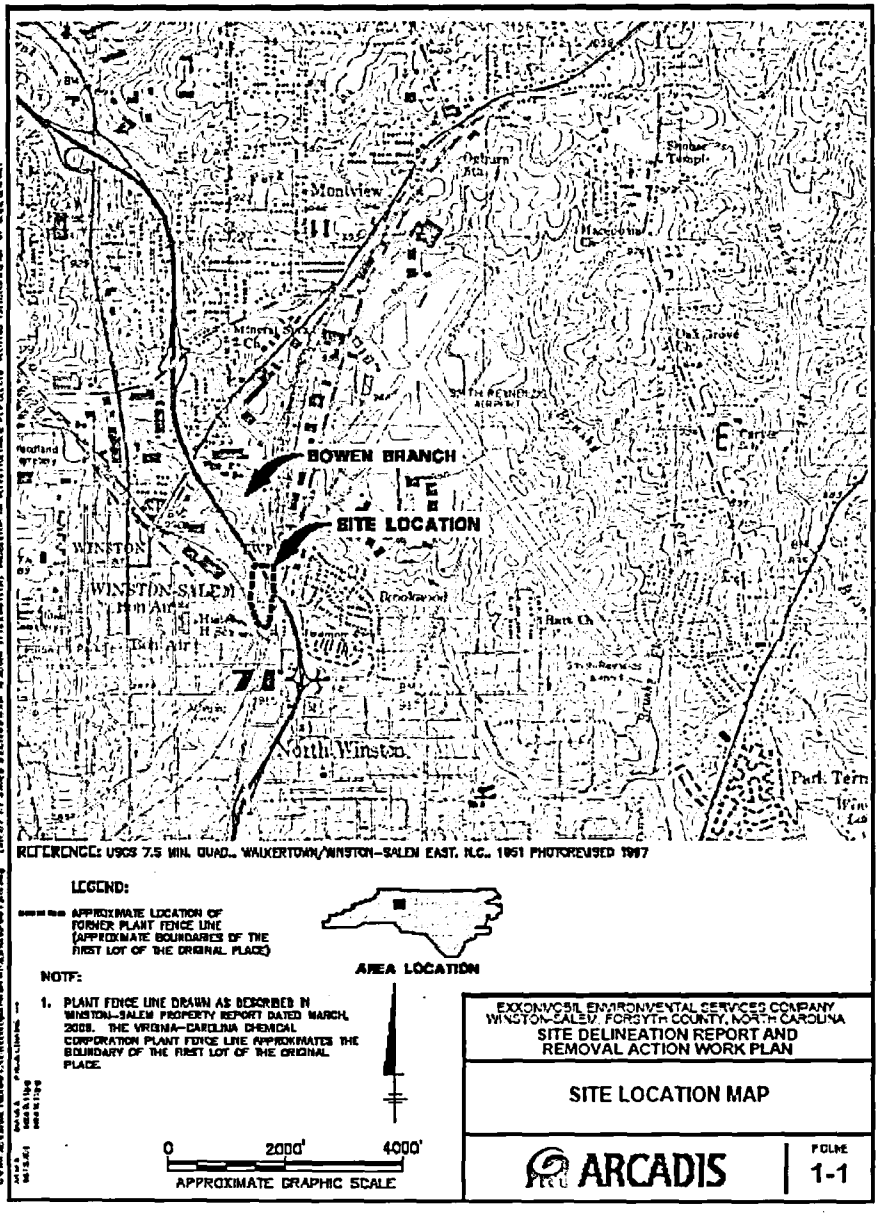
The facility produced phosphate fertilizers using lead-lined acid chambers. The process resulted in residual lead and arsenic in soil at the Site. Several investigations have been conducted at the Site which indicate elevated levels of arsenic and lead in soil which exceed the EPA Region 4 Removal Action Levels.

Planned Activities

Beginning in March 2010, ExxonMobil will perform a Removal Action which will involve excavating and removing an estimated 18,504 cubic yards of contaminated soil and debris from the Site. ExxonMobil will treat and dispose of the contaminated soil and debris at an approved, off-site landfill, following appropriate industry and regulatory standards. The soil removal areas encompass a total area of approximately 3.7 acres, and range in depth from 1 to 7 feet below land surface.

EPA and the North Carolina Department of Environment and Natural Resources (NCDENR) will provide oversight during the Removal Action.

ExxonMobil will restore the areas disturbed by the Removal Action to their pre-removal state to the maximum extent practicable. Areas that overlap with the North Carolina Department of Tranportation's (NCDOT) highway expansion project along Highway 52/SR-8, scheduled for summer 2010, will be restored consistent with NCDOT's project objectives.



FORMER VIRGINIA CAROLINA CHEMICAL COMPANY SITE
WINSTON SALEM, NORTH CAROLINA

Mailing List Additions/Corrections

If you would like your name and address added to, or corrected on, the mailing list for the former Virginia Carolina Chemical Site in Winston-Salem, NC, please complete this form and return it to:

Tonya James
U.S. EPA - Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303

NAME: _____

AFFILIATION: _____

ADDRESS: _____

_____

FOLD ON DOTTED LINE

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, S.W.
ATLANTA, GA 30303-8960
ATTN: Tonya James – 11th Floor

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-3104

January 26, 2010

Mr. David Evans
City of Winston-Salem/Forsyth County Inspections Division
100 E. First Street, Suite 328
Winston-Salem, North Carolina 27101

Dear Mr. Evans:

The purpose of this letter is to inform you that the Environmental Protection Agency - Region 4 ("EPA") and the North Carolina Department of Environment and Natural Resources ("NCDENR") have the regulatory authority to oversee the soil removal work to be performed by ExxonMobil Environmental Services Company ("EMES") to address the contamination related to the former Virginia Carolina Chemical Company (VCC) Winston-Salem property (the "Site") located in Winston-Salem, North Carolina.

You can contact me at (404) 562-8802, or by email at mallary.ken@epa.gov, if you have any questions regarding this matter.

Sincerely,

McKenzie Mallary

McKenzie Mallary

cc: Steven Schmidt, EMES
David Mattison, NCDENR
Matt Pelton, ARCADIS
Geoff Germann, ARCADIS

DRAFT DRAFT DRAFT DRAFT

ENFORCEMENT ACTION MEMORANDUM

Subject: Request for a Time-Critical Removal Action at the Virginia Carolina Chemical Corporation Site, Winston-Salem, Forsyth County, North Carolina

From: Tim Neal, On-Scene Coordinator
Emergency Response and Removal Branch

McKenzie Mallary, Remedial Project Manager
Superfund Remedial and Site Evaluation Branch

Thru: Shane Hitchcock, Chief
Emergency Response and Removal Branch

To: Franklin E. Hill, Director
Superfund Division

I. Purpose

The purpose of this Action Memorandum, pursuant to Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), is to request and document approval of the proposed enforcement-lead Time-Critical Removal Action described herein for the Virginia-Carolina Chemical (VCC) Site ("the Site"), located in Winston-Salem, Forsyth County, North Carolina. The Site poses a potential threat to public health and the environment that meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300-415(b) (2) criteria for a Time-Critical Removal Action. ExxonMobil Corporation is the corporate successor to VCC. This Removal Action will be enforcement-lead pursuant to an Administrative Order on Consent (AOC) with ExxonMobil.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

Site ID#: A4YD
Type: Time Critical Removal Action

The Site is the location of a former phosphate fertilizer plant in Winston-Salem, North Carolina. The plant was constructed by Southern Chemical Company between 1895 and 1900, and was continuously operated through 1927.

Phosphate fertilizer manufacturing at the Site generally involved reacting phosphate ores with sulfuric acid to produce phosphoric acid, the building block of Nitrogen-Phosphorus-Potassium (N-P-K) agricultural fertilizers. Sulfuric acid was made at the Site and stored in lead-lined chambers. Environmental impacts typically associated with phosphate-based fertilizer manufacturing facilities include acidic pH conditions and elevated concentrations of metals, including lead and arsenic in soil, groundwater, sediment, and surface water.

A review of the available Sanborn Fire Insurance maps confirmed that the former VCC Winston-Salem plant was a complete factory with acid production facilities throughout its entire operational history. At various times throughout the plant's history, its features included an acid chamber structure, compressor room, pyrite burners, a pyrite house, acid towers, a nitre house, a boiler room, a pump house, various water towers, a 100,000-gallon reservoir, a tobacco stem and grinding warehouse and associated drying furnace, a transformer house, rock sheds, a mill building (for grinding, mixing, storage, and bagging of fertilizer), a bag house, a motor printing press, several storage/warehouses, scales, a corn crib, and an office.

Virginia-Carolina Chemical (VCC) Company acquired the plant from Southern Chemical Company in 1902. VCC merged into Socony Mobil Oil Company, Inc., in 1963, and the company name changed to Mobil Oil Corp. in 1966. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil became ExxonMobil Oil Corporation, the corporate successor to VCC. Exxon Mobil Corporation is the present company of ExxonMobil Oil Corporation.

1. Removal Site Evaluation

Several investigations have been conducted at the Site. In 2005, the North Carolina Department of Environment and Natural Resources (NCDENR) and Environmental Investigations, Inc. (EI), on behalf of the North Carolina Department of Transportation (NCDOT)), collected soil samples from 29 locations from the ground surface to a maximum depth of 20 feet below the ground surface. Arsenic was detected in 7 seven soil samples at concentrations exceeding the screening level of 22 mg/kg. Lead was detected in 11 soil samples at concentrations exceeding the screening level of 270 mg/kg. The screening levels of 22 mg/kg for arsenic and 270 mg/kg for lead are NCDENR-determined Site-specific Action Levels (SSALs) documented in an email communication dated December 14, 2009, from Mr. David Mattison (NCDENR) to Mr. Matt Pelton (ARCADIS).

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beneath US Hwy 52/SR-8 at a concentration of 121 mg/kg, which exceeds the screening level of 27 mg/kg. Lead was detected in one soil sample collected from a depth of 3 to 5 feet beneath US Hwy 52/SR-8 at a concentration of 278 mg/kg, which exceeds the screening level of 270 mg/kg.

In March 2009, Hart & Hickman (H&H), on behalf of NCDOT, collected a total of 35 soil samples within the proposed NCDOT right-of-way along US Hwy 52/SR-8. Arsenic was detected in 4 soil samples from 3 boring locations at concentrations exceeding the screening level of 22 mg/kg. Lead was detected in 5 soil samples from 4 boring locations at concentrations exceeding the screening level of 270 mg/kg.

In May 2009, ARCADIS, on behalf of EMES, conducted a Removal Site Evaluation (RSE) at the Site. A total of 71 soil samples were collected and analyzed from 24 soil boring locations during the RSE. Arsenic was detected in 12 soil samples from 9 soil samples at concentrations exceeding the screening level of 22 mg/kg. Lead was detected in 10 soil samples from 6 soil boring locations at concentrations exceeding the screening level of 270 mg/kg. The maximum arsenic and lead concentrations detected in soil samples collected north of Hwy 52/SR-8 were 364 mg/kg and 20,100 mg/kg, respectively. The maximum arsenic and lead concentrations detected in soil samples collected south of Hwy 52/SR-8 were 238 mg/kg and 4,380 mg/kg, respectively.

Based on the analytical results from the May 2009 investigation, additional delineation activities were conducted by ARCADIS, on behalf of EMES, in October and November 2009. These activities included the collection of soil samples, the installation of five groundwater monitoring wells, and the collection of groundwater samples from four of the wells. Toxicity Characteristic Leaching Procedure (TCLP) arsenic and lead analyses were also performed on 23 soil samples collected and composited from 25 soil boring locations where arsenic and/or lead concentrations exceeded the USEPA screening levels. In addition, two of the composite waste characterization samples were analyzed for TCLP metals, TCLP volatile organic compounds (VOCs), TCLP benzene, toluene, ethylbenzene, and xylene (BTEX), TCLP semi-volatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs). These analyses were performed to provide data to determine appropriate soil disposal requirements when evaluating potential soil removal response actions.

Arsenic and lead were detected in many of the soil samples collected from the Site at concentrations which exceed the SSALs of 27 mg/kg and 270 mg/kg, respectively. The majority of the elevated arsenic and lead concentrations in soil was detected in the northeastern and eastern portions of the Site.

2. Physical Location

The Site is located in Winston-Salem, Forsyth County, North Carolina (Figure 1-1). The Site is in an old industrial area located northeast of downtown Winston-Salem.

The Site is bounded to the north by Norfolk Southern's rail yard and an Atlantic Scrap facility, to the east by the Norfolk Southern Railroad (and north Liberty Street beyond), to the south by vacant industrial land (and Indiana Avenue beyond), to the southwest by the Norfolk Southern railroad (and NCDOT Site No. 54 beyond), and to the west by a rolling storage yard owned by Waste management. The Site is bisected from northwest to southeast by US Hwy 52/SR-8. The approximate geographical center of the Site is 36.1270° North Latitude and 80.2342° West Longitude.

Currently, the Site is occupied by two tax parcel maps. Current property boundary information was obtained from the 2007 Forsyth County tax map.

3. Site Characteristics

The Site lies within the upstate region of North Carolina along the US Hwy 52/SR-8 corridor. The Site lies within the Piedmont Physiographic province of North Carolina, which is characterized by generally rolling and well-rounded hills and ridges. Elevations at the Site range from 937 to 970 feet above mean sea level. The Site is underlain by gneiss and schist of the Charlotte Belt, which consists of fine-grained biotite-quartz-feldspar gneiss and some inter-layered augen gneiss. Amphibolite layers occur locally and intrusive dikes of pegmatite and granite are also present.

The majority of the Site is heavily-vegetated. Portions of the Site that are not vegetated are covered by asphalt and gravel roads, parking areas, and railroad corridors. Surface water runoff generally flows to the northeast towards the Bowen Branch of Brushy Fork Creek located approximately 700 feet north of the Site. Bowen Branch flows easterly and discharges to Brushy Fork, and in turn, Brushy Fork discharges to Salem Creek on the east site of Winston-Salem. Salem Creek flows westerly through downtown Winston-Salem and discharges to the Yadkin River. On a regional scale, the Site is located within the Yadkin-Pee Dee River Basin.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

The RSE, conducted in May 2009, is the most recent sampling investigations conducted at the Site. The following is a brief bullet summary of the RSE:

- A total of 71 soil samples were collected and analyzed from 24 soil boring locations;
- Arsenic was detected in 12 soil samples from 9 soil samples at concentrations exceeding the SSAL of 22 mg/kg;
- Lead was detected in 10 soil samples from 6 soil boring locations at concentrations exceeding the SSAL of 270 mg/kg;

- The maximum arsenic and lead concentrations detected in soil samples collected north of US Hwy 52/SR-8 were 364 mg/kg and 20,100 mg/kg, respectively;

- The maximum arsenic and lead concentrations detected in soil samples collected south of US Hwy 52/SR-8 were 238 mg/kg and 4,380 mg/kg, respectively;

- Twenty-one soil samples were analyzed for TCLP arsenic and lead; none of the samples contained detectable concentrations of arsenic; six (6) samples contained TCLP lead at concentrations above the standard of 5.0 mg/L; and

- Groundwater samples were collected from 4 groundwater monitoring wells; arsenic was not detected in any of the groundwater samples; lead was detected in one well at a concentration exceeding the North Carolina 2L Drinking Water Standard.

The Site-specific Action levels (SSALs) established for soil contamination (documented by email communication dated December 14, 2009, from Mr. David Mattison (NCDENR) to Mr. Matthew Pelton (ARCADIS) for arsenic and lead, are 22 milligrams per kilogram (mg/kg), or parts-per-million, and 270 mg/kg, respectively. The arsenic value of 22 mg/kg in soil is considered by NCDENR to be protective of human health based on potential exposure resulting from dermal contact, inhalation, and/or ingestion. The SSAL of 270 mg/kg for lead in soil is considered by NCDENR to be both protective of human health based on potential exposure resulting from dermal contact, inhalation, and/or ingestion, and protective of groundwater.

5. National Priorities List (NPL) Status

As part of the Phosphate Fertilizer Initiative, ExxonMobil is voluntarily working with EPA and the State to address contamination at the Site. This Site is not on the NPL, but EPA considers this Site to be NPL-equivalent. A ranking package could be prepared in the future, and the Site could be proposed to the NPL, if needed.

6. Maps, Pictures, and Graphic Representations

Figures 1-1, 4-1A, and 4-1B from the SDR/RAWP are attached to this Action memo. Figure 1-1 is a Site location map, while 4-1A and 4-1B show the areas to be addressed during the Removal Action.

B. Other Actions To Date

1. Previous Actions

There have been no known actions taken at the Site to investigate the presence of Site-related contamination, or mitigate conditions, other than the investigations described in section II (A) (1) of this document.

2. Current Actions

Before the Removal Action begins at the Site, EPA and ExxonMobil will finalize an Administrative Order on Consent (AOC) which will provide for implementation of the Removal Action at the Site, as well as continued investigations of the Site (if needed).

C. State and Local Authorities' Role

1. State and local Actions to Date

EPA and NCDENR have provided oversight during the Site Delineation and Removal Site Evaluation, and will continue to work together to coordinate oversight responsibilities during the Removal Action.

EPA will communicate with local officials throughout the Removal process. The local officials will be notified about the 30-day comment period to be held in February and March 2010, prior to start of the Removal Action in March 2010.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

According to the criteria listed in Section 300.415 of the National Contingency Plan (NCP), the Site meets the requirements for initiating a Time-Critical Removal Action. Specifically, these include the following determinations:

A. <u>Threats to Public Health or Welfare</u>

Section 300.415(b)(2)(iv) - "*soil with high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate*". EPA has determined the following conditions exist at the Site which meet the requirements for initiating a Time-Critical Removal Action. Arsenic levels as high as 364 mg/kg or parts-per-million (ppm) exist in surface and subsurface soil; lead levels as high as 20,100 ppm exist in surface and subsurface soil. These levels of arsenic and lead in soil exceed the NCDENR-approved SSALs, or cleanup criteria, for protection of human health through direct contact exposure and/or protection of groundwater (i.e., 22 mg/kg arsenic, 270 mg/kg lead).

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

Due to the inherent uncertainties associated with the removal options evaluated for use at the Site, the On-Scene Coordinator, and EPA's designated Project Manager, in a manner consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), remain obligated to modify removal procedures as conditions warrant.

1. Description of Proposed Response Actions

An estimated 18,397 cubic yards of Site-related soil contamination and debris (e.g., concrete, brick, railroad ties, etc.) exceeding NCDENR's SSALs will be excavated. Construction debris over one cubic yard in size will be left in place, or will be cleaned and left on-Site. Actual excavation limits will be determined in the field based on the confirmation sampling program. The soil removal areas encompass a total area of approximately 3.6 acres, and range in depth from 1 to 7 feet below land surface. ExxonMobil will treat and/or dispose of the contaminated soils and debris according to appropriate industry and regulatory standards.

Soils with TCLP arsenic and/or lead concentrations greater than or equal to 5.0 mg/l will either be stabilized and transported to a RCRA Subtitle D landfill for disposal, or transported to a RCRA Subtitle C landfill without being stabilized. Stabilization will be achieved via mixing of a phosphate-based stabilization agent with the soil in batches of approximately 200 tons so that efficient and uniform blending can be achieved.

If required by EPA and/or NCDENR, Institutional Controls (i.e., a restrictive covenant) will be applied to the Site property to ensure the long-term protection of human health and the environment at the Site, as well as to ensure the integrity of the Time-Critical Removal Action is not jeopardized by future construction and/or redevelopment activities at the Site.

ExxonMobil will restore areas which are disturbed by the Removal Action to their pre-removal state to the maximum extent practicable.

The need for additional groundwater monitoring at the Site will be determined once the soil Removal Action is complete.

The preferred response action to address soil contamination is selected for use at the Site for the following reasons:

A. The preferred response action is considered technically feasible because it has been successfully implemented at other sites, and the materials and qualified commercial contractors are readily available;

B. The preferred response action offers a balance between effectiveness and cost, (i.e., it will achieve the removal action objectives at a lower cost than other response actions evaluated for potential use; and

C. EPA and NCDENR concur on the use of the preferred response action to address soil contamination at the Site.

2. Contribution to Remedial Performance

The proposed Time-Critical Removal Action will address the potential threats discussed in Section III, which meet the removal criteria established in Section 300.415(b)(2) of the NCP. Although future action under the EPA's Remedial program is unlikely, the Removal Action contemplated in this Action Memorandum is considered to be consistent with any future Remedial Action.

3. Engineering Evaluation/Cost Analysis (EE/CA)

This proposed action is a Time-Critical Removal Action and does not require an EE/CA.

4. Pre-Design Investigations/Removal Site Evaluation

Pre-Design investigations, including the Removal Site Evaluation (RSE) were conducted at the Site. The Final SDR/RAWP report, dated January 2010, is attached to this Action Memorandum.

5. Applicable or Relevant and Appropriate Requirements (ARARS)

The Time-Critical Removal Action will be conducted in compliance with all Federal and State applicable or relevant and appropriate chemical-, action-, and location-, specific requirements (ARARs).

6. Project Schedule

The design document for the Time-Critical Removal Action, referred to the SDR/RAWP, has been finalized. The Time-Critical Removal Action is scheduled to begin at the Site in March 2010.

VI EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the Removal Action is significantly delayed or not taken at the Site, the potential threats explained in Section III of this Action Memorandum will continue to exist.

VII. OUTSTANDING POLICY ISSUES

EPA has chosen to address the contamination at the Site using EPA's Removal authority. EPA has extensive experience using Removal authority to investigate and implement removal actions to address contamination at former phosphate fertilizer plant sites located in Region 4. The conventional removal techniques used to address the contamination at these sites are fundamentally the same, allowing for the use of "presumptive" remedies.

Contamination at the Site consists of lead and arsenic in the surface and subsurface soil, and conventional removal techniques will be utilized during the Removal Action to address the soil contamination.

Slightly-acidic pH conditions in the groundwater at the Site have resulted in the mobilization of metals where they are present in the subsurface soil; however, only one groundwater monitoring well at the Site has contained a lead concentration above the North Carolina 2L drinking water standard. None of the groundwater samples have contained arsenic at concentrations above the North Carolina 2L drinking water standard.

A determination has not been made by EPA and/or NCDENR on the need for Institutional Controls (ICs) at the Site. However, if it is determined by EPA and/or NCDENR during the Removal Action that ICs are needed, ExxonMobil will be responsible for placing a restrictive covenant on the property deed for the Site. The ICs will help to ensure the integrity of the Time-Critical Removal Action is not compromised, thereby ensuring the long-term protection of human health and the environment. The ICs may include a restriction on the use of groundwater on those portions of the Site known to have Site-related groundwater contamination. The ICs will remain on the property deed until such time that EPA and/or NCDENR determine the ICs are not needed to protect human health and the environment.

VIII. ENFORCEMENT

As the corporate successor to the Virginia-Carolina Chemical Company (VCC), ExxonMobil has been identified as the potentially responsible party (PRP) for the Site. EPA and ExxonMobil are currently negotiating the terms of the AOC for conducting the Removal Action. EPA expects ExxonMobil will sign the AOC, thereby agreeing to fund and conduct the Time-Critical Removal Action.

IX. RECOMMENDATIONS

This decision document sets forth the selected Time-Critical Removal Action for the Virginia-Carolina Chemical (VCC) Winston-Salem Site ("the Site"), located in Winston-Salem, Forsyth County, North Carolina. This Action Memorandum has been developed in accordance with CERCLA, as amended, and is consistent with the NCP. The selection of the preferred response actions is based on the Administrative Record for the Site. As required, EPA will hold a 30-day comment period to solicit public input on the selection of the preferred response actions prior to the start of the Removal Action. The 30-day comment period is scheduled to begin on February 10, 2010, and end on March 12, 2010, prior to the start of the Removal Action.

Conditions at the Site meet the NCP section 300.415 (b) (2) criteria for a Time-Critical Removal Action. In addition, the Time-Critical Removal Action will address the Site-related contamination prior to the NCDOT's highway expansion project along US 52/SR-8, scheduled for summer 2010.

I recommend your approval of the proposed Time-Critical Removal Action.

(Approval) _____ Date:

(Disapproval) _____ Date:

Franklin E. Hill, Director
Superfund Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
SAM NUNN ATLANTA FEDERAL CENTER
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-3104

January 26, 2010

Mr. Steve P. Schmidt
Project Manager
ExxonMobil Corporation
ExxonMobil Environmental Services Company (EMES)
3225 Gallows Road (Rm. 8B0829)
Fairfax, VA 22037

Subject: EPA Comments on Removal Action Work Plan
Former VCC Winston-Salem Site, Winston-Salem, North Carolina

Dear Mr. Schmidt:

I have reviewed the Draft Site Delineation Report/Removal Action Work Plan (SDR/RAWP) for the VCC Winston-Salem Site, located in Winston-Salem, North Carolina, and have the following comments. Please provide responses to EPA and NCDENR, revise the documents as appropriate, and provide revised copies of this report to EPA and NCDENR by February 5, 2010.

Please contact me at (404) 562-8802, or by email at mallary.ken@epa.gov, if you have any questions or comments regarding these comments.

Sincerely,

McKenzie Mallary

McKenzie Mallary
Remedial Project Manager

cc: David Mattison, NCDENR
Matthew Pelton, ARCADIS
Geoff Germann, ARCADIS

EPA General Comments

The sample designations provided in the text of the SDR/RAWP do not match the sample designations on the Figures. Please add language to the document, and in the legend of each figure, that explains the discrepancy in the sample designation.

EPA Specific Comments

Page 6, Section 1.3.2 - In the second paragraph, third sentence, the abbreviation "US-52/SR-8" is used twice. Please correct.

Page 16, Section 3.3.1, first paragraph – should sample WS-WS-53 be WS-SB-53?

Page 20, Section 4.1 – Eliminate the gap in the second sentence.

Page 21, Section 4.2 – In the second paragraph, the document states the excavation of soil will take place on 4 properties with total area of 4.6 acres, yet on page 20, the document states the soil removal areas encompass a total area of 3.6 acres. Please correct the discrepancy.

Page 22, Section 4.2.1- In the first full paragraph, the document states that the areas with samples containing greater than 5 mg/L TCLP lead will be addressed either by stabilizing the soil or transporting the soil off-site for disposal. However, Figure 4-1A shows sample locations C-2, C-8, and SB-12 as areas that will not be addressed during the Removal Action. If these areas will not be addressed during the Removal Action, please add language to the document explaining why. If these areas will be addressed during the Removal Action, please modify Figure 4-1A to indicate that these areas will be addressed.

Page 22, first sentence - in the event a demarcation liner is used during the removal action, I recommend that language be added to the IC document which describes in detail the location and depths of the liner.

Page 22, last paragraph - I recommend the groundwater investigation be completed at the Site, and a determination made regarding potential groundwater-use restrictions, before we generate an IC document for the Site.

Page 24, Section 5.1, 3rd paragraph – A Post-Removal Site Control Plan needs to be developed which identifies all post-removal monitoring for the Site. The Post-Removal Site Control Plan will be reviewed and approved by EPA and NCDENR before the EPA approves the Final Removal Action Report for the Site.

Figures 4-1A shows sample location "8-3" as a soil boring location (collected by Hart and Hickman in 2009) with arsenic and/or lead above screening levels, but the sample location is not included in an area to be addressed during the removal action. Please explain why this location will not be addressed during the Removal Action. If the sample location will be addressed during the Removal Action, please modify Figure 4-1A to indicate that it will be addressed.

Mattison, David

From: Zeller.Craig@epamail.epa.gov
Sent: Tuesday, January 19, 2010 3:55 PM
To: Germann, Geoff
Cc: Mattison, David; White, Kirstyn; steven.p.schmidt@exxonmobil.com; Beswick.Kevin@epamail.epa.gov; Mallary.Ken@epamail.epa.gov
Subject: Re: VCC-Charlotte RSE WP
Attachments: Charlotte RSE WP 1-4-10.pdf

Geoff -

I have reviewed the Removal Site Evaluation (RSE) Work Plan for the former Virginia Carolina Chemical facility in Charlotte, NC and approve as submitted. Please proceed with access agreements, and keep Ken Mallary and David Mattison (NCDENR) apprised of your progress and anticipated sampling schedules.

Thank You,

Craig Zeller, P.E.
Remedial Project Manager
Superfund Division
U.S. EPA - Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
404.562.8827 (office)
404.562.8788 (fax)
404.273.7072 (epa cell)

From: "Germann, Geoff" <Geoffrey.Germann@arcadis-us.com>

To: Craig Zeller/R4/USEPA/US@EPA

Cc: "David Mattison (david.mattison@ncdenr.gov)" <david.mattison@ncdenr.gov>, "steven.p.schmidt@exxonmobil.com" <steven.p.schmidt@exxonmobil.com>, "White, Kirstyn" <Kirstyn.White@arcadis-us.com>

Date: 01/05/2010 07:35 AM

Subject: VCC-Charlotte RSE WP

Craig-
Attached for your review and comment is the Removal Site Evaluation (RSE) Work Plan for the former VCC facility located in Charlotte, NC.
Hard copies are also being sent to you and Dave Mattison at NCDENR.
Please review and provide any comments that you may have at your earliest convenience. Upon your approval of the plan we will initiate requesting access from the property owner.
Best Regards-

Geoff

Geoffrey G. Germann, P.E. | Principal Engineer | geoff.germann@arcadis-us.com ARCADIS U.S., Inc. | 11000 Regency Parkway, Cary, NC 27518 T. 919.415.2253 | M. 919.624.5917 | F. 919.469.5676 www.arcadis-us.com ARCADIS G&M of North Carolina, Inc .
ARCADIS, Imagine the result
Please consider the environment before printing this email.

(See attached file: Charlotte RSE WP 1-4-10.pdf)

ARCADIS
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ENVIRONMENTAL

Craig Zeller
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth St., S.W.
Atlanta, GA 30303

Subject:
Removal Site Evaluation Work Plan
Former Virginia-Carolina Chemical Corporation Site
Durham, North Carolina

Date:
January 15, 2010

Contact:
Kirstyn White, P.E.

Phone:
919.415.2261

Email:
Kirstyn.white@
arcadis-us.com

Our ref:
B0085794.0011

Dear Mr. Zeller:

This work plan presents Exxon Mobil Environmental Services Company's (ExxonMobil's) approach for conducting a Removal Site Evaluation (RSE) at the former Virginia-Carolina Chemical Corporation (VCC) fertilizer plant located in Durham, Durham County, North Carolina. The objective of this RSE Work Plan is to collect soil data for initial screening purposes to identify whether the site contains constituents related to historic activities associated with the VCC Durham operations.

Background

Virginia-Carolina Chemical Company purchased the Durham fertilizer plant in the 1890s and operated the plan until entering bankruptcy in 1924. At the conclusion of Virginia-Carolina Chemical Company's bankruptcy and reorganization proceedings in 1926, VCC of Richmond, Virginia emerged as a new company and continued to own the Durham fertilizer plant until 1970. VCC merged into Socony Mobil Oil Company, Inc. in 1963, and the company name changed in 1966 to Mobil Oil Corporation. Mobil Oil Corporation sold the Durham plant site in 1970 to Swift Agricultural Chemical Corporation. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil became ExxonMobil Oil Corporation, the corporate successor to VCC. Exxon Mobil Corporation is the parent company of ExxonMobil Oil Corporation.

The former VCC fertilizer plant was located in Durham, Durham County, North Carolina. Figure 1 depicts the location of the former Durham property on a portion of the United States Geological Survey (USGS) 7.5-minute quadrangle map for

Southeast Durham, North Carolina. The current street address that most closely matches the former acid chamber location is 2700 Angier Avenue. The geographical location of the center of the Site is at 35.5840° North Latitude and 78.5219° West Longitude (North American Datum of 1983 [NAD83]).

Figure 2 depicts the approximate former boundaries of Durham Site superimposed on a 2007 aerial photograph. Figure 2 also depicts the approximate locations of historical site features digitized from Sanborn maps and aerial photographs. The Site is currently occupied by vacant lots and commercial and industrial facilities including Magnetic Attractions and Portable On Demand Storage (PODS). The Magnetic Attractions facility and adjacent parking lot are located on the central portion of the property along Angier Avenue and are fenced off from the road. The PODs warehouse and parking lot are located on the western portion of the site and are adjacent to the railroad tracks in the vicinity of the former fertilizer building and bag house. Most of the former VCC facility is currently paved as a parking lot or covered by the facility buildings.

The former Durham property can be accessed from Angier Avenue and the Norfolk Southern Railroad right-of-way (ROW). Railroad ROWs form the northern, southwestern, and part of the eastern boundaries of the former property. Vacant lots are adjacent to the former VCC Durham facility and are located at both the southeastern and eastern portions of the property. Drainage from the former facility flows southeast away from the site in a drainage ditch located within the vacant lot along Angier Avenue.

Surrounding land use of the former Durham property includes commercial and industrial facilities, residential properties, a church, and undeveloped land (Figure 2). The nearest residential properties are approximately 100 feet to the north across the Norfolk Southern Railroad right-of-way. Additionally, Hoover Road Apartments are located approximately 200 feet to the northeast of the intersection of the railroad and Angier Avenue. Thomas Concrete of the Carolinas Inc. is adjacent to the vacant lots along Angier Avenue.

Currently, the former Durham site is occupied by three tax parcels. Owner information is presented on Table 1. Property boundary and owner information was provided by the Durham County Public Records Database.

Operational History

Based on a review of available historical Sanborn maps, the VCC Durham facility became a complete plant, with an acid chamber structure, that produced phosphate fertilizers between 1907 and 1913. Fertilizer manufacturing continued at this site until sometime between 1950 and 1979. Sanborn maps also indicated that the site operated as a dry mixing plan for a short time around 1907.

Structures associated with the former plant included a fertilizer building (mixing and storage), one acid chamber structure and associated burners, railroad sidings, a nitre magazine, a motor room, a boiler room, a bag house, a 100,000-gallon reservoir, a locker house, and an office. VCC board meeting minutes indicate that in 1946 funds were allocated for the rehabilitation of the Durham acid plant. Figure 2 depicts the general locations of the former site features.

Proposed RSE Sampling Activities

This RSE Work Plan includes provisions for the collection and analysis of soil samples to confirm the presence or absence of potential operations-related constituents. Based on experience at other VCC sites, operations related constituents are arsenic and lead. In addition, the presence of low pH (i.e., less than 6.5 standard units) is a typical indicator of historical acid production processes conducted at former VCC sites. Therefore, samples collected at the Durham Site will be analyzed for arsenic, lead, and pH. The locations of all soil samples described below are tentative. Actual locations may be adjusted in the field depending on direct observations and site logistics/access limitations.

All samples will be collected in accordance with the United States Environmental Protection Agency (USEPA) Region 4 *Field Branches Quality System and Technical Procedures* [USEPA, Region 4, Science and Ecosystem Support Division (SESD), most current versions of applicable procedures will be followed]. The proposed sampling approach for the RSE is summarized below.

Soil Sampling Program

A total of 50 soil borings are proposed for the Durham Site. The soil sampling program was developed using USEPA's Judgmental Sampling methods described in *Guidance of Choosing a Sampling Design for Environmental Data Collection* (USEPA, 2002). Judgmental Sampling allows for the use of professional judgment in

order to bias sample locations towards areas of known historical use (e.g., acid chambers, sulfur storage areas). Soil borings in locations outside the former plant area were biased toward areas where there is the potential for human contact to soil. Figure 3 depicts the proposed soil boring locations. Additional soil borings may be advanced at the discretion of ExxonMobil or at the request of the USEPA. Prior to intrusive activities, ARCADIS will coordinate with local utility companies and a private subsurface utility locating service to identify and mark all subsurface utilities near the proposed boring locations. Boring locations may be adjusted in the field based on the presence of existing utilities or other access limitations.

Soil Screening and Analysis Procedures

Soil borings will be advanced at each location using a stainless steel hand auger from the ground surface to a maximum depth of 4 feet below ground surface (ft bgs), or until refusal or groundwater is encountered, whichever occurs first. Each boring interval (0 – 0.5, 0.5 – 2.0, and 2.0 – 4.0 ft bgs) will be screened for lead and arsenic in the field using a portable X-ray fluorescence (XRF) unit. Soil samples will be collected from each boring interval and submitted to TestAmerica Laboratories of Nashville, Tennessee for arsenic, lead, and pH analysis. A summary of the proposed soil sampling program is provided in Table 2.

Surface Water and Sediment Sampling Program

According to historical information, drainage from the former facility flows southeast away from the site in a drainage ditch located within the vacant lot along Angier Avenue. During the soil investigation, the presence of the drainage ditch will be confirmed. If surface water is present in the drainage ditch, surface water and sediment samples will be collected.

Surface water and sediment sampling, if required, will be conducted using the applicable procedures provided in the USEPA Region 4 *Field Branches Quality System and Technical Procedures*. Co-located surface water and sediment samples will be collected from locations identified in any major drainage pathways on the site. Surface water samples will be collected prior to sediment sampling in a downstream to-upstream direction. Surface water samples will be collected by directly filling the sample containers from as near as practical to the center of the waterbody. Following sample collection, water quality parameters will be monitored for pH, temperature, specific conductivity, DO, ORP, and turbidity at the depth from which the sample was collected using a water quality meter. Sediment samples will be collected from the

top 6 inches of the sediment using a stainless steel scoop. At each sediment sample location the total water depth and sediment characteristics will be noted. Any surface water/sediment samples that are collected will be submitted to TestAmerica Laboratories of Nashville, Tennessee for arsenic and lead analysis. Sediment samples will also be analyzed for pH by the laboratory. A summary of the tentative sediment and surface water sampling program is provided in Table 3.

Quality Assurance/Quality Control

All sample procedures will be performed in accordance with the methods identified in the USEPA Region 4 Field Branches Quality System and Technical Procedures. Sampling equipment will include both disposable and re-usable components. Disposable equipment that comes in contact with the soil will be contained in properly labeled 55-gallon United Nations (UN)-approved steel drums and disposed appropriately. Re-usable equipment will be decontaminated prior to, and in between use, in accordance with the decontamination procedures identified in the USEPA Region 4 *Field Branches Quality System and Technical Procedures.* All samples will be analyzed in accordance with USEPA SW-846 procedures with Contract Laboratory Program (CLP)-like data packages. Quality assurance/quality control (QA/QC) procedures will include the collection and analysis of blind field duplicates, equipment rinsate blanks, and matrix spike/matrix spike duplicate (MS/MSD) samples. The number and frequency of QA/QC samples are summarized in Tables 2 and 3.

Surveying

All proposed soil boring locations will be staked (or marked) in the field and documented using global positioning system (GPS) methods.

Investigation Derived Waste

All investigation derived waste (IDW) including soils, plastic, decontamination fluids, and personal protective equipment (PPE), will be containerized in properly labeled UN-approved 55-gallon steel drums. Laboratory analysis of each media (i.e., soil and water) will be performed by TestAmerica on a quick turn-around schedule to minimize the amount of time that the drums are staged on-site. Drums containing solids will be analyzed for toxicity characteristic leaching procedure (TCLP) metals and drums containing water will be analyzed for Target Analyte List (TAL) metals and

pH (Table 1). IDW disposal requirements will be based on the analytical results and IDW disposal will be performed at an ExxonMobil selected facility.

Property Access Agreements

ExxonMobil will obtain access agreements from the three property owners affected by the proposed RSE activities. Upon USEPA approval of this RSE Work Plan, and negotiation of the necessary access agreements, ExxonMobil will proceed with the implementation of this Work Plan for the Durham Site. Work activities could likely be initiated within 30 days of USEPA approval and obtaining access agreements.

Sincerely,

ARCADIS

Kirstyn R. White, P.E.
Staff Environmental Engineer

Geoffrey G. Germann, P.E.
Principal Engineer

Copies:
Mr. David Mattison (NCDENR)
Mr. Steve Schmidt (ExxonMobil)

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Tables

Table 1
Soil and IDW Sample Analytical Program
Durham, Durham County, North Carolina
Removal Site Evaluation Work Plan

Parcel ID	Address	Owner	Owner's Address	Owner's Phone Number
118815	2700 Angier Ave	William F. Lewis	888 N. Larch Ave., Elmhurst, IL 60126	630-359-9400 (Scott Lewis)
118830	2714 Angier Ave	MGB Trust	c/o Frank K. Borden 1515 W. Nc HWY 54, STE 110, Durham, NC 27707	919-490-5430
118814	2701 Angier Ave	Borden Development Corp.	c/o Frank K. Borden 1515 W. Nc HWY 54, STE 110, Durham, NC 27707	919-490-5430

Table 2
Soil and IDW Sample Analytical Program
Durham, Durham County, North Carolina
Removal Site Evaluation Work Plan

Parameter	Estimated Number of Borings[1]	Estimated No. of Samples per Boring [1]	Estimated No. of Field Samples [1]	No. of Field QC Samples			Total No. Field + Field QC Samples[1]	No. of MS/MSD Sample Sets
				Field Duplicate	Rinse Blank	Trip Blank		
Soil Samples								
Arsenic and Lead	50	3	150	8	5	0	163	8
pH	50	3	150	8	5	0	163	8
IDW Samples (Solid)								
TCLP Metals	--	--	1	0	0	0	1	0
IDW Samples (Aqueous)								
TAL Metals	--	--	1	0	0	0	1	0
pH	--	--	1	0	0	0	1	0

Notes:
Arsenic and lead and TCLP Metals will be analyzed via USEPA SW-846 6010C.
pH for soil samples will be analyzed via SW-846 9045D.
pH for water samples will be analyzed via SW-846 9040C.
TAL metals will be analyzed via EPA 200.7.
IDW = Investigation Derived Waste.
TAL - target analyte list
TCLP - toxicity characteristic leaching procedure.
MS/MSD = Matrix Spike/Matrix Spike Duplicate.
[1] The number of borings and total number of samples are approximate. Approximately 3 soil samples will be collected from each soil boring unless shallow refusal or groundwater is encountered.
Field duplicate samples will be collected at a frequency of 5% (1 for every 20 samples).
Equipment rinse blanks will be collected at a frequency of one per day.
MS/MSD samples will be collected at a frequency of 5% (1 for every 20 samples).

Table 3
Sediment and Surface Water Sample Analytical Program
Durham, Durham County, North Carolina
Removal Site Evaluation Work Plan

Parameter	Estimated No. of Field Samples [1]	No. of Field QC Samples			Total No. Field + Field QC Samples[1]	No. of MS/MSD Sample Sets
		Field Duplicate	Rinse Blank	Trip Blank		
Sediment Samples						
Arsenic and Lead	4	1	1	0	6	1
pH	4	0	0	0	4	0
Surface Water Samples (Aqueous)						
Arsenic and Lead	4	1	0	0	5	1

Notes:
Surface water and sediment samples will be collected if observed to be present on site. Refer to text for further information.
Arsenic and lead will be analyzed via USEPA SW-846 6010C.
pH will be analyzed via SW-846 9045D.
Field duplicate samples will be collected at a frequency of 5% (1 for every 20 samples).
Equipment rinse blanks will be collected at a frequency of one per day.
Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples will be collected at a frequency of 5% (1 for every 20 samples).

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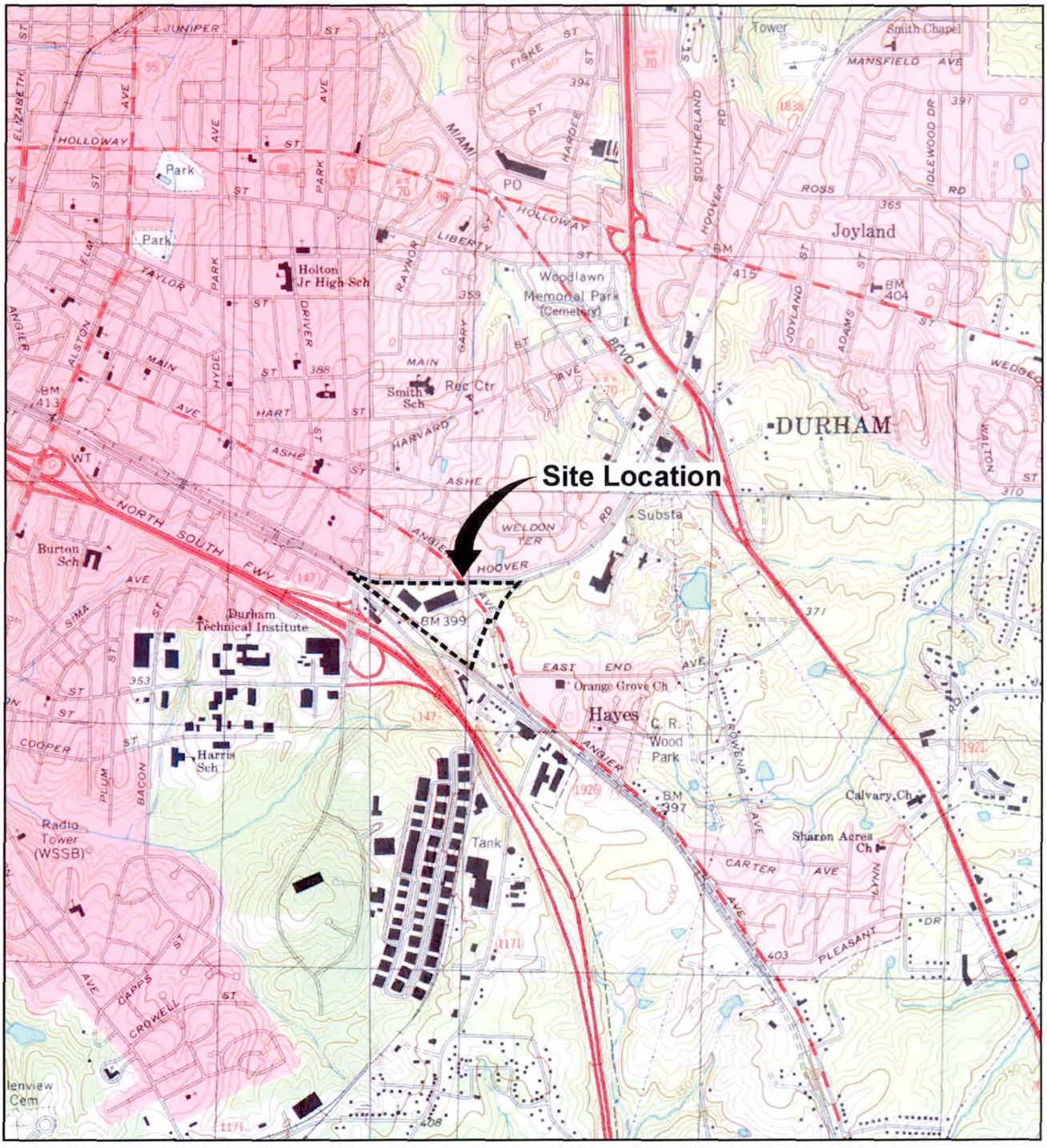
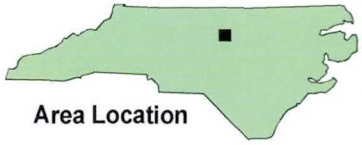
Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., SOUTHWEST, SOUTHEAST DURHAM, N.C.,1993/2002.

2000' 0 2000'

Approximate Scale: 1" = 2000'



EXXONMOBIL
VCC - DURHAM, NORTH CAROLINA

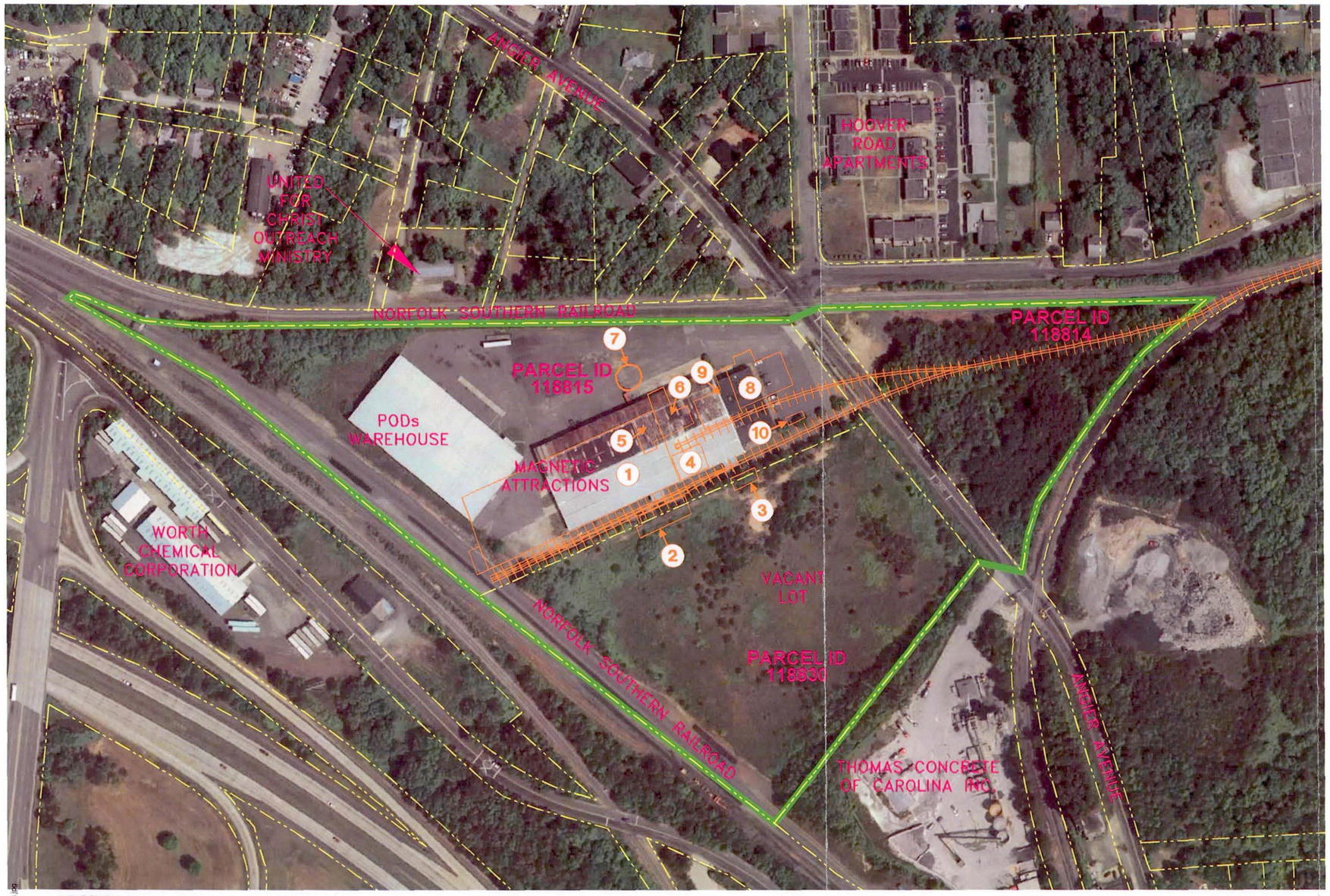
REMOVAL SITE EVALUATION WORK PLAN

SITE LOCATION MAP

ARCADIS

FIGURE 1

12/15/09 CAR-85-LEE
\Cary\ACT\DURHAM-VCC\000X\0000X\MAP\REPORT\RSEWP/85794n01.cdr



HISTORICAL BUILDING KEY:

1. FERTILIZER BUILDING
2. BAG HOUSE
3. LOCKER HOUSE
4. NITRE MAGAZINE
5. MILL
6. MOTOR ROOM
7. 104,000 GALLON RESERVOIR
8. ACID CHAMBER
9. BURNER ROOM
10. OFFICE

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1937 SANBORN MAP.
2. PARCEL BOUNDARIES DIGITIZED FROM 2009 DURHAM COUNTY PROPERTY TAX MAP.
3. 2007 AERIAL PHOTOGRAPH OF DURHAM, NORTH CAROLINA PROVIDED BY EUROPA TECHNOLOGIES.
4. ALL LOCATIONS ARE APPROXIMATE.

LEGEND:

- APPROXIMATE BOUNDARY OF THE FORMER FACILITY
- APPROXIMATE LOCATION OF HISTORICAL FERTILIZER PLANT FEATURES
- CURRENT TAX PARCEL BOUNDARIES
- HISTORICAL SPUR OF NORFOLK SOUTHERN RAILROAD

0 400' 800'

GRAPHIC SCALE

EXXONMOBIL
VCC-DURHAM, NORTH CAROLINA
REMOVAL SITE EVALUATION WORK PLAN

CURRENT AND HISTORICAL SITE FEATURES

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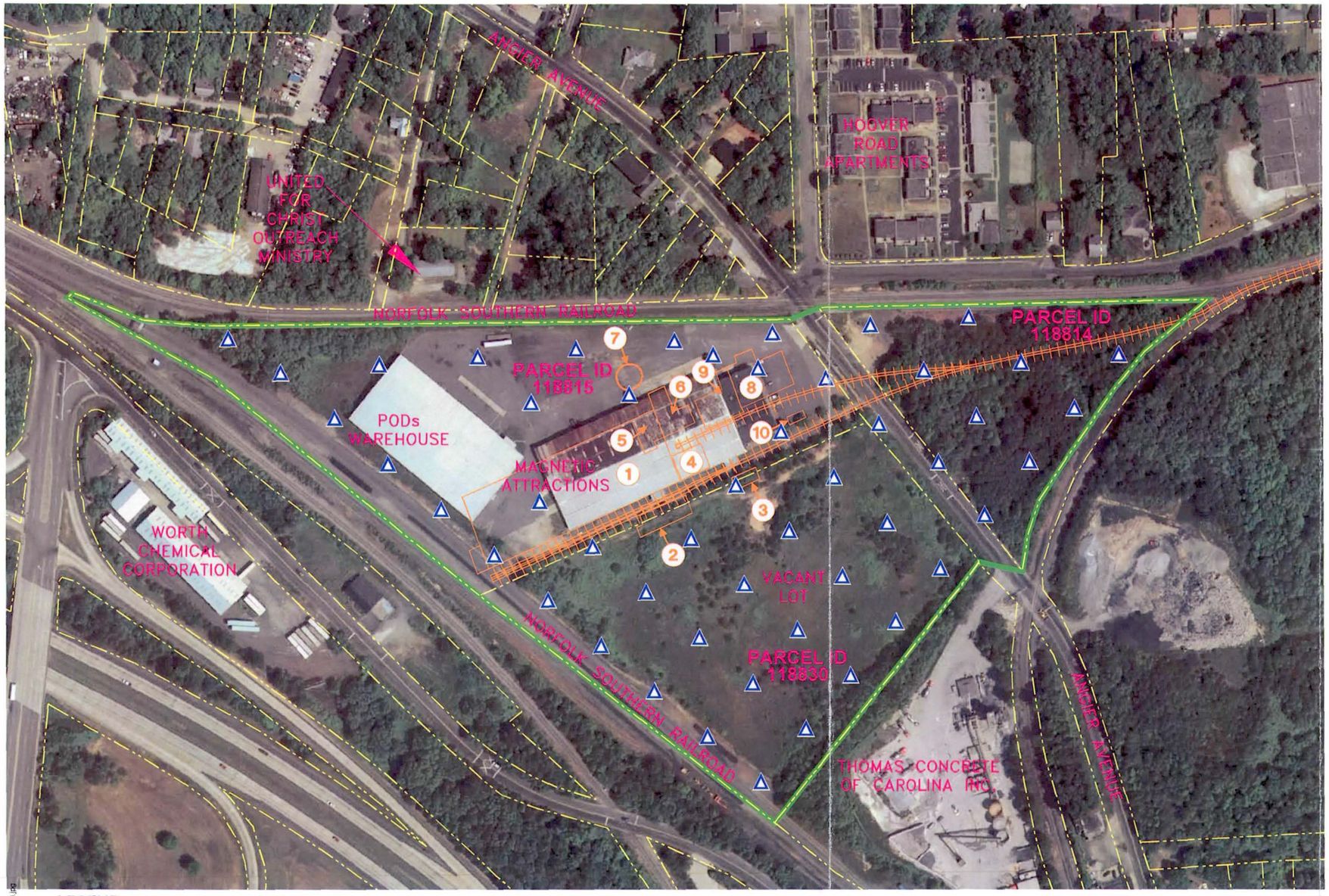
FIGURE 2



HISTORICAL BUILDING KEY:

1. FERTILIZER BUILDING
2. BAG HOUSE
3. LOCKER HOUSE
4. NITRE MAGAZINE
5. MILL
6. MOTOR ROOM
7. 104,000 GALLON RESERVOIR
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NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1937 SANBORN MAP.
2. PARCEL BOUNDARIES DIGITIZED FROM 2009 DURHAM COUNTY PROPERTY TAX MAP.
3. 2007 AERIAL PHOTOGRAPH OF DURHAM, NORTH CAROLINA PROVIDED BY EUROPA TECHNOLOGIES.
4. ALL LOCATIONS ARE APPROXIMATE.

0 400' 800'

GRAPHIC SCALE

LEGEND:

- APPROXIMATE BOUNDARY OF THE FORMER FACILITY
- APPROXIMATE LOCATION OF HISTORICAL FERTILIZER PLANT FEATURES
- CURRENT TAX PARCEL BOUNDARIES
- HISTORICAL SPUR OF NORFOLK SOUTHERN RAILROAD
- LOCATION OF PROPOSED BORING

EXXONMOBIL
VCC-DURHAM, NORTH CAROLINA
REMOVAL SITE EVALUATION WORK PLAN

PROPOSED SOIL BORING LOCATION MAP

ARCADIS

FIGURE 3

Mattison, David

From: Zeller.Craig@epamail.epa.gov
Sent: Tuesday, January 19, 2010 3:59 PM
To: Germann, Geoff; Beswick.Kevin@epamail.epa.gov
Cc: Mattison, David; White, Kirstyn; steven.p.schmidt@exxonmobil.com
Subject: Re: VCC-Durham RSE WP
Attachments: Durham RSE WP 1-15-09.pdf

Geoff -

I have reviewed the Removal Site Evaluation (RSE) Work Plan for the former Virginia Carolina Chemical (VCC) facility in Durham, NC and approve the report as submitted. Please proceed with obtaining access agreements from the required properties, and keep Ken Mallary and David Mattison (NCDENR) apprised of your progress and sampling schedules.

Thank You,

Craig Zeller, P.E.
Remedial Project Manager
Superfund Division
U.S. EPA - Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
404.562.8827 (office)
404.562.8788 (fax)
404.273.7072 (epa cell)

From: "Germann, Geoff" <Geoffrey.Germann@arcadis-us.com>

To: Craig Zeller/R4/USEPA/US@EPA, "David Mattison (david.mattison@ncdenr.gov)" <david.mattison@ncdenr.gov>

Cc: "steven.p.schmidt@exxonmobil.com" <steven.p.schmidt@exxonmobil.com>, "White, Kirstyn" <Kirstyn.White@arcadis-us.com>

Date: 01/15/2010 10:03 AM

Subject: VCC-Durham RSE WP

Craig and Dave-
Attached for your review and comment is the RSE work plan for the VCC Site in Durham, NC.
Hard copies of the document are also being shipped to your attention.
Once we receive your comments and finalize the document we will approach the property owner to request access.
Please review and forward any comments that you may have back to me at your earliest convenience.
Thanks-

Geoff

Geoffrey G. Germann, P.E. | Principal Engineer | geoff.germann@arcadis-us.com ARCADIS U.S., Inc. | 11000 Regency Parkway, Cary, NC 27518 T. 919.415.2253 | M. 919.624.5917 | F. 919.469.5676 www.arcadis-us.com ARCADIS G&M of North Carolina, Inc .
ARCADIS, Imagine the result
Please consider the environment before printing this email.

(See attached file: Durham RSE WP 1-15-09.pdf)

ARCADIS

ARCADIS
11000 Regency Parkway
West Tower
Suite 205
Cary
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676

MEETING REPORT

Subject:

Minutes from 1/14/10 Conference Call to discuss Winston-Salem VCC Soil Removal Schedule and Public Relations

Department:
Environment

ARCADIS Project No.:
B0085732

Place/Date of Meeting:
Conference Call / January 14, 2010, 2 PM

Issue Date:
January 14, 2010

Minutes by:
Matt Pelton

Participants:
Ken Mallary (USEPA)
David Mattison (NCDENR)
Steven Schmidt (ExxonMobil)
Geoff Germann (ARCADIS)
Matthew Pelton (ARCADIS)

Action by:	Number:	Comments:
	1	Conference call was requested by Ken Mallary of USEPA to discuss the proposed schedule for the soil removal activities at the VCC Winston-Salem site. Ken noted that he had received the Site Delineation Report/Removal Action Work Plan (SDR/RAWP) and had started his review. He stated that he plans to complete his review and provide comments by January 22, 2010.
	2	David Mattison confirmed that he would provide comments to Ken Mallary by January 21st. David asked that a copy of the SDR/RAWP be forwarded to Collin Day for his review as well. David confirmed that all comments from NCDENR, including any comments from IHSB, will be sent to ExxonMobil from him.
	3	Ken proposed some further dates to accomplish critical items in the process leading up to construction: • Finalize SDR/RAWP by January 29, 2010 pending comments from USEPA and NCDENR. • USEPA to complete AOC and Action Memo by February 5, 2010.

- Public Notice would be issued following completion of the AOC and mailing of final SDR/RAWP to information repository in Winston-Salem, target date of February 5, 2010.
- Public notice period will be 30 days, if started on February 5th it will end on March 8th, one week before intended mobilization for construction on March 15, 2010. No public meeting is required under the Time Critical Removal action, however, meetings/interviews with local officials will be planned for just before construction.

4 Ken noted that the USEPA public affairs representative would be Tonya James. Steve noted that the EMES public affairs efforts would be lead by Gideon Lett with APCO. ARCADIS/APCO on behalf of EMES will draft public affairs information for the site and provide to USEPA for review and use.

5 Action items from the call include the following:

- Matt Pelton to forward on a copy of the SDR/RAWP to Collin Day with NCDENR.
- Steve Schmidt to contact EMES and USEPA counsel to provide the above schedule and coordinate timing on the AOC.
- ARCADIS and APCO to being working on public affairs information for the site.

ARCADIS

Infrastructure, environment, facilities

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11000 Regency Parkway
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Fax 919.469.5676
www.arcadis-us.com

Mr. Ken Mallary
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

Subject:
Former VCC Winston-Salem Site: Site Delineation Report/Removal Action Work Plan
Winston-Salem, North Carolina

Date:
January 12, 2010

Dear Mr. Mallary:

Please find enclosed for your review two (2) copies of the *Site Delineation Report/Removal Action Work Plan* (SDR/RAWP) for the Former VCC Winston-Salem Site (Site) located in Winston-Salem, Forsyth County, North Carolina. This SDR/RAWP has been prepared by ARCADIS U.S., Inc. (ARCADIS) on behalf of ExxonMobil Environmental Services Company (EMES) to document soil and groundwater sampling activities conducted at the Site and to guide proposed soil removal activities at the Site. If you have any questions, please feel free to call me or Steve Schmidt of EMES at 703.846.1005.

Sincerely,

ARCADIS

Matthew T. Pelton, P.E.
Senior Environmental Engineer

Copies:
David Mattison, NCDENR
Steve Schmidt, ExxonMobil
Geoff Germann, ARCADIS

Contact:
Matthew Pelton

Phone:
919.415.2308

Email:
matthew.pelton@
arcadis-us.com

Our ref:
B0085732

Imagine the result

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Cary
North Carolina 27518-8518
Tel 919.469.1952
Fax 919.469.5676
www.arcadis-us.com

ENVIRONMENTAL

Craig Zeller
USEPA Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth St., S.W.
Atlanta, GA 30303

Subject:
Removal Site Evaluation Work Plan
Former Virginia-Carolina Chemical Corporation Site
Charlotte, North Carolina

Date:
January 4, 2010

Contact:
Kirstyn White, P.E.

Phone:
919.415.2261

Email:
Kirstyn.white@
arcadis-us.com

Our ref:
B0085793.0001

Dear Mr. Zeller:

This work plan presents Exxon Mobil Environmental Services Company's (ExxonMobil's) approach for conducting a Removal Site Evaluation (RSE) at the former Virginia-Carolina Chemical Corporation (VCC) fertilizer plant located in Charlotte, Mecklenburg County, North Carolina. The objective of this RSE Work Plan is to collect soil data for initial screening purposes to identify whether the site contains constituents related to historic activities associated with the VCC Charlotte operations.

Background

Virginia-Carolina Chemical Company purchased the site from Charlotte Oil and Fertilizer Company in 1901. At the conclusion of Virginia-Carolina Chemical Company's bankruptcy and reorganization proceedings in 1926, VCC of Richmond, Virginia emerged as a new company and continued to own the Charlotte fertilizer plant until 1970. VCC merged into Socony Mobil Oil Company, Inc. in 1963, and the company name changed in 1966 to Mobil Oil Corporation. Mobil Oil Corporation sold the Charlotte plant site in 1970 to Swift Agricultural Chemical Corporation. In 1999, Exxon Corporation merged with Mobil Corporation to form Exxon Mobil Corporation. Mobil Oil became ExxonMobil Oil Corporation, the corporate successor to VCC. Exxon Mobil Corporation is the parent company of ExxonMobil Oil Corporation.

The former VCC fertilizer plant was located in Charlotte, Mecklenburg County, North Carolina. Figure 1 depicts the location of the former Charlotte property on a portion of the United States Geological Survey (USGS) 7.5-minute quadrangle map for East

and West Charlotte, North Carolina. The current street address that most closely matches the former acid chamber location is 301 West Tremont Avenue. The geographical location of the center of the Site is at 35.21235° North Latitude and 80.86486° West Longitude (North American Datum of 1983 [NAD83]).

Figure 2 depicts the approximate former boundaries of the Charlotte Site superimposed on a 2009 aerial photograph. Figure 2 also depicts the approximate locations of historical site features digitized from Sanborn maps and aerial photographs. The Site is currently occupied with commercial and light industrial facilities located within the Tremont Center owned by Tremont Industrial Park LLC. The former Charlotte property can be accessed from West Tremont Avenue, which forms the northern boundary of the site. Most of the former site is currently paved as a parking lot or covered by the Tremont Center buildings.

During a site visit in October 2005, monitoring wells were observed on the former VCC Charlotte plant site and adjacent properties. The Groundwater Protection Unit of the North Carolina Department of Environment and Natural Resources (NCDENR) maintains a database with well construction records from 1988 to 2009. A search of the database was performed for Mecklenburg County. The database does not contain any records for wells located within 1,500 feet of the site boundary. Prior to conducting the sampling activities proposed in this work plan, an EDR Report will be ordered and reviewed for monitoring wells details in the vicinity of the Site. During implementation of the sampling activities, ARCADIS will field verify any on-site monitoring wells.

Surrounding land use of the former Charlotte property includes commercial and industrial facilities, residential apartments, restaurants, a music hall, a shopping mall, and an abandoned gas station. The nearest residential properties are approximately 2,500 feet to the southwest along South Tryon Road. Refer to Figure 2 for the listing of surrounding properties.

Currently, the former Charlotte site is occupied by two tax parcels owned by Tremont Industrial Park LLC. Property ownership information was provided by the Mecklenburg County GIS and Property Ownership Land Records Information System.

Operational History

A review of the available Sanborn Fire Insurance maps confirmed that the facility was a complete factory with acid production facilities. Based on the historical information fertilizer manufacturing began at the plant site prior to 1890 and continued until sometime between 1929 and 1934. Therefore, acid production after the bankruptcy and reorganization proceedings in 1926 was limited. During manufacturing, the facility had a single acid chamber structure that was replaced sometime between 1911 and 1929. The location of both acid chambers is shown on Figure 2. In addition to the acid chamber, sulfur burners were present on-site in the 1890's and early 1900's, indicating that the plant burned sulfur in the production of acids.

Structures associated with the former VCC Charlotte plant included a fertilizer building (mixing and storage), one acid chamber structure (located in two different areas of the site at different points in time), and associated burners, dry mixing plant, supply house, wash house, railroad sidings, a fertilizer factory, a fertilizer warehouse, a bag house, a 50,000-gallon water tower, and an office. Figure 2 depicts the general locations of the former site features.

Proposed RSE Sampling Activities

This RSE Work Plan includes provisions for the collection and analysis of soil samples to confirm the presence or absence of potential operations-related constituents. Based on experience at other VCC sites, operations related constituents are arsenic and lead. In addition, the presence of low pH (i.e., less than 6.5 standard units) is a typical indicator of historical acid production processes conducted at former VCC sites. Therefore, samples collected at the Charlotte Site will be analyzed for arsenic, lead, and pH. The locations of all soil samples described below are tentative. Actual locations may be adjusted in the field depending on direct observations and site logistics/access limitations.

All samples will be collected in accordance with the United States Environmental Protection Agency (USEPA) Region 4 *Field Branches Quality System and Technical Procedures* [USEPA, Region 4, Science and Ecosystem Support Division (SESD), most current versions of applicable procedures will be followed]. The proposed sampling approach for the RSE is summarized below.

Soil Sampling Program

A total of 24 soil borings are proposed for the Charlotte Site. The soil sampling program was developed using USEPA's Judgmental Sampling methods described in *Guidance of Choosing a Sampling Design for Environmental Data Collection* (USEPA, 2002). Judgmental Sampling allows for the use of professional judgment in order to bias sample locations towards areas of known historical use (e.g., acid chambers, sulfur storage areas). Soil borings in locations outside the former plant area were biased toward areas where there is the potential for human contact to soil. Figure 3 depicts the proposed soil boring locations. Additional soil borings may be advanced at the discretion of ExxonMobil or at the request of the USEPA. Prior to intrusive activities, ARCADIS will coordinate with local utility companies and a private subsurface utility locating service to identify and mark all subsurface utilities near the proposed boring locations. Boring locations may be adjusted in the field based on the presence of existing utilities or other access limitations.

Soil Screening and Analysis Procedures

Soil borings will be advanced at each location using a stainless steel hand auger from the ground surface to a maximum depth of 4 feet below ground surface (ft bgs), or until refusal or groundwater is encountered, whichever occurs first. Each boring interval (0 – 0.5, 0.5 – 2.0, and 2.0 – 4.0 ft bgs) will be screened for lead and arsenic in the field using a portable X-ray fluorescence (XRF) unit. Soil samples will be collected from each boring interval and submitted to TestAmerica Laboratories of Nashville, Tennessee for arsenic, lead, and pH analysis. A summary of the proposed soil sampling program is provided in Table 1.

Surface Water and Sediment Sampling Program

Based upon the aerial photograph and a site visit conducted in October 2005, the majority of the site is covered with impervious surfaces. Therefore, no surface water or sediment samples are expected to be collected. However, if any surface water/drainage features are observed during the site investigation ARCADIS will be prepared to collect sediment and/or surface water samples, if appropriate.

Surface water and sediment sampling, if required, will be conducted using the applicable procedures provided in the USEPA Region 4 *Field Branches Quality System and Technical Procedures.* Co-located surface water and sediment samples will be collected from locations identified in any major drainage pathways on the site.

Surface water samples will be collected prior to sediment sampling in a downstream to-upstream direction. Surface water samples will be collected by directly filling the sample containers from as near as practical to the center of the waterbody. Following sample collection, water quality parameters will be monitored for pH, temperature, specific conductivity, DO, ORP, and turbidity at the depth from which the sample was collected using a water quality meter. Sediment samples will be collected from the top 6 inches of the sediment using a stainless steel scoop. At each sediment sample location the total water depth and sediment characteristics will be noted. Any surface water/sediment samples that are collected will be submitted to TestAmerica Laboratories of Nashville, Tennessee for arsenic and lead analysis. Sediment samples will also be analyzed for pH by the laboratory.

Quality Assurance/Quality Control

All sample procedures will be performed in accordance with the methods identified in the USEPA Region 4 Field Branches Quality System and Technical Procedures. Sampling equipment will include both disposable and re-usable components. Disposable equipment that comes in contact with the soil will be contained in properly labeled 55-gallon United Nations (UN)-approved steel drums and disposed appropriately. Re-usable equipment will be decontaminated prior to, and in between use, in accordance with the decontamination procedures identified in the USEPA Region 4 *Field Branches Quality System and Technical Procedures.* All samples will be analyzed in accordance with USEPA SW-846 procedures with Contract Laboratory Program (CLP)-like data packages. Quality assurance/quality control (QA/QC) procedures will include the collection and analysis of blind field duplicates, equipment rinsate blanks, and matrix spike/matrix spike duplicate (MS/MSD) samples. The number and frequency of QA/QC samples are summarized in Table 1.

Surveying

All proposed soil boring locations will be staked (or marked) in the field and documented using global positioning system (GPS) methods.

Investigation Derived Waste

All investigation derived waste (IDW) including soils, plastic, decontamination fluids, and personal protective equipment (PPE), will be containerized in properly labeled UN-approved 55-gallon steel drums. Laboratory analysis of each media (i.e., soil and water) will be performed by TestAmerica on a quick turn-around schedule to

minimize the amount of time that the drums are staged on-site. Drums containing solids will be analyzed for toxicity characteristic leaching procedure (TCLP) metals and drums containing water will be analyzed for Target Analyte List (TAL) metals and pH (Table 1). IDW disposal requirements will be based on the analytical results and IDW disposal will be performed at an ExxonMobil selected facility.

Property Access Agreements

ExxonMobil will obtain an access agreement from the property owner affected by the proposed RSE activities. The current mailing address for Tremont Industrial Park LLC, the property owner, is PO Box 36007, Charlotte, NC 28236. Upon USEPA approval of this RSE Work Plan, and negotiation of the necessary access agreements, ExxonMobil will proceed with the implementation of this Work Plan for the Charlotte Site. Work activities could likely be initiated within 30 days of USEPA approval and obtaining access agreements.

Sincerely,

ARCADIS

Kirstyn R. White, P.E.
Staff Environmental Engineer

Geoffrey G. Germann, P.E.
Principal Engineer

Copies:
Mr. David Mattison (NCDENR)
Mr. Steve Schmidt (ExxonMobil)

ARCADIS

Table

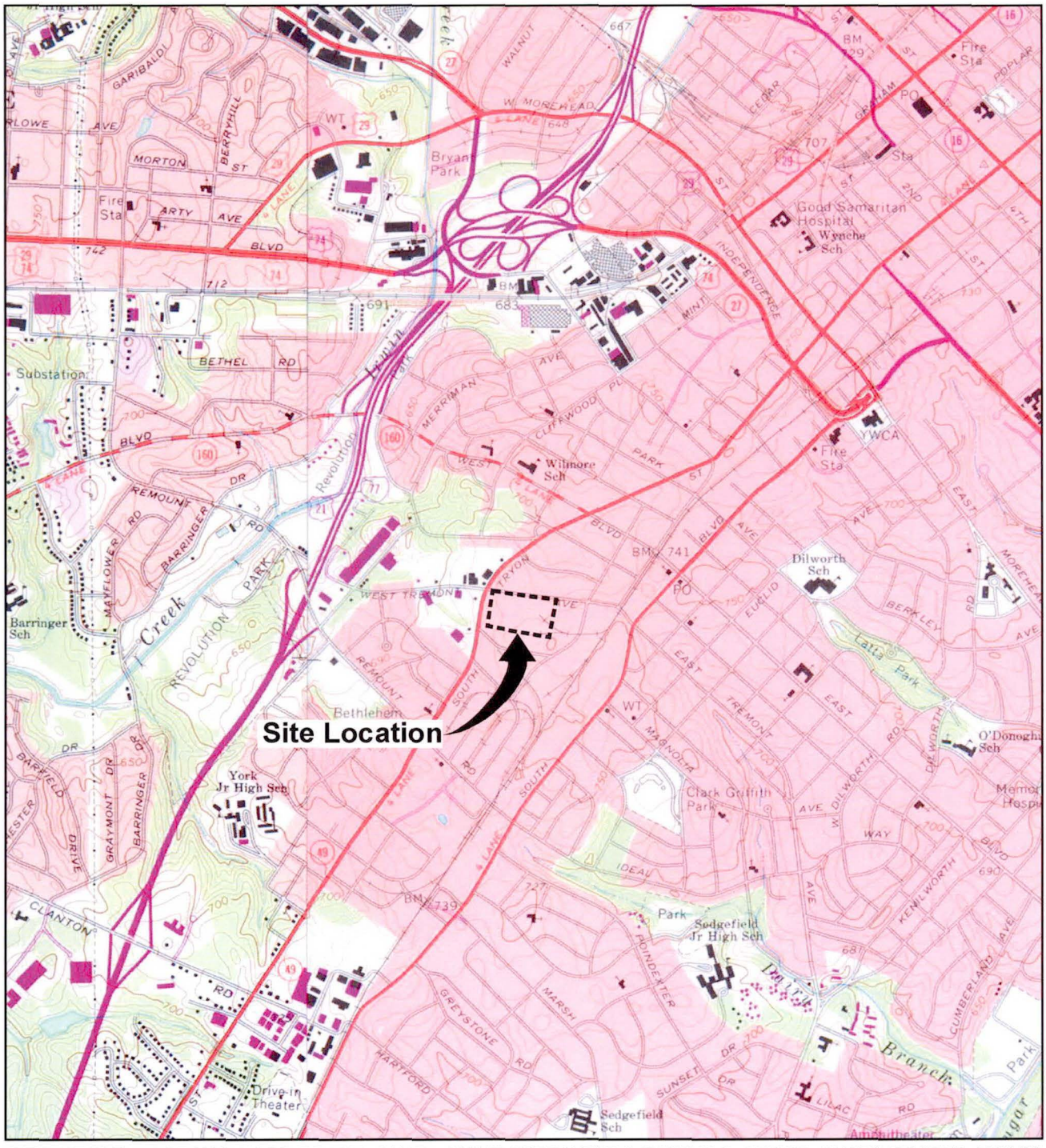
Table 1
Soil and IDW Sample Analytical Program
Charlotte, Mecklenburg County, North Carolina
Removal Site Evaluation Work Plan

Parameter	Estimated Number of Borings[1]	Estimated No. of Samples per Boring[1]	Estimated No. of Field Samples[1]	No. of Field QC Samples			Total No. Field + Field QC Samples[1]	No. of MS/MSD Sample Sets
				Field Duplicate	Rinse Blank	Trip Blank		
Soil Samples								
Arsenic and Lead	24	3	72	4	5	0	81	4
pH	24	3	72	4	5	0	81	4
IDW Samples (Solid)								
TCLP Metals	--	--	1	0	0	0	1	0
IDW Samples (Aqueous)								
TAL Metals	--	--	1	0	0	0	1	0
pH	--	--	1	0	0	0	1	0

Notes:
Arsenic and lead and TCLP Metals will be analyzed via USEPA SW-846 6010C.
pH for soil samples will be analyzed via SW-846 9045D.
pH for water samples will be analyzed via SW-846 9040C.
TAL metals will be analyzed via EPA 200.7.
IDW = Investigation Derived Waste.
TAL - target analyte list
TCLP - toxicity characteristic leaching procedure.
MS/MSD = Matrix Spike/Matrix Spike Duplicate.
[1] The number of borings and total number of samples are approximate. Approximately 3 soil samples will be collected from each soil boring unless shallow refusal or groundwater is encountered.
Field duplicate samples will be collected at a frequency of 5% (1 for every 20 samples).
Equipment rinse blanks will be collected at a frequency of one per day.
MS/MSD samples will be collected at a frequency of 5% (1 for every 20 samples).

ARCADIS

Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., CHARLOTTE WEST & EAST, N.C.,1968/67, PHOTOREVISED 1980/88.

2000' 0 2000'

Approximate Scale: 1" = 2000'

Area Location

EXXONMOBIL
VCC - CHARLOTTE, NORTH CAROLINA

REMOVAL SITE EVALUATION WORK PLAN

SITE LOCATION MAP

ARCADIS

FIGURE 1

11/19/09 CAR-85-LEE
\CHARLOTTE-VCC\000X\0000X\MAP\REPORT\RSEWP/85570n01.cdr

CURRENT PROPERTY USAGE KEY:

1. TREMONT CENTER
2. JET PERFORMANCE PRODUCTS
3. EMCI ELECTRICAL SERVICES
4. ENVIRONMENTAL SERVICES OF CHARLOTTE
5. M&M PRINTING AND MAILING
6. KEG AND CUE BAR
7. PETRO EXPRESS CITGO STATION
8. FINESTONE
9. CHARLOTTE SALVAGE CO.
10. CHARLOTTE SALVAGE CO.
11. CHARLOTTES WEB
12. B&B AUTOMOTIVE CENTER
13. R&S TEXTILE MACHINERY CO.
14. MARTIAL ARTS ACADEMY
15. SOUTHEND PERFORMANCE ARTS CENTER
16. FLEXIBLE PACKAGING
17. PHILCRON AUTOMOTIVE
18. DESIGNTEX
19. GEORGE SCOTT ASSOCIATES
20. CAROLINA CLAY
21. COMMERCIAL BUSINESSES
22. DOUGHTON MFG CO.
23. CAROLINA PREPRESS INC.
24. SOUNDS GROUNDCREW
25. FERGUSON ENTERPRISES
26. PIKES RESTAURANT
27. STEEL YARD RESTAURANT
28. ATHERTON MALL
29. INTERIORS AT SOUTHEND
30. SOUTHERN FLOORING AND ACOUSTICAL CO. INC.
31. CAROLINA FOUNDRY
32. DILWORTH MATTRESS INC.
33. B&B CONTRACTING
34. B&B SUPPLY
35. CITISPACE AT SOUTHEND
36. TREMONT MUSIC HALL
37. GAS FIRED PRODUCTS
38. SALVAGE YARD
39. RESIDENTIAL APARTMENTS
40. ABANDONED GAS STATION

HISTORICAL BUILDING KEY:

1. BAG HOUSE
2. OFFICE
3. RAILROAD SIDINGS
4. FERTILIZER WAREHOUSE
5. FERTILIZER FACTORY
6. DRY MIXING PLANT
7. SUPPLY HOUSE
8. WASH HOUSE
9. ENGINE HOUSE
10. BURNERS
11. ACID CHAMBERS (1929)
12. ACID CHAMBERS (1911)
13. SULFUR BURNERS (1911)

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1911 AND 1929 SANBORN MAP.
2. PARCEL BOUNDARIES OBTAINED FROM 2009 MECKLENBURG COUNTY GIS.
3. 2009 AERIAL PHOTOGRAPH OF CHARLOTTE, NORTH CAROLINA PROVIDED BY MECKLENBURG COUNTY GIS.
4. ALL LOCATIONS ARE APPROXIMATE.

0 300' 600'
GRAPHIC SCALE

LEGEND:

- APPROXIMATE BOUNDARY OF THE FORMER PROPERTY
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES
- CURRENT TAX PARCEL BOUNDARIES

EXXONMOBIL
VCC-CHARLOTTE, NORTH CAROLINA
REMOVAL SITE EVALUATION WORK PLAN

CURRENT AND HISTORICAL SITE FEATURES

ARCADIS

FIGURE
2

LEGEND:

- APPROXIMATE BOUNDARY OF THE FORMER PROPERTY
- APPROXIMATE LOCATION OF FORMER FERTILIZER PLANT FEATURES
- CURRENT TAX PARCEL BOUNDARIES
- △ LOCATION OF PROPOSED BORING

HISTORICAL BUILDING KEY: #

1 BAG HOUSE
2 OFFICE
3 RAILROAD SIDINGS
4 FERTILIZER WAREHOUSE
5 FERTILIZER FACTORY
6 DRY MIXING PLANT
7 SUPPLY HOUSE
8 WASH HOUSE
9 ENGINE HOUSE
10 BURNERS
11 ACID CHAMBERS (1929)
12 ACID CHAMBERS (1911)
13 SULFUR BURNERS (1911)

NOTES:

1. HISTORICAL SITE FEATURES DIGITIZED FROM 1911 AND 1929 SANBORN MAP.
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3. 2009 AERIAL PHOTOGRAPH OF CHARLOTTE, NORTH CAROLINA PROVIDED BY MECKLENBURG COUNTY GIS.
4. ALL LOCATIONS ARE APPROXIMATE.

0 150' 300'
GRAPHIC SCALE

EXXONMOBIL
VCC-CHARLOTTE, NORTH CAROLINA
REMOVAL SITE EVALUATION WORK PLAN

PROPOSED SOIL BORING LOCATION MAP

ARCADIS

FIGURE 3