

June 27, 2007

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61 Forsyth Street, SW 11<sup>th</sup> Floor  
Atlanta, Georgia 30303

Subject: Removal Report  
Barker Chemical Company  
TDD No: TNA-05-001-0012  
EPA Contract No: EP-W-05-053 (START 3)

Dear Mr. Nattis:

The T N & Associates, Inc. (TN&A), Superfund Technical Assessment and Response Team (START) is submitting the Removal Report for the Barker Chemical Company Site located in Inglis, Levy County, Florida. Please review the report and provide any comments or revisions to be included in a subsequent revision.

Please contact me at 678-355-5550 ext-5704 if you have any questions.

Sincerely,



Gregory J. Kowalski  
Program Manager  
T N & Associates, Inc.  
EPA Region 4 START Contract

Enclosure

Cc: Katrina Jones, Project Officer, USEPA

# **REMOVAL REPORT**

**Barker Chemical Company Site  
Inglis, Levy County, Florida  
TDD No.: TNA-05-001-0012  
Contract No.: EP-W-05-053**

**Revision 0**

**Prepared for:**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
Region 4  
61 Forsyth Street  
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**Prepared by:**

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Contract No.	:	EP-W-05-053
TDD Number	:	TNA-05-001-0012
Date Submitted	:	June 27, 2007
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## **1.0 INTRODUCTION**

The U.S. Environmental Protection Agency (EPA) tasked the T N & Associates, Inc., (TN&A) Superfund Technical Assessment and Response Team (START) to provide oversight during the removal of arsenic impacted soils from the Barker Chemical Company Site (site), under Contract No. EP-W-05-053, TDD No. TNA-05-001-0012. START was tasked to provide X-Ray Fluorescence (XRF) screening of the excavated areas, documentation of removal activities including written logbook notes and still photographs, and collection of confirmatory soil samples for laboratory analysis. Soil samples collected during this removal were utilized to confirm the effective removal of the contaminated soils from the impacted areas per the guidelines established by the Office of Superfund Remediation and Technology Innovation and with reference provided by the Superfund Lead-Contaminated Residential Sites Handbook (Ref. 1). This report details the site conditions, field sampling and removal activities, soil disposal volumes, and analytical results. All activities and procedures described in this plan were conducted in accordance with the EPA Superfund Lead-Contaminated Residential Sites Handbook, EPA Region 9 Preliminary Remediation Goals (PRG), the EPA Region 4 Science and Ecosystem Support Division (SESD), Environmental Investigation Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), and the TN&A Quality Assurance Program Plan (QAPP) (Refs. 1; 2; 3; 4).

The following sections provide details of this closure report:

- Section 2 – Describes the site and previous investigations.
- Section 3 – Describes the removal and disposal activities and sampling locations.
- Section 4 – Describes the disposal of investigative wastes.
- Section 5 – Describes the analytical results.
- Section 6 – Describes the summary and conclusion.

Figures and tables are provided at the end of this report as Appendix A. Appendix B contains the photographic log. Appendix C contains the analytical data packages. Appendices D and E contain the pre-remedial and post-remedial tables, respectively. The field logbook notes and the parcel confirmation maps are located at the end of this report as Appendices F and G, respectively. References are cited throughout the report to substantiate site-specific statements. The reference list is provided at the end of the text.

## **2.0 BACKGROUND**

This section discusses the site description and previous investigations.

### **2.1. SITE DESCRIPTION**

The entire site is comprised of 161 mixed-use parcels that cover approximately 300-acres in the City and unincorporated areas of Inglis, Levy County, Florida. This phase of the Barker Chemical Company Site Removal covers approximately 140-acres of mixed use properties bounded by the Withlacoochee River on the south, County Road 40 to the north-northeast, U.S. Highway 19 to the east, and extends just past the Inglis City limits. The majority of the parcels comprising the site are utilized or zoned for residential use (see Appendix A, Figure 1).

### **2.2. PREVIOUS INVESTIGATIONS AND REMOVAL ACTIVITIES**

The site has been a working EPA and Florida Department of Environmental Protection (FDEP) project since 1995. As a result, reference material located on [www.epa.gov-Barker Chemical Site Profile](http://www.epa.gov-Barker Chemical Site Profile) and [www.epa.gov/Region4/waste/errb/barker.htm](http://www.epa.gov/Region4/waste/errb/barker.htm) was readily available and utilized in this report (Refs. 5; 6). In March 1995, FDEP discovered arsenic and lead contaminated soils at the site. Historic review of site activity revealed that the Barker Chemical Company (BCC) manufactured "super-phosphate," which resulted in the production of solid waste byproducts containing high concentrations of arsenic and lead. Investigations related to the operations revealed a wide area of impact. As a result, it is surmised that these waste by-products were used as fill and road base at the site and surrounding areas. Following the BCC closure in the early 1900s, a residential subdivision and commercial development area were established on the former BCC property.

In March and April of 1995, FDEP began soil analysis of the site and evaluated the water and sediments of the Withlacoochee River. Between April and August 1995, FDEP collected groundwater and soil samples from residential parcels located on and around the site. After the sample analyses were completed, FDEP submitted an Assessment Report to the EPA.

In December 1995, the EPA Emergency Response and Removal Branch (ERRB) performed a removal site assessment related to soil and groundwater contamination at the site. After review of the final assessment on March 11, 1996, the EPA secured funding for a removal action at the site and the nearby residential parcels. EPA began cleanup efforts in April 1996 and concluded those efforts in April 1997. The removal action addressed the arsenic and lead contamination in the soils at homes that exceeded the

residential PRG of 8 milligrams per kilogram (mg/kg) for arsenic and 400 mg/kg for lead. During this initial removal phase, approximately 30,562 cubic yards of contaminated soils were excavated, stockpiled and transported off-site for disposal. The excavated areas were backfilled with clean soil and restored to pre-removal conditions.

### **3.0 REMOVAL OPERATIONS**

This section describes the removal, sampling, transport, disposal, and post remedial operations at the site.

An EPA site assessment conducted in December 2005 identified the parcels to be remediated during this phase of the site cleanup. START provided technical oversight and safety monitoring and the Emergency and Rapid Response Services (ERRS) contractor WRS Infrastructure & Environment, Inc. conducted the excavation activities.

#### **3.1 EXCAVATION ACTIVITY**

At each parcel to be remediated, START used Global Positioning System (GPS) telemetry and soil sample analysis data from previous assessments and delineated the excavation area with high visibility paint. ERRS then used an excavator to remove the soil to an average depth of two feet below ground surface (bgs). The excavated soil was loaded into 5 to 6 cubic yard (yd<sup>3</sup>) dump trucks and transported to a designated staging parcel described as BCC-113. The excavation depth was established by EPA and FDEP to prevent normal human activity from coming in direct contact with any residual contamination that may remain after the excavation. In some instances, excavation to two feet bgs was not attainable due to obstacles including utilities, bedrock, large tree roots, etc. In these instances, the ERRS contractor excavated as much soil as was practical. During the excavation process, START periodically screened the exposed surface with the XRF to determine the levels of lead and arsenic beneath the removed soil.

#### **3.2 SOIL TRANSPORT**

During excavation activities, ERRS provided several layers of control to minimize nuisance dust and cross contamination. Access routes to and from each parcel were covered with plastic and dump truck beds were covered with a nylon tarp during soil transport. An elevated ramp was constructed at BCC-113 that allowed the dump truck to back up and unload its contents without spillage onto the access road. During all phases of the removal process, a 2,000-gallon water tanker provided dust mitigation; including the municipal lime rock roadways used to access the parcels across the site (see Appendix B). START

conducted daily air monitoring and sampling activities to verify the effectiveness of their efforts (see Appendix A, Tables 1 and 2).

The contaminated soil staged at BCC-113 was mixed with Enviro-Mag<sup>®</sup> and Ferrix 3 to render it non-hazardous. These products chemically bind with the metals in the soil and prevent them from leaching into the landfill after deposition. Samples were collected and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals by ERRS prior to disposal. For more on this process, see Section 3.6.

ERRS excavated and transported a total of 13,489 tons of treated soil from the site during the removal activities conducted from July 2006 and February 2007. The average truck trailer contracted to haul this soil could carry approximately 18-22 cubic yards per load. ERRS estimated that each ton of soil was approximately one cubic yard in volume, with consideration of soil moisture content. The average volume of soil excavated from each parcel was 843 cubic yards, with the largest volume (2,486 yd<sup>3</sup>) excavated from property BCC 103. The smallest volume excavated (83 yd<sup>3</sup>) was from property BCC 102. These estimated volumes were derived by START and site personnel by counting the number of filled trucks leaving each parcel during excavation operations. The average truck load during this process was approximately 5 to 6 yd<sup>3</sup> (see Appendix A, Table 3).

### **3.3 AIR SAMPLING AND MONITORING**

Two Personal Data Rams (PDR) were used daily at the excavation sites. These air monitoring instruments measure the concentration of particulates in the air, providing a qualitative measurement of the amount of dust generated during operations. At each location, one PDR was placed upwind of the excavation activity and the second was positioned downwind. The Site Safety and Health Plan required immediate action by site personnel to minimize the particulate concentration levels exceeding 1.89 milligrams per cubic meter (mg/m<sup>3</sup>) during four instantaneous peaks in any 15-minute period or if there was a sustained reading for 5 minutes (Ref. 7).

To assess the presence of airborne arsenic and lead particulates lofted in the air by the excavation and loading process, two SKC, Inc. personal air pumps (SKC pumps) with filter media cartridges were positioned at the parcel. One unit was placed inside the excavator and the second unit was placed downwind of the excavation area. The pumps were positioned to record exposure levels for the site personnel and document any off-site migration. The location of the fixed position SKC pump was identified with GPS coordinates. Both units were operated for a minimum of eight hours once every seven days, with the resultant sampling media collected and archived on site. The sample cartridges were

delivered once a month to an EPA Contract Laboratory Program (CLP) lab for analysis (see Appendix A, Tables 1 and 2 and Appendix C).

### 3.4 XRF ANALYSIS

Once the delineated area was sufficiently excavated on the parcel, START utilized an XRF to screen the excavation floor and determine the presence or absence of residual arsenic and lead contamination. In order to evaluate the accuracy and effectiveness of the XRF screening results, 10 percent of the screened points were selected for confirmation laboratory analysis. START accomplished the confirmation sampling by sub-dividing the excavation floor into sections, each approximately 15 feet by 15 feet, equating to an area of approximately 225 square feet (ft<sup>2</sup>). The intersecting corners of these sections were identified with sequentially numbered pin flags so that the entire excavated area was represented by a series of sample points spaced approximately 15 feet apart. At each pin flag, the sampler prepared the location by scraping off approximately one ft<sup>2</sup> of the surface layer of soil with a sterile scoop and transferred approximately 8 to 10 ounces of soil into a plastic Ziploc bag. The contents of the bag were homogenized by sealing the bag and vigorously shaking the contents. If the bag needed to be transported off the parcel for analysis, it was labeled with the sample location number, excavation depth, and date and time of collection.

Once collected, START compressed the soil sample into the Ziploc bag by folding over any excess plastic and removing as much air and space from the sample as possible. The XRF was used to make a direct reading through the bag surface. The sampler entered the excavation depth and sample point identity into the electronic XRF display and recorded all of the pertinent XRF data into the START field logbook. When detectable levels of arsenic exceeded 8 mg/Kg or levels of lead exceeded 400 mg/Kg, ERRS was contacted to determine the need for further excavation. At the end of each day, the XRF data was shared with the EPA On-Scene Coordinator and Tetra Tech EM Inc. (see Appendix E for post-remedial tables and Appendix F for logbook notes).

The following action limits were set at the site by EPA and FDEP:

<b>Contaminant</b>	<b>EPA Action Limit</b>	<b>FDEP Action Limit</b>	<b>Barker Action Limit</b>
Arsenic	40 mg/Kg	2.1 mg/Kg	8 mg/Kg
Lead	400 mg/Kg	400 mg/Kg	400 mg/Kg



### **3.5 CONFIRMATION SAMPLES**

Nineteen parcels, including right of ways (ROW), were remediated. Each parcel was screened with XRF during the excavation process, and confirmation samples were collected for analysis at a CLP laboratory. When a confirmation soil sample was selected for CLP analysis, an 8-ounce glass jar was prepared by labeling it with the sampler initials', location, date, and time and the homogenized contents of the Ziploc bag were transferred into the jar. Sample points revealing detectable levels of arsenic and/or lead were selected for laboratory analysis. Ten percent of the samples collected for XRF screening were shipped to the CLP laboratory for analysis (see Appendix C). The sample location of the CLP sample was recorded in the logbook (see Appendix F). Confirmation maps located in Appendix G identify the locations of samples collected from each parcel during the removal activities. Estimated soil volumes for each parcel are included in Appendix A, Table 3. All sampling and field quality assurance and quality control (QA/QC) procedures for the field activities were conducted in accordance with the EPA Region 4 EISOPQAM, EPA QA/G-5S, and the National Functional Guidelines and Data Validation Standard Operating Procedures for CLP Routine Analytical Services (Refs. 3; 9). Collected samples were immediately preserved in accordance with the EISOPQAM guidelines, tracked using the Forms II Lite<sup>®</sup> software, and submitted to a CLP laboratory for metals analysis

### **3.6 SOIL STAGING AND DISPOSAL**

The parcel described as BCC-113 was the designated staging area for the excavated soil removed from the site parcels. ERRS cleared an area on BCC-113 approximately 1-acre in size and covered the surface with heavy mil plastic sheeting. An earthen berm was created along the sides of the staging area and covered with the same plastic in order to provide secondary containment for the soils and any rainwater runoff. At the end of each work day, ERRS covered the soil piles with heavy mil plastic to protect the stockpiled soils from rainfall.

The soils staged at parcel BCC-113 were treated with Enviro-Mag<sup>®</sup> and Ferrix 3. These products chemically bind with the metals in the soil and prevent them from leaching into the landfill after deposition. When a sufficient volume of treated soil was accumulated, a composite sample was collected and sent to a laboratory for TCLP analysis (see Appendix A, Table 4). After receipt of analytical results, ERRS scheduled the disposal of the soils through a subcontractor. The soils were transported to the Omni Landfill in Holopaw, Florida for disposal.

During soil treatment and staging operations at BCC-113, a sufficient volume of soil would accumulate so that the excavator could load the transport trailers from an elevated position without incident from the staged soil pile. Large sheets of heavy plastic were used to cover the road surface during the loading process. At the end of this phase of the site remediation, ERRS constructed a ramp of clean fill soil which separated the soil staging area and Ray Road to facilitate the final excavation of the contaminated soils which existed prior to the parcel being used as a treatment and staging area. The ramp was covered in heavy plastic sheeting which protected it from cross contamination during loading operations (see Appendix B).

### **3.7 POST REMEDIAL RESTORATION**

When the XRF screening confirmed the effective removal of the contaminated soils, clean fill soil was placed in the excavation and compacted until its surface matched the surrounding elevation. Depending on the pre-remedial condition of the parcel, it was either left as is, native topsoil was used to cover the clean fill, natural compost was placed on the clean surface, or it was covered with hydro-seed or sod. If sod or hydro-seed was used to cover the topsoil, ERRS established a daily watering schedule for these parcels. The same water tanker used to mitigate the dust at the site also watered the parcels with potable water where grass was planted. These parcels were watered everyday for at least 60 days (see Appendix B). ERRS made every attempt to return the parcels back to their pre-remediation condition. In a majority of locations, the parcel was improved by their efforts.

## **4.0 DISPOSAL OF INVESTIGATION-DERIVED WASTES**

Personal protective equipment (PPE) and sampling wastes generated during the removal generally consisted of disposable latex gloves, Tyvek<sup>®</sup> boots, plastic zip lock bags, and disposable plastic scoops. These items were used to prevent cross-contamination and to provide personnel protection and sanitary conditions during sampling and removal activities. PPE and sampling supplies generated during the removal were disposed of with the contaminated soil at Omni Landfill.

## **5.0 ANALYTICAL RESULTS**

The site was divided into two sections. The Garden Mall Court section contained the location of the former Barker facility and lies adjacent to the Withlacoochee River within the city limits of Inglis (see Appendix A, Figure 2). The second section was the Former Inglis Road (FIR) and describes a defunct road which originated at the former facility and extended northeast from the site. The FIR has since been

platted and developed with residential and commercial properties (see Appendix A, Figure 3). Earlier site assessments by EPA and FDEP revealed arsenic and lead levels in excess of their respective action guidelines, resulting in these areas being listed as time critical due to the residences located on or adjacent to them. Access agreements were obtained from the property owners and utilities were marked prior to any parcel investigations or remediation.

## **5.1. PRE-REMEDIATION RESULTS**

### **5.1.1 GARDEN MALL COURT**

The parcels and right of ways listed in this section are BCC 020, 102, 103, 104, 113, 114, and ROW's 78, 79, 80, 86, 87, 88, 89, 90, 91, and 95. Pre-remedial sampling events in this section included insitu XRF soil analyses, followed by collection of confirmation laboratory samples. The analytical results revealed arsenic levels ranging from non-detect to 706 mg/kg and lead levels ranging from non-detect to 6,520 mg/kg. The highest levels of contamination occurred at parcels BCC 020, 102, and 103. These three parcels were located within the suspected location of the former facility (see Appendix D) (Ref. 10).

### **5.1.2 FORMER INGLIS ROAD**

The parcels listed in this section are BCC 133, 136, 137, 139, 140, 141, 150, 151, 152, 154, and 155. Pre-remedial sampling events in this section included insitu XRF soil analyses, followed by the collection of confirmation laboratory samples. The analytical results revealed arsenic levels ranging from non-detect to 397 mg/kg and lead levels ranging from non-detect to 4,260 mg/kg. The highest levels of contamination occurred at parcels BCC 133, 140, and 155. BCC 133 and BCC 155 are located at opposite ends of the FIR, with BCC 140 located near the middle (see Appendix D) (Ref. 10).

## **5.2. POST REMEDIATION RESULTS**

### **5.2.1 GARDEN MALL COURT**

Once ERRS had sufficiently excavated the parcel, START analyzed the excavation floor with the XRF and collected confirmation soil samples for CLP laboratory analysis. The parcels and right of ways listed in this section are BCC 020, 102, 103, 104, 113, 114, and ROW's 78, 79, 80, 86, 87, 88, 89, 90, 91, and 95. Post removal analysis revealed arsenic values ranging from non-detect to 130 mg/kg and lead values ranging from non-detect to 430 mg/kg. The highest values occurred at parcels BCC 020 and BCC 113. In both instances, the results were attained at -2.0 feet bgs (see Appendix A, Figure 2 and Appendix E) (Ref. 10).

### **5.2.2. FORMER INGLIS ROAD**

The parcels which occurred along this former road are identified as BCC 133, 136, 137, 139, 140, 141, 150, 151, 152, 154, and 155. The XRF was used to analyze the excavation floor with confirmation soil samples collected and analyzed by a CLP laboratory. Post removal analysis revealed arsenic values ranging from non-detect to 23 mg/kg and lead values ranging from non-detect to 296 mg/kg. The highest values occurred at parcel BCC 133 and were attained at -2.0 feet bgs (see Appendix A, Figure 3 and Appendix E) (Ref. 10).

The site remediation effort during this phase yielded an 82% reduction in arsenic and a 94% reduction in lead soil contamination in the Garden Mall Court section and a 93% reduction in arsenic and lead soil contamination in the FIR section. The complete removal of all contaminants was not possible. Their incomplete removal was affected by several things, but most notably large fixed obstacles, such as house foundations, sidewalks, roadways, or bedrock, or the EPA/FDEP prescribed excavation depth was attained according to the remediation plan and guidelines.

## **6.0 SUMMARY AND CONCLUSION**

The Barker Chemical Site is comprised of 161 parcels that cover an area of approximately 300-acres. Between July 2006 and February 2007, 16 parcels and the municipal ROWs of an additional nine parcels were remediated. A total of 13, 489 tons of soil was excavated from these parcels, treated, and disposed of at the Omni Landfill in Holopaw, Florida. Every effort was made by EPA to minimize the impact to the residents from the removal action. Residents occupying parcels selected for remediation were relocated to local hotels and provided per diem for living expenses during the duration of the removal activity on their property.

START performed XRF screening of pre-and post removal areas, collected confirmation samples for laboratory analysis, monitored air quality during all phases of the removal to protect site personnel and neighboring properties from contamination during excavation, and documented all removal activities with written logbook notes and still photographs. ERRS excavated contaminated soil, actively treated the excavation site and access roads with potable water in order to minimize the air particulates generated during the removal process, restored properties, and treated and disposed of the contaminated soil. The remediation efforts reduced arsenic and lead soil contamination levels by 82 to 93 percent at most parcels. The EPA will determine the need for further activities at the site at a later date.

## REFERENCES

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**APPENDIX A**  
**FIGURES AND SUMMARY TABLES**





**Legend**

--- Removal Area

**APPROXIMATE SCALE IN FEET**



Image Courtesy of FDEP 2006

**Barker Chemical Site**

**EPA ID. No : FL0001275627**

**Inglis, Levy County, Florida**

**FIGURE 1**

**Aerial Map**

**TN & Associates, Inc.**  
**EPA Region 4 START**  
In association with Shaw E&I and Aerostar





<u>Legend</u>	
-----	Boundary


Barker Chemical Company Site FL 0001275627 Inglis, Levy County, Florida	
FIGURE 2 Garden Mall Court Parcel Map	
 <b>TN &amp; Associates, Inc.</b> <b>EPA Region 4 START</b> In association with Shaw E&I and Aerostar	

Image courtesy of FDEP 2006

Image not to scale





**Legend**

- - - - - Former Inglis Road
- - - - - Parcel Boundary

**Barker Chemical Company Site**

**FL 0001275627**

**Inglis, Levy County, Florida**

**FIGURE 3**

**Former Inglis Road Parcel Map**

**TN & Associates, Inc.**  
**EPA Region 4 START**  
 In association with Shaw E&I and Aerostar

Image provided by FDEP 2006

Image not to scale

**Table 1**  
Barker Chemical Company  
Laboratory Confirmation Results - Excavation Area  
Metals in Air

Location	Arsenic	Lead
	(µg/m <sup>3</sup> )	
BCC - 020 - 0712 - EXC	0.42 J	12 U
BCC - 020 - 0713 - EXC	0.32	9.4 U
BCC - 020 - 0714 - EXC	0.6	17 U
BCC - 020 - 0715 - EXC	0.44 J	8.8 U
BCC - 078 - 112906 - EXC	0.34	0.25
BCC - 103 - 0717 - EXC	1.5 J	42 U
BCC - 103 - 0718 - EXC	0.59	15 U
BCC - 103 - 0719 - EXC	0.27	8.3 U
BCC - 103 - 0720 - EXC	0.41 J	8.5 U
BCC - 103 - 0721 - EXC	0.40 J	8.3 U
BCC - 103 - 0725 - EXC	0.37 J	8.5 U
BCC - 103 - 0726 - EXC	0.29	8.5 U
BCC - 103 - 0727 - EXC	0.35	8.5 U
BCC - 103 - 0728 - EXC	0.39 J	8.6 U
BCC - 103 - 0729 - EXC	0.28	8.6 U
BCC - 103 - 0731 - EXC	0.3	8.9 U
BCC - 103 - 0801 - EXC	0.3	8.2 U
BCC - 103 - 0802 - EXC	0.24 J	8.3 U
BCC - 103 - 0803 - EXC	0.25	8.3 U
BCC - 103 - 0804 - EXC	0.36 J	8.3 U
BCC - 103 - 0805 - EXC	0.25	8.6 U
BCC - 103 - 0807 - EXC	0.34 J	8.3 U
BCC - 103 - 0808 - EXC	0.27	8.9 U
BCC - 103 - 0809 - EXC	0.16 J	8.2 U
BCC - 103 - 0810 - EXC	0.79 J	20 U
BCC - 103 - 0811 - EXC	0.26 J	7.9 U
BCC - 103 - 0814 - EXC	0.30 J	8.2 U
BCC - 103 - 0815 - EXC	0.28	8.6 U
BCC - 103 - 0816 - EXC	0.23 J	7.8 U
BCC - 103 - 0817 - EXC	0.32 J	9.8 U
BCC - 103 - 0818 - EXC	0.24	7.8 U
BCC - 103 - 0821 - EXC	0.31	8.5 U
BCC - 103 - 0822 - EXC	0.25 J	7.8 U
BCC - 103 - 0823 - EXC	0.23	8.1 U
BCC - 113 - 011907 - EXC	0.15 R	8.8 U
BCC - 113 - 0121906 - EXC	0.15 R	8.9 U
BCC - 113 - 012607 - EXC	0.24 J	1.6 U
BCC - 113 - 013107 - EXC	0.45 J	3.4 U
BCC - 114 - 0120706 - EXC	0.14 J	8.9 U
BCC - 133 - 101906 - EXC	0.11 R	8.3 U
BCC - 133 - 102406 - EXC	1.6 U	0.12 UJ
BCC - 133 - 110306 - EXC	0.16 R	11 U
BCC - 136 - 110906 - EXC	0.44 R	18 U
BCC - 150 - 0829 - EXC	0.28 J	8.6 U
BCC - 151 - 0908 - EXC	0.39 J	9.1 U
BCC - 151 - 0912 - EXC	0.35 J	8.5 U
<b>OSHA 8 HOUR PEL</b>	10	50
<b>Notes:</b> BCC Barker Chemical Company EXC Excavation µg/m <sup>3</sup> Micrograms per cubic meter J The identification of the analyte is acceptable; the reported value is an estimate. R The presence or absence of the analyte cannot be determined due to severe quality control problems. The data is rejected and considered unusable. U The analyte was not detected at or above the reporting limit. OSHA PEL OSHA Permissible Employee Exposure Limit for 8 hour period.		

**Table 2**  
Barker Chemical Company  
Laboratory Confirmation Results - Personnel Monitoring  
Metals in Air

Location	Arsenic	Lead
	(µg/m <sup>3</sup> )	
BCC - 020 - 0200712 - PER	0.60 J	12 U
BCC - 020 - 0200713 - PER	0.28	9.4 U
BCC - 020 - 0200714 - PER	0.87	17 U
BCC - 020 - 0200715 - PER	0.42 J	8.8 U
BCC - 078 - 112906 - PER	0.27	0.14 UJ
BCC - 103 - 1030717 - PER	1.9 J	42 U
BCC - 103 - 1030718 - PER	0.32 J	9.1 U
BCC - 103 - 1030719 - PER	0.26	8.3 U
BCC - 103 - 1030720 - PER	0.33	8.5 U
BCC - 103 - 1030721 - PER	0.33 J	8.3 U
BCC - 103 - 1030724 - PER	0.29	8.5 U
BCC - 103 - 1030725 - PER	0.36 J	8.5 U
BCC - 103 - 1030726 - PER	0.24	0.12 J
BCC - 103 - 1030727 - PER	0.33	8.5 U
BCC - 103 - 1030728 - PER	0.37 J	0.13
BCC - 103 - 1030729 - PER	0.21 J	0.13
BCC - 103 - 1030731 - PER	0.29	0.14
BCC - 103 - 1030801 - PER	0.32 J	0.10 J
BCC - 103 - 1030802 - PER	0.28	8.3 U
BCC - 103 - 1030803 - PER	0.26 J	0.10 J
BCC - 103 - 1030804 - PER	0.25	0.09
BCC - 103 - 1030805 - PER	0.27 J	0.12 J
BCC - 103 - 1030807 - PER	0.27	8.2 U
BCC - 103 - 1030808 - PER	0.25 J	8.2 U
BCC - 103 - 1030809 - PER	0.24 J	8.2 U
BCC - 103 - 1030810 - PER	0.28 J	8.5 U
BCC - 103 - 1030811 - PER	0.24 J	7.9
BCC - 103 - 1030812 - PER	0.34 J	8.6 U
BCC - 103 - 1030814 - PER	0.27 J	7.9 U
BCC - 103 - 1030815 - PER	0.30 J	8.6 U
BCC - 103 - 1030816 - PER	0.24 J	0.21
BCC - 103 - 1030817 - PER	0.32 J	0.11 J
BCC - 103 - 1030818 - PER	0.32 J	7.8 U
BCC - 103 - 1030822 - PER	0.31 J	7.9 U
BCC - 103 - 1030823 - PER	0.49 J	13 U
BCC - 113 - 011207 - PER	0.18 J	0.08 UJ
BCC - 113 - 011907 - PER	0.18 J	8.6 U
BCC - 113 - 0121306 - PER	0.16 J	8.1 U
BCC - 113 - 0121906 - PER	0.15 R	8.9 U
BCC - 113 - 012607 - PER	0.2 J	1.6 U
BCC - 113 - 013107 - PER	0.43 J	3.4 U
BCC - 114 - 0120706 - PER	0.21	8.9 U
BCC - 133 - 101906 - PER	0.17 J	8.3 U
BCC - 133 - 102406 - PER	0.18 R	8.2 U
BCC - 133 - 110306 - PER	0.12 J	9.1 U
BCC - 136 - 110906 - PER	0.22	8.3 U
BCC - 137 - 1370929 - PER	0.39	11 U
BCC - 137 - 1371006 - PER	0.29	9.8 U
BCC - 141 - 1411010 - PER	0.29	8.5 U
BCC - 150 - 1500829 - PER	0.37 J	0.21

**Table 2**  
 Barker Chemical Company  
 Laboratory Confirmation Results - Personnel Monitoring  
 Metals in Air

Location	Arsenic	Lead
	(µg/m <sup>3</sup> )	
BCC - 151 - 1510908 - PER	0.27 J	10 U
BCC - 151 - 1510912 - PER	0.33	8.1 U
<b>OSHA 8 HOUR PEL</b>	10	50
<b>Notes:</b> BCC Barker Chemical Company PER Personnel µg/m <sup>3</sup> Micrograms per cubic meter J The identification of the analyte is acceptable; the reported value is an estimate. R The presence or absence of the analyte cannot be determined due to severe quality control problems. The data is rejected and considered unusable. U The analyte was not detected at or above the reporting limit. OSHA PEL OSHA Permissible Employee Exposure Limit for 8 hour period		

**Table 3**  
Barker Chemical Company  
Excavated Soil Volumes

Location	Total Truck Loads	Avg. Cubic Yards
Debra Rd.	9.0	49.5
BCC 020	55.0	302.5
BCC 102	15.0	82.5
BCC 103	452.0	2486.0
BCC 104	72.0	396.0
BCC 113	—	2259.0
BCC 114	52.0	286.0
BCC 133	390.0	2145.0
BCC 136	77.0	423.5
BCC 137	123.0	676.5
BCC 139, 140, 141	245.0	1347.5
BCC 150	38.0	209.0
BCC 151	112.0	616.0
BCC 152	—	345.0
BCC 154	53.0	291.5
BCC 155	172.0	946.0
ROW's (Risher Ave.)	114.0	627.0
<b>Total</b>	<b>1979.0</b>	<b>13488.5</b>
<b>Notes:</b> ROW        Municipal right of ways associated with the parcel BCC        Barker Chemical Company —         Data not available		

**Table 4**  
Barker Chemical Company  
TCLP Laboratory Results

Treated Pile Location	Sample Date	mg/L	
		Arsenic	Lead
1	9/8/2006	0.0028 U	0.0065 I
2	9/8/2006	0.0028 U	0.0099 I
3	9/8/2006	0.0034 I	0.010 I
4	9/8/2006	0.0028 U	0.0025 I
5	9/8/2006	0.017	0.051
6	9/8/2006	0.0028 U	0.013 I
7	9/8/2006	0.015	0.053
8	9/26/2006	0.0028 U	0.0024 I
9	9/26/2006	0.0028 U	0.0075 I
10	10/2/2006	0.0028 U	0.033 I
11	10/2/2006	0.0028 U	0.0074 I
12	10/13/2006	0.0028 U	0.018 I
13	10/13/2006	0.0028 U	0.010 I
14	10/13/2006	0.0028 U	0.034 I
15	10/26/2006	0.0028 U	0.021 I
16	10/26/2006	0.0028 U	0.040 I
17	10/26/2006	0.0028 U	0.057
18	11/17/2006	0.0055 I	0.0075 I
19	11/17/2006	0.0028 U	0.0050 I
20	11/17/2006	0.0028 U	0.014 I
21	No Pile Sampled as 21		
22	1/9/2007	0.0028 U	0.013 I
23	1/9/2007	0.0028 U	0.018 I
24	1/9/2007	0.0028 U	0.013 I
25	1/11/2007	0.0028 U	0.028 I
26	1/25/2007	0.0028 U	0.017 I
27	1/25/2007	0.0028 U	0.010 I
<b>Regulatory Action Level</b>		<b>5</b>	<b>5</b>
<b>Notes:</b> I            Indicates a result > MDL but < RL U            Indicates a result < MDL mg/L       milligrams per liter MDL       Method Detection Limit RL          Reporting Limit TCLP       Toxicity Characteristic Leaching Procedure			