THIRD FIVE-YEAR REVIEW FACT SHEET CHEMTRONICS SUPERFUND SITE

Swannanoa, Buncombe County, North Carolina

NOVEMBER 2012

This fact sheet is not to be considered a technical document but has been prepared to provide the general public with a better understanding of activities that have been occurring at the Site. For technical information, please review documents in the Information Repository.

INTRODUCTION

This Fact Sheet has two primary goals: 1) summarize the findings of the Third Five-Year Review Report for the Chemtronics Site recently approved by EPA, Region 4 and 2) provide an update to the ongoing site-wide Remedial Investigation/Feasibility Study (RI/FS) work occurring at the Site.

The purpose of a Five-Year Review (FYR) is to evaluate the remedy implemented at a Superfund Site and to determine if the action remains protective of human health and the environment. More specifically, to confirm that the remedy, as specified in the 1988 Record of Decision (ROD); the 1989 ROD Amendment; and the 1991 Final Remedial Design (RD), remains effective at protecting human health and the environment (i.e., the remedy is operating and functioning as designed). The methods, findings, and conclusions of this review are documented in the FYR report. In addition, FYR reports identify issues found during the review, if any, and identify recommendations to address them.

The FYR was performed by the U.S. Environmental Protection Agency (EPA) with the assistance of the Potentially Responsible Parties (PRPs): Chemtronics, Inc., CNA Holdings LLC and Northrop Grumman Corporation and their consultant, Altamont Environmental, Inc. A copy of the Third FYR Report can be found at the Chemtronics Information Repository at Warren Wilson College Library, EPA Region 4's Record Center (Atlanta, Georgia), or at the following website:
http://www.epa.gov/superfund/sites/fiveyear/f2012040004371.pdf.

SITE HISTORY/BACKGROUND

The Chemtronics Site is located at 180 Old Bee Tree Road in a rural area of Swannanoa, Buncombe County, approximately 8 miles east of Asheville, North Carolina. The Chemtronics property encompasses approximately 1,027 acres and was first developed into an industrial facility in 1952 by Oerlikon Tool and Arms Corp. The Site is bounded on the east by Bee Tree Road and Bee Tree Creek. The area to the north and west of the Site is comprised of sparsely inhabited woodlands. Immediately to the south of the Chemtronics property, there are several currently vacant industrial facilities which lie on land that was once part of the original (Oerlikon) property.

The Site consists essentially of two valleys separated by a ridge. The topography of the Site is steep, ranging from 2,200 to 3,400 feet above mean sea level (amsl). The Site lies on the southeast side of Bartlett Mountain and is moderately to heavily vegetated. All surface water from the Site drains into small tributaries of Bee Tree Creek or directly into Bee Tree Creek. The Front Valley is drained by an unnamed stream and the Back Valley is drained by Gregg Branch. These surface waters flow by way of Bee Tree Creek into the Swannanoa River which ultimately empties into the French Broad River. Refer to **Figure 1** for an overview of the Site as well as the location of the disposal areas and groundwater treatment buildings.

Waste disposal occurred in discrete areas encompassing a small portion of the Site (approximately ten acres). Disposal practices prior to 1971 are not well defined. Solid waste materials and possibly solvents were reportedly incinerated in pits dug in the burning ground area (Acid Pit Area). Chemical wastes from the production of the incapacitating surety agent, 3-quinuclidinyl benzilate (BZ) and the tear gas agent, o-chlorobenzylidene malononitrile (CS), were placed in 55 gallon drums and reportedly covered with a decontaminating "kill" solution. These drums were buried in disposal areas designated as DA-6, DA-7/8, DA-9, and DA-10/11. These two chemicals were manufactured for the Department of Defense.

From 1971-1975, most of the liquid wastes generated on-site went to the Buncombe County Sewer System following some form of neutralization/equalization. Small volumes were disposed of in on-site pits/trenches. Solid wastes, rocket motors, explosive wastes, etc., were burned in the burning ground area, which is part of the Acid Pit Area. From 1975-1979, pits/tranches were constructed, as needed, for the disposal of spent acid and various organic wastes in the Acid Pit Area.

In 1980, the State ordered all discharges to these disposal pits/trenches to be discontinued. The pits were subsequently back-filled.

In 1979, Chemtronics installed a 500,000 gallon lined lagoon for biotreatment of waste waters on top of an abandoned leach field for the main production/processing building (Building 113). The biolagoon was in use until 1984 at which time it was deactivated. This area, the abandoned leach field and the biolagoon, was designated as DA-23.

The Site was first included on the National Priorities List in December 1982 with EPA assuming the lead responsibility for the Site. An AOC to perform a RI/FS was entered into October 1985. The EPA approved the Remedial Investigation (RI) Report in April 1987 and the Feasibility Study (FS) in March 1988. The initial Superfund work at the Site was focused on the various waste disposal areas described above. This effort culminated in the 1988 ROD, the 1989 ROD Amendment, and the 1991 Final RD. The 1988 ROD established the following Remedial Action (RA) clean-up objectives:

- To protect the public health and the environment from exposure to contaminated on-site soils through inhalation, direct contact, and erosion of soils into surface waters and wetlands;
- To prevent off-site movement of contaminated groundwater; and
- To restore contaminated groundwater to levels protective of human health and the environment.

The RA construction phase at the Superfund areas began in December 1991 and ended in March 1993. The RA was conducted in accordance with the approved 1991 Final RD. The Site remediation effort included both source control and the installation of two groundwater interception, extraction, and treatment systems. Source control consisted of constructing a low permeability composite cap over each of the six disposal areas (DA-6, DA-7/8, DA-9, DA-10/11, DA-23 and the Acid Pit Area) and erecting a six-foot chain-linked security fence around each cap. The groundwater remediation phase includes two groundwater extraction/treatment systems (one in each valley). Both groundwater treatment systems use air strippers to remove volatile organic compounds. However, the Front Valley system also includes activated carbon adsorption to remove semi-volatile compounds and the Back Valley system included caustic injection for pH control. The pH buffering system is no longer in use in the Back Valley system. Both systems discharge to the Buncombe County Metropolitan Sewer District (MSD) sewer system.

Both groundwater extraction/treatment systems are operational. The Front Valley groundwater remediation system includes two extraction wells (one in the saprolite and one in the bedrock) and treats approximately 2,900 gallons of groundwater per day. The Back Valley groundwater remediation system includes twelve extraction wells and treats approximately 7,100 gallons of groundwater per day. As of August 2012, the total volume of groundwater extracted and treated in the Front Valley was 19,467,000 gallons and 73,526,000 gallons in the Back Valley. Routine maintenance of the caps, extraction and monitoring wells, and groundwater treatment buildings continues.

Between 2004 and 2006, all buildings/structures not associated with the ongoing Superfund related action were demolished with the resulting debris disposed off-site at the Republic Services landfill located in Enoree, South Carolina.

The following actions have occurred since the 2007 FYR. These actions have enhanced O&M and monitoring efforts as well as improved overall Site conditions and security. These actions include:

- Adding amended soil on the landfill caps to improve fertility and stimulate the growth of the grass cover
- Repairing an area of settlement in the northwest corner of the Acid Pits cap
- Installing a flow equalization tank in the Front Valley to regulate discharge to the Stilling Manhole
- Installing 59 new permanent monitoring wells to improve the Site groundwater monitoring network
- Decommissioning 29 wells that were in poor condition or had inadequate construction (e.g., too long of a well screen), and
- Completing a rehabilitation pilot test on three Back Valley extraction wells to evaluate rehabilitation techniques and effectiveness.

From 1994 to 2011, the average cost per year for operation and maintenance of the current remedy at the Site was $391,727 with a high of $635,642 in 2008. The 2008 total included the cost of the Acid Pits cap repair. These costs were paid by the PRPs.

Refer to **Table 1** for a chronology of activities at the Site.

CONCLUSIONS OF THIRD FIVE-YEAR REVIEW REPORT

Below is a short synopsis of the conclusion of this report and the recommendations made by this report:

The remedy protects human health and the environment in the short-term because the areas of soil contamination at the

Site, where known waste disposal activity occurred, have been capped and fenced, which limits direct contact exposure, and there is no current exposure to contaminated groundwater. However, in order for the remedy to be protective in the long-term, the following actions need to be taken: manage/eliminate the solids in the Back Valley groundwater treatment system effluent prior to being discharged; conduct a capture zone analysis for both groundwater extraction systems; re-evaluate the current groundwater remediation levels in light of current potential ARARs; evaluate the need for the "trigger" (i.e., contingency) in the 1988 ROD and if warranted, better describe/explain the contingency; place Perpetual Land Use Restrictions (Institutional Controls) on the property; and assess the potential for a vapor intrusion pathway.

The next FYR should be completed before the end of September 2017.

The following were issues/recommendations made in the Third FYR Report:

#	Issue	Recommendations and Follow-up Actions
1	Solids accumulate in the Back Valley discharge line and in the MSD sewer downstream of the Metering Manhole.	Determine source of solids and develop procedure/process to eliminate/remove solids before effluent is discharged into discharge line.
2	Adequacy of groundwater extraction systems.	Conduct a capture zone analysis for each groundwater extraction system and make recommendations along with a time-frame to address any identified data gaps.
3	Adequacy of identified chemical-specific applicable or relevant and appropriate requirements (ARARs).	Re-evaluate the current groundwater remediation levels in light of current potential ARARs.
4	Confusion about "Trigger" (i.e., contingency) language in 1988 ROD.	Evaluate the need for the "trigger" (i.e., contingency) as specified in the 1988 ROD. If deemed necessary to be incorporated into the forthcoming Site-wide ROD, the contingency will be more thoroughly explained/described.
5	Lack of Institutional Controls at the Site.	Place Perpetual Land Use Restrictions (Institutional Controls) on the Property in accordance to the requirements specified in the 2008 AOC.
6	Potential risks associated with soil vapor intrusion.	Assess the potential for a vapor intrusion pathway.

As described below under the Current Status, the PRPs are conducting a site-wide RI/FS. All of these Issues/Recommendations will be addressed in the forth coming RI and FS documents and captured in the subsequent site-wide ROD which the Agency anticipates issuing in 2014.

CURRENT STATUS

On June 17, 2003, EPA, North Carolina Department of Environment & Natural Resources (NCDENR) Superfund Program and Resource Conservation and Recovery Act (RCRA) Program, and the representatives of the PRPs held a public meeting at Owen Middle School to solicit input from the public about the idea of moving all Site related environmental restoration work under the NCDENR-RCRA program. No opposition was voiced. However, discussions between the PRPs and NCDENR-RCRA program did not result in an agreement between the two parties. Consequently, in a correspondence dated, March 9, 2007, NCDENR-RCRA program requested that EPA consolidate oversight of all Site environmental remediation activities under EPA's Superfund authority. This was accomplished when the Agency and the PRPs signed an Administrative Order on Consent (AOC) in October 2008. This AOC requires the PRPs to investigate the RCRA related areas of the facility. These areas were not investigated back in the late 1980's as part of the Superfund RI/FS process as they fell under RCRA regulatory responsibility. The PRPs have since developed and implemented a Site-wide RI/FS Work Plan. The primary objectives of an RI are to: 1) determine what contaminants are present at a site, 2) identify the source area(s) of this contamination, 3) identify which environmental media has been impacted (soils, groundwater, surface water, and/or sediment), 4) determine how far the contamination has migrated in each of these media, and 5) at what concentration are these contaminants being detected in each affected media. This information is then used as the basis for the Baseline Risk Assessment. The purpose of a Baseline Risk Assessment is to evaluate qualitatively and quantitatively the carcinogenic and non-carcinogenic risks posed to human health or the environment by the actual presence or potential release of site-related contaminants.

In order for there to be a **RISK**, the following criteria must be met:

- there must be a complete route of exposure or pathway between the contaminant and the receptor and
- the contaminant must have some degree of toxicity.

For a **RISK** to be deemed unacceptable, the following conditions must be met:

- For Carcinogenic Contaminants - the cumulative calculated **RISK** is greater than 1×10^{-4} (or one person out of a population of 10,000) and
- For Non-carcinogenic Contaminants - the cumulative calculated HAZARD INDEX is greater than 1.

Why is this important? Because Superfund is a **RISK** driven program. EPA is directed to reduce the risk to an acceptable level (less than 1×10^{-4} or one person out of a population of ten thousand) in the most cost effective way. Typically, EPA strives to protect to a standard risk level equal to 1×10^{-6} (or one person out of a population of one million).

After these two steps, the Feasibility Study (FS) is generated. The goal of the FS process is to determine the appropriate remediation (clean-up) technology(ies) to address contaminants in the various environmental media impacted at the Site through a series of screening and evaluation steps. The Chemtronics PRPs are currently preparing to initiate a year-long pilot study using an enhanced in situ bioremediation technology in the groundwater in the Front Valley. The pilot study involves injecting an emulsion of vegetable oil into the shallow groundwater to promote biological growth (bacteria) in the shallow groundwater which in turn will degrade the contaminants in the groundwater in this part of the Site. If this technology is found to be successful, this technology will be evaluated in the FS. The PRPs are also in the process of preparing a Work Plan to initiate a similar Pilot Study for the Back Valley.

As of September 2012, all RI related field work has been completed. In accordance to the 2008 AOC, the PRPs have 180 days to submit the draft RI Report following the conclusion of RI field work (data collection). Therefore, the draft RI report should be submitted to the Agency in March 2013. After the review of this document by EPA and NCDENR, the Agency will schedule a meeting to share the findings of the RI with the public. The Agency anticipates that this meeting should occur sometime in April 2013.

TECHNICAL ASSISTANCE GRANT/COMMUNITY ADVISORY GROUP

Congress made public involvement in decision making an important part of the Superfund process. Congress wanted to ensure that the people whose lives were impacted by abandoned hazardous wastes would have a say in actions to clean them up. The role of community members in the Superfund process was strengthened when Congress created EPA's Technical Assistance Grant (TAG) program. TAGs are available at Superfund sites for which a response action has begun.

Another option is the formation of a Superfund Community Advisory Group (CAG). A CAG is made up of members of the community and is designed to serve as the focal point for the exchange of information among the local community and EPA, NCDENR, the PRPs, and other pertinent parties involved in the cleanup of a Superfund site.

The Agency will host a meeting *(meeting announcement, page 8)* **to share information regarding CAG formation and resources available to the organization once formed:**

Monday, December 3, 2012, 6:30 p.m. — 8:30 p.m.
Kittredge Theatre at Warren Wilson College
(North Entrance), 701 Warren Wilson College Road
Swannanoa, NC 28778

FOR MORE INFORMATION

If you want further information on this Site or the Superfund program, please contact either of the individuals below:

Jon Bornholm, Remedial Project Manager
Phone: 1-800-435-9233, ext. 28820 or 404-5622-8820
or email at bornholm.jon@epa.gov

Tonya Whitsett, Community Involvement Coordinator
Phone: 1-800-435-9233, ext. 28633 or 404-562-8633
or email at whitsett.tonya@epa.gov

or regular mail at

U.S. EPA, Region 4
Superfund Remedial &Site Evaluation Branch
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-3014

INFORMATION REPOSITORY

Warren Wilson College Library
Warren Wilson College
701 Warren Wilson College Road
Swannanoa, NC 28778

U.S. Environmental Protection Agency
Region IV - Records Center
61 Forsyth Street
Atlanta, Georgia 30303
http://r4intranet.epa.gov/r4library/index.htm
404-562-8190

TABLE 1 - CHRONOLOGY/MILESTONES FOR THE CHEMTRONICS SUPERFUND SITE	
EVENT	**DATE**
Chemtronics site first developed and operated as an industrial facility	1952
Site owned and operated by Oerlikon Tool and Arms Corporation of America	1952-1959
Site owned and operated by Celanese Corporation of America	1959-1965
Site owned and operated by Northrop Carolina, Inc. (Northrop Corp.)	1965-1971
Site owned and operated by Chemtronics, Inc., as part of Airtronics, Inc.	1971-1978
Site owned and operated by Chemtronics, Inc.	1978-present
State ordered Chemtronics to discontinue discharges to all disposal trenches	1980
Site listed on USEPA's National Priorities List	December 1982
Chemtronics and Northrop Corp., signed an Administrative Order of Consent to perform the RI/FS	October 1985
Remedial Investigation Report approved	April 1987
Feasibility Study Document approved	March 1988
Record of Decision issued	April 5, 1988
Initiated negotiations with PRPs on the Remedial Design/Remedial Action (RD/RA) Consent Decree	June 1988
Unilateral Administrative Order issued to the three viable PRPs to conduct RD/RA	March 22, 1989
ROD Amendment issued, eliminated requirement to solidify contaminated soils in DA-23 prior to capping	April 26, 1989
Final Remedial Design specifications completed	July 1991
Remedial Action construction began	December 1991
RA construction completed	March 1993
Preliminary Closeout Report	March 1993
Bioassay Report	August 1993
First Year Annual Monitoring Report	July 1994
Second Year Annual Monitoring Report (April 1994-December 1995)	June 1995
Third Year Annual Monitoring Report (Jan 1995 Through Dec 1995)	June 1996
Operation & Maintenance Manual	February 1998
Fifth Year Annual Monitoring Report	July 1998
Phase II Site Investigation Report	May 2002
First Five-Year Review Report	August 2002
Holistic Site Management Plan	January 2003
Public Meeting to solicit input on moving all environmental restoration work to North Carolina Department of Environment & Natural Resources (NCDENR)-RCRA Program	June 2003
Data Summary Report	December 2006
Letter from NCDENR-RCRA Program to EPA Transferring Regulatory Oversight of Environmental Activities to EPA-Superfund	March 2007
Site-Wide Groundwater and Surface Water Sampling Plan	April 2007
Bedrock Well Installation	April 2007
EPA initiated negotiations with PRPs on conducting RI/FS on RCRA related portions of facility	June 2007
Second Five-Year Review Report	September 2007
PRP Companies signed an Administrative Order of Consent to perform a Site-wide RI/FS	October 2008
EPA approved the Site-Wide RI/FS Work Plan (Volumes 1-5)	November 2009
2011 Annual Assessment Monitoring Report	July 2012
Completion of Site-wide Remedial Investigation field work	September 2012
Third Five-Year Review Report	September 2012

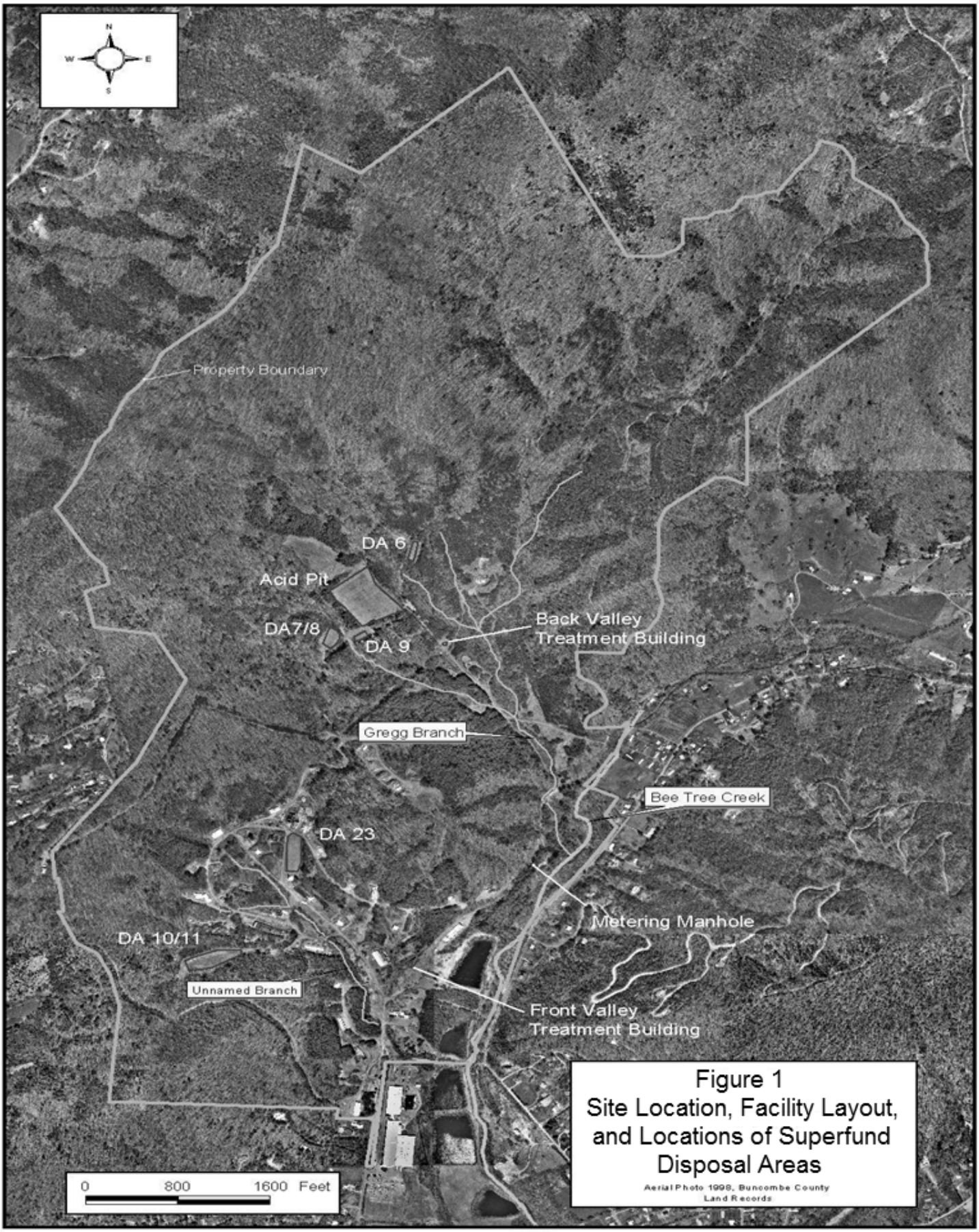

Figure 1
Site Location, Facility Layout, and Locations of Superfund Disposal Areas

Aerial Photo 1998, Buncombe County Land Records

The Superfund Process

PA/SI	Preliminary Assessment/Site Inspection Investigations of site conditions. If the release of hazardous substances requires immediate or short-term response actions, these are addressed under the Emergency Response program of Superfund.
NPL Listing	National Priorities List (NPL) Site Listing Process A list of the most serious sites identified for possible long-term cleanup.
RI/FS	Remedial Investigation/Feasibility Study Determines the nature and extent of contamination. Assesses the treatability of site contamination and evaluates the potential performance and cost of treatment technologies.
ROD	Records of Decision Explains which cleanup alternatives will be used at NPL sites. When remedies exceed 25 million, they are reviewed by the National Remedy Review Board.
RD/RA	Remedial Design/Remedial Action Preparation and implementation of plans and specifications for applying site remedies. The bulk of the cleanup usually occurs during this phase. All new fund-financed remedies are reviewed by the National Priorities Panel.
Construction Completion	Construction Completion Identifies completion of physical cleanup construction, although this does not necessarily indicate whether final cleanup levels have been achieved.
Post Construction Completion	Post Construction Completion Ensures that Superfund response actions provide for the long-term protection of human health and the environment. Included here are Long-Term Response Actions (LTRA), Operation and Maintenance, Institutional Controls, Five-Year Reviews, Remedy Optimization.
NPL Delete	National Priorities List Deletion Removes a site from the NPL once all response actions are complete and all cleanup goals have been achieved.
Reuse	Site Reuse/Redevelopment Information on how the Superfund program is working with communities and other partners to return hazardous waste sites to safe and productive use without adversely affecting the remedy.

Community Advisory Group and Technical Assistance Resources for Communities Meeting

Monday, December 3, 2012
6:30 p.m. — 8:30 p.m.
Warren Wilson College, North Entrance (Kittredge Theatre)
701 Warren Wilson Rd., Swannanoa, NC 28778

The U.S. Environmental Protection Agency (EPA) Region 4 Superfund Division will host a public meeting concerning the Chemtronics Superfund Site (the Site). This meeting is to present opportunities available to communities during a Superfund remediation.

Information on forming a Community Advisory Group (CAG) for the Site, per Superfund guidance, will be discussed. CAGs are established to ensure that all segments of the community have an opportunity to participate in the decision-making process. The CAG would provide a setting in which representatives of the local community receive up-to-date information about the status of cleanup activities, as well as to discuss community views and concerns about the cleanup process with EPA, the North Carolina Department of Health and Environmental Control, the Potentially Responsible Parties and other stakeholders involved in the cleanup of the site.

Also available is the Technical Assistance Services for Communities program. This program offers technical assistance to help communities better understand and become involved in the cleanup process for hazardous waste sites. In addition, the agenda includes the provision of information regarding the Technical Assistance Grant for which a CAG may apply for once formed.

For more information regarding the purpose of this meeting, please contact Tonya Whitsett, Community Involvement Coordinator, toll-free at (877) 718-3752, or via email at whitsett.tonya@epa.gov. If you have questions or concerns related to the technical aspects of the Chemtronics Superfund Site, Jon Bornholm, Remedial Project Manager, may be reached toll-free at (800) 435-9233, ext. 28820 or via email at bornholm.jon@epa.gov.

U.S. Environmental Protection Agency
61 Forsyth Street, S.W.
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Superfund Remedial & Site Evaluation Branch
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Penalty for Private Use $300