# FIRST FIVE-YEAR REVIEW REPORT FOR CTS OF ASHEVILLE, INC. SUPERFUND SITE BUNCOMBE COUNTY, NORTH CAROLINA

**DECEMBER 2022**

**Prepared by**

**U.S. Environmental Protection Agency**
**Region 4**
**Atlanta, Georgia**

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**Carol J. Monell, Director**
**Superfund & Emergency Management Division**

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**Date**

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## LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AOC | Administrative Order on Consent |
| ARAR | Applicable or Relevant and Appropriate Requirement |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| COC | Contaminant of Concern |
| CTS | CTS of Asheville |
| EPA | United States Environmental Protection Agency |
| ERH | Electrical Resistance Heating |
| FS | Feasibility Study |
| FYR | Five-Year Review |
| IC | Institutional Control |
| ISCO | In Situ Chemical Oxidation |
| µg/L | Micrograms per Liter |
| MGRA | Mills Gap Road Associates |
| NAPL | Non-Aqueous Phase Liquid |
| NCP | National Contingency Plan |
| NPL | National Priorities List |
| O&M | Operation and Maintenance |
| OU | Operable Unit |
| PRP | Potentially Responsible Party |
| RAO | Remedial Action Objective |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| RPM | Remedial Project Manager |
| SVE | Soil Vapor Extraction |
| TCE | Trichloroethylene |
| UU/UE | Unlimited Use and Unrestricted Exposure |
| VOC | Volatile Organic Compound |

# I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the first FYR for the CTS of Asheville, Inc. Superfund site (the Site). The triggering action for this statutory review is the on-site construction start date of the interim remedial action. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of one operable unit (OU), which is addressed in this FYR. EPA remedial project manager (RPM) Craig Zeller led the FYR. Participants included Angela Miller, EPA community involvement coordinator and Beth Hartzell, North Carolina project manager. The lead potentially responsible parties (PRPs), CTS Corporation, were notified of the initiation of the FYR. The review began on 8/10/2022. Refer to Appendix A for additional resources, to Appendix B for site status information and to Appendix C for the Site's chronology of events.

## Site Background

The Site is located at 235 Mills Gap Road in Asheville, North Carolina (Figure 1). The Site is an 8.7-acre property that formerly contained an approximately 95,000-square-foot building and was once part of a 53-acre property. Mills Gap Road Associates (MGRA) purchased the 53-acre property in 1987 and sold 44 acres to the Biltmore Group, LLC in 1997, which developed the 44 acres into a residential subdivision. The site property is vacant and fully fenced. The concrete building slab and former parking area are the only remaining features. Remedial features and study areas include springs to the east and west of the Site. Future land and resource uses are dependent on final site cleanup and are unknown at this time. The area surrounding the Site is rural and contains residential and light industrial properties.

International Resistance Company, (now Northrop Grumman Systems Corporation as the result of a series of mergers) owned and operated the Site from 1952 to 1959, when CTS of Asheville, Inc. (CTS) purchased the real property, building and equipment. Arden Electroplating, Inc. leased a portion of the building from December 1985 until December 1986, when it was sold to MGRA. CTS manufactured electronic components used in auto parts and hearing aids from 1959 to 1986 when plant operations ceased. Solvents, including trichloroethylene (TCE), were used to clean, or degrease, the parts before electroplating. Site operations led to an approximately 1-acre area of light non-aqueous phase liquid (NAPL) mixed with high concentrations of TCE. There is a dissolved phase volatile organic compound (VOC) plume extending north of the NAPL area that moves east and west from the source area.

The Site is relatively flat and is situated on a saddle between Busbee Mountain to the north and Brown Mountain to the south-southwest. The geology under the Site consists of fill material, residual

soil (overburden) and bedrock. Groundwater occurs in the overburden and the deeper fractured bedrock. The depth to the groundwater table generally fluctuates from 15 to 49 feet below ground surface, depending on rainfall. The depth to bedrock ranges from 28 to 81 feet below ground surface. Groundwater in the overburden generally flows two directions: eastward towards the eastern springs area and westward to another springs area to the west of the Site (Figure 2, D-2). The groundwater is considered as Class GA or GSA pursuant to North Carolina Groundwater Quality Standards at 15A NCAC 02I.0201, which includes potential water supply for potable usage. Shallow groundwater wells are used as potable water in the area, but well users are provided filters and well water is sampled as part of the response action.

## FIVE-YEAR REVIEW SUMMARY FORM

| SITE IDENTIFICATION | | |
|---|---|---|
| **Site Name: CTS of Asheville, Inc.** | | |
| **EPA ID: NCD003149556** | | |
| **Region: 4** | **State: North Carolina** | **City/County: Asheville/ Buncombe** |
| **SITE STATUS** | | |
| **NPL Status:** Final | | |
| **Multiple OUs?** No | **Has the Site achieved construction completion?** No | |
| **REVIEW STATUS** | | |
| **Lead agency:** EPA | | |
| **Author name:** Craig Zeller | | |
| **Author affiliation:** EPA with support provided by Skeo | | |
| **Review period:** 8/1/2022 - 12/17/2022 | | |
| **Date of site inspection:** 8/30/2022 | | |
| **Type of review:** Statutory | | |
| **Review number:** 1 | | |
| **Triggering action date:** 12/17/2017 | | |
| **Due date *(five years after triggering action date)*:** 12/17/2022 | | |

**Figure 1: Site Vicinity Map**

## II. RESPONSE ACTION SUMMARY

### Basis for Taking Action

Environmental investigations conducted at the Site since the late 1980s identified the presence of NAPL and chlorinated solvents in the groundwater, of which TCE is the primary contaminant of concern (COC). The sitewide remedial investigation (RI), risk assessment and feasibility study (FS) have not been completed yet. A 2012 Administrative Order on Consent (AOC) between the EPA and CTS requires completion of an RI/FS. The RI/FS are pending completion of the interim remedial action.

CTS conducted a NAPL investigations in 2013 and 2014, and a focused feasibility study in 2015. Investigations determined the source area contains light NAPL from weathered fuel oil. In this area, TCE exists in three states: dissolved in groundwater, sorbed to saturated soil, and partitioned in the petroleum NAPL. Soil contamination associated with the Site has not been identified on adjacent properties. These contaminants pose a potential risk to human health and the environment particularly through the air inhalation and/or drinking water exposure pathways.

Investigations identified TCE groundwater plume generally extending from the area of the former facility to areas east and west of the Site. Groundwater discharge zones are located east and west of the Site at seeps and springs. Although the shallow/overburden TCE groundwater plume has not been completely delineated to the east, the plume is expected to terminate near or slightly beyond the eastern springs area east of the Site.

Volatilization of TCE and degradation products from the groundwater plume is a potential pathway for vapor intrusion into residential structures located in the vicinity of the groundwater plume. The surface waters that emanate from the springs east and west of the Site contain TCE; therefore, the EPA identified the volatilization of TCE from the surface waters as a potential pathway affecting ambient air in the vicinity of the surface waters.

The EPA and its contractors conducted air sampling east of the Site in December 2007 and August 2008. The sampling included collection of soil gas, sub-slab, crawlspace, indoor, and/or ambient air samples. Concentrations of detected constituents in the air samples were not above the EPA's action levels, where applicable. Concentrations of TCE detected in the ambient air samples were highest near the seep/spring areas east of the Site. The concentrations of TCE detected in other ambient air samples decreased with distance from the seep/spring areas.

The EPA determined that if the NAPL/TCE contaminant mass were not remediated, it would continue to migrate toward the eastern and western spring areas and possibly the deeper fractured bedrock. Therefore, the EPA selected an interim remedial action to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. The Site was proposed to the National Priorities List (NPL) in March 2011 and became final on the NPL in March 2012. The draft focused feasibility study report describing remedial alternatives was submitted to EPA on July 31, 2015, and the finalized on September 10, 2015.

## Response Actions

Pre-Record of Decision (ROD) Removal Actions

In 2004, the EPA entered into an AOC for Removal Action with CTS and MGRA. Three removal actions have been conducted at the Site under this AOC, listed below.

*2006-2010 Soil Vapor Extraction*

CTS installed a soil vapor extraction (SVE) system to extract VOCs from the soils above the water table. From July 2006 to July 2010, the SVE system removed an estimated 6,473 pounds of VOCs from the unsaturated zone. In November 2013, CTS's contractor conducted confirmation soil sampling and analysis associated with the SVE system and confirmed an average TCE percent reduction of 95% in unsaturated soil. The SVE system was operated until influent recovery reached asymptotic conditions. Concentrations of TCE in the upper 10 feet of soil in the identified source area were below the EPA's regional screening level for industrial soil.

*2012-2014 Potable Well Filtration and Public Water Connection*

From September 2012 to August 2014, CTS installed 101 water supply filtration systems in residences located within a 1-mile radius of the Site who relied on groundwater as their drinking water supply.

During the 2014-2015 timeframe, Buncombe County installed municipal water supply lines in the vicinity of the Site. Of the 101 residences with filtration systems, 87 homeowners elected to connect to the municipal water line. Under the AOC, CTS continues to maintain the remaining water filtration systems and residential wells within the 1-mile radius whose owners did not connect to county water service, which are monitored annually.

*2014 Eastern Springs Vapor Intrusion Assessment and Ambient Air Mitigation*

In accordance with the AOC, CTS evaluated vapor intrusion at residences near the known groundwater plume as well as sampled ambient air at the eastern and western springs areas. At three residential properties east of the Site, the calculated hazard indices and incremental risks indicated unacceptable risks or hazards for residential receptors. The EPA required additional air sampling at residences located farther east of the Site based on the results of the April 2014 air sampling event. Air samples were collected from in and/or near eight residences east of the Site. The calculated hazard indices and incremental risks did not indicate unacceptable risks or hazards for residential receptors.

Based on the air concentrations in the springs area east of the Site in April 2014, in September 2014, CTS installed a springs remediation system on the property immediately east of the Site to reduce TCE concentrations in the ambient air. The remediation system includes a combination of air sparging and vapor extraction. Air sparging pumps air into the surface water and subsurface at seven locations. These vapors are extracted using vacuums at 12 locations and then treated by carbon canisters before discharge. The eastern spring area was covered with a low-density polyethylene liner to increase the system's efficiency. Construction began on September 10, 2014, and the system has been in continuous operation since October 21, 2014.

Interim Remedial Action

In 2016, the EPA signed an Interim ROD selecting a source control interim remedial action for NAPL and TCE on the former CTS plant property. The interim remedial action will be followed up with a final sitewide cleanup decision following assessment of the interim remedy. Figure 2 includes the remedial areas of the Site.

The major components of the selected interim remedy include:

- Electrical Resistance Heating (ERH)[1] to treat the mixed NAPL and TCE plume in an approximate 1.2-acre area. ERH will address about 47,250 cubic yards of saturated material contaminated by NAPL/TCE.
- In-Situ Chemical Oxidation (ISCO) to treat the TCE (only) groundwater contamination in the expanded Northern Area (approximately 1.9 acres).
- Monitoring to be conducted during remedy implementation to ensure adequate protection of on-site workers and the surrounding community.

The general interim remedial action objective (RAO) is to significantly reduce the mass of NAPL and TCE that is the source of the dissolved-phase VOC groundwater plume. Over time, while the final sitewide cleanup plan is developed, the dissolved-phase VOC plume is expected to decrease in size and concentration. The EPA anticipates that the interim remedial action will lead to decreasing TCE concentration trends in the deeper bedrock aquifer. The specific RAO for this Interim ROD is:

- Reduce the TCE concentration in the 3.1-acre interim action treatment area by 95%.

For the 1.2-acre ERH treatment area, the 95% reduction of TCE applied to saturated soil, NAPL and groundwater. For the 1.9-acre ISCO treatment area, the 95% reduction of TCE applies to groundwater. Achievement of this RAO will be determined by pre-treatment and post-treatment verification sampling within the 3.1-acre interim action treatment area.

[1] Electrical resistance heating is a technology that heats the ground to extract and treat hazardous substances. Electricity runs through electrodes, heating the soil and groundwater and vaporizing the contaminants. The vapors are captured and removed through extraction wells, then treated above ground before being discharged to the air.

**Figure 2: Site Map**

**Status of Implementation**

A Consent Decree obligating the PRPs to conduct the interim remedial action was entered by the United States District Court for the Western District of North Carolina in March 2017. A remedial design work plan was submitted to the EPA on April 19, 2017 and approved by the EPA on May 1, 2017.

ERH Implementation

CTS submitted the ERH remedial design to the EPA on November 27, 2017; the EPA approved it on December 18, 2017. The final remedial design indicated a treatment area of approximately 56,100 square feet and a treatment volume of approximately 47,200 cubic yards. The ERH remedy included 229 electrodes co-located with vapor recovery wells, two vapor-only recovery points, and 18 temperature monitoring points, as well as installation of an above-ground vapor treatment system. Construction activities began in December 2017 and were completed November 2018 (Figures D-1 through D-3).

The goal of the ERH cleanup was to reduce the TCE pre-treatment concentrations in saturated soil, groundwater and NAPL by 95% in the treatment area beneath the former CTS plant. The average TCE concentration in saturated soil was reduced from 59,496 micrograms per liter (µg/L) to 1,318 µg/L, a 97.8% reduction. The average TCE concentration in groundwater was reduced from 16,523 µg/L to 736 µg/L, a 95.5% reduction. ERH removed approximately 5,600 pounds of TCE and over 12,000 gallons of NAPL from the subsurface. On April 22, 2019, the EPA certified the RAO of 95% removal of TCE was met and the ERH remedial action complete.

ISCO Implementation

An ISCO treatability study was conducted between late 2017 and early 2019; to collect information to help determine if the proposed remedial action would be effective to meet the RAO and, if so, to develop the full-scale ISCO remedial design. CTS submitted the ISCO remedial design to the EPA on July 12, 2019, and the EPA approved it on July 22, 2019. The ISCO treatment areas include the 1.9-acre Northern Area and the approximately 0.5-acre Additional Treatment Area (Figure 2; D-4 through D-5).

CTS submitted an Interim Northern Area ISCO Remedial Action Objective Value Technical Memorandum to the EPA on December 19, 2019. The memo presented the methodology for determining successful achievement of the RAO. The target groundwater concentration, 5% of the arithmetic average TCE concentration, was calculated to be 1,070 µg/L (i.e., 95% TCE removal) in the treatment area. Groundwater samples are to be collected on a semi-annual basis until the RAO has been achieved. If a 95% TCE reduction is not achieved in a particular area in a reasonable timeframe, additional ISCO treatment might be necessary.

ISCO emplacement well installation activities began in October 2019. Potassium permanganate was hydraulically emplaced in the subsurface as a slurry of granular potassium permanganate and a carrier fluid (water/bentonite slurry) creating a sheet-like sub-horizontal disc in the subsurface. A total of 380 emplacements, containing approximately 350,200 pounds of potassium permanganate in approximately 82,050 gallons of slurry, were constructed at 76 emplacement [the process or state of setting something in place or being set in place] well locations during this remedial action.

Five new monitoring well pairs, MW-33/33A through MW-37/37A (five shallow and five deep overburden wells at each location), were installed in the ISCO treatment area in October 2019. The new monitoring wells were positioned in the approximate center of adjacent emplacement wells.

The monitoring well screened intervals are intended to be distributed throughout the treatment volume. Previously installed monitoring wells MW-6, MW-6A, MW-7A, MW-19 and MW-19A, located in the ISCO treatment area, are also used for groundwater monitoring during the ISCO remedial action. Monitoring is ongoing per the ISCO remedial action work plan.

Institutional Controls

The Interim ROD does not call for institutional controls and the final remedy has not yet been identified. At this time, the EPA has not determined if institutional controls will be a necessary component of the final remedy.

Operation and Maintenance (O&M)

The Site is not yet in formal O&M as the final remedy has not been selected and implemented. Current interim remedial actions include ISCO performance monitoring.

O&M presence is part time, with remote telemetry monitoring/notifications of Eastern Springs Vapor Capture and Removal System operational status. In general, PRP contractors visit the Site at least every two weeks to perform system O&M, site inspections, monitoring and sampling. Operation of the removal action vapor mitigation system at the eastern spring includes regular monitoring of the spring liner condition and operation of the air sparging system. No significant modifications or repairs have been needed since construction. Since initiation, the PRPs completed several enhancements to the system to improve and maintain efficiency.

# III. PROGRESS SINCE THE PREVIOUS REVIEW

This is the first FYR for the Site.

# IV. FIVE-YEAR REVIEW PROCESS

## Community Notification, Community Involvement and Site Interviews

A public notice was made available by news release on 10/19/2022 (Appendix E). It stated that the FYR was underway and invited the public to submit any comments to the EPA. Once the Five-Year Review is complete, its findings will be posted in a final report at https://www.epa.gov/superfund/search-superfund-five-year-reviews.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The interviews are summarized below and included in Appendix F.

Beth Hartzell, North Carolina Department of Environmental Quality project manager, indicated the interim remedy has progressed as expected and noted no issues.

Andrew Warren, CTS Corporation and Matthew Wallace, PRP contractor, indicated the interim remedy has been effective.

The EPA interviewed three residents about the Site. Two residents interviewed via email indicated that although the cleanup took many years, it is considered successful. One community member was interviewed by phone and stated that they are not happy about the length of time that it took to finally implement a cleanup remedy of the Site and are frustrated because EPA is still not finished with the work. They are not pleased with the negative impact that the cleanup has had on their property, financially, and are looking forward to the day when the Site is cleaned up and property values are restored.

## Data Review

This FYR includes review of monitoring data for the pre-ROD removal actions and the post-ISCO groundwater monitoring. Per the 2004 AOC, PRPs perform monitoring and sampling of the ambient air and surface water at the eastern springs area and the western springs area.

### Removal Action Air Monitoring and Mitigation

The vapor removal and capture system continues to reduce TCE and other constituent concentrations in air in the area east of the Site (Table I-1). Concentrations detected in the most recent sampling (October 2021) were lower than most historical concentrations while the system has been in operation. The system will be assessed during the RI/FS process and the EPA will determine if it is part of the final remedy.

October 2021 sampling identified TCE in the eastern surface water sample (SW1) at a concentration less than, but generally within the same order of magnitude of the TCE concentrations detected after installation of the vapor system (Table I-2). The TCE concentrations detected since 2017 are less than historical concentrations detected prior to installation of the system and are decreasing. In 2021, TCE was detected in the western surface water sample at a higher concentration, but within the same order of

magnitude of TCE concentrations detected at this location to date (since June 2015). Surface water will be further assessed in the RI/FS in support of final remedy selection.

CTS also performs annual monitoring of private wells where filtration systems had been installed. Samples are collected pre-filter (at the wellhead or at a sample port upstream of the filtration system) and post-filter (at an interior faucet, exterior spigot, or at a sample port downstream of the filtration system). TCE and related constituents have not been detected above the laboratory method detection limits in these wells.

Interim Remedial Action - ISCO Groundwater Performance Monitoring

Beginning in October 2019, after ISCO injections, groundwater samples were collected semi-annually from 15 ISCO performance monitoring wells (Figure 3). The RAO for average groundwater TCE concentration in the ISCO treatment area is a 95% reduction from the average baseline concentration. The January 2022 sampling indicates the average reduction of TCE in groundwater is approximately 69%. The EPA will determine if additional ISCO injections will be pursued to accelerate contaminant reduction.

In general, concentrations of TCE in groundwater samples have decreased significantly compared to baseline concentrations (Table 1). The results of this sampling event indicate the TCE concentrations reported at 8 of the 15 performance monitoring wells were below the RAO concentration. If detected, TCE concentrations in groundwater samples collected from monitoring wells MW-6, MW-6A, MW-7A, MW-34A, MW-35, MW-35A and MW-36A during this monitoring event are less than 5% of the TCE concentrations detected in the respective baseline groundwater samples.

**Figure 3: ISCO Emplacement and Monitoring Wells**

**Table 1: ISCO TCE Performance Monitoring**

| Date | Units | 10/2019 Pre-ISCO Baseline Concentration | 7/2020 | 1/2021 | 6/2021 | 1/2022 |
|---|---|---|---|---|---|---|
| MW-6 | µg/L | 15,200 | 10.1 | 20.2 | 67.1 | 331 |
| MW-6A | µg/L | 47,300 | 561 | <1.1 | <0.38 | <0.38 |
| MW-7A | µg/L | 11,500 | 3.5<br>1.6 | <0.22 | <0.38 | <0.38 |
| MW-19 | µg/L | 3,460 | 1,950 | 1,820<br>1,780 | 1,360 | 720 |
| MW-19A | µg/L | 12,400 | 10,500 | 1,730 | 4,970 | 9,210<br>9,850 |
| MW-33 | µg/L | 32,000 | 19,000 | 13,100 | 13,700<br>14,000 | 11,000 |
| MW-33A | µg/L | 41,200 | 43,800<br>52,200 | 41,900 | 38,900<br>36,600 | 43,500 |
| MW-34 | µg/L | 32,600<br>33,100 | 23,600 | 31,400 | 9,850 | 17,600 |
| MW-34A | µg/L | 31,900 | 60 | <0.22 | <0.38 | <0.38 |
| MW-35 | µg/L | 9,970 | 4,630 | 12,100 | 11,100 | 133<br>133 |
| MW-35A | µg/L | 11,500 | 9,970 | 5,520 | 128 | 32.6 |
| MW-36 | µg/L | 16,800 | 10,400 | 16,300 | 14,300 | 11,600 |
| MW-36A | µg/L | 36,100 | 17,800 | 181 | 25.5 | 824 |
| MW-37 | µg/L | 8,910<br>10,900 | 13,500 | <0.22 | 4,790 | 1,640 |
| MW-37A | µg/L | 8,770 | 3,890 | 3,890 | 3,630 | 2,790 |

## Site Inspection

The site inspection took place on 8/30/2022. Participants included Craig Zeller, EPA RPM; Beth Hartzell, North Carolina Department of Environmental Quality; Matt Wallace, Wood Environment and Infrastructure Solutions, CTS contractor; and Ryan Burdge, Skeo, EPA support contractor. The purpose of the inspection was to assess the protectiveness of the interim remedy.

Inspection participants met at the entrance to the Site for a safety briefing prior to walking the site property. The Site remains fully fenced and securely locked. No evidence of trespassing or recent vandalism were found, and O&M contractors noted trespassing has generally not been an issue. On-site wells were located and remain functional. The eastern springs area remains fenced and the liner cover appeared in good condition. The air sparging and carbon system trailer were operational and in good condition. Participants discussed an upcoming road widening project that will bring Mills Gap Road close to the system discharge point. The Department of Transportation is aware of the air sparging system features and are not expected to impact the system operations. Participants then travelled to the western springs area and observed the surface water sampling point. Overall, no issues were noted. The site inspection checklist and photos are included in Appendices G and H, respectively.

## V. TECHNICAL ASSESSMENT

**QUESTION A:** Is the remedy functioning as intended by the decision documents?

Yes, the interim remedy is functioning as intended. Pre-ROD removal actions including the water line extension and filtration systems for drinking water, vapor recovery in eastern springs for air continue to eliminate potential exposures. The ERH source area treatment achieved the RAO of 95% removal of TCE. The subsequent ISCO injections have been completed and have successfully reduced TCE concentrations. Groundwater samples for ISCO remediation performance monitoring will be collected from monitoring wells in the treatment area on a semi-annual basis until the overall RAO is achieved. If needed, additional ISCO injections will be implemented to achieve the RAO.

The scope of the final ROD depends on the ultimate success of the interim remedial action. After the ISCO RAO is achieved, CTS will complete a sitewide RI/FS per the AOC. The final ROD will address any remaining unacceptable risks posed to human health and the environment posed by residual NAPL/TCE mass in the subsurface not addressed by the interim remedial action.

**QUESTION B:** Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

Yes, the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection are still valid. The EPA selected an interim remedy that addresses potential exposure pathways and will select a final remedy in a later ROD. Site contaminants pose a potential risk to human health and the environment particularly through the air inhalation and/or drinking water exposure pathways. The NAPL/TCE contaminant mass is also a source of the dissolved-phase VOC groundwater contamination. These potential human health risks have been eliminated by short-term removal actions and the interim remedy. The final sitewide remedy decision will include a full RI/FS, updated RAOs and defined cleanup goals for remaining contamination.

The interim remedy complies with the identified “action-specific” and “location-specific” applicable or relevant and appropriate requirements (ARARs). However, because this in an interim remedial action, the EPA waived the “chemical-specific” ARARs and did not select cleanup goals. The interim action is being assessed based on specific RAO criteria, which remain valid.

**QUESTION C:** Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

## VI. ISSUES/RECOMMENDATIONS

| Issues/Recommendations |
|---|
| **OU(s) without Issues/Recommendations Identified in the FYR:** |
| OU-1 Sitewide |

**OTHER FINDINGS**

No additional recommendations were identified during the FYR.

## VII. PROTECTIVENESS STATEMENT

| Protectiveness Statement(s) | |
|---|---|
| *Operable Unit:* | *Protectiveness Determination:* |
| OU-1 Sitewide Interim Remedy | Protective |
| *Protectiveness Statement:*<br>The interim remedy at OU-1 is protective of human health and the environment. Removal actions and interim remedial actions, including public water line extension and filtration systems for drinking water, vapor recovery in eastern springs for air have addressed source areas and potential exposure pathways. The EPA intends to select and implement a final remedy upon further assessment of the interim remedy performance. | |

## VIII. NEXT REVIEW

The next FYR Report for the CTS of Asheville, Inc. Superfund site is required five years from the completion date of this review.

# APPENDIX A – REFERENCE LIST

United States Environmental Protection Agency 2016. Interim Action Record of Decision, CTS of Asheville, Inc. Superfund Site, Asheville, Buncombe County, North Carolina. February 11, 2016.

United States District Court Western District Of North Carolina Asheville Division United States of America, Plaintiff, v. CTS Corporation, Mills Gap Road Associates, and Northrop Grumman Systems Corporation, Defendants. Civil No. 16-Cv-380. Consent Decree for Interim Remedial Design/Remedial Action at the CTS Of Asheville, Inc. Superfund Site Case L:16-Cv-00380-Dlh Document 6 Filed March 7, 2017.

Wood 2018. Electrical Resistance Heating Remedial Action Report, CTS of Asheville, Inc. Superfund Site, August 7, 2018.

Wood 2019. Interim Northern Area ISCO Remedial Action Objective Value Technical Memorandum, CTS of Asheville, Inc. Superfund Site, December 19, 2019.

Wood 2020. In-Situ Chemical Oxidation Remedial Action Report, CTS of Asheville, Inc. Superfund Site, May 19, 2020.

# APPENDIX B – CURRENT SITE STATUS

| Environmental Indicators |
| --- |
| *- Current human exposures at the Site are under control.*<br>*- Data are insufficient to determine if groundwater migration is currently under control.* |

| Are Necessary Institutional Controls in Place? |
| --- |
| *The final remedy will identify any necessary institutional controls.* |

| Has EPA Designated the Site as Sitewide Ready for Anticipated Use? |
| --- |
| ☐ Yes ☒ No |

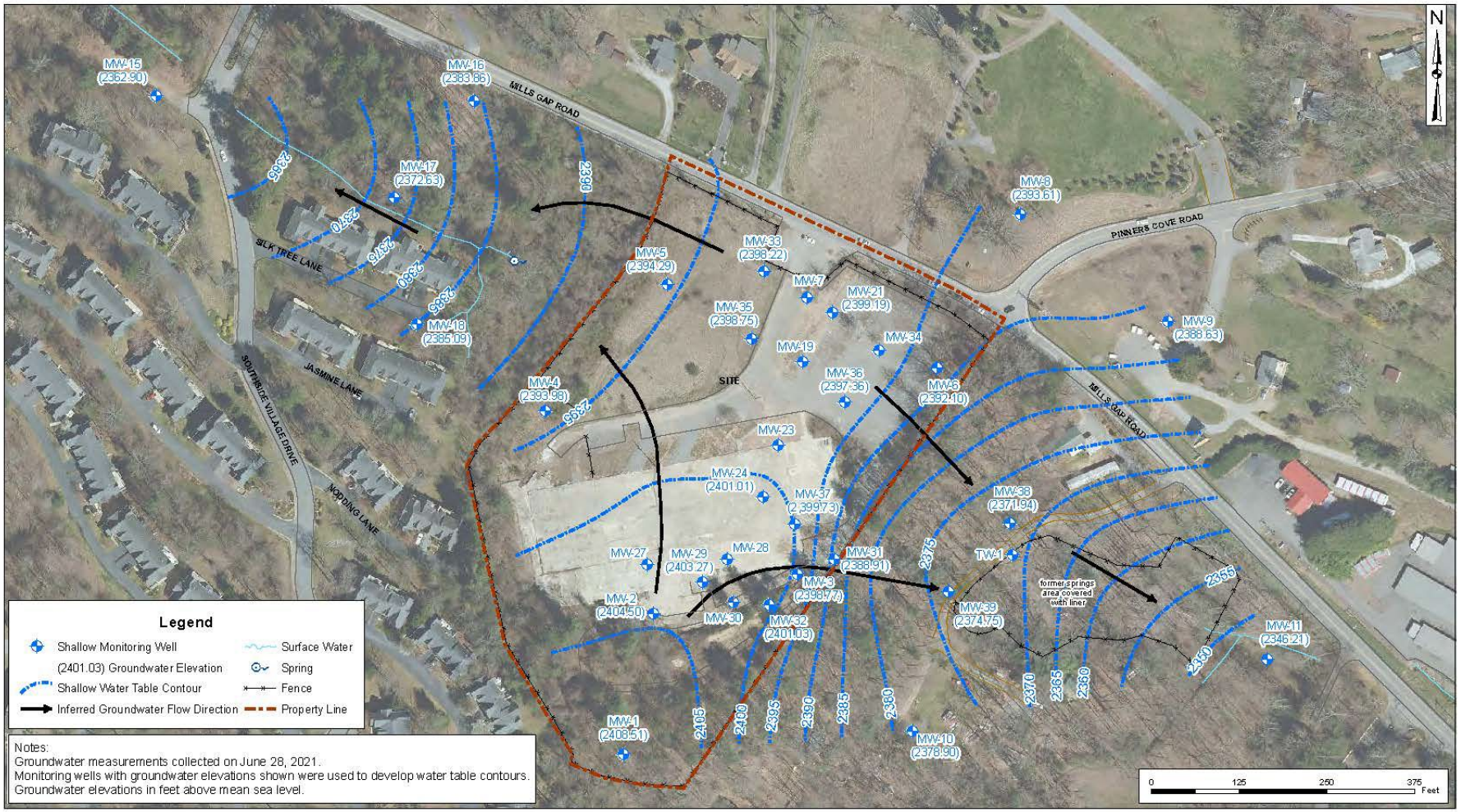
| Has the Site Been Put into Reuse? |
| --- |
| ☐ Yes ☒ No |

# APPENDIX C – SITE CHRONOLOGY

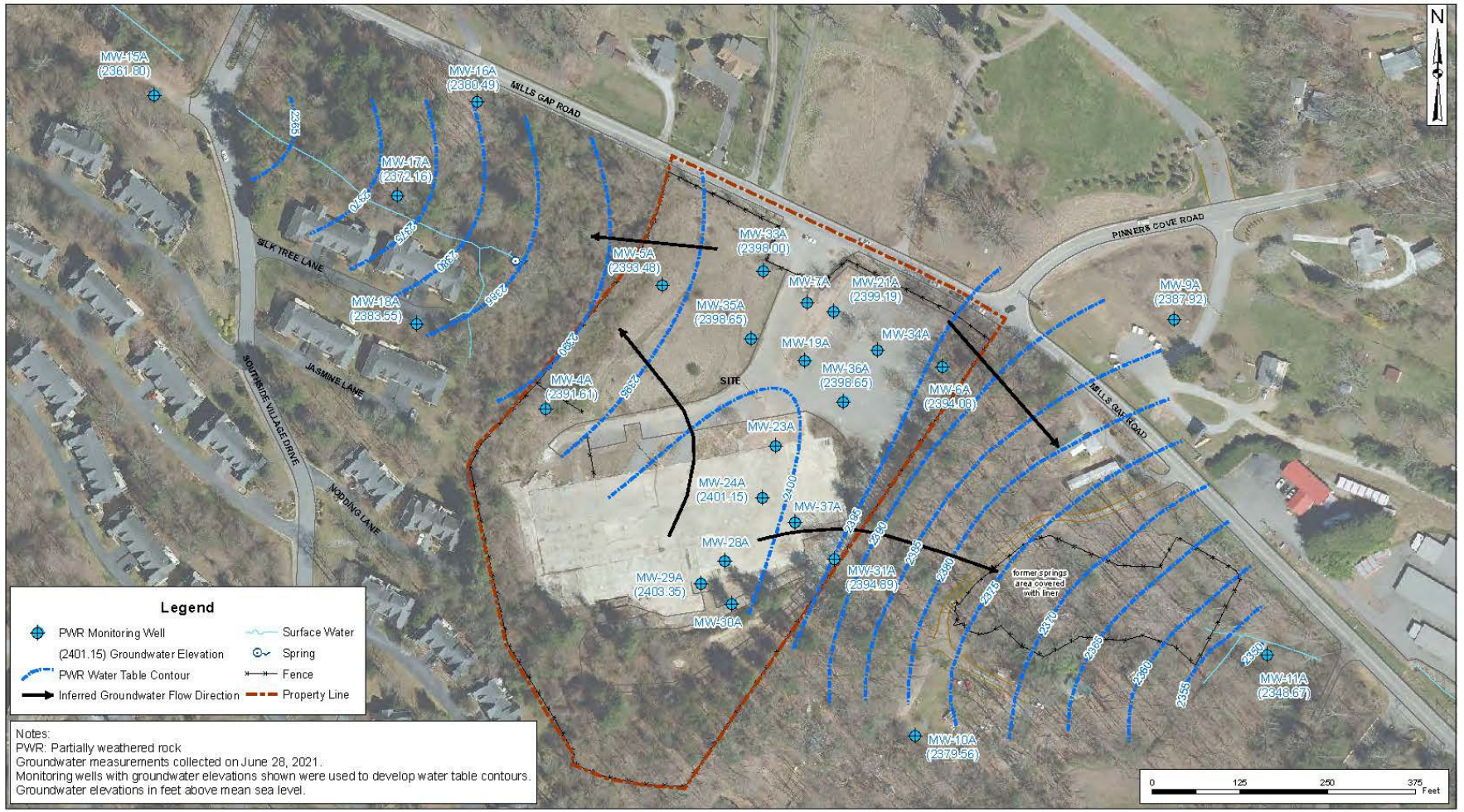
## Table C-1: Site Chronology

| Event | Date |
|---|---|
| International Resistance Company (now Northrop Grumman Systems Corporation as the result of a series of mergers) owned and operated the property | 1952-1959 |
| CTS of Asheville, Inc. purchased the property, building and equipment | 1959 |
| Arden Electroplating, Inc. leased a portion of the building | 1985-1986 |
| The EPA, CTS and MGRA entered into AOC to perform removal actions | 2004 |
| The EPA and CTS signed AOC to conduct a sitewide RI/FS | 1/26/2012 |
| The EPA listed the Site on the NPL | 3/15/2012 |
| CTS operated a SVE system as part of a removal action | July 2006 to July 2010 |
| CTS installed 101 water supply filtration systems in residences located within a one-mile radius of the Site | September 2012 to August 2014 |
| CTS installed a springs vapor removal system on the property immediately to the east of the Site as part of a removal action | September 2014 |
| Buncombe County installed municipal water supply lines in the vicinity of the Site | 2014-2015 |
| The EPA signed interim ROD | 2/11/2016 |
| Consent Decree obligating the PRPs to conduct the interim remedial action was entered by the United States District Court for the Western District of North Carolina. | 3/2017 |
| PRP completed remedial design and began remedial action for ERH remedy | 12/18/2017 |
| PRP completed remedial design and began remedial action for ISCO remedy | 7/12/2019 |

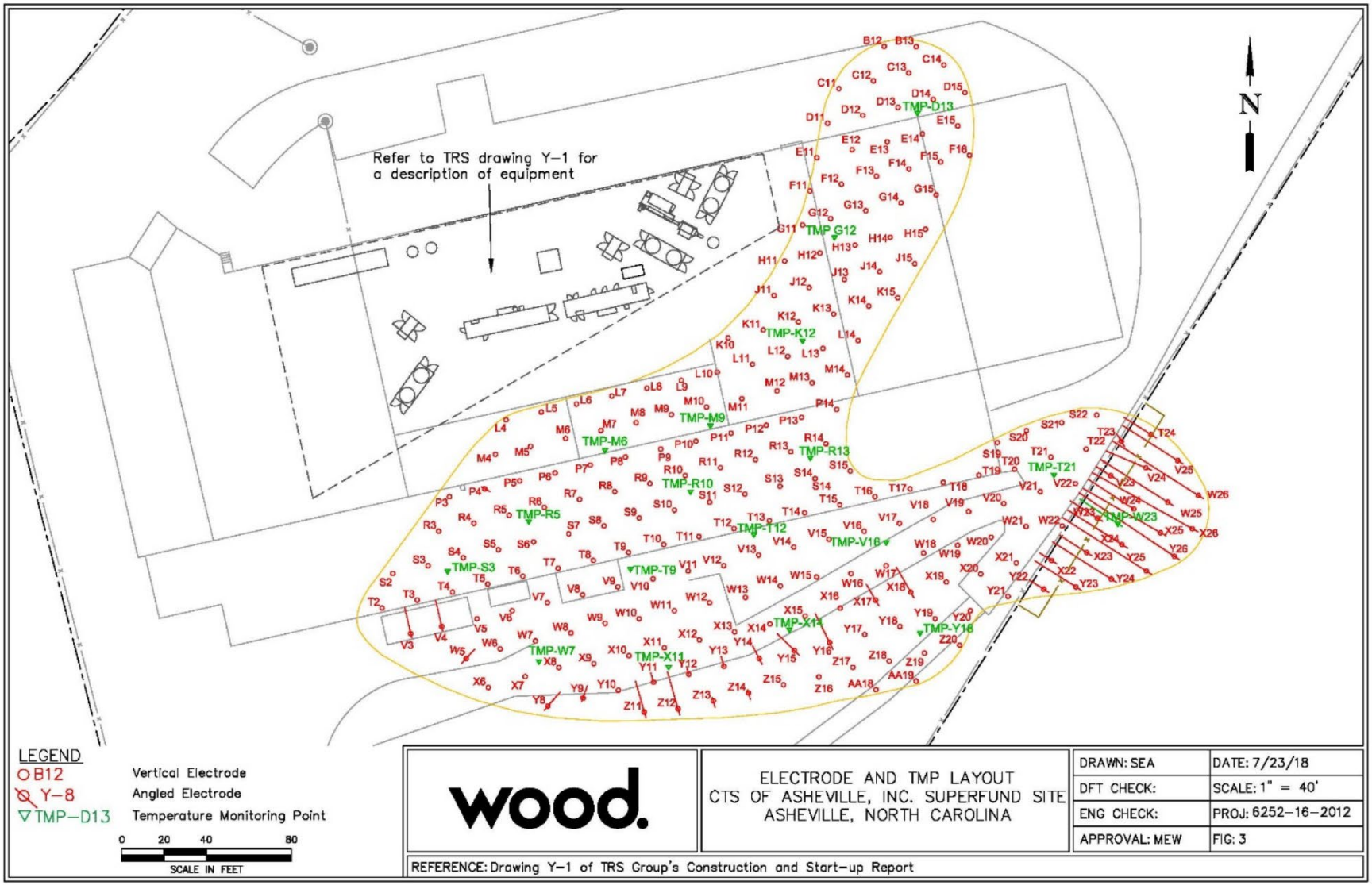
# APPENDIX D – SITE MAPS



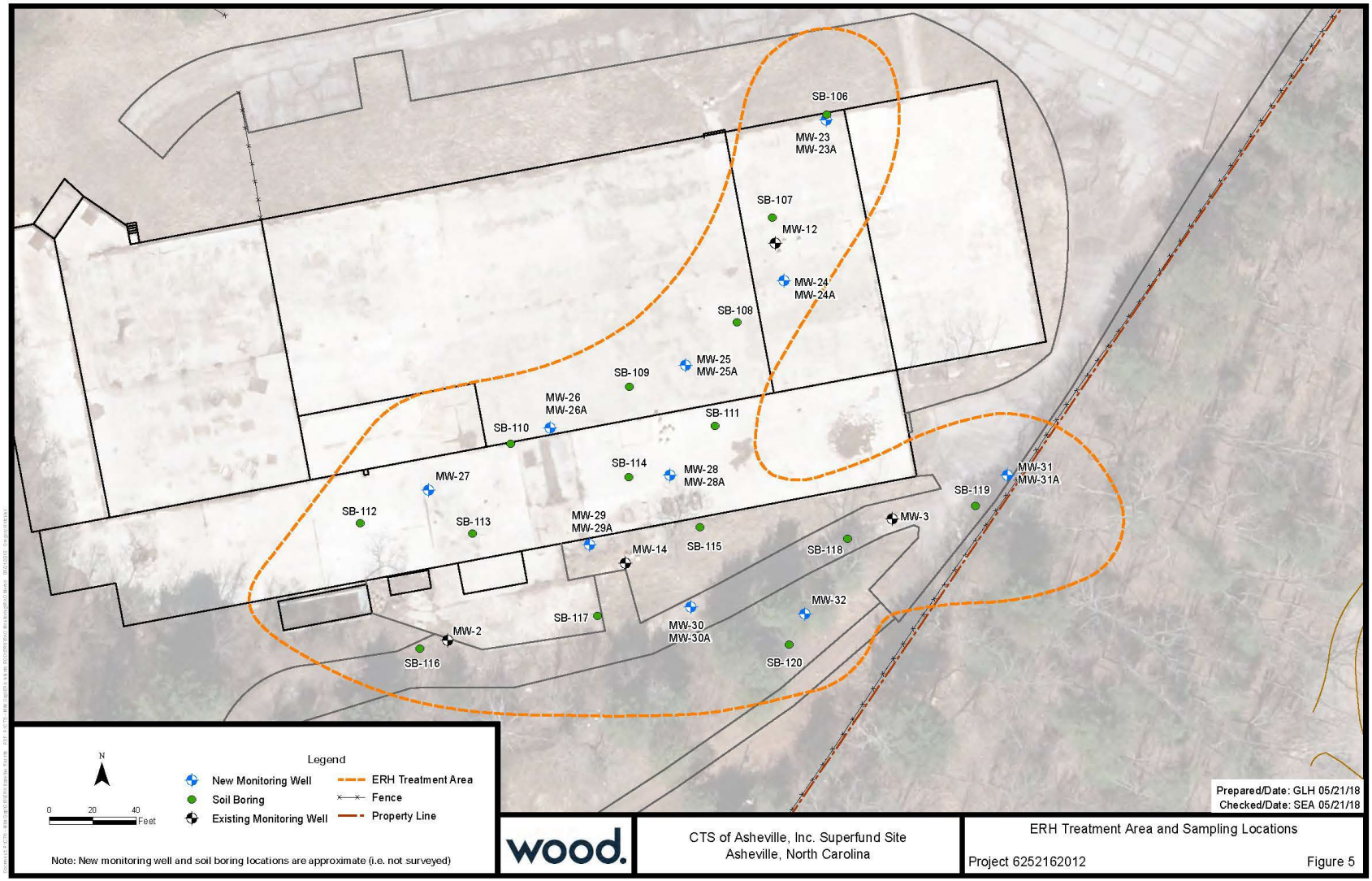

| | | | |
|---|---|---|---|
| **Wood Environment & Infrastructure Solutions, Inc.**<br>1308 Patton Ave Suite C<br>Asheville, NC, 28806<br>(828)252-8130 | TITLE: **Shallow Groundwater Elevation, Contour and Flow Map – June 28, 2021**<br>SITE: CTS of Asheville, Inc. Superfund Site<br>Asheville, North Carolina | wood. | CLIENT: **CTS Corporation**<br>DATE: 8/26/21 SCALE: 1:1,500 PROJ.: 6252-16-2012<br>DR: GLH CHK: MEW<br>LOCATION: P:\CTS - Mills Gap\GIS\Site Wide Monitoring<br>Figure **4** |

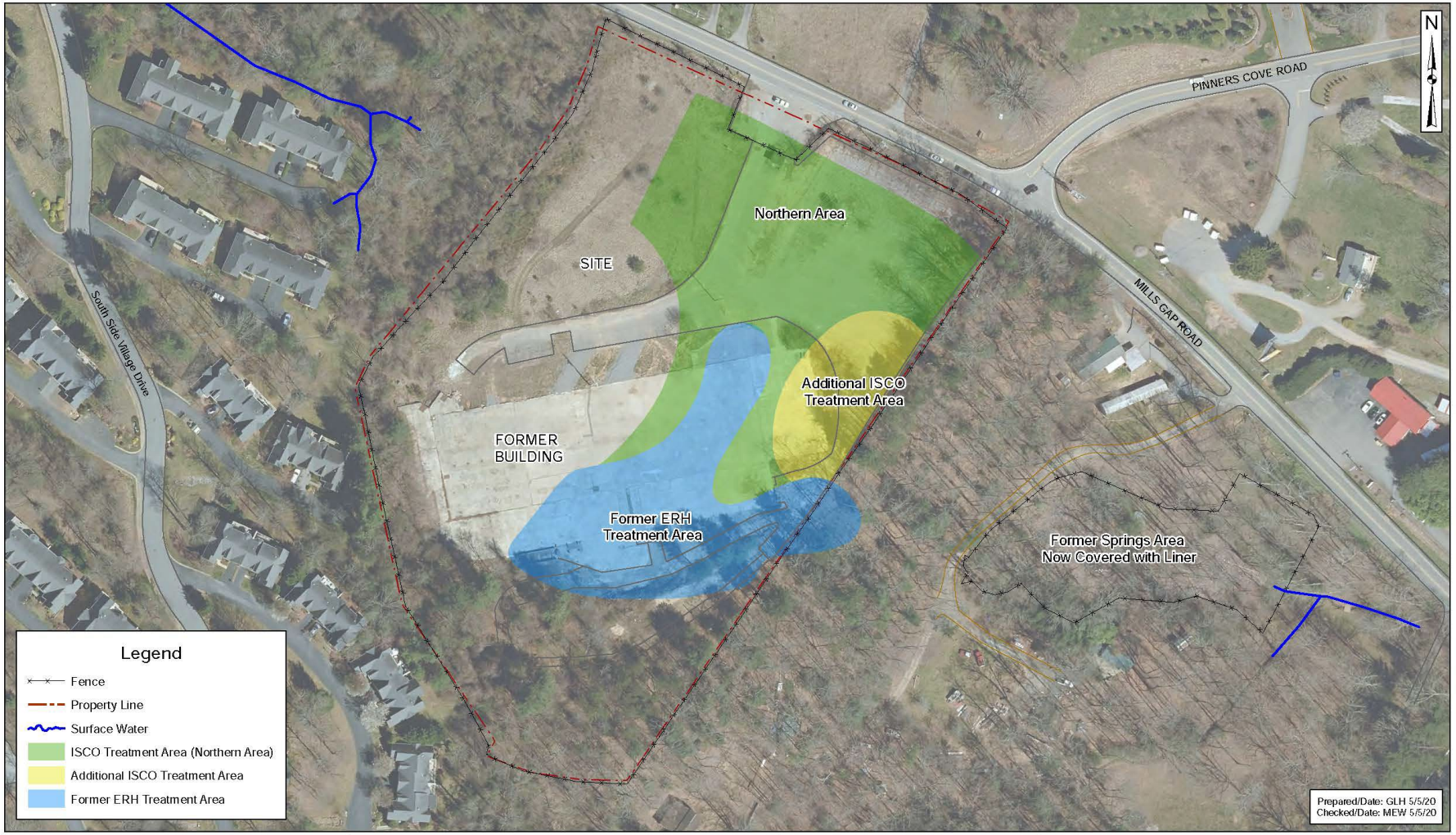



| | | | | |
|---|---|---|---|---|
| **Wood Environment & Infrastructure Solutions, Inc.**<br>1308 Patton Ave Suite C<br>Asheville, NC, 28806<br>(828)252-8130 | TITLE: **PWR Groundwater Elevation, Contour and Flow Map – June 28, 2021**<br>SITE: CTS of Asheville, Inc. Superfund Site<br>Asheville, North Carolina | wood. | CLIENT: **CTS**<br>DATE: 8/26/21 SCALE: 1:1,500 PROJ.: 6252-16-2012<br>DR: GLH CHK: MEW<br>LOCATION: P:\CTS - Mills Gap\GIS\Site Wide Monitoring | Figure 5 |


Refer to TRS drawing Y-1 for a description of equipment
N
TMP-D13
TMP-G12
TMP-K12
TMP-M9
TMP-M6
TMP-R13
TMP-R10
TMP-R5
TMP-T12
TMP-T21
TMP-V16
TMP-S3
TMP-T9
TMP-W23
TMP-X11
TMP-Y16
TMP-W7
TMP-X11
LEGEND
B12 Vertical Electrode
Y-8 Angled Electrode
TMP-D13 Temperature Monitoring Point
0 20 40 80
SCALE IN FEET
wood.
ELECTRODE AND TMP LAYOUT
CTS OF ASHEVILLE, INC. SUPERFUND SITE
ASHEVILLE, NORTH CAROLINA
DRAWN: SEA
DATE: 7/23/18
DFT CHECK:
SCALE: 1" = 40'
ENG CHECK:
PROJ: 6252-16-2012
APPROVAL: MEW
FIG: 3
REFERENCE: Drawing Y-1 of TRS Group's Construction and Start-up Report


AAS-20
PINNERS COVE ROAD
SILK TREE LANE
SITE
SOUTHSIDE VILLAGE LANE
JASMINE LANE
NODDING LANE
MILLS GAP ROAD
AAS-21
AAS-22
FORMER BUILDING
AAS-23
BUSBEE KNOLL
Prepared/Date: GLH 6/20/2018
Checked/Date: SEA 6/20/2018
Legend
Ambient Air Sampling/Monitoring Location
Spring
Fence
Property Line
0 60 120 Feet
wood.
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Ambient Air Sampling/Monitoring Locations
Project 6252162012
Figure 4


SB-106
MW-23
MW-23A
SB-107
MW-12
MW-24
MW-24A
SB-108
MW-25
MW-25A
SB-109
MW-26
MW-26A
SB-110
SB-111
SB-114
MW-28
MW-28A
MW-27
SB-112
SB-113
MW-29
MW-29A
MW-14
SB-115
MW-3
SB-118
SB-119
MW-31
MW-31A
MW-32
SB-117
MW-30
MW-30A
MW-2
SB-116
SB-120
N
0 20 40 Feet
Legend
New Monitoring Well
Soil Boring
Existing Monitoring Well
ERH Treatment Area
Fence
Property Line
Note: New monitoring well and soil boring locations are approximate (i.e. not surveyed)
wood.
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
ERH Treatment Area and Sampling Locations
Project 6252162012
Figure 5
Prepared/Date: GLH 05/21/18
Checked/Date: SEA 05/21/18




| | | | | |
|---|---|---|---|---|
| Wood Environment & Infrastructure Solutions, Inc.<br>1308 Patton Ave Suite C<br>Asheville, NC 28806<br>(828)252-8130 | Site Map and Treatment Areas<br>CTS of Asheville, Inc. Superfund Site<br>Asheville, North Carolina | wood. | 1 inch = 100 feet (0, 100, 200 Feet)<br>PROJ.: 6252162012<br>LOCATION: P:\CTS - Mills Gap\GIS\ISCO | Figure<br>2 |


MILLS GAP ROAD
N
MW-33A
MW-33
MW-7A
MW-35A
MW-35
MW-19
MW-19A
MW-34A
MW-34
MW-6A
MW-6
MW-36A
MW-36
MW-37A
MW-37
Legend
Fence
Property Line
Emplacement Well (EPW) Location
ISCO Performance Monitoring Well Location
ISCO Treatment Area (Northern Area)
Additional ISCO Treatment Area
wood.
ISCO Emplacement and Monitoring Well Locations
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
0 20 40 80
Feet
Figure 3
Project 6252162012
Drawn By: GLH 5/5/20
Approved By: MEW 5/5/20


| | | | | |
|---|---|---|---|---|
| Wood Environment & Infrastructure Solutions, Inc.<br>1308 Patton Ave Suite C<br>Asheville, NC 28806<br>(828)252-8130 | Detection Monitoring Well Locations<br>CTS of Asheville, Inc. Superfund Site<br>Asheville, North Carolina | wood. | 1 inch = 100 feet (0, 100, 200 Feet)<br>PROJ.: 6252162012<br>LOCATION: P:\CTS - Mills Gap\GIS\MXD | Figure<br>4 |


wood.

TITLE: OCTOBER 2021 SAMPLING LOCATIONS
CTS OF ASHEVILLE, INC. SUPERFUND SITE
235 MILLS GAP ROAD
ASHEVILLE, NORTH CAROLINA

Although every effort has been made to ensure the accuracy of information, errors and conditions originating from the physical sources used to develop the database may be reflected in the data supplied. The requestor must be aware of data conditions and ultimately bear responsibility for the appropriate use of this information with respect to possible errors, original map scale, collection methodology, currency of data, and other conditions specific to certain data.

| | |
|---|---|
| PREPARED BY: G. HUTCHINS DATE: 11/10/2021 | PROJECT NUMBER: 6252-16-2012 |
| CHECKED BY: M. WALLACE DATE: 11/10/2021 | MAP PROJECTION: NC State Plane (NAD83, feet) |
| Document Path: P:\CTS - Mills Gap\GIS\WI Report\Sample Locations 2021.mxd | |

Figure No.
3

# APPENDIX E – PUBLIC NOTICE

# APPENDIX F – INTERVIEW FORMS

| CTS of ASHEVILLE SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM | |
|---|---|
| **Site Name: CTS of Asheville** | |
| **EPA ID: NCD003149556** | |
| **Interviewer name:** | **Interviewer affiliation:** |
| **Subject name: Beth Hartzell** | **Subject affiliation: NCDEQ RPM** |
| **Subject contact information: beth.hartzell@ncdenr.gov** | |
| **Interview date: 9/16/22** | **Interview time:** |
| **Interview location:** | |
| **Interview format (circle one):** In Person Phone Mail ***Email*** Other: | |
| **Interview category:** State Agency | |

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)? The remediation at the site is progressing well, as planned.

2. What is your assessment of the current performance of the remedy in place at the Site? The remedy is performing as expected and is going well.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years? Not really.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities. No.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy? No.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues? I do not believe Land Use Restrictions have been put in place for the site.

7. Are you aware of any changes in projected land use(s) at the Site? No.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy? No.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report? Yes.

| CTS of ASHEVILLE SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM | |
|---|---|
| **Site Name: CTS of Asheville** | |
| **EPA ID: NCD003149556** | |
| **Interviewer name:** | **Interviewer affiliation:** |
| **Subject name: Andrew Warren** | **Subject affiliation: CTS Corporation** |
| **Subject contact information: andrew.warren@ctscorp.com** | |
| **Interview date: September 28, 2022** | **Interview time:** |
| **Interview location: Email** | |
| **Interview format (circle one):** In Person Phone Mail ***Email*** Other: | |
| **Interview category:** Potentially Responsible Party (PRP) | |

1. What is your overall impression of the remedial activities at the Site? Remedial activities have been successful and have proceeded, or are proceeding, on schedule.

2. What have been the effects of this Site on the surrounding community, if any? The surrounding community was very engaged prior to the selection of the interim remedy, with well-attended public meetings and community interest groups. Since implementation of the interim remedy, however, perhaps due in part to the steady site progress, community engagement has been less vocal.

3. What is your assessment of the current performance of the remedy in place at the Site? The current remedy in place at the Site is performing well. The ERH interim remedial action was successfully completed and the ISCO phase is making good progress.

4. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup? There have been very few inquiries from the community or individuals potentially moving to the community about the Site's environmental issues. Community members attended EPA community meetings on and off the Site during the interim remedial actions over the past five years. A very limited number of nearby residents historically complained about the speed of the remedial action implementation, but there has been minimal feedback since implementation of the remedial action. The nearby residents' concerns have been addressed by EPA.

5. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future? The activity and remedial progress at the Site are well reported and distributed.

6. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy? No.

7. Do you consent to have your name included along with your responses to this questionnaire in the FYR report? Yes.

| CTS of ASHEVILLE SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM | |
|---|---|
| **Site Name: CTS of Asheville** | |
| **EPA ID: NCD003149556** | |
| **Interviewer name:** | **Interviewer affiliation:** |
| **Subject name: Matthew Wallace** | **Subject affiliation: Wood E&IS** |
| **Subject contact information: matthew.wallace@woodplc.com** | |
| **Interview date: September 28, 2022** | **Interview time:** |
| **Interview location: Email** | |
| **Interview format (circle one):** In Person Phone Mail ***Email*** Other: | |
| **Interview category:** O&M Contractor | |

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)? Site cleanup and maintenance activities are proceeding well.

2. What is your assessment of the current performance of the remedy in place at the Site? Remedy is appropriate and performing well.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site? Monitoring data with declining contaminant trends (groundwater, surface water and air) indicate remedy is effectively controlling and reducing the contamination at the Site.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence. O&M presence is part time, with remote telemetry monitoring/notifications of Eastern Springs Vapor Capture and Removal System operational status. In general, staff visit the Site at least every two weeks to perform System O&M, Site inspections, monitoring/sampling, etc.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts. Since start up, the Springs System vapor phase carbon replacement cycle was modified from 90 days to 60 days, and then back to 90 days as a result of evaluating influent air concentrations. In addition, the number and size of the vapor phase carbon drums was increased from three 55-gallon drums to four 85-gallon drums. These adjustments were made to provide continued effective and conservative treatment of the recovered air/vapors. There have not been significant changes to the approved sampling routines in the past five years.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details. There have not been any significant unexpected O&M difficulties or costs related to the Springs System since start-up or in the last 5 years. The modifications and adjustments to the Springs System O&M described in Item 5 above are not considered significant. There were difficulties during the performance of the electrical resistance heating (ERH) remedial action when the Site received record rainfall which resulted in elevated

groundwater levels. The ERH contractor made adjustments to the ERH system such as equipment modifications and additional vapor extraction wells which allowed for the successful completion of the remedial effort.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies. There have not been any opportunities for optimizing O&M activities. There have been opportunities for optimizing sampling/monitoring activities such as concurrently performing semi-annual Site-Wide and ISCO groundwater monitoring, as well as performing water supply monitoring at the same time once per year.

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site? Not at this time.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

| CTS of Asheville, Inc. SUPERFUND SITE<br>2022 FIVE-YEAR REVIEW INTERVIEW FORM | |
|---|---|
| **Site Name: CTS of Asheville, Inc.** | |
| **EPA ID: NCD003149556** | |
| **Interviewer name: Angela Miller** | **Interviewer affiliation: USEPA Region 4** |
| **Interview category: Resident** | |

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date? Yes

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)? It was slow getting started, due to many factors (some mentioned below), but once it got started it seems to have been successful. Our TAG-funded technical advisor was a godsend. He helped us interpret and understand the technical reports and was great at guiding us on requesting the most feasible next-steps.

3. What have been the effects of this Site on the surrounding community, if any? In addition to cancers and diseases likely caused by the TCE migrating from the site, EPA involvement was controversial. This caused a rift in the community with some community members vehemently opposed to EPA, while others realized the benefits of developing a professional working relationship with the one federal agency with the power to compel mitigation of the Site. Some community members who worked collaboratively with the EPA were bullied, intimidated and even threatened. Fortunately, this did not stop the cleanup.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing? Before the building was removed, it was vandalized, and there was common knowledge of frequent trespassing on the site. Trespassing might still occur, but I'm not aware of it.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future? Yes, we have been kept informed. Again, our technical advisor was great at helping us understand what was going on. I'd recommend that all communities impacted by a Superfund Site acquire a trusted TA. As far as providing future information: It seems important to make sure the online information specifically related to this Site is accurate and up-to-date; also pushing emails a couple of times per year might be helpful.

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation? Community involvement is crucial. However, from what I understand, our Site is a bit unique because of the effort of some in the community to present false rhetoric and lies about the Technical Assistance Grant, the data that was gathered by EPA contractors, and those who developed a working relationship with the agency. This made the jobs of both the agency and the community group working for cleanup very challenging. Community-driven meetings with Q&A sessions and EPA reps in attendance are a good way to provide Site-related information. However, when there is contentiousness to the degree that we experienced, it is very difficult-when we attempted community meetings, there was lots of grandstanding and false rhetoric from those who opposed EPA involvement. I will say that developing one-to-one, human interactions are crucial, and Angela and her team worked hard at this even though they were met with strong resistance from some.

| CTS of Asheville, Inc. SUPERFUND SITE<br>2022 FIVE-YEAR REVIEW INTERVIEW FORM | |
|---|---|
| **Site Name: CTS of Asheville, Inc.** | |
| **EPA ID: NCD003149556** | |
| **Interviewer name: Angela Miller** | **Interviewer affiliation: USEPA Region 4** |
| **Interview category: Resident** | |

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date? Yes, I have been an owner in Southside Village (SSV) for over 18 years and served on the SSV Board of Directors during the period of time from investigation to remediation. As a citizen of Asheville, I was a regional community leader serving on a local committee of Buncombe County residents who came together to drive the mission and goals of the EPA through our connections with our neighbors and local businesses: CTS Superfund Community Advisory Group.

2. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)? The entire project took years to complete but it was executed with professional, strategic steps that reflected the knowledge of EPA administrators and field operators from investigation to remediation. Through Angela Miller's efforts, comprehensive communication by the EPA was provided through information bulletins, group emails, newspaper interviews and community meetings. Our community members were given phone/email access so anyone at any time could contact the EPA for information. The EPA site team for the Asheville CTS site met with the SSV Board of Directors as needed or requested. The EPA website was regularly updated with pertinent information regarding the action plan and timeline for all activities at the site and in the greater community. Timely, scheduled soil, water and air testing was provided on SSV property throughout the years of the project. Those reports were also reported the SSV owners.

   At a community meeting Craig Zeller outlined the technical cleanup strategy through graphics with honesty and in layman terms leaving county residents with great hope for success. The cleanup process was very smooth and communication to neighborhoods was thorough. The EPA reps continue to visit SSV when checking the monitoring sites installed on the property.

   The reuse phase has not been introduced to SSV.

3. What have been the effects of this Site on the surrounding community, if any? SSV has benefitted from the activities the EPA has engaged during the cleanup of the CTS of Asheville NC Inc. superfund site. The owners appreciate the fact that the superfund site went through a final EPA cleanup process eliminating any stigma of contamination in SSV that could be associated with the CTS site as it adjoins our community. All EPA records of testing (air, water and soil) in SSV are open to the public.

4. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing? Activities listed above were actionable before the site was cleaned up. One of the reasons the SSV Board of Directors decided to install an entry gate in SSV was to stop entry into the community by those staying overnight in the factory. Their access was through a hole in the fence between the SSV community and the CTS site. Once the building was removed the other activities ceased.

5. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future? There has not been communication from the EPA once the final cleanup process was completed and reports provided. I am of the opinion that the SSV Board would benefit from a meeting or an information bulletin updating the governing Board and owners. The SSV Board members need to know where all the monitoring sites are in SSV, how/when they are being monitored and results of findings over the last few years. Any other pertinent information would also be valuable.

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation? The EPA's mission and goals moved very rapidly to the end goal of remediation once Angela Miller and Craig Zeller were assigned to the CTS of Asheville NC Inc. site. Concluding reports were thorough and left me with no questions for the EPA. The questions remain with the county in the reuse of the property.

# APPENDIX G – SITE INSPECTION CHECKLIST

## FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

### I. SITE INFORMATION

| | |
|---|---|
| **Site Name: CTS of Asheville, Inc.** | **Date of Inspection: 8/30/2022** |
| **Location and Region: Asheville, North Carolina, Region 4** | **EPA ID: NCD003149556** |
| **Agency, Office or Company Leading the Five-Year Review:** EPA Region 4 | **Weather/Temperature:** 85 degrees, overcast |

**Remedy Includes**: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☒ Other: Removal and interim remedial features: Air sparging and vapor mitigation, ERH, ISCO, monitoring

**Attachments:** ☐ Inspection team roster attached ☐ Site map attached

### II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone No.
Problems/suggestions ☐ Report attached: _____

4. **Other Interviews** (optional) ☐ Report attached: _____

**III. ON-SITE DOCUMENTS AND RECORDS VERIFIED** (check all that apply)

1. **O&M Documents**

| | | | |
|---|---|---|---|
| ☒ O&M manual | ☒ Readily available | ☒ Up to date | ☐ N/A |
| ☒ As-built drawings | ☒ Readily available | ☒ Up to date | ☐ N/A |
| ☒ Maintenance logs | ☒ Readily available | ☒ Up to date | ☐ N/A |

Remarks: _____

2. **Site-Specific Health and Safety Plan** ☒ Readily available ☒ Up to date ☐ N/A

☒ Contingency plan/emergency response plan ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

3. **O&M and OSHA Training Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

4. **Permits and Service Agreements**

| | | | |
|---|---|---|---|
| ☐ Air discharge permit | ☐ Readily available | ☐ Up to date | ☒ N/A |
| ☐ Effluent discharge | ☐ Readily available | ☐ Up to date | ☒ N/A |
| ☐ Waste disposal, POTW | ☐ Readily available | ☐ Up to date | ☒ N/A |
| ☐ Other permits: _____ | ☐ Readily available | ☐ Up to date | ☒ N/A |

Remarks: _____

5. **Gas Generation Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

6. **Settlement Monument Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

7. **Groundwater Monitoring Records** ☒ Readily available ☒ Up to date ☐ N/A

Remarks: _____

8. **Leachate Extraction Records** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

9. **Discharge Compliance Records**

| | | | |
|---|---|---|---|
| ☐ Air | ☐ Readily available | ☐ Up to date | ☒ N/A |
| ☐ Water (effluent) | ☐ Readily available | ☐ Up to date | ☒ N/A |

Remarks: _____

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

## IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for state

☐ PRP in-house ☒ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

☐ _____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place ☒ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

| | | | |
|---|---|---|---|
| From: _____ Date | To: _____ Date | _____ Total cost | ☐ Breakdown attached |
| From: _____ Date | To: _____ Date | _____ Total cost | ☐ Breakdown attached |
| From: _____ Date | To: _____ Date | _____ Total cost | ☐ Breakdown attached |
| From: _____ Date | To: _____ Date | _____ Total cost | ☐ Breakdown attached |
| From: _____ Date | To: _____ Date | _____ Total cost | ☐ Breakdown attached |

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

## V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

### A. Fencing

1. **Fencing Damaged** ☒ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: _____

### B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☒ N/A

Remarks: _____

### C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☒ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☒ N/A

Type of monitoring (e.g., self-reporting, drive by): _____

Frequency: _____

Responsible party/agency: _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☐ Yes ☐ No ☒ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A

Violations have been reported ☐ Yes ☐ No ☒ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☒ N/A

Remarks: _____

**D. General**

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

Remarks: _____

3. **Land Use Changes Off Site** ☐ N/A

Remarks: Mills Gap Road is being widened and fencing will be temporarily relocated to allow access.

## VI. GENERAL SITE CONDITIONS

**A. Roads** ☐ Applicable ☒ N/A

1. **Roads Damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

Remarks: _____

**B. Other Site Conditions**

Remarks: _____

## VII. LANDFILL COVERS ☐ Applicable ☒ N/A

**A. Landfill Surface**

1. **Settlement** (low spots) ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident

Lengths: _____ Widths: _____ Depths: _____

Remarks: _____

| | | | |
|---|---|---|---|
| 3. | **Erosion** | ☐ Location shown on site map | ☐ Erosion not evident |
| | Area extent: _____ | | Depth: _____ |
| | Remarks: _____ | | |
| 4. | **Holes** | ☐ Location shown on site map | ☐ Holes not evident |
| | Area extent: _____ | | Depth: _____ |
| | Remarks: _____ | | |
| 5. | **Vegetative Cover** | ☐ Grass | ☐ Cover properly established |
| | ☐ No signs of stress | ☐ Trees/shrubs (indicate size and locations on a diagram) | |
| | Remarks: _____ | | |
| 6. | **Alternative Cover** (e.g., armored rock, concrete) | | ☐ N/A |
| | Remarks: _____ | | |
| 7. | **Bulges** | ☐ Location shown on site map | ☐ Bulges not evident |
| | Area extent: _____ | | Height: _____ |
| | Remarks: _____ | | |
| 8. | **Wet Areas/Water Damage** | ☐ Wet areas/water damage not evident | |
| | ☐ Wet areas | ☐ Location shown on site map | Area extent: _____ |
| | ☐ Ponding | ☐ Location shown on site map | Area extent: _____ |
| | ☐ Seeps | ☐ Location shown on site map | Area extent: _____ |
| | ☐ Soft subgrade | ☐ Location shown on site map | Area extent: _____ |
| | Remarks: _____ | | |
| 9. | **Slope Instability** | ☐ Slides | ☐ Location shown on site map |
| | ☐ No evidence of slope instability | | |
| | Area extent: _____ | | |
| | Remarks: _____ | | |
| **B. Benches** | | ☐ Applicable | ☐ N/A |
| | (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.) | | |
| 1. | **Flows Bypass Bench** | ☐ Location shown on site map | ☐ N/A or okay |
| | Remarks: _____ | | |
| 2. | **Bench Breached** | ☐ Location shown on site map | ☐ N/A or okay |
| | Remarks: _____ | | |
| 3. | **Bench Overtopped** | ☐ Location shown on site map | ☐ N/A or okay |
| | Remarks: _____ | | |
| **C. Letdown Channels** | | ☐ Applicable | ☐ N/A |
| | (Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill | | |

cover without creating erosion gullies.)

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ No evidence of settlement
   Area extent: _____ Depth: _____
   Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
   Material type:_____ Area extent: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
   Area extent: _____ Depth: _____
   Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
   Area extent: _____ Depth: _____
   Remarks: _____

5. **Obstructions** Type: _____ ☐ No obstructions
   ☐ Location shown on site map Area extent: _____
   Size: _____
   Remarks: _____

6. **Excessive Vegetative Growth** Type: _____
   ☐ No evidence of excessive growth
   ☐ Vegetation in channels does not obstruct flow
   ☐ Location shown on site map Area extent: _____
   Remarks: _____

**D. Cover Penetrations** ☐ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

2. **Gas Monitoring Probes**
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
   Remarks: _____

4. **Extraction Wells Leachate**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A
Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks: _____

**E. Gas Collection and Treatment** ☐ Applicable ☐ N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs maintenance
Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs maintenance
Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs maintenance ☐ N/A
Remarks: _____

**F. Cover Drainage Layer** ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
Remarks: _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks: _____

**G. Detention/Sedimentation Ponds** ☐ Applicable ☐ N/A

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A
☐ Siltation not evident
Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____
☐ Erosion not evident
Remarks: _____

3. **Outlet Works** ☐ Functioning ☐ N/A
Remarks: _____

4. **Dam** ☐ Functioning ☐ N/A
Remarks: _____

**H. Retaining Walls** ☐ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement: _____ Vertical displacement: _____
Rotational displacement: _____

Remarks: _____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident

Remarks: _____

**I. Perimeter Ditches/Off-Site Discharge** ☐ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

☐ Vegetation does not impede flow

Area extent: _____ Type: _____

Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Area extent: _____ Depth: _____

Remarks: _____

4. **Discharge Structure** ☐ Functioning ☐ N/A

Remarks: _____

**VIII. VERTICAL BARRIER WALLS** ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Performance Monitoring** Type of monitoring: _____

☐ Performance not monitored

Frequency: _____ ☐ Evidence of breaching

Head differential: _____

Remarks: _____

**IX. GROUNDWATER/SURFACE WATER REMEDIES** ☐ Applicable ☒ N/A

**A. Groundwater Extraction Wells, Pumps and Pipelines** ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing and Electrical**

☐ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A

Remarks: _____

2. **Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Spare Parts and Equipment**

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: _____

**B. Surface Water Collection Structures, Pumps and Pipelines** ☐ Applicable ☐ N/A

1. **Collection Structures, Pumps and Electrical**

   ☐ Good condition ☐ Needs maintenance

   Remarks: _____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances**

   ☐ Good condition ☐ Needs maintenance

   Remarks: _____

3. **Spare Parts and Equipment**

   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

   Remarks: _____

**C. Treatment System** ☐ Applicable ☐ N/A

1. **Treatment Train** (check components that apply)

   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

   ☐ Air stripping ☐ Carbon adsorbers

   ☐ Filters: _____

   ☐ Additive (e.g., chelation agent, flocculent): _____

   ☐ Others: _____

   ☐ Good condition ☐ Needs maintenance

   ☐ Sampling ports properly marked and functional

   ☐ Sampling/maintenance log displayed and up to date

   ☐ Equipment properly identified

   ☐ Quantity of groundwater treated annually: _____

   ☐ Quantity of surface water treated annually: _____

   Remarks: _____

2. **Electrical Enclosures and Panels** (properly rated and functional)

   ☐ N/A ☐ Good condition ☐ Needs maintenance

   Remarks: _____

3. **Tanks, Vaults, Storage Vessels**

   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance

   Remarks: _____

4. **Discharge Structure and Appurtenances**

   ☐ N/A ☐ Good condition ☐ Needs maintenance

   Remarks: _____

5. **Treatment Building(s)**

   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair

   ☐ Chemicals and equipment properly stored

Remarks: _____

6. **Monitoring Wells** (pump and treatment remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

**D. Monitoring Data**

1. **Monitoring Data**

☐ Is routinely submitted on time ☐ Is of acceptable quality

2. **Monitoring Data Suggests:**

☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

**E. Monitored Natural Attenuation**

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

## X. OTHER REMEDIES

If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

## XI. OVERALL OBSERVATIONS

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).

The interim remedy has been implemented and continues to be monitored for performance. If needed, additional ISCO injections will be implemented for groundwater. Upon achieving the interim remedy RAO, an RI/FS will be performed in support of a final remedy decision.

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Long-term O&M will be determined once the final remedy is selected and implemented. In the interim, the removal action vapor system is operating and maintained.

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

None

**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None noted.

# APPENDIX H – SITE INSPECTION PHOTOS

Site fencing and gate


Site signage, inside fencing

Remaining slab of former building

Electrical Resistance Heating Point

Eastern Springs Vapor Capture and Removal System

Fencing and polyethylene cover at eastern springs area

Fencing and polyethylene cover at eastern springs area

Groundwater monitoring wells

# APPENDIX I – DATA TABLES

## Table I-1: Springs Area Air Monitoring

**TABLE 2**
**Summary of October 2021 and Historical Air Laboratory Analytical Results with Risk Assessment Evaluation Summary ("Springs Area" Residences)**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

**AMBIENT AIR SAMPLES**

| Location | Date | Sample ID | TCE | cis-1,2-DCE | trans-1,2-DCE | VC |
|---|---|---|---|---|---|---|
| Upwind of 261/271 Mills Gap Road | 4/24/2014 | AAS-03 | 2.2 | 0.49 | <0.011 | <0.011 |
| Between springs and 261/271 Mills Gap Road | 4/24/2014 | AAS-06 | 3.6 | 0.83 | 0.011 J | <0.011 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/24/2014 | FD-04 (AAS-06) | 3.7 | 0.85 | 0.013 J | <0.011 |
| Between springs and 261/271 Mills Gap Road | 10/24/2014 | AAS-06 | 0.50 | 0.83 | 0.011 J | 0.018 J |
| Between springs and 261/271 Mills Gap Road | 11/5/2014 | AAS-06 | 1.8 | 3.3 | 0.033 J | 0.11 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 11/5/2014 | FD-13 (AAS-06) | 1.9 | 3.4 | 0.036 | 0.12 |
| Between springs and 261/271 Mills Gap Road | 1/14/2015 | AAS-06 | 0.67 | 0.92 | 0.010 J | 0.056 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 1/14/2015 | FD-14 (AAS-06) | 0.86 | 1.1 | 0.010 J | 0.061 |
| Between springs and 261/271 Mills Gap Road | 2/19/2015 | AAS-06 | 0.96 | 1.2 | 0.013 J | 0.025 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 2/19/2015 | FD-19 (AAS-06) | 1.1 | 1.3 | 0.013 J | 0.027 J |
| Between springs and 261/271 Mills Gap Road | 4/16/2015 | AAS-06 | 0.93 J | 1.1 | <0.019 | 0.16 |
| Between springs and 261/271 Mills Gap Road | 7/16/2015 | AAS-06 | 0.20 | 0.26 | <0.013 | <0.013 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/16/2015 | FD-26 (AAS-06) | 0.21 | 0.26 | <0.013 | 0.028 J |
| Between springs and 261/271 Mills Gap Road | 10/21/2015 | AAS-06 | 2.4 | 3.1 | 0.035 | 0.062 |
| Between springs and 261/271 Mills Gap Road | 11/21/2015 | AAS-06 | 7.7 | 6.0 | 0.047 | 0.057 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 11/21/2015 | FD-29 (AAS-06) | 9.2 | 7.1 | 0.057 | 0.066 |
| Between springs and 261/271 Mills Gap Road | 12/2/2015 | AAS-06 | 2.65 | 1.16 | <0.0793 | <0.0511 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 12/2/2015 | FD-30 (AAS-06) | 2.59 | 1.13 | <0.0793 | <0.0511 |
| Between springs and 261/271 Mills Gap Road | 1/13/2016 | AAS-06 | 0.73 | 0.45 | <0.016 | <0.017 |
| Between springs and 261/271 Mills Gap Road | 4/13/2016 | AAS-06 | 1.7 J | 1.2 J | <0.014 | <0.014 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/13/2016 | FD-34 (AAS-06) | 0.19 J | 0.12 J | <0.0091 | <0.0094 |
| Between springs and 261/271 Mills Gap Road | 7/13/2016 | AAS-06 | 1.2 | 1.2 | 0.016 J | 0.014 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/13/2016 | FD-35 (AAS-06) | 1.2 | 1.2 | 0.016 J | <0.013 |
| Between springs and 261/271 Mills Gap Road | 9/29/2016 | AAS-06 | 1.1 | 1.7 | 0.021 J | <0.013 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 9/29/2016 | FD-38 (AAS-06) | 1.0 | 1.6 | 0.017 J | <0.012 |
| Between springs and 261/271 Mills Gap Road | 1/19/2017 | AAS-06 | 0.366 | 0.144 | <0.0793 | <0.0511 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 1/19/2017 | FD-40 (AAS-06) | 0.403 | 0.148 | <0.0793 | <0.0511 |
| Between springs and 261/271 Mills Gap Road | 4/13/2017 | AAS-06 | 1.1 | 0.49 | <0.012 | <0.012 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/13/2017 | FD-41 (AAS-06) | 1.2 | 0.51 | <0.011 | <0.012 |
| Between springs and 261/271 Mills Gap Road | 7/13/2017 | AAS-06 | 2.0 | 1.1 | 0.013 J | 0.016 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/13/2017 | FD-42 (AAS-06) | 2.1 | 1.1 | <0.018 | <0.018 |
| Between springs and 261/271 Mills Gap Road | 10/19/2017 | AAS-06 | R | R | R | R |
| Between springs and 261/271 Mills Gap Road (duplicate) | 10/19/2017 | FD-43 (AAS-06) | 2.3 | 0.81 | 0.016 J | 0.010 J |
| Between springs and 261/271 Mills Gap Road | 11/29/2017 | AAS-06 | 0.93 | 0.36 | <0.0096 | <0.010 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 11/29/2017 | FD-44 (AAS-06) | 0.93 | 0.35 | <0.011 | <0.011 |
| Between springs and 261/271 Mills Gap Road | 1/18/2018 | AAS-06 | 0.66 | 0.31 | <0.010 | <0.011 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 1/18/2018 | FD-45 (AAS-06) | 0.56 | 0.26 | <0.010 | <0.011 |
| Between springs and 261/271 Mills Gap Road | 4/12/2018 | AAS-06 | 2.0 | 0.88 | <0.011 | <0.011 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/12/2018 | FD-46 (AAS-06) | 2.1 | 0.92 | <0.011 | <0.012 |
| Between springs and 261/271 Mills Gap Road | 7/19/2018 | AAS-06 | 5.8 | 1.4 | 0.012 J | 0.015 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/19/2018 | FD-50 (AAS-06) | 5.9 | 1.4 | 0.014 J | 0.015 J |
| Between springs and 261/271 Mills Gap Road | 8/8/2018 | AAS-06 | 14 | 0.73 J | <0.13 | <0.096 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 8/8/2018 | FD-54 (AAS-06) | 14 | 0.76 J | <0.13 | <0.099 |
| Between springs and 261/271 Mills Gap Road | 8/16/2018 | AAS-06 | 4.12 | 0.901 | <0.0793 | <0.0511 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 8/16/2018 | FD-55 (AAS-06) | 3.44 | 0.711 | <0.0793 | <0.0511 |
| Between springs and 261/271 Mills Gap Road | 10/18/2018 | AAS-06 | 1.5 | 0.40 J | <0.012 | 0.18 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 10/18/2018 | FD-61 (AAS-06) | 1.5 | 0.43 J | <0.012 | <0.013 |
| Between springs and 261/271 Mills Gap Road | 1/17/2019 | AAS-06 | 0.99 | 0.33 | <0.012 | <0.012 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 1/17/2019 | FD-62 (AAS-06) | 0.98 | 0.33 | <0.011 | <0.012 |
| Between springs and 261/271 Mills Gap Road | 4/18/2019 | AAS-06 | 1.6 | 0.83 | 0.018 J | <0.012 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/18/2019 | FD-63 (AAS-06) | 1.6 | 0.87 | 0.017 J | <0.013 |
| Between springs and 261/271 Mills Gap Road | 7/18/2019 | AAS-06 | 1.4 | 0.68 | 0.010 J | 0.054 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/18/2019 | FD-64 (AAS-06) | 1.5 | 0.64 | 0.011 J | 0.031 J |
| Between springs and 261/271 Mills Gap Road | 10/24/2019 | AAS-06 | 1.5 | 1.0 | <0.0097 | 0.029 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 10/24/2019 | FD-65 (AAS-06) | 1.5 | 1.0 | <0.010 | 0.032 J |

**TABLE 2**
**Summary of October 2021 and Historical Air Laboratory Analytical Results with Risk Assessment Evaluation Summary ("Springs Area" Residences)**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

**AMBIENT AIR SAMPLES (continued)**

| Location | Date | Sample ID | TCE | cis-1,2-DCE | trans-1,2-DCE | VC |
|---|---|---|---|---|---|---|
| Between springs and 261/271 Mills Gap Road | 1/23/2020 | AAS 06 | 2.9 | 1.7 | 0.021 J | 0.046 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 1/23/2020 | FD-66 (AAS-06) | 3.0 | 1.8 | 0.022 J | 0.046 |
| Between springs and 261/271 Mills Gap Road | 2/13/2020 | AAS-06 | 0.44 | 0.23 | <0.035 | <0.035 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 2/13/2020 | FD-67 (AAS-06) | 0.45 | 0.23 | <0.084 | 0.012 J |
| Between springs and 261/271 Mills Gap Road | 4/16/2020 | AAS 06 | 0.19 | 0.05 | <0.031 | <0.031 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/16/2020 | FD-68 (AAS-06) | 0.26 | 0.04 | <0.035 | <0.035 |
| Between springs and 261/271 Mills Gap Road | 7/16/2020 | AAS-06 | 1.40 | 1.30 | 0.018 J | 0.023 J |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/16/2020 | FD-69 (AAS-06) | 1.59 | 1.47 | 0.020 J | 0.030 J |
| Between springs and 261/271 Mills Gap Road | 10/15/2020 | AAS 06 | 0.13 J | 0.15 J | 0.028 J | <0.084 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 10/15/2020 | FD-70 (AAS-06) | 0.39 J | 0.49 J | 0.029 J | <0.033 |
| Between springs and 261/271 Mills Gap Road | 1/21/2021 | AAS-06 | 0.27 | 0.15 | <0.011 | <0.011 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 1/21/2021 | FD-71 (AAS-06) | 0.27 | 0.16 | <0.010 | <0.010 |
| Between springs and 261/271 Mills Gap Road | 4/15/2021 | AAS-06 | 0.20 | 0.19 | <0.010 | <0.011 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 4/15/2021 | FD-72 (AAS-06) | 0.14 | 0.13 | <0.016 | <0.016 |
| Between springs and 261/271 Mills Gap Road | 7/21/2021 | AAS-06 | 0.39 | 0.52 | 0.011 J | <0.011 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 7/21/2021 | FD-73 (AAS-06) | 0.35 | 0.51 | 0.012 J | <0.010 |
| Between springs and 261/271 Mills Gap Road | 10/14/2021 | AAS-06 | 0.74 | 0.80 | <0.015 | <0.017 |
| Between springs and 261/271 Mills Gap Road (duplicate) | 10/14/2021 | FD-74 (AAS-06) | 0.76 | 0.88 | <0.014 | 0.023 J |
| Upwind of 275 Mills Gap Road | 4/24/2014 | AAS 04 | 6.4 | 1.3 | 0.017 J | <0.010 |
| Between springs and 275 Mills Gap Road | 8/7/2008 | MG-25-AMB2 | 8.60 | 2.29 | <0.264 | <0.171 |
| Between springs and 275 Mills Gap Road | 4/1/2009 | AA-1* | 15.87 | 3.12 J | <1.64 | <1.06 |
| Between springs and 275 Mills Gap Road | 4/24/2014 | AAS 05 | 16 | 3.5 | 0.036 J | 0.019 J |
| Between springs and 275 Mills Gap Road | 10/24/2014 | AAS 05 | 0.42 | 1.7 | 0.019 J | 0.038 J |
| Between springs and 275 Mills Gap Road | 11/5/2014 | AAS 05 | 1.9 | 6.1 | 0.055 | 0.15 |
| Between springs and 275 Mills Gap Road | 1/14/2015 | AAS-05 | 0.78 | 1.8 | 0.017 J | 0.032 J |
| Between springs and 275 Mills Gap Road | 2/19/2015 | AAS-05 | 0.15 | 0.19 | <0.0086 | 0.0097 J |
| Between springs and 275 Mills Gap Road | 4/16/2015 | AAS 05 | 1.6 | 2.2 | <0.047 | <0.049 J |
| Between springs and 275 Mills Gap Road | 7/16/2015 | AAS-05 | 0.80 | 1.6 | 0.020 | 0.079 |
| Between springs and 275 Mills Gap Road | 10/21/2015 | AAS-05 | 7.5 | 8.2 | 0.066 | 0.10 |
| Between springs and 275 Mills Gap Road | 11/21/2015 | AAS-05 | 5.6 | 4.5 | 0.035 | 0.034 J |
| Between springs and 275 Mills Gap Road | 12/7/2015 | AAS-05 | 6.51 | 3.20 | <0.0793 | 0.0573 |
| Between springs and 275 Mills Gap Road | 1/13/2016 | AAS-05 | 0.46 | 0.28 | <0.010 | <0.011 |
| Between springs and 275 Mills Gap Road | 4/13/2016 | AAS-05 | 0.25 | 0.15 | <0.0091 | <0.0095 |
| Between springs and 275 Mills Gap Road | 7/13/2016 | AAS-05 | 1.6 | 1.6 | 0.020 J | 0.016 J |
| Between springs and 275 Mills Gap Road | 9/29/2016 | AAS-05 | 2.7 | 2.8 | 0.027 J | 0.017 J |
| Between springs and 275 Mills Gap Road | 1/19/2017 | AAS-05 | 0.971 | 0.682 | <0.0793 | <0.0511 |
| Between springs and 275 Mills Gap Road | 4/13/2017 | AAS 05 | 2.8 | 1.4 | <0.0099 | 0.016 J |
| Between springs and 275 Mills Gap Road | 7/13/2017 | AAS-05 | 3.6 | 2.8 | 0.025 J | 0.023 J |
| Between springs and 275 Mills Gap Road | 10/19/2017 | AAS-05 | 4.8 | 2.1 | 0.023 J | 0.021 J |
| Between springs and 275 Mills Gap Road | 1/18/2018 | AAS 05 | 0.24 | 0.077 | <0.010 | <0.010 |
| Between springs and 275 Mills Gap Road | 4/12/2018 | AAS 05 | 3.5 | 1.7 | 0.015 J | 0.013 J |
| Between springs and 275 Mills Gap Road | 7/19/2018 | AAS-05 | 7.0 | 1.7 | 0.018 J | 0.015 J |
| Between springs and 275 Mills Gap Road | 8/8/2018 | AAS-05 | 13 | 2.1 | <0.12 | <0.095 |
| Between springs and 275 Mills Gap Road | 8/16/2018 | AAS 05 | 6.04 | 1.10 | <0.0793 | <0.0511 |
| Between springs and 275 Mills Gap Road | 10/18/2018 | AAS 05 | 2.4 | 0.90 | <0.012 | <0.013 |
| Between springs and 275 Mills Gap Road | 1/17/2019 | AAS-05 | 2.5 | 0.95 | 0.013 J | 0.014 J |
| Between springs and 275 Mills Gap Road | 4/18/2019 | AAS-05 | 4.1 | 2.1 | 0.028 J | 0.019 J |
| Between springs and 275 Mills Gap Road | 7/18/2019 | AAS-05 | 1.4 | 0.78 | 0.012 J | 0.018 J |
| Between springs and 275 Mills Gap Road | 10/24/2019 | AAS-05 | 4.2 | 2.9 | 0.020 J | 0.033 J |
| Between springs and 275 Mills Gap Road | 1/23/2020 | AAS-05 | 4.7 | 2.7 | 0.030 J | 0.051 |
| Between springs and 275 Mills Gap Road | 4/16/2020 | AAS-05 | 0.4 | 0.2 | <0.033 | 0.015 J |
| Between springs and 275 Mills Gap Road | 7/16/2020 | AAS-05 | 0.57 | 0.62 | <0.037 | <0.011 |
| Between springs and 275 Mills Gap Road | 10/15/2020 | AAS-05 | 2.2 | 3.7 | 0.045 | 0.027 J |
| Between springs and 275 Mills Gap Road | 1/21/2021 | AAS-05 | 0.49 | 0.44 | <0.011 | <0.011 |
| Between springs and 275 Mills Gap Road | 4/15/2021 | AAS-05 | 0.55 | 0.60 | <0.012 | 0.020 J |
| Between springs and 275 Mills Gap Road | 7/21/2021 | AAS-05 | 0.28 | 0.41 | 0.011 J | <0.011 |
| Between springs and 275 Mills Gap Road | 10/14/2021 | AAS-05 | 1.9 | 2.7 | <0.015 | 0.027 J |

**TABLE 2**
**Summary of October 2021 and Historical Air Laboratory Analytical Results with Risk Assessment Evaluation Summary ("Springs Area" Residences)**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

**CRAWLSPACE AIR SAMPLES**

| Address | Date | Sample ID | TCE | cis-1,2-DCE | trans-1,2-DCE | VC |
|---|---|---|---|---|---|---|
| 261 Mills Gap Road | 12/13/2007 | MGSC23 | 2.63 | 0.860 | <0.198 | <0.128 |
| 261 Mills Gap Road | 4/24/2014 | CAS-06 | 10 | 0.26 | <0.012 | <0.012 |
| 261 Mills Gap Road (duplicate) | 4/24/2014 | FD-05 (CAS-06) | 10 | 0.26 | <0.010 | <0.011 |
| 261 Mills Gap Road | 11/5/2014 | CAS-06 | 0.47 | 1.1 | 0.015 J | 0.040 |
| 261 Mills Gap Road | 1/14/2015 | CAS-06 | 0.18 | 0.24 | <0.0081 | 0.0099 J |
| 261 Mills Gap Road | 2/19/2015 | CAS-06 | 0.11 | 0.097 | <0.0090 | <0.0095 |
| 261 Mills Gap Road (duplicate) | 2/19/2015 | FD-20 (CAS-06) | 0.10 | 0.097 | <0.011 | <0.011 |
| 261 Mills Gap Road | 4/16/2015 | CAS-06 | 0.52 | 0.62 | <0.0098 | 0.042 |
| 261 Mills Gap Road | 12/2/2015 | CAS-06 | 0.893 | 0.376 | <0.0793 | <0.0511 |
| 271 Mills Gap Road | 4/24/2014 | CAS-04 | 2.3 | 0.54 | <0.011 | <0.012 |
| 271 Mills Gap Road | 11/5/2014 | CAS-04 | 0.85 | 2.1 | 0.031 J | 0.079 |
| 271 Mills Gap Road | 1/14/2015 | CAS-04 | 0.36 | 0.51 | <0.0079 | 0.021 J |
| 271 Mills Gap Road | 2/19/2015 | CAS-04 | 0.45 J | 0.59 J | 0.0080 J | 0.014 J |
| 271 Mills Gap Road | 4/16/2015 | CAS-04 | 0.32 | 0.38 | 0.29 | 0.031 J |
| 275 Mills Gap Road | 12/13/2007 | MGSC25 | 20.3 | 5.67 | <0.198 | <0.128 |
| 275 Mills Gap Road | 8/7/2008 | MGSC25 | 7.42 | 1.53 | <0.264 | <0.171 |
| 275 Mills Gap Road | 4/24/2014 | CAS-05 | 14 | 2.7 | 0.034 J | 0.013 J |
| 275 Mills Gap Road | 11/5/2014 | CAS-05 | 1.5 | 4.7 | 0.050 | 0.084 |
| 275 Mills Gap Road | 1/14/2015 | CAS-05 | 0.40 | 0.74 | <0.0083 | 0.010 J |
| 275 Mills Gap Road | 2/19/2015 | CAS-05 | 0.13 | 0.16 | <0.0092 | <0.0098 |
| 275 Mills Gap Road | 4/16/2015 | CAS-05 | 0.33 | 0.37 | <0.010 | <0.011 |
| 275 Mills Gap Road | 12/2/2015 | CAS-05 | 4.10 | 1.56 | <0.0793 | <0.0511 |
| 275 Mills Gap Road (duplicate) | 12/2/2015 | FD-31 (CAS-05) | 4.15 | 1.53 | <0.0793 | <0.0511 |

**TABLE 2**
**Summary of October 2021 and Historical Air Laboratory Analytical Results with Risk Assessment Evaluation Summary ("Springs Area" Residences)**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

**INDOOR AIR SAMPLES**

| Address | Date | Sample ID | TCE | cis-1,2-DCE | trans-1,2-DCE | VC | TCE Hazard | TCE Cancer Risk | TCE Cancer Risk |
|---|---|---|---|---|---|---|---|---|---|
| 261 Mills Gap Road | 4/24/2014 | IAS-06 | 87** | 0.21 | 0.013 J | <0.011 | 42 | 2E-04 | 6E-05 |
| 261 Mills Gap Road | 11/5/2014 | IAS-06 | 0.40 | 0.85 | 0.015 J | 0.033 J | 0.2 | 8E-07 | 3E-07 |
| 261 Mills Gap Road | 1/14/2015 | IAS-06 | 0.23 | 0.30 | <0.010 | <0.011 | 0.1 | 5E-07 | 2E-07 |
| 261 Mills Gap Road (duplicate) | 1/14/2015 | FD-15 (IAS-06) | 0.16 | 0.19 | <0.0084 | <0.0089 | 0.1 | 3E-07 | 1E-07 |
| 261 Mills Gap Road | 2/19/2015 | IAS-06 | 0.095 | 0.082 | <0.0090 | <0.0096 | 0.1 | 2E-07 | 7E-08 |
| 261 Mills Gap Road (duplicate) | 2/19/2015 | FD-21 (IAS-06) | 0.10 | 0.087 | <0.0084 | <0.0089 | 0.1 | 2E-07 | 7E-08 |
| 261 Mills Gap Road | 4/16/2015 | IAS-06 | 0.58 | 0.70 | <0.0099 | 0.046 | 0.3 | 1E-06 | 4E-07 |
| 261 Mills Gap Road | 12/2/2015 | IAS-06 | 0.797 | 0.299 | <0.0793 | <0.0511 | 0.4 | 2E-06 | 6E-07 |
| 261 Mills Gap Road | 8/16/2018 | IAS-06 | 2.63 | 0.374 | <0.0793 | <0.0511 | 1.3 | 5E-06 | 2E-06 |
| 261 Mills Gap Road (duplicate) | 8/16/2018 | FD-56 (IAS-06) | 3.11 | 0.399 | <0.0793 | <0.0511 | 1.5 | 7E-06 | 2E-06 |
| 271 Mills Gap Road | 4/24/2014 | IAS-04 | 2.6 | 0.63 | <0.011 | 0.021 J | 1 | 5E-06 | 2E-06 |
| 271 Mills Gap Road | 11/5/2014 | IAS-04 | 0.73 | 1.6 | 0.030 J | 0.071 | 0.4 | 2E-06 | 5E-07 |
| 271 Mills Gap Road | 1/14/2015 | IAS-04 | 0.36 | 0.44 | <0.0084 | 0.016 J | 0.2 | 8E-07 | 2E-07 |
| 271 Mills Gap Road | 2/19/2015 | IAS-04 | 0.37 | 0.44 | <0.010 | 0.020 J | 0.2 | 8E-07 | 3E-07 |
| 271 Mills Gap Road | 4/16/2015 | IAS-04 | 0.31 | 0.35 | 0.016 J | 0.030 J | 0.1 | 6E-07 | 2E-07 |
| 275 Mills Gap Road | 8/7/2008 | MGIA05 | 6.82 | 1.49 | <0.264 | <0.171 | | | |
| 275 Mills Gap Road | 4/24/2014 | IAS-05 | 11 | 2.4 | 0.032 J | 0.018 J | 5 | 2E-05 | 8E-06 |
| 275 Mills Gap Road (duplicate) | 4/24/2014 | FD-03 (IAS-05) | 11 | 2.5 | 0.027 J | 0.026 J | 5 | 2E-05 | 8E-06 |
| 275 Mills Gap Road | 11/5/2014 | IAS-05 | 0.91 | 3.1 | 0.046 | 0.068 | 0.4 | 2E-06 | 6E-07 |
| 275 Mills Gap Road (duplicate) | 11/5/2014 | FD-12 (IAS-05) | 1.4 | 4.7 | 0.059 | 0.10 | 0.7 | 3E-06 | 1E-06 |
| 275 Mills Gap Road | 1/14/2015 | IAS-05 | 0.30 | 0.60 | 0.014 J | 0.0094 J | 0.1 | 6E-07 | 2E-07 |
| 275 Mills Gap Road | 2/19/2015 | IAS-05 | 0.11 | 0.14 | <0.0088 | 0.0096 J | 0.1 | 2E-07 | 8E-08 |
| 275 Mills Gap Road | 4/16/2015 | IAS-05 | 0.30 | 0.37 | <0.0099 | <0.010 | 0.1 | 6E-07 | 2E-07 |
| 275 Mills Gap Road | 12/2/2015 | IAS-05 | 4.05 | 1.75 | <0.0793 | <0.0511 | 1.9 | 8E-06 | 3E-06 |
| 275 Mills Gap Road (duplicate) | 12/2/2015 | FD-32 (IAS-05) | 3.92 | 1.71 | <0.0793 | <0.0511 | 1.9 | 8E-06 | 3E-06 |
| 275 Mills Gap Road | 1/19/2017 | IAS-05 | 0.890 | 0.572 | <0.0793 | <0.0511 | 0.4 | 2E-06 | 6E-07 |
| 275 Mills Gap Road | 8/16/2018 | IAS-05 | 5.03 | 0.758 | <0.0793 | <0.0511 | 2.4 | 1E-05 | 3E-06 |

**Notes:**
1. Concentrations are in micrograms per cubic meter (µg/m³).
2. Reported values reflect results of data validation and might be adjusted from values listed in laboratory report.
3. TCE = trichloroethene; cis-1,2-DCE = cis-1,2-dichloroethene; trans-1,2-DCE = trans-1,2-dichloroethene; VC = vinyl chloride
4. J - Concentration is estimated; R - the result is rejected.
5. '<' - Constituent not detected above the indicated method detection limit.
6. * - concentrations calculated from results in parts per billion by volume (ppbv).
7. ** - Elevated result possibly attributable to new carpet or other indoor activities.
8. *** For both adult and child/adult.
9. The risk evaluation is based on the recommended default exposure values (OSWER Directive 9200.1-120, dated February 6, 2014).
10. The risk evaluation did not include historical sample results, as the historical samples were collected prior to the USEPA risk assessment guidance issued in 2014.

Prepared By: GLH 11/5/2021
Checked By: RMC 11/29/2021

**TABLE 3**
**Summary of October 2021 and Historical Air Analytical Results at AAS-17**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

| Address | Date | Sample ID | TCE | cis-1,2-DCE | trans-1,2-DCE | VC |
|---|---|---|---|---|---|---|
| Powell property (adjacent to tributary) | 8/5/2015 | AAS-17 | 13 | 2.7 | 0.034 J | 0.13 |
| Powell property (adjacent to tributary) | 10/21/2015 | AAS-17 | 4.3 | 1.5 | 0.020 J | 0.11 |
| Powell property (adjacent to tributary) | 10/21/2015 | FD-28 (AAS-17) | 3.9 | 1.5 | 0.018 J | 0.11 |
| Powell property (adjacent to tributary) | 1/13/2016 | AAS-17 | 6.1 | 0.67 | <0.0093 | 0.080 |
| Powell property (adjacent to tributary) | 1/13/2016 | FD-33 (AAS-17) | 6.3 | 0.65 | <0.0092 | 0.077 |
| Powell property (adjacent to tributary) | 4/13/2016 | AAS-17 | 15 | 1.7 | 0.013 J | 0.11 |
| Powell property (adjacent to tributary) | 7/13/2016 | AAS-17 | 34 | 4.2 | 0.036 J | 0.29 |
| Powell property (adjacent to tributary) | 9/29/2016 | AAS-17 | 13 | 2.3 | 0.021 J | 0.13 |
| Powell property (adjacent to tributary) | 1/19/2017 | AAS-17 | 13.6 | 1.56 | <0.0793 | 0.115 |
| Powell property (adjacent to tributary) | 4/13/2017 | AAS-17 | 11 | 1.6 | 0.015 J | 0.16 |
| Powell property (adjacent to tributary) | 7/13/2017 | AAS-17 | 4.6 | 0.76 | <0.017 | 0.087 |
| Powell property (adjacent to tributary) | 10/19/2017 | AAS-17 | 2.3 J | 0.55 J | 0.015 J | 0.068 J |
| Powell property (adjacent to tributary) | 1/18/2018 | AAS-17 | 1.0 | 0.077 | <0.0088 | 0.012 J |
| Powell property (adjacent to tributary) | 4/12/2018 | AAS-17 | 3.0 | 0.69 | <0.011 | 0.056 |
| Powell property (adjacent to tributary) | 7/19/2018 | AAS-17 | 17 | 1.1 | 0.013 J | 0.074 |
| Powell property (adjacent to tributary) | 10/18/2018 | AAS-17 | 7.8 | 0.77 J | <0.012 | 0.077 J |
| Powell property (adjacent to tributary) | 1/17/2019 | AAS-17 | 9.1 | 0.66 | 0.024 J | 0.054 |
| Powell property (adjacent to tributary) | 4/18/2019 | AAS-17 | 4.5 | 0.33 | 0.013 J | 0.016 J |
| Powell property (adjacent to tributary) | 7/18/2019 | AAS-17 | 18 | 1.7 | 0.020 J | 0.17 |
| Powell property (adjacent to tributary) | 10/24/2019 | AAS-17 | 7.0 | 1.3 | 0.011 J | <0.010 |
| Powell property (adjacent to tributary) | 1/23/2020 | AAS-17 | 11 | 1.4 | 0.018 J | 0.097 |
| Powell property (adjacent to tributary) | 4/16/2020 | AAS-17 | 14 | 0.97 | <0.035 | 0.077 |
| Powell property (adjacent to tributary) | 7/16/2020 | AAS-17 | 1.2 | 0.22 | <0.011 | <0.011 |
| Powell property (adjacent to tributary) | 10/15/2020 | AAS-17 | 5.2 | 1.4 | 0.019 J | 0.048 |
| Powell property (adjacent to tributary) | 1/21/2021 | AAS-17 | 9.8 | 0.59 | <0.012 | 0.042 |
| Powell property (adjacent to tributary) | 4/15/2021 | AAS-17 | 12 | 0.90 | 0.013 J | 0.055 |
| Powell property (adjacent to tributary) | 7/21/2021 | AAS-17 | 9.9 | 1.10 | 0.019 J | 0.056 |
| Powell property (adjacent to tributary) | 10/14/2021 | AAS-17 | 20 | 1.7 | 0.019 J | 0.15 |

**Notes:**

1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. Reported values reflect results of data validation and might be adjusted from values listed in laboratory report.
3. TCE = trichloroethene; cis-1,2-DCE = cis-1,2-dichloroethene; trans-1,2-DCE = trans-1,2-dichloroethene; VC = vinyl chloride
4. J - Concentration is estimated.
5. '<' - Constituent not detected above the indicated method detection limit.

Prepared By: GLH 11/5/2021
Checked By: RMC 11/29/2021

## Table I-2: Surface Water Sampling

**TABLE 4**
**Analytical Results of October 2021 and Historical Surface Water Samples**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

| Location | Date | Trichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Vinyl Chloride |
|---|---|---|---|---|---|
| MGGC-04-SW* | 2/2/2003 | 1,200 | 150 | | |
| SW-05* | 6/22/2004 | 710 | 310 | 2.3 J | 1.6 J |
| CTS-006-SW* | 11/27/2007 | 998 | 123 | | |
| RS01** | 11/17/2009 | 1,700 | 370 | 4.0 | 2.4 |
| SW-1 | 9/11/2014 | 461 | 161 | 1.2 | 3.2 |
| SW-1 | 10/30/2014 | 34.5 | 1,270 | 9.3 | 10.6 |
| FD-1 (SW-1) | 10/30/2014 | 33.6 | 1,310 | 9.2 | 10.8 |
| SW-1 | 4/13/2017 | 488 | 336 | | |
| SW-1 | 10/19/2017 | 523 | 394 | | 3.4 J |
| SW-1 | 4/12/2018 | 585 | 421 | | |
| SW-1 | 10/18/2018 | 428 | 461 | 2.0 J | |
| SW-1 | 4/18/2019 | 478 | 362 | | |
| SW-1 | 10/24/2019 | 403 | 511 | | |
| SW-1 | 4/16/2020 | 416 | 372 | 2.0 J | |
| SW-1 | 10/15/2020 | 258 | 705 | 3.7 J | 4.8 |
| SW-1 | 4/15/2021 | 281 | 439 | 2.1 J | |
| SW-1 | 10/14/2021 | 186 | 484 | 1.3 J | 3.7 |

**TABLE 4**
**Analytical Results of October 2021 and Historical Surface Water Samples**
**CTS of Asheville, Inc. Superfund Site**
**Asheville, North Carolina**
**Wood Project 6252-16-2012**

| Location | Date | Trichloroethene | cis-1,2-Dichloroethene | trans-1,2-Dichloroethene | Vinyl Chloride |
|---|---|---|---|---|---|
| SW-03W | 6/25/2015 | 129 | 81.7 | 0.51 J | 9.8 |
| SW-03W | 9/29/2016 | 285 | 36.6 | | 2.5 |
| FD-06 (SW-03W) | 9/29/2016 | 302 | 39.2 | | 2.4 |
| SW-03W | 4/13/2017 | 287 | 44.7 | | 2.8 |
| FD-07 (SW-03W) | 4/13/2017 | 242 | 38.3 | | 2.4 |
| SW-03W | 10/19/2017 | 66.5 | 17.9 | | 3.4 |
| FD-11 (SW-03W) | 10/19/2017 | 65.6 | 17.9 | | 3.5 |
| SW-03W | 4/12/2018 | 57.2 | 8.4 | | 0.85 J |
| FD-19 (SW-03W) | 4/12/2018 | 55.4 | 8.4 | | 0.80 J |
| SW-03W | 10/18/2018 | 299 | 18.0 | | |
| FD-33 (SW-03W) | 10/18/2018 | 286 | 17.4 | | |
| SW-03W | 4/18/2019 | 261 | 8.2 | | |
| FD-37 (SW-03W) | 4/18/2019 | 276 | 8.5 | | |
| SW-03W | 10/24/2019 | 484 | 35.7 | | |
| FD-43 (SW-03W) | 10/24/2019 | 477 | 33.9 | | |
| SW-03W | 4/16/2020 | 201 | 8.9 | | |
| FD-44 (SW-03W) | 4/16/2020 | 246 | 10 | | |
| SW-03W | 10/15/2020 | 398 | 25.1 | | |
| FD-51 (SW-03W) | 10/15/2020 | 372 | 24 | | |
| SW-03W | 4/15/2021 | 266 J | 10.6 | | |
| FD-56 (SW-03W) | 4/15/2021 | 221 | 7.3 | | |
| SW-03W | 10/14/2021 | 390 | 20.0 | | |
| FD-61 (SW-03W) | 10/14/2021 | 402 | 20.0 | | |

**Notes:**
1. Concentrations are in micrograms per liter (µg/L).
2. * - sample collected downstream of confluence of Springs-01 through -04 and upstream of culvert that routes tributary under driveway (in the general vicinity of SW-1).
3. ** - sample collected by USEPA at the SW-1 location.
4. Blank cells indicate analyte not detected above method detection limit (MDL); refer to laboratory report for associated MDLs.
5. J - estimated concentration.

Prepared By: GLH 11/5/2021
Checked By: RMC 11/29/2021