

**Support Document for the
Revised National Priorities List
Final Rule
Southside Chattanooga Lead
September 2018**

**Site Assessment and Remedy Decisions Branch
Office of Superfund Remediation and Technology Innovation
Office of Land and Emergency Management
U.S. Environmental Protection Agency
Washington, DC 20460**

Table of Contents

Executive Summary..... iii

Introduction iv

 Background of the NPL iv

 Development of the NPLv

 Hazard Ranking System.....v

 Other Mechanisms for Listing vi

 Organization of this Document vii

 Glossary vii

1. List of Commenters and Correspondence1

2. Site Description1

3. Summary of Comments.....4

 3.1 Support for Listing and Other Non-opposition Comments5

 3.2 Consistency with the Administrative Procedure Act (APA) and Extension of the Comment Period5

 3.3 Adequacy of the Rulemaking Docket.....7

 3.4 Request for Meeting8

 3.5 Purpose/Rationale of Listing9

 3.6 Alternatives to Listing11

 3.7 Liability12

 3.8 Stigma/Economic Impact12

 3.9 Risk to Human Health or the Environment13

 3.10 Extent of Site/Site Boundaries.....14

 3.11 Site Aggregation.....16

 3.12 Scope of the HRS Evaluation19

 3.13 XRF Sampling Analysis21

- 3.14 Area of Observed Contamination23
 - 3.14.1 AOC Background Level24
 - 3.14.1.1 Background Location Sample Similarity27
 - 3.14.1.2 Anthropogenic and Natural Background Levels30
 - 3.14.1.3 Background Levels Below EPA Regional Screening Level.....32
 - 3.14.2 AOC Delineation33
 - 3.14.3 AOC Hazardous Waste Quantity.....37
- 3.15 Observed Contamination: Attribution39
 - 3.15.1 Identification of Individual Foundry Releases by Property42
 - 3.15.2 Association of Lead with Foundry Sands43
 - 3.15.3 Other Possible Sources of Lead.....44
 - 3.15.4 Consistency with HRS Guidance.....44
- 3.16 Target Population46
- 4. Conclusion47**

Executive Summary

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on the Southside Chattanooga Lead site, proposed on January 18, 2018 (83 FR 2576). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in September 2018.

Introduction

This document explains the rationale for adding the Southside Chattanooga Lead site in Chattanooga, Tennessee to the National Priorities List (NPL) of uncontrolled hazardous waste sites and provides responses to public comments received on this site listing proposal. The EPA proposed this site to the NPL on January 18, 2018 (83 FR 2576). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in September 2018.

Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq.* in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include

criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, take into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991. On January 9, 2017, EPA promulgated a further revision to the HRS that added a component for evaluating the threats posed by the intrusion of subsurface contamination into regularly occupied structures. These changes are consistent with, and comply with, the statutory requirements of SARA.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on May 17, 2018 (83 FR 22859). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on May 17, 2018 (83 FR 22918).

Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;
- characteristics of the waste (e.g., toxicity and waste quantity); and
- targets (e.g., people or sensitive environments) affected by the release.

Under the HRS, four pathways can be scored for one or more components and threats as identified below:

- Ground Water Migration (S_{gw})
 - population
- Surface Water Migration (S_{sw})

The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.

 - drinking water
 - human food chain
 - sensitive environments
- Soil Exposure and Subsurface Intrusion (S_{sessi})
 - Soil Exposure Component:
 - resident population
 - nearby population
 - Subsurface Intrusion Component
 - population
- Air Migration (S_a)
 - population

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100:

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but -- if the drums are buried deep enough and the substances not very volatile -- not surface water or air.

Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and
- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Southside Chattanooga Lead site on January 18, 2018 (83 FR 2576). The site discussion begins with a list of commenters, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for the site.

Glossary

The following acronyms and abbreviations are used throughout the text:

Agency	U.S. Environmental Protection Agency
AOC	Area of contamination
APA	Administrative Procedure Act
ASB	Analytical support branch
ATSDR	Agency for Toxic Substances and Disease Registry
BMC	Benchmark concentration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 <i>et seq.</i> , also known as Superfund
CFR	Code of Federal Regulations
CLP	EPA Contract Laboratory Program
CRP	Community relations plan
CRQL	Contract-required quantitation limit
DL	Detection limit
EPA	U.S. Environmental Protection Agency
ESA	Environmental site assessment
FOIA	Freedom of Information Act
FR	Federal Register
HRS	Hazard Ranking System, Appendix A of the NCP
HRS score	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
HWQ	Hazardous waste quantity
ICP-MS	Inductively coupled plasma – mass spectrometry
ICP-OES	Inductively coupled plasma – optical emission spectrometry
IEUBK	Integrated, exposure, uptake and biokinetic
MCL	Maximum contaminant level
MDL	Method detection limit
MRL	Method reporting limit
µg/dL	Microgram per deciliter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300

NPL	National Priorities List, Appendix B of the NCP
PPB	Parts per billion
PPM	Parts per million
PPT	Parts per trillion
PRP	Potentially responsible party
QAPP	Quality assurance project plan
RCRA	Resource Conservation and Recovery Act
RDL	Reporting detection limit
RfD	Reference dose
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
ROD	Record of decision
RSL	Regional screening level
SAP	Sampling and analysis plan
SARA	Superfund Amendments and Reauthorization Act
SCDM	Superfund Chemical Data Matrix
SCLS	Southside Chattanooga Lead Site
SI	Site inspection
SOW	Statement of work
SQL	Sample quantitation limit
TDEC	Tennessee Department of Environment and
TSCA	Conservation Toxic Substances Control Act
VOC	Volatile organic compounds
XRF	X-ray fluorescence

1. List of Commenters and Correspondence

EPA-HQ-OLEM-2017-0610-0004	Correspondence, dated July 3, 2017, from Robert J. Martineau, Jr. Commissioner, Department of Environment and Conservation, Tennessee.
EPA-HQ-OLEM-2017-0610-0005	Correspondence dated February 1, 2018, from Douglas Ammon, Chief, Site Assessment and Remedy Decision Branch, Office of Superfund Remediation and Technology Innovation, USEPA, and Terry Jeng, Site Assessment and Remedy Decision Branch, Office of Superfund Remediation and Technology Innovation, USEPA.
EPA-HQ-OLEM-2017-0610- 0006	Comment, dated January 26, 2018, by David C. Higney, Esquire, of Grant Konvalinka & Harrison, P.C., Chattanooga, Tennessee
EPA-HQ-OLEM-2017-0610-0007	Correspondence, dated February 1, 2018, from Douglas Ammon, Chief, Site Assessment and Remedy Decision Branch, Office of Superfund Remediation and Technology Innovation, USEPA.
EPA-HQ-OLEM-2017-0610-0018	Correspondence dated April 18, 2018, from Douglas Ammon, Chief, Site Assessment and Remedy Decision Branch, Office of Superfund Remediation and Technology Innovation, USEPA, and Jennifer Wendel, Site Assessment and Remedy Decision Branch, Office of Superfund Remediation and Technology Innovation, USEPA.
EPA-HQ-OLEM-2017-0610-0019	Comment, submitted April 18, 2018, by Anonymous Commenter.
EPA-HQ-OLEM-2017-0610- 0025	Comment, submitted May 4, 2018, by David C. Higney of Grant Konvalinka & Harrison, P.C., Counsel to South Broad, LLC.

2. Site Description

The Southside Chattanooga Lead site (the Site) is located in Chattanooga, Hamilton County, Tennessee (see Figure A of this support document). The Site is composed of lead-contaminated soil on residential and non-residential properties from foundry waste that was used as topsoil or fill material in parts of southwest Chattanooga. For HRS scoring purposes, the Site consists of one area of contamination (AOC A). Since the 19th century, numerous foundries, typically brass, iron, and steel, have operated within the City of Chattanooga. Three prominent foundries were located along the western boundary of the AOC. The factories are not evaluated as sources because they are enrolled in the Tennessee Department of Environment and Conservation (TDEC) Voluntary Oversight and Assistance Program, which has conducted remedial activities, or is in the process of conducting remedial activities, on the properties.

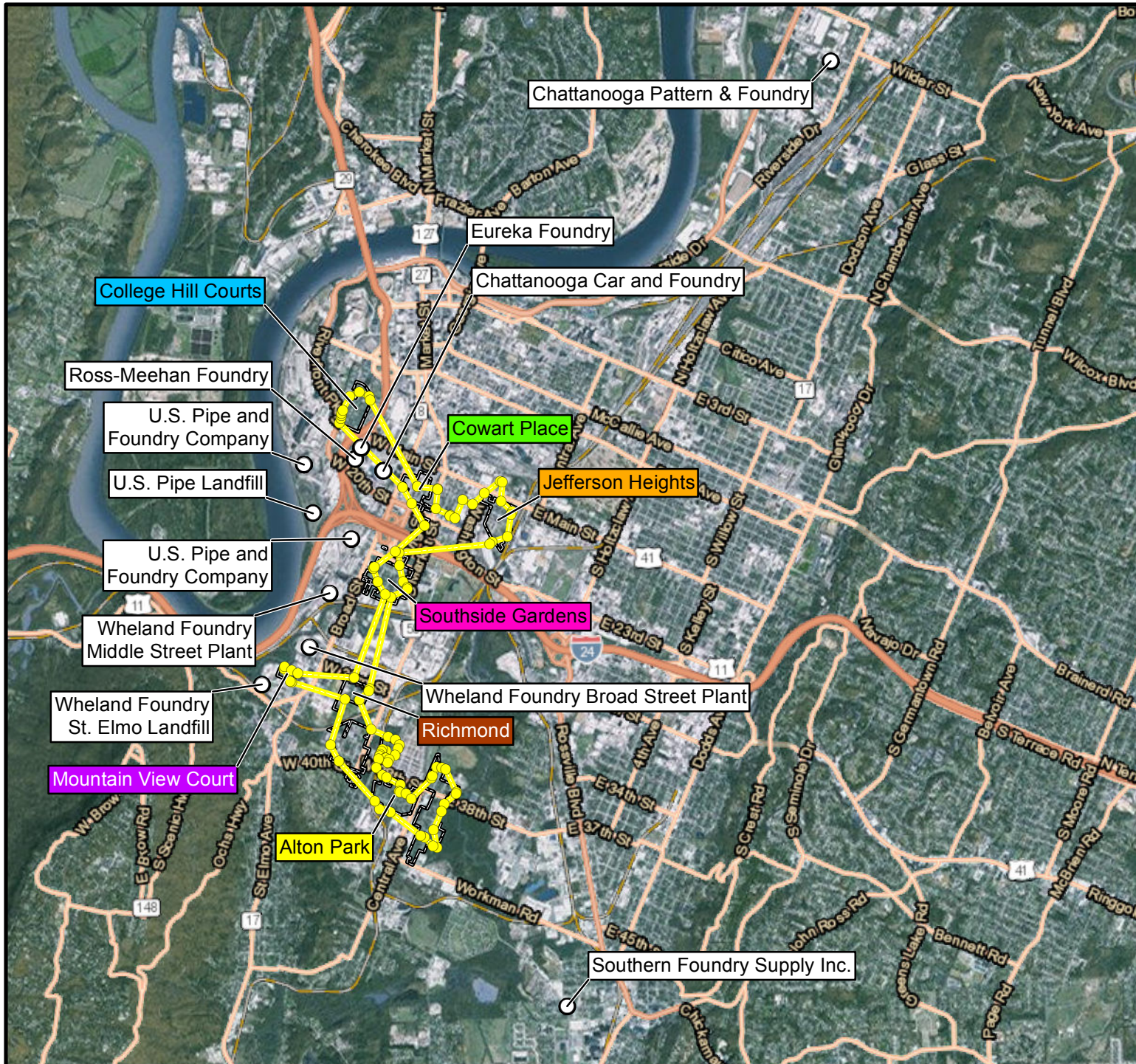
Ferrous (iron and steel) and non-ferrous (brass) foundries specialize in melting and casting metal into desired shapes. Foundry products include parts for automobiles, train locomotives, airplanes, and fire hydrants, as well as plumbing fixtures and equipment components. Foundries produce spent sand fines and other byproducts (such as

baghouse dust) that cannot be reused and thus were often landfilled. Until the advent of the Resource Conservation and Recovery Act (RCRA) in the early 1970s, facilities discarded their used foundry waste material on their own properties, sent them to local landfills, or gave them away to be used as fill or as a top soil layer on other properties. Lead, zinc, cadmium, and other metals may be present in foundry waste.

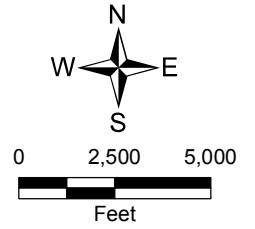
The primary mode of deposition of the contamination within AOC A is the use of foundry waste material as fill and top soil. Properties within AOC A where EPA removal actions have occurred or are ongoing are not included in the Site, nor are properties that were sampled and found not to be contaminated or properties that have not been sampled. Only properties that were sampled and where observed contamination was documented are included in AOC A. Contamination is not being inferred in the absence of sampling results because the suspected mode of deposition of the contamination is the use of foundry waste material as fill or top soil, and therefore, the contamination has not likely been uniformly distributed throughout AOC A. However, exclusion of properties located between sampling locations does not indicate the absence of contamination at those properties.

Targets evaluated include residents and workers in AOC A. The lead-contaminated soil was identified at Level II concentrations on residential and non-residential properties.

While no comments were received requesting a change to the name of the Site, the EPA is clarifying the name of the site and is dropping "Site" from the site name. Henceforth, the site name will be Southside Chattanooga Lead.



- Legend**
- Former Foundry Approximate Location
 - Sampling location
 - ▭ AOC A
 - ▭ Neighborhood study area
 - AOC Area of Observed Contamination



Map Source:
 ESRI Aerial Imagery, 2011-2012. The source of this map image is ESRI, used by the EPA with ESRI's permission. References 24; 32; 36; 43; 44; 60



 **United States Environmental Protection Agency Region 4**

FIGURE A
 AOC A and Former Foundries
 Site Name: Southside Chattanooga
 Lead site
 TDD No.: TT-05-031
 City: Chattanooga County: Hamilton State: Tennessee

 **TETRA TECH**
 Date: 11/6/2017
 Analyst: Clayton.Hayes

3. Summary of Comments

The State of Tennessee Department of Environment and Conservation expressed support for listing the Site on the National Priorities List (NPL). It noted that a lot of work remains to be completed at the Site to remediate the lead-contaminated soil and associated unacceptable risk to human health.

The law offices of Grant, Konvalinka & Harrison, P.C., on behalf of South Broad, LLC (the “Company”), submitted comments in opposition to placing the Southside Chattanooga Lead site on the NPL. The Company commented that it disagrees with NPL listing of the Site and stated that listing is not the best way to achieve the goal of attaining appropriate environmental protection. The Company stated that a credible listing decision must be lawful, supported by sound science, include a defensible HRS score and documentation record, and demonstrate an appropriate application of law and policy; the Company stated that not all of these criteria have been met by the Site.

Commenting on the administrative procedures of the listing, the Company stated that the EPA failed to provide the supporting material at the time of listing, the initial comment period was too short and should have been extended to at least May 17, 2018, and that the EPA has not complied with the Administrative Procedure Act. The Company claimed that the docket failed to meet applicable rulemaking standards and stated that it reserves the right to provide further comments and to submit Freedom of Information Act (FOIA) requests that may be required to obtain Site-related material. The Company requested that its comments be placed in the administrative record for the proposed rule.

Questioning the purpose and rationale for listing, the Company stated it believes NPL listing should only be undertaken in the most limited and appropriate circumstances as a last resort, and that any Site listing should not hinder investment and redevelopment of the properties in the area. The Company asked that the EPA re-assess the Site as proposed, weigh all available options for addressing the contamination, and better utilize Tennessee Department of Environment and Conservation’s (TDEC’s) Brownfield Program expertise to address the contamination in a method which does not disrupt the revitalization of the area. Additionally, the Company requested a meeting to discuss the parcels included in the area of observed contamination, specifically to discuss disaggregating various neighborhoods to allow obtaining grant monies and other funding.

Commenting on liability and stigma concerns, the Company asserted that listing should not be a substitute for inadequate enforcement and investigation of the foundries that operated in Chattanooga. It asserted that the responsibility for the Site environmental conditions lies with numerous parties both private and public. The Company also stated that NPL status will stigmatize properties, adversely affect property values (particularly in Southside residential areas), and require local residents to incur unnecessary costs.

Commenting on the HRS evaluation, the Company stated that the EPA did not perform a comprehensive scoring of the Site and excluded the original waste sources at the numerous foundries in Chattanooga from the HRS evaluation. The Company questioned whether an accurate assessment of the relative risk to human health or the environment was performed. It stated that the EPA unlawfully and inappropriately aggregated multiple disparate properties and neighborhood into the Site and that the EPA had inadequately identified and attributed the origin of the lead contamination in the AOC. The Company also stated that X-ray fluorescence analysis lead results are often skewed; that the EPA did not consider anthropogenic and natural lead levels in establishing the background level for the Site; and that the background soil samples are not similar to the residential soils sampled. The Company also asserted that unsampled areas and vacant lots are included in the scoring and ‘child high impact zones’ were included in the scoring without support, resulting in an inflated HRS site score.

Additionally, one anonymous commenter stated that the EPA has appropriately attributed the lead contamination to foundry sands. The commenter stated that Chattanooga residents have been unnecessarily alarmed by

characterizing the foundry sand that has been used as fill dirt on properties around Chattanooga, as containing lead. The commenter stated that the EPA supports the use of silica-based spent foundry sands and iterated its believe that foundry sand is an easy target and other sources of lead such as construction material like lead based paint, plumbing and guttering have not been adequately investigated.

3.1 Support for Listing and Other Non-opposition Comments

Comment: The State of Tennessee Department of Environment and Conservation expressed support for listing the Site on the NPL, noting:

The Department appreciates the good work already performed at this site and understands that much remains to be done to remediate the lead-contaminated soil posing an unacceptable risk to human health. I understand that inclusion of this site on the NPL will allow EPA to conduct remedial investigation, risk assessment, and remedial action.

Response: EPA has added the Southside Chattanooga Lead site to the NPL. Listing makes a site eligible for remedial action funding under CERCLA, and the EPA will examine the site to determine what response, if any, is appropriate. Actual funding may not necessarily be undertaken in the precise order of HRS scores, however, and upon more detailed investigation, may not be necessary at all in some cases. The EPA will determine the need for using Superfund monies for remedial activities on a site-by-site bases, taking into account the NPL ranking, State priorities, further site investigation, other response alternative, and other factors as appropriate.

3.2 Consistency with the Administrative Procedure Act (APA) and Extension of the Comment Period

Comment: Mr. David C. Higney stated that, despite EPA knowing in advance the Federal Register publication date, he was unable to access the Site's references via the Internet and other means. Mr. Higney commented that a transparent and public access is critical to any proposed notice and rulemaking and requested that the agency-imposed comment deadline be extended no less than 30 days.

The Company stated that the initial comment period was too short and should have been extended to at least May 17, 2018. The Company alleges that the EPA has not complied with the Administrative Procedure Act (APA) and stated that any rationalization for the initial limited time periods allowed for comments does not pass muster and that EPA's policy for commenting on complex issues and lengthy documents should be no less than 60 days. The Company argued that the lack of transparency in prior notices of activities related to NPL listing, the 8,000 plus pages of information in the docket, and the failure to provide all the supporting references when the rule was proposed on January 18, 2018, are all factors that prevented interested persons from meaningfully participating in the informal rulemaking process.

The Company stated that the APA requires that the EPA provide meaningful opportunities to comment and that the Agency's plan to proceed with the Remedial Investigation (RI) and other activities presumes a final listing of the Site and demonstrates the lack of actual review and consideration of comments being submitted on the proposed rule. The Company also stated that the EPA sought to minimize the time in which the public would have to respond, and that commenting on the Site is not time-critical and the work the EPA intended to perform regarding elements required for a proposed listing was undertaken months ago.

Response: The EPA complied with all requirements in the APA, followed all EPA policy guidelines and correctly followed the HRS regulation in listing this site on the NPL. Upon proposing the Site to the NPL, the EPA followed all policy guidelines and announced a notice and comment period of 60 days to allow all interested parties to provide meaningful comments on the listing. This comment period is consistent with The Company's comments that requested "no less than 60 days." However, due to internal delays, all supporting references were

not able to be immediately provided upon request on January 18, 2018, but were shipped via overnight mail to all interested parties on January 29, 2018. Due to this 11-day delay, the EPA granted an initial 30-day extension to the comment period to allow all interested parties ample time to provide comments on the proposed listing.

This extension is documented in a memorandum to the docket from Douglas Ammon, Chief of the EPA Site Assessment and Remedy Decision Branch, Office of Superfund Remediation, and Terry Jeng, Office of Superfund Remediation and Technology Innovation dated February 1, 2018 (docket ID EPA-HQ-OLEM-2017-0610-0005), as well as in a letter addressed to Mr. Higney, also from Mr. Douglas Ammon and also dated February 1, 2018 (docket ID EPA-HQ-OLEM-2017-0610-0007). The comment period was extended to April 18, 2018. In addition to the 30-day extension that extended the comment period to April 18, 2018, the EPA also granted an additional 16-day extension of the comment period until May 4, 2018 to ensure the public had adequate time to review the HRS documentation record. The second extension was documented in a memorandum to the docket from Douglas Ammon, Chief of the EPA Site Assessment and Remedy Decisions Branch, Office of Superfund Remediation and Technology Innovation, and Jennifer Wendel, Office of Superfund Remediation and Technology Innovation (docket ID EPA-HQ-OLEM-2017-0610-0018).

Section 553 of the APA authorizes “informal” rulemaking. The informal rulemaking process encourages and relies on the participation of the public, including potentially responsible parties. The public can comment during the comment period (typically 60 days) after a site is proposed for listing and during the time the EPA is evaluating and selecting a remedy. If private parties conduct remedial action under a Consent Decree between the EPA and the parties, the decree is also subject to public comment. The EPA considers this process to offer the public sufficient opportunity to present facts and opinions germane to its decision-making in a timely manner.]

Regarding the Company’s claim that the EPA sought to minimize the comment time for the public for the purpose of expediting remedial actions, this claim is not correct. An initial 60-day comment period followed publication in the Federal Register of the proposed NPL rule, of which this site is a part¹. The EPA acknowledges an 11-day delay in providing appropriate reference materials to interested parties and, as a result, provided a total of 46 additional days (106 total days from January 18, 2018) to submit comments on the proposed listing. Similarly, the EPA acknowledges that the comment period for lengthy and complex documents should be consistent with the APA and should be no less than 60 days; at this site, EPA provided the public with more than a 60-day comment period. This comment period is consistent with The Company’s requested length of time that is “no less than 60 days,” is consistent with the APA and EPA policy, and afforded public commenters sufficient time to provide meaningful comments on the proposed listing.

Regarding the commenter’s statement that the Agency has plans to move forward with an RI and assertion that these plans imply that public comments will not be considered, additional sampling for lead to support removal management decisions does not mean that EPA is not planning to respond to all relevant comments before making the final decision to promulgate the listing. The EPA carefully considers every written comment, including late comments to the extent practicable, before adding a site to the NPL. The EPA responds to all site-specific comments in a “Support Document” such as this, which is available in the EPA Headquarters Superfund Docket in Washington, D.C., and the appropriate Regional Superfund Docket when the final rule is published in the Federal Register. Planning for future actions, such as an RI, that may occur at later stages in the Superfund process does not mean that EPA will not consider all comments on a site listing. This planning only shows EPA concern to address the threat posed by the Site as soon as possible to minimize the possible harm to human health and the environment caused by the release. Addressing the threat would be needed independently of whether or not the Site is placed on the NPL. CERCLA allows for response actions up to the initiation of fund-lead remedial actions.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

¹ <https://www.gpo.gov/fdsys/pkg/FR-2018-01-18/pdf/2018-00623.pdf>

3.3 Adequacy of the Rulemaking Docket

Comment: The Company commented that the EPA has failed to meet applicable standards for listing the Site on the NPL by not including sampling data for every property within the AOC. The company commented that the docket for the Site was incomplete and noted that the EPA relied on the following documents that were either not provided or are not sufficient:

- The “urban background study” for lead contaminated soils in Chattanooga
- Anecdotal comments or materials that are only provided in “note” or email chain form (e.g., HRS Refs. 71, 72, and 73).
- References within the Site Inspection (SI) Report that are incomplete or irretrievable.

The Company stated that the EPA refers to, or equates, the “study area” with locations in the “urban background study.” The Company also stated that until the EPA releases the associated but incomplete “urban background study” data and report for Chattanooga, it would be arbitrary and capricious, bad policy, and perhaps against substantial evidence, to list the Site as proposed without EPA first publicly committing to provide the necessary funding and manpower to address and complete remediation within a reasonably short time for all of the properties EPA “insists” be included in the Site from the outset. The Company further stated that it is impossible to identify all missing documentation. The company stated it reserves the right to provide further comments and to submit Freedom of Information Act (FOIA) requests that may be required to obtain Site-related material.

Response: The EPA has made available to the public all appropriate documentation that was relied on in the decision to propose the Southside Chattanooga Lead site for NPL listing. This documentation includes documents available in the public docket for the Site² and the documents that were delivered upon request to interested parties via overnight mail delivery. The documents and information provided in the HRS package at the time of proposal were sufficient for the purposes of conducting an HRS evaluation for the Site and meet all CERCLA and HRS requirements. This information was made available to the public and provided citizens sufficient information to review the Site score and meaningfully comment on the proposed Site listing. The EPA acknowledges that analytical data is not available for every property within AOC A but notes that, consistent with the HRS, properties without sampling data were not included in the scoring of the Site. Soil contamination at this site was not inferred between properties; therefore, any property without sampling data was not included in the HRS Site score. The EPA notes that, rather than being missing data in the docket, this data is not available at this stage in the Superfund process and, as additional data could only increase the HRS Site score, the information is not necessary for the Site to achieve a score above 28.50.

The EPA did not rely on any data or information in a document outside of the docket materials (i.e., the materials delivered on CD upon request) to support the HRS scoring of the Site. The “urban background study” referenced by the commenter was not referred to in the HRS documentation record as the “study area” and the data in the urban background study was also not used to establish any site-specific background lead level at the Site. The “study area” at the Site is composed of residential and non-residential properties that were sampled during the SI and were documented to contain lead (see HRS documentation record Table 5, pages. 36-38; Table 7, pages 46-50; and Figure 1, page 4); this study area is completely independent of the urban background study. As discussed in 3.14.1, AOC Background Level, of this support document, the EPA established a background level specific to the Site and did not rely on any outside, secondarily referenced study to evaluate the areas of observed contamination scored at the Site. Thus, the urban background study was not used and all appropriate documentation to establish the Site-specific background level has been included in the HRS documentation record. Please see section 3.14.1, AOC Background Level, of this support document for specific comments on the background level established at this site.

² <https://www.regulations.gov/docket?D=EPA-HQ-OLEM-2017-0610>

Use of Anecdotal References or Materials

Regarding the commenter's statements that the HRS documentation record relies on anecdotal commentary in the form of an email chain or "note" (pointing to HRS References 71-73), these are official communications that have been verified, signed, and dated by all parties and are not unofficial or anecdotal information. Additionally, none of these references are used in developing the HRS score at the Site. While EPA stands behind the accuracy of the information in the project notes and signed official email correspondence, the referenced documents were only used to confirm the name of the site used throughout the HRS documentation record (as Southside Chattanooga Lead site (SCLS)) when compared to other references, and to confirm that another nearby facility has enrolled in a Brownfields program. Therefore, the EPA appropriately cited official documents to confirm statements in the HRS documentation record, but notes that none of this information could impact the HRS site score or impact the listing decision.

Availability of References within the SI Report

Regarding the commenter's statements that references to an HRS reference (HRS Reference 32, the "SI Report") were not included in the docket, the EPA considers the information provided with the HRS package at proposal sufficient to allow reproduction of the HRS Site score. Any other documents not used in the HRS scoring, but related to the site investigation were available from the EPA Region 4 docket upon request. While some of the links may have changed in the reference list to the SI Report (i.e., a link to a reference within HRS Reference 32), the commenters did not mention or request any specific references from the SI Report that they could not locate or that they might have considered essential to reproduce the HRS Site score. The references from the SI report could have been obtained via FOIA from the EPA Region 4 office. Therefore, the EPA considers the information provided with the HRS package to be sufficient.

Future FOIA Requests

Finally, regarding the commenter's statement regarding potentially submitting future FOIA requests and/or additional comments, while all HRS records are available to the public through FOIA, the FOIA process is separate from the process of compiling the record for the listing decision, and documents released under FOIA do not necessarily have any bearing on the listing. Instead, the Southside Chattanooga Lead site docket at regulations.gov is the authoritative source of documents pertinent to the listing decision. Regarding any late comments that may be submitted, the opportunity for public comment occurred during the 106-day period that followed publication of rule that proposes this site to the NPL. As stated in 53 FR 23990, June 24, 1988, while the EPA endeavors to consider late comments (i.e., comments received after the end of the notice and comment period), it is not required to do so and, as a matter of policy, does not allow late comments to delay a listing decision. However, the EPA responds to late comments to the extent practicable.

In summary, all appropriate documentation relied on to generate the HRS score in the proposed listing of the Southside Chattanooga Lead site was available to the public in the Site docket. All of the referenced materials in the HRS documentation record are official records and are appropriate to be used as references in the record. As all of the scoring documentation is available to the public in the docket for the Site, the EPA is reasonably proceeding with the NPL listing process.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.4 Request for Meeting

Comment: The Company requested a meeting with appropriate representatives of EPA, TDEC, the City of Chattanooga, and other interested parties to discuss further TDEC involvement and greater emphasis on voluntary cleanup efforts. It also requested that meeting to discuss disaggregating the various neighborhoods (or parcels

therein) from one another so grant monies and other funding could be obtained for assessment, investigation, and remediation/mitigation, to assure a cooperative and equitable approach involving all appropriate stakeholders.

Response: While it is not clear if the Company requested a meeting with the various stakeholders prior to or after placement of this site on the NPL, EPA notes that it has interacted with various stakeholders, including the TDEC, and the City of Chattanooga, and various other stakeholders prior to the decision to list this site on the NPL. The EPA has decided that placement of the Site on the NPL is the appropriate approach to moving forward to address the risk posed by the contamination at this site. However, additional public participation opportunities will be available after listing the Site on the NPL when the Company can discuss further TDEC involvement. As discussed in Section 3.5, Purpose of Listing, of this support document, listing does not mean that remediation is necessary, only that the Site warrants further investigation under the Superfund program.

The Superfund program offers numerous opportunities for public participation at NPL sites. The EPA Regional Office develops a Community Relations Plan (CRP) before remedial investigation and feasibility study (RI/FS) field work begins. The CRP is the “work plan” for community relations activities that the EPA will conduct during the entire cleanup process. In developing a CRP, Regional staff interview State and local officials and interested citizens to learn about citizen concerns, site conditions, and local history. This information is used to formulate a schedule of activities designed to keep citizens apprised and to keep the EPA aware of community concerns. Typical community relations activities include:

- Public meetings at which the EPA presents a summary of technical information regarding the site and citizens can ask questions or comment.
- Small, informal public sessions at which EPA representatives are available to citizens.
- Development and distribution of fact sheets to keep citizens up-to-date regarding site activities.

After the RI/FS is completed and the EPA has recommended a preferred cleanup alternative, the EPA Regional Office sends to all interested parties a Proposed Plan outlining the cleanup alternatives studied and explaining the process for selection of the preferred alternative. At this time, the EPA also begins a public comment period during which citizens are encouraged to submit comments regarding all alternatives. Once the public comment period ends, the EPA develops a Responsiveness Summary, which contains EPA responses to public comments. The Responsiveness Summary becomes part of the Record of Decision (ROD) that provides official documentation of the remedy chosen for the site.

In addition to meeting these specific Federal requirements, the EPA makes every attempt to ensure that community relations is a continuing activity designed to meet the specific needs of the community. Anyone wanting information on a specific site should contact the Community Relations staff in the appropriate EPA Regional Office.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.5 Purpose/Rationale of Listing

Comment: The Company commented on the listing and made statements asserting that there was no need to list the Site on the NPL. The Company stated that listing a site on the NPL should only be done as a last resort and listed the following reasons that the Site does not need to be added to the NPL.

- The Company asserted that listing on the NPL creates needless uncertainty in cleanup actions at the Site.
- The Company stated that listing the Site would thwart the stated goals of the Superfund Task Force Report recommendations, noting that the goals of expedited cleanups, reinvigorating responsible party cleanup, promoting redevelopment, encouraging private investment, and engaging partners and stakeholders would all be compromised by listing on the NPL.

Additionally, the Company claimed that if it is EPA's desire to pressure the foundry PRPs into settlement, or into action, that is not a legitimate reason to propose a site on the NPL and is contrary to the law. The Company stated that the EPA must ensure that the Superfund Program undertakes any additions to the NPL only when sites present real, significant risks to human health or the environment and cannot be remediated in a timely manner under other programs.

Response: The EPA's actions to evaluate the Southside Chattanooga Lead site using the HRS and listing the Site are consistent with the requirements of CERCLA and SARA, and the statutory purpose of the NPL, which is to inform the public of possible threats and identify those sites which appear to warrant further investigation. At this site, soil lead contamination has been identified at 124 properties impacting 1,059 individuals at Level II concentrations and numerous similar nearby areas have not yet been sampled for soil contamination. Adding the Site to the NPL is consistent with the purpose of placing sites on the NPL because based on the qualifying site HRS score, at or above 28.50, it is of sufficient priority to warrant further investigation.

The HRS is intended to be a "rough list" of prioritized hazardous sites; a "first step in a process—nothing more, nothing less." *Eagle Picher Indus. v. EPA*, 759 F.2d 922, 932 (D.C. Cir. 1985) (*Eagle Picher II*). The HRS is the mechanism used to evaluate the relative risk of a site. If a site scores a 28.50 or greater using the HRS, then it may be added to the NPL.

The purpose of NPL listing is explained in the Federal Register Notice of February 21, 1990 (Volume 55, Number 35) excerpted below.

The purpose of the NPL, therefore, is primarily to serve as an informational and management tool. The initial identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the public health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation.

This site may be added to the NPL because it has achieved an HRS score of 28.50 or greater, as is noted in the HRS documentation record at proposal, and described in the responses in this support document. Achieving a site score of greater than 28.50 indicates that the site is eligible for inclusion on the NPL and therefore is considered to warrant further investigation. Placing a site on the NPL enables EPA to more effectively prioritize sites and manage possible future site investigations, and notifies the public that the release at a site is of concern to the Agency. The addition of the Site to the NPL is an appropriate next step and this determination was made consistent with the purpose of the NPL and is supported by the HRS evaluation. All remediation decisions are determined at a later stage in the Superfund process and are not considered during the NPL evaluation.

Regarding the Company's claim that the EPA may be using the listing of the Site to pressure a potentially responsible party (PRP) into settlement or action, the Company is in error. As quoted above in this response, the primary purpose of the NPL is to identify, for the States and the public, those facilities and sites or other releases that appear to warrant further investigation. Children are especially susceptible to lead poisoning and addressing the hazard posed to children is a priority at the Site. The EPA has clearly identified the exposure that is scored using the HRS. The placement of a site on the NPL imposes no liability on any PRP, therefore, the EPA is not listing the site in an attempt to pressure a PRP into action (see section 3.7, Liability, of this support document for additional information). Furthermore, no willing and capable PRP has been identified at this time that could enter into a Superfund alternative (SA) agreement, nor has a PRP for the site approached the EPA about entering into an SA approach agreement. EPA notes that placement of the site on the NPL does not exclude other entities from participating in or performing any necessary remediation needed at the Site.

Regarding the Company's claim that listing will impede the recommendations of the Superfund Task Force Recommendations report, listing is consistent with the NCP, CERCLA, and the goals of the Superfund Task

Force Recommendations. The goals of the Superfund Task Force Recommendations report are to bring about a cleaner environment and a speedier cleanup of NPL sites, as well as increased involvement of all stakeholders. Placing the Site on the NPL does not prohibit any PRP or stakeholder from participating in cleanup efforts. Throughout the process for achieving these goals, public participation, as discussed in section 3.4, Request for Meeting, of this support document, is encouraged.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.6 Alternatives to Listing

Comment: The Company recommended that the Site be handled by the Tennessee Department of Environment and Conservation (TDEC) and addressed as part of Brownfields. It asserted that listing should not be a substitute for inadequate enforcement and investigation of 60-plus foundries that operated in Chattanooga. It also claimed that EPA and PRPs are notoriously slow in cleanup, and in contrast, noted that other programs may be available that can facilitate more timely and efficient assessments, investigations, and remedial actions to protect human health and the environment. It also asserted that alternative regulatory approaches can better promote environmental cleanup, redevelopment, and remediation, rather than placing the Site on the NPL.

Response: The EPA determined that placing the Site on the NPL is an appropriate action to address further investigation of the release at the Site. The HRS documentation record at proposal and this support document provide evidence that EPA has complied with the HRS in evaluating the Site and that the Site score meets the listing threshold of 28.50. Further, the Tennessee Department of Environment and Conservation has expressed support for placing the Site on the NPL.

Deferral to State

Regarding the Company's statements that the Site should be handled by the State (TDEC), the Site has not been deferred to the state of Tennessee because, after consultation, the State confirmed it was appropriate to place the site on the NPL. In a June 28, 2017, letter, Commissioner of TDEC, Robert Martineau, Jr. stated that TDEC supports including the Site on the NPL. The commissioner stated that much remains to be done to remediate lead-contaminated soil posing an unacceptable risk to human health at the Site and that inclusion of the Site on the NPL will allow for EPA to conduct remedial investigation, risk assessment, and then remedial action if necessary.

Use of Alternative Remediation Programs

Regarding the Company's statements that other programs may be available to expedite the cleanup actions at the site in a less costly and more efficient manner, placement on the NPL does not prohibit use of other programs to expedite cleanup, if cleanup is determined necessary. Future remedial actions, and the cost or timeliness of such actions, are not considered when EPA assesses whether a site qualifies for the NPL. Inclusion of the Site on the NPL does not dictate future remedial actions. The NPL is only identification that a site warrants further investigation. Any EPA actions that may impose costs on other parties are based on separate decisions made later in the Superfund process on a case-by-case basis. Therefore, cost and/or efficiency considerations raised by the commenter are associated with events that generally follow listing the site, not with the listing itself. Similarly, placing the site on the NPL does not prevent further investigation, or remedial activities from being performed under State programs if any are determined to be necessary.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.7 Liability

Comment: The Company stated that responsibility for the Site environmental conditions lies with numerous parties both private and public.

Response: Inasmuch as this comment concerns liability for cleanup of the contamination at this site, whether any party may be liable for response costs is not considered when evaluating a site under the HRS; liability for cleanup is not established at the time of NPL listing and does not impact the listing decision. The NPL serves primarily as an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. Identification of a site for the NPL does not reflect a judgment on the activities of the owner(s), operator(s), or generator(s) associated with a site. It does not require those persons to undertake any action, nor does it assign any liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards. This position, stated in the legislative history of CERCLA, has been explained in the Federal Register (48 FR 40674, September 8, 1983 and 53 FR 23988, June 24, 1988).

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.8 Stigma/Economic Impact

Comment: The Company stated that the Courts have recognized there are harmful effects of placing a site on the NPL. The Company stated that investments and future activities will be negatively impacted, delayed, or abandoned if the proposed listing is not modified. The Company asserted that NPL status will damage Chattanooga and its residents, stigmatize properties, adversely affect property values (particularly in Southside residential areas), and require local residents to incur unnecessary costs.

The Company stated that the EPA needs to provide assurance of funding especially considering that listing can adversely impact the eligibility for grant funding or financing, Brownfield funding under the BUILD Act, and other programs. The Company requested that the EPA provide assurance to the City of Chattanooga and the citizens of Tennessee that adequate manpower, funding, and time will be committed to address the remediation of the Site.

Response: Any negative impacts noted by the Company would be engendered by the contamination in the area, not by the action of placing the site on the NPL. Inclusion of a site or facility on the NPL reflects the EPA's judgment that a significant release or threat of release has occurred and that the site is a priority for further investigation under CERCLA, and does not in itself reflect a judgment on the activities or inhabitants of the community. The EPA notes that there are both costs and benefits that can be associated with listing a site. Among the benefits are increased health and environmental protection as a result of increased public awareness of potential hazards. In addition to the potential for Federally financed remedial actions, the addition of a site to the NPL could accelerate privately financed, voluntary cleanup efforts. Listing sites as a national priority also may give States increased support for funding responses at particular sites. As a result of the additional CERCLA remedies, there will be lower human exposure to high-risk chemicals, and higher quality surface water, ground water, soil, and air. Therefore, it is possible that any perceived or actual negative fluctuations in property values or development opportunities that may result from contamination may also be countered by positive fluctuations when a CERCLA investigation and any necessary cleanup are completed.

Regarding the Company's request that funding and manpower be assured to address the Site, listing makes a site eligible for remedial action funding under CERCLA. As stated in section 3.1, Support for Listing and Other Non-opposition Comments, of this support document, actual funding may not necessarily be allocated in the precise

order of HRS scores, and upon more detailed investigation, may not be necessary at all in some cases. The EPA will determine the need for using Superfund monies for remedial activities on a site-by-site basis, taking into account the NPL ranking, State priorities, further site investigation, other response alternative, and other factors as appropriate.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.9 Risk to Human Health or the Environment

Comment: The Company stated that the EPA may not simply assume risks or make unsupported conclusions, but must accurately establish whether a site presents a risk at all when listing a site on the NPL. The Company made the following claims related to risk at the Site:

- There are numerous individual properties and areas for which no sampling or testing data exists to allow anything more than presumption or speculation as to the Agency conclusion of the possible existence of lead-contaminated soils or foundry waste materials on certain given properties;
- That no demonstrable evidence of elevated blood lead levels exists for those living in the areas sought to be listed as compared to the general population in the area;
- That the inclusion of properties is based on anecdotal stories.

The Company questioned whether an accurate assessment of any relative risk to human health or the environment was obtained and presented for the proposed Site because EPA joined more than 100 ad hoc areas as one site and omits other areas from the Site that are believed to have similar contamination. The Company commented that EPA relies on a geographic aggregation of properties that disregards the alleged risks presented by the non-uniform location of foundry waste materials and adds that a CERCLA remedy applied to aggregated properties is not required to protect human health and the environment. The Company noted that there is no record evidence to presume that a vacant neighborhood lot poses a greater risk to the population than the shuttered foundries that are accessible to the public.

Response: The EPA has not assumed site-specific risks are present at this site in determining that the site qualifies for placement on the NPL; rather, an HRS site score above 28.50 demonstrates that the Site poses a sufficient relative risk to warrant further investigation. The HRS is not a site-specific risk assessment; rather, it is a screening tool used to help EPA determine priorities for cleanup, and possible response activities, and represents relative risk among sites undergoing HRS evaluation. Actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process.

The NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of public health and environmental risks associated with a release of hazardous substances, pollutants or contaminants. See 83 FR 2576 (Proposed Rule, Southside Chattanooga Lead Site, January 18, 2018); see also 55 FR 51532 (Final Rule, Hazard Ranking System, December 14, 1990) and 82 FR 2760 (Addition of Subsurface Intrusion Component to the Hazard Ranking System, January 9, 2017). CERCLA § 105(a)(8)(a) requires EPA to determine NPL priorities among sites based on the “relative risk or danger to public health or welfare, or the environment.” The criteria EPA applies to determine this relative risk or danger is codified in the HRS, and is the Agency’s primary tool for deriving a site score based on the factors identified in CERCLA. The HRS evaluation and score above 28.50 represents EPA’s determination that the Site may pose a relative risk or threat to human health and the environment and warrants further investigation under CERCLA. As part of the standard Superfund process, once the Site is on the NPL, the investigations performed to date to characterize the Site will be evaluated for completeness, further information will be collected if deemed necessary to adequately characterize the risks posed by the Site, and based on this information, a risk assessment decision will be made determining what, if any, remedial action is necessary to protect human health and the environment.

The EPA does not assume uniform contamination throughout the Site and did not base the inclusion of individual areas based on anecdotal evidence. Instead, the EPA documented an area of observed contamination consisting of residential and non-residential areas with lead-contaminated soil and documented that 1,059 residents are living on properties containing Level II concentrations of lead. (See sections 3.14, Area of Observed Contamination, and 3.16, Target Population, of this support document for additional information). Areas that have not been sampled for contamination were not included in the scoring at the Site as contamination was not inferred to be present on unsampled properties. The documented soil contamination evaluated as present on the properties identified in the HRS documentation record is sufficient to achieve a site score above 28.50 and demonstrate that the Site poses sufficient relative risk to warrant placement on the NPL. Please also see section 3.11, Site Aggregation, of this support document.

Regarding the commenter's assertion that the EPA considers a vacant neighborhood lot to pose a greater risk to human health than the nearby foundry properties in the HRS evaluation, the EPA has made no such assertion. The EPA does not consider the relative risk to any individual property as being greater or less than another property. Including the nearby foundries in the HRS documentation record could only result in an increased site score and the Site has already been determined to pose sufficient relative risk to be included on the NPL. Further, two vacant lots zoned as residential lots and two unoccupied residential homes are included in the AOC but no residents were associated with them in the target population scoring included in the HRS evaluation. These four properties do not impact the Site score.

Regarding blood lead levels, in 2011 a resident located along Read Avenue was diagnosed with blood lead levels approaching 20 micrograms per deciliter ($\mu\text{g}/\text{dL}$) prompting the TDEC to request the EPA Region 4 Emergency Response and Removal Branch's assistance (see page 26 of the HRS documentation record at proposal). This spurred the EPA to investigate the Read Avenue neighborhood and then expand the investigations to the adjoining neighborhoods. Children are especially susceptible to lead poisoning and addressing the hazard posed to them was the priority of the site inspection, sampling, and removal actions on residential properties, play areas, schools, and daycare facilities. However, while elevated blood lead levels in children are evidence of risk in the area, they are not included as part of an HRS site score.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.10 Extent of Site/Site Boundaries

Comment: The Company stated that the HRS documentation record and supporting package do not adequately identify the Site boundaries, and the Site differs depending on which part of the HRS documentation record or EPA material is reviewed. The Company stated that some parcels included as part of the Site are properties lying outside the geometric plane of source areas identified by the EPA. It added that EPA has not tested each parcel included in the Site, and that the Site includes vacant lots and child high impact zones without record support, excludes the foundries as sources, and includes non-contiguous, non-commonly owned parcels in various neighborhood that are, at times, based on anecdotal stories. The Company asserted that differential treatment in the listing process (i.e., EPA excluding source areas at the foundries from the Site boundaries) is particularly concerning. It also stated that EPA's February 13, 2018, announcement to expand the Site to connect three additional disparate locations into one "enormous site is a slippery slope that is not authorized, contemplated, nor intended under CERCLA, the NCP, or the HRS."

Response: The Site is appropriately identified in the HRS documentation record at proposal. Site boundaries, which determine the extent of the Site, are not established at the listing stage of the Superfund process. The HRS Site score is based on documented contamination releases. Site boundaries are delineated during further investigations post listing, which will determine the extent of the contamination.

Placing a site on the NPL is based on an evaluation, in accordance with the HRS, of a release or threatened release of hazardous substances, pollutants, or contaminants. The fact that the EPA initially identifies and lists the release based on a review of contamination at certain parcels of property does not necessarily mean that the site boundaries are limited to that area. Later investigations will determine the extent of the site.

CERCLA Section 105(a)(8)(A) requires the EPA to list national priorities among the known “releases or threatened releases” of hazardous substances; thus, the focus is on the release, not precisely delineated boundaries. Further, CERCLA Section 101(a) defines a “facility” as the “site” where a hazardous substance has been “deposited, stored, placed, or otherwise come to be located.” The “come to be located” language gives the EPA broad authority to clean up contamination when it has spread from the original source. On March 31, 1989 (54 FR 13298), the EPA stated:

HRS scoring and the subsequent listing of a release merely represent the initial [emphasis added] determination that a certain area may need to be addressed under CERCLA. Accordingly, EPA contemplates that the preliminary description of facility boundaries at the time of scoring will need to be refined and improved as more information is developed as to where the contamination has come to be located; this refining step generally comes during the RI/FS [remedial investigation/feasibility study] stage.

The revised HRS (55 FR 51587, December 14, 1990) elaborates on the “come to be located” language, defining “site” as “area(s) where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources and may include the area between the sources.”

Regarding the commenter’s assertion that EPA has connected three additional disparate locations into one enormous site, until the site investigation process has been completed and a remedial action (if any) selected, the EPA can neither estimate the extent of contamination at the NPL site, nor describe the ultimate dimensions of the site. Even during a remedial action (e.g., the removal of buried waste) the EPA may find that the contamination has spread further than previously estimated, and the site definition may be correspondingly expanded. In addition, if another, unrelated area of contamination is discovered elsewhere on the property, the EPA may decide to evaluate that release for the NPL.

For the purposes of this HRS evaluation, the Site consists of individual properties where sampling and analysis have documented levels of lead in soil meeting observed contamination criteria. Page 51 of the HRS documentation record at proposal, under the heading Attribution also identifies the extent of the Site:

The SCLS is composed of lead-contaminated soil on residential (single and multi-family) and non-residential (churches, parks, play areas, and vacant lots) properties, which show indications that foundry waste material was used as fill or top soil (Refs. 7, pp. 16 through 112; 10, pp. 3 through 182, 194 through 269; 24, p. 1; 31; 32, pp. 34 through 41, 45 through 56; 33; 35; 61; 67, pp. 4 through 16).

Contaminated areas on former foundry properties have not been included in the Site because these areas are being addressed under a Brownfields program or other alternative programs. Additionally, no individuals are documented to be living on contaminated soils at the former foundries and the foundries themselves have either been demolished, are undergoing removal actions, or have been redeveloped. Therefore, a lack of targets present on the properties of these former foundries would have resulted in no changes to the listing decision. Pre-remedial site inspection sampling for the Site focused on areas where the exposure of residents and children to lead were a concern; the absence of extensive sampling at foundries for the HRS evaluation is the result of the focused sampling effort and not a deliberate attempt to exclude the foundries from inclusion in the Site and possible remedial activities at these properties. As discussed above, there is a possibility of inclusion of the foundries at the Site in the future as further investigation is conducted into the nature and extent of the contamination.

As scored for listing, parcels/properties included in the Site are documented to meet the criteria for observed contamination. Properties that were sampled and do not meet the criteria for observed contamination are not included in the Site and are not part of the HRS score. Likewise, properties that have not been sampled are not included in the Site and are not part of the HRS score. While these unsampled properties are not part of the HRS score, they may be added to the Site in the future if sampling at these properties documents contamination above preliminary cleanup goals. See Figures 3 through 10 of the HRS documentation record at proposal for the properties included and section 3.14.2 of this support document for a discussion of the AOC delineation.

For additional information on comments regarding non-contiguous and non-commonly owned parcels, please see section 3.11, Site Aggregation, below in this support document for a detailed response.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11 Site Aggregation

Comment: The Company commented that in aggregating multiple disparate properties and neighborhoods as the Southside Chattanooga Lead site, the EPA is unlawfully and inappropriately aggregating multiple individual sites into a single site. The Company stated that aggregation of disparate properties and distinct neighborhoods, including but not limited to the Southside Gardens neighborhood, exceeds EPA's authority. It also stated that the EPA relies upon a geographic aggregation of properties combined with an overly formalistic application of the HRS that disregards the alleged risks.

The Company presented the following arguments in support of this assertion:

- The aggregation of distinct sites is unlawful and inappropriate when each individual “facility” does not independently qualify for the NPL, citing to the Mead decision in support of this assertion.
- The EPA excluded areas known or believed to contain similar contaminants without sufficient explanation.
- The EPA did not determine an HRS score for each distinct neighborhood.
- The properties included have different uses, different property conditions, and varying proximities to possible source areas.
- The EPA did not include an aggregation memo in the HRS package.
- The EPA did not identify a rationale for varying from its policy on “non-aggregation.”

Response: The Southside Chattanooga Lead site listing is not an aggregation of multiple sites. Rather, the Site includes an area of observed contamination (AOC A) that is a result of the release of lead from adjacent and nearby foundry operations, which distributed to nearby residential and church properties via lead contaminated fill. As set out below, this site consists of multiple AOCs that are all the result of the release of lead-contaminated waste from the nearby foundry operations.

HRS Section 1.1, *Definitions*, provides the definition for a site and directs that a site can include multiple areas. The HRS defines the term site as:

Area(s) where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources and may include areas between sources. (Emphasis added)

HRS Section 5.1.0, *General considerations*, provides additional context for allowing for multiple areas to be considered part of a site. The HRS provides the following requirements:

Establish **areas** of observed contamination based on sampling locations at which there is observed contamination as follows:

...

-For contaminated soil, consider both the sampling **location(s)** with observed contamination from the site and the area lying between such locations to be an area of observed contamination, unless available information indicates otherwise. (Emphasis added)

The HRS documentation record for the Southside Chattanooga Lead site defines on page 22 of the HRS documentation record at proposal as consisting of lead-contaminated soil on properties where foundry waste was used as fill. It states:

The Southside Chattanooga Lead Site (SCLS) is composed of lead-contaminated soil on residential (single and multi-family) and non-residential (churches, parks, play areas, and vacant lots) properties where foundry waste material was used as fill or top soil (Refs. 7, pp. 16 through 112; 10, pp. 3 through 182, 194 through 269; 24; 31; 32, Appendices A and B; 33; 35; 61).

Page 51 of the HRS documentation record at proposal, also identifies that the origin of the contamination in AOC A is from the adjacent historic foundries:

The SCLS is composed of lead-contaminated soil on residential (single and multi-family) and non-residential (churches, parks, play areas, and vacant lots) properties, which show indications that foundry waste material was used as fill or top soil (Refs. 7, pp. 16 through 112; 10, pp. 3 through 182, 194 through 269; 24, p. 1; 31; 32, pp. 34 through 41, 45 through 56; 33; 35; 61; 67, pp. 4 through 16).

The foundries thought to be the origin of the lead contamination in the AOC of the Site (titled AOC A) are also described on pages 22 and 23 of the HRS documentation record at proposal (and shown in Figure 2). It states:

Since the late 19th century, numerous foundries, typically brass, iron, and steel, have operated within the City of Chattanooga (Refs. 24; 43, p. 5; 65). Most of these foundries were located between Broad Street and the Tennessee River in the southwestern portion of Chattanooga (Refs. 24; 36, p. 6) (see Figure 2 of this HRS documentation record). Some of these foundries include Chattanooga Car and Foundry, Chattanooga Pattern and Foundry, Eureka Foundry, Ross-Meehan Foundry (Ross-Meehan), Southern Foundry and Supply, Inc., Wheland Foundry (Wheland), and U.S. Pipe Foundry Company (U.S. Pipe) (Refs. 25, pp. 6, 7; 43, p. 5; 44, pp. 25, 26; 45, p. 3;). Over time, some of the foundries acquired other foundries and consolidated operations (Refs. 43, p. 5; 46, p. 4). The three most prominent foundries that operated in the Chattanooga area included Wheland (circa 1873), U.S. Pipe (circa 1899), and Ross-Meehan (circa 1889) (Refs. 24; 36, p. 6; 43, p. 5; 44, p. 25; 45, p. 3; 51, p. 4). These prominent foundries were located along the western boundary of AOC A (Refs. 24; 36, p. 6) (see Figure 2 of this HRS documentation record). Properties within AOC A show indications of foundry waste material having been used as fill material or top soil (Refs. 24, p. 1; 33; 34, p. 1; 65).

Due to the large number of historic foundries that have operated in the area, it is beyond the scope of the HRS as a screening tool to determine which foundry was the origin of the waste material at specific properties. Hence, EPA has identified the group of nearby historic foundries as the origin of the release being evaluated and evaluated the threat posed to residents due to the use of lead contaminated foundry waste as fill material in nearby residential areas identified as AOC A. This area is shown in the HRS documentation record at proposal on Figure 2.

AOC A is described in Section 5.0.1, General Description of the HRS documentation record at proposal. It states on page 28:

AOC A is composed of surface soils impacted by elevated (equal to or greater than three times background) levels of lead in residential (single and multi-family) and non-residential (churches, parks, play areas, and vacant lots) properties in an area in the southern portion of Chattanooga, Tennessee, where foundry waste material was used as top soil and fill material (Refs. 7, pp. 16 through 112; 10, pp. 3 through 182, 194 through 269; 24; 33) (see Figure 2 of this HRS documentation record).

This same section in the HRS documentation record also describes the location of AOC A. It states on Page 28:

Location of the area, with reference to a map of the site:

AOC A is contaminated surface soil that contains lead above background levels throughout Alton Park, College Hill Courts, Cowart Place, Jefferson Heights, Mountain View Court, Richmond, and Southside Gardens in the southwestern portion of Chattanooga, Tennessee. Most of the properties included in AOC A are residential (Refs. 7, pp. 16 through 112; 10, pp. 3 through 178, 194 through 270) (see also Figure 1 of this HRS documentation record). In order to prioritize human health, the EPA SI focused on occupied residential properties (Refs. 31; 32, pp. 5, 17, 19). Commercial, industrial, and vacant areas are located between the areas included in the SI sampling; but haven't been investigated (Refs. 32, pp. 5, 17, 26; 61). Soil samples that meet observed contamination criteria were used to delineate AOC A (Ref. 1, Table 2-3; see Tables 5 and 7 of this HRS documentation record). In accordance with Section 5.0.1, General Considerations of the HRS, areas lying between sampling locations, except those areas that are covered by an impenetrable material, are included in AOC A (Ref. 1, Section 5.0.1) (see also Figures 4 through 10 of this HRS documentation record). Properties within AOC A show indications of foundry waste material having been used as fill material or top soil (Refs. 24; 33). Lead has been detected at varying concentrations in soil samples collected from AOC A (Refs. 5, pp. 14 through 84; 14, pp. 8 through 105; 15, pp. 19 through 117). The use of foundry waste material on residential and non-residential properties is not uniform on individual or among adjacent properties (Refs. 24, p. 1; 33). On properties where fill mostly consists of foundry waste material, the fill is a dark brown, gray or black, coarse material that sometimes has slag and baghouse dust mixed in. However, when foundry waste material is mixed with soil, it may be difficult to differentiate the soil mixed with foundry waste material and soil that does not contain foundry waste material (Refs. 24; 67, pp. 1 through 16). The soil samples collected from AOC A were collected from 0 to 4 inches bgs and primarily consisted of dark brown silt, dark brown silty loam, and dark brown sand (Ref. 7, pp. 16 through 112; 10, pp. 3 through 178, 194 through 270; 67, pp. 4 through 16).

As discussed above, while the properties identified as part of AOC A are not all contiguous, this does not mean the areas between the properties are not contaminated. Some areas have been cleaned as part of removal actions, other areas were either not considered a priority for sampling or have not been sampled. Properties that have not been sampled are not included in the HRS scoring, but are not necessarily being excluded from the Site; rather, they were simply not the focus of the initial sampling efforts, and may be identified as part of the Site if future sampling indicates contamination to be present on the properties. EPA determined that it had identified sufficient targets to qualify the Site for the NPL, and consistent with the concept that the HRS is a screening tool, proposed the Site for the NPL appropriately based on the HRS score. Further investigation, as needed, will occur as part of the remedial investigation of the Site.

Individual properties with samples meeting observed contamination criteria are identified in Section 5.1.1, Likelihood of Exposure, of the HRS documentation record at proposal. These properties include 3 churches and 127 residential properties. It states on page 57:

Tables 4 and 6 of this HRS documentation record list surface soil samples (0 to 4 inches bgs) collected during Set 1 (October 2016) and Set 2 (January 2017) of the EPA SI and include three churches, one of which is used for an after-school program, and 123 occupied residential properties located within AOC A (Refs. 7, pp. 1 through 112; 10, pp. 9 through 270; 32, Appendix A, pp. A-4 through A-11).

Mead Decision

Regarding The Company's comments that aggregating distinct sites violates the Mead Corp. court decision when each individual "facility" would not independently qualify for the NPL and that the EPA did not provide a rationale for varying from its policy, the Mead Corp. decision of improper aggregation does not apply at this site. The Mead decision applies to the aggregation of unrelated areas of contamination (i.e., a site), that do not qualify independently for the NPL, into a single listing that after aggregation qualifies for placement on the NPL. The Mead decision applies to a case where the EPA proposed to aggregate a stream reach that was documented to qualify for the NPL using the ATSDR site listing process and a non-adjacent facility into one site. In the Mead decision, the EPA did not show that the non-adjacent facility was the origin of the contamination in that stream reach, related to the contamination downstream in the ATSDR listing, nor that the facility independently qualified for the NPL. As discussed above, the Southside Chattanooga Lead site score is based on the threat to residents and workers due to the area-wide use of lead contaminated foundry waste used as fill material in nearby neighborhoods. Each individual contaminated property making up AOC A is not a facility or independent site. The soil contamination at the individual properties comprising the Southside Chattanooga Lead site is related to foundry waste fill material deposited throughout the neighborhoods, therefore the Mead decision does not apply and the EPA did not vary from its aggregation policy.

Individual Scoring and Aggregation Policy

Regarding the Company's assertions that EPA did not provide individual scores for each property or neighborhood, that EPA had violated its non-aggregation policy, and that EPA did not provide an aggregation memo explaining its rationale for aggregating multiple sites in a single listing as required by the Mead decision to show each "site" scored separately; the Southside Chattanooga Lead site is not an aggregation of sites. As explained above in this response, this site consists of multiple areas that are all the result of the release of lead-contaminated waste from nearby foundry operations. As the origin of the contamination is all from nearby facilities, the aggregation policy does not apply to this site listing.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.12 Scope of the HRS Evaluation

Comment: The Company commented that the EPA did not perform a comprehensive scoring assessment considering all exposure pathways at the Site. The Company stated that the EPA took only a handful of samples from the massive former foundries and did not include the foundries as sources which contained the highest levels of lead and are the source of the contamination in Chattanooga. It added that there is no evidence that a vacant neighborhood lot poses a greater risk than the massive expanse of the shuttered foundries which are accessible via the public Riverwalk trail and bicycle paths that intersects them. The Company asserted by not performing a comprehensive scoring assessment suggests that the EPA either (a) had a preconceived notion of what it intends to do or predetermined the Site prior to the comment period; or, (b) does not really know what may or may not be required of it for purposes of a comprehensive scoring assessment of the exposure pathways. The Company

further commented that the EPA should not ignore or omit source areas, to the extent EPA plans to exercise CERCLA authority over multiple areas and properties within (or outside) the presently depicted or defined “boundaries” of the proposed Site.

Response: The information contained in the Southside Chattanooga Lead site HRS documentation package was sufficient to document that the Site qualifies for the NPL based on an HRS site score above 28.50. Evaluating waste removed, buried, or landfilled at former foundries, or any other foundry sources would not result in a change in the listing decision as it could only increase the site score. The site score need not include all original sources contributing to the contamination.

If the Company is suggesting that additional threats exist via exposure to foundry waste, during the site inspection, contamination that could affect children’s health was prioritized by focusing on residential properties and parks in the neighborhoods thought to have the greatest potential to be impacted by the lead-bearing foundry waste fill material. The selection of areas was based on age of construction, proximity to foundries, proximity to Chattanooga creek, area of historic flooding, and input from Tennessee Department of Environment and Conservation. (See pages 26 and 27 of the HRS documentation record; page 28 of Reference 24; and Reference 3 of the HRS documentation record at proposal). Other residential areas may be similarly impacted, and a subsequent stage of the Superfund process, the remedial investigation (RI), will characterize conditions and hazards at the Site more comprehensively and will investigate other contamination migration routes or exposures routes as necessary when performing a site-specific risk assessment. This site has been placed on the NPL because it has an HRS score greater than 28.50 and meets all CERCLA and NCP listing criteria.

The HRS does not require scoring all sources, pathways or threats if scoring those sources, pathways or threats does not change the listing decision. For some sites, data for scoring a threat or pathway are unavailable and obtaining these data would be time-consuming or costly. In other cases, data for scoring some sources, pathways or threats are available, but would only have a minimal effect on the site score. In still other cases, data on other pathways could substantially add to a site score, but would not affect the listing decision. The HRS is a screening model that uses limited resources to determine whether a site should be placed on the NPL for possible Superfund response. A subsequent stage of the Superfund process, the RI, characterizes conditions and hazards at the site more comprehensively.

To the extent practicable, the EPA attempts to score all sources, threats and pathways that pose significant threats. If the contribution of a threat or pathways is minimal to the overall score, in general, that threat or pathway will not be scored. In these cases, the HRS documentation record may include a brief qualitative discussion to present a more complete picture of the conditions and hazards at the site. As stated on the coversheet of the HRS documentation record at proposal, the nearby population threat of the soil exposure component was not scored in the HRS documentation record because the resident population threat of the soil exposure component is sufficient to qualify the Site for the NPL. The ground water, surface water, and air migration pathways, and the nearby population threat of the soil exposure component of the soil exposure and subsurface intrusion pathway, are of concern to the EPA and may be considered during a future evaluation. At the time of the listing, the Site score is sufficient without, and the listing of the site would not be changed by, the addition of the threats, components, and pathways not scored at proposal. As a matter of policy, the EPA does not delay listing a site to incorporate new data or score additional threats or new pathways if the listing decision is not affected.

The EPA must balance the need to fully characterize a site with the limited resources available to collect and analyze site data. However, any additional data that characterizes site conditions could provide useful information during the RI. Additionally, the subsequent Superfund remedial investigation and risk assessment will establish the threat posed via additional migration and exposure pathways.

The HRS is intended to be a “rough list” of prioritized hazardous sites; a “first step in a process--nothing more, nothing less.” *Eagle Picher Indus. v. EPA*, 759 F.2d 922, 932 (D.C. Cir. 1985) (*Eagle Picher II*). The EPA would like to investigate each possible site completely and thoroughly prior to evaluating them for proposal for the NPL,

but it must reconcile the need for certainty before action with the need for inexpensive, expeditious procedures to identify potentially hazardous sites. The D.C. Circuit Court of Appeals has found the EPA's approach to solving this conundrum to be “reasonable and fully in accord with Congressional intent.” *Eagle Picher Industries, Inc. v. EPA*, (759 F.2d 905 (D.C. Cir. 1985) Eagle Picher I).

See sections 3.10, Extent of Site/Site Boundaries, 3.14.2, AOC Delineation, and 3.15, Observed Contamination: Attribution, of this support document and for discussions on the extent of site, the AOC scored, and the role of the former foundries in the contamination being scored at this site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13 XRF Sampling Analysis

Comment: The Company stated that reliance on x-ray fluorescence (XRF) analysis as opposed to laboratory analysis results in data that are often skewed higher and rarely correlates to the actual laboratory results. It referred to References 28 and 29 of the HRS documentation record at proposal.

Response: XRF sampling and analysis results were not used in the scoring of this site. The soil samples used in the delineation of the areas of contamination and to establish levels of contamination for the targets were analyzed by the EPA Region 4 SEDS ASB laboratory for lead using EPA Method 200.8 or EPA Method 6010, or analyzed by the EPA Contract Laboratory Program (CLP) using CLP SOW ISM02.3. As identified in the HRS documentation record at proposal, lead concentrations used in determining the AOC and in assigning levels of contamination were based on analysis performed in the laboratory using EPA Methods 200.8, 6010, or CLP SOW ISM02.3 (the methods noted above). While XRF analysis was used as a cost savings strategy to screen soil samples in the field to select which samples were sent to the laboratories for analysis, all the soil samples presented in the HRS documentation record at proposal were evaluated using EPA Methods 200.8, 6010, or CLP SOW ISM02.3 performed in the laboratory, not XRF analysis.

In establishing observed contamination, the HRS does not identify sampling or analysis procedures. HRS Section 5.1.0, *General considerations* states to:

Evaluate the soil exposure component based on areas of observed contamination:

- Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
 - A hazardous substance attributable to the site is present at a concentration significantly above background levels for the site (see Table 2–3 in section 2.3 for the criteria for determining analytical significance), and
 - ...

The HRS documentation record at proposal explains the analytical methods used to analyze the soil samples that were collected in October 2016 and January 2017 and used to establish a background level, observed contamination, and levels of target contamination.

Page 31 of the HRS documentation record at proposal states the analytical methods associated with the background samples:

Background samples CHT040-SF-BG, CHT051-SF-BG, CHT055-SF-BG, and CHT069-SF-BG, as well as the SI, Set 1 samples, were analyzed in November 2016 by the EPA Region 4 SEDS Analytical Support Branch (ASB) laboratory for lead using EPA Method 200.8 (Refs. 5, pp. 1, 14 through 17; 23, p. 94; 21). To ensure that analyses of the background soil samples collected in October 2017 were comparable to the SI, Set 2 (January 2017) contaminated samples, the

background soil samples were analyzed a second time with the SI, Set 2 samples using the same analytical methods as the SI, Set 2 samples. Because lead is an environmentally stable metal, and the method of deposition at the site is the result of using foundry waste material as fill, it is not expected that lead levels at the background sample locations would vary significantly over the course of three months. The background samples were re-analyzed in February 2017 for lead, under the EPA ... CLP using the ... SOW for Inorganic Superfund Methods, Multi-Media, Multi-Concentration, ISM02.3, which is the same method used for the SI, Set 2 (January 2017 event) soil samples (Refs. 15, pp. 1, 2, 75, 76, 77, 78; 16; 31).

Page 38 of the HRS documentation record at proposal states the analytical method associated with the contaminated soil samples collected in October 2017:

The soil samples listed in Table 5 of this HRS documentation record were collected in October 2016 during Set 1 of the EPA SI (Refs. 7; 9). The soil samples were analyzed in November 2016 by the EPA Region 4 SESD ASB laboratory for lead using EPA Method 200.8 (Refs. 5, pp. 14 through 17; 23, p. 94).

Page 47 of the HRS documentation record at proposal states the analytical method associated with the contaminated soil samples collected in January 2017:

The soil samples listed in Table 7 of this HRS documentation record were collected in January 2017 during Set 2 of the EPA SI (Refs. 10; 12). The samples were analyzed in February 2017 for lead under the EPA CLP using the CLP SOW ISM02.3 (Refs. 14, pp. 1, 2; 15, pp. 1, 3; 16).

The HRS documentation record at proposal cites References 5³, 14⁴, and 15⁵ to show the laboratory analytical methods used to analyze the soil samples collected in October 2016 and January 2017 during the site inspection. For the analyses performed in November 2016, Reference 5 pages 14-17 show EPA methods 200.8 and 6010 were used. EPA method 200.8 is an inductively coupled plasma – mass spectrometry (ICP-MS) technique and a copy of his method is included as Reference 21⁶ of the HRS documentation record at proposal (see: <https://www.epa.gov/sites/production/files/2015-06/documents/epa-200.8.pdf>). EPA method 6010 is an inductively coupled plasma—optical emission spectrometry (ICP-OES) technique (see: <https://www.epa.gov/sites/production/files/2015-12/documents/6010d.pdf>). Neither of the methods used for the data presented in the HRS documentation record at proposal are XRF analyses. Reference 14, page 2 confirms that for the samples collected in October 2016 and January 2017 and analyzed in February 2017, these soil samples were analyzed for total metals by an inductively coupled plasma—mass spectrometry (ICP-MS) analyses according to the CLP SOW ISM02.3, Modified Analysis 2697.0. Similarly, Reference 15, page 2 confirms that for the samples collected in October 2016 and January 2017 and analyzed in February 2017, these soil samples were analyzed for total metals by ICP-MS analyses according to the CLP SOW ISM02.3, Modified Analysis 2697.0. Although the HRS documentation record at proposal did not identify EPA Method 6010, this method is

³ Reference 5 of the HRS documentation record at proposal: EPA Region 4, Science and Ecosystem Support Division (SESD). *Memorandum with Attachment to Cathy Amoroso. Subject: Final Analytical Report. Attachment: EPA SESD Project 17-0055, Southside Chattanooga Lead Site Analytical Report.* March 8, 2017. 104 Pages.

⁴ Reference 14 of the HRS documentation record at proposal: EPA Region 4, SESD. *Memorandum with Attachment to Cathy Amoroso. Subject: Final Analytical Report. Attachment: EPA SESD Project 17-0147, Southside Chattanooga Lead Site Analytical Report.* March 24, 2017. 105 Pages.

⁵ Reference 15 of the HRS documentation record at proposal: EPA Region 4, SESD. *Memorandum with Attachment to Cathy Amoroso. Subject: Final Analytical Report. Attachment: EPA SESD Project 17-0148, Southside Chattanooga Lead Site Analytical Report.* March 7, 2017. 118 Pages.

⁶ Reference 21 of the HRS documentation record at proposal: EPA. Environmental Monitoring Systems Laboratory, Office of Research and Development. *Method 200.8, Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry, Revisions 5.4.* 1994. 58 Pages.

identified in the analytical data results sheets cited to support the analytical results for the samples collected in October 2016 and analyzed in November 2017.

The October 2016 background soil samples were analyzed twice: once in November 2016 by the EPA Region 4 SESD Analytical Support Branch (ASB) laboratory for lead using EPA Method 6010, and again in February 2017 for lead, under the EPA CLP using the CLP SOW for Inorganic Superfund Methods, Multi-Media, Multi-Concentration, ISM02.3 (page 31 of the HRS documentation record at proposal; pages 14-17 of Reference 5 of the HRS documentation record at proposal; pages 75-78 of Reference 15 of the HRS documentation record at proposal). The observed contamination soil samples collected in October 2016 were analyzed in November 2016 by the EPA Region 4 SESD ASB laboratory for lead using EPA Method 200.8. The observed contamination soil samples collected in January 2017 were analyzed in January–February 2017 for lead under the EPA CLP using the CLP SOW ISM02. 3 (pages 36 and 46 of the HRS documentation record at proposal). EPA notes that the HRS documentation record at proposal incorrectly states the background soil samples collected in October 2016 were analyzed by EPA Method 200.8. As documented in Reference 5 of the HRS documentation record, these samples were analyzed for lead with EPA Method 6010.

With respect to the use of XRF analysis during the site inspection, soil samples collected were first analyzed using a portable XRF to screen soil samples for lead. The results associated with these XRF analyses are provided in References 7⁷ and 32⁸ of the HRS documentation record at proposal. As stated above, the XRF data were not used in scoring; at this site the XRF data were used as a cost-saving strategy to determine which samples should undergo laboratory analysis. The HRS score relies only on the laboratory analysis as discussed. Regarding the comparison of the XRF results with laboratory results that is provided in Table 13 (on pages 58 through 63) of Reference 32 of the HRS documentation record at proposal, the XRF data appearing on this table were also not used in scoring the Site.

References 28 and 29 cited by the Company in support of its comments do not show that XRF results were used to document the hazardous substances associated with the soil samples in the HRS documentation record. Reference 28 is a Tetra Tech project memo discussing residential population associated with the scoring, and Reference 29 is a US Census QuickFacts document supporting the county average number of residents in Hamilton County, Tennessee.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14 Area of Observed Contamination

Comment: The Company commented that the EPA failed to identify the amount of contamination and adequate background level. It also added that the EPA included a variety of untested areas, vacant lots without support, and properties outside the source areas.

Response: The area of observed contamination (AOC) was evaluated consistent with the HRS. The following subsections contain a detailed response to each of the Company's specific comments on characterizing the AOC:

- 3.14.1 AOC Background Level
- 3.14.2 AOC Delineation
- 3.14.3 AOC Hazardous Waste Quantity

⁷ Reference 7 of the HRS documentation record at proposal: Tetra Tech. *Soil Sample Field Forms. Southside Chattanooga Lead Site. Site Inspection, Set 1.* October 2016. 115 Pages.

⁸ Reference 32 of the HRS documentation record at proposal: Tetra Tech. *Final Site Inspection Report, Former Chattanooga Foundries, Chattanooga, Hamilton County, Tennessee. Prepared for EPA Region 4, EPA Contract No. EP-S4-14-03, TDD No. TT-05-024.* August 21, 2017. 1,062 Pages.

3.14.1 AOC Background Level

Comment: The Company made several objections to the background level used to identify locations of observed contamination, challenging the location and similarity of background samples to observed contamination samples and use of a background level below the EPA Regional Screening Level for lead. The commenter also claimed that EPA ignored manufacturing history and anthropogenic background factors.

Response: The HRS documentation record at proposal establishes a site-specific background lead level for the Site. The background soil lead level of 60 mg/kg used for identifying a significant increase in lead (i.e., observed contamination) was established consistent with HRS requirements and established a concentration of lead that provides a reference point suitable to evaluate whether or not a release from this site has occurred. The background and observed contamination soil samples used were sufficiently similar to document the significant increase was due to a release from the Site and not differences in sample characteristics. The anthropogenic background levels noted by the Company were considered in the soil sampling strategy and are not the source of the significant increase in lead evaluated in the observed contamination soil samples. Further, whether or not the background level for a site is below a regulatory screening level does not preclude listing.

The HRS does not specify how to establish a background level. However, consistent with HRS guidance, the site-specific background level used in the HRS documentation record at proposal was based on soil samples collected outside the contaminated area to evaluate a significant increase in lead contamination in AOC A at the Site.

Section 5.1.0, *General considerations*, of the HRS discusses the background level in the explanation of how to establish areas of observed contamination. It states:

Evaluate the soil exposure component based on areas of observed contamination:

- Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
 - A hazardous substance attributable to the site is present at a concentration significantly above background levels for the site (see Table 2–3 in section 2.3 for the criteria for determining analytical significance), *and*
 - This hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material (for example, soil).
- Establish areas of observed contamination based on sampling locations at which there is observed contamination as follows:
 - For all sources except contaminated soil, if observed contamination from the site is present at any sampling location within the source, consider that entire source to be an area of observed contamination.
 - For contaminated soil, consider both the sampling location(s) with observed contamination from the site and the area lying between such locations to be an area of observed contamination, unless available information indicates otherwise.

HRS Table 2-3 provides the following criteria for establishing analytical significance, i.e., observed release for the migration pathways and observed contamination for the soil exposure and subsurface intrusion pathway and the use of background levels:

Table 2–3—Observed Release Criteria for Chemical Analysis

Sample Measurement < Sample Quantitation Limit ^a
No observed release is established.
Sample Measurement ≥ Sample Quantitation Limit ^a
An observed release is established as follows:
<ul style="list-style-type: none"> • If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.^a • If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.

^a If the sample quantitation limit (SQL) cannot be established, determine if there is an observed release as follows:
 —If the sample analysis was performed under the EPA Contract Laboratory Program, use the EPA contract-required quantitation limit (CRQL) in place of the SQL.
 —If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit (DL) in place of the SQL.

Page 29 of the HRS documentation record at proposal provides information on the background samples used to establish a background level. It states:

Background Levels

Samples collected from three local parks and a community center property during Set 1 of the SI were evaluated to establish background levels for lead (Refs. 7, pp. 3 to 6, 15 to 112; 10, pp. 3 to 182, 194 to 270) (see Figures 3 through 10 of this HRS documentation record). Lead is the only contaminant discussed in this HRS documentation record because lead is the primary contaminant of concern related to foundry waste material (Ref. 32, p. 21). Foundry waste material was not observed in the background samples. The background samples were collected from three parks and a community center property located about 1 to 2 miles north-northeast of AOC A (Refs. 7, pp. 3 to 6; 31; 61) (see Figure 3 of this HRS documentation record).

Pages 31-32 and Table 3 of the HRS documentation record at proposal provide analytical results for the background samples and establish an HRS background lead level of 60 mg/kg. The EPA chose this background level because it was the highest concentration of lead among the background samples collected. See Table 3 of the HRS documentation record, shown below:

TABLE 3: Analytical Results for Background Soil Samples				
Sample ID	Hazardous Substance	Concentration (mg/kg)	MRL/CRQL (mg/kg)	References
Set 1 – October 2016				
CHT040-SF-BG	Lead	41	4.0	5, p. 14
CHT051-SF-BG	Lead	47	4.0	5, p. 15
CHT055-SF-BG	Lead	60 ¹	9.9	5, p. 16
CHT069-SF-BG	Lead	59	3.9	5, p. 17
Set 2 – January 2017				
CHT040-SF-BG2	Lead	39	0.45	15, p. 75

TABLE 3: Analytical Results for Background Soil Samples				
Sample ID	Hazardous Substance	Concentration (mg/kg)	MRL/CRQL (mg/kg)	References
CHT051-SF-BG2	Lead	43	0.38	15, p. 76
CHT055-SF-BG2	Lead	59	0.46	15, p. 77
CHT069-SF-BG2	Lead	57	0.47	15, p. 78

Notes:

- ¹ **Lead at 60 mg/kg in sample CHT055-SF-BG was used as the background level because it is the highest lead concentration in the background samples.** [Emphasis added]
- BG Background sample, Set 1 of the SI analyzed by the EPA Region 4 SEDS Analytical Support Branch (Ref. 5, pp. 1, 2).
- BG2 Background sample re-submitted with Set 2 SI samples for analysis under the EPA CLP. The samples were secured, kept under chain of custody, and met holding times for sample analysis (Refs. 11, p. B-3; 15, pp. 1, 5; 31).
- CHT### Chattanooga Background Study grid number
- CLP Contract Laboratory Program
- CRQL Contract-required quantitation limit
- EPA U.S. Environmental Protection Agency
- ID Identification number
- J The identification of the analyte is acceptable; the reported value is an estimate.
- mg/kg Milligrams per kilogram
- MRL Method reporting limit
- SF Surface soil

Page 28 of the HRS documentation record at proposal describes that the background level is used to identify areas of observed contamination consistent with the HRS. It states:

According to the HRS, the soil exposure component of the soil exposure and subsurface intrusion pathway is based on areas of observed contamination (Ref. 1, Section 5.0.1). All soil samples evaluated for the area of observed contamination were collected at a depth of 0 to 4 inches bgs (Refs. 7, pp. 45 through 112; 10, pp. 3 through 178, 194 through 270) (see also Tables 4 and 6 of this HRS documentation record). The SCLS [Southside Chattanooga Lead site] area of observed soil contamination is defined for HRS scoring purposes based on analytical results for soil samples collected during the EPA SI sampling events conducted in October 2016 and January 2017 (Refs. 5, pp. 14 through 84; 14, pp. 8 through 105; 15, pp. 19 through 117). **Analytical results for soil samples indicated lead is present at concentrations equal to or greater than three times the designated background level and at concentrations greater than the corresponding sample quantitation limits (SQL)** (Refs. 5, pp. 14 through 84; 14, pp. 8 through 105; 15, pp. 19 through 117) (see also Tables 5 and 7 of this HRS documentation record). [Emphasis added]

Letter by which this area is to be identified: A

Name and description of the area: AOC A is composed of surface soils impacted by **elevated (equal to or greater than three times background) levels of lead** in residential (single and multi-family) and non-residential (churches, parks, play areas, and vacant lots) properties in an area in the southern portion of Chattanooga, Tennessee, **where foundry waste material was used as top soil and fill material (Refs. 7, pp. 16 through 112; 10, pp. 3 through 182, 194 through 269; 24; 33)** (see Figure 2 of this HRS documentation record). [Emphasis added]

The following subsections contain a detailed response to each of the Company's specific comments on the background level:

- 3.14.1.1 Background Location Sample Similarity
- 3.14.1.2 Anthropogenic and Natural Background Levels
- 3.14.1.3 Background Levels Below EPA Regional Screening Level

3.14.1.1 Background Location Sample Similarity

Comment: The Company claimed that EPA's selection of the locations for its "very few" background comparison samples is dissimilar from Site locations, particularly in character (residential/non-residential; location/proximity; etc.). It asserted that not one background sample is from a residential location.

Response: The site-specific soil background samples and the observed contamination soil samples were sufficiently similar to allow comparison for establishing a significant increase in the soil samples used to delineate AOC A. While no background samples were collected from a residential property, all samples were collected from a residential neighborhood (i.e., nearby parks, churches) and the sample characteristics of the soil background and the observed contamination soil samples were sufficiently similar to allow the background samples to establish a reference point to evaluate whether or not a significant increase in contamination (i.e., observed contamination) has occurred.

The HRS does not provide sample similarity requirements for establishing observed contamination at a site nor does it require a specific number of samples be collected to establish a background level. The HRS only requires that a significant increase in contamination be attributable to the site and that the increase is due to the release being evaluated and not due to physical differences in the background and contaminated sample locations. To demonstrate this, the background samples must be from locations with similar features (i.e., soil type, depth of sample, land use) that would similarly impact the contaminant substance concentrations in both locations. At this site, the samples collected to establish a background level were collected from similar soil types and with the same sampling procedures as the observed contamination samples.

Section 5.1.0, *General considerations*, of the HRS discusses the background level in the explanation of how to establish areas of observed contamination. It states:

Evaluate the soil exposure component based on areas of observed contamination:

- Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
 - A hazardous substance attributable to the site is present at a concentration significantly above background levels for the site (see Table 2–3 in section 2.3 for the criteria for determining analytical significance), *and*
 - This hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material (for example, soil).

...

Page 29 of the HRS documentation record at proposal explains the background locations and sample collection:

Samples collected from three local parks and a community center property during Set 1 of the SI were evaluated to establish background levels for lead (Refs. 7, pp. 3 to 6, 15 to 112; 10, pp. 3 to 182, 194 to 270) (see Figures 3 through 10 of this HRS documentation record). Lead is the only

contaminant discussed in this HRS documentation record because lead is the primary contaminant of concern related to foundry waste material (Ref. 32, p. 21). **Foundry waste material was not observed in the background samples.** The background samples were collected from three parks and a community center property located about 1 to 2 miles north-northeast of AOC A (Refs. 7, pp. 3 to 6; 31; 61) (see Figure 3 of this HRS documentation record). [Emphasis added]

...

The soil samples were **30-point composite surface soil samples that were collected from similar settings as the residential areas in AOC A** (Refs. 31; 32, pp. 10, 11, 13, 33; 61) (see Figure 2 of this HRS documentation record). The SI background **samples were collected at a depth of 0 to 4 inches bgs** with stainless steel soil profilers, aluminum pans, and stainless steel spoons (Refs. 8, pp. 7, D-3; 11, pp. 7, D-3; 32, pp. 10, 11, 13). The background and AOC A (Set 1) samples were **collected during the same sampling event and used the same sampling procedures** (Refs. 8, pp. 7, 8; 11, pp. 7, 8; 32, pp. 10, 11, 13).

Background and contaminated soil samples were collected in accordance with the EPA-approved sampling and analysis plan and quality assurance project plans (SAP/QAPP) (Refs. 8, pp. I, C-1; 11, p. C-1). The **composition of all soil samples evaluated to establish background levels and the contaminated soil samples collected from AOC A consisted primarily of light brown silt, dark brown silt, dark brown silt loam, and dark brown sand** (Refs. 7, pp. 3 to 6, 15 to 112; 10, pp. 3 to 182, 194 to 270). **The background and contaminated soil samples were collected from a community center, parks, churches, and residential areas during the same sampling event, in accordance with the same sampling procedures, and from the same soil type (light brown silt, dark brown silt, dark brown silt loam, and dark brown sand)** (Refs. 7, pp. 16 through 112; 10, pp. 3 through 178, 194 through 270).

Page 33 of the HRS documentation record explains the contaminated soil samples description and collection, and references the Sampling and Analysis Plan which is included as Reference 8⁹ of the HRS documentation record at proposal as well as a project note on the sample collection included as Reference 31:

The soil samples listed in Table 4 of this HRS documentation record were collected in October 2016 during the EPA SI (Refs. 7; 9). The samples were collected in accordance with the EPA-approved final SAP/QAPP¹⁰ dated October 21, 2016, for Set 1 of the SI (Refs. 7, p. 2; 8, pp. I, C-1). The soil samples listed below were collected from churches, a park, and residential properties in Cowart Place, Jefferson Heights, and Southside Gardens located within AOC A (Ref. 7) (specific pages are provided in Table 4 of this HRS documentation record). The soil samples consisted of 30-point composite samples from each individual property, collected at a depth of 0 to 4 inches bgs (Refs. 8, p. 7; 31). The contaminated soil samples were collected away from common sources of lead contamination, such as roads, driveways, and roof drain lines (Ref. 31). The contaminated soil samples were collected from similar soil types as the background soil samples (Refs. 7, pp. 3, 4, 5, 6, 16 through 112). ...

Table 4 (on pages 33 to 35) and Table 6 (on pages 39 to 45) of the HRS documentation record at proposal provide the soil sample descriptions. These samples consisted of dark brown silt, dark brown silt loam, reddish brown silt, dark reddish brown silt, light brown silt, dark brown-black silt, dark reddish brown silty clay, and dark brown silty clay loam.

⁹ Reference 8 of the HRS documentation record at proposal: Tetra Tech. *Final Sampling and Analysis Plan, Southside Chattanooga SI, Chattanooga, Hamilton County, Tennessee*. Prepared for EPA Region 4, EPA Contract No. EP-S4-14-03, TDD No. TT-05-24. October 21, 2016. 63 Pages.

¹⁰ Sampling and Analysis Quality Assurance Plan/Quality Assurance Project Plan (SAP/QAPP)

Reference 31, cited on page 33 of the HRS documentation record at proposal, provides further details on the site-specific considerations employed during sampling for both the background and observed contamination samples. It states:

The SI was conducted in two sampling events, October 2016 (Set 1) and January 2017 (Set 2).

Below is some general information about sampling activities for Sets 1 and 2 of the SI.

Referenced cited are for the HRS documentation record.

- All samples were collected within the respective parcel boundary of each property and within 200 feet of each residence.
- Samples consisted of 30-point composite surface soil samples at a depth of 0 to 4 inches below land surface.
- Samples primarily were collected from residential properties. Because a majority of the residential properties were small parcels of land, one 30-point composite sample was collected from the entire yard of the residential property.
- Multiple samples were collected from some properties and might include 30-point composite samples from the front yard, back yard, side yard, playground areas, and gardens.
- Samples also were collected from a few parks, churches, residential properties owned by churches, a shelter for women and children, and a rehabilitation center that provides boarding to their clients.
- Background samples were collected from three parks and a community center in Chattanooga located about 1 to 2 miles northeast of the study area that were removed from but similar to the study area. The difference in land use is not expected to impact the background lead concentrations. Also, waste foundry material was not observed during the collection of the background samples collected from the parks and community center.
- The main purpose of SI was to evaluate whether the soil on residential properties contained concentrations of lead and arsenic at concentrations above background that resulted from the use of foundry sand as fill material.
- The background and residential soil samples were collected using the same sampling procedures and from the same depth intervals.
- The samples were collected and processed in accordance with the final sampling plans and quality assurance project plans for Sets 1 and 2 (see References 8 and 11). Deviations, if any, are summarized in the SI report (see Reference 32).
- All samples were collected away from roads, driveways, and roof drain lines.
- During field activities, properties in the study area that were vacant lots, unoccupied or abandoned were documented and for the most part were not sampled. Occupancy status is provided in Reference 28 of the HRS documentation record.
- Background soil samples CHT040-SF-BG2, CHT051-SF-BG2, CHT055-SF-BG2, and CHT069-SF-BG2 were collected during Set 1 of the SI and were re-submitted with the Set 2 SI samples for analysis under the EPA Contract Laboratory Program. This was done to ensure that the samples were analyzed using the same analytical methods as the soil samples collected during Set 2 of the SI. The background soil samples were secured, kept under chain of custody, and met holding times for sample analysis (see References 11, p. B-3; 12, pp. 14, 19; 15, pp. 1, 5).

Thus, the site-specific soil background samples used to establish the background level were collected outside the influence of the site, i.e., outside the AOC and in an area where foundry waste material was not observed in the background samples as identified above. Sample similarities include soil characteristics, sample depth, an urban residential setting, soil types, sampling procedures, and analytical methods. The background samples and observed contamination samples were sufficiently similar to allow comparison and to establish a reference point

suitable to evaluate whether or not significant increase in contamination, i.e. observed contamination, has occurred. That the background samples were not collected from a residential property (i.e., yard of a home) does not impact their suitability to establish the background level.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.1.2 Anthropogenic and Natural Background Levels

Comment: The Company claims the EPA ignores the manufacturing history and anthropogenic background factors and has not adequately evaluated and presented background contributions to present day metals concentrations in Chattanooga.

The Company commented that the EPA failed to consider widely available sources of other regional soil background data (for example, Tennessee Valley Authority, U.S. Geological Survey, and U.S. Department of Energy data) and referenced page 58 of the *HRS Guidance Manual* available at:

<https://semspub.epa.gov/work/HQ/189159.pdf> The Company also pointed to a presentation, *EPA Tools and Resources Webinar: Urban Background Study* (January 17, 2018), predating the listing and stated that the Chattanooga mean lead level is 96.24 mg/kg. See: https://www.epa.gov/sites/production/files/2018-01/documents/urban_background_ord_presentation.pdf

The Company also stated there is no mention of the likely correlation between the degree of lead-based paint deterioration on older residential structures, particularly those in a state of disrepair, and the claimed shallow soils lead concentrations observed at those properties where the lead-based paint is destabilized.

Response: The site-specific background soil samples used to determine a background lead level for this site established a concentration of lead that provides a reference point suitable to evaluate whether or not a release from the Site has occurred. EPA used a background level of 60 mg/kg of lead to establish the area of observed soil contamination at the Southside Chattanooga Lead site. Of the four locations sampled, the highest concentration of lead (60 mg/kg) was used as the background lead level. The soil samples collected to establish the background level were 30-point composite samples collected outside the influence of the foundries. They were collected in an urban setting, away from common sources of lead contamination, such as roads, driveways, roof drain line, and, hence, paint runoff, similar to the observed contamination samples. The samples were collected using similar protocols so any added sources of lead, excluding foundry waste, would have similarly impacted both the background and the observed contamination samples. See Section 3.14.1.1, Background Location Sample Similarity, of this support document for a discussion on sample similarities between the background and the observed contamination samples.

As cited above in section 3.14.1 and 3.14.1.1 of this support document, HRS Section 5.1.0, *General considerations*, does not specify how to establish background levels. Four samples were used to establish a background level and the sampling procedures between both the background and the observed contamination samples accounted for contributions from non-foundry waste.

Page 29 of the HRS documentation record at proposal discusses the background sample collection:

The soil samples were **30-point composite surface soil samples that were collected from similar settings as the residential areas** in AOC A (Refs. 31; 32, pp. 10, 11, 13, 33; 61) (see Figure 2 of this HRS documentation record). ... The background and AOC A (Set 1) samples were collected during the same sampling event and used the same sampling procedures (Refs. 8, pp. 7, 8; 11, pp. 7, 8; 32, pp. 10, 11, 13).

Pages 31 and 32 of the HRS documentation record at proposal list the analytical results for the background soil samples, stating on page 32 that:

Lead at 60 mg/kg in sample CHT055-SF-BG was used as the background level because it is the highest lead concentration in the background samples.

Page 33 of the HRS documentation record at proposal discusses the observed contamination sample collection for the 2016 Site Inspection, Set 1 samples:

The soil samples consisted of **30-point composite samples from each individual property**, ... The contaminated soil samples were collected **away from common sources of lead contamination, such as roads, driveways, and roof drain lines** (Ref. 31).

Page 39 of the HRS documentation record at proposal discusses the observed contamination sample collection for the 2017 Site Inspection, Set 2 samples:

The soil samples consisted of **30-point composite samples** ... The contaminated soil samples were collected **away from common sources of lead contamination, such as roads, driveways, and roof drain lines** (Ref. 31).

Reference 31 provides details on the site-specific considerations employed during sampling for both the background and observed contamination samples:

- **All samples** were collected away from roads, driveways, and roof drain lines.

Both background and observed contamination samples were collected away from roads, driveways, and roof drain lines, as stated above, and, hence, paint runoff. Additionally, the sieving process would have excluded paint chips from the samples processed for analysis. Thus, any additional anthropogenic sources of lead would equally impact both the background and the observed contamination samples.

Further, the establishment of a site-specific background level is consistent with HRS guidance. The *HRS Guidance Manual*, page 58, referenced by the Company, states that background and release samples must be from the same medium, similar sampling methods should be used to obtain background and release samples, and ideally, background samples also should be outside the influence of contamination from the site but background level may be determined from samples which contain measurable levels of contamination. Thus, as explained in section 3.14.1.1, Background Location Sample Similarity, of this support document, the background and release samples at the Southside Chattanooga site have met those criteria. The *HRS Guidance Manual* also states on page 58 that published data can be used to establish background levels. On page 62 -63 of the *HRS Guidance Manual* where it discusses using published data for establishing background levels, it states at some sites where it is not possible to collect background samples, published data can be used and “[n]o *a priori* set of criteria regarding use of published data can be established for every hazardous substance and type of site. ... **Published values may not be site-specific enough** to be appropriate for determining background levels.” [Emphasis added]. The *HRS Guidance Manual* goes on to provide some considerations for using published data. None-the-less, site-specific background samples are preferable over published data. The samples collected to establish a background level was site specific and as discussed in section 3.14.1.1, Background Location Sample Similarity, of this support document, were similar in physical characteristic and sampling collection procedure to serve as a reference point to evaluate a significant increase in lead, observed contamination, at the Site.

Regarding the commenter’s assertion that EPA failed to consider widely available sources of other regional soil background data, because a site-specific background level was established for this site, lead levels from other, non-site-specific studies were not considered. Site-specific background levels are preferable over regional or national levels when evaluating waste released from hazardous waste sites. The *EPA Tools and Resources Webinar: Urban Background Study* (January 17, 2018) reporting an urban lead level of 96.24 mg/kg for Chattanooga was not used in the HRS evaluation as it was not necessary since a site-specific background level

was determined. However, the EPA used the urban background study to provide “context” and develop the conceptual site model, and will consider it when making any potential remedy decisions, including deciding cleanup levels. The urban background study produced a data set that can be used for multiple purposes by various state and federal programs. Further, some locations sampled in the urban background study, such as right-of-ways that may be influenced by runoff from sources, were excluded from the site-specific sampling for the Southside Chattanooga Lead site, because the samples would not have been sufficiently similar to the observed contamination samples.

Additionally, although the Company mentioned Tennessee Valley Authority, U.S. Geological Survey, and U.S. Department of Energy lead background data, it did not state which study and the lead levels to consider from them.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.1.3 Background Levels Below EPA Regional Screening Level

Comment: The Company asserted that EPA’s background level is less than half of the EPA’s Regional Screening Level (RSL) for lead (400 mg/kg), stating that this is implausible considering the few dissimilar samples collected by the EPA to establish background level at the Site.

Response: Whether or not the background level for a site is below a regulatory screening level is not considered in HRS scoring. The HRS evaluates releases of hazardous substances that are significantly above a background level irrespective of regulatory limits. The site-specific background soil samples used to determine a background lead level for this site established a concentration of lead that provides a reference point suitable to evaluate whether or not a release from this site has occurred. RSLs are action levels, not background levels. Action levels are the concentrations of hazardous substances in soils that may trigger an action (e.g., removal, treatment, or containment). As discussed in sections 3.14.1, AOC Background Level, and 3.14.1.2, Anthropogenic and Natural Background Levels, of this support document, the EPA used a site-specific background lead level of 60 mg/kg to evaluate the area of observed contamination at this site.

Nationally, in the past, EPA has identified 400 mg/kg as a screening level for lead concentrations in residential soils as identified in OSWER Directive 9355.4-12 (issued July 14, 1994). This screening level of 400 mg/kg was based on the application of the Integrated, Exposure, Uptake and Biokinetic (IEUBK) model using default parameters or typical values for inputs to the model and reflected a specific risk level. It was not representative of any kind of natural or anthropomorphic background level. This action level of 400 mg/kg is referred to in OSWER Directive 9200.4-27P (issued August 27, 1998)¹¹. Removal action levels are not considered background levels for scoring HRS sites as the HRS does not specify that they are.

Further, on July 16, 1982, when responding to public comments on the proposed (original) HRS (47 FR 31188), and again on September 8, 1983 (48 FR 40665), the EPA rejected the idea that releases within regulatory limits should not be considered observed releases under the HRS. ... That is, although contaminant levels may be lower than regulatory limits, an observed release has nevertheless occurred if the measured levels are significantly higher than background levels. The HRS does, however, consider whether releases are above regulatory limits in evaluating target populations, increasing by a factor of 10 the weight assigned populations exposed to contaminants above regulatory limits. Please also see sections 3.14.1, AOC Background Level, and 3.14.2, AOC Delineation, of this support document where the criteria for establishing observed contamination are discussed and the relevant sections of the HRS are cited to show that there are no HRS requirements that a background level or observed contamination be above a regulatory limit.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

¹¹ OSWER Directive 9200.4-27P. Available at: <https://www.epa.gov/sites/production/files/documents/pbpolicy.pdf>

3.14.2 AOC Delineation

Comment: The Company objected to EPA’s delineation of the AOC for several reasons stated below. The Company stated that some parcels included as part of the Site are properties lying outside the geometric plane of source areas identified by the EPA.

- The Company stated that inclusion of certain properties and neighborhoods appears to be based on anecdotal stories and possible explanations for historical supply and disposal of the foundry waste materials. It asserted that such materials are allegedly being used as top soil or fill in a “non-uniform” manner in various neighborhoods.
- The Company commented that the EPA included a variety of untested areas as part of its demarcated neighborhoods. That is, EPA identified vacant lots and other areas as “child high impact zones.” It pointed out that the vacant lots had not had residents for years or decades. The company asserted that EPA provided no supporting data for including the untested areas.
- The Company commented that the aggregation of disparate properties and distinct neighborhoods, including but not limited to the Southside Gardens neighborhood, exceeds EPA’s authority. It stated further that the EPA did not provide a rationale for the aggregation.

According to the Company, the term, ‘Elevated’ appears to be an artificial and relatively undefined term as related to EPA’s use in the HRS documentation record. It cited as the use of the term that Chattanooga soils mean “background level” for lead is approximately 60 mg/kg so that ‘elevated’ levels are greater than three times background. The Company further submits that to the extent any “urban background study” exists, it demonstrates that EPA’s (3x)(400 mg/kg) RSL is not satisfied by the majority of parcels in the proposed listing.

Response: The AOC (AOC A) was delineated consistent with the HRS. All areas identified in AOC A had lead contamination that met observed contamination criteria specified in the HRS. That is, no “untested” (not sampled) properties are included in AOC A. Contamination was not inferred between sample locations; the AOC A includes only properties that were sampled and found to contain elevated levels of lead. Areas of vacant lots, children’s play areas, and parks that were included were documented to have observed contamination of lead. Although Figures 1 and 2 of the HRS documentation record at proposal delineate and outline the geographical location of AOC A, the specific properties within the neighborhoods where contamination is identified are clearly shown on Figures 3 through 10 of the HRS documentation record at proposal, and properties not sampled and not meeting observed contamination criteria were not included in the Site and were not scored. See section 3.11, Site Aggregation, of this support document for a discussion on aggregation.

Section 5.1.0, *General considerations*, of the HRS discusses how to establish areas of observed contamination. It states:

Evaluate the soil exposure component based on areas of observed contamination:

- Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
 - A hazardous substance attributable to the site is present at a concentration significantly above background levels for the site (see Table 2–3 in section 2.3 for the criteria for determining analytical significance), *and*
 - This hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material (for example, soil). [Emphasis added]

...

- Establish **areas** of observed contamination based on sampling locations at which there is observed contamination as follows:

...

-For contaminated soil, consider both the sampling **location(s)** with observed contamination from the site and the area lying between such locations to be an area of observed contamination, unless available information indicates otherwise. (Emphasis added)

Page 28 of the HRS documentation record at proposal describes the significant increase of contaminants at the Site. It states on page 28:

According to the HRS, the soil exposure component of the soil exposure and subsurface intrusion pathway is based on areas of observed contamination (Ref. 1, Section 5.0.1). All soil samples evaluated for the area of observed contamination were collected at a depth of 0 to 4 inches bgs (Refs. 7, pp. 45 through 112; 10, pp. 3 through 178, 194 through 270) (see also Tables 4 and 6 of this HRS documentation record). The SCLS [Southside Chattanooga Lead site] area of observed soil contamination is defined for HRS scoring purposes based on analytical results for soil samples collected during the EPA SI sampling events conducted in October 2016 and January 2017 (Refs. 5, pp. 14 through 84; 14, pp. 8 through 105; 15, pp. 19 through 117). **Analytical results for soil samples indicated lead is present at concentrations equal to or greater than three times the designated background level and at concentrations greater than the corresponding sample quantitation limits (SQL)** (Refs. 5, pp. 14 through 84; 14, pp. 8 through 105; 15, pp. 19 through 117) (see also Tables 5 and 7 of this HRS documentation record). [Emphasis added]

Letter by which this area is to be identified: A

Name and description of the area: AOC A is composed of surface soils impacted by **elevated (equal to or greater than three times background) levels of lead** in residential (single and multi-family) and non-residential (churches, parks, play areas, and vacant lots) properties in an area in the southern portion of Chattanooga, Tennessee, **where foundry waste material was used as top soil and fill material (Refs. 7, pp. 16 through 112; 10, pp. 3 through 182, 194 through 269; 24; 33)** (see Figure 2 of this HRS documentation record). [Emphasis added]

Type of the area: Contaminated soil

Location of the area, with reference to a map of the site:

Soil samples that meet observed contamination criteria were used to delineate AOC A (Ref. 1, Table 2-3; see Tables 5 and 7 of this HRS documentation record). In accordance with Section 5.0.1, General Considerations of the HRS, areas lying between sampling locations, except those areas that are covered by an impenetrable material, are included in AOC A (Ref. 1, Section 5.0.1) (see also Figures 4 through 10 of this HRS documentation record). **Properties within AOC A show indications of foundry waste material having been used as fill material or top soil (Refs. 24; 33)**. Lead has been detected at varying concentrations in soil samples collected from AOC A (Refs. 5, pp. 14 through 84; 14, pp. 8 through 105; 15, pp. 19 through 117). The use of **foundry waste material on residential and non-residential properties is not uniform on individual or among adjacent properties (Ref. 24, p.1; 33)**. On properties where fill mostly consists of foundry waste material, the fill is a dark brown, gray or black, coarse material that

sometimes has slag and baghouse dust mixed in. However, when foundry waste material is mixed with soil, it may be difficult to differentiate the soil mixed with foundry waste material and soil that does not contain foundry waste material (Refs. 24; 67, pp. 1 through 16). ... [Emphasis added]

The analytical results for all soil samples meeting observed contamination criteria are presented in Table 5 and Table 7 on pages 36 – 38 and 46 – 50, respectively, of the HRS documentation record at proposal.

Page 29 of the HRS documentation record discusses the areas composing AOC A and discusses the areas lying between sampling locations that were excluded from the AOC and scoring of the Site. It states:

Lead has been detected in AOC A above background levels on about 131 properties, including 126 residential (122 occupied, two unoccupied, and two vacant lots), one park, and four church-owned properties, one of which maintains a play area for an after-school program (Refs. 32, p. 21; 28, pp. 1 through 5). **The extent of AOC A is delineated by contaminated soil samples contained in Tables 5 and 7 of this HRS documentation record.** [Emphasis added]

Some properties that are geographically located within AOC A are not scored. Specifically, properties within AOC A where EPA removal actions have occurred or are ongoing, properties not currently occupied, and residential and non-residential properties that have not yet been sampled, are not included in the HRS score (Refs. 35; 61). In the absence of sampling results, contamination on residential and non-residential properties at the SCLS [Southside Chattanooga Lead site] is not being inferred. Only those properties with sampling results indicating lead levels equal to or greater than three times background levels are included in the HRS score. Exclusion of properties that have not been sampled from scoring does not indicate an absence of contamination at these properties (Ref.35; 61). Further delineation of lead contamination may be done in the future. [Emphasis added]

Regarding untested properties and children play areas, all locations identified as part of the AOC have soil sample(s) that documented observed contamination of lead; each has lead levels equal to or greater than three times background (as stated above and on page 28 of the HRS documentation record at proposal). That is, no “untested” (not sampled) areas on properties were included in the AOC. No areas on properties were included in AOC A where contamination was inferred between sampling locations. Parts of vacant lots, children’s play areas (if that is what the Company means by child high impact zones), and parks were included in AOC A if observed contamination was documented in those areas. While Figures 1 and 2 delineate and outline the AOC location, the specific properties within the neighborhoods on which contamination meeting observed contamination criteria is identified are clearly shown on Figures 3 through 10 of the HRS documentation record at proposal.

The Company did not specify which properties should not be included in the scoring. All areas on properties included in the AOC are listed by sample numbers in Tables 4, 5, 6, and 7 of the HRS documentation record at proposal and the properties that are used to evaluate the targets value are listed in Table 10 of the HRS documentation record at proposal. See section 3.16, Target Population, of this support document for discussion of the properties used for evaluating the targets value where more discussion is provided on the exclusion of vacant lots, the exclusion of properties not sampled, and the identification of children daycare facilities, as these factors pertain to the targets evaluation component in the HRS site score. Some of the areas excluded during the site inspection were roadways, paved areas, vacant or industrial areas, and are therefore, less likely to be a source of exposure to children as compared to residential properties selected for sampling. There are no residential areas between the 8 neighborhoods sampled. Within the 8 neighborhoods sampled, some properties were not sampled – due to resource limitations, need to prioritize children’s health, and lack of access for every single property. Between the 8 neighborhoods sampled, there are vacant properties, highways, and commercial/industrial properties. Schools previously sampled and remediated by other entities (e.g., Howard High School previously a state-lead cleanup; Battle Academy evaluated during EPA Read Ave removal) were not included in the AOC. The

properties evaluated in AOC A are all contaminated by the lead-bearing foundry waste material as documented in the HRS documentation record at proposal.

Regarding the use of foundry material as fill or top soil, the information presented in the HRS documentation record at proposal is supported by numerous references, some of which are noted below.

- The fill can be observed as described in the HRS documentation record at proposal on page 28 which cited Reference 24 of the HRS documentation record at proposal, a project note prepared by Tennessee Department of Environment and Conservation. Reference 24, page 1 states, structures in some historically low lying older residential and non-residential areas were built on top of waste foundry material, which at the time was a good source of fill material. Based on observations during redevelopment of older construction properties, fill material that consisted mostly of waste foundry material is dark brown, dark gray or black, coarse material that sometimes has slag and baghouse dust mixed in. (Also see pages 28, 51 and 52 of the HRS documentation record at proposal.)
- Reference 67, a project note prepared by the Tetra Tech, and pages 28 and 53 of the HRS documentation record at proposal contains a photographic log showing the variations in soil sample colors and includes samples collected from foundry properties, foundry landfill, and waste mixed with soil. (Also see pages 28 and 53 of the HRS documentation record at proposal.)
- Reference 54, prepared by the American Foundry society, states on page 1 that until the advent of the Resource Conservation and Recovery Act (RCRA) in the early 1970's, facilities simply discarded their used sands on their own properties, sent them to local landfills, or gave them away to be used as fill materials on other properties. There are many properties in older industrial areas built on top of foundry sand, which is generally an excellent fill material providing strong structural support. This practice came to a halt with the advent of RCRA. (Also see pages 23 to 24 of the HRS documentation record at proposal.)
- Reference 64 and page 52 of the HRS documentation record at proposal affirms that numerous locations are known by Tennessee Department of Environment and Conservation to contain as much as 20 feet or more of foundry waste material. Utility contractors in Chattanooga, as a standard operating procedure, contact the Tennessee Department of Environment and Conservation Division of Solid Waste Management for guidance when foundry waste material is encountered. (Also see page 52 of the HRS documentation record at proposal.)

The HRS documentation record at proposal on page 52 further explains:

Examples of foundry waste material deposition has been documented at the former McCallie Homes housing complex in the Alton Park area, in the St. Elmo area located adjacent to the Wheland St. Elmo landfill, **on residential properties where EPA has conducted removal actions, and within AOC A** (Refs. 24, p. 1; 37, pp. 4, 6; 65; 66, p. 4, 25; 67, pp. 1 to 16; 68). The former McCallie Homes housing complex is located adjacent to AOC A (Ref. 61) (see Figures 7A and 7B of this HRS documentation record). In the mid-1950s, foundry waste material was used at McCallie Homes under the footings of multi-unit buildings to level the ground before the building slabs were poured (Ref. 63, p. 3). From 1997 to 2002, the former McCallie Homes housing complex was demolished by the City of Chattanooga, and any foundry waste was covered with soil (Ref. 34, p. 1). Therefore, the McCallie Homes Housing complex is not included as part of AOC A; however, **it does illustrate the extent of the use of foundry waste as fill or topsoil in the immediate vicinity of AOC A.** [Emphasis added]

Regarding the inclusion of non-contiguous properties in the listing, for HRS scoring purposes an AOC can consist of multiple areas of observed contamination as cited above from HRS section 5.1.0, *General considerations*. As explained on pages 28 and 29 of the HRS documentation record at proposal and cited above, all properties included in the AOC met observed contamination criteria. As explained in section 3.11, Site Aggregation, of this support document, an AOC can include multiple areas of observed contamination. At the Southside Chattanooga

Lead site, all the sampling locations scored at the properties included in AOC A consist of contaminated soil, contain observed contamination levels of lead as a result of lead-bearing foundry waste, and are scored in the soil exposure component of the soil exposure and subsurface intrusion pathway. See section 3.11, Site Aggregation, of this support document for a discussion on aggregation.

Regarding definition of the term “elevated” as used in the HRS documentation record, page 28 of the HRS documentation record, which is cited above, defines the term elevated as “equal to or greater than three times background.” The term elevated as used in the HRS documentation record at proposal is consistent with the terms significant increase, observed release, and observed contamination as used in the HRS. Hence, all samples discussed as exhibiting elevated levels of lead at this site contain lead concentrations at observed contamination levels - significance above background, consistent with HRS Section 5.1.0, *General considerations*, and HRS Table 2-3 as cited above; lead levels evaluated in scoring were equal to or greater than three times the background level (i.e., observed contamination lead levels were 180 mg/kg or greater which is three times the background level of 60 mg/kg).

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.3 AOC Hazardous Waste Quantity

Comment: The Company stated that the HRS documentation fails to adequately identify the sources and the amount of the contamination alleged to exist. The Company also commented that the EPA excluded the foundries that contained the greater volumes of waste and are the source of the lead-contaminated soil.

Response: Waste sources at the foundries were not evaluated in the HRS score of this site. The AOC A hazardous waste quantity value presented in the HRS documentation record at proposal was estimated consistent with the HRS as “unknown, but greater than zero.” The HRS does not require that the total amount of contamination in the AOC or at the site be fully determined at the time a site is listed on the NPL. The EPA agrees with the Company that the amount of contamination in the AOC is not fully determined, and that there is currently inadequate information to determine a more specific value. However, the data available allowed the EPA to follow the HRS and appropriately assign a Tier D, area, estimate of unknown but greater than zero for the AOC A. This value is based on the presence of contamination significantly above the background level in soil samples characterizing AOC A. Although the exact amount of contamination in the AOC cannot be determined, the quantity estimate has no impact on the identification of the AOC. Further, the HRS does not require that the original contributors and quantity originating from the original contributors be determined at listing when delineating an AOC. Additionally, determining more accurate AOC waste quantities would not result in a lower HRS Site score. As scored at proposal, the soil exposure component achieved a maximum pathway score of 100, resulting in a Site score of 50.00.

HRS Section 5.1.1.2.2, *Hazardous waste quantity*, describes the process for evaluating AOCs hazardous waste quantity when evaluating the soil exposure component. It states in relevant part:

Assign a hazardous waste quantity factor value as specified in section 2.4.2. In estimating the hazardous waste quantity, use Table 5–2 and:

- **Consider only the first 2 feet of depth of an area of observed contamination**, except as specified for the volume measure. [Emphasis added]
- Use the volume measure (see section 2.4.2.1.3) only for those types of areas of observed contamination listed in Tier C of Table 5–2. In evaluating the volume measure for these listed areas of observed contamination, use the full volume, not just the volume within the top 2 feet.
- **Use the area measure (see section 2.4.2.1.4)**, not the volume measure, for all other types of areas of observed contamination, even if their volume is known. [Emphasis added]

As specified in HRS 2.4.2, *Hazardous waste quantity*, and its subsections, the scorer must evaluate the hazardous constituent quantity, hazardous wastestream quantity, volume, and area measures for the source for the migration pathways and for the area of observed contamination for the soil exposure component of the soil exposure and subsurface intrusion pathway. Because there was inadequate information to evaluate the hazardous constituent quantity, hazardous wastestream quantity, and volume measures for AOC A, scoring proceeded to the area measure evaluation.

HRS Section 2.4.2.1.4, *Area*, provides direction for evaluating the area measure for the AOC. There is no requirement for assigning area based on the contribution of contamination from an original source. HRS Section 2.4.2.1.4, *Area*, states:

Evaluate the area measure using the area of the source (or the area of the area of observed contamination, area of observed exposure, or area of subsurface contamination). Based on this area, designated as A, assign a value to the area measure as follows:

- For the migration pathways, assign the source a value for area using the appropriate Tier D equation of Table 2–5.
- **For the soil exposure and subsurface intrusion pathway—soil exposure component, assign the area of observed contamination a value for area** using the appropriate Tier D equation of Table 5–2 (section 5.1.1.2.2). [Emphasis added]
- For the soil exposure and subsurface intrusion pathway—subsurface intrusion component, assign a value based on the area of regularly occupied structures within the area of observed exposure or area of subsurface contamination using the Tier D equation of Table 5–19 (section 5.2.1.2.2).

Pages 55-56 of the HRS documentation record at proposal document that data was inadequate to evaluate Tier A, hazardous constituent quantity, Tier B, hazardous wastestream quantity, or Tier C, volume, in the evaluation of the contaminated soil in AOC A soil exposure component. The HRS documentation record at proposal explains that Tier D, area, was evaluated, and that an area assigned value was estimated as unknown but greater than zero. It states:

2.4.2.1.4 Area:

The area of AOC A is not adequately determined. AOC A is composed of contaminated soil in one park, two vacant lots zoned as residential, three church properties (one of which is used as an after school program) and 125 (123 occupied and two unoccupied) residential properties that contain concentrations of lead that are equal to or greater than three times background levels (see Tables 5 and 7 of this HRS documentation record). The approximate area of observed contamination, excluding impervious surfaces, on each property was not estimated because of the large number of properties that comprise AOC A and unknown extent of impermeable surfaces within those properties. In addition, contamination is not inferred between sampling locations. However, the area is greater than 0 square feet (Ref. 32, pp. 34 to 41).

Sum (ft²): >0

Equation for Assigning Value (Ref. 1, Table 5-2): Area (A)/34,000

Area Assigned Value: >0

Area Hazardous Waste Quantity Value: >0

The information available at listing was not sufficient to determine a more precise estimation of the contamination. Therefore, a value of unknown but greater than zero was assigned as the Tier D, area, estimate. Further, as stated on page 55 of the HRS documentation record at proposal, even if the EPA wanted to delineate

an aerial extent of the AOC, contamination is not inferred between sampling locations. There is no requirement in the HRS that once the AOC is determined that waste quantity or hazardous substances in the AOC at specific sampling locations must be associated with a specific contributor, e.g., foundry. As explained in sections 3.10, Extent of Site/Site Boundaries, and 3.15, Observed Contamination: Attribution, of this support document, the source of lead in the AOC resulted from the use of foundry waste as fill material and that several foundries operated in the site vicinity from which fill was obtained. Further, the HRS is a screening tool and the EPA must balance the need to fully characterize a site with the limited resources available to collect and analyze site data; see section 3.12, Scope of the HRS Evaluation, of this support document for additional discussion.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15 Observed Contamination: Attribution

Comment: The Company and an anonymous commenter submitted comments that questioned whether EPA had adequately identified the origin of the lead contamination in the AOC, and thus, the attribution of the increase in lead concentrations on individual properties in AOC A to the release from the adjacent and nearby foundries.

Response: EPA has adequately attributed the lead contamination in the multiple areas composing AOC A to the releases of contamination at adjacent and nearby foundries. As detailed below, the EPA has demonstrated that lead was used in the industrial processes at the nearby foundries, lead contamination is found on-facility as foundry waste, foundry waste was used as fill in the area of contamination, and the increase of lead concentrations on residential properties was due to the filling and not due to other non-Site sources.

Section 5.1.0, *General Considerations*, of the Soil Exposure and Subsurface Intrusion pathway of the HRS contains the requirements for establishing observed contamination. Regarding attribution, this section states:

- ...
- Consider observed contamination to be present at sampling locations where analytical evidence indicated that:
 - A hazardous substance **attributable to the site** is present at a concentration significantly above background levels for the site (see Table 2-3 in Section 2.3 for the criteria for determining analytical significance). (Emphasis added) ...

As applicable to the Site, this section also directs:

- ...
- Establish areas of observed contamination based on sampling locations at which there is observed contamination as follows:
 - ...
 - For contaminated soil, consider both the sampling location(s) with observed contamination **from the site** and the area lying between such locations to be an area of observed contamination unless available information indicates otherwise. (Emphasis added)

Table 2-3 in Section 2.3 of the HRS contains no further attribution requirement; it only contains directions on how to establish a significant increase in hazardous substance concentrations.

Thus, the HRS does not contain directions on how to establish attribution of contamination to the site. However, attribution of contamination is considered appropriate when a released substance (i.e., lead) is documented to be associated with the site waste (i.e., foundry waste), that this contaminated waste came to be located at the

observed contamination locations within the AOC, and the increase concentrations of lead in these locations came from releases at the foundries and not from non-Site related releases.

Pages 51 through 54 of the HRS documentation record at proposal in subsection titled "Attribution", contains EPA's rationale for establishing that the increase in lead levels at the observed contamination locations was from the foundry waste material used as fill.

That lead was used at the foundries is discussed on page 51 of the HRS documentation record at proposal, which states:

Ferrous (iron and steel) and non-ferrous foundries (brass) may produce hazardous waste because of the **lead**, zinc, cadmium, and other metals present in the waste (Ref. 26, pp. 4, 5). The U.S. Pipe brass foundry used **molten lead** to seal brass and bronze valve housings (Ref. 48, p. 254). According to the 1995 Toxic Release Inventory data for ferrous and non-ferrous foundries, metallic wastes accounted for over 95 percent of the industry's releases and chromium, **lead**, manganese, and zinc accounted for over 95 percent of the on-site land disposal (Ref. 70, p. 55).

That lead was found in foundry waste at the foundries is discussed on page 52 of the HRS documentation record at proposal, which states:

Since closure, Wheland, Ross-Meehan, and U.S. Pipe have enrolled in the TDEC Brownfields and VOAP and have conducted environmental investigations to address contamination at their properties (Refs. 45, pp. 1, 2; 51, pp. 4, 19; 53, p. 3; 72, pp. 1, 3; 73, p. 1). In 2002, soil samples collected from the Wheland Middle Street Plant contained lead as high as 1,670 mg/kg, and soil samples collected at the Broad Street Plant contained lead as high as 1,720 mg/kg (Ref. 59, pp. 1, 8, 9). Soil samples collected from the Ross-Meehan property in 2002 contained lead as high as 10,400 mg/kg (Ref. 45, p. 54). Soil samples collected from the U.S. Pipe property in 2006 contained lead as high as 1,120 mg/kg (Ref. 51, p. 30). These concentrations of lead are above the EPA RML of 800 mg/kg for industrial soil (Refs. 55, p. 8; 56). During these investigations, fill, slag, metal fragments, fragments of iron, loose black sand fill, and foundry waste material were observed in the soil borings (Refs. 45, pp. 85, 99, 109, 110, 113, 115; 51, pp. 47 to 94; 53, pp. 16 to 18). During the 2016 and 2017 SI, four foundry waste material samples, USPIPE1-01, USPIPE2-01 from U.S. Pipe and WHELAND-01 and STELMO-SF-01 from the former Wheland Foundry and Wheland St. Elmo landfill were collected (Refs. 7, pp. 113, 114, 115; 10, p. 270; 33) (see Figure 11 of this HRS documentation record). Analytical results indicated the presence of lead at concentrations that ranged from 960 mg/kg to 3,900 mg/kg (Refs. 5, pp. 85 to 87; 15, p. 118; 32, p. 57).

That the foundry waste was used as fill material in the AOC A is discussed on pages 52 and 53 of the HRS documentation record at proposal, which states:

Foundry waste material was used as fill or top soil on residential and non-residential properties within AOC A in southwestern Chattanooga (Refs. 24, p. 1; 33). Numerous sites are known by TDEC to contain as much as 20 or more feet of foundry waste material. Also, utility contractors in Chattanooga, as a standard operating procedure, contact the TDEC Division of Solid Waste Management for guidance when foundry waste material is encountered (Ref. 64, p. 5). Examples of foundry waste material deposition has been documented at the former McCallie Homes housing complex in the Alton Park area, in the St. Elmo area located adjacent to the Wheland St. Elmo landfill, on residential properties where EPA has conducted removal actions, and within AOC A (Refs. 24, p. 1; 37, pp. 4, 6; 65; 66, p. 4, 25; 67, pp. 1 to 16; 68). The former McCallie Homes housing complex is located adjacent to AOC A (Ref. 61) (see Figures 7A and 7B of this HRS documentation record). In the mid-1950s, foundry waste material was used at McCallie

Homes under the footings of multi-unit buildings to level the ground before the building slabs were poured (Ref. 63, p. 3). From 1997 to 2002, the former McCallie Homes housing complex was demolished by the City of Chattanooga, and any foundry waste was covered with soil (Ref. 34, p. 1). Therefore, the McCallie Homes Housing complex is not included as part of AOC A; however, it does illustrate the extent of the use of foundry waste as fill or topsoil in the immediate vicinity of AOC A.

From June 26 to July 12, 2015, the City of Chattanooga advanced soil borings in the St. Elmo area, adjacent to the Wheland St. Elmo landfill, as part of a drainage improvement project. The St. Elmo drainage improvement project area is located about 410.7 feet south of the Mountain View Court area of AOC A (Ref. 68). The project involved the installation of a new drainage pipe to replace a partially collapsed portion of the drainage system that runs beneath the Wheland St. Elmo Landfill (Refs. 65; 66, pp. 4, 6, 25). Foundry waste material was observed up to 25 feet deep in some of the borings (Ref. 66, pp. 7, 28 to 81). Analytical results of samples collected from the soil borings showed lead concentrations up to 2,300 mg/kg (Ref. 66, pp. 18 to 21).

During the May 2011 removal assessment in the Read Avenue area of the SCLS, EPA collected composite surface soil samples at three residential properties along Read Avenue and an adjoining public park located at 1700 Mitchell Avenue (Refs. 37, p. 4; 40, p. 1). Analytical results of the samples showed lead concentrations up to 2,500 mg/kg (Ref. 37, pp. 6, 12, 15). According to SESD, the samples collected during the investigation were composed of a coarse black material, generally found beneath several inches of reddish clayey overburden. The material closely resembled foundry waste material, commonly associated with high lead concentrations at other sites (Ref. 37, p. 6). Subsequently in October 2011, EPA collected 32 surface soil samples during a removal assessment of 14 additional residential properties and two public rights-of-way in the Read Avenue area. Nine of the 32 soil samples showed lead concentrations equal to or above the EPA RAL of 400 mg/kg. Lead concentrations equal to or above the RAL ranged from 400 mg/kg to 930 mg/kg (Ref. 38, pp. 7, 13, 14, 16).

...

Properties within AOC A show indications of foundry waste material having been used as fill material or top soil (Refs. 24; 33). On properties where fill mostly consists of foundry waste material, the fill is a dark brown, gray or black, coarse material that sometimes has slag and baghouse dust mixed in (Refs. 24; 67, pp. 1 through 16). The appearance of the soil samples collected from AOC A is characteristic of soil mixed with foundry waste material (Ref. 67, pp. 1 to 16). Foundry waste material is not continuous throughout individual properties or on all properties that comprise AOC A (Ref. 7, pp. 16 through 112; 10, pp. 3 through 178, 194 through 270; 24, p. 1). ...

Regarding other possible sources of lead in the AOC, the EPA addressed the possibility that the lead was from degrading lead paint, from spilled leaded gasoline, or from automobile exhaust in the design of the sampling procedure. Samples were not collected from locations near common sources of lead such as from soils immediately adjacent to degraded painted surfaces (outdoor walls), soils near the drip line of roofs, or from soils near roads or driveways where lead from gasoline sources could concentrate. Pages 33 and 39 of the HRS documentation record at proposal both explain the Agency's sampling methodology used to document elevated lead level in soils:

Contaminated Samples – EPA October 2016 Site Inspection, Set 1

The soil samples listed in Table 4 of this HRS documentation record were collected in October 2016 during the EPA SI (Refs. 7; 9). The samples were collected in accordance with the EPA-approved final SAP/QAPP dated October 21, 2016, for Set 1 of the SI (Refs. 7, p. 2; 8, pp. I, C-1). The soil samples listed below were collected from churches, a park, and residential properties in Cowart Place, Jefferson Heights, and Southside Gardens located within AOC A (Ref. 7) (specific pages are provided in Table 4 of this HRS documentation record). The soil samples consisted of 30-point composite samples from each individual property, collected at a depth of 0 to 4 inches bgs (Refs. 8, p. 7; 31). **The contaminated soil samples were collected away from common sources of lead contamination, such as roads, driveways, and roof drain lines (Ref. 31).** The contaminated soil samples were collected from similar soil types as the background soil samples (Refs. 7, pp. 3, 4, 5, 6, 16 through 112). The locations of the samples are depicted in Reference 32, pp. 34 through 36 (see also Figures 4 through 10 of this HRS documentation record). The field sample collection sheets and chain-of-custody records are provided in References 7 and 9 ... (Emphasis added)

...

Contaminated Samples - EPA January 2017 Site Inspection, Set 2

The soil samples listed in Table 6 of this HRS documentation record, were collected in January 2017 during Set 2 of the EPA SI (Refs. 10; 12; 32, p. 8). The samples were collected in accordance with the EPA-approved final SAP/QAPP dated January 12, 2017 for Set 2 of the SI (Ref. 10, p. 2; 11, pp. I, C-1). The soil samples were collected from a park and residential properties in Alton Park, College Hill Courts, Cowart Place, Jefferson Heights, Mountain View Court, Richmond, and Southside Gardens located within AOC A (Refs. 10; 32, pp. 34 through 41). The soil samples consisted of 30-point composite samples collected at a depth of 0 to 4 inches bgs (Refs. 10, pp. 9 through 270; 11, p. 7). **The contaminated soil samples were collected away from common sources of lead contamination, such as roads, driveways, and roof drain lines (Ref. 31).** The contaminated soil samples were collected from similar soil types as the background soil samples (Refs. 10, pp. 9 through 270). The locations of the samples are depicted in Reference 32, pp. 34 to 41 (see also Figures 4 through 10 of this HRS documentation record). The field sample collection sheets and chain-of-custody records are provided in References 10 and 12 ... (Emphasis added)

Thus, EPA demonstrated that lead was used in the industrial processes at the foundries, is found in on-facility foundry waste, foundry waste was used as fill in the area of contamination, and the increase of lead concentrations was due to the use of lead containing fill material and not due to other non-Site sources. Please see the following subsections for specific challenges on the attribution of contamination at the Site:

- 3.15.1 Identification of Individual Foundry Releases by Property
- 3.15.2 Association of Lead with Foundry Sands
- 3.15.3 Other Possible Sources of Lead
- 3.15.4 Consistency with HRS Guidance

3.15.1 Identification of Individual Foundry Releases by Property

Comment: The Company stated that EPA did not identify to which specific foundries EPA attributed the lead at each property. The Company stated that the HRS Documentation fails to adequately identify the source areas of

the alleged contamination. It claimed that instead of identifying the facilities responsible for the historical contamination, the EPA identified multiple other areas throughout Chattanooga.

Response: The EPA sufficiently identified the origins (sources) of the contamination in the AOC to evaluate the soil exposure component at this site and attribute the contamination to adjacent and nearby foundries. As identified in the HRS documentation record at proposal, and shown above, EPA identified that there were numerous historic foundry and foundry-related facilities adjacent to and nearby the AOC that were the likely generators of the lead contaminated waste that was used as fill in the area. These foundries have been documented to historically operate in the area and contain lead-contaminated waste that is similar to the waste material identified in the residential properties. Further documentation of the origins of the contamination (i.e., pinpointing the exact origin of the contamination on every property included in the AOC) is beyond the scope of the HRS. The HRS is a screening tool used by EPA to determine priorities for listing and potentially cleanup, based on the risk a site poses to human health and the environment relative to other sites evaluated. Additional site characterization and risk assessment are performed as necessary at a later stage in the Superfund process.

Furthermore, as explained in section 3.7, Liability, earlier in this support document, the exact origins of the contamination at a site, and those responsible for the contamination, need not be determined at the listing stage of the Superfund process.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15.2 Association of Lead with Foundry Sands

Comment: An anonymous commenter questioned the association of lead with foundry sands. The commenter stated that citizens of Chattanooga have been unnecessarily alarmed by characterizing foundry sands, used as fill on properties, as containing lead. The anonymous commenter explained that foundry sand comes from iron and steel foundries and lead is not used in any part of the iron and steel production process. The commenter further stated that the EPA has approved foundry sands for beneficial uses such as an ingredient in manufactured soil, soil-less media (potting soil), and as a foundation layer in roads. The commenter summarized that “foundry sand is an easy target and other sources of lead such as construction material like lead based paint, plumbing and guttering have not been adequately investigated.”

Response: Lead has been associated with foundry waste and AOC A in a manner consistent with the HRS. HRS Section 2.2.2, *Identify hazardous substances associated with a source*, states:

For each of the three migration pathways to consider those hazardous substances documented in a source (for example, by sampling, labels, manifests, oral or written statements) to be associated with that source when evaluating each pathway...

...

For an area of observed contamination in the soil exposure component of the soil exposure and subsurface intrusion pathway, consider only those hazardous substances that meet the criteria for observed contamination for that area (see section 5.1.0) to be associated with that area when evaluating the pathway.

While no sources at the foundries have been scored, the EPA presented sufficient information in the HRS documentation record at proposal to associate lead with foundry waste at this site. As stated above, page 52 of the HRS documentation record at proposal identifies that lead was found in foundry waste samples. Page 51 of the HRS documentation record at proposal, as cited above in section 3.15, Observed Contamination: Attribution, of this support document, identifies that lead was used at the foundries in their routine facility processes.

The EPA also presented sufficient information to associate lead with each individual AOC composing AOC A. Each of the individual AOCs were delineated based on samples containing lead concentrations that meet observed

contamination criteria, as identified in Section 5.0.1, General Considerations, of the HRS documentation record at proposal in section 3.14, Area of Observed Contamination, of this support document.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15.3 Other Possible Sources of Lead

Comment: The Company also questioned if EPA had adequately considered all possible sources of lead in the AOC. The Company commented that EPA focused on isolated contamination throughout Chattanooga that is “potentially attributable to: (i) destabilized lead-based paint; (ii) on-site foundry operations at present and former facilities which EPA chose to omit from this listing; (iii) historic foundry waste material handling practices or management thus resulting in EPA’s claims sand those materials (foundry sand; baghouse dust; foundry waste material; etc.) are located in areas other than the former or present foundry locations; and (iv) from other sources.”

Response: EPA adequately considered other lead sources in the area. As identified above in this support document (sections 3.14.1.1, Background Location Sample similarity, and 3.14.1.2, Anthropogenic and Natural Background Levels), alternative lead sources were considered in the design of the sampling procedures and those areas where lead from destabilized paint or prior use of leaded gasoline might impact the soil composition were not sampled at this site. That is, the background samples collected from urban residential areas contain representative anthropogenic levels of lead (e.g., lead from ubiquitous emissions, natural soil levels). Thus, anthropogenic sources are already accounted for in determining observed contamination.

Regarding other foundry sources such as other wastes, section 3.10, Extent of Site/Site Boundaries, and section 3.11, Site Aggregation, of this support document explain that the release being evaluated is the release of **all** contamination at the foundries and not just foundry sands. Therefore, any operation at a nearby foundry that resulted in Site-related contamination that could be the origin of contamination at the residential properties is part of the Site. Finally, regarding “other sources,” the EPA looked for other possible sources in the vicinity of the Site that could be contributing to the soil contamination and was not able to identify other sources; additionally, the commenter did not provide any specific “other sources” to investigate in the area, and therefore, the EPA cannot address this speculation any further.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.15.4 Consistency with HRS Guidance

Comment: The Company asserted that EPA had not followed its guidance in establishing attribution of the lead contamination in the AOC to the release from the foundries. It argued that in situations where there are multiple potential sources in the vicinity of the site, the EPA’s guidance contemplates that the EPA will perform additional investigations, including analytical fingerprinting, to strengthen attribution. In addition, the Company stated that despite foundry waste being the focus of EPA’s assessments and investigations, few samples were collected from those areas.

Response: The EPA followed all regulations and HRS requirements in establishing attribution of the release of lead in AOC A. Similarly, the EPA met all requirements in a manner consistent with the HRS and as recommended by the *HRS Guidance Manual*. Pages 59 and 60 of the *HRS Guidance Manual* contain the applicable guidance for establishing attribution. It states on page 59:

Attribution generally involves demonstrating that the hazardous substance used to establish an observed release can be associated with the site, and the site contributed at least in part to the significant increase in the concentration of the hazardous substance. Attribution can be established based on sampling or non-sampling data...

As identified in the beginning of this section, these basic requirements were met: lead was associated with the foundry waste identified in the HRS documentation record at proposal, and that the foundry waste contributed, at least in part, to the significant increase in lead levels in soils in contaminated areas where foundry waste was deposited.

Regarding situations where multiple sources are present and the commenter's assertion that analytical fingerprinting be used, the EPA's actions are also consistent with the HRS and the *HRS Guidance Manual* which states on page 59, in relevant part:

- ...
- The data required to attribute a portion of the significant increase in the concentration of the hazardous substance to the site generally depend on whether or not the site being evaluated is located in an area where other sources may have contributed to the significant increase.
 - ...
 - When other sources are present in the vicinity of the site being evaluated and may have contributed to the significant increase (e.g., in highly industrialized areas), it generally is necessary to obtain sufficient samples between the site being evaluated and other known potential sources (or between the site and adjacent sites) in order to demonstrate an increase in concentration attributable to the site. Additional information may be required if other sites are known to release substances intermittently, such that "pulses" of hazardous substances are created in environmental media. Types of information that will strengthen such attribution include:
 - Data on concentration gradients (e.g., established based on samples from multiple wells or a series of samples between the site and the alternative source);
 - Data on flow gradients or other information about the movement of hazardous substances in the environmental medium of concern; or
 - Analytical "fingerprinting" data that establish an association between the site and a unique form of the substance or unique ratios of different substances.

In that the waste was most likely deposited in AOC A by use of foundry waste as fill, the concepts of concentration gradients and flow gradients between the AOC and sources either at the facility or other possible facilities in the area are not applicable. A continuous trace of lead contamination showing a decrease in lead contamination between the foundries and the AOC would not be expected and thus would not be effective in determining further contamination origins.

Finally, fingerprinting, or the comparison of ratios of different substances in the foundry waste and in the contaminated areas of AOC A, was not used to attribute contamination to the foundries as there is a long history of process variation occurring over time at each of the nearby facilities that would not result in a single fingerprint to match. Therefore, fingerprinting would not likely result in any additional definitive information that would be useful at this stage in the Superfund process. However, as discussed on page 53 of the HRS documentation record at proposal, and quoted above in section 3.15, Observed Contamination: Attribution, of this support document, EPA did visually identify that foundry waste was present in many of the samples in the AOC.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.16 Target Population

Comment: The Company stated that the EPA made assumptions about properties included in scoring the target population for areas that resulted in an inflated HRS score. It stated that unsampled areas, vacant lots “that have not been resided on for years,” and other areas considered as ‘child high impact zones’ were included in the scoring without support.

Response: Unsampled areas and vacant lots were not included in the scoring targets at the Site, and any child high impact zones included in the scoring was on a property that had documented observed contamination.

In evaluating target populations, HRS Section 5.1.1.3, *Targets*, directs, in part:

Evaluate the targets factor category for the resident population threat based on five factors: resident individual, resident population, workers, resources, and terrestrial sensitive environments.

In evaluating the targets factor category for the resident population threat, count only the following as targets:

- Resident individual – a person living or attending school or day care on a property with an area of observed contamination *and* whose residence, school, or day care center, respectively, is on or within 200 feet of the areas of observed contamination.
- Worker – a person working on a property with an area of observed contamination *and* whose workplace area is on or within 200 feet of the area of observed contamination.
- ...

HRS Section 5.1.1.3.1, *Resident Individual*, then directs to:

Evaluate this factor based on whether there is a resident individual, as specified in section 5.1.1.3, who is subject to Level I or Level II concentrations.

First, determine those areas of observed contamination subject to Level I concentrations and those subject to Level II concentrations as specified in sections 2.5.1 and 2.5.1. Use the health-based benchmarks from Table 5-3 in determining the level of contamination. Then assign a value to the resident individual factor as follows:

- Assign a value of 50 if there is at least one resident individual for one or more areas subject to Level I concentrations.
- Assign a value of 45 if there is no such resident individuals, but there is at least one resident individual for one or more areas subject to Level II concentrations.

HRS Section 5.1.1.3.2, *Resident population*, then directs, in part, to:

Evaluate resident population based on two factors: Level I concentrations and Level II concentrations. Determine which factor applies as specified in Sections 2.5.1 and 2.5.2, using the health-based benchmarks from Table 5-3. Evaluate populations subject to Level I concentrations as specified in section 5.1.1.3.2.1 and populations subject to Level II concentrations as specified in Section 5.1.1.3.2.2.

Count only those persons meeting the criteria for resident individual as specified in section 5.1.1.3. In estimating the number of people living on property with an area of observed

contamination, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

Page 58 and 59 of the HRS documentation record at proposal explain that no properties were inferred to be within the area of contamination – only properties from which samples were collected and that had residents or workers within 200 feet of the samples were evaluated in the Site scoring.

Page 59 of the HRS documentation record at proposal further reiterates which targets were evaluated for site scoring:

Only those individuals whose residence or workplace is both on the property of and within 200 feet of documented contamination that meet observed contamination criteria are included as resident population threat targets. Properties included in AOC A that contained an unoccupied residence...vacant lots...and parks at the time of sampling **were not** evaluated as resident population threat targets.” [Emphasis added]

Page 60 of the HRS documentation record at proposal further elaborates on which properties were excluded from the evaluation of targets: The park (SG080), vacant lots (JH0061 and JH062), properties with unoccupied residences (SG123, SG124) at the time of sampling. In addition, the two church properties (SG012, SG064/SG065) that are evaluated only as workplaces **are not included** as Level II resident population targets in Table 10 of this HRS documentation record.” [Emphasis added]

The Company did not specify the assumptions it asserts the EPA made in the evaluation of targets that resulted in an inflated HRS score. No properties, and thus, targets, were inferred to be located within the AOC (see section 3.11, Site Aggregation, of this support document). The HRS documentation record at proposal, Table 10: Level II Resident Population Targets, lists all sampling locations and the associated number of residents or workers at each location (additionally, please refer to Figures 4 through 10 of the HRS documentation record at proposal). As all of the targets were appropriately supported and included according to the HRS, the target population count was correctly evaluated as presented in the HRS documentation record at proposal.

Regarding the comment that ‘child high impact zones’ were included in the scoring without support, the HRS scoring was not based on such zones, nor does it factor the presence of such a zone into scoring. Any inclusion of a “child high impact zone’ in the scoring at the Site has resulted from these areas being located on properties that were sampled with lead levels meeting observed contamination criteria.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

4. Conclusion

The original HRS score for this site was 50.00. Based on the above responses to public comments, the score remains unchanged. The final scores for the Southside Chattanooga Lead site are:

Ground Water:	NS
Surface Water:	NS
Soil Exposure and Subsurface Intrusion:	100.00
Air Pathway:	NS
 HRS Score:	 50.00