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Office of Land and Emergency Management

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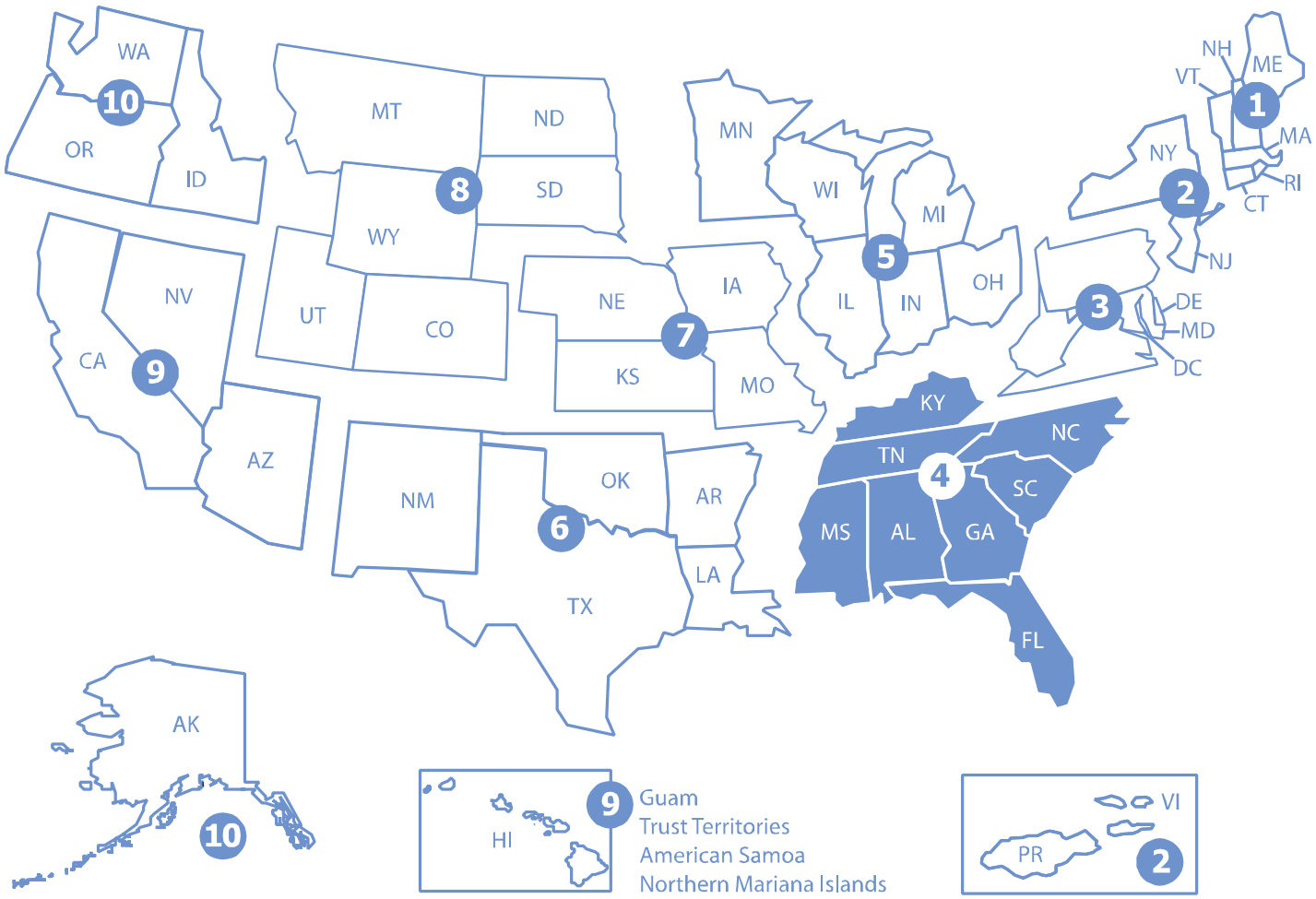
Support Document for the Revised National Priorities List Final Rule – Rockwell International Wheel & Trim



Support Document for the Revised National Priorities List Final Rule

Rockwell International Wheel & Trim

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

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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 Rockwell International Wheel & Trim 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 Rockwell International Wheel & Trim site in Grenada, Mississippi 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, taking 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 Rockwell International Wheel & Trim 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:

ACC	American Chemistry Council
Agency	U.S. Environmental Protection Agency
AOE	Area of observed exposure
APA	Administrative Procedure Act
AST	Aboveground storage tanks
ATSDR	Agency for Toxic Substances and Disease Registry
BCDA	Buffing Compound Disposal Area
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 *et seq*., also known as Superfund
CFR	Code of Federal Regulations
cis-1,2-DCE	cis-1, 2-dichloroethene
CLP	EPA Contract Laboratory Program
CRQL	Contract-required quantitation limit
CSM	Conceptual Site Model
CTEH	Center for Toxicology and Environmental Health, LLC
DL	Detection limit
DNAPL	Dense non-aqueous phase liquid
EHN	Eastern Heights Neighborhood
EPA	U.S. Environmental Protection Agency
ESI	Expanded site investigation
FOIA	Freedom of Information Act
FR	Federal Register
FS	Feasibility Study
GIS	Geographic information system
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
HQ	Hazard quotient
HWQ	Hazardous waste quantity
IRIS	Integrated Risk Information System
LNAPL	Light non-aqueous phase liquid
MCL	Maximum contaminant level
MDEQ	Mississippi Department of Environmental Quality
µg/m^3	Microgram per cubic meter

µg/kg	Microgram per kilogram
µg/L	Microgram per liter
mg/kg	Milligram per kilogram
MRL	Minimum reporting limit
MW	Monitoring well
NAM	National Association of Manufacturers
NCP	National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300
NPL	National Priorities List, Appendix B of the NCP
NRC	National Research Council
OEHHA	California's Office of Environmental Health Hazard Assessment
OLEM	EPA Office of Land and Emergency Management
OPPT	EPA Office of Pollution Prevention and Toxics
OSHA	Occupational Safety and Health Administration
OSC	EPA On-Scene Coordinator
OSWER	EPA's Office of Solid Waste and Emergency Response; now called Office of Land and Emergency Management
PA	Preliminary Assessment
PCE	Tetrachloroethene
PID	Photoionization detector
PRP	Potentially responsible party
QC	Quality control
RAGS/HHEM	1989 Risk Assessment Guidance for Superfund: Human Health Evaluation Manual
RCRA	Resource Conservation and Recovery Act
RfD	Reference dose
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
RME	Reasonable maximum exposure
RML	Removal management level
RSL	EPA Regional Screening Level
SARA	Superfund Amendments and Reauthorization Act
SCDM	Superfund Chemical Data Matrix
SESD	USEPA Region 4 Science and Ecosystem Support Division
SQL	Sample quantitation limit
SSDS	Sub-slab depressurization system
SsI	Subsurface intrusion
SSS	USEPA Region 4's Scientific Support Section

SWMU	Solid waste management unit
TCE	Trichloroethylene
TSCA	Toxic Substances Control Act
UST	Underground storage tank
VI	Vapor Intrusion
VISL	USEPA VI Screening Level
VOC	Volatile organic compounds
WTP	Wastewater treatment plant

1. List of Commenters and Correspondence

EPA-HQ-OLEM-2017-0608-0004	Correspondence, dated February 27, 2017, from Lynn Chambers of Mississippi Department of Environmental Quality, Chief, Groundwater Assessment & Remediation Division.
EPA-HQ-OLEM-2017-0608-0005	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0006	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0007	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0008	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0009	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0010	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0011	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0012	Comment, submitted February 7, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0013	Comment, submitted February 8, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0014	Comment, submitted February 8, 2018, by Mr. and Mrs. Hubbard.
EPA-HQ-OLEM-2017-0608-0015	Comment, submitted February 8, 2018, by J. Williams.
EPA-HQ-OLEM-2017-0608-0016	Comment, submitted February 12, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0017	Comment, submitted February 13, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0018	Comment, submitted February 13, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0019	Comment, submitted February 13, 2018, by S. Battle.
EPA-HQ-OLEM-2017-0608-0020	Comment, submitted February 21, 2018, by M. Harris.
EPA-HQ-OLEM-2017-0608-0021	Comment, submitted March 1, 2018, by J. Kincaid.

EPA-HQ-OLEM-2017-0608-0022	Comment, submitted March 8, 2018, by A. M. Mister.
EPA-HQ-OLEM-2017-0608-0023	Comment, submitted March 12, 2018, by S. Nevitte.
EPA-HQ-OLEM-2017-0608-0024	Comment, submitted March 12, 2018, by A. Loggins.
EPA-HQ-OLEM-2017-0608-0025	Comment, submitted March 12, 2018, by J. James.
EPA-HQ-OLEM-2017-0608-0026	Comment, submitted March 12, 2018, by T. Craig.
EPA-HQ-OLEM-2017-0608-0027	Comment, submitted March 12, 2018, by A. Sledge.
EPA-HQ-OLEM-2017-0608-0028	Comment, submitted March 12, 2018, by D. and M. McClain.
EPA-HQ-OLEM-2017-0608-0029	Comment, submitted March 12, 2018, by H. Auther.
EPA-HQ-OLEM-2017-0608-0030	Comment, submitted March 13, 2018, by L. Porter.
EPA-HQ-OLEM-2017-0608-0031	Comment, submitted March 13, 2018, by B. Benson.
EPA-HQ-OLEM-2017-0608-0032	Comment, submitted March 13, 2018, by D. Seldon.
EPA-HQ-OLEM-2017-0608-0033	Comment, submitted March 13, 2018, by G. Kimble.
EPA-HQ-OLEM-2017-0608-0034	Comment, submitted March 13, 2018, by B. Bridges.
EPA-HQ-OLEM-2017-0608-0035	Comment, submitted March 13, 2018, by K. Cooke.
EPA-HQ-OLEM-2017-0608-0036	Comment, submitted March 13, 2018, by B. Yates.
EPA-HQ-OLEM-2017-0608-0037	Comment, submitted March 13, 2018, by R. Lofton.
EPA-HQ-OLEM-2017-0608-0038	Comment, submitted March 13, 2018, by K. Fisher.
EPA-HQ-OLEM-2017-0608-0039	Comment, submitted March 13, 2018, by M. Odomes.
EPA-HQ-OLEM-2017-0608-0040	Comment, submitted March 13, 2018, by S. Caffee.
EPA-HQ-OLEM-2017-0608-0041	Comment, submitted March 13, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0042	Comment, submitted March 13, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0043	Memorandum, submitted March 15, 2018, extending the comment period established by EPA-OLEM-201-0608-0001.
EPA-HQ-OLEM-2017-0608-0044	Comment, submitted March 15, 2018, by Heidi B. (Goldstein) Friedman, Thompson Hine LLP on behalf of Meritor, Inc. (Meritor).

EPA-HQ-OLEM-2017-0608-0044.1	Comment attachment, submitted March 15, 2018, by Heidi B. (Goldstein) Friedman, Thompson Hine LLP on behalf of Meritor, Inc. (Meritor).
EPA-HQ-OLEM-2017-0608-0045	Correspondence, extension of comment period, submitted March 15, 2018, by Doug Ammon, Chief, Site Assessment and Remedy Decision Branch.
EPA-HQ-OLEM-2017-0608-0046	Comment, submitted March 16, 2018, by V. Adams.
EPA-HQ-OLEM-2017-0608-0046.1	Comment attachment, submitted March 16, 2018, by V. Adams.
EPA-HQ-OLEM-2017-0608-0047	Comment, submitted March 16, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0047.1	Comment attachment, submitted March 16, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0048	Comment, submitted March 19, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0049	Comment, submitted March 26, 2018, by J. Parker.
EPA-HQ-OLEM-2017-0608-0050	Comment, submitted March 26, 2018, by C. Mack.
EPA-HQ-OLEM-2017-0608-0050.1	Comment attachment, submitted March 26, 2018, by C. Mack.
EPA-HQ-OLEM-2017-0608-0051	Comment, submitted March 28, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0052	Comment, submitted March 28, 2018, by D. Simonton.
EPA-HQ-OLEM-2017-0608-0053	Comment, submitted March 28, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0054	Comment, submitted March 28, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0055	Comment, submitted March 28, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0056	Comment, submitted March 28, 2018, by A. Nicholson.
EPA-HQ-OLEM-2017-0608-0057	Comment, submitted March 28, 2018, by an anonymous public commenter.
EPA-HQ-OLEM-2017-0608-0058	Comment, submitted March 28, 2018, by D. Jenkins.
EPA-HQ-OLEM-2017-0608-0059	Comment, submitted March 28, 2018, by Ross Eisenberg, Vice President, Energy and Resources Policy, National Association of Manufacturers (NAM).

EPA-HQ-OLEM-2017-0608-0059.1	Comment attachment, submitted March 28, 2018, by Ross Eisenberg, Vice President, Energy and Resources Policy, National Association of Manufacturers (NAM).
EPA-HQ-OLEM-2017-0608-0060	Comment, submitted March 28, by Paul J. Bishop, President, Ice Industries, Inc.
EPA-HQ-OLEM-2017-0608-0060.1	Comment attachment, submitted March 28, by Paul J. Bishop, President, Ice Industries, Inc.
EPA-HQ-OLEM-2017-0608-0061	Comment, submitted April 10, 2018, by Steve P. Risotto, Senior Director, American Chemistry Council (ACC).
EPA-HQ-OLEM-2017-0608-0061.1	Comment attachment, submitted April 10, 2018, by Steve P. Risotto, Senior Director, American Chemistry Council (ACC).
EPA-HQ-OLEM-2017-0608-0062	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0062.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0063	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0063.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0064	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0064.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0065	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0065.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0066	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0066.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0067	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0067.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0068	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0068.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0069	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0069.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0070	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0070.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0071	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0071.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0072	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0072.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0073	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0073.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0074	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0074.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0075	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0075.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0076	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0076.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0077	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0077.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0078	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0078.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0079	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0079.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0080	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0080.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0081	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0081.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0082	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0082.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0083	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0083.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0084	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0084.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0085	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0085.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0086	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0086.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0087	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0087.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0088	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0088.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0089	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0089.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0090	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0090.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0091	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0091.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0092	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0092.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0093	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0093.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0094	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0094.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0095	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0095.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0096	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0096.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0097	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0097.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0098	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0098.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0099	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0099.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0100	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0100.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0101	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0101.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0102	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0102.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0103	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0103.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0104	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0104.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0105	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0105.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0106	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0106.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0107	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0107.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0108	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0108.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0109	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0109.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0110	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0110.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0111	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0111.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0112	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0112.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0113	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0113.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0114	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0114.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0115	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0115.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0116	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0116.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0117	Comment, submitted April 12, 2018, by John Ellis, Senior Project Manager Arcadis U.S., Inc., on behalf of Grenada Manufacturing, LLC.
EPA-HQ-OLEM-2017-0608-0117.1	Comment attachment, submitted April 12, 2018, by John Ellis, Senior Project Manager Arcadis U.S., Inc., on behalf of Grenada Manufacturing, LLC.
EPA-HQ-OLEM-2017-0608-0118	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0118.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0119	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0119.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0120	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0120.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0121	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0121.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0122	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0122.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0123	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0123.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0124	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0124.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0125	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0125.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0126	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0126.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0127	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0127.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0128	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0128.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0129	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0129.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0130	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0130.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0131	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0131.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0132	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0132.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0133	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0133.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0134	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0134.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0135	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0135.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0136	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0136.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0137	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0137.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0138	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0138.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0139	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0139.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0140	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0140.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0141	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0141.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0142	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0142.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0143	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0143.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0144	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0144.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0145	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0145.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0146	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0146.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0147	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0147.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0148	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0148.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0149	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0149.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0150	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0150.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0151	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

EPA-HQ-OLEM-2017-0608-0151.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0152	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
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EPA-HQ-OLEM-2017-0608-0153	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0153.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0154	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0154.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0155	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0155.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0156	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0156.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0157	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
EPA-HQ-OLEM-2017-0608-0157.1	Comment attachment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.

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EPA-HQ-OLEM-2017-0608-0200	Comment, submitted April 12, 2018, by Heidi B. Friedman et al., Thompson Hine LLP and Butler Snow LLP on behalf of Meritor, Inc.
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2. Site Description

The Rockwell International Wheel & Trim site (the Site) is the location of a release of hazardous substances to the environment from operations at the Rockwell International Wheel & Trim (Rockwell) facility and includes a release to indoor air within the facility's main plant building, as well as possibly to other environmental media. For HRS scoring purposes, the Rockwell site includes an area of observed exposure (AOE) in the main plant building affecting 217 people. Volatile organic compounds (VOCs), including trichloroethene (TCE), cis-1,2-dichloroethene (DCE, a breakdown product of TCE), and toluene were detected at concentrations significantly greater than background levels in indoor air samples collected in October 2016 and January 2017 from the main plant building, indicating that a release of hazardous substances has occurred. TCE levels exceeded the HRS Level I cancer screening concentration benchmark. Evidence indicates that the contaminants migrated into indoor air from the subsurface (subsurface intrusion). In addition to the indoor air detections, contamination has been detected in groundwater at the facility, in soil and sub-slab air samples below the building, and at the point of entry in cracks in the structure floor. The HRS Site score is based on evaluation of the subsurface intrusion component of the soil exposure and subsurface intrusion pathway.

The Rockwell facility encompasses about 76 acres of land, including the main facility (69.5 acres; spans two parcels of 45.5 acres and 24 acres) and the Moose Lodge Road disposal area (on a 6.7 acres parcel), and is located off of Highway 332 East in Grenada, Grenada County, Mississippi (see Figure 1 of the HRS documentation record at proposal). In the vicinity of the Rockwell facility are to the north, the Eastern Heights neighborhood, other residential properties, and vacant land; to the east and south, vacant land; and to the west, Riverdale Creek and agricultural land beyond. From 1966 to 2008, Rockwell and its successors operated a wheel cover manufacturing and chrome plating facility. During wheel cover manufacturing operations, the facility included a main plant building, a warehouse, a drum storage area, two lagoons (equalization and sludge), a wastewater treatment plant (WTP), a waste oil tank, a chromium destruct pit, a flash mix tank, a clarifier tank, sumps, chromic acid plating baths, TCE and toluene storage areas, and an on-site disposal area. Rockwell Automotive Division operated a wheel cover manufacturing facility on the property from 1966 to 1985. In 1985, the plant and property were sold to Textron Automotive Company (Textron), formerly Randall Textron, which continued wheel cover manufacturing operations at the plant. In 1997, Rockwell Automotive Division was spun off from Rockwell International Corporation to form Meritor. In 1999, Textron sold the operation and property to Grenada Manufacturing, LLC (Grenada Manufacturing). Grenada Manufacturing, LLC continued to manufacture wheel covers until 2008, when portions of the plant property were leased to Ice Industries, Inc. (Ice). Ice converted the facility to a stamping plant that manufactured stamp-formed parts for various industries. Wastes generated at the Rockwell facility included paint waste, spent toluene, spent solvents, chromic acid sludge, TCE still bottoms, electroplating waste waters containing hexavalent chromium, buffing compounds, paint sludge, WTP clarifier sludge, waste oil, metal shavings, and corrosive alkaline wash waters.

A former TCE storage area was located east of the main plant building (see Figure 2 of the HRS documentation record at proposal), consisting of two aboveground storage tanks (AST) with capacities of 10,000 gallons and 15,000 gallons, as well as associated underground piping that transferred the TCE from the tanks to the main plant building. The tanks were installed in 1973 and removed in the early 1980s after a release of TCE into the subsurface via the underground piping, resulting in groundwater contamination. The two ASTs were replaced by a new 5,000-gallon steel tank with aboveground piping and secondary containment, which was in operation until 1992, when TCE use was discontinued. In 1993, an automated dense non-aqueous phase liquid (DNAPL) recovery system was installed in the vicinity of the former TCE storage area; more than 200 gallons of TCE were

removed, and an additional 39 gallons of DNAPL were recovered by subsequent manual bailing. In March and April 2017, soil and groundwater samples were collected to a maximum depth of 60 feet below ground surface (bgs) from within the former TCE storage area. Soil samples contained TCE at every depth interval sampled from 4 to 60 feet bgs at concentrations up to 53,895 milligrams per kilogram (mg/kg) (at 51 feet bgs). Groundwater samples contained TCE at concentrations up to 54,592 micrograms per liter (µg/L) (at 60 feet bgs). Residual DNAPL extends from the former TCE storage area towards the main plant building.

The 1994 Remedial Investigation (RI) conducted pursuant to an agreement with Mississippi Department of Environmental Quality (MDEQ) revealed a TCE plume including its degradation products in soil and groundwater emanating from the former TCE storage area and moving beneath the main plant building. Residual TCE in the former TCE storage area may remain in the upper aquifer, providing a continued source of dissolved-phase TCE to groundwater. In March and April 2017, T&M Associates, Inc. (T&M), on behalf of Meritor, conducted an investigation of the former TCE storage area to delineate the zone of TCE contamination. Soil samples contained concentrations of 1,2-DCE up to 96 mg/kg (at 6 feet bgs), tetrachloroethene (PCE) up to 3.05 mg/kg (at 9 feet bgs), toluene up to 464 mg/kg (at 2 feet bgs), TCE up to 53,895 mg/kg (at 51 feet bgs), and vinyl chloride up to 4.66 mg/kg (at 12 feet bgs). Groundwater samples contained concentrations of 1,2-DCE up to 49,760 µg/L (well depth of 25 feet bgs), TCE up to 54,592 µg/L (well depth of 60 feet bgs), and vinyl chloride up to 11,936 µg/L (well depth of 25 feet bgs).

For 5 years, from 1983 to 1988, a 2,000-gallon steel underground storage tank (UST) was used to store toluene east of the main plant building, northwest of the former TCE storage area (see Figure 2 of the HRS documentation record at proposal). When the tank was removed in 1988, light non-aqueous phase liquid (LNAPL) was observed in the tank cavity at about 5 feet bgs. Because the UST appeared intact when it was removed, the most likely source of toluene LNAPL was the underground piping or the result of overfill leaks or spills. In October 1993, an automated LNAPL recovery system was installed; more than 2,000 gallons of toluene were recovered, and subsequent manual bailing of LNAPL accumulating in recovery wells continued to at least 2016. LNAPL has migrated beneath the main plant building. Monitoring well MW-24, located in the former toluene UST area, was installed to about 20 feet bgs. In January and February 1993, groundwater samples collected from this well contained toluene at 0.66 milligrams per liter (mg/L) and 0.15 mg/L. The 1994 RI revealed a toluene plume in soil and groundwater emanating from the former toluene UST area and moving beneath the main plant building. During the March and April 2017 T&M investigation of the former TCE storage area, soil samples contained concentrations of toluene up to 464 mg/kg (at a depth of 12 feet bgs).

Cis-1,2-DCE, toluene, and TCE are present in shallow soils beneath the main plant building floor. June 2017 sub-slab soil samples exhibited concentrations up to 39,000 micrograms per kilogram (µg/kg) cis-1,2-DCE, 33,000 µg/kg toluene, and 1,300,000 µg/kg TCE in soil samples at a depth of 9 to 10 feet below the slab in the eastern portion of the main plant building near the TCE and toluene storage areas. TCE was also detected in the eastern portion of the main plant building at a concentration of 1,300,000 µg/kg at a depth of 3 to 4 feet below the slab.

Cis-1,2-DCE, toluene, and TCE are present in soil vapor beneath the main plant building and in indoor air, and these substances have migrated from the subsurface into indoor air within the main plant building. Concentrations of cis-1,2-DCE, toluene, and TCE in sub-slab vapor samples are up to several orders of magnitude greater than concentrations in the indoor air samples. During the October 2016 event, sub-slab vapor samples contained up to 54,000 micrograms per cubic meter (µg/m^3) cis-1,2-DCE, 39 µg/m^3 toluene, and 2,900,000 µg/m^3 TCE. Indoor air samples contained up to 3.7 µg/m^3 cis-1,2-DCE, 10 µg/m^3 toluene, and 29 µg/m^3 TCE. During the January 2017 event, sub-slab vapor samples contained up to 53,000 µg/m^3 cis-1,2-DCE and 220,000 µg/m^3 TCE. Indoor air samples contained up to 3.7 µg/m^3 cis-1,2-DCE, 6.7 µg/m^3 toluene, and 81 µg/m^3 TCE.

Preferential pathways for subsurface intrusion into the main plant building include cracks, crevices, joints, gaps, cuts, pipe penetrations, and holes in the concrete floors; cracks in the basement walls; pits and trenches; floor drains; and process sewer lines. During March 2017 activities, 77 such points of entry were identified in the concrete slab throughout the main plant building.

Following the investigations during which samples were collected establishing observed exposure for HRS scoring purposes, several more events have taken place leading to the installation, operation, and monitoring of a sub-slab depressurization system (SSDS), including:

- February and March 2017, interim measure activities were carried out, sealing cracks, holes, joints, and drains in the concrete slab at 22 locations. VOC concentrations were measured with a photoionization detector at these points pre-and post-sealing. While VOC concentrations decreased post-sealing, VOCs were still detected. It was recommended that a more robust mitigation approach be developed, including further exploration of an SSDS.
- During August 12, 2017 – September 11, 2017, an installed SSDS system ran for 30 days as part of a pilot study. MDEQ allowed the pilot study without an air permit, with the understanding that a permit would later need to be applied for prior to permanent operation. Data obtained during the SSDS pilot study showed that subsurface intrusion of contaminants continued during operation of the SSDS, and despite general reductions in levels below removal management levels (RMLs), some concentrations identified appear to indicate that observed exposure levels and even Level I concentrations were not eliminated by the system.
- For some time, potentially responsible parties (PRPs) did not apply for the permit, and therefore MDEQ would not allow restart of the SSDS.
- When failure to apply for the permit prevented the restart of the SSDS, oversight of the SSDS was shifted to CERCLA authority.
- On December 20, 2017, the EPA CERCLA Removal Program directed Meritor to restart the SSDS without the air permit.
- On December 28, 2017, Meritor applied to MDEQ for the needed air permit.
- On December 29, 2017, the SSDS system restarted operation.
- During January 11-18, 2018, performance sampling event #1 was conducted.
- On January 18, 2018, the Site was proposed to the NPL.
- On March 8, 2018, results of performance sampling event #1 were submitted to EPA.
- During February 6 – March 6, 2018, performance sampling event #2 was conducted. Results were submitted to EPA on April 3, 2018.
- Monthly performance sampling events continue to be conducted. As shown in Appendix A of this support document, samples collected during the Aug-September 2017 SSDS pilot study and after the December 2017 restart of the SSDS confirm that subsurface intrusion of TCE, toluene, and cis-1,2-DCE continues; for TCE, these detections are often at levels indicating observed exposure at Level I concentrations (and at least one detection of TCE exceeded the RML).

The SSDS has not completely halted the flow of contamination into the building, nor does it address the majority of the contamination associated with the release at the Site in the form of high levels of subsurface soil and groundwater contamination. The system is intended as a temporary measure to bring indoor air contaminant levels below RMLs for the protection of the workers. However, significant contamination remains in the subsurface, may be migrating to other off-site areas, and this contamination requires further investigation to determine what remedies may be needed.

3. Summary of Comments

Forty-seven commenters submitted comments either in direct support for placing the Rockwell International Wheel and Trim site on the NPL or in general support for the EPA leading cleanup activities in the area. Those

commenters in support of listing include the State of Mississippi, a number of private citizens from the area, including the Eastern Heights subdivision, and a university student.

Six commenters submitted comments in opposition to placing the Rockwell International Wheel and Trim site on the NPL. Thompson Hine LLP and Butler Snow LLP; Golder, Arcadis, and T&M submitted comments on behalf of Meritor, Inc. (Meritor). Comments were also submitted from the National Association of Manufacturers (NAM), Ice Industries, Inc. (Ice) (on behalf of Ice and its affiliated company Ice Industries (Grenada), and the American Chemistry Council (ACC). Commenters raised both policy and technical HRS scoring issues related to placing the Site on the NPL.

NAM, Ice, Meritor, Golder, and Arcadis all provided comments asserting that the EPA should consider the operational mitigation system (SSDS) at the Site in the HRS evaluation. Meritor commented that the EPA has ignored the previous work done at the Site and the current conditions at the Site, and that the EPA has violated its own rules, policies and guidance by not considering the implementation and operation of a sub-slab depressurization system. Meritor also provided comments on perceived deficiencies in the HRS documentation record at proposal related to the SSDS and the SsI component. Meritor commented that based on the issues it identified, placing the Site on the NPL would be arbitrary and capricious and that EPA has not provided a rationale for the listing decision and relies only on unsupported assumptions. The commenters stated that the EPA only considered sampling information prior to operation of the SSDS, which the commenters stated effectively reduced TCE concentrations at the facility. NAM, Ice, Meritor, Golder, and Arcadis also commented that if the EPA had considered the SSDS and resulting mitigated SsI pathway, the Site would not score high enough for placement on the NPL. Meritor and Golder stated that after consideration of the operational SSDS and correction of some incorrect assumptions by the EPA, the Site's HRS site score decreases from 50.00 to 1.96 and the Site is no longer eligible for placement on the NPL. NAM, Ice, Meritor, Golder, and Arcadis asserted that EPA policy dictates consideration of mitigation systems in the HRS package when the removal action was demonstrated to be effective. Meritor also challenged EPA's pursuing placement of the Site on the NPL while concurrently implementing a CERCLA time-critical removal action and is violating its own policies by not considering the "permanent removal actions" already taken. Meritor commented that based on the issues it identified, placing the Site on the NPL would be arbitrary and capricious and that EPA has not provided a rationale for the listing decision and relies only on unsupported assumptions.

Meritor stated that the EPA's response to Meritor's April 2017 and January 2018 Freedom of Information Act (FOIA) requests for the Site was insufficient. As a result, Meritor requested that the EPA extend by 30 days the comment period because there was insufficient time for it to perform a thorough review of all 63 HRS documentation record references, partly because the references were not available to Meritor promptly at proposal.

Meritor and Ice called into question the purpose of NPL listing, including assertions that the subsurface intrusion threat is already addressed, and that listing will not necessarily improve federal funding for the Site or achieve recently expressed EPA goals with respect to Superfund.

Commenters NAM, Ice, and Meritor all questioned the EPA pursuing placement of the Site on the NPL, claiming that other cleanup programs would be more appropriate. Ice commented that NPL listing will slow the remediation of the Site compared to continuing under existing RCRA permits.

Meritor stated that EPA's definition of the Site is "objectionable and unclear," and commented that EPA clearly intends to expand the Site to include areas along Moose Lodge Road and the Eastern Heights Neighborhood. Meritor and Ice commented that following placement of the Site on the NPL, the EPA intends to expand the boundaries of the Site, and that such an expansion will represent an inappropriately aggregated Site. Meritor, Ice, and T&M all questioned that EPA scored only the SsI pathway in the HRS evaluation.

Ice commented that the EPA is making unsupported liability claims against the company and stated that continuity of business operations is incompatible with shifting from a RCRA-permitting approach to CERCLA

enforcement. Ice submitted several comments related to the potential negative stigma and economic impacts associated with placing the Site on the NPL, which it asserted could jeopardize future facility operations. Ice commented that "[i]t is important for U.S. EPA to understand, however, the impacts to Ice Grenada since TCE indoor air issues arose at the Plant in late 2016."

Ice, Meritor, Golder, and Arcadis all stated that the indoor air concentrations in the main plant building are below regulatory/removal limits. NAM and Ice suggested that the EPA's criteria for placing sites on the NPL is not comprehensive in terms of evaluating real risk to human health and the environment.

Commenters Meritor and Arcadis stated that data and documentation related to operation of the mitigation system at the Site were not included in the HRS documentation record, which should be revised to reflect that information.

Commenters asserted that the HRS documentation record at proposal and the 2017 ESI report (Reference 17 of the HRS documentation record at proposal), include multiple instances of inaccurate and incorrect statements that should be revised or removed. Meritor stated that these statements suggest risks that do not exist or are exaggerated. Comments submitted were related to the validity of the references to support statements in question about the origin of contamination at the Site, including soil and groundwater contamination under the main plant building, contamination around the Eastern Heights neighborhood, the Moose Lodge Road disposal area, the Kirk property and the equalization lagoon. The commenters also stated that the EPA provided contradictory and inconsistent information about the Site in the NPL Narrative Summary, EPA Superfund Factsheet #1, and the public meeting held on February 6, 2018.

Golder provided comments on scoring for the likelihood of exposure factor category and commented that the Site should be evaluated using the potential for exposure factor, not the observed exposure factor because indoor air concentrations dropped below removal levels upon operation of the SSDS, and should continue to decrease below health-based benchmarks and approach background levels with continued operation of the system.

Arcadis provided technical comments related to attribution of indoor air contamination to the subsurface and stated that the geology under the main plant building, including a clay layer, would prevent vapor intrusion from groundwater into sub-slab and indoor air. Arcadis also commented on the origin of spills of TCE and toluene stating that they were likely the result of spills within the building and released to the soil under the main plant building.

Meritor and Golder asserted that the EPA had improperly evaluated the structure containment factor in the HRS scoring evaluation and incorrectly assigned a factor value of 10 in the HRS documentation record at proposal. Instead, Golder commented that a structure containment factor value of 2 should be assigned based on the presence of the mitigation system.

Meritor and Golder stated that the EPA had incorrectly calculated the hazardous waste quantity factor value used in the HRS scoring evaluation because the entire footprint of the main plant building was used instead of the area overlying the subsurface contamination.

Comments were submitted stating that the health-based benchmarks used in the HRS evaluation were not appropriate and stated the incorrect benchmarks are used to score the SsI component and that the benchmarks used are below EPA removal and other EPA-approved levels. Commenters claimed that indoor air concentrations scored do not reflect current conditions; therefore, this information should not have been used to establish Level I concentrations. Meritor provided comments that identified benchmarks previously approved for use at the Site by EPA. Meritor called into question the benchmarks used to establish Level I concentrations as overly conservative compared to levels already established for the Site, such as the removal management levels.

Finally, ACC provided comments that questioned the science used to establish the non-cancer health-based benchmark identified in the HRS documentation record. ACC and Meritor provided comments on the appropriateness of the health-based benchmarks used in the HRS targets factor category evaluation.

3.1 Support for Listing and Other Non-opposition Comments

The EPA received 44 comments from 47 commenters that expressed either direct support for the proposed listing or general support for EPA leading cleanup activities in the area. Those commenters in support of listing include the State of Mississippi, a number of private citizens from the area including from the Eastern Heights subdivision, and a university student.

3.1.1 General Support

Comment: The State of Mississippi Department of Environmental Quality (MDEQ) concurred with EPA's decision to proceed with listing the Site on the NPL. MDEQ stated that it looks forward to working with EPA to ensure protection of human health and the environment. In addition, multiple commenters cited various specific reasons for their support of placing the Site on the NPL; these included the following:

- Two Eastern Heights residents expressed general concern about pollution under their home and in the ambient air of their neighborhood. Nineteen residents commented that the EPA needs to make protecting their [Eastern Heights] neighborhood and its inhabitants its number one priority generally. Three residents of the Eastern Heights neighborhood called for justice for the people who have lived in the neighboring community and who have been exposed to contamination for over 25 years. One commenter called for their neighborhood to be cleaned up but expressed pessimism that the contamination will ever get cleaned up given the length of time the contamination has been in the environment.
- Two commenters indicated that control measures done in the past were completely inadequate; therefore, they strongly support the listing of this site. These commenters indicated that the site is an on-going threat to human health and the environment both at the Rockwell facility and on neighboring private properties.
- Two commenters provided the slow progress identifying and mitigating the impacts from this site and the likelihood that the Superfund program would provide cleanup more quickly as reasons the site should be placed on the NPL.
- One commenter encouraged the EPA to hold Rockwell responsible for their contamination. Eleven local residents commented that the EPA needs to change the way it has handled this situation and stated that the EPA needs to stop relying on the "polluters and the people they hire" to identify and cleanup the various plumes.
- Eighteen citizens expressed concern for the past and continued risk to human health. Six local residents gave accounts of personal or witnessed health issues, which some commenters relate to the pollution of neighboring industry.
- Five Eastern Heights neighborhood residents expressed concern that there was a detrimental effect on their property/property value because of the trichloroethene that was released into the surrounding area.
- One commenter discussed concern with the contamination of nearby surface water bodies via contaminated groundwater as a reason for listing.
- Three residents of the Eastern Heights subdivision discussed how their quality of life has been affected by knowledge of contamination coming from this site, including, feeling uncomfortable spending time doing recreational activities outside their home and feeling generally like their life has been disrupted.
- One former resident commented that there have been concerns with the drinking water in Eastern Heights neighborhood for many years and is dismayed to find out that people in the community were exposed to contamination.

Response: The EPA has added the Rockwell International Wheel & Trim site to the NPL. Listing makes a site eligible for remedial action funding under CERCLA, and 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. 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 alternatives, and other factors as appropriate.

3.1.2 Support with Requests for Further Actions

Comment: As summarized below, many commenters in support of NPL listing also provided comments and requests related to the EPA's future cleanup actions. These comments included requests for actions to include cleanup of the nearby Eastern Heights neighborhood and compensatory actions for the residents of the Eastern Heights subdivision.

- Eighteen residents expressed concern that they did not know there is a threat of harm from the Rockwell plant operations to their Eastern Heights neighborhood until 2015. Commenters expressed similar concern that the EPA has been working for 20 years to address the releases of hazardous substances from the Rockwell facility and that much of the work appears to be unsuccessful in stopping the spread of chemicals to Eastern Heights. One commenter felt that the EPA had been lying to them.
- Thirty-three residents requested that the EPA clean and protect their neighborhood by expanding the Rockwell International Wheel & Trim NPL site to include the Eastern Heights subdivision.
- Twenty-four citizens specifically requested that the EPA make stopping the spread of chemical plumes in Eastern Heights and cleaning up those plumes that have already spread its number one priority.
- Two residents suggested generally that the residents of the Eastern Heights should be given assistance to move away from that neighborhood. Similarly, two other residents commented that Rockwell, the EPA and/or Meritor [sic] should compensate the residents of Eastern Heights as soon as possible either by buying the homes in that community at fair market price so residents can relocate or by providing a lump sum that will pay for both homes and personal injury. One commenter requested that cleanup should begin after the Eastern Heights residents have been relocated.
- A former resident recommended that all of the houses [in the Eastern Heights subdivision] be torn down and the area disclosed as a "toxic site."

Response: Regarding comments in support of NPL listing that request the Eastern Heights neighborhood be cleaned up in general, the exposure of residents in neighboring communities is a concern to the Agency. As noted on the cover page of the HRS documentation record at proposal, the EPA has given public notice of this shared concern and noted that groundwater and soil contamination in the Eastern Heights neighborhood as an area that may be investigated further.

Regarding commenters that specifically want the site to be expanded to include the Eastern Heights subdivision, please see section 3.7, Definition of Site/Site Boundaries, of this support document. As noted below in that section, the boundaries of the Site are not established at listing; rather, further investigation during a different step in the Superfund process will identify the extent of releases of contamination from the Rockwell facility. The possible future expansion of the site to include other areas where the release from the Site has come to be located is consistent with the CERCLA process, and, as stated by the D.C. Circuit Court of Appeals, "EPA may alter or expand the boundaries of a NPL site if subsequent study reveals a wider-than-expected scope of contamination." *Washington State DOT v. EPA, 917 F.2d 1309, 1310 (D.C. Cir. 1990) (Citing Eagle-Picher Indus. v. EPA, 822 F.2d 132, 144 (D.C. Cir. 1987)).* (See also section 3.9, Evaluation of Other Pathways, of this support document for further discussion on contamination related to other HRS pathways not scored.)

Regarding comments that request citizens living in this area be provided compensation for their property and/or injury, the Agency acknowledges the commenters' desire for appropriate compensation for the affected citizens

bordering this Site. However, considerations regarding remedy selection and implementation, including decisions about compensation, are not factors in the decision to place a site on the NPL.

Regarding the commenter's suggestion to relocate residents away from the Site, the need for temporary relocation is evaluated during the RI and the remedial design phase of the Superfund process, and is dependent on the nature of the remedial activities.

Consistent with CERCLA, an orderly procedure is in place for identifying sites where releases of substances addressed under CERCLA have occurred or may occur, placing such sites on the NPL, evaluating the nature and extent of the threats at such sites, responding to those threats, and deleting sites from the NPL. The purpose of the initial two steps is to develop the NPL, which identifies for the States and the public those sites that appear to warrant remedial action (56 FR 35842, July 29, 1991). Additionally, these steps do not predetermine any specific response actions or remedy selections.

The evaluation or Remedial Investigation/Feasibility Study (RI/FS) phase involves on-site testing to assess the nature and extent of the public health and environmental risks associated with a site and to determine what CERCLA-funded remedial actions, if any, may be appropriate. After a period of public comment, the EPA responds to those threats by issuing a Record of Decision, which selects the most appropriate alternative. The selected remedy is implemented during the remedial design/remedial action phase. Finally, a site may be deleted from the NPL when the EPA determines that no further response is appropriate. Therefore, the commenter's concerns on this topic will be addressed during remedy selection stage of the Superfund process.

3.2 FOIA Request

Comment: Meritor stated that the EPA's response to Meritor's April 2017 and January 2018 Freedom of Information Act (FOIA) requests for the Rockwell International Wheel and Trim site (the Site; the Rockwell site) was insufficient and only a limited number of the many documents requested on "this NPL process" were received and only after multiple follow-up requests. Meritor further stated that there are remaining documents it has yet to receive and reserved the right to supplement its comments after the remaining documents are received.

Response: EPA has made all documents relied on in proposing the listing of the Rockwell site available to the public at https://www.regulations.gov, docket number EPA-HQ-OLEM-2017-0608. While government records are available to the public through FOIA, the FOIA process is separate from the process for compiling the record for the listing decision, and documents released under FOIA do not necessarily have any bearing on the listing. If Meritor is dissatisfied with the Agency's response to any FOIA requests, Meritor has the right to appeal the decision or seek judicial review through processes provided by U.S. law and described in the Agency's official response to the FOIA request. FOIA processes, however, are separate from this rulemaking and the EPA will not address Meritor's FOIA claims in this action.

The Rockwell site docket at regulations.gov is the authoritative source of documents pertinent to the listing decision. As discussed in section 3.3 in this support document, the Site docket was delivered to the requestor (CD shipped via UPS on 1/22/18) within 6 days of listing; the comment period was extended by 7 days to account for this slight delay in processing Meritor's request for the documents.

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

3.3 Extension of Comment Period

Comment: On March 13, 2018, Meritor requested that the EPA extend by 30 days the comment period that would have ended on March 19, 2018 (docket ID EPA-HQ-OLEM-2017-0608-0044). Meritor made the request because of an asserted incomplete response by the EPA to FOIA requests for additional documentation on the Site proposal. Meritor also stated that there was insufficient time for it to perform a thorough review of all 63 HRS

documentation record references, in part because the references were not available to Meritor promptly at proposal, and in part because of the volume and organization of the references later received by Meritor.

Response: The EPA granted a 7-day extension of the comment period until March 26, 2018, to all interested parties to account for a 6-day delay in making some reference documents in the Site docket available to the requestor. The extension was documented in a memorandum to the docket from Terry Jeng, Site Assessment & Remedy Decisions Branch, EPA Office of Superfund Remediation and Technology Innovation, dated March 15, 2018 (docket ID EPA-HQ-OLEM-2017-0608-0043), as well as in an extension letter to Thompson Hine, LLP from Douglas Ammon, Chief, Site Assessment and Remedy Decision Branch, dated March 15, 2018 (docket ID EPA-HQ-OLEM-2017-0608-0045).

It is the EPA's general policy to only extend the comment period on a site-specific basis, such as incomplete or missing references in the public docket. There was a 6-day delay in providing the reference documents to the requestor due to the request being made through the EPA site attorney instead of the Region 4 docket coordinator. However, all documentation supporting the proposed NPL listing was made available to the public. The EPA considered that the 60-day comment period and 7-day extension allowed ample opportunity for the public to review the docket materials and provide comment. As explained in the responses provided in section 3.15, Adequacy of the Administrative Record, of this support document, the information provided in the HRS package at proposal was sufficient to support the HRS evaluation of the Site and provide the public with a meaningful opportunity to participate in this rulemaking.

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 Purpose of Listing

Comment: Meritor and Ice called into question the purpose of NPL listing, including assertions that the subsurface intrusion is already addressed, and that listing will not necessarily improve federal funding for the site or achieve recent EPA goals with respect to Superfund.

Meritor contended that the EPA based the HRS evaluation on the SsI component, but asserted that the EPA is ignoring the removal action conducted in the form of the SSDS and that the SSDS fully mitigates the SsI component. Meritor argued that, in the preamble to the 1990 HRS rule, the EPA expressed the desire to encourage potentially responsible parties (PRPs) to conduct timely removal actions by considering these actions in HRS scoring. Meritor further contended that placing the Site on the NPL in spite of effective actions taken by Meritor will have a negative impact in that "future parties at sites across the country will be discouraged from taking similar early response actions."

Further, Ice commented that placing the Site on the NPL does not help meet recently stated general CERCLA goals identified by the EPA in its July 2017 *Superfund Task Force Recommendations* report, including expediting cleanup actions, re-invigorating cleanup and reuse by responsible parties, promoting redevelopment and community revitalization, encouraging private investment, and engaging partners and stakeholders.

Ice questioned EPA's statement in the January 2018 Superfund Fact Sheet 1[1] that only sites on the NPL are eligible to receive federal funding for long-term cleanup. Ice insisted that EPA should further explain this statement if it is indeed a relevant consideration in the NPL listing decision.

Response: Listing the Site on the NPL is an appropriate step in the Superfund process; an HRS site score above 28.50 represents the EPA's determination that the Site poses a risk relative to other sites evaluated under the HRS and may warrant further action. The EPA's actions to evaluate the Site using the HRS and list the Site are consistent with the requirements of CERCLA and SARA, and the statutory purpose of the NPL, which is to

[1] The EPA January 2018 document, *Superfund Fact Sheet 1, Rockwell International Wheel & Trim, Grenada, Mississippi*, was included as Exhibit 1 (docket ID EPA-HQ-OLEM-2017-0608-0064) to Meritor's comment document.

inform the public of possible threats and identify those sites that appear to warrant further investigation and/or remediation.

The EPA acknowledges an SSDS began operations on December 29, 2017, under the oversight of EPA's Removal authorities. (A one-time 30-day pilot test of the SSDS was conducted August 12 – September 11, 2017.) The SSDS mitigation system is part of the ongoing efforts of the PRPs to lower the TCE levels in the main plant building. Full scale operations began on December 29, 2017, shortly before the proposed rule was published. On March 8, 2018, approximately 7 weeks after proposed rule was published, the PRPs submitted validated data to the EPA demonstrating the efficacy of the SSDS for the period of January 11-18. Since that time, monthly air monitoring results have been provided to the EPA. The EPA acknowledges that SSDS operations (January – June 2018) reduced the concentration of TCE and other contaminants in indoor air, albeit above human health benchmarks relevant to HRS scoring. However, the SSDS does not address the source of contamination in the subsurface; a release remains that could cause adverse environmental and human health impacts; and the SSDS is temporary in nature in that it does not provide a permanent remedy to the contamination. "In short, the SSDS does not remove the underlying contamination and TCE vapors continue to enter the building." Therefore, for purposes of the HRS evaluation, contamination remains on the Site and the Site continues to pose a threat that may warrant further investigation and, if needed, clean up. The extent of the remaining contamination and the risk posed by the Site after the removal action will be considered during later stages of the Superfund process that occur after listing.

Removal actions are generally considered during the scoring process when the EPA has documentation that clearly demonstrates there is no remaining release or potential for a release that could cause adverse environmental or human health impacts. Thus, the EPA is aware of the removal action, but it does not affect HRS scoring, and the Site qualifies for listing because the risks posed to the public and the environment by the past, and potentially future, releases at the Site have not been fully addressed by the removal action (i.e., SSDS). In short, the SSDS does not remove the underlying contamination and vapor intrusion is continuing to occur in main plant building. See also section 3.14, Consideration of Removal Action/Current Conditions, of this support document, for further explanation on why the operation of the SSDS does not affect HRS scoring.

In response to the commenter's questioning that only sites on the NPL are eligible to receive federal funding for long-term cleanup, for a site to be cleaned up using Superfund remedial funding the site must be listed on the NPL. While EPA has authority under the Superfund emergency removal program to address risks that pose immediate and substantial endangerment to public health without placing the site on the NPL, not all public health risks posed by groundwater contamination and subsurface intrusion can be addressed with only removal authority. The Superfund remedial program assures that all site-associated contamination will be investigated and, if necessary, remediated.

NPL listing is appropriate for this Site because it has been determined through the HRS evaluation that further investigation is warranted and site-associated contamination has not been permanently remediated by the removal action (SSDS).

CERCLA establishes both a removal program, designed to address in a timely manner acute risks posed by releases of hazardous substances, and a remedial program, designed to address chronic risks and other risks not addressable by CERCLA removal actions. EPA's Superfund removal program has the ability to quickly respond to immediate threats to public health and the environment from the release; a removal action can be implemented regardless of NPL status to eliminate or reduce the threat of a release. However, removal actions, such as installation of vapor intrusion mitigation systems, are not intended to necessary address the source of the contamination. For example, removal actions can be used as stopgap measures to break the exposure chain until a permanent remedy is implemented. In addition, CERCLA has statutory limitations on the amount of funding and time for conducting removal actions. These limitations may restrict EPA's ability to rely on removal authority alone to fully address site-related contamination that presents long-term threats to human health. Congress included in CERCLA Section 104 the Superfund remedial program, which can address releases that cannot be adequately addressed by the Superfund removal program.

Regarding comments on the impacts of placing the Site on the NPL, specifically effects on future actions carried out by PRPs at this or other sites, and consistency with the EPA task force goals noted by Ice, the Site was proposed to the NPL due to subsurface intrusion risks to populations and the need for further investigation. These other effects (e.g., future actions of other PRPs) are outside the scope of this action, do not affect the listing decision, and do not impact EPA's mandate to protect human health and the environment. Furthermore, the EPA makes decisions during all stages of the Superfund process. PRPs may affect remedy selection, as can any other member of the public, through the public comment process. PRPs may undertake the RI/FS and/or remedial design/remedial action stages under EPA supervision and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes). The listing process does not encumber or preclude PRPs from entering into these agreements or from making or implementing plans for redevelopment of the property. The Agency has entered into many such agreements between proposal and promulgation, and such an alternative is available to the commenter. See section 3.5, Alternatives to Listing, of this support document for additional discussion of consistency with the EPA July 25, 2017, Superfund Task Force Recommendations Report.

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 Alternatives to Listing

Comment: Commenters National Association of Manufacturers (NAM), Ice, and Meritor all questioned the EPA pursuing placement of the Site on the NPL, claiming that other cleanup programs would be more appropriate.

Meritor claimed the EPA is being arbitrary and capricious by conducting a time critical removal action at the Site and pursuing placement on the NPL, which it states is "unnecessary and a waste of public resources." Meritor asserted that the 2017 HRS states that if alternatives exist to placing the site on the NPL, such as a removal action, then the Site need not be placed on the NPL[2].

NAM commented that NPL listing should be limited to sites that cannot be addressed in a timely manner under other programs.

Ice challenged that NPL listing of the Site would be inconsistent with the EPA July 25, 2017, Superfund Task Force Recommendations Report, specifically pointing to recommendation 13 of that report, which involves using other federal and state authorities in lieu of NPL listing to implement response consistent with CERCLA. Ice alleged that the EPA "is doing the exact opposite of this recommendation in Grenada, with very little explanation or support for its proposed action," especially in light of past performance of cooperating parties under RCRA. Ice challenged that the "EPA has not explained why the continued operation of the SSDS cannot be effectively maintained and overseen going forward under the existing RCRA permits for the Site." Ice contended that, given the current ongoing SSDS operation, appropriate State air permits and RCRA permits can be obtained for its continued operation into the future. Ice generally argued that the RCRA authority mechanism would be more effective and time efficient than CERCLA. Ice asserted that EPA should explain why NPL listing is a better long-term solution than such operation, in light of the drawbacks Ice perceives to be associated with NPL listing.

Ice took issue with the rationale for NPL listing in the following EPA statement in its January 2018 Superfund Fact Sheet 1 for the Site:

> EPA's priority is a comprehensive approach that addresses all contamination related to the former chrome plating operation at the facility and in the surrounding community. Adding the site to the NPL will allow EPA to conduct a comprehensive assessment of all the risks to public health and the environment, and take the necessary cleanup actions.

[2] Meritor cites Exhibit 10 of its comment document (docket ID EPA-HQ-OLEM-2017-0608-0120), page 2764 of the 2017 SsI Addition in the Federal Register (82 FR 2782, January 9, 2017).

Ice argued that the EPA's current authority under RCRA permits allows the EPA to require investigation/remediation of contamination from the facility, including contamination at off-facility properties. Ice concluded that the EPA should reassess its decision, and that the goals of timely completion of needed environmental work with minimal disruption would be best served if the EPA were to "proceed under the existing RCRA-permits consistent with the Agreement U.S. EPA entered in 2004 that was subsequently adopted and incorporated into the Federal Bankruptcy Court's 2005 order."

Response: The decision to list the Site on the NPL is appropriate because the HRS Site score meets the required listing threshold of 28.50 and indicates that the Site poses sufficient risk relative to sites evaluated for NPL listing to warrant further investigation. The alternatives identified by the commenter, including CERCLA removal, RCRA authority, the SSDS, and State authorities are insufficient to fully address contamination associated with the Site. Additionally, the State supports listing the Site on the NPL. And, given the inadequacies of alternatives to achieve comprehensive remediation at the Site, the NPL listing is not inconsistent with the Superfund Task Force recommendations.

With respect to the commenter's assertion that EPA is being arbitrary and capricious by conducting a time critical removal action at the Site and pursuing placement on the NPL, removal and remedial actions are complementary under CERCLA, and the SSDS does not fully address the sources of contamination and routes of exposure at the Site. As discussed in section 3.4, Purpose of Listing, of this support document, CERCLA establishes both a removal and remedial program and the two programs can function simultaneously. Many sites in the Superfund program use a combination of removal and remedial authority to mitigate the short-term imminent public health risks with long-term cleanups that address the sources of contamination. Further, as explained in section 3.14.2, CERCLA Removal v. Remedial Actions, of this support document, installation and operation of the SSDS has not permanently remediated the subsurface sources of the contamination and public health threats scored in the HRS evaluation. Therefore, it is appropriate for the EPA's removal program to respond to the immediate public health threat at the Site, while also seeking to place the Site on the NPL to address long-term threats to the environment and public health.

Regarding comments that the Site contamination issues can be addressed using RCRA Subtitle C corrective authority in lieu of placement on the NPL, this authority cannot fully address the release of hazardous substances associated with the Site and adding the Site on the NPL is consistent with EPA's RCRA/NPL deferral policy for placing RCRA-regulated facilities on the NPL. NPL listing notifies the public that the Site has been identified for further investigation and remedial action. Use of CERCLA authorities will allow for a comprehensive investigation and cleanup.

In general, regarding alternative ways to address hazardous waste sites, EPA agrees that in many cases there are alternative ways to address some sites, however not all sites can be addressed under non-Superfund authorities and programs. EPA typically only considers placement of sites on the NPL when other channels have been exhausted. EPA, in dialogue with other federal agencies, states and tribes, determines the most appropriate mechanism to address the threat posed by hazardous waste sites. EPA often defers sites to other EPA, state, tribal, or federal cleanup authorities, based on whether it is likely that the threat posed by the site will likely be adequately addressed. While some states/tribes have programs to address contaminated sites, some do not, and those that do often have limited authority and resources, and variable remediation criteria. Many of the sites that are listed on the NPL are sites that are referred to EPA from State programs that were not able to adequately address the sites under their own authority. The availability of the federal remedial authority to comprehensively address all site-related contamination complements and strengthens these State and tribal programs.

With respect to the Superfund Task Force July 25, 2017 report and associated recommendation 13 cited by Ice, the EPA disagrees with Ice's conclusion. First, as explained in section 3.4, Purpose of Listing, of this support document, the task force goals noted by Ice do not affect the listing decision and do not impact EPA's mandate to protect human health and the environment; the Site was proposed to the NPL due to releases of hazardous substances to the environment and risks, including subsurface intrusion risks to populations, and the need for

further investigation. And, NPL listing does not preclude PRPs from undertaking the RI/FS and/or remedial design/remedial action stages under EPA supervision and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes). Furthermore, the task force recommendation 13 identified involves using other Federal and State authorities to carry out cleanup actions that are consistent with CERCLA. As explained above in this section, the alternatives to NPL listing pointed to by the commenters cannot fully address the contamination associated with the site and the threat it may pose. Finally, it is notable that the State requested that EPA propose the Site to the NPL and expressed support for NPL listing: in a February 27, 2017, letter, Chief of the Groundwater Assessment & Remediation Division of the Mississippi Department of Environmental Quality (MDEQ), Lynn Chambers, stated that MDEQ supported including the Site on the NPL (docket ID EPA-HQ-OLEM-2017-0608-0004).

Regarding the SsI Addition page of the Federal Register cited by Meritor (82 FR 2782, January 9, 2017), this page includes a site assessment flow diagram, and notes that if the HRS site score qualifies a Site for NPL listing other cleanup alternatives may be considered—specifically including options such as RCRA, state voluntary cleanup programs, and removal actions. Relevant text on the same page notes:

> If the information indicates a threat, EPA determines the best approach for addressing the threat, which can be placement on the NPL or use of an alternative authority. If at any time in this site assessment process, EPA determines that sufficient information indicates the site poses no unacceptable risk, or if it can be addressed under alternative authorities it can be removed from the process.

However, as explained above in this section, the EPA has determined that use of both removal and remedial CERCLA authorities is the best approach to address all threats to human health and the environment posed by the Site and to comprehensively address the contamination at the Site. Therefore, NPL listing is warranted.

Regarding the assertion that the Site should not be listed on the NPL because alternative means of addressing the Site would be more effective and time efficient, the timeliness of such actions is 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 identifies that a site warrants further investigation and does not prohibit continuance of approved removal or other mitigation activities. Further, PRPs may affect remedy selection, as can any other member of the public, through the public comment process. PRPs may undertake the RI/FS and/or remedial design/remedial action stages under EPA supervision and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes). The listing process does not encumber or preclude PRPs from entering into these agreements. The Agency has entered into many such agreements and such an alternative is available to the commenter. See also section 3.6, Delay Cleanup, of this support document, explaining why commenter concerns regarding Superfund-related delay to cleanup are unfounded.

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 Delay Cleanup

Comment: Ice contended NPL listing will slow the remediation of the Site compared to continuing under existing RCRA permits. Ice expressed that CERCLA-required processes of remedial investigation, feasibility study, remedial design and remedial action will ensure that the former owners of the Plant are going to have to "go backwards" before "going forward" because they will not be able to fully rely upon the wealth of data and work completed to date to satisfy the plethora of NCP steps and protocols. Ice pointed to CERCLA activity at historical sites, which it characterized as "notoriously slow" at investigation and remediation. Ice also highlighted Goal 1 and related recommendations of the EPA July 25, 2017, Superfund Task Force Recommendations Report, involving the expedition of remediation, again asserting that NPL listing is an inherently slower process, and therefore inconsistent with this goal; Ice requested that EPA explain how NPL listing will achieve this desired cleanup speed.

Response: The commenter's concern that placing the Site on the NPL will delay cleanup is unfounded. Placement of the Site on the NPL does not necessarily lead to delay of planned response actions or associated negotiations. All site investigation work, as well as any remediation undertaken by interested parties performed to date and that which is currently proceeding will be considered in other steps of the Superfund remediation process, such as when performing a Superfund risk assessment for the Site. Then, based on the findings of the risk assessment, a determination of what further remedial actions, if any, are necessary will be made. Furthermore, as explained in section 3.5, Alternatives to Listing, of this support document, listing does not prevent PRPs from continuance of response actions if a PRP desires to expedite cleanup efforts. Listing sites as national priority targets also may give States increased support for funding responses at particular sites.

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 Definition of Site/Site Boundaries

Comment: Meritor stated that EPA's definition of the Site is "objectionable and unclear," and claimed that EPA clearly intends to expand the Site to include areas along Moose Lodge Road and the Eastern Heights Neighborhood. Meritor cited an inconsistency between the HRS documentation record and the NPL Narrative Summary for the Site, stating that while the HRS documentation record includes sampling results from the Eastern Heights Neighborhood, the neighborhood is not part of any of the Site NPL record documentation. Meritor further argued that the EPA was inconsistent and lacked transparency in the public record regarding its plans to expand the Site, by pointing to remarks by the EPA Region 4 Superfund Director at the February 6, 2018, public meeting, stating that the Superfund Director was emphatic that the Eastern Height Neighborhood was in fact "included in the boundary…"

Meritor accused EPA of manipulation by attempting to list a Site with an already fully mitigated SsI pathway as a way to broaden the Site, suggesting the EPA will claim it is a "logical outgrowth of the original proposal." Meritor contended that expanding the Site requires an entirely new rulemaking and public comment, and would impose additional requirements on PRPs without sufficient notice, noting that this "strategy is factually inaccurate and legally impermissible." In support of this argument, Meritor cited Chocolate Mfrs. Ass'n of U.S. v. Block[3] noting the court's decision that agencies cannot use the comment period as a way to alter the original proposal based on public comments received. Meritor also cited the Mead Corp. v. Browner court case[4] to support its argument that EPA cannot aggregate multiple sites that have only indirect evidence of contamination.

Response: The Site as defined in the HRS documentation record at proposal is defined consistent with the HRS. Meritor's assumption regarding EPA's intent to "expand" the Site is incorrect based on a misunderstanding of the definition of the Site for HRS purposes. The boundaries of the Site are not established at listing; rather, further investigation will identify the extent of releases of contamination from the Rockwell facility. Although site boundaries are not established at listing, the possible future expansion of the site to include other areas where the release from the Rockwell International Wheel & Trim site has come to be located is consistent with the CERCLA process, but is not a factor pertinent to the decision to place the Site on the NPL. That the site qualifies for the NPL has been established by an exposure to indoor air in the main plant at the facility, and descriptions of other associated contamination not scored that may be investigated in the future do not negate this qualification. Finally, the HRS documentation record and NPL Narrative summary are consistent in their descriptions of the Site.

The contamination identified in the subsurface and entering the structure at the facility is consistent with the HRS definition of site, as provided in HRS Section 1.1, *Definitions*, which states:

[3] *Chocolate Mfrs. Ass'n of U.S. v. Block*, 755 F.2d 1098, 1104 (4th Cir. 1985)
[4] *Mead Corp. v. Browner*, 100 F.3d 152, 154 (D.C. Cir. 1996)

> 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 sources.

Page 10 of the HRS documentation record explains the site being scored for HRS purposes is the release of contamination from the Rockwell facility:

> This site is the location of a release of hazardous substances to the environment from operations at the Rockwell International Wheel & Trim (Rockwell) facility and includes a release to indoor air within the facility's main plant building, as well as possibly to other environmental media. For HRS scoring purposes, the Rockwell site includes an area of observed exposure (AOE) in the main plant building affecting 217 people. Volatile organic compounds (VOC), including cis-1,2-dichloroethene (DCE), toluene, and trichloroethene (TCE), were detected at concentrations significantly greater than background levels in indoor air samples collected from the main plant building, indicating that a release of hazardous substances has occurred. The weight of evidence indicates that the contaminants migrated into indoor air from the subsurface (subsurface intrusion). The subsurface intrusion component of the soil exposure and subsurface intrusion pathway was evaluated, as documented in Sections 5.0 and 5.2 of this HRS documentation record.

However, any potential expansion of the site boundaries could occur in a subsequent stage of the CERCLA process. In the preamble to the proposed HRS on March 31, 1989 (54 FR 13298), the EPA stated:

> HRS scoring and the subsequent listing of a release merely represent the initial 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 stage**. [Emphasis added]

A similar passage is included in the HRS documentation record at proposal on page 1, as a footnote to the site address listed on that page:

> Generally, HRS scoring and the subsequent listing of a release merely represent the initial 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 be refined as more information is developed as to where the contamination has come to be located.

And, as stated in the preamble to the proposed rule in which this site was proposed to the NPL (83 FR 2578, January 18, 2018):

> EPA regulations provide that the Remedial Investigation ("RI") "is a process undertaken. . . to determine the nature and extent of the problem presented by the release" as more information is developed on site contamination, and which is generally performed in an interactive fashion with the Feasibility Study ("FS") (40 CFR 300.5). During the RI/FS process, the release may be found to be larger or smaller than was originally thought, as more is learned about the source(s) and the migration of the contamination . . . Moreover, it generally is impossible to discover the full extent of where the contamination "has come to be located" before all necessary studies and remedial work are completed at a site.

The RI/FS generally seeks to provide a better definition of the nature and extent of contamination at a site and to determine what CERCLA-funded remedial actions, if any, may be appropriate. As stated by the D.C. Circuit Court of Appeals, "EPA may alter or expand the boundaries of a NPL site if subsequent study reveals a wider-than-expected scope of contamination." Washington State DOT v. EPA, 917 F.2d 1309, 1310 (D.C. Cir. 1990)

(Citing Eagle-Picher Indus. v. EPA, 822 F.2d 132, 144 (D.C. Cir. 1987)). 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. However, the fact that the EPA initially identifies and lists the release based on a review of contamination at a certain parcel of property does not necessarily mean that the site boundaries are limited to that parcel.

Regarding inclusion of Moose Lodge Road and the Eastern Heights Neighborhood as part of the Site, the HRS documentation record describes contamination in the Eastern Heights Neighborhood and the Moose Lodge Road disposal area that may be associated with the Site and that may require further investigation. The cover page of the HRS documentation record at proposal identifies groundwater and soil contamination in the Eastern Heights neighborhood as part of HRS pathways not scored, noting that scoring the threat posed by these components in the neighborhood would not impact the listing decision, but that this contamination may be investigated further in the future. (See also section 3.9, Evaluation of Other Pathways, of this support document for further discussion on contamination related to other HRS pathways not scored.) Page 15 of the HRS documentation record at proposal identifies Rockwell International's use of the Moose Lodge Road disposal area, and that contamination including VOCs (and TCE) has been found in groundwater below the area. Page 32 of the HRS documentation record again mentions this Moose Lodge Road groundwater contamination within the context of explaining why it is not likely a source of groundwater contamination underlying the main plant building area of the Rockwell facility.

Regarding alleged inconsistencies between the NPL Narrative Summary and the HRS documentation record related to the Eastern Heights neighborhood, these documents are consistent. As mentioned above, the HRS documentation record discussion of pathways and/or components not scored identifies groundwater and soil contamination in the Eastern Heights neighborhood that may be associated with the Site and further studied in the future remedial investigation. The NPL Narrative Summary is a one-page, high level summary about the Site; it mentions the same contamination mentioned in the HRS documentation record in describing potential impacts on the surrounding community and environment, stating that ". . . TCE-contaminated ground water also underlies part of the adjacent residential area (84 homes) resulting in the potential for vapor intrusion in the future. Outdoor (ambient air) has intermittently shown TCE at or above the risk-based screening levels."

Regarding Meritor's conclusion that the Eastern Heights neighborhood is included in the Site based on the February 6, 2018, public meeting, the EPA has previously clarified any confusion by revising Superfund Factsheet #1 that was provided during the meeting. The previous version of that document had the facility identified as the Site, but, as discussed above, the exact boundaries of an NPL site are not determined at listing. The factsheet was meant to show the Facility as the source of the release that defines the Site for HRS scoring purposes. As noted, no Site boundaries are established at listing; the Site is defined by the release of contaminants and is more fully defined during further investigation.
The Agency's approach is consistent with the D.C. Circuit's decision in Washington D.O.T. v. EPA, 917 F.2d 1309 (D.C. Cir.1990), where the court acknowledged that listings do not have to specify exact geographic boundaries, and held that EPA may include parcels of land within a NPL site so long as they are within the "broad compass of the notice provided by the initial NPL listing." The Fourth Circuit decision in Chocolate Mfs. Ass'n of U.S. v. Block is not applicable as the definition of the site has not changed from the proposed rule. For further discussion of the Mead case see section 3.8, Site Aggregation of this support document.

With respect to Meritor's claim that the Site being proposed is already mitigated, please see section 3.14 Removal Actions/Current Conditions, for explanation of removal actions and mitigation systems in the context of HRS scoring.

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 Site Aggregation

Comment: Meritor and Ice asserted that following placement of the Site on the NPL, the EPA intends to expand the boundaries of the Site, and that such an expansion will represent an inappropriately aggregated site.

Meritor claimed expansion of the Site following listing would require an entirely new rulemaking and public comment, and would impose additional requirements on PRPs without sufficient notice. Meritor further claimed that this "strategy is factually inaccurate and legally impermissible." In support of this argument, Meritor cited Chocolate Mfrs. Ass'n of U.S. v. Block noting the court's decision that agencies cannot use the comment period as a way to alter the original proposal based on public comments received. Meritor further cited Mead Corp. v. Browner and claimed that by defining the Site as is, and attempting to expand the site post-NPL listing, the EPA would be in conflict with the Mead decision, which prevented the EPA from combining multiple areas into one site that would otherwise not qualify for the NPL individually. Meritor asserted that the result of the EPA's definition of the Site in the HRS documentation record at proposal enables the EPA to effectively avoid dealing with all the data provided by Meritor and other parties associated with the site, which ultimately precludes public comment and violates the Administrative Procedure Act (APA).

Ice asserted that the EPA "does not have authority under a single NPL designation to address multiple areas of non-contiguous, isolated contamination throughout Grenada (i.e., at separate properties lacking in common ownership) attributable to both former on-Site Plant operations and historic off-Site waste management practices."

Response: The Rockwell site is not an aggregation of multiple sites and the Mead decision does not apply to the Site, as the Site proposed to the NPL is one site consisting of the release from the Rockwell facility. The HRS evaluation focused scoring on the subsurface intrusion in the main plant building related to this release, but also identified Site-associated contamination in other locations and pathways/components that may require future investigation.

For NPL purposes, a site is the location of a release of hazardous substances. CERCLA Section 105 (a)(8)(B) (as modified by SARA) directs the establishment of the National Priorities List (NPL):

> Based upon the criteria set forth in subparagraph (A) of this paragraph, the President shall list as part of the plan national priorities among the known releases or threatened releases throughout the United States . . . In assembling or revising the national list, the President shall consider any priorities established by the states. To the extent practicable, [at least four hundred of] the highest priority facilities shall be designated individually and shall be referred to as the "top priority among known response targets" [emphasis added]

In 1986 when reauthorizing CERCLA in SARA, Congress directed EPA to amend the Hazard Ranking System:

> Such amendments shall assure, to the maximum extent feasible, that the hazard ranking system accurately assesses the relative degree of risk to human health and the environment posed by sites and facilities subject to review [emphasis added]. CERCLA section 105(c)(1).

CERCLA Section 101(9) defines facility:

> The term facility means (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

To direct implementation of CERCLA (and SARA), EPA revised the NCP (40 CFR part 300). Section 300.5, Definitions, of the NCP lists the definitions in CERCLA and adds others. It defines the National Priorities List:

> National Priorities List (NPL) means the list, compiled by EPA pursuant to CERCLA section 105, of uncontrolled hazardous substance releases that are priorities for long-term remedial evaluation and response.

It also defines the term "on-site":

> On-site means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action.

The present HRS is contained in Appendix A to the NCP. In HRS Section 1.1, *Definitions*, EPA defined the terms "site" and "source":

> Site: 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 sources.
> **********
> Source: Any area where a hazardous substance has been deposited, stored, disposed or placed, plus those soils that have become contaminated from migration of a hazardous substance.

Therefore, the NPL is a list of releases from facilities and the location of a listed release is a site. If the release has come to be located in several areas, the release and therefore the site can be composed of multiple sources and the location of any contamination that has migrated from those sources. As further discussed in section 3.7, Definition of Site/Site Boundaries, of this support document, page 10 of the HRS documentation record at proposal describes the site:

> This site is the location of a release of hazardous substances to the environment from operations at the Rockwell International Wheel & Trim (Rockwell) facility and includes a release to indoor air within the facility's main plant building, as well as possibly to other environmental media.

The Mead decision and the policy at issue in that case do not apply to this NPL listing decision. Mead was an unusual case where the Agency listed three areas as a single site based on the issuance of a health advisory by the Agency for Toxic Substances and Disease Registry (ATSDR) – not based on an HRS evaluation. Mead addressed the aggregation of noncontiguous sites into a single site. The court in that case rejected the inclusion of one site in the NPL listing of a separate site "[b]ecause EPA lacks statutory authority to use its Aggregation Policy to list on the NPL a site that would not otherwise qualify" (Mead Corp. v. Browner, 100 F.3d 152 (D.C. Cir. 1996)). The present NPL rulemaking does not address noncontiguous sites and instead involves one site consisting of the release of hazardous substances from the Rockwell facility. The HRS evaluation score focused on the subsurface intrusion into the main plant building, but the HRS documentation record notes that contamination possibly associated with the site has migrated affecting groundwater, surface water, soil, and air at locations on and off the facility property, including parts of the Eastern Heights neighborhood and former disposal area located on Moose Lodge Road; as further discussed in section 3.7, Definition of Site/Site Boundaries, of this support document. This possible Site-associated contamination may be further investigated and addressed in the future if necessary as the area of the Site is further refined in subsequent steps of the Superfund process. Such an expansion of effort and investigation would address the release defining the site and would not represent the aggregation of distinct or isolated sites (and would not represent a separate rulemaking). As discussed in section 3.7 of this support document, the Fourth Circuit decision in Chocolate Mfs. Ass'n of U.S. v. Block is not applicable to this rulemaking.

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 Evaluation of Other Pathways

Comment: Meritor, Ice, and T&M all questioned that EPA scored only the SsI pathway in the HRS evaluation.

Meritor asserted that the EPA has not provided a rationale for relying only on the SsI pathway for proposing the site to the NPL. Meritor stated that it appears very clear that the EPA intends to expand the Site even though Meritor claims that the SsI pathway has been mitigated. Meritor provided the following specific arguments to support its conclusion:

- Meritor stated that the EPA did not consider the extensive data collected at the Site related to the other HRS pathways as part of its scoring strategy, despite discussing the surface water, ground water, and air migration pathways and the soil exposure component throughout the HRS documentation record, NPL Narrative Summary, NPL Factsheet Number 1, and the February 6, 2018, Public Meeting
- Meritor asserted that based on the Nat'l Gypsum Co. v. U.S. EPA, 968 F.2d 40, 44 (D.C. Cir. 1992) court case, the EPA cannot make unsupported listing decisions. It added that the EPA is being "strategic" in not scoring the other pathways to avoid having a site score based on unsupported assumptions.
- The EPA Region 4 Superfund Director made statements during the February 6, 2018, public meeting regarding addressing contamination on-site that may be contributing to off-site migration. Meritor asserted that the Director's statements are not supported by any scientific data or analysis and are, "unreliable, misleading, inaccurate, and unacceptable."
- Meritor previously submitted comments to the EPA by T&M Associates on concerns with the ESI data, analysis, and conclusions regarding the other pathways that are cited throughout the HRS documentation record, and provided details regarding deficiencies in the HRS documentation record as related to the other HRS pathways.
- Meritor asserted that the EPA is trying "to avoid public scrutiny and the need to rely on unreliable Tetra Tech data by choosing not to score any other potential pathway"; this is in violation of the Administrative Procedure Act, citing Anne Arundel Cty., MD v. EPA[5]. Meritor added that if the EPA's intent is to expand the Site, the EPA is required to notify pertinent parties and allow the public to comment.

Ice questioned why only SsI was scored and other potential exposure pathways were not, and suggested that a comprehensive HRS assessment across all exposure pathways should be done before the EPA makes further decisions.

T&M commented that the HRS documentation record and supporting materials included inaccurate and incorrect information on HRS pathways not scored. T&M stated that whether or not a pathway is scored, any errors should be corrected to accurately reflect conditions of the areas that were discussed.

Response: The HRS does not require scoring all four pathways, and the EPA typically does not score all four pathways if scoring those pathways does not change the listing decision. The rationale for solely scoring the subsurface intrusion component is that the Site meets the criteria for proposing the Site to the NPL, as evidenced by the HRS site score exceeding the HRS cutoff score of 28.50. The commenters *have* provided no evidence to suggest that the EPA has ignored information regarding evaluation of the Site. On the contrary, the EPA has reviewed all information about the site. The EPA has properly used the HRS as a screening tool for identifying sites that pose sufficient actual or potential risk to warrant further investigation and used all data required for this evaluation.

The HRS does not require scoring all four pathways if scoring those pathways does not change the listing decision. For some sites, data for scoring a pathway are unavailable and obtaining these data would be time-consuming or costly. In other cases, data for scoring some pathways are available, but would only have a minimal

[5] Regarding Anne Arundel Cty., MD v. EPA (*Anne Arundel Cty., Md. v. U.S. E.P.A.*, 963 F.2d 412, 413 (D.C. Cir. 1992)), Meritor notes that "EPA's failure to notify the public and petitioner about a drinking water well near a landfill because it wanted to maintain a sufficiently high HRS was 'wholly at odds with both the spirit and letter of the APA's notice requirement.'"

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 remedial investigation (RI), characterizes conditions and hazards at the site more comprehensively.

To the extent practicable, the EPA attempts to score all pathways that pose significant threats. If the contribution of a pathway is minimal to the overall score, in general, that 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 a matter of policy, the EPA does not delay listing a site to incorporate new data or score 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. For this reason, the EPA generally will not score additional pathways upon receiving new data as long as the site still meets the HRS cutoff score. However, any additional data that characterizes site conditions could provide useful information during the RI.

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).

Although the other pathways/components were not scored in the HRS evaluation of the Site, the threat of contamination from other pathways or components is relevant to discuss in the HRS documentation record at proposal because contamination via the other pathways not scored in the HRS evaluation may be investigated at other stages of the Superfund process.

Meritor's claim that the EPA ignored extensive data available for other pathways is incorrect. EPA considered the available data, and provided brief summaries of possible Site-related contamination associated with other HRS pathways and components on the cover page of the HRS documentation record at proposal—this page also notes with respect to these other pathways/components that "[a]t the time of the listing, the site score is sufficient without the pathways and component mentioned above." As noted, there is no need to score all pathways if the listing decision will not be impacted; omission of these pathways from the HRS score does not mean that the EPA has ignored relevant available data.

Regarding the commenter's suggestion that a comprehensive assessment be done across all pathways, while the threat to human health via other pathways/components from the Site might be posed by the Site, the evaluation of the subsurface intrusion threat was sufficient to qualify the Site for the NPL. That the other pathways/components were not evaluated does not mean, however, that these pathways/components will not be evaluated during further Site investigation. Similarly, regarding the commenter's general statement that focusing on one pathway for the purpose of NPL listing is insufficient, this is incorrect. Other pathways will be investigated as appropriate following listing. See section 3.7, Definition of Site/Site Boundaries for further discussion of investigation of other pathways post-listing.

Meritor's claim that the EPA intends to "expand" the Site is addressed in section 3.8, Site Aggregation, of this support document; this discussion in section 3.9 of this support document addresses investigation of other pathways post-listing.

Regarding the commenter's claim that the SsI pathway is fully mitigated, this is incorrect. Please see section 3.14, Consideration of Removal Actions/Current Conditions, of this support document for discussion of mitigation activities at the Site.

Regarding comments that the Region 4 Superfund Director statements made during the February 6, 2018, public meeting are unsupported, see section 3.16.12, Threats to Eastern Heights Neighborhood, of this support document.

Regarding Meritor's assertion that EPA is trying "to avoid public scrutiny and the need to rely on unreliable Tetra Tech data by choosing not to score any other potential pathway," and that this is in violation of the Administrative Procedure Act, citing Anne Arundel Cty., MD v. EPA, the case does not apply here. In that case, the court decided that EPA should have given the public notice that EPA relied on a different well in scoring the nearest well at final promulgation than it did at proposal (even though the well was at the same distance category); the EPA must notify the public if it changes the basis for the calculation of an HRS score. For the Rockwell site, the EPA is not changing the basis for the HRS site score; the HRS scoring was focused on subsurface intrusion in the main plant building at proposal and that remains the focus—scores for the other pathways are not being added to the score at promulgation.

Regarding T&M's claim that the HRS documentation record at proposal's section on pathways not scored contains errors, please see section 3.16, Non-Scoring Comments, for discussion of comments related to the HRS documentation record accuracy.

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 Liability

Comment: Ice challenged liability related to the vapor mitigation system, stating:

> EPA recently sent a letter to Ice asserting, contrary to the terms of the 2004 Agreement with the Agency, that Ice and/or Ice Grenada should execute a new CERCLA administrative order which would subject them to joint and several liability for all aspects and costs associated with the continued operation of the SSDS and payment of the Agency's oversight costs. While Ice and Ice Grenada dispute U.S. EPA's assertion that they have any legal responsibility for the SSDS, the Agency's claim highlights the incompatibility from a business continuity perspective of shifting from the existing agreed-upon RCRA permitting approach to CERCLA enforcement.

Ice asserted that its customer confidence may be negatively impacted by "the specter of current and future liability claims by U.S. EPA having nothing to do with Ice Grenada's operations." Ice argued that the EPA is "making unsupported liability claims against the companies and blaming the NPL listing on ostensible Plant conditions that are, in reality, fully controlled."

Response: Liability is not considered in evaluating a site under the HRS, and the assignment of liability to a specific entity is not made at the listing stage of the Superfund process. The NPL serves primarily as an informational tool for use by the EPA in identifying those sites that appear to present a significant risk to public health or the environment. Listing a site on the NPL does not reflect a judgment on the activities of the owner(s) or operator(s) of a site. It does not require those persons to undertake any action, nor does it assign any liability to any person. This position, stated in the legislative history of CERCLA, has been explained more fully in the Federal Register (48 FR 40674, September 8, 1983, and 53 FR 23988, June 24, 1988). See Kent County v. EPA, 963 F.2d 391 (D.C. Cir. 1992).

Regarding Ice's questioning of liability for costs associated with oversight of and operation of the building's SSDS, these expenditures are for unrelated events not applicable to the NPL listing of the Site itself. As stated in the Federal Register Notice (83 FR 2576, January 18, 2018) proposing to add the Site to the NPL, "[l]isting a site on the NPL does not itself impose any costs. Costs that arise out of site responses result from future site-specific decisions regarding what actions to take, not directly from the act of placing a site on the NPL." This issue is not addressed at this stage of the Superfund process and is therefore not within the scope of this site NPL listing

determination. Furthermore, the costs associated with the new CERCLA administrative order referred to by Ice would be related to EPA removal program activities, not remedial actions that may follow NPL listing.

Regarding impacts on business operations due to implementing a CERCLA enforcement approach instead of a RCRA management approach, see section 3.5, Alternatives to Listing, of this support document for further discussion explaining that placing the Site on the NPL is warranted and not incompatible with the RCRA program.

Regarding the commenter's assertion that actions have been taken to control the release of contamination, see section 3.14, Consideration of Response Actions/Current Conditions, of this support document for additional discussion of how the underlying threat has not been addressed.

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 Stigma and Economic Impact of Site Listing

Comment: Ice submitted several comments related to the potential negative stigma and economic impacts associated with placing the Site on the NPL, which it asserted could jeopardize future facility operations. Ice expressed that "[i]t is important for U.S. EPA to understand, however, the impacts to Ice Grenada since TCE indoor air issues arose at the Plant in late 2016."

Ice expressed that NPL listing will place the future of the plant at risk. Ice asserted that the "EPA is making matters virtually untenable for Ice and Ice Grenada by ignoring the 2004 Agreement and 2005 Bankruptcy Order, and using ostensible vapor intrusion concerns at the Plant, with no consideration of the completed SSDS work" as the basis for NPL listing.

Referring to the EPA July 25, 2017, Superfund Task Force Recommendations Report, Ice stated that "the Task Force's goal of encouraging private investment at brownfield properties such as the Site will be undermined" if NPL listing is pursued. Ice stated that "the assertion of CERCLA authority, including pursuing Ice and/or Ice Grenada to sign onto a removal action administrative order to run and maintain the SSDS and placing the Site on CERCLA's NPL, seriously jeopardizes the ability to continue effectively conducting business at the Plant."

Ice asserted that issues with vapor intrusion "which arose at the Plant in late 2016" have had several adverse effects on the business, and imposition of EPA CERCLA removal action liability and NPL listing efforts risk continuing and inflating these effects into the future, including:

- Costs of response efforts
- Costs of additional precautions in normal business activities
- Expended management time
- Fear instilled in current employees
- Driving away prospective employees (who cite health concerns)
- Potential increase in worker compensation claims, despite safe working conditions
- Lack of confidence instilled in customers, lenders, and investors.
- Possible similar effects on Ice facilities outside Grenada.

Ice argued that these future negative effects are caused by unsupported liability claims made by the EPA, contending that the conditions at the facility are under control. Ice complained that the EPA through its actions is perpetuating the stigma associated with the facility.

Ice expressed that the EPA should instead publicly endorse the safety of the facility, reassess its decision, and choose continuation of RCRA processes maintaining the 2004 Agreement as the less disruptive and more timely approach.

Response: The economic impacts and stigma identified by the commenter are generally not considered in the assessment of whether a site belongs on the NPL. Such impacts are not the result of NPL listing. Instead, potential negative impacts associated with listing the Site, as noted by the commenter, would be engendered by the contamination in the area, not by placing the Site on the NPL. Furthermore, inclusion of a site or facility on the NPL does not in itself reflect a judgment on the activities of the owner(s) or operator(s), but rather 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.

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 national priority targets 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, groundwater, soil, and air. Therefore, it is possible that any perceived or actual negative fluctuations in business 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.

Furthermore, placement of the Site on the NPL does not prevent interested parties from continuing existing response actions or investing in private ventures (e.g., a Brownfields site). Any site investigative or remedial work performed at the Site will also be considered in other steps of the Superfund remediation process. (See section 3.6, Delay Cleanup, of this support document for additional discussion.)

Regarding cleanup costs, the discussion of costs in NPL rules in the Federal Register clearly states that including a site on the NPL does not cause the EPA necessarily to undertake remedial action; it does not require any action by a private party, nor does it assign liability for site response costs (56 FR 21462, May 9, 1991). The cost discussion outlines the EPA's perception of average potential costs per site that may occur in association with events generally following the proposed listing of a site. Any EPA actions that may impose costs on firms are based on discretionary decisions and are made on a case-by-case basis. Also, responsible parties may bear some or all the costs of the RI/FS and subsequent work, or the costs may be shared by the EPA and the States. Therefore, expenditures cited by the commenter are associated with events that generally follow listing the site, not with the listing itself.

Regarding comments questioning vapor intrusion concerns at the plant and asserting the conditions at the facility are under control, see sections 3.14, Consideration of Removal Action/Current Conditions, and its subsections, and section 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, which explain that the SSDS is not a permanent remedy, contamination remains below the building, and indoor air contamination appears to still be present in the main plant building.

Regarding Ice's statement mentioning "TCE indoor air issues arose at the Plant in late 2016," to clarify, indoor air contamination was likely occurring long before this. As described on pages 11-12 of the HRS documentation record at proposal, TCE and toluene storage area spills occurred in the 1980s. And, prior investigations indicated that indoor air samples as early as 2003 exhibited contamination.[6]

[6] See *Indoor Air Monitoring Report, Grenada Manufacturing Site, Grenada Mississippi, Brown and Caldwell, December 2004*, available at the Region 4 docket. The contact information for the Region 4 docket is Cathy Amoroso, Region 4, U.S. EPA, 61 Forsyth Street SW, Mailcode 9T25, Atlanta, GA 30303; 404/562-8637.

This comment has no effect on the HRS site score or the decision to place the Site on the NPL.

3.12 Releases Below Regulatory/Removal Limits

Comment: Ice, Meritor, Golder, and Arcadis all stated that the indoor air concentrations in the main plant building are below regulatory/removal limits.

Ice noted that while TCE (a degreasing chemical once used and released by prior owners of the Plant) was detected in some indoor air samples, the EPA repeatedly determined that the levels of TCE were below "levels of concern." Ice stated that 2009 indoor air analysis exhibited TCE concentrations similar to previous results and below EPA and OSHA standards at the time. Data submitted to the EPA in January 2017 showed all results below OSHA standards, although some results exceeded updated EPA screening guidance criteria. Ice asserted that "the 2017 data showed that there was not a new or increasing source of TCE contamination affecting indoor air at the Plant, the Plant remained indisputably compliant with OSHA worker safety standards, and the detections above U.S. EPA's new conservative generic screening criteria were not conclusive evidence, without further study, of unacceptable indoor air conditions."

Meritor stated that indoor air concentrations of TCE in the building, at the time of proposal, were all below 8.8 $\mu g/m^3$, the EPA Region 4 approved site-specific Removal Level[7]. Further, Golder claimed that only one sample location exceeded EPA's health-based benchmark for TCE during operation of the SSDS.

Arcadis stated that Tables 4 and 5 in the HRS documentation record at proposal include very old indoor air sampling data collected from the Building. Arcadis claimed that EPA omitted multiple recent data sets in its possession at the time of proposal that demonstrate indoor air concentrations below 8.8 $\mu g/m^3$ after the SSDS was operational.

Response: The HRS documentation record at proposal correctly identifies indoor air concentrations that meet HRS observed exposure criteria. The HRS benchmark used for Level I TCE concentrations is 0.4 $\mu g/m^3$.

The site-specific removal management level (RML) of 8.8 $\mu g/m^3$ for TCE or OSHA levels are not used in the HRS to establish observed exposure criteria. Releases of hazardous substances below such levels are still eligible for consideration when evaluating a site using the HRS. Further, the RML is a value which may be site-specific and is used for purposes of addressing an imminent threat to public health and not for purposes of addressing long-term public health threats posed by the identified contamination. The

As the Agency explained regarding observed releases specifically, 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 idea that releases within regulatory limits should not be considered "observed releases" specifically, and not used in general in scoring a site, was rejected. As the Agency noted in 1982:

> [E]mission or effluent limits do not necessarily represent levels which cause no harm to public health or the environment. These limitations are frequently established on the basis of economic impacts or achievability.

Further, Section 2.3 of the revised HRS (82 FR 2782, January 9, 2017) states that an observed release can be established either by direct observation or by chemical analysis. An observed release by chemical analysis has occurred when a contaminant is measured significantly above background level if some portion of the release is attributable to the site. Although contaminant levels may be lower than regulatory limits, an observed release (or an observed exposure) 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

[7] Meritor pointed to Exhibits 6 and 7 to its comment document (docket IDs EPA-HQ-OLEM-2017-0608-0077 and EPA-HQ-OLEM-2017-0608-0078, respectively), memoranda from EPA assessing the need for removal actions.

populations, increasing by a factor of 10 the weight assigned populations exposed to contaminants above regulatory limits.

The HRS however, only recognizes specific regulatory limits as eligible for consideration in determining whether a relevant population is subject to Level I contaminant concentrations. For example, some pathways, such as the ground water migration pathway consider regulatory limits such as the maximum contaminant levels (MCL), maximum contaminant level goals (MCLGs), in addition to HRS-specified benchmarks such as cancer screening concentrations equivalent to a 10^{-6} cancer risk for oral exposures and non-cancer screening concentrations corresponding to the reference dose for oral exposures for a hazardous substance (HRS Table 3-10, 55 FR 51603, December 14, 1990). Per the HRS, the subsurface intrusion component of the soil exposure and subsurface intrusion pathway considers only cancer screening concentrations equivalent to a 10^{-6} cancer risk based on the inhalation unit risk and non-cancer screening concentrations corresponding to the reference concentration for inhalation exposures for a hazardous substance (HRS Table 5-20, 82 FR 2800, January 9, 2017). As specified by the HRS, and shown on page 41 of the HRS documentation record at proposal (Table 10: AOE 1 Level I Concentrations – Subunit B), the Site's HRS evaluation correctly used the cancer risk health-based benchmark value of 0.40 $\mu g/m^3$ for TCE (i.e., the lowest applicable benchmark concentration) to establish the population subject to Level I contaminant concentrations. (See section 3.19, Level I Concentrations Benchmarks, and its subsections of this support document for further discussion on HRS benchmarks.)

Therefore, regarding the assertions that measured indoor air concentrations of TCE consistently were below the RML of 8.8 $\mu g/m^3$ and OSHA standards, these standards are not considered in establishing an observed exposure in an HRS evaluation and are not among the benchmarks used in scoring the subsurface intrusion component of the soil exposure and subsurface intrusion pathway. As further discussed in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, the SSDS has not addressed the subsurface contamination and although indoor air contaminant concentrations have decreased during its operation, sample results exhibit a continued migration of contamination from the subsurface environment into the occupied main plant building.

It is noted that the observed exposure factor alone is not intended to reflect the hazard presented by the particular release. Instead, the hazard of the site is approximated by the total HRS score, which incorporates the observed exposure factors with other factors such as waste characteristics (including waste quantity, toxicity, and degradation for the SsI component) and targets. This total HRS score reflects the hazard of the site relative only to the other sites that have been scored. The actual degree of contamination and its effects are more fully determined during the remedial investigation that typically follows listing.

Finally, to be clear, the RML is a value that may or may not be site-specific and more importantly is not intended for long-term remedial purposes. As the Regional Removal Management Levels (RMLs) User's Guide[8] notes:

> Calculated RMLs should not be confused with or used as Preliminary Remediation Goals (PRGs), cleanup levels or cleanup standards required by the Applicable or Relevant and Appropriate Requirements (ARARs) under CERCLA. RMLs may be used to support the decision to undertake a removal action, but final cleanup levels should be selected to address the site-specific threat . . . calculated RMLs are not meant to define protective levels and are not de facto cleanup levels.

Thus, these levels may not represent final remedial levels determined for Superfund remedial purposes.

Regarding the age of the indoor air data, see sections 3.14, Consideration of Removal Action/Current Conditions, and its subsections, and 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document on why the data were appropriate for use in HRS scoring and identifying an observed exposure.

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

[8] Available at https://www.epa.gov/risk/regional-removal-management-levels-rmls-users-guide.

3.13 Actual Risk

Comment: NAM and Ice suggested that the EPA's criteria for placing sites on the NPL is not comprehensive in terms of evaluating real risk to human health and the environment.

NAM stated that EPA must ensure before proposing sites such as Rockwell to the NPL that EPA consider all risk factors and recent mitigation efforts. Only sites posing a real risk to human health and the environment should be added to the NPL. Ice asserted that EPA, rather than comprehensively evaluate all exposure pathways, is choosing to list a Site on a single exposure pathway that has already been fully mitigated and poses no unacceptable risk.

Response: Consistent with CERCLA and the NCP, the Site is being placed on the NPL based on an HRS evaluation of the relative risk posed by the releases from the facility compared to other sites evaluated for placement on the NPL. Placing a site on the NPL is not based on a site-specific risk assessment, nor does listing require that a site-specific risk assessment be performed prior to the listing. A site-specific risk assessment is performed later in the Superfund process.

The HRS is not a site-specific risk assessment. A site-specific risk assessment quantifies the risk to receptors posed by releases at a site. The HRS is a numerically based screening tool that the Agency uses to assess the relative degree of risk to human health and the environment posed by a site compared to other sites subject to review, based on a screening level knowledge of site conditions. The HRS score is used to determine whether a site is eligible for placement on the NPL. The NPL is intended primarily to guide the 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 82 FR 2765 (Final Rule, Addition of a Subsurface Intrusion Component to the Hazard Ranking System, January 9, 2017); see also 55 FR 51532 (Final Rule, Hazard Ranking System, December 14, 1990). CERCLA § 105(a)(8)(a) requires EPA to determine NPL priorities 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 danger to human health and the environment and warrants further investigation under CERCLA. A more comprehensive determination of site-specific risk to human health or the environment is performed at a later stage in the remedial process following listing.

Regarding the commenters' claims that the HRS evaluation should consider previous mitigation efforts, and that the sole pathway evaluated has been mitigated, see sections 3.4, Purpose of Listing, and 3.14, Consideration of Response Actions/Current Conditions, of this support document, which further explain that the HRS evaluation has been appropriately carried out with respect to the SSDS. The Site qualifies for listing because of the relative risk posed by the releases; the SSDS is designed to abate the immediate risk caused by the releases at the site, but did not reduce the waste quantities associated with those releases.

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 Consideration of Removal Action/Current Conditions

Comment: NAM, Ice, Meritor, Golder, and Arcadis all provided comments asserting that the EPA should consider the operational mitigation system (SSDS) at the Site in the HRS evaluation. The commenters made several specific arguments to support this, including:

- The EPA incorrectly only considered sampling information prior to operation of the SSDS.
- The SSDS effectively reduced TCE concentrations at the facility.

- If the EPA had considered the SSDS and resulting mitigated SsI pathway, the Site would not score high enough for placement on the NPL.
- EPA policy dictates consideration of mitigation systems in the HRS package when the removal action was demonstrated to be effective.
- The EPA only considered sets of older data despite receiving more current data, which more accurately explain conditions at the site and should be included in the HRS evaluation.

Response: The HRS evaluation was carried out correctly as described in the HRS documentation record at proposal. Long-term operation of the SSDS was implemented on December 29, 2017. The first set of data documenting TCE levels in indoor air during SSDS operations was for a 7-day period, January 11-18, 2018, and was submitted to EPA on March 8, 2018. This data was not available at the time of the proposed rule. Further, the SSDS is a temporary mitigation system that does not fully address the contamination at the Site, and this system does not affect HRS scoring factors.

The following subsections address specific comments on this topic:

- 3.14.1 Consideration of the SSDS and Current Conditions
- 3.14.2 CERCLA Removal v. Remedial Actions
- 3.14.3 Consistency in Application of the HRS and other EPA Regulations and Policies
- 3.14.4 Accuracy of the HRS Scoring and Evaluation.

3.14.1 Consideration of the SSDS and Current Conditions

Comment: NAM, ICE, Meritor, Golder, and Arcadis all asserted that EPA should consider the implemented mitigation system, a sub-slab depressurization system (SSDS), and the current conditions at the Site as part of the HRS evaluation. Each commenter provided specific arguments to support its claim.

NAM asserted that the "EPA only refers to the sampling and information at the facility taken before the SSDS were installed and operated, even though they were operating prior to the proposed listing. Regardless of the risk-based data, it is evident that EPA did not take this factor into consideration."

Ice characterized scoring SsI at the facility without considering the SSDS as "perplexing" and "not a realistic way to justify its [EPA's] proposed action."

Ice argued that testing has demonstrated the effectiveness of the SSDS, and that the EPA recognized this, citing the EPA January 2018 document Fact Sheet #13 in which the EPA stated "[a]ir sampling results before and after the pilot . . . showed the treatment system was effective at reducing TCE concentration inside the building."

Ice argued that vapor intrusion is under control at the facility and that the EPA is "ignoring this reality" in the HRS evaluation. Ice asserted that NPL listing "based solely on the screening under the Hazard Ranking System of the potential for subsurface intrusion of vapors into the Plant without consideration of the SSDS that is now installed and operating effectively is illogical and misplaced."

Meritor stated that the EPA ignored site conditions and the implementation of an SSDS that fully mitigated the SsI pathway, along with all of the work Meritor and other parties have conducted at the Site since the late 1990s. Meritor claimed that along with ignoring significant amounts of data collected prior to Site proposal that was in its possession, EPA selectively chose data resulting in an HRS score that would place the Site on the NPL. Meritor further asserted that the data generated after the SSDS was fully operational showed indoor air concentrations to be below target removal levels. Further, Meritor claimed that the indoor air concentrations remained below the Region 4 Removal Level after the SSDS was turned off in September 2017.

Meritor concluded that if EPA had used all available data including the most current information, the Site would not score high enough to be considered for placement on the NPL. Meritor claimed that the operating SSDS, which resulted in indoor air TCE concentrations below the Region 4-calculated removal levels, demonstrated that the SsI pathway was fully mitigated. Meritor cited Golder's comments (Exhibit 8) explaining the calculation of Region 4's removal level to support their claim of a fully mitigated SsI pathway.

Meritor stated that EPA had been fully informed of and approved of all actions related to the implementation of the SSDS, including the resulting decreased indoor air concentrations and chose to not consider it. Meritor further stated that EPA did not have a rational basis for placing the Site on the NPL.

Arcadis asserted that EPA relied solely on the SsI component to place the Site on the NPL and argued that the pathway was mitigated after operation of the SSDS and prior to proposing the Site for the NPL.

Arcadis claimed that EPA only considered a select set of older data for the HRS evaluation, despite receiving more current, subsequent data sets that more accurately explained conditions at the Site, which were not considered by EPA for inclusion in the HRS evaluation.

Response: The Site has been appropriately evaluated with respect to removal actions and current conditions. The Site qualifies for listing because the HRS Site score meets the required listing threshold of 28.50, which indicates that the Site poses sufficient relative risk to warrant further investigation. Implementation of the mitigation system, the SSDS, as a result of the CERCLA time-critical removal action, and sampling results collected during its operation do not affect the HRS score applied to the Site because this system is designed to abate the immediate risk to human health, does not address the source of contamination and the potential of contaminants to migrate, and does not affect any HRS scoring factor. The EPA did not ignore this data—there was no need to add it to the HRS documentation record at proposal because it has no effect on scoring.

The SSDS mitigation system is a temporary solution to protect workers from vapors migrating into indoor air from contamination underlying the main plant building, but does not address the underlying groundwater, soil, and soil gas contamination and therefore does not impact the HRS score. HRS observed exposures and Level I concentrations were established and based on indoor air contamination at the Site in the main plant building prior to implementation of the SSDS, and this indoor air contamination is a result of the contamination below the structure entering via subsurface intrusion. SSDS mitigation systems are not intended to address the subsurface source of the contamination, but rather, are used as stopgap measures to break the exposure chain until a permanent remedy is implemented. The remaining subsurface contamination below the building (and other contamination possibly associated with the Site) still pose a threat to workers via subsurface intrusion, as well as a possible threat to other pathways/targets. Therefore, in the case of this site, the SSDS is not considered in the HRS scoring of the Site. Further, although data presented to EPA after the Site was proposed to the NPL documents decreased levels of TCE in indoor air as a result of SSDS operations, TCE and other contaminants continue to migrate into the indoor air at levels above background and above health-based benchmarks used in HRS scoring.

Part III Section Q of the Preamble to the 1990 HRS, *Consideration of Removal Actions (Current Versus Initial Conditions, 55 FR 51568, December 14,1990)*, explains that the EPA:

> . . . will evaluate a site based on current conditions provided that response actions actually have removed waste from the site for proper disposal or destruction in a facility permitted under the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), or by the Nuclear Regulatory Commission. . . .

The implemented SSDS has not removed the subsurface contamination from the Site, and therefore would not be considered in an HRS evaluation.

The same section of the Preamble to the 1990 HRS provides further explanation related to temporary removal measures:

> . . . HRS scoring will not consider the effects of responses that do not reduce waste quantities such as providing alternate drinking water supplies to populations with drinking water supplies contaminated by the site. In such cases EPA believes that the initial targets factor should be used to reflect the adverse impacts caused by contamination of drinking water supplies; otherwise, a contaminated aquifer could be artificially shielded from further remediation. This decision is consistent with SARA section 118(a], which requires that EPA give high priority to sites where contamination from the site results in closed drinking water wells. Similarly, if residents are relocated or if a school is closed because of contamination due to the site, EPA will consider the initial targets in scoring the site.

The EPA acknowledges the mitigation system implemented as a result of the removal action and the on-going efforts of the PRPs to lower the TCE levels in the main plant building. However, for purposes of the HRS evaluation, contamination remains on the Site and the Site continues to pose a threat that warrants further investigation and, if needed, clean up. The extent of the remaining contamination and the risk posed by the Site after the removal action will be considered during later stages of the Superfund process that occur after listing.

The commenters are incorrect in their assertion that the Site would not score high enough for placement on the NPL had EPA used all available data in the HRS scoring—the HRS score would not change given the additional data provided. As explained in various sections of this support document:

- The detection of lower indoor concentrations in samples collected after implementation and operation of the SSDS would not invalidate the previously established observed exposure and Level I concentrations at the Site.
    - There is no HRS requirement that concentrations in a given structure/location remain consistent, remain above observed exposure criteria, or remain above Level I screening concentration benchmarks over time. Lower concentrations at some points in time do not negate observed exposure or Level I concentrations established at other points in time.
    - Even a pattern of declining concentrations induced by the operation of the SSDS does not negate prior establishment of observed exposure and Level I concentrations. Because the SSDS is temporary in nature and does not address the sources of contamination at the Site, nullifying established observed exposure/Level I concentrations based on the effects of such a temporary system would inappropriately artificially shield the contamination underlying the building from scoring and future remediation, and ignore the potential threat posed by this contamination. See also sections 3.17.1, Observed Exposure: Consideration of VI Mitigation System, and 3.19.3, Level I Concentrations and Current Levels, of this support document for more explanation.
- The containment factor value of 10 assigned at proposal was correct, based on the correctly established observed exposure *and* the continued presence of preferential pathways for subsurface intrusion into the main plant building (these pathways still exist, and the SSDS did not halt the intrusion of contaminants). See section 3.17.4, Structure Containment, of this support document for further detail.
- The hazardous waste quantity factor value (and related waste characteristics factor value) were correctly assigned in the HRS documentation record at proposal, based on the areal footprint of the main plant building, AOE 1. See section 3.18, Waste Characteristics - Hazardous Waste Quantity, of this support document for more detail.

Therefore, the HRS score for the Site would be unchanged. (See also section 3.20, Site Score, of this support document.)

With this understanding that results generated during operation of the system could not have any impact on HRS scoring (and EPA's understanding of the purpose and function of the SSDS), it is clear the EPA did not ignore

these data—there was no need to include this later data in the HRS documentation record. That is, the EPA was aware of the SSDS, aware of the data generated for samples collected following the samples used in the HRS documentation record at proposal and prior to proposal; but, because data obtained during SSDS operation could not have any impact on HRS scoring factors, it was not necessary to update the HRS documentation record to include these data.

Additionally, the data obtained during the one-time, 30-day SSDS pilot study, which ended on September 11, 2017, well before the Site was proposed, show that subsurface intrusion of contaminants continues during operation of the SSDS, and some concentrations identified indicate that observed exposure levels and even Level I concentrations have not been eliminated by the system. (This data was submitted by Arcadis as Attachment B to their comments, docket IDs EPA-HQ-OLEM-2017-0608-0082 through -0091, -0209, and -0210.) See Table 1 below. This operational data does not change the decision to list the Site on the NPL.

Table 1: Enhanced 30-day Pilot Study Data[9]

Sample ID	Sample Location	Location / Column	Sample Duration	Sample Date	cis-1,2-DCE µg/ m^3	TCE µg/m^3	Toluene µg/m^3
Ambient air samples							
AMB-24H	AMB-SW	Southwest side of the facility	24-hrs	8/31/2017	< 1.1 UJ	< 0.99	< 0.93
AMB-7D	AMB-SW	Southwest side of the facility	7-days	8/31/2017 - 9/7/2017	< 0.16 UJ	< 0.14	0.53
AMB-28D	AMB-SW	Southwest side of the facility	28-days	8/13/2017 - 9/11/2017	< 0.038 UJ	0.048	0.50
Indoor air samples							
A-5	A-5	CMM Room / C-12	24-hrs	8/31/2017	< 1.1 UJ	< 0.99	1.5
A-5	A-5	CMM Room / C-12	28-days	8/13/2017 - 9/11/2017	0.34 J	0.93	**2. 0**
B-3	B-3	F-16	24-hrs	8/31/2017	< 1.1 UJ	**5.2**	1.7
B-3	B-3	F-16	28-days	8/13/2017 - 9/11/2017	0.20 J	**6.3**	1.6
B-4	B-4	D-14	24-hrs	8/31/2017	< 1.1 UJ	< 0.98	**2.0**
B-4-7D	B-4	D-14	7-days	8/31/2017 - 9/7/2017	0.34 J	**1.7**	**2.5**
B-4	B-4	D-14	28-days	8/13/2017 - 9/11/2017	0.22 J	**1.8**	**2.0**
B-6	B-6	B-19	24-hrs	8/31/2017	< 1.1 UJ	< 0.99	< 0.92
B-6-7D	B-6	B-19	7-days	8/31/2017 - 9/7/2017	1.4 J	**2.4**	1.1
B-6	B-6	B-19	28-days	8/13/2017 - 9/11/2017	1.2 J	**2.6**	0.94
B-8	B-8	G-18	24-hrs	8/31/2017	< 1.1 UJ	**1.1**	1.2
B-8	B-8	G-18	28-days	8/13/2017 - 9/11/2017	0.11 J	**1.2**	0.94
B-9	B-9	E-10	24-hrs	8/31/2017	< 1.1 UJ	**1.6**	**1.8**
B-9	B-9	E-10	28-days	8/13/2017 - 9/11/2017	0.23 J	**2.6**	**2.5**

Notes:
Samples collected in Radiello 130 passive samples and analyzed by solvent panel scan by gas chromatography/mass spectrometry.
UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

As shown above, for the hazardous substances scored in the HRS documentation record, several indoor air samples show continued intrusion. Concentrations were detected at up to 6.3 µg/m^3 TCE, 1.4 µg/m^3 cis-1,2-DCE, and 2.5 µg/m^3 toluene. When compared to ambient air background samples collected during the same period, some indoor air concentrations indicate observed exposure levels during operation of the SSDS (the bolded and shaded values in Table 1). And the HRS Level I TCE cancer screening concentration benchmark presented in the HRS documentation record at proposal—0.4 µg/m^3—is still exceeded by all the TCE results indicating observed exposure levels. Supplemental data from samples collected following the start of full scale SSDS operation on December 29, 2017 confirm the subsurface intrusion continues (and that levels indicating observed exposure

[9] Data sourced from Table 5 of the November 1, 2017 Arcadis Enhanced Pilot Study Summary Report submitted with Arcadis comments (docket ID EPA-HQ-OLEM-2017-0608-0082).

concentrations and Level I concentrations persist). See Appendix A, Supplemental Indoor Air Monitoring Data, of this support document for supplementary data submitted to EPA after the Site was proposed. Additionally, one of the TCE concentrations detected during SSDS operation exceeded the RML (June 2018 sample B-9 exhibited 26 $\mu g/m^3$ TCE; see Appendix A of this support document).

With respect to the commenter's claim that the SSDS and resulting data showed indoor air concentrations remained below the Region 4 RML and that the SsI pathway was fully mitigated and therefore placement on the NPL is not necessary, the EPA disagrees with the commenter's conclusions. As noted above, regardless of the results from operation of the SSDS, because the subsurface contamination remains, the HRS score would be unchanged and the Site would qualify for placement on the NPL. See also section 3.12, Releases Below Regulatory/Removal Limits, of this support document, which explains that such removal levels have no effect on the HRS evaluation; this section also clarifies that removal levels generally represent a value that may be site-specific and is used for purposes of addressing an imminent threat to public health, not for purposes of addressing long-term public health threats posed by the identified contamination as would be addressed by CERCLA remedial actions.

This comment does not result in a change to the HRS score for the site or the listing decision.

3.14.2 CERCLA Removal v. Remedial Actions

Comment: Ice and Meritor questioned the EPA initiating a time critical removal action at the Site while also pursuing placement of the site on the NPL. Each company provided specific arguments to support its claims.

Ice took issue with what it perceived as "one CERCLA program (removal action) is currently addressing the Plant's vapor intrusion pathway, while U.S. EPA ignores that program's work in assessing the Plant and Site for potential referral to a second CERCLA program (remedial action) under the NPL."

Meritor asserted that as the EPA had initiated a CERCLA time-critical removal action prior to proposal of the Site to the NPL, which it is complying with, the EPA cannot use this already addressed component as the only avenue to support listing the Site.

Meritor accused EPA of being duplicative, arbitrary, and capricious and violating CERCLA and the 2017 HRS SsI Rule for pursuing Site listing while simultaneously requiring a removal action for the same issue, especially considering the SsI issues have already been mitigated. Meritor emphasized that evaluating only the SsI component is even more duplicative, arbitrary, and capricious, as the mitigated SsI threat is being used to "initiate a separate Remedial Action process for other areas."

Meritor stated that according to the 2017 HRS SsI Final Rule, other cleanup alternatives, such as Removal Actions, should be pursued if applicable. Meritor cites Exhibit 10 of its comment document (docket ID EPA-HQ-OLEM-2017-0608-0120), page 2764 of the 2017 SsI Addition in the Federal Register (82 FR 2782, January 9, 2017), containing a figure showing a flow diagram of the site assessment process. Meritor continued to claim that the "EPA ignores its own rule by scoring the Site based on SsI only while simultaneously requiring a Removal Action for the exact same issue. Such 'double dipping' is arbitrary at best and violates the overall goals of CERCLA and the 2017 HRS rule in particular." Meritor cited three court cases to support this, including: Mead v. Browner; Linemaster Switch Corp. v. U.S. E.P.A; and Anne Arundel Cty, MD v. U.S. E.P.A, stating:

> *Mead Corp. v. Browner, 100 F.3d 152, 153 (D.C. Cir. 1996)* (explaining the NPL consists of "high priorities among the nation's known hazardous waste sites" and that "[p]ermitting the inclusion of low risk sites on the NPL would thwart rather than advance Congress's purpose of creating a priority list based on evidence of high risk levels") (emphasis added); *Linemaster Switch Corp. v. U.S. E.P.A., 938 F.2d 1299, 1301 (D.C. Cir. 1991)* (describing the HRS as "a scientific model for estimating the human health and environmental risks posed by observed or threatened releases of hazardous substances, to evaluate sites being considered for inclusion on

> the NPL") (citing 47 Fed. Reg. 31,180 (1982); 40 C.F.R. Part 300, App. A (1990)); see generally *Anne Arundel Cty., Md. v. U.S. E.P.A., 963 F.2d 412, 413 (D.C. Cir. 1992)* (remanding NPL listing decisions to EPA that the court found to be "arbitrary and capricious")

Response: EPA is not being duplicative in its actions. Simply because a site may have immediate risks to a population that can be mitigated by removal actions, does not preclude it from being addressed by the remedial program; the two programs can function simultaneously and are complementary. Sites addressed under the Superfund program use a combination of removal and remedial authority to achieve a balance of mitigation of imminent risk with long term cleanup to address the source of contamination. For this Site, the contamination below the building has not been addressed, continues to enter the building through preferential pathways, and has migrated to other areas.

EPA's Superfund removal program has the ability to quickly respond to immediate threats to public health and the environment from the release; a removal action can be implemented regardless of NPL status to eliminate or reduce the threat of a release. However, removal actions, such as installation of vapor intrusion mitigation systems, are not intended to address the source of the contamination and unless the removal program is able to remediate the source of the underlying contamination, there is no mechanism to continually monitor the site to determine if the contaminant source may have migrated to previously unaffected areas.

Therefore, addressing the SsI issues using EPA's removal program to respond to immediate threats and the remedial program to address all unacceptable risk whether short or long term is appropriate for this Site.

Regarding Meritor's claim that the EPA is attempting to list a pathway that it characterizes as already mitigated as the conduit for additional remedial actions at other areas, the commenter's conclusions are incorrect. While it is correct that a mitigation systems has been implemented, as explained in sections 3.4, Purpose of Listing, and 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, the removal actions neither removed all the hazardous substances that were evaluated from the subsurface, nor did the removal actions eliminate the risk posed by the release of those hazardous substances to the subsurface. (As noted in section 3.14.1, even during operation the SSDS has not completely halted the flow of contamination into the building.) The assertion that EPA is using the SsI component in order to remediate other areas is also incorrect. As discussed in section 3.8, Site Aggregation, of this support document, the NPL is a list of releases from facilities and the location of a listed release is a site. If the release has come to be located in several areas, the release and therefore the site can be composed of multiple sources, areas in between those sources, and the location of any contamination that has migrated from those sources. See section 3.7, Definition Site/Site Boundaries of this support document for further discussion regarding how a site is defined for HRS purposes. See also section 3.9, Evaluation of Other Pathways, of this support document, which explains that the HRS does not require scoring all four pathways and the EPA typically does not score all four pathways if scoring those pathways does not change the listing decision.

Regarding the flow diagram figure of the site assessment process and related text on page 2764 of the 2017 SsI Addition in the Federal Register (82 FR 2782, January 9, 2017), the diagram and text do indeed offer removal actions as an alternative to NPL listing. However, as further detailed in section 3.5, Alternatives to Listing, of this support document, the decision to list the Site on the NPL is appropriate because the HRS Site score meets the required listing threshold of 28.50 and indicates that the Site poses sufficient relative risk to warrant further investigation. The alternatives identified by commenters, including CERCLA removal (i.e., the SSDS), are insufficient to fully address the sources of contamination and potential threats associated with the Site.

Regarding the three court cases cited by Meritor as arguments against Site Listing, none of the three apply to the Site. See below for a discussion of each case as it applies to the Commenter's specific argument.

As discussed in section 3.8, Site Aggregation of this support document, the Mead decision and the policy at issue in that case do not apply to this NPL listing decision. Mead was an unusual case where the Agency listed three areas as a single site based on the issuance of a health advisory by the Agency for Toxic Substances and Disease

Registry (ATSDR), and not through the HRS. Mead addressed the aggregation of noncontiguous sites into a single site. The court in that case rejected the inclusion of one site in the NPL listing of a separate site "[b]ecause EPA lacks statutory authority to use its Aggregation Policy to list on the NPL a site that would not otherwise qualify" (Mead Corp. v. Browner, 100 F.3d 152 (D.C. Cir. 1996)). The present NPL rulemaking involves one site consisting of the release of hazardous substances from the Rockwell facility. The Site qualifies for listing based on the HRS site score, and because the risks posed to the public and the environment by the past, and potentially future, releases at the Site were not addressed by the SSDS and associated removal actions.

Regarding *Linemaster Switch v. U.S. EPA*, Meritor quotes the passage characterizing the HRS as "a scientific model for estimating the human health and environmental risks posed by observed or threatened releases of hazardous substances, to evaluate sites being considered for inclusion on the NPL". However, as described above in 3.14.1, Consideration of the SSDS and Current Conditions, the Site qualifies for listing because the HRS Site score meets the required listing threshold of 28.50, which indicates that the Site poses sufficient relative risk to warrant further investigation. The SSDS is a temporary solution to protect workers, and does not address the contamination associated with the Site, or risks posed to the public and the environment by the past, and potentially future contaminant migration. Further, data provided since the SSDS began operations document continued migration of contaminants from the subsurface into the occupied building. This underscores the need for remedial action to address the sources of contamination. See section 3.13, Actual Risk, of this support document for additional discussion on risk posed by the Site. Finally, as noted in this section, removal actions do not necessarily address the same risks and threats as do remedial actions; therefore, NPL listing is not redundant with but rather complementary to removal actions carried out at the Site.

Regarding *Anne Arundel v. U.S. EPA*, the court case does not apply to this site. The commenter is claiming that EPA is being "arbitrary and capricious" by conducting a removal action for the SsI pathway and initiating remedial action for the same pathway. In the Anne Arundel case, the court decided that EPA was being arbitrary and capricious for relying only on unfiltered groundwater samples and should have given the public notice that EPA relied on a different well in scoring the nearest well at promulgation than it did at proposal (even though the well was at the same distance category); the EPA must notify the public if it changes the basis for the calculation of an HRS score. For this Site, the EPA is not changing the basis for the HRS site score; the HRS scoring was focused on subsurface intrusion in the main plant building at proposal and that remains the focus—the other pathways are not being added to the scoring process at promulgation. And, again, addressing the Site via removal and remedial actions is not duplicative and therefore the "arbitrary" characterization applied by the commenter is not appropriate.

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

3.14.3 Inconsistent Application of the HRS and other EPA Regulations and Policies

Comment: NAM, Meritor, and Golder all asserted that by not considering the SSDS as part of the Site's HRS evaluation, the EPA did not follow its own rules, regulations, and policies. Each company provided specific arguments to support its claim.

NAM and Meritor commented that the HRS SsI component requires consideration of mitigation systems such as the SSDS. Meritor stated that the HRS SsI component requires the EPA to assign a lower structure containment factor value when a permanent SSDS is present. NAM further claimed that the "EPA allowed the SSDS to operate successfully, then required it to be shut off until after the Agency made its decision to list the site on the NPL". As the HRS scoring was only based on SsI and this scoring did not take into account the SSDS, NAM concluded "[t]his must be corrected, as it poses a very concerning precedent for other sites around the country." Meritor also contended that for the EPA and MDEQ to require the SSDS be shut down (mandated by EPA and MDEQ while determining whether an air permit would be required), to not consider it in the HRS evaluation, and then to attempt proposing the Site to the NPL was contrary to the EPA's CERCLA policy encouraging PRP participation in cleanup activities. Meritor pointed to the 1990 HRS final rule, quoting it as stating that "consideration of such [removal] actions in HRS scores is likely to increase incentives for rapid actions by responsible parties, reducing

risks to the public and allowing for more cost effective expenditure of funds."[10] Meritor further cited EPA documents on evaluating HRS sites following removal actions: the 1991 EPA document *The Revised Hazard Ranking System: Evaluating Sites After Waste Removals*, and the 1997 EPA document *Revisions to OSWER NPL Policy, 'The Revised Hazard Ranking System: Evaluating Sites After Waste Removals Publication No. 9345.01-03FS, October 1991*.[11]

Meritor stated that according to the 2017 HRS SsI Final Rule, other cleanup alternatives, such as Removal Actions, should be pursued if applicable. Meritor also questioned the EPA proposing the Site to the NPL by only scoring the SsI component, when EPA Administrator Scott Pruitt has stated a commitment to using sound science rather than pre-determined results for decision-making and the stated goal of the Superfund Task Force to use removal actions for quickly addressing potential areas of risk.[12] Meritor further asserted that by not considering the SSDS, the EPA did not comply with CERCLA and did not apply the HRS "to ensure to the maximum extent feasible…that the HRS reflects the relative degree of risk" at the Site.

Meritor asserted that the EPA had arbitrarily contravened its own policies and guidance by utilizing an ESI that did not collect data related to the operation of the SSDS and evaluation of the HRS SsI component. To support this conclusion, Meritor cited to the *EPA Guidance for Performing Site Inspections under CERCLA*, quoting the statement that the objective of an ESI is to "collect all data necessary to prepare an HRS scoring package to propose [a] site to the NPL."[13] Meritor also cites 40 CFR 300.420(c)(1)(iii), which states the lead agency is to perform an SI as appropriate to "[c]ollect or develop additional data, as appropriate, to evaluate the release pursuant to the HRS." Meritor further argued that if the EPA had conducted a complete ESI, the EPA would have had the relevant data needed to derive an accurate HRS site score. Meritor asserted that the 2017 HRS SsI rule explicitly states that "preliminary HRS scores are refined as sites progress through the process and does not mean the site would qualify for the NPL" (citing 82 Fed. Reg. 2760, 2764). Based on this assessment, Meritor argued that the EPA should have revised the HRS evaluation to incorporate the SSDS operational data and was arbitrary and capricious by not revising the ESI to consider the SsI component and relevant data.

Golder asserted that 1997 EPA policy (*The Revised Hazard Ranking System: Evaluating Sites After Waste Removals*[14]) dictates consideration of removal actions in preparing HRS packages when the EPA has documentation demonstrating the effectiveness of the removal action. Golder stated that the EPA was in possession of and approved documentation related to the effectiveness of the SSDS implemented at the Site. Additionally, Golder stated that, based on the 2017 HRS SsI Rule, the EPA expects that preliminary HRS scores will be refined using additional data and that a score of 28.50 does not automatically mean the site will be placed on the NPL.

Response: The EPA correctly applied the HRS regulation and the HRS Site score is correct with respect to the consideration of the SSDS. EPA's application of the HRS regulation is consistent with HRS policies and applicable guidance documents. As set out in the HRS documentation record and this support document, the EPA evaluated the Site consistently with the NPL and followed all of the requirements set forth in the HRS. The HRS evaluation is consistent with the requirements of the HRS because EPA assigned the Site score as directed by the HRS regulation using appropriate data and articulated a rational explanation for the assigned Site score. As noted in the previous subsection, 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, the removal action did not address contamination that exists in the subsurface and therefore had no effect on the

[10] Meritor cites Hazard Ranking System, 54 Fed. Reg. 51,532, 51,542 (Dec. 14, 1990); Meritor also cites *Foster v. U.S., 926 F. Supp. 199, 203 (D.D.C. 1996)*

[11] Publication 9345.1- 03FS

[12] Meritor cites Exhibit 14 of its comments, the July 25, 2017 EPA document Superfund Task Force Recommendations (docket ID EPA-HQ-OLEM-2017-0608-0199), specifically Strategy 2 at page 2.

[13] Meritor cites EPA Guidance for Performing Site Inspections under CERCLA, p. 11 (1992), available at: https://semspub.epa.gov/work/HQ/174029.pdf. Included as Exhibit 4 of Meritor's comments (docket ID EPA-HQ-OLEM-2017-0608-0075).

[14] Golder cites Revision to OSWER NPL Policy "The Revised Hazard Ranking System: Evaluating Sites After Waste Removals" OSWER Directive #9345.1-25 April 4, 1997.

HRS scoring identified in the HRS documentation record at proposal. Further, contamination continues to migrate into the occupied building during SSDS operations, albeit at lower levels compared to pre-SSDS operations. Installation of vapor intrusion mitigation systems are not intended to necessarily address the source of the contamination. The Site qualifies for listing because the HRS Site score meets the required listing threshold of 28.50 and indicates that the Site poses sufficient relative risk to warrant further investigation.

Specific challenges to how the HRS Site score complies with the scoring procedures provided in the HRS are addressed in later sections of this support document. For example, commenters' specific challenges to the consideration of the SSDS in establishing observed exposure are discussed in section 3.17.1, Observed Exposure: Consideration of VI Mitigation System; comments on structure containment value assigned are discussed in section 3.17.4 Structure Containment; consideration of mitigation systems in calculation of hazardous waste quantity is discussed in section 3.18.1 Hazardous Waste Quantity; consideration of the SSDS effects in identifying Level I concentrations is discussed in section 3.19.3, Level I Concentrations and Current Levels.

Regarding the commenters' claim that the EPA did not comply with the EPA policy on consideration of removal actions when preparing an HRS package, as noted at the beginning of this section, the Site has been appropriately evaluated with respect to the response actions and current conditions. The 1991 EPA document cited by the commenter, *The Revised Hazard Ranking System: Evaluating Sites After Waste Removals*, describes its first criterion for the consideration of removals as "all waste subject to the removal must be physically removed from the site." It clarifies that "[a] removal action (or removal) conducted by Superfund's emergency response program does not necessarily involve physical removal of wastes from the site," and that "For example, Superfund removal actions, as defined in CERCLA section 101(23), may include stabilizing or containing waste on-site through engineering controls or limiting exposure potential by erecting fences or providing alternate water supplies. These types of actions do not constitute a qualifying removal for HRS purposes." The 1997 EPA policy cited by the commenter, *Revisions to OSWER NPL Policy, 'The Revised Hazard Ranking System: Evaluating Sites After Waste Removals Publication No. 9345.01-03FS, October 1991*, explains that removal actions taken prior to proposal of a site to the NPL will be considered in performing an HRS evaluation if it is clearly demonstrated "there is no remaining release or potential for a release that could cause adverse environmental or human health impacts." As detailed in this section, the installed mitigation system has not permanently removed the subsurface contamination at the Site; therefore, the cited policy documents do not apply to the Site.

Regarding the claim that EPA did not comply with CERCLA and did not apply the HRS "to ensure to the maximum extent feasible . . . that the HRS reflects the relative degree of risk" at the site by not considering the SSDS, as noted previously, the HRS does not consider temporary mitigations systems that do not permanently remove the source of the contamination, in this case subsurface contamination under the facility.

Regarding the assertion that EPA is not encouraging "cooperative party's participation in site cleanups" by not considering the SSDS and proposing the Site to the NPL, the EPA disagrees. EPA followed established policy, regulations, and guidelines when evaluating the Site for placement on the NPL. As noted in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, the Site was evaluated correctly with respect to removal actions and the implementation of the SSDS, a mitigation system that does not permanently address the source of the contamination at the Site. Further, the main goal of the Superfund program is to ensure that threats to human health and the environment are addressed appropriately. Additionally, the EPA seeks to "maximize the participation of potentially responsible parties (PRPs) in conducting cleanups at sites." However, the EPA does not consider proposing sites to the NPL to be discouraging PRP participation when the NPL is the most appropriate way to address the threats to human health and the environment. (See also section 3.4, Purpose of Listing, of this support document, which discusses that PRPs may undertake the RI/FS and/or remedial design/remedial action stages under EPA supervision and pursuant to appropriate agreements with governmental authorities (under enforcement authorities of CERCLA or those of other statutes), and that the listing process does not encumber or preclude PRPs from entering into these agreements.) The EPA notes that one of the purposes of NPL listing is to notify the public of sites EPA believes warrant further investigation. NPL listing provides additional information to the public regarding site contamination, and also provides opportunity

for residents, business owners, and potential investors to gain detailed knowledge and express their concerns and ideas for final solutions in the public forums offered during other phases of the Superfund process.

Regarding the claim that the 2017 HRS requires that alternatives to placing a site on the NPL be pursued, the EPA agrees that there are alternative ways to address some SsI sites, however not all SsI sites can be addressed under non-Superfund authorities and programs. EPA typically only considers placement of sites on the NPL when other channels have been exhausted. See section 3.5, Alternatives to Listing, of this support document, for further discussion on why placement on the NPL is appropriate for the Site.

Regarding the assertions that EPA violated rules, policies, and guidance by conducting an ESI that did not include the SsI component and instead relied on older data sets for Site scoring, EPA disagrees with the Commenter's conclusions. The data included in the HRS documentation record at proposal is sufficient to support an accurate HRS evaluation resulting in a Site score greater than the 28.50 cutoff. This HRS site score is not "preliminary" in nature—it is accurate for the Site and would not be further refined based on post-SSDS data. EPA notes the following with regard to requirements for an SI: The NCP at *40 CFR § 300.420(b) (55 FR 8844, March 8, 1990)* requires a preliminary assessment (PA) on all sites in CERCLIS. A PA was performed on this site. A site inspection (SI), however, shall be performed only "as appropriate" (emphasis added) under the NCP at *40 CFR § 300.420(e) (55 FR 8845, March 8, 1990).* Further, the NCP at *40 CFR § 300.420(c)(iii) (55 FR 8845, March 8, 1990)* states that the purpose of an SI, among other things, is to "collect or develop additional data, as appropriate, to evaluate the release pursuant to the HRS." Where the EPA already has sufficient information to score a site, there is no need to make a further independent physical inspection, and in any case, there is no NCP requirement to do so. It is acceptable and common practice to use relevant data from additional sources, such as data collected under the supervision of other federal or state programs, in developing the HRS scores, and to include such other sources of information in the documents made publicly available.

The listing criteria are provided in the administrative record for this rulemaking, which includes the HRS documentation record and supporting materials, including this support document. For prospective sites under consideration for listing on the NPL, the EPA follows NCP procedures by conducting a preliminary assessment (PA) of the site. Depending on the results, the PA may be followed up by a site inspection report (SI), which involves gathering more information about the site by contacting the state and interested parties on and around the site. When a site is proposed to the NPL, the EPA provides its detailed rationale, including consideration of information gathered in the PA and SI, along with other site-related information in documents (i.e., the HRS documentation record and supporting materials) made publicly available at the EPA Headquarters in Washington, DC, in the Regional offices, and by electronic access at htpp://www.regulations.gov. In this case, the Rockwell site qualifies for listing on the NPL; the Site has received an HRS score of greater than 28.50 and has met CERCLA and NCP listing criteria.

Further, as described in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, with the understanding of the purpose of the SSDS and that results generated during operation of the system could not have any impact on HRS scoring, it is clear the EPA did not ignore these data, rather there was no need to include this later data in the HRS documentation record. That is, the EPA was aware of the SSDS, aware of the data generated for samples collected following the samples used in the HRS documentation record at proposal and prior to proposal. The only data available to EPA at the time of proposal that was not used in the HRS evaluation is the data associated with the one-time, 30-day pilot test. Full scale operation of the SSDS started only days before proposal (December 29, 2017) and the first set of monitoring data from the full scale operations was submitted to EPA on March 8, 2018, well after proposal (and represented a 7-day period of Jan 5-11, 2018). Even if data were obtained as a result of SSDS operation, it could not have any impact on HRS scoring factors, and it was not necessary to update the HRS documentation record to include those data.

Finally, regarding operation of the SSDS and the planned shutdown after the 30-day pilot, if the intent of related Meritor and NAM comments is to imply that the EPA mandated the shutdown to somehow shield its existence from HRS scoring and the decision to list the Site, this is incorrect. As noted above, the SSDS shutdown was planned after the 30-day pilot, the results of which would be used to apply for an air permit for the full-scale

operation of the SSDS. Meritor failed to apply for the permit and only submitted the application after being contacted by an EPA OSC. However, by the time Meritor submitted the application for the air permit, the SSDS was part of the CERCLA removal action, making the permit unnecessary. As explained above, the SSDS has no effect on the HRS site score and therefore no direct impact on the decision to list the site on the NPL.

On Meritor's citation of the *EPA Guidance for Performing Site Inspections under CERCLA*, specifically page 11 that discusses an Expanded SI (ESI), stating that the "objective of the expanded SI is to collect all the data necessary to prepare an HRS package to propose the site to the NPL." EPA notes that the previous section of the guidance document states, "In most cases, a focused SI site score greater than 28.50 will approximate or represent a complete HRS site score that will be high enough for NPL consideration. However, in some instances, the focused SI score may be based on assumptions that have not been fully explored within the limited scope of a focused SI." EPA agrees that in some cases an ESI is necessary to collect all the data necessary for scoring the site. EPA notes, however, as stated above that an SI/ESI is not a requirement for placing a site on the NPL. Relevant data from other sources such as data collected under other federal programs can be used for the purposes of an HRS evaluation.

Regarding the Commenter's assertion that the EPA should have revised the HRS Site score to include the current information and data based on the 2017 HRS that states "preliminary HRS scores will be refined using additional data and that a score of 28.50 does not automatically mean the site will be placed on the NPL", the EPA disagrees with the Commenter. As noted above, the HRS regulation has been applied correctly to the Site, and the resulting HRS Site score is correct.

With respect to the Superfund Task Force July 25, 2017 report and associated Strategy 2 cited by Meritor to support the use of removal actions for quickly addressing potential areas of risk, EPA has been consistent with this recommendation. Strategy 2 involves use of an adaptive management approach that:

> . . . focuses limited resources on making informed decisions throughout the remedial process. Adaptive management requires the development of a clear site strategy with measurable decision points, and focuses site decision making on a sound understanding of site conditions and uncertainties. Based on site uncertainties, decisions are made from data collection, to remedy selection and implementation that allow for the ability to adapt in the event that these uncertainties result in fundamental changes to site conditions.
>
> Under an Adaptive Management strategy, Regions are **encouraged to consider greater use of early and/or interim actions including use of removal authority or interim remedies, to address immediate risks, prevent source migration, and to return portions of sites to use pending more detailed evaluations on other parts of sites**. The characterization data collected to support the early/interim actions can be used to update the site Conceptual Site Model (CSM) **and reduce time and costs associated with the Remedial Investigation/Feasibility Study (RI/FS)**. This approach will be most effective at contaminated sediment and complex groundwater sites where using removals or early actions to address sources or areas of high contamination is highly efficient. US EPA's 2017 Directive (9200.1-130) memo reiterates EPA's stated bias for initiating responses as soon as the information makes it possible to do so and **recommends the use of removals or early actions to quickly address high risk areas**. US EPA's 1996 Directive (9283.1-12) outlines the "phased approach" strategy for addressing contaminated groundwater integration, site characterization, early actions, and remedy selection.

EPA has employed removal measures where applicable to address immediate risks. Further, the above-described strategy recognizes the remedial portion as part of the CERCLA process. As further explained in section 3.14.2, CERCLA Removal v. Remedial Actions, sites addressed under the Superfund program commonly use a combination of removal and remedial authority to achieve a balance of mitigation of imminent risk with long term cleanup to address the source of contamination. For the Rockwell site, the contamination below the building has not been addressed, continues to enter the building through preferential pathways, and has migrated to other areas.

EPA has appropriately decided NPL listing is needed to initiate further investigation with the goal of addressing the remaining threats associated with the Site through the remedial process.

Regarding the EPA Administrator statements prioritizing sound science over pre-determined results, the HRS evaluation and site score are based on the information presented in the HRS documentation record; that evidence is valid for the purpose of the HRS evaluation, and commenters have not shown otherwise as documented throughout 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.

3.14.4 Inaccuracies in the HRS Scoring and Evaluation

Comment: Meritor, Golder, and Arcadis claimed that various HRS factors in the HRS documentation record for the Site are inaccurate due to not considering the SSDS and current conditions. Each commenter's specific arguments are discussed below.

Meritor stated that by considering the SSDS, the HRS site score drops from 50.0 to 1.96, thus no longer exceeding the threshold for placement on the NPL. Meritor asserted that placing the Site on the NPL without correcting the inaccurate factors the HRS evaluation relies upon would be arbitrary and capricious.

Golder and Arcadis stated that because EPA did not consider the most current indoor air concentration data after installation of the SSDS, which they claim fully mitigated the SsI pathway, the HRS package is inaccurate and incomplete, and EPA should re-score the Site. Golder further noted that after implementation of the SSDS, indoor air concentrations declined such that no result was above the Region 4 Removal levels and only one sample exceeded EPA's health-based benchmarks.

Golder suggested that EPA assess the "Potential for Exposure" in the HRS package, which will take into consideration the SSDS. Golder considers such alternate HRS scoring to be consistent with EPA policies on consideration of removal actions.

Arcadis specifically claimed that the HRS documentation record, specifically the assessment of the five elements presented to support that the Site poses an SsI risk, is incomplete and inaccurate due to the following reasons:

- Due to the interim measures taken in 2017, Element 3 (the building is susceptible to soil gas entry) is no longer significant.
- Several indoor air data sets that accurately explain Building conditions after January 2017 are not included.
- These data sets show air concentrations were below 8.8 µg/m3 after the SSDS became operational; therefore Elements 4 (vapor-forming chemicals comprising the subsurface vapor source are present in the indoor environment) and 5 (building is occupied when chemicals are present) are no longer an issue.
- EPA failed to evaluate the indoor air data collected after operation of the SSDS began in August 2017, therefore invalidating the statement that the Site has a complete SsI pathway.

Response*:* The commenters are incorrect in each of the points above. Specific challenges to how the HRS Site score complies with the scoring procedures provided in the HRS and is unaffected by the SSDS are further addressed in later sections of this support document and summarized below. And, the elements presented in the HRS documentation at proposal to demonstrate the site poses an SsI risk are valid.

- Section 3.17.1, Observed Exposure: Consideration of VI Mitigation System, explains why the observed exposure established at proposal was correct and is not invalidated by data generated during SSDS operation.

- Section 3.19.3, Level I Concentrations and Current Levels, explains that Level I concentrations identified in observed exposure samples at proposal were similarly not invalidated by data generated during later SSDS operation.
- Section 3.17.3, Potential for Exposure, explains that because an observed exposure was established, there is no need to evaluate the HRS potential for exposure factor.
- Section 3.17.4 Structure Containment, explains that due to the valid observed exposure and the continued presence of preferential pathways, the containment factor value was correctly assigned at proposal; consideration of mitigation systems when calculation hazardous waste quantity is discussed in section 3.18, Waste Characteristics – Hazardous Waste Quantity; RMLs are discussed in sections 3.12 and 3.14.1 of this support document.
- Section 3.20, Site Score, explains that the HRS site score in the HRS documentation record at proposal was correct.

On the elements showing a threat posed by SsI, page 17 of the HRS documentation record at proposal states:

> Several elements indicate that the site may pose a risk to human health via subsurface intrusion: (1) a subsurface source of vapor-forming chemicals is present beneath and near the building; (2) vapors form and have a route along which to migrate toward the building; (3) the building is susceptible to soil gas entry, which means openings exist for the vapors to enter the building; (4) vapor-forming chemicals comprising the subsurface vapor source are present in the indoor environment; and (5) the building is occupied when these chemicals are present indoors.

The same page of the HRS documentation record at proposal provides information supporting the five elements specific to the Rockwell site:

> In June 2017, Arcadis U.S., Inc. (Arcadis), on behalf of Grenada Manufacturing, collected sub-slab soil samples to a maximum depth of 10 feet beneath the main plant building (Ref. 58, pp. 2, 5, 6). The highest concentrations of cis-1,2-DCE (39,000J µg/kg in SB-8), toluene (33,000J µg/kg in SB-12), and TCE (1,300,000J µg/kg in SB-12) were detected in soil samples at a depth of 9 to 10 feet below the slab in the eastern portion of the main plant building, near the former TCE and toluene storage areas (Ref. 58, pp. 10, 11, 12, 15, 25, 29, 80, 87, 1348, 1385, 1397) (see Figure 2 of this HRS documentation record). TCE was also detected at a concentration of 1,300,000J µg/kg at a depth of 3 to 4 feet below the slab in soil sample SB-5, also in the eastern portion of the main plant building, near the TCE storage area (Ref. 58, pp. 15, 22, 75, 1376) (see Figure 2 of this HRS documentation record).
>
> Center for Toxicology and Environmental Health, LLC (CTEH), on behalf of Grenada Manufacturing, collected outdoor air, indoor air, and sub-slab vapor samples in and around the main plant building in October 2016 and January 2017 as part of a vapor intrusion investigation (Refs. 24, p. 1; 27, p. 50). During the October 2016 event, sub-slab vapor samples contained cis-1,2-DCE (up to 54,000 micrograms per cubic meter [µg/m3]), toluene (up to 39 µg/m3), and TCE (up to 2,900,000 µg/m3) (Refs. 27, p. 67; 33, pp. 27 to 32). During the January 2017 event, sub-slab vapor samples contained cis-1,2-DCE (up to 53,000 µg/m3) and TCE (up to 220,000 µg/m3) (Refs. 27, p. 71; 34, pp. 17, 28, 39, 42, 43, 44).
>
> In March 2017, Arcadis conducted a sub-slab depressurization system pilot study to identify vapor entry points and determine potential sub-slab source areas for indoor air contamination (Ref. 27, pp. 7, 15). Arcadis identified 77 holes, joints, cracks, gaps, cuts, and pipe penetrations in the concrete slab throughout the main plant building. Using a hand-held TCE detector, Arcadis measured TCE concentrations at each of the 77 vapor entry points. TCE concentrations ranged from 37 µg/m3 to 168,049 µg/m3 at 35 of the 77 vapor entry points (Ref. 27, pp. 16, 37, 38, 43).

> Indoor air samples collected during the October 2016 CTEH sampling event contained cis-1,2-DCE (up to 3.7 µg/m3), toluene (up to 10 µg/m3), and TCE (up to 29 µg/m3) (Refs. 27, pp. 64, 67; 33, pp. 12 to 22). Indoor air samples collected during the January 2017 CTEH sampling event contained cis-1,2-DCE (up to 3.7 µg/m3), toluene (up to 6.7 µg/m3), and TCE (up to 81 µg/m3) (Refs. 27, pp. 68, 71; 34, pp. 18 to 27, 29, 30, 46, 47) (see Figure 2 and Table 5 of this HRS documentation record).
>
> The main plant building is currently occupied by ICE, which manufactures stamp-formed parts for various industries (Ref. 10, p. 830). ICE employs 217 people who work 8-hour shifts, and the typical schedule for a full time employee is five to seven days per week; therefore, these employees are evaluated as full-time. There are three shifts per day, 7 days a week (Ref. 25).
>
> In summary, several elements indicate that the site may pose a risk to human health via subsurface intrusion at the main plant building. Site-related VOCs, cis-1,2-DCE, toluene, and TCE, are present in the soil beneath the slab; vapors have formed and have entered the building through holes, joints, cracks, gaps, cuts, and pipe penetrations in the concrete slab; these VOCs were detected in indoor air samples; and the building is currently occupied (Refs. 10, p. 830; 25; 27, pp. 16, 37, 38, 43, 64, 67, 68, 71; 33, pp. 12 to 22; 34, pp. 18 to 27, 29, 30, 46, 47; 58, pp. 5, 6, 15, 75, 80, 87, 1376, 1385, 1397).

Arcadis's assertions regarding the elements that indicate that the Site may pose a risk to human health via subsurface intrusion are incorrect:

- On element 3, that the building is susceptible to soil gas entry, which means openings exist for the vapors to enter the building--this is still the case. As explained in section 3.17.4, Structure Containment, of this support document, the SSDS does not fully address existing open preferential pathways from the subsurface environment into the main plant building, and has not halted intrusion of contaminants. The HRS documentation record at proposal indicates that indoor air samples collected in May and June 2017 continued to detect the same scored hazardous substances (cis-1,2-DCE, toluene, and TCE), even after interim mitigation measures were implemented in February and March 2017 to address possible entry points (e.g., cracks, holes in the concrete slab) into the building. The continued detection of hazardous substances entering the building even during SSDS operation is further evidence that these preferential pathways remain (see section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, describing those detections).
- On element 4, that vapor-forming chemicals comprising the subsurface vapor source are present in the indoor environment, this is also still the case. As explained in sections 3.14.1, Consideration of the SSDS and Current Conditions, and 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, the operation of the SSDS and lowering of contaminant levels inside the building does not negate the observed exposure established in AOE 1 by samples collected before its operation. While the goal of the SSDS is to bring levels of contaminants below removal levels to protect workers from immediate threats, it is not intended to address possible long-term remedial goals such as addressing the sources of the contamination below the building. Nullifying established observed exposure based on the effects of such a temporary system would artificially shield the contamination underlying the building from scoring and ignore the potential threat posed by this contamination. Additionally, the data obtained during the SSDS pilot study and SSDS operational data following its December 2017 full-scale implementation show that subsurface intrusion of contaminants continues during operation of the SSDS, and some concentrations identified appear to indicate that observed exposure levels and even Level I concentrations have not been eliminated by the system.
- On element 5, that the building is occupied when these chemicals are present indoors, Arcadis's rationale was that element 4 fails— that vapor-forming chemicals comprising the subsurface vapor source are no

longer present in the indoor environment—and therefore that element 5 fails. However, element 4 still applies, there are still workers at the facility, and therefore element 5 still applies.

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 Adequacy of the Administrative Record

Comment: Commenters Meritor and Arcadis stated that data and documentation related to operation of the mitigation system at the Site were not included in the HRS evaluation of the Site and the HRS documentation record should be revised to reflect that information.

Ice argued that the EPA's goal of comprehensively dealing with facility/community contamination does not make sense in light of the HRS evaluation being limited to one exposure pathway at the facility (which Ice claims poses no unacceptable risk); Ice asserted that decades of data are available to conduct a more thorough HRS evaluation, and that such a comprehensive evaluation should be done before the EPA makes further decisions. Ice challenged that the EPA should provide a better explanation supporting this NPL listing rationale.

Meritor claimed that by omitting 6 months' worth of work and data the EPA is violating the 2017 HRS, which Meritor claims requires removal actions to be considered as part of the HRS score. Meritor cited Exhibit 9 of its comments (the Arcadis comment documents[15]) that includes a summary of the SSDS reports and data.

Meritor claimed that readers of the Site HRS documentation record would be unaware of the SSDS activities that took place at the Site starting in February 2017 throughout the rest of the year because EPA did not consider the SSDS in the HRS scoring, nor reference reports developed by Meritor that documented data collected as a result of the SSDS operation.[16] [17]

Meritor claimed that the EPA was aware of the fully operational mitigation system and that the system had reduced indoor air concentrations to below Region 4's TCE Removal Level, but did not mention the results in the Site HRS documentation record. Meritor further accused the EPA of not providing full disclosure of the mitigation activities and milestones achieved in the HRS documentation record at proposal, including that Meritor was mandated by the EPA and MDEQ to shut down the SSDS to determine whether a permit would be required. (Ice also commented that "air permitting requirements imposed by the federal and state agencies slowed down the re-start)

Arcadis cited a list of milestones and deliverables submitted to the EPA related to implementation and operation of the SSDS and claimed that these items were not considered as part of the HRS evaluation, which it asserts the EPA HRS rules require.

Arcadis included a list of the documents it used as the basis for its comments on the HRS documentation record and noted its comments were in the public record at the time of proposal, but were not included in the HRS documentation record. Arcadis asserted that the referenced documents should have been assessed as part of the HRS evaluation and included in the HRS documentation record.

Arcadis argued that the Site's HRS score should be re-calculated using the indoor air data submitted to the EPA after the Site had been proposed that demonstrates the SsI pathway has been fully mitigated.

[15] Docket IDs EPA-HQ-OLEM-2017-0608-0080 through EPA-HQ-OLEM-2017-0608-0119, EPA-HQ-OLEM-2017-0608-0209, and EPA-HQ-OLEM-2017-0608-0210.
[16] Meritor cited Arcadis Enhanced Pilot Study Summary Report submitted with Meritor's comments (docket ID EPA-HQ-OLEM-2017-0608-0082).
[17] Meritor cited Arcadis Facility Indoor Air Monitoring Report submitted with Meritor's comments (docket ID EPA-HQ-OLEM-2017-0608-0082).

Arcadis provided several comments on specific sections of the HRS documentation record related to data and information that it claimed the EPA did not consider resulting in an incomplete and inaccurate HRS documentation record. Specific sections include:

- Table 1, which does not include reports that demonstrate the SsI pathway is no longer complete in the building.
- Section 5.2, which does not include data and assessment activities and interim measures completed in 2017.
- Section 5.2, paragraph 5, which only includes selective indoor air data collected and should include subsequent sampling events that included indoor air data that accurately reflects conditions in the building, all of which was submitted to the EPA.
- Tables 4 and 5 include some of the oldest data collected at the Site; there are six more recent sampling events that demonstrate that indoor air concentrations were below 8 $\mu g/m^3$.
- The Additional Supporting Data section provides only limited information related to the indoor air quality of the building; specifically missing is the data showing the indoor air quality as a result of operation of the SSDS.

Response: 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 met 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. Specific allegations of missing or outdated data, to the extent it is relevant to the Site score at promulgation and listing the Site on the NPL, are addressed in section 3.14, Consideration of Removal Actions/Current Conditions, of this support document.

Regarding documents submitted by commenters as part of the public comment period for the Site (see footnotes 15, 16, and 17 of this section of this support document) that were not included in the HRS documentation record at proposal, these are now included as part of the administrative record for the Site and are in the online docket at Regulations.gov. In addition, the EPA has reviewed all of these documents and has determined that these additional documents are either not necessary to support the HRS documentation record scoring, not relevant to support the HRS site score, or provide inconclusive information that does not support or refute the listing decision.

Regarding reports summarizing data subsequent to that used in the HRS documentation record at proposal, and the claim the results should have been included in the HRS documentation record at proposal, EPA disagrees. Similarly, regarding claims that the EPA neglected to include details of the operational SSDS, the milestones it achieved, resulting indoor air TCE levels below the established regional removal level, and the shutdown/restart details of the system, these assertions are incorrect; these details were not ignored by EPA—they would have no effect on the Site score. As noted in section 3.14.1, Consideration of the SSDS and Current Conditions, the results generated during operation of the system could not have any impact on HRS scoring and there was no need to revise the HRS documentation record, which was in its final form at the time the data was submitted. The EPA did not "neglect" to include the results of the SSDS in the HRS documentation record at proposal; rather the results were not included because the results were not required to accurately generate an HRS score—an observed exposure was already documented at the facility. The EPA was aware of the August 12 – September 11, 2017, SSDS 30-day pilot test and aware of the data generated for samples collected during the pilot test following the samples used in the HRS documentation record at proposal and prior to proposal. After evaluating the data, EPA decided that there was no need to update what was essentially a final HRS documentation record to include the data, because data obtained during SSDS operation could not have any impact on HRS scoring factors. Further, as noted in section 3.14.1 of this support document, there is no HRS requirement that concentrations in a given structure/location remain consistent, remain above observed exposure criteria, or remain above Level I screening concentration benchmarks over time. The detection of lower indoor concentrations in samples collected after implementation and operation of the SSDS would not invalidate the previously established observed exposure and

Level I concentrations at the Site. Further, data provided since the SSDS began operations document continued migration of contaminants from the subsurface into the occupied building. The SSDS is a temporary solution to protect workers, and does not address the contamination associated with the Site or risks posed to the public and the environment by the past, and potentially future, contaminant migration

Additionally, the HRS documentation record at proposal discusses a pilot study conducted to support the design of the SSDS, on pages 30-31, in describing the March 2017 depressurization test:

> In March 2017, Arcadis conducted a sub-slab depressurization system pilot study to identify vapor entry points and determine potential sub-slab source areas for indoor air contamination. Arcadis identified 77 holes, joints, cracks, gaps, cuts, and pipe penetrations in the concrete slab throughout the main plant building . . . In February and March 2017, T&M completed interim measure activities, sealing cracks, holes, joints, and drains in the concrete slab at 22 locations. T&M measured VOC concentrations with a photoionization detector (PID) at each crack, hole, joint, and drain pre-and post-sealing. While VOC concentrations did decrease post-sealing, VOCs were still detected. In addition to these interim measures, Arcadis recommended that a long-term mitigation approach be developed, suggesting consideration of further investigation of the contamination below the facility floor and further exploration of a possible sub-slab depressurization system.

The EPA Regional records show that after these events, the following SSDS-related activities occurred at the Site:

- August 12, 2017 – September 11, 2017, the SSDS system runs for 30 days as part of the pilot study. MDEQ allowed the pilot study without an air permit, with the understanding that a permit would later need to be applied for prior to permanent operation.
- For some time, PRPs did not apply for the permit, and therefore MDEQ would not allow restart of the system.
- When failure to apply for the permit prevented the restart of the SSDS, oversight of the SSDS was shifted to CERCLA authority.
- December 20, 2017, the EPA CERCLA Removal Program directed Meritor to restart SSDS without the air permit.
- December 28, 2017, Meritor applied to MDEQ for the needed air permit.
- December 29, 2017, the SSDS system restarted operation under the supervision of the EPA removal program.
- January 11-18, 2018, performance sampling event #1 conducted. Results submitted to EPA on March 8, 2018.
- February 6 – March 6, 2018, performance sampling event #2 conducted. Results submitted to EPA on April 3, 2018.

As the SSDS operation was still uncertain and in flux as late as December 28, 2017, and the HRS documentation record was published January 18, 2018, it is not unreasonable that further description of the SSDS was not included in the document given the timeframe and that it would not affect HRS scoring.

The EPA notes that the samples collected during the August-September 2017 SSDS pilot study and after the December 2017 restart of the SSDS confirm that subsurface intrusion continues at levels indicating observed exposure at Level I concentrations. The EPA has included data submitted to EPA after the Site was proposed as supplemental data in Appendix A, Supplemental Indoor Air Monitoring Data, of this support document. See section 3.14.1, Consideration of the SSDS and Current Conditions of this support document for further discussion of the supplemental data.

EPA disagrees with Ice's comments that EPA's rationale for listing, including addressing the Site comprehensively, is inconsistent with the scoring of one pathway, and Ice's assertion that EPA should consider all data and perform a comprehensive evaluation before an NPL listing decision is made. As further explained in section 3.9, Evaluation of Other Pathways, of this support document:

- The HRS does not require scoring all four pathways and the EPA typically does not score all four pathways if scoring those pathways does not change the listing decision. This is consistent with the HRS as a screening tool to identify sites qualifying for placement on the NPL to receive further investigation.
- EPA has considered the available data relevant to the Site, and commenters have provided no evidence to show that the EPA has ignored information.
- Regarding the commenter's suggestion that a comprehensive assessment be done across all pathways, while the Site may pose threats to human health via other pathways/components, the evaluation of the subsurface intrusion threat was sufficient to qualify the Site for the NPL. Although evaluation of one pathway was sufficient to qualify the Site for the NPL, the other pathways may be evaluated during further site investigation.

Regarding the claim that the EPA is violating the 2017 HRS for not considering the removal actions undertaken at the Site, the EPA was in full compliance with the 2017 HRS and the scoring of the Site with respect to the consideration of removal actions. See section 3.14.3, Inconsistent Application of the HRS and other EPA Regulations and Policies for a detailed discussion of considering removal actions when evaluating a site for HRS purposes and several sections specific to HRS scoring in this support document for explanations for consideration of removal actions in the HRS scoring of the Site (e.g., sections 3.17.1, Observed Exposure: Consideration of VI Mitigation System, 3.17.4, Structure Containment, 3.18, Waste Characteristics - Hazardous Waste Quantity, and 3.19.3, Level I Concentrations and Current Levels, of this support document). With respect to the Commenter's claim that the "SsI pathway has been fully mitigated" post-SSDS operation, the Commenter is incorrect. As noted above, regardless of the results from operation of the SSDS, because a mitigation system is considered temporary and does not remove the source of the subsurface intrusion, the HRS score is unchanged and the Site qualifies for placement on the NPL.

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 Non-Scoring Comments

Comment: Commenters asserted that the HRS documentation record at proposal, and the 2017 ESI report (Reference 17 of the HRS documentation record at proposal), include multiple instances of inaccurate and incorrect statements that should be revised or removed. These comments questioned the accuracy of the following items:

- The HRS documentation record statement that background levels for cis-1,2-DCE, toluene and TCE in air should be zero.
- The HRS documentation record statement that the presence of contaminants in outdoor air samples was due to release from wastes at the Rockwell facility.
- HRS documentation record statements on the name and size of the Moose Lodge Road disposal area, whether it could be the source of contamination underlying the Kirk property, and whether the Buffing Compound Disposal Area could be the source of contamination at the Moose Lodge Road disposal area.
- Various aspects of the 2017 ESI report.
- HRS documentation record statements on the purpose of the SSDS pilot study.

- HRS documentation record statements identifying metals contamination in groundwater, including commenter questions on the data used to support these statements, and the turbidity of associated samples.
- HRS documentation record statements on groundwater behavior, specifically including commenter assertions that these descriptions are incomplete, and commenter-suggested local hydrology information and assertions on the limitations of aquifer interconnection and contaminant migration.
- HRS documentation record statements on the migration of toluene in soils below the main plant building and associated evidence.
- HRS documentation record statements on contaminants detected in equalization lagoon samples, including commenter questions on the lack of background data, connection of the contaminants to the facility, and risk posed.
- HRS documentation record statements identifying metals presence in Eastern Heights neighborhood soils, including comments on the depth of samples and asserted lack of appropriate background level data.
- HRS documentation record statements on other source areas historically investigated, including commenter questions on the sufficiency of background samples collected and evidence for hexavalent chromium detection.
- HRS documentation record statements on threats to the Eastern Heights neighborhood, including assertions that the EPA has contradicted itself on this subject, and questions on the extent of groundwater contamination, whether it is linked to the Site, and whether it poses a vapor intrusion risk to residents.
- HRS documentation record references to maps with boring locations.
- HRS documentation record statements on sources of VOC contamination under the main plant building and sufficient documentation to support statements.

The commenters claimed similar inaccuracies and inconsistencies in the NPL Narrative Summary and other outreach documents for the Site. The commenters referenced several documents to support their arguments of the alleged inaccuracies and incorrect statements in the HRS documentation record at proposal.

Response: The EPA has reviewed all of the commenter's claims of alleged inaccuracies. In most cases, EPA does not agree with the commenters' statements. It appears that most of the statements in question are the result of a misunderstanding of how the HRS is applied. For the few comments on statements that could be interpreted in a way other than intended, the EPA has provided clarifying language in the responses contained in this support document. None of the alleged inaccuracies impact the HRS score or the listing decision.

The specific comments on the alleged inaccuracies in the HRS documentation record at proposal and other documentation supporting the Site listing and the EPA's response are included in the following subsections of this support document:

- 3.16.1 Background Level of Zero
- 3.16.2 Link Between Outdoor Air Contamination and Facility
- 3.16.3 Contamination at Moose Lodge Road Disposal Area and Kirk Property
- 3.16.4 Accuracy of ESI Report
- 3.16.5 Purpose of SSDS Pilot Test
- 3.16.6 Metals Contamination of Groundwater
- 3.16.7 Groundwater/Aquifer Characterization
- 3.16.8 Soil Contamination Migrating Below Building
- 3.16.9 Equalization Lagoon Contaminants
- 3.16.10 Soil Contamination Characterization

- 3.16.11 Other Possible Source Areas Investigated
- 3.16.12 Threats to Eastern Heights Neighborhood
- 3.16.13 Map of Boring Locations
- 3.16.14 Process Sewer Lines

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

3.16.1 Background Level of Zero

Comment: Arcadis questioned the assertion in the HRS documentation record that background levels for cis-1,2-DCE, toluene, and TCE should be zero as long as no other facilities in the vicinity are releasing the same substances (pointing to page 19 of the HRS documentation record at proposal). Arcadis stated that this is incorrect and noted that an EPA study, *Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor Intrusion*, documented the presence of the aforementioned substances in residences.

Response: The statement in the first paragraph of page 19 of the HRS documentation record at proposal the commenter is referring to is correct. The background level discussion does not pertain to indoor background levels, but to outdoor ambient air samples taken on the facility property for the purpose of establishing a background level for the Site. Further, a background level of zero was not established for any of the scored hazardous substances. Finally, the study cited by Arcadis concerns indoor residential air including anthropogenic sources, and therefore does not apply in this situation.

The first paragraph on page 19 of the HRS documentation record at proposal states:

> Cis-1,2-DCE, toluene, and TCE are all solvents (Refs. 28; 29, p. x; 30). TCE and toluene (in its pure form) are not naturally occurring substances and cis-1,2-DCE is a breakdown product of TCE; therefore, background concentrations for these substances should be zero as long as no other facilities in the vicinity are releasing these substances (Refs. 29, p. x; 30; 36, p. 24). However, the intermittent presence of toluene, TCE, and TCE breakdown product cis-1,2-DCE was found during sampling events in outdoor air samples collected on the facility property nearby and adjacent to the main plant building. The presence of these substances in outdoor air samples is likely due to releases from wastes at the Rockwell facility, including vapor emissions from pervasive groundwater contamination (which has been documented to extend to Riverdale Creek), and the presence of these contaminants in other waste sources on the Rockwell property (including the outfall ditch and the former on-site landfill, among others) (Refs. 15, pp. 45 to 48; 17, pp. 5 to 10, 14 to 17, 27; 36, p. 24).

This section of the HRS documentation record includes discussion of the background levels established for the Site, and the EPA's rationale for using outdoor ambient air samples to establish a background level for the Site. The section makes the point that the substances detected in outdoor ambient air are not ubiquitous and non-naturally occurring substances; one would not typically detect releases of these substances and would expect a background level of zero unless there were a facility or facilities in the vicinity that could be releasing the substances. At this Site, these are substances that were involved in historic operations and spills, likely explaining why the concentrations for outdoor ambient air were non-zero. Thus, the expectations that outdoor air concentrations of these non-naturally occurring substances should be zero in the absence of facility releases is reasonable within the context of the HRS documentation record statement in question.

Regarding the EPA study cited by the commenter, *Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A Compilation of Statistics for Assessing Vapor*

Intrusion[18], the commenter has incorrectly applied the study. The study specifically looked at background concentrations of VOCs in indoor air (not outdoor ambient air) in residential structures (not industrial buildings). Additionally, the study purpose was not related to establishing a background level in outdoor air; rather the study purpose was to determine indoor air levels of VOCs given anthropogenic sources of VOCs—those that are common in many households including contributions from consumer products, building materials, and outdoor air (see pages ES-1 and ES-2 of that study).

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

3.16.2 Link Between Outdoor Air Contamination and Facility

Comment: Arcadis asserted that the statement on page 19 of the HRS documentation record that the presence of contaminants in outdoor air samples was "likely due to release from wastes at the Rockwell facility, including vapor emissions from pervasive groundwater contamination," is incorrect and not supported by the cited references or site-specific data and facts. Arcadis argued that the references cited do not support this statement. Arcadis further argued that a similar geology to the "competent clay and silty clay layer" found beneath the Eastern Heights neighborhood is present beneath the main plant building's slab and prevents "vapor migration from groundwater to the sub-slab and indoor air environments."

Response: The HRS documentation record statement that outdoor air contaminants detected likely originate with facility waste releases and contamination in groundwater is supported by the known contamination in the vicinity. The HRS documentation record at proposal provides clear evidence and documentation that: 1) hazardous substances detected in outdoor ambient air are due to releases of those substances as a result of historic operations at the Facility; and 2) hazardous substances detected in indoor air are attributable to releases of those same hazardous substances to the subsurface. The commenter has provided no alternative explanation for the origin of the outdoor contamination.

As described in the HRS documentation record at proposal, the hazardous substances identified in the outdoor ambient air samples were likely the result of diffusion of the contamination from waste sources associated with the property including the possible migration from associated contaminated groundwater (but not necessarily limited to groundwater).

The first paragraph on page 19 of the HRS documentation record at proposal states:

> Cis-1,2-DCE, toluene, and TCE are all solvents (Refs. 28; 29, p. x; 30). TCE and toluene (in its pure form) are not naturally occurring substances and cis-1,2-DCE is a breakdown product of TCE; therefore, background concentrations for these substances should be zero as long as no other facilities in the vicinity are releasing these substances (Refs. 29, p. x; 30; 36, p. 24). However, the intermittent presence of toluene, TCE, and TCE breakdown product cis-1,2-DCE was found during sampling events in outdoor air samples collected on the facility property nearby and adjacent to the main plant building. The presence of these substances in outdoor air samples is likely due to releases from wastes at the Rockwell facility, including vapor emissions from pervasive groundwater contamination (which has been documented to extend to Riverdale Creek), and the presence of these contaminants in other waste sources on the Rockwell property (including the outfall ditch and the former on-site landfill, among others) (Refs. 15, pp. 45 to 48; 17, pp. 5 to 10, 14 to 17, 27; 36, p. 24).

The section makes the point that the substances detected in outdoor ambient air are not ubiquitous and non-naturally occurring substances; one would not typically detect releases of these substances and would expect a background level of zero unless there were a facility or facilities that could be releasing them. In the case of the

[18] Available at https://www.epa.gov/vaporintrusion/background-indoor-air-concentrations-volatile-organic-compounds-north-american.

Site, these substances were involved in historic operations and spills, likely explaining why the concentrations for outdoor ambient air on the facility property were non-zero.

Docket references support HRS documentation record statements regarding descriptions of the contamination in the area of the facility, as identified below:

- Reference 15 pages 45-48 are figures summarizing contaminants detected in wells across the facility property in shallow and deep zone wells of the upper aquifer.
- Reference 17 pages 5-10 and 14-17 discuss the investigation of the other waste sources mentioned by the HRS documentation record, including the association of site contaminants with these sources, and contaminants in nearby soil samples and groundwater samples.

In addition to detection of hazardous substances in the outdoor ambient air, those same hazardous substances were detected in soil and subslab samples around the Facility and beneath the main plant building as established in these reference citations and discussed in other parts of the HRS documentation record at proposal (e.g., pages 10-15 of the HRS documentation record at proposal). It has been documented that large volumes of TCE and toluene were released from the storage areas and could volatilize to ambient air.

Further, the Commenter has not provided an alternate explanation for the detection of hazardous substances associated with historic Facility operations in outdoor ambient air.

Regarding the Commenter's claim that a competent clay layer beneath the main plant building prevents "vapor migration from groundwater to the sub-slab and indoor air environments", see section 3.17.2.1, Effect of Clay Layer, and section 3.17.2.2, Attribution of Release to the Facility, of this support document for a detailed discussion of the documentation of vapor migration from the subsurface into the facility.

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

3.16.3 Contamination at Moose Lodge Road Disposal Area and Kirk Property

Comment: Meritor and T&M stated that the HRS documentation record includes inaccuracies related to the characterization of the Moose Lodge Disposal Area and the Kirk Property that should be corrected. Specifically, they called out pages 10 and 31-32 of the HRS documentation record at proposal.

Concerning statements on page 10 of the HRS documentation record at proposal:

- Meritor contended that the HRS documentation record at proposal inaccurately describes the Moose Lodge Disposal Area "as an area nearly three times larger than it actually is."
- T&M stated that the Buffing Compound Disposal Area (BCDA) is an area adjacent to Moose Lodge Road. The HRS documentation record states that the area is 6.7 acres; T&M asserted the actual area is 2.3 acres.
- T&M stated that the HRS documentation record at proposal incorrectly refers to the BCDA area as the "Moose Lodge Road Disposal Area" and that it is not located correctly on the figures of the HRS documentation record as well as in EPA's NPL Factsheet 1 for the Site. T&M cited Sheet 2-1 of the 2018 Comprehensive Study Area Groundwater Investigation Report (this sheet is included in T&M's comment submission at page 6 of docket ID EPA-HQ-OLEM 2017-0608-0149). T&M asserted the errors should be fixed in the HRS documentation record.

Concerning statements on page 31 (last paragraph) and page 32 (first partial paragraph) of the HRS documentation record at proposal:

- Meritor asserted that statements in the HRS documentation record at proposal linking the VOCs found at the Kirk Property to the Moose Lodge Road disposal area are incorrect. Meritor contended that the EPA ignored ground water flow data, which would confirm its conclusion is improbable. Meritor further stated that years of ground water flow data, including "years of potentiometric surfaces," all of which was provided to the EPA, "clearly demonstrates that the groundwater does not and cannot flow in the direction," that would suggest that the Kirk Property ground water contamination may have originated from the Moose Lodge Disposal Area. Meritor suggested that the origin of the contamination at the Kirk property "appears to originate on the Kirk property itself." (Meritor cited the July 2017 T&M document, Kirk and PCA Properties Investigation Report, included as Reference 57 of the HRS documentation record at proposal.)
- T&M contended that based on extensive investigations assessing long-term ground water flow direction, there is no supporting or plausible evidence that suggest the VOC ground water contamination at the Kirk property originated from the Moose Lodge Road area. Specifically, T&M asserted that for the VOCs at the Kirk property to originate from the Moose Lodge Road area, ground water flow direction would have to include a northerly component, which the data do not support. T&M emphasized that while groundwater flow direction can vary near the Moose Lodge Road disposal area, the net flow in the western portion of this area is to the west/northwest over time T&M concluded that based on ground water flow direction data, the BCDA—even the southern Moose Lodge Road disposal area plume—could not be the source of VOCs at the Kirk property, but suggest that the Kirk property itself is the source of the VOCs detected at the property. T&M asserted the related statement should be deleted from the HRS documentation record.

Concerning statements on page 15 (last paragraph) of the HRS documentation record, T&M argued that the VOCs found in ground water in the Moose Lodge Road area outside the BCDA and surrounding areas at the south end of Moose Lodge Road are not the result of the BCDA, rather they originated from the Harrell property, approximately 200 feet east of Moose Lodge Road and north of the BCDA.[19] T&M asserted this paragraph should be corrected or deleted from the HRS documentation record.

Response: The Moose Lodge Road disposal area and Kirk property contamination have been characterized sufficiently for the purposes of the HRS evaluation for the Site in the HRS documentation record at proposal. The areas in question do not affect the Site score. The main purpose for including discussion of these areas in the HRS documentation record at proposal is to provide general background on contamination that may be associated with the site (the discussion of the Moose Lodge Road disposal area at page 10 of the HRS documentation record at proposal), as well as to show that the observed exposure being scored is attributable to the Site and not explained by other nearby facility contamination (the discussion of the Moose Lodge Road disposal area and Kirk property at pages 31-32 of the HRS documentation record at proposal). The name and size of the Moose Lodge Road disposal area is consistent with supporting references; within the context of the HRS documentation record, the 6.7 acre value is correct for the parcel where the disposal area is located (although the active disposal area itself occupied a portion of that property). The HRS documentation record at proposal discussion indicating that the Kirk property contamination may have originated at the Moose Lodge Road disposal area is accurate given the possible directions of groundwater flow (despite the prevailing direction). Finally, the statement on page 15 of the HRS documentation record did not come to any conclusion on the ultimate origin of the groundwater contamination at the south end of Moose Lodge Road; the associated comments are not relevant and do not affect HRS scoring.

Regarding the name and size of the Moose Lodge Road disposal area, the relevant statement in question on page 10 of the HRS documentation record at proposal is:

> The Rockwell property encompasses about 76 acres of land, including the main facility (69.5 acres, spanning two parcels, 45.5 acres and 24 acres) and the Moose Lodge Road disposal area

[19] T&M cites the T&M March 2018 Comprehensive Study Area Groundwater Investigation Report, included as Attachment B of its comment document (docket IDs EPA-HQ-OLEM-2017-0608-0146 through EPA-HQ-OLEM-2017-0608-0182).

> (6.7 acres), and is located off of Highway 332 East in Grenada, Grenada County, Mississippi (Refs. 3; 4; 8, pp. 4, 15, 16; 12) (see Figure 1 of this HRS documentation record).

In this context, the name Moose Lodge Road disposal area is used to generally refer to the parcel of land that was used by Rockwell for disposal of buffing compound and other waste from the Rockwell wheel cover operation, and is therefore regarded as part of the Rockwell facility. The parcel currently encompasses 6.7 acres. The citations in the above-quoted text provide the following information:

- Figure 1 of the HRS documentation record at proposal shows the Rockwell property, including the lobe next to Moose Lodge Road. (Superfund Fact Sheet 1 for the Site, referred to by the commenter and available as Exhibit 1 of Meritor's comments [docket ID EPA-HQ-OLEM-2017-0608-0064] shows the same borders.)
- Reference 4 shows the location of the Rockwell property, again including the lobe next to Moose Lodge Road.
- Page 4 of Reference 8 (a groundwater monitoring report for the Moose Lodge Disposal area) describes the area:

  > Stantec Consulting Services, Inc. (Stantec) has prepared this Groundwater Monitoring Report for the first quarter of 2015, on behalf of Meritor, Inc.[1] (Meritor), for the Moose Lodge Road Disposal Area in Grenada, Mississippi (site). Meritor is the successor to the entities comprising the former automotive division of Rockwell International Corporation (Rockwell), which previously operated the manufacturing facility adjacent to the Moose Lodge Road Disposal Area. This report provides background site information, a discussion of sampling methods, and summarizes data collected during the quarterly groundwater monitoring event. This sampling event was part of the ongoing monitoring of chlorinated volatile organic compounds (VOCs) in groundwater at the Moose Lodge Road Disposal Area. A site location map is presented as Figure 1.

- Figure 1 on page 15 of Reference 8 shows the general location of the Moose Lodge Disposal area. And, Figure 2 on page 16 of Reference 8 shows a general depiction of the property line (consistent with the lobe of the Rockwell property near Moose Lodge Road depicted in Figure 1 of the HRS documentation record at proposal).
- Page 3 of Reference 12 provides a map of the parcel of land in question that was historically used by Rockwell. The total acreage of that parcel is noted as 6.7 acres. Note that the BCDA mentioned by the commenter (shown on Sheet 2-1 of the 2018 Comprehensive Study Area Groundwater Investigation Report included in T&M's comment submission at page 6 of docket ID EPA-HQ-OLEM 2017-0608-0149), occupies a portion of this parcel.

Additionally, the Moose Lodge Road disposal area is further discussed on page 15 of the HRS documentation record at proposal, noting the buffing compound disposal. This page states in relevant part:

> In addition to the former TCE storage area and the equalization lagoon, a number of other possible source areas at the Rockwell property were investigated during the 2016 EPA ESI. The source areas included the former on-site landfill (also referred to as the "disposal area," a separate area from the Moose Lodge Road disposal area), the sludge lagoon and associated WTP basin (clarifier), the outfall ditch, and contaminated soil, among others (Ref. 17, pp. 12, 14 to 17, A-2).
>
> . . .
>
> The Moose Lodge Road disposal area was used by Rockwell to dispose of buffing compound from the wheel cover processes (Ref. 8, p. 5).

The HRS documentation record cites Page A-2 of Reference 17, and includes a figure showing an outline for the area similar to that provided in Figure 1 of the HRS documentation record. Reference 8, page 5 also cited in the HRS documentation record clarifies that:

> The Moose Lodge Road Disposal Area was reportedly used by Rockwell for disposal of buffing compound from the adjacent wheel cover facility processes. The site encompasses approximately 2.8 acres and is bounded to the east by Moose Lodge Road, to the north by a field, to the west by the Illinois Central Gulf Railroad spur and to the south by woods. In late 1993, a 6-foot-high chain-link fence was installed around the perimeter of the site and a silt fence was installed around the southern and eastern sides. During February and March 2006, the buffing compound was excavated and transported offsite for disposal in accordance with a work plan approved by the MDEQ in a letter dated February 2, 2006. As part of the buffing compound removal effort, the fence was removed and the site was graded and re-vegetated. In a letter dated March 30, 2007, the MDEQ granted Meritor No Further Action status for soils at the site.

Thus, the active disposal area itself on this parcel is described in the cited Reference 8 text as encompassing 2.8 acres. It therefore may have been clearer for the statement on page 10 of the HRS documentation record statement to have stated "The Rockwell property encompasses about 76 acres of land, including the main facility (69.5 acres, spanning two parcels, 45.5 acres and 24 acres) and the **parcel associated with the** Moose Lodge Road disposal area (6.7 acres)." However, this lack of detail has no effect on HRS scoring and is clarified in this explanation, which is part of the docket for the Site. The HRS documentation record will therefore not be revised on this point.

Regarding the location of the Moose Lodge Road disposal area on figures, the area is included and correctly located on Figure 1 of the HRS documentation record at proposal (page 4), although the area is not labeled. Further, Reference 12 correctly shows the location of the area, the 6.7 parcel of land generally referred to in the HRS documentation record at proposal as the Moose Lodge Road disposal area.

Concerning statements in question on page 31 (last paragraph) and page 32 (first partial paragraph) of the HRS documentation record at proposal regarding the Kirk property contamination and a possible contribution from the Moose Lodge Road disposal area, the relevant discussion centers on showing that the scored observed exposure is not attributable to other facilities in the area. The possibility that groundwater contamination at the Kirk property could have come from the Moose Lodge Road disposal area contamination is supported by the discussion. However, this link has no effect on HRS scoring.

Pages 31 and 32 of the HRS documentation record at proposal are part of the section Attribution to Subsurface and Facility, which documents that the observed exposure of cis-1,2-DCE, toluene, and TCE in indoor air is attributable to releases at the facility entering the structure via subsurface intrusion. The portion of that discussion including the statements in question begins on page 31 of the HRS documentation record at proposal by focusing on demonstrating the scored observed exposure is not attributable to other facilities in the area, mentioning the Kirk property in the following context:

> Furthermore, there is no evidence that any nearby facilities released the hazardous substances evaluated in this HRS documentation record. EPA's databases do not list any regulated facilities, other than former or current operators of the Rockwell facility, within 1 mile of the main plant building (Ref. 41). Dunham, Inc. and Kirk Family Holdings LLC (Kirk) are two businesses located within 0.25 mile of the main plant building. For attribution purposes, these businesses were evaluated to determine whether they may be potential off-site sources of contamination. Neither of these operations is listed in any of EPA's regulated facility databases (Refs. 39, p. 2; 40, p. 2; 41; 42, pp. 2, 3, 4). Therefore, concentrations of cis-1,2-DCE, toluene, and TCE in indoor air are unlikely to originate from outdoor air contamination migrating from other facilities (see Tables 3 and 5 of this HRS documentation record).

The discussion continues on pages 31 and 32 of the HRS documentation record at proposal, explaining why the scored observed exposure is not attributable to the other facilities, including contamination at the Kirk Property:

> The Dunham, Inc. property is located about 600 feet east-northeast of the main plant building (Refs. 39, p. 2; 42, p. 3). Dunham, Inc. has been constructing single-family homes for the past 26 years (Ref. 39, p. 5). The Kirk property is located about 0.25 mile northeast of the main plant building, east of the railroad tracks (Refs. 40, p. 2; 42, p. 4; 57, p. 32). This facility is a warehouse with a trucking component (Refs. 51; 57, p. 6). In March 2017, T&M, on behalf of Meritor, Inc., conducted an environmental investigation at the Kirk property, which included soil and groundwater sampling (Ref. 57, pp. 1, 2, 6, 32, 33, 38). Subsurface soil sample SB-43(58-60)GW, collected from the southern property boundary, contained the greatest concentrations of cis-1,2-DCE at 36 µg/kg and TCE at 24 µg/kg at a depth of 58 to 60 feet bgs (Ref. 57, pp. 33, 39). Groundwater sample SB-43(23-25)GW-DUP contained cis-1,2-DCE (470 µg/L) and TCE (540 µg/L) at a depth of 23 to 25 feet bgs (Ref. 57, pp. 33, 44). However, these levels are much lower than the highest concentrations found at the Rockwell facility property—for example, as described in the Site Description of this HRS documentation record, TCE was found near the TCE storage area in soil at up to 53,895 mg/kg and in groundwater at up to 54,592 µg/L, and TCE has been found in recent groundwater samples near the Moose Lodge Road disposal area as high as 3,400 µg/L, with historical concentrations reaching 54,000 µg/L (Refs. 8, pp. 5, 6, 9, 10, 18, 25 to 38; 61, pp. 28-48, 50 to 53).

The HRS documentation record then discusses groundwater flow direction as another reason the Kirk property contamination is not likely contributing to contamination beneath the main plant building—this is the point of the discussion. While not definitively linking the contamination underlying the Kirk property to the Moose Lodge Road disposal area, the discussion offers as a side note that based on the variability in groundwater flow direction (despite the prevailing flow direction) the Moose Lodge Road disposal area *could* be an origin of contamination below the Kirk property:

> Furthermore, based on potentiometric surface maps, groundwater flow at the Rockwell facility is generally to the west-northwest, **but may vary with the season/rainfall**. Also, there is a groundwater divide east of Moose Lodge Road, **which may direct shallow groundwater in that area to the south, east, and northeast; the position of this divide also varies somewhat with the season/ rainfall** (Refs. 8, p. 17; 15, pp. 20, 21, 39 to 44; 57, pp. 31, 32). Therefore, this groundwater contamination **may have originated** at the Moose Lodge Road disposal area, located southeast of the Kirk property. It is unlikely that either of these facilities is a source of groundwater contamination underlying the main plant building area of the Rockwell property (Refs. 15, pp. 33, 39; 42). [emphasis added]

T&M acknowledges in its comments that groundwater flow direction in the area may vary. Thus, the HRS documentation record at proposal has clearly not ignored groundwater flow direction data—it has recognized the net flow direction over time, but allowed that this variability could mean some contamination from the Moose Lodge Road disposal area could be directed toward the Kirk property.

Regarding the commenters' suggestion that the groundwater contamination at the Kirk property is a result of activities at the Kirk property, while this is certainly possible, neither commenter has offered definitive evidence warranting deletion of the HRS documentation record statement in question (identifying the Moose Lodge Road disposal area as a possible origin of contamination below the Kirk property). Meritor points to the July 2017 T&M document, Kirk and PCA Properties Investigation Report, included as Reference 57 of the HRS documentation record at proposal. However, the quoted text from pages 31-32 of the HRS documentation record at proposal above cite this reference in discussion of the Kirk property, acknowledging detections of cis-1,2-DCE, and TCE, and documenting that the greatest concentrations are found in deeper subsurface soil samples. While the conclusions section of the T&M document (Reference 57) do identify possible historical Kirk property origins for the subsurface contamination there, no concrete conclusions are drawn.

Concerning statements on page 15 (last paragraph) of the HRS documentation record at proposal regarding the origins of groundwater contamination in areas near the BCDA and at the south end of the Moose Lodge Road, page 15 states:

> The Moose Lodge Road disposal area was used by Rockwell to dispose of buffing compound from the wheel cover processes (Ref. 8, p. 5). Groundwater below this area has been subject to long-term monitoring, and has been found to be contaminated with VOCs, including TCE; recent results in 2015 included TCE concentrations as high as 3,400 µg/L and cis-1,2-DCE concentrations as high as 2,200 µg/L. Historically, TCE concentrations were detected as high as 54,000 µg/L in 2005 (Ref. 8, pp. 5, 6, 9, 10, 18, 25 to 38).

The commenters claimed that the VOCs in groundwater documented at the Moose Lodge Road disposal area are not the result of the BCDA, but rather originated from the Harrell property, suggesting this paragraph of the HRS documentation record be corrected. However, the EPA notes that the HRS documentation record at proposal states that high levels of VOCs were documented in that area and does not make any statement definitively asserting these VOCs are the result of disposal of the buffing compound historically used by Rockwell operations. The HRS documentation record statements are therefore correct at proposal. The ultimate origin of the contamination in this area has no effect on the HRS score, but may be investigated at a later 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.

3.16.4 Accuracy of ESI Report

Comment: Meritor stated that T&M identified issues in the ESI report, and suggested that EPA remove all data and references to the report in the HRS documentation record. Meritor noted that while the information is not used for scoring purposes, much of the information is used throughout the documentation record.

Response: It appears that the majority of T&M's comments on the 2017 ESI report result from a misunderstanding of the scope and purpose of the ESI. The November 14, 2017, T&M document summarizing T&M comments on the ESI report were included in T&M's comment document as Attachment D (docket ID EPA-HQ-OLEM-2017-0608-0183), and the ESI report was included as Reference 17 of the HRS documentation record at proposal. The March 14, 2018, EPA response to T&M comments on the ESI was included as Attachment E to T&M comment document (docket ID EPA-HQ-OLEM-2017-0608-0197).

The ESI is a pre-remedial investigation, as is an SI, and not required for proposing a site to the NPL. The purpose of an SI (or ESI), among other things, is to "collect or develop additional data, as appropriate, to evaluate the release pursuant to the HRS." (40 CFR § 300.420(c)(iii) (55 FR 8845, March 8, 1990)). Where the EPA already has sufficient information to score a site, there is no need to make a further independent physical inspection, and in any case there is no NCP requirement to do so.

As described in the March 14, 2018 EPA response document, EPA disagreed with the majority of T&M's comments, giving a point-by-point response to each. Of the few comments with which EPA agrees, they do not impact the HRS score or decision to list the Site on the NPL, and the HRS documentation record has not been revised to reflect them. These clarifications will be considered in future actions.

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

3.16.5 Purpose of SSDS Pilot Test

Comment: Arcadis claimed that a statement in the HRS documentation record on pages 16 and 33 regarding the purpose of the SSDS Pilot Study is incorrect. Arcadis asserted that the purpose of the pilot study was not "to

identify vapor entry points and determine potential sub-slab source areas for indoor air contamination." Arcadis stated that the purpose was to "gather information for design of a full-scale SSDS".

Response: Arcadis' clarification to the statement in the HRS documentation record at proposal is documented here as part of the docket for the Site. The report more accurately reflects the purpose of the Pilot Study undertaken at the Site. However, as this clarification does not impact the HRS score or decision to list the Site on the NPL, the HRS documentation record has not been revised to reflect it.

The HRS documentation record statement in question on pages 16 and 33 is: "In March 2017, Arcadis conducted a sub-slab depressurization system pilot study to identify vapor entry points and determine potential sub-slab source areas for indoor air contamination (Ref. 27, pp. 7, 15)." Cited page 7 of Reference 27 shows that pilot study activities included identifying vapor entry points and determination of potential sub-grade source areas for indoor air and sub-slab contamination. HRS documentation record text following this statement gives details of the vapor entry points and concentrations identified, is supported by cited reference pages, and was not questioned by the commenter. Therefore, it would have been more accurate to state that the pilot study activities *included* these actions; still, this clarification has no effect on the HRS evaluation.

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

3.16.6 Metals Contamination of Groundwater

Comment: T&M asserted that the information presented in the Ground Water Migration Pathway section on the cover page of the HRS documentation record is inaccurate and should be removed—specifically the statement that "[v]olatile organic compound (VOC) and metals contamination was detected in shallow groundwater samples collected throughout the facility and in the adjacent Eastern Heights neighborhood." T&M questioned the validity of the data used to support the claim of detection of metals contamination in shallow groundwater at the Site and further claimed that the samples were turbid and were not collected according to relevant EPA Region 4 procedures[20] or industry standards.

T&M commented that naturally occurring metals in aquifer sediment in the turbid samples are likely the source of the detections, rather than metals in the groundwater, and that valid results for total metals can only be derived from samples with less than 10 NTU (nephelometric turbidity units).

T&M stated that it had given EPA comments on the content of the 2017 ESI report relevant to this subject (which was cited as part of the reference support for the HRS documentation record statement in question). (The comments on the ESI report were included in T&Ms comment document as Attachment D (EPA-HQ-OLEM-2017-0608-0183), and the ESI report was included as Reference 17 of the HRS documentation record at proposal.) The EPA response was included as Attachment E to T&M comment document (EPA-HQ-OLEM-2017-0608-0197). T&M found the EPA's response to these comments insufficient, in particular, the EPA's explanation that field parameters including turbidity were equilibrated prior to sample collection from the temporary wells. T&M asserted that use of temporary wells and effort to develop the wells does not justify use of the data in light of the turbidity (as high as 1,250 NTU). T&M identified that in the EPA's response, EPA acknowledged that metals are not the primary constituents of concern for the Site.

Regarding the detection of metals throughout the facility, T&M asserted that hexavalent chromium is the only metal tied to facility operations, further suggesting the statement in the HRS documentation record is inaccurate and should be removed. T&M commented that "[n]o other Facility-related metals contamination has been identified in groundwater samples obtained at low turbidity."

[20] T&M cites EPA Region 4 Science and Ecosystem Support Division (SESD) Field Branches Quality and Technical Procedures for design and Installation of Monitoring Wells (SESDGUID-10-R1).

Response: The statement referenced by the commenter appears in the Pathways, Components, or Threats Not Scored section of the HRS documentation record at proposal. This statement correctly identifies that metals were detected in the groundwater samples, and the data is sufficient for this limited use; the statement will not be removed. The purpose of this section of the HRS documentation record is to provide information on a pathway/component of concern and, while not scored for purposes of the HRS evaluation, identify that these concerns and contamination potentially associated with the release being scored may be investigated during a later phase in the Superfund process. It does not make any absolute determinations regarding the exact extent of contamination of concern, or regarding its origins. Further, information included in that section of the HRS documentation record at proposal does not affect the Site HRS score.

The cover page of the HRS documentation record at proposal describes the information provided, consistent with the purpose of this section:

> "The ground water, surface water, and air migration pathways, and the soil exposure component of the soil exposure and subsurface intrusion pathway **are not scored in this Hazard Ranking System (HRS) documentation record** because the subsurface intrusion component of the soil exposure and subsurface intrusion pathway is sufficient to qualify the site for the National Priorities List (NPL). The ground water, surface water, and air migration pathways, and the soil exposure component of the soil exposure and subsurface intrusion pathway **are of concern to the U.S. Environmental Protection Agency (EPA) and may be considered during a future evaluation.** At the time of the listing, the site score is sufficient without the pathways and component mentioned above. [emphasis added]

And the entry on the ground water migration pathway is similarly consistent with this purpose:

> **Ground Water Migration Pathway**: Volatile organic compounds (VOC) and metals contamination was detected in shallow groundwater samples collected throughout the facility and in the adjacent Eastern Heights neighborhood **and may be investigated further**; however, scoring the threat posed by this release will not impact the listing decision (Refs. 15, p. 45; 17, pp. 23, 24, A-2)." [emphasis added]

Although the groundwater migration pathway was not scored in the HRS evaluation of the Site, the threat of metals contamination via groundwater, whether or not a primary hazardous substance of concern at the Site, is relevant to discuss in the HRS documentation record at proposal because groundwater contamination may be investigated at other stages of the Superfund process.

Regarding the commenter's specific issue with turbidity and the data supporting detection of metals in shallow groundwater samples, the EPA's previous response to the commenter's concerns with the 2017 ESI report explained that EPA was consistent with relevant guidance and that the data generated were sufficient for the purpose for which the data were collected. EPA stated on page 12 of its response document:

> The vertical and lateral extent of the TCE groundwater plume has not yet been defined. See response to comments in Section I for the scope of an ESI. Regarding the turbidity of the groundwater samples, Tetra Tech made a concerted effort to monitor the field parameters, including turbidity, for equilibrium in the aquifer. Tetra Tech evacuated three well volumes from each temporary well before collecting the field parameters. As evidenced by the monitoring well/groundwater sample sheets in Appendix C, Tetra Tech evacuated between 2 and 10 gallons of water from the wells, equaling between 24 and 50 well volumes. Temporary monitoring wells provide a snap-shot of groundwater conditions at the time of sampling; generally, 3 to 5 well volumes are evacuated before collecting the groundwater samples. The amount of water evacuated from each temporary well was consistent with the ESI stage of the CERCLA site evaluation process. Although metals were detected in the groundwater samples collected in the Eastern Heights neighborhood, metals are not the primary constituents of concern for

> groundwater at the site. Turbidity does not affect the concentrations of VOCs, which are the primary constituents of concern for groundwater at the site.

And, EPA stated on pages 16-17 of its response document:

> All of the wells mentioned [by T&M it its comments] were temporary monitoring wells. Section 3.9 of EPA Region 4 SESD's Operating Procedure for Ground Water Sampling, March 6, 2013, states that for temporary wells the primary purpose of purging is to mitigate the impacts of installation. "In most cases, temporary well installation procedures disturb the existing aquifer conditions, causing extreme turbidity. The goal of purging is to reduce the turbidity and remove the volume of water in the area directly impacted by the installation procedure." Therefore, the stabilization of groundwater parameters is not required when sampling temporary monitoring wells. The results are reliable and can be used to support the ESI and HRS scoring.

With the HRS documentation record statement in question, the EPA is not making an absolute determination on the extent or the source of the metals in groundwater, only that they were detected and may be further investigated during future remedial phases; these data are not being used for HRS scoring. The associated data is sufficient for preliminary identification of the *presence* of metals that may require future investigation. Whether or not the metals levels concretely represent significant increases in groundwater contaminants, and whether those concentrations (of hexavalent chromium or other metals) are definitively linked to the Site release is a matter for such future investigation.

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

3.16.7 Groundwater/Aquifer Characterization

Comment: T&M stated that several pertinent aspects of groundwater behavior should be added to the Pathways, Components, or Threats Not Scored section on the cover page of the HRS documentation record, including information related to local hydrogeology calling into question aquifer interconnection, ground water flow direction calling into question the ability of contaminants to migrate to the lower aquifer, evidence of contaminant-free samples in the lower aquifer, and information on wells in the upper and lower aquifers.

Response: The groundwater migration pathway is not scored for this Site, and therefore additional detail is not needed in the summary of information in the Pathways, Components, or Threats Not Scored section of the HRS documentation record at proposal. The purpose of that section of the HRS documentation record is to provide general information on a pathway/component of concern and, while not scored for purposes of the HRS evaluation, identify that these concerns and contamination potentially associated with the release being scored may be investigated during a later phase in the Superfund process. It does not make any absolute determinations regarding the exact extent of contamination of concern, or regarding its origins.

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

3.16.8 Soil Contamination Migrating Below Building

Comment: T&M disagreed with the statement on page 12 of the HRS documentation record that “[t]he 1994 RI revealed a toluene plume in soil and groundwater emanating from the former toluene storage UST area and moving beneath the main plant building.” T&M argued that although the RI did show a toluene plume in groundwater migrating below the main plant building, “the RI provided no evidence of toluene in soil or light non-aqueous phase liquid (LNAPL) beneath the building”. T&M asserted the documentation record statement should be deleted.

Response: The statement questioned by the commenter is sufficiently supported by the reference and remains in the HRS documentation record at promulgation. The references revealed evidence of a toluene plume in both soil and groundwater, originating from the former toluene storage area that is moving toward the building.

The statement in question on page 12 of the HRS documentation record at proposal is:

> The 1994 RI revealed a toluene plume in soil and groundwater emanating from the former toluene UST area and moving beneath the main plant building (Ref. 13, pp. 189, 201, 270, 352 to 354, 394).

Page 189 of Reference 13 of the HRS documentation record at proposal (1994 Draft RI) provides evidence of toluene in soil and states:

> As shown on Figures 5-10, 5-11, and 5-12, toluene was detected in soils associated with the on-site landfill and the former toluene storage area (see section 2.3.1). As was the case with trichloroethene, the occurrence of toluene at the on-site landfill is centered in two areas: west of the sludge lagoon in borings SB-2, SB-3, and SB-4, and to a much lesser extent south of the sludge lagoon. With the exception of surficial sample SAB-2, the concentration of toluene in soils increases with depth. At the former toluene storage area the borings closest to the location of the former toluene underground storage tank (UST) (MW-24, SB-26, SB-27, SB-30 and SB 33) exhibited elevated concentrations of toluene increasing with depth. This trend is consistent with the observance of free product LNAPL in this area. Toluene was also detected in borings within the courtyard area, but not in the immediate vicinity of the former toluene UST (SB-20, SB-22, SB-23, SB-24, SB-25 and MW-25); therefore, these detections may not be related to the former toluene UST.

Page 270 of Reference 13 provides further evidence of toluene in soils and states:

> The plume of toluene in the groundwater is limited to the plant property and appears to originate at the location of the former toluene UST, however, this plume may have some contribution from the on-site landfill because toluene was detected in soil samples from the landfill (Figure 5-53). The plume of toluene appears to be restricted to the upper portion of the uppermost aquifer as shown in Figure 5-54. As previously described in detail in Section 4.5, the presence of toluene light non-aqueous phase liquid (LNAPL) was observed in well MW-24 at the approximate location of the former toluene UST. One sample of the LNAPL from RC-2 was analyzed and the results indicate that the LNAPL is greater than 95% toluene.

Pages 352-354 of Reference 13 are Figures 5-10, 5-11 and 5-12 and show the concentration of toluene in soils at 3 different depth ranges:

- Figure 5-10 (page 352) shows the distribution of toluene in soil at depths from 0-0.5 ft (below ground surface). This figure shows soil samples with detections of toluene near the main plant building, including interpolated contour lines estimating toluene in soils beneath the building. (This figure also shows the location of the wells described in the above quote—MW-24 and RC-2—just next to the eastern wall of the main plant building.)
- Figure 5-11 (page 353) shows the distribution of toluene in soil at depths from 2-4 ft (below ground surface), including estimated concentrations of toluene in soil under the building (interpolated from samples outside the building).
- Figure 5-12 (page 354) shows the distribution of toluene in soil at depths from 6-8 ft (below ground surface).

- Figure 5-53 (page 394) shows the distribution of toluene in groundwater with concentration contours derived from well data indicating a plume beneath an area just east of the main plant building stretching out to the western portion of the property.

Regarding the commenter's assertion that the RI (Reference 13) provided no evidence of an LNAPL beneath the building, the EPA notes that the statement in question does not refer to an LNAPL. However, a previous paragraph on page 12 (last sentence of the second paragraph) of the HRS documentation record does state that "LNAPL has migrated beneath the main plant building (Ref. 13, p. 113)." This Reference 13 statement is:

> During the RI, accumulations of toluene LNAPL were observed floating on groundwater at the top of the uppermost aquifer in the subsurface in the vicinity of the former toluene storage area. The location of this LNAPL occurrence is shown on Figure 4-5. The LNAPL was first encountered during the drilling of well MW-24 (approximately 2 feet thick). In an effort to determine the extent of LNAPL and to install larger wells for LNAPL recovery, four 4-inch diameter LNAPL recovery wells (RC-1 through RC-4) were installed. Approximately 4 feet of LNAPL were measured in recovery wells RC-2 and RC-4, and approximately 2 feet of LNAPL were measured in recovery well RC-3. Well RC-1 did not encounter LNAPL. As shown in Figure 4-5, the extent of LNAPL accumulation is established to the west; however, LNAPL has migrated beneath the Main Plant building. As previously discussed in Section 2.6, LNAPL is currently being recovered from wells RC-2 and RC-4. [Figure 4-5 is on page 332 of Reference 13 and shows the location of the RC wells 1 through 4, just outside the eastern wall of the main plant building.]

Finally, the HRS documentation record at proposal describes detections of toluene in soil beneath the building, further supporting the likely migration of toluene. On page 12 of the HRS documentation record at proposal, it is noted that sub-slab soil samples collected at 9-10 feet below the eastern portion of the main plant building exhibited toluene at 33,000 µg/kg; page 18 of the HRS documentation record at proposal identifies this measurement was made at location SB-12. At page 18 of the HRS documentation record at proposal, cited pages 10-11 of Reference 58 of the HRS documentation record at proposal include a table of soil boring results, and page 15 of the same reference shows the location of these borings relative to the structure; these tables include several detections of toluene at multiple depths below the building.

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

3.16.9 Equalization Lagoon Contaminants

Comment: T&M disagreed with the HRS documentation record page 14 statement that "[d]uring the 2016 EPA expanded site inspection (ESI), four sediment samples collected from the bottom of the equalization lagoon contained acetone, methyl ethyl ketone (MEK), cadmium, mercury, and selenium, among others." T&M asserted this statement is incorrect and should be removed. T&M provided the following arguments to support its conclusion:

- No background samples were collected for comparison to the results, and all sample concentrations for MEK, cadmium, mercury, and selenium were below sediment screening values and ecological screening values.
- Concentrations of acetone were J-qualified (unknown bias) and likely were the result of sampling or laboratory procedures or from naturally occurring sources.
- Organic compounds such as acetone readily degrade in an environment like that found in the sediment present in the equalization lagoon.
- Acetone's toxicity is low and the identified concentrations does not present an unacceptable human health threat.

T&M also stated that by not collecting background samples to compare against, the EPA was unable to decisively identify the source of the acetone. T&M further asserted that the presence of acetone did not originate from periods when "Rockwell or its successors" conducted operations at the facility.

Response: The HRS documentation record statement in question is sufficiently supported for the purpose for which it is used—as background information in the Additional Information subsection of the Site Description section of the HRS documentation record describing the equalization lagoon, a portion of the facility that is not scored for HRS purposes and does not impact the Site score.

The Additional Information subsection of the Site Description section on pages 14-15 of the HRS documentation record at proposal provides just that—additional background information relevant to the Site describing the setting near the facility, including such aspects as other facility-related components and processes that may involve hazardous substances, overland flow direction and nearby drainage/wetlands exhibiting possible site-related contamination, prior investigation information, etc. Within this context the equalization lagoon is discussed:

> An equalization lagoon that covers an area of approximately 78,000 square feet is located in the north-central portion of the Rockwell property, north of the main plant building, and may also be a source of subsurface contamination (Refs. 17, p. A-2; 22, p. 22). While in operation from 1961 to 1991, the unit received roll forming department wastewater, boiler blowdown, boil-off, butler wash, buff wash, and alkaline rinse and cooling waters (Ref. 11, p. 57). Additionally, the unit received electroplating wastewaters that contained hexavalent chromium (F006 [wastewater treatment sludge from electroplating operations], F007 [spent plating bath solution], F008 [plating bath sludges], and D007 [chromium]) until 1990 (Refs. 6, pp. 3, 4, 5; 11, p. 57; 20, pp. 2, 3, 4). Samples collected from the equalization lagoon (referred to as the equalization basin) in 1981 and analyzed for metals contained barium (up to 34 mg/L), cadmium (up to 0.014 mg/L), and chromium (up to 0.54 mg/L) (Ref. 21).
>
> The equalization lagoon was closed in 1994 (Refs. 11, p. 57; 22, pp. 8, 9). Closure consisted of draining the lagoon and removing and temporarily consolidating sludge and underlying soil in the eastern portion of the drained lagoon. An engineered liner was then constructed in the western portion of the lagoon, and the sludge and underlying soil were placed in the lined area (Ref. 22, pp. 8, 12). An engineered landfill cover system was constructed over the western portion of the lagoon area (Ref. 22, pp. 8, 9). Confirmation soil sampling at the base and sidewalls of the excavation was not completed at the time of closure, as agreed by the Mississippi Department of Environmental Quality (MDEQ) (Ref. 10, p. 844). The eastern portion of the equalization lagoon was allowed to refill with surface water runoff (Refs. 15, p. 10; 22, p. 33).
>
> During the 2016 EPA expanded site inspection (ESI), four sediment samples collected from the bottom of the equalization lagoon contained acetone, methyl ethyl ketone (MEK), cadmium, mercury, and selenium, among others (Ref. 17, pp. A-3, B-1, B-7).

This final statement simply notes substances detected in the lagoon samples. Cited page A-3 of Reference 17 of the HRS documentation at proposal (the 2017 ESI report) shows the location of the sediment samples collected in the lagoon. Page B-1 briefly describes the location of each sample as well as the purpose of the samples, to "[d]etermine the presence of absence of contamination." Page B-7 shows analytical result detection for various analytes, including those noted in the HRS documentation record text in question—acetone, methyl ethyl ketone, cadmium, mercury, and selenium.

T&M submitted several of the same comments summarized in this section in their comments on the 2017 ESI report; the EPA's previous response to T&M on their related concerns with the 2017 ESI report (included as attachment E of T&M's comment document, docket ID EPA-HQ-OLEM-2017-0608-0197), touched on some of these subjects:

- On the asserted lack of background samples collected for comparison: As noted at page 3 of EPA's response, comparison to background is not a requirement for the identification of hazardous substances in a source. Furthermore, the equalization lagoon was not scored as a source for HRS purposes in the HRS documentation record at proposal.
- On questions related to J-qualification of acetone data, assertions that the acetone detected could be naturally occurring, and questions on whether acetone is related to the facility, at page 3 of EPA's response,

> As stated in Section 4.1 of the ESI report, all samples collected were analyzed under the EPA Contract Laboratory Program or the EPA Region 4 SESD Analytical Support Branch, and the results were validated by the EPA Region 4 SESD Office of Quality Assurance. To determine whether additional qualifications were warranted, all field duplicate and field QC (equipment and field) blank samples were reviewed in accordance with the EPA CLP NFGs. Based on SESD's validation, the EPA determined that all analytical results can be used as qualified. Tetra Tech concurred with the EPA's determination based on its review of the field duplicate and field QC blank samples.
>
> . . .
>
> As part of the data validation conducted by the EPA Office of Quality Assurance, issues related to laboratory errors were identified and the data qualified, as necessary. Also, Tetra Tech reviewed duplicate field QC results and made additional qualifications, as necessary. All data can be used as qualified. Because acetone is listed in Table 2-2 of the T &M 2012 Annual Monitoring Report as a constituent for post-closure monitoring for groundwater, acetone results were discussed in the ESI report.

Regarding the degradation rate of acetone, this is not relevant to the HRS documentation record text in question—despite any degradation of acetone, it was detected in the lagoon samples.

Regarding the asserted low toxicity of acetone, and the assertion it poses no unacceptable risk to human health, this is similarly not relevant to the HRS documentation record text in question, which simply identifies the detection of the substance in the lagoon samples. Also, actual risk to human health has not been determined at this point in the Superfund process, and is a subject assessed after further investigation (see section 3.13, Actual Risk, of this support document for more discussion on this point). Furthermore, acetone is considered a hazardous substance for HRS purposes. 40 CFR 302.4[21] lists hazardous substances that qualify as such under section 102(a) of CERCLA as those substances are identified in the statutes referred to in CERCLA section 101(14). According to the 40 CFR 302.4 list, acetone is a hazardous substances and therefore eligible for HRS scoring consideration. (This list indicates that the statutory source for designation as a hazardous substance in this instance is section 3001 of RCRA, consistent with CERCLA section 101(14).)

Regarding concentrations below screening levels, although the hazardous substance detections noted in the HRS documentation record statement in question are not used in scoring, see also section 3.12, Releases Below Regulatory/Removal Limits, of this support document, which explains that detections below regulatory levels or other benchmarks not-specified by the HRS does not disqualify a substance from HRS scoring evaluations, such as identifying an observed release/observed exposure/observed contamination.

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

[21] The 40 CFR 302.4 list is available at https://www.ecfr.gov/cgi-bin/text-idx?SID=a1671db430d23ea444f7a025a5854e15&mc=true&node=se40.30.302_14&rgn=div8.

3.16.10 Soil Contamination Characterization

Comment: T&M took issue with the HRS documentation record cover sheet statement that "Metals were detected in soil samples collected from the adjacent Eastern Heights neighborhood north of the facility." T&M commented the statement on metals detected in soils is not useful given that background soils usually contain some levels of metals at concentrations that do not pose a risk. T&M asserted that the implication that metals were detected above background levels is not supported by EPA data and other available data.

T&M noted that for HRS soil exposure component purposes, considered soils must be within 2 feet of ground surface, and that the only samples collected at such depths were from the local playground. T&M criticized that EPA did not collect background samples for comparison to the playground samples, but rather compared the concentrations detected to regional screening levels (RSLs). T&M commented that arsenic was the only metal exceeding RSLs, and that arsenic "was present in the samples at the concentrations observed in background soil throughout the Study Area and the region, due to natural occurrence." T&M asserted metals levels in these samples were consistent with background levels and/or less than RSLs. Finally, T&M quoted EPA as stating "[t]he EPA has evaluated the laboratory results and has determined that all results for the playground are within the EPA's acceptable risk range,"[22] and commented that the EPA determined further evaluation or response was not needed.

T&M concluded that the statement on the HRS documentation record cover sheet is inaccurate and should be deleted.

Response: The statement referenced by the commenter correctly identifies that metals were detected in the soil samples, and the data is sufficient for this limited use; the statement remains in the HRS documentation record at promulgation. The purpose of the Pathways, Components, or Threats Not Scored section of the HRS documentation record is to provide information on a pathway/component of concern and, while not scored for purposes of the HRS evaluation, identify that these concerns and contamination potentially associated with the release being scored may be investigated during a later phase in the Superfund process. It does not make any absolute determinations regarding the exact extent of contamination of concern, or regarding its origins. Further, information included in Pathways, Components, or Threats Not Scored section of the HRS documentation record does not affect the Site HRS score.

The cover page of the HRS documentation record at proposal describes the information provided, consistent with the purpose of this section:

> "The ground water, surface water, and air migration pathways, and the soil exposure component of the soil exposure and subsurface intrusion pathway **are not scored in this Hazard Ranking System (HRS) documentation record** because the subsurface intrusion component of the soil exposure and subsurface intrusion pathway is sufficient to qualify the site for the National Priorities List (NPL). The ground water, surface water, and air migration pathways, and the soil exposure component of the soil exposure and subsurface intrusion pathway **are of concern to the U.S. Environmental Protection Agency (EPA) and may be considered during a future evaluation.** At the time of the listing, the site score is sufficient without the pathways and component mentioned above. [emphasis added]

And the entry on the soil exposure component is similarly consistent with this purpose:

> **Soil Exposure Component, Soil Exposure and Subsurface Intrusion Pathway**: Metals were detected in soil samples collected from the adjacent Eastern Heights neighborhood north of the facility (Ref. 17, p. 18). The decision to list this site would not be changed by evaluating this component.

[22] T&M cites USEPA, Eastern Heights Neighborhood Playground Sampling Summary of Findings, August 26, 2016.

Although the soil exposure component of the soil exposure and subsurface intrusion pathway was not scored in the HRS evaluation of the Site, the threat of metals contamination via soil is relevant to discuss in the HRS documentation record at proposal because soil contamination may be investigated at other stages of the Superfund process.

In the HRS documentation record at proposal text quoted above, cited page 18 of Reference 17 (the 2017 ESI Report) contains discussion on soil samples collected in the Eastern Heights neighborhood, including the detection of several metals, some which may be present at levels of concern (exceeding regional screening levels and not immediately explained by available natural background level data):

> During Event 2 of the ESI, Tetra Tech collected three surface (0 to 6 inches bgs) and 11 subsurface (between 3 and 15 feet bgs) soil samples from the Eastern Heights neighborhood, located just north of GM.
>
> The three surface soil samples (including one duplicate) were collected from the neighborhood's playground. They were 5-point composite samples, with each aliquot collected from areas where children were most likely to come into contact with the soil (i.e. beneath the swings, bottom of the slide, etc.). Surface soil samples contained acetone (at 75J+ µg/kg), arsenic (up to 3.7 mg/kg), chromium (up to 7.0 mg/kg), copper (up to 7.5 mg/kg), lead (up to 16 mg/kg), manganese (up to 750 mg/kg), nickel (up to 6.7 mg/kg), vanadium (up to 14 mg/kg), and zinc (up to 57 mg/kg). Arsenic was the only constituent detected at concentrations exceeding its EPA RSL of 0.68 mg/kg for residential soil in samples collected from the Eastern Heights playground; however, arsenic concentrations are consistent with background (see Figure 3B in Appendix A and Table 5 in Appendix B).
>
> In March 2016, a subsurface soil sample (12 to 13 feet bgs) was collected by a private party from a residence in the northwestern corner of the Eastern Heights neighborhood (neither EPA nor MDEQ was involved with this sampling). This sample reportedly contained vinyl chloride, chromium, and hexavalent chromium. In order to verify this information, during Event 2, Tetra Tech advanced a soil boring to 16 feet bgs in the same area this sample was reportedly collected. Tetra Tech did not observe any waste material in the soil boring, either by direct observation or field screening with a photoionization detector (PID). Subsurface soil samples GM-EH-01-SB1 and GM-EH-01-SB2 were collected from this location.
>
> Seven subsurface soil samples between 3 and 10 feet bgs were collected throughout the neighborhood. These subsurface soil samples contained arsenic, cobalt, and manganese at concentrations exceeding their EPA RSLs for residential soil (see Figure 3B in Appendix A and Table 6 in Appendix B).
>
> Three subsurface soil samples between 10 and 15 feet bgs were collected throughout the neighborhood. These subsurface soil samples contained arsenic at concentrations exceeding its EPA RSL of 0.68 mg/kg for residential soil (see Figure 3B in Appendix A and Table 6 in Appendix B).

Regarding the commenter's specific issue with the lack of background samples for comparison and the data supporting detection of metals in soil samples, the EPA's previous response to the commenter on its related concerns with the 2017 ESI report (included as attachment E of T&M's comment document, docket ID EPA-HQ-OLEM-2017-0608-0197) clarified the use of background samples and the identification of "elevated" levels for ESI report purposes, stating on page 3 of that response document:

> As stated in Section 4.2 of the ESI report, Analytical Data Quality and Data Qualifiers, constituent concentrations in samples that equal or exceed three times detected background

> concentrations, or that equal or exceed the sample-specific and analyte-specific minimum reporting limit (MRL) for non-detect background sample results, are considered elevated. Therefore, throughout the ESI report, the only contaminants described as "elevated" are those that meet this definition. If a background sample was not collected for comparison, such as the Eastern Heights soil samples, the contaminants are only described as exceeding comparison criteria, not as "elevated."
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> . . .
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> As stated in Section 5.0, soil samples collected from Eastern Heights were not compared to background. These samples were not compared to background because additional background soil samples from a similar location (residential neighborhood) and at similar depths were not collected.
>
> . . .
>
> At the ESI stage of the CERCLA site evaluation process, consistent with EPA guidance, analytical data is compared to background sample results, where appropriate; EPA comparison criteria (Regional Screening Levels for residential and industrial soil); and State comparison criteria, where appropriate.

With the HRS documentation record statement in question, the EPA is not making an absolute determination on the extent or the source of the metals in soil, only that they were detected and may be further investigated during future remedial phases; these data are not being used for HRS scoring. The associated data is sufficient for preliminary identification of the *presence* of metals that may require future investigation. Whether or not the metals levels concretely represent significant increases in soil contaminants, and whether those concentrations are definitively linked to the Site release is a matter for such future investigation.

Regarding the commenter-mentioned HRS requirement that contaminated soils considered must be covered by 2 feet or less of soil/cover material, that requirement only applies to establishing areas of observed contamination in the soil exposure component (for example, this requirement is explained in HRS section 5.1.0, *General considerations*, within the context of considerations for observed contamination). As explained above, the soil exposure component is not being scored in the HRS evaluation for the Site. Similarly, arguments concerning background samples are not relevant because neither observed contamination nor contaminated soil sources are being established for HRS scoring purposes. The detection of metals in soil is only identified as a possible concern for future investigation.

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

3.16.11 Other Possible Source Areas Investigated

Comment: T&M provided multiple comments on the Additional Information section (page 15, third paragraph) of the HRS documentation record specifically related to asserted inaccuracies in other possible source areas for investigation, and suggested revising the HRS documentation record.

T&M argued that the HRS documentation record identifies source areas investigated as part of the 2016 EPA ESI, but noted that the ESI does not conclude that those areas listed in the HRS documentation record are "source areas." T&M cited the HRS and the HRS Guidance Manual, quoting the HRS definition of a source. T&M further stated that

> [a] source area is an "area of observed contamination," and identification / documentation of such an area for naturally-occurring hazardous substances requires at least partial attribution of the substance to site activities and concentrations at least three-times background levels.

T&M asserted that:

> To demonstrate a release or observed contamination in a potential source area, an ESI should have collected two background samples for each three potential source area samples (Guidance for Performing Site Inspections Under CERCLA, OSWER Directive 9345.1-05, page 57, Table 4-7). In contravention to EPA's guidance, the ESI collected only one background sample for comparison to six on-site soil samples (versus an appropriate background data set of four). In addition, the ESI should obtain background samples that are of similar soil type, because "large differences in analytical results may result from difference that are independent of site-related contamination" (HRS Guidance Manual, OSWER Directive 9345.1-07, Chapter 5, page 69).

T&M argued that EPA has not followed its guidance, and that the associated single background sample collected has not been shown to be similar to the contaminated samples. Given the possible variability in naturally occurring metals, T&M concluded that insufficient background samples were collected during the ESI.

T&M asserted that the statements in this paragraph of the HRS documentation record suggesting that areas investigated contained metals and hexavalent chromium are misleading and should be revised or removed. T&M stated "no Facility-related VOCs or metals were detected above both background levels and EPA industrial RSLs in any of the areas investigated, with the exception of hexavalent chromium." T&M further noted that EPA detected hexavalent chromium at low levels in soil at 2 locations—the former waste disposal area (the former on-site landfill) and the wastewater treatment area; however, T&M commented that split soil samples from a composite mix from each location contained no hexavalent chromium. T&M asserted that given the discrepancy, the two areas should not be used for HRS scoring.

T&M concluded that none of the possible source areas that are included in the ESI should be considered as actual source areas in the HRS documentation record.[23]

Response: The HRS documentation record at proposal correctly identifies the presence of hazardous substances in other possible source areas. The other possible source areas described in the HRS documentation at proposal are not presented as HRS sources—they are accurately described as other areas that have been investigated as possible source areas during the ESI. T&M's arguments related to scored HRS sources (or scored HRS observed contamination) therefore do not apply. The paragraph in the HRS documentation record at proposal cited by the commenter remains as at proposal.

It appears the commenter is confusing these "source areas" investigated and evaluated during the ESI for scored HRS sources at this Site. These areas were assessed in ESI activities, and hazardous substances were detected in associated samples. Information regarding these source areas was noted in the Additional Information subsection of the Site Description along with other background information relevant to the Site. However, the details provided in the cited paragraph do not affect the HRS score; the score was based on evaluation of the HRS subsurface intrusion component, including the identification of an area of observed exposure, and did not evaluate HRS sources for scoring purposes. (See also section 3.9, Evaluation of Other Pathways, of this support document, which explains that the HRS does not require all four pathways [or factors relevant to those pathways such as HRS source-related factors], and the EPA typically does not score all four pathways if it would not change the NPL listing decision.)

[23] T&M cited Attachment D of its comment document, the November 2017 T&M comments on the April 2017 ESI report (docket ID EPA-HQ-OLEM-2017-0608-0183).

The Additional Information subsection of the Site Description section on pages 14-15 of the HRS documentation record at proposal provides just that—additional background information relevant to the Site describing the setting near the facility, including such aspects as other facility-related components and processes that may involve hazardous substances, overland flow direction and nearby drainage/wetlands exhibiting possible site-related contamination, prior investigation information, etc. These other aspects are not scored for HRS purposes. The paragraph in question on page 15 of the HRS documentation record at proposal discusses these areas and hazardous substances detected, stating:

> In addition to the former TCE storage area and the equalization lagoon, a number of other possible source areas at the Rockwell property were investigated during the 2016 EPA ESI. The source areas included the former on-site landfill (also referred to as the "disposal area," a separate area from the Moose Lodge Road disposal area), the sludge lagoon and associated WTP basin (clarifier), the outfall ditch, and contaminated soil, among others (Ref. 17, pp. 12, 14 to 17, A-2). Samples collected from these source areas contained VOCs and metals, including hexavalent chromium (Ref. 17, pp. A-2, A-3, B-7 to B-15). Groundwater contaminated with TCE and other VOCs is documented in annual groundwater monitoring reports for wells in the vicinity of the main plant building and extending west to Riverdale Creek (Ref. 15, pp. 45 to 48, 59 to 87). A number of SWMUs and AOCs have been identified at the facility (Ref. 11, pp. 35, 57 to 60).

Reference 17 (the 2017 ESI report) of the HRS documentation record at proposal cites pages 12, 14-17 and B-7 to B-15, include brief descriptions of these areas—the former on-site landfill (disposal area), the sludge lagoon and WTP basin, the outfall ditch, and contaminated soil—in addition to noting various concentrations of hazardous substances detected in related samples, including metals and VOCs.

Regarding the commenter's assertion that the EPA did not follow appropriate guidelines for characterizing and documenting a source area, the areas referenced in the above paragraph were not characterized as source areas in the HRS documentation record at proposal and are not factored into the HRS Site score. Therefore, it is not required to demonstrate a source area based on HRS criteria or the criteria in the HRS Guidance manual cited by the commenter. Additionally, it is noted that the commenter's statement equating a scored HRS source to an area of observed contamination is incorrect; the HRS contains separate criteria for establishing a scored source, applicable across many pathways, and a scored area of observed contamination, specific to the HRS soil exposure component. (See HRS sections 2.2, *Characterize sources*, and its subsections, and 5.1.0, *General considerations*.) An area of observed contamination is not scored for this site, and associated criteria (e.g., concentrations three times background levels) do not apply.

Regarding information contained in the ESI report vs information in the HRS documentation record at proposal, whether or not the ESI did designated these areas as "source areas", does not mean that they *could* not be identified as such for HRS purposes. While an ESI is conducted for the purposes of an HRS evaluation, it is the HRS documentation record that documents the specific details that comprise the Site based on the requirements of the HRS. Also, EPA's previous response to T&M on their related concerns with the 2017 ESI report (included as attachment E of T&M's comment document, docket ID EPA-HQ-OLEM-2017-0608-0197), touched on this subject. At page 2 of that response, T&M had stated "[t]he Report does not conclude that any of the six areas investigated are source areas, and T &M concurs that none of the areas investigated are source areas." EPA responded that:

> Section 8.0 of the ESI Report concludes that source areas evaluated during the ESI include the equalization lagoon (SWMU 2), the former on-site landfill (disposal area) (SWMU 3), the sludge lagoon (SWMU 4) and associated WTP, the former trichloroethene (TCE) storage area (AOC A), and contaminated soil. The purpose of an ESI is to fill data gaps, especially where additional sampling data is needed. Source samples were not collected from the former TCE storage area, which was evaluated based on the release of TCE from the tanks, because adequate existing data was available for this area. Likewise, adequate existing data is available for the former sludge lagoon.

Regarding the statement, "no Facility-related VOCs or metals were detected above both background levels and EPA industrial RSLs in any of the areas investigated, with the exception of hexavalent chromium," and the commenter' assertion of a perceived discrepancy in the results of soil samples containing hexavalent chromium at 2 locations—the former waste disposal area (the former on-site landfill) and the wastewater treatment area), the HRS documentation record statements in question on these areas was included as part of the background information for the Site in the Site Description section of the HRS documentation record. The text in question does not make any absolute determinations regarding the exact extent of contamination of concern, or regarding the significance of the contamination levels; it simply notes that "[s]amples collected from these source areas contained VOCs and metals, including hexavalent chromium."

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

3.16.12 Threats to Eastern Heights Neighborhood

Comment: Meritor. In particular, Meritor claimed that stated that EPA was being contradictory regarding vapor intrusion threats to the Eastern Heights Neighborhood and provided no justification for the contradictions EPA on numerous occasions, both in writing and in public meetings, confirmed that there was no vapor intrusion risk, yet the NPL Narrative for the Site implied that there was a possibility of a vapor intrusion threat.

Meritor argued that the HRS documentation record makes incorrect statements linking contamination detected in the Eastern Heights Neighborhood to contamination detected at the facility. Meritor noted that the April 2017 ESI report (Reference 17 of the HRS documentation record at proposal) includes statements incorrectly suggesting this link; Meritor asserted that reports described in T&M comments show this link to be unsupported, and argued that such suggestions should be removed from the HRS documentation record and ESI report. Meritor also took issue with a similar statement in the NPL Narrative Summary for the Site (docket ID EPA-HQ-OLEM-2017-0608-0003), "TCE-contaminated groundwater discharges to Riverdale Creek, a recreational fishery. TCE-contaminated groundwater also underlies part of the adjacent residential area (84 homes) resulting in the potential for vapor intrusion in the future." Meritor asserted that those statements suggest that the contamination in the two areas is related. Meritor asserted that EPA has no data to support these statements[24], and further stated that EPA has validated scientific data confirming that the contamination detected in the Eastern Heights Neighborhood is not a result of historic operations or releases from the [Site Facility]. Meritor claimed that the source was a separate groundwater plume originating from a nearby railyard/stoneyard that historically transported TCE.[25]

Meritor claimed that comments made by the Region 4 Superfund Director during a February 6, 2018, public meeting[26] regarding Site contamination that may be affecting the neighborhood are not supported by any scientific data or analysis and Meritor characterized this as, "unreliable, misleading, inaccurate, and unacceptable, whether they are written in the HRSDR or spoken in a public meeting." Specifically, Meritor took issue with the Director's statement that "the ultimate goal is to address the critical and high concentrations of source material that we have on site right now that I seem to think is contributing to the offsite migration and some of these satellite areas that we have in this community."

Meritor stated that EPA's most recent statement indicating a vapor intrusion threat to the Eastern Heights neighborhood contradicts previous investigations done at the Site. Meritor cited 22 public statements (Table 1 –

[24] Meritor cited Tex Tin II, 992 F.2d 354-55, and characterizes the relevant aspect of the case as "overturning an NPL listing decision when EPA failed to provide data showing pollutants could be 'reasonably expected' to be transported to the facility and instead relied on 'unsupported assumptions' in its NPL listing."

[25] Meritor cited Attachment A of Exhibit 12 of its comment document, T&M Moose Lodge Road Area Additional Investigation Report, T&M, February 2016 (docket IDs EPA-HQ-OLEM-2017-0608-0123 through EPA-HQ-OLEM-2017-0608-0145); and Meritor cites Attachment C of Exhibit 12, the T&M comments on the 2017 ESI report (docket ID EPA-HQ-OLEM-2017-0608-0183).

[26] A video of the statements made by EPA at this meeting are included as Exhibit 2 of Meritor's comment document (docket ID EPA-HQ-OLEM-2017-0608-0065).

EPA Statements Regarding Eastern heights Neighborhood in Meritor's comment document) in which it asserted EPA concluded that there is no risk to the Eastern Heights Neighborhood from contaminated soil, ground water, and possible subsurface intrusion.

Meritor took issue with a statement in the NPL Narrative Summary for the Site (docket ID EPA-HQ-OLEM-2017-0608-0003) that "TCE-contaminated ground water also underlies part of the adjacent residential area (84 homes) resulting in the potential for vapor intrusion in the future." Meritor asserted that the NPL Narrative statement is "highly misleading, as it infers that TCE in groundwater underlies 84 homes in the Neighborhood, when extensive testing confirms that only a small subset of houses in the southern portion of the Neighborhood overlie groundwater containing TCE." Meritor also commented that such "scientific inaccuracy and dishonesty" is contrary to the EPA VI Guide[27]. Meritor cited Arcadis' comments and the Arcadis 2016 Vapor Intrusion Assessment report[28] stating that multiple lines of evidence confirm there is no complete SsI pathway. Meritor concluded this EPA statement is inconsistent with science, EPA guidance, and EPA's own investigation conclusions. Meritor cited Exhibits 18 and 19 of its comment document[29], both of which suggest that the underlying geology at the Site prevents vapors from TCE from coming up into homes and that there is no basis for suggesting impacts to the residents in the Eastern Heights Neighborhood. Meritor asserted that the statement from the NPL narrative should be removed.

Arcadis commented that the same statement in the NPL Narrative Summary regarding threats of vapor intrusion to the Eastern Heights Neighborhood is inaccurate based on investigations done by Arcadis and EPA from 2015 to 2017, from which it was determined that there is no subsurface intrusion concern in the neighborhood. Arcadis cited its June 2016 Vapor Intrusion Assessment Report, which Arcadis claimed "confirmed that the VI pathway is incomplete". Additionally, Arcadis referenced EPA presentations and factsheets from 2016 and 2017 that included findings of no risk to public health (EPA Fact Sheet #9, April 2017; EPA Fact Sheet #5, August 2016; and January 26, 2016 and January 31, 2017 EPA presentations). Arcadis asserted that the statement in the NPL Narrative Summary should be removed

T&M disagreed with the statement on the cover page of the HRS documentation record that "Volatile organic compound (VOC) and metals contamination was detected in shallow groundwater samples collected throughout the facility and in the adjacent Eastern Heights neighborhood"; T&M asserted this statement should be removed. T&M stated that the VOCs detected in groundwater at the facility and in the neighborhood are from separate sources, citing two T&M reports as evidence[30]. Additionally, T&M stated that the VOCs present in the neighborhood are not throughout, rather just in the southernmost portion. T&M asserted that the source of the neighborhood groundwater contamination derives from deep aquifer zone contamination originating from the Grenada Railway and Dunham Inc. properties and shallow sources at the Moose Lodge Road Area and/or Kirk Family holdings property; T&M commented that the facility plume, on the other hand, is a result of TCE and toluene storage tanks at the facility.[31]

T&M commented that the HRS documentation record includes an incorrect statement at page 10 that needs to be corrected regarding the location of the Eastern Heights Neighborhood in relation to the Facility: "The Rockwell

[27] Meritor cited page 122 of the June 2015 EPA document Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, available at https://www.epa.gov/vaporintrusion/technical-guide-assessing-and-mitigating-vapor-intrusion-pathway-subsurface-vapor.
[28] Included as Attachment I of Exhibit 9 in Meritor's comments (docket ID EPA-HQ-OLEM-2017-0608-0108).
[29] Docket IDs EPA-HQ-OLEM-2017-0608-0203 through EPA-HQ-OLEM-2017-0608-0205.
[30] T&M pointed to: the T&M February 2016 Moose Lodge Road Area Additional Investigation Report, included as Attachment A of its comment document (docket IDs EPA-HQ-OLEM-2017-0608-0123 through EPA-HQ-OLEM-2017-0608-0145); and, the T&M March 2018 Comprehensive Study Area Groundwater Investigation Report, included as Attachment B of its comment document (docket IDs EPA-HQ-OLEM-2017-0608-0146 through EPA-HQ-OLEM-2017-0608-0182).
[31] T&M again cited Attachments A and B of its comment document, as well as Attachment C of its comment document, the July 2017 Kirk and PCA Properties Investigation Report (docket IDs EPA-HQ-OLEM-2017-0608-0184 through EPA-HQ-OLEM-2017-0608-0196).

Property is bordered to the north by Eastern Heights." T&M stated that the "Facility is bordered to the north by the railyard, which is then bordered by the Neighborhood". T&M further stated that the distinction is important because of the origin of groundwater contamination in the Neighborhood vs the Facility.

Response: The EPA is not being contradictory in its characterization of the Eastern Heights Neighborhood (EHN) and possible risks of vapor intrusion due to groundwater contamination. Alleged inconsistencies among documentation related to the EHN are incorrect; the content is consistent. Further, the EHN has been characterized correctly for the purposes of the related discussion in the HRS documentation record at proposal, which was to identify that these concerns and contamination potentially associated with the release being scored may be investigated during a later phase in the Superfund process; related HRS documentation record statements will not be revised. The HRS documentation record does not make any absolute determinations regarding the exact extent of contamination of concern, or regarding its origins. Finally, information on the EHN presented in the HRS documentation record at proposal does not affect the Site HRS score.

The HRS documentation record at proposal generally discusses possible contamination associated with the EHN is included because it may be associated with the Site and further studied in the future remedial investigation. The cover page of the HRS documentation record at proposal notes groundwater contamination in the EHN and surface water contamination, noting that this contamination may be investigated further. See section 3.9, Evaluation of Other Pathways, of this support document for further discussion on contamination related to other HRS pathways not scored. Although the other pathways/components were not scored in the HRS evaluation of the Site, the threat of contamination from other pathways or components is relevant to discuss in the HRS documentation record at proposal because contamination via the other pathways not scored in the HRS evaluation may be investigated at other stages of the Superfund process.

The NPL Narrative Summary mentions the same contamination included in the HRS documentation record in describing potential impacts on the surrounding community and environment, stating that ". . . TCE-contaminated ground water also underlies part of the adjacent residential area (84 homes) resulting in the potential for vapor intrusion in the future. Outdoor (ambient air) has intermittently shown TCE at or above the risk-based screening levels." Neither the HRS documentation record at proposal, nor the NPL Narrative Summary make any absolute determinations regarding the exact extent of contamination of concern, or its origins.

Risk to EHN

Meritor's claim that the EPA contradicts itself on risk to the EHN is incorrect—EPA has not stated that there is absolutely no risk to the EHN. Meritor points to a list of 22 EPA statements quotes summarized in Table 1 of its comment document. (The documents Arcadis cites to support similar comments are included in this table: EPA Fact Sheet #9, April 2017; EPA Fact Sheet #5, August 2016; and January 26, 2016 and January 31, 2017 EPA presentations.) In those quotes involving statements on the threat to the EHN, all are specific to "immediate threat" or "immediate concern" regarding public health in the EHN. These statements do not mean the EPA has determined that there is no risk posed (long-term or otherwise) to the EHN by contamination found. And, in many of these quoted statements, directly following statements of no immediate threat is a clear statement that additional investigation is needed.

Link between EHN Contamination and the Site

Regarding the commenter's claim that the HRS documentation record at proposal and the 2017 ESI report include incorrect statements linking the contamination documented in the EHN and the facility and should be removed, the EPA disagrees with the commenter's claims. As quoted above, the HRS documentation record simply notes contamination in the EHN that may be further investigated (this text does not make any absolute determination that this contamination is solely due to the Site, but it is not unreasonable to mention the EHN contamination in the HRS documentation record given the common contaminants and proximity to the Rockwell facility). The EPA responded to similar comments provided by the commenter on the 2017 ESI report (that response was included as

Attachment E of T&M comments on NPL listing, docket ID EPA-HQ-OLEM-2017-0608-0197). EPA's response included:

> In the ESI report, the first paragraph of Soil Gas Sampling in Section 2.3 presents the results of the T&M 2013 investigation and does not draw any conclusions. Soil gas samples collected by T&M in 2013 and 2014 between the GM site and the southern portion of the Eastern Heights neighborhood contained cis-1,2 dichloroethene (DCE) up to 470 micrograms per cubic meter (µg/m3) and TCE up to 3,400 µg/m3. Further, the vertical and lateral extent of the TCE groundwater plume has not yet been defined. Groundwater samples collected during the ESI from the Eastern Heights neighborhood contained cis-1,2 DCE up to 400 µg/L and TCE up to 450 µg/L. HRS guidance allows evaluation of the potential for hazardous substances to migrate from groundwater to soil gas and indoor air. In accordance with the EPA's Vapor Intrusion Guidance, a *potential* for migration of VOCs in groundwater into indoor air exists and can be evaluated by the HRS.
>
> The EPA report, Grenada Manufacturing Vapor Intrusion Sampling Event, USEPA Region 4 Science and Ecosystem Support Division (SESD), prepared for the May 2016 vapor intrusion investigation, does not draw conclusions and does not state that the vapor intrusion pathway into the neighborhood is incomplete. Further, as stated in the paragraph above, an incomplete pathway in accordance with the Vapor Intrusion Guidance does not mean that the potential for the migration of VOCs in groundwater into indoor air is not of concern for the HRS.

Regarding the location of the EHN in relation to the Rockwell property, the HRS documentation record at proposal is not incorrect and is therefore not revised. The location cited is sufficient for the purpose of identifying areas in the HRS documentation record. The statement involved at page 10 of the HRS documentation record at proposal is simply identifying major features in the area of the facility as part of the Site Description (not discussing origins of contamination in the EHN), and the presence of the railyard between the facility property and EHN does not invalidate this statement:

> The Rockwell property is bordered to the north by Eastern Heights, a residential neighborhood, other residential properties, and vacant land; to the east and south by vacant land; and to the west by Riverdale Creek and agricultural land beyond (Refs. 7, p. 1; 17, p. 2) (see Figure 1 of this HRS documentation record).

Regarding comments asserting that EHN contamination is known to originate at locations other than the Rockwell facility, the EPA does not agree that this has been conclusively shown. Of the documents cited by the commenter (T&M February 2016 Moose Lodge Road Area Additional Investigation Report, the T&M March 2018 Comprehensive Study Area Groundwater Investigation Report, and the July 2017 Kirk and PCA Properties Investigation Report), the EPA has evaluated and submitted extensive comments on the data presented in the 2018 report, and is awaiting Meritor responses to EPA comments. EPA has neither approved nor agreed with the conclusions of this report. EPA has not reviewed or approved the 2016 or 2017 report. Those reports were produced by T&M on behalf of Meritor.

Completeness of Vapor Intrusion Pathway

Regarding the commenter's assertion that the geology underlying the EHN confirms that the VI pathway is incomplete and statements in the NPL Narrative Summary and HRS documentation record that suggest otherwise are inaccurate and should be removed, the EPA disagrees with the commenter's conclusions. While the presence of the clay layer may hamper upward migration of contaminant, it is not certain that it eliminates the threat of subsurface intrusion in the EHN. The EPA responded to similar comments provided by the commenter on the 2017 ESI. EPA's response included:

> The EPA report, *Grenada Manufacturing Vapor Intrusion Sampling Event, USEPA Region 4 Science and Ecosystem Support Division (SESD),* prepared for the May 2016 vapor intrusion investigation, does not draw conclusions and does not state that the vapor intrusion pathway into the neighborhood is incomplete. Further, as stated in the paragraph above, an incomplete pathway in accordance with the Vapor Intrusion Guidance does not mean that the potential for the migration of VOCs in groundwater into indoor air is not of concern for the HRS.

For additional discussion on the likelihood of vapor intrusion in structures via the subsurface, see section 3.17.2.1, Effect of Clay Layer, and section 3.17.2.2, Attribution of Release to the Facility, of this support document. Furthermore, though a clay lens has been encountered in some soil borings in the EHN area, a contiguous protective clay layer has not been demonstrated to be present across the entire area.

With respect to perceived contradictions among Site documents and meetings, the commenter is incorrect in its conclusions. The document statements in question do not imply vapor intrusion is necessarily occurring, but the statements accurately identify that there is a concern. (As recognized by the HRS potential for exposure mechanism, subsurface contamination may pose a threat of future exposure, even if not currently intruding structures.)

As noted above, the HRS documentation record at proposal does not make any absolute determinations regarding the exact extent of contamination of concern or its origins.

Extent of Contamination in EHN

Regarding the statement on the cover page of the HRS documentation record at proposal, "Volatile organic compound (VOC) and metals contamination was detected in shallow groundwater samples collected throughout the facility and in the adjacent Eastern Heights neighborhood" that T&M asserted should be removed, the EPA disagrees—the commenter is misinterpreting the text. The statement referenced by the commenter correctly identifies that VOCs and metals were detected in groundwater samples in many locations at the facility, and separately identifies that similar groundwater contaminants were detected in the EHN; the statement indicates fairly widespread contamination at the facility but does not characterize the extent of contamination in the EHN (much less imply that groundwater contamination is literally spread throughout the entire EHN area). See section 3.16.10, Soil Contamination Characterization, and section 3.16.6, Metals Contamination in Groundwater, of this support document for further discussion of the contamination in groundwater in pathways/components not scored.

Similarly, Meritor's criticism of the NPL Narrative Summary statement is incorrect and based on a misinterpretation of the text. The statement in question is "TCE-contaminated ground water also underlies part of the adjacent residential area (84 homes) resulting in the potential for vapor intrusion in the future." The statement identified that groundwater contamination underlies part of the residential area, and the parenthetical notes the number of homes associated with the residential area, not the number of homes with underlying contamination.

Public Meeting Statements

Regarding the commenter's claim that the statements made during the February 6, 2018, public meeting about the Site were inconsistent with other Site documentation, inaccurate, and not supported by any scientific data, the EPA disagrees with the commenter's characterization of the public meeting. As shown in the video recording of the meeting included as Exhibit 2 of Meritor's comment document (docket ID EPA-HQ-OLEM-2017-0608-0065), a consistent message was presented on the state of the Site, and the major themes presented throughout the meeting are consistent with the HRS documentation record at proposal and the NPL Narrative Summary. Major themes presented during the public meeting are summarized below.

- There are no distinct boundaries to the Site, the Site is where the contamination from the release being scored is found or has come to be located; the EPA continues to gain knowledge about the area.

- More investigation will be done to identify where contamination has come to be located, considering all the possible sources.
- There is the possibility that the Site contamination may be contributing to contamination underlying the EHN, but nothing has been pre-determined in terms of the sole source of contamination in the area of the neighborhood.
- Any remedies needed have not been pre-determined, this subject will be informed by the results of further investigation.

The Director's statement in question is consistent with this: "the ultimate goal is to address the critical and high concentrations of source material that we have on site right now that I seem to think is contributing to the offsite migration and some of these satellite areas that we have in this community." He reinforces the goal of addressing the known Site contamination. That he seems to think this contamination is contributing to contamination detected in the community is reasonable given the similar contaminants and proximity of the facility to the community, but this is not an absolute or definitive judgement on the origin of all of the contamination in the EHN. This is clear from the numerous instances during the meeting that the EPA representatives focus on further investigation identifying the full extent of the contamination associated with the Rockwell site. Further, the use of the term "community" connotes a broader area than just the EHN. For example, contamination at the facility may be linked to contamination discharging to Riverdale Creek (as noted on the cover page of the HRS documentation record at proposal).

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

3.16.13 Map of Boring Locations

Comment: Arcadis questioned the sufficiency of citations for the following statement on page 30 of the HRS documentation record at proposal:

> Cis-1,2-DCE, toluene, and TCE are present in shallow soils beneath the main plant building floor (Ref. 58, pp. 10, 11, 12, 15). In June 2017, Arcadis collected sub-slab soil samples to a maximum depth of 10 feet beneath the main plant building (Ref. 58, pp. 2, 5, 6). The highest concentrations of cis-1,2-DCE (39,000J µg/kg in SB-8), toluene (33,000J µg/kg in SB-12), and TCE (1,300,000J µg/kg in SB-12) were detected in soil samples at a depth of 9 to 10 feet below the slab in the eastern portion of the main plant building, near the TCE and toluene storage areas (Ref. 58, pp. 10, 11, 12, 15, 25, 29, 80, 87, 1348, 1385, 1397) (see Figure 2 of this HRS documentation record). TCE was also detected at a concentration of 1,300,000J µg/kg at a depth of 3 to 4 feet below the slab in soil sample SB-5, also in the eastern portion of the main plant building, near the TCE storage area (Ref. 58, pp. 15, 22, 75, 1376) (see Figure 2 of this HRS documentation record).

Arcadis commented that this text cites Figure 2 of the HRS documentation record at proposal to show the location of the borings, but that Figure 2 does not show them. Arcadis offered its own figure to show the boring locations in Attachment O of its comment submission (docket ID EPA-HQ-OLEM-2017-0608-0114), Supplemental Source Assessment Figure 2.

Response: The citations provided were sufficient. As shown in the text of the HRS documentation record at proposal cited above, citation of Figure 2 of the HRS documentation record at proposal was intended to show the location of the TCE and toluene storage areas relative to the building. Reference 58, page 15 (the Arcadis August 2017 Source Assessment Report) cited in the quoted paragraph above provides a figure with the boring locations very similar to the figure pointed to by Arcadis.

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

3.16.14 Process Sewer Lines

Comment: T&M disagreed with the characterization of process sewer lines as a source of contamination. Specifically, T&M took issue with the statement on page 11 of the HRS documentation record that states: "The former TCE storage area, the former toluene underground storage tank (UST) area, and the process sewer lines…are sources of a VOC plume in soil and groundwater beneath the main plant building…"

T&M asserted that, "Data collected to date do not support the above statement, which expressly connects the Facility's process sewer lines to the VOC plume at the Facility." (Eckenfelder, 1994), and none of the six sources EPA cited for this statement actually support the statement. This inaccurate statement should be removed.

Response: The HRS documentation record statement in question is not entirely incorrect. The cited references for the statement in question do support the association of the process sewer lines with the VOC plume in soil and groundwater as a conduit for the movement of the contamination under the main plant building; however the EPA agrees that clarification is needed. The documentation record at proposal, page 11 (first full paragraph) states:

> The former TCE storage area, the former toluene underground storage tank (UST) area, and the process sewer lines (also referred to in cited supporting investigation reports as Area of Concern [AOC] A, AOC B, and Solid Waste Management Unit [SWMU] 15, respectively) are sources of a VOC plume in soil and groundwater beneath the main plant building, and cracks, joints, and other openings in the concrete floor may provide a conduit for TCE and toluene to vaporize or off-gas from the groundwater or soil and migrate upward into the building (see Section 5.2.0 of this HRS documentation record) (Refs. 11, pp. 35, 58, 60; 13, pp. 46, 189, 201, 259, 260, 270, 343 to 348, 352 to 354, 388, 389, 394; 27, pp. 16, 37, 38, 43; 35, pp. 4, 5; 43, p. 4; 44, p. 1).

The process sewer lines (also referred to Solid Waste Management Unit [SWMU] 150, while not an originator of the contamination, were likely a conduit of the contamination. Cited in Reference 44, page 1 states:

> The process sewers that run under the Main Plant Building, or the slab on which the plant is built, may provide a conduit for VOC contamination to vaporize of off-gas from the groundwater or soil into the building.

Reference 13, page 270 provides further documentation of the process sewer lines as a channel for VOC contamination under the main plant building:

> Tetrachloroethane was detected in some ground water samples, as shown on Figure 5-55, the plume is restricted to the plant property and appears to be related to the on-site landfill and the equalization lagoon and associated process sewers.

The HRS documentation record at proposal further explains the process sewer lines on page 12, stating:

> Process Sewer Lines and Chrome Plating Lines
>
> The process sewer lines are metal and clay pipes located beneath the main plant building that serve or have served to collect wastewater from manufacturing rinses (Ref. 14, p. 63). The process sewers may provide a conduit for TCE and toluene to vaporize or off-gas from the groundwater or soil into the main plant building (Ref. 44, p. 1). Other preferential pathways for subsurface intrusion into the main plant building include cracks, crevices, joints, gaps, cuts, pipe penetrations, and holes in the concrete floors; cracks in the basement walls; pits and trenches; floor drains; and process sewer lines (Refs. 27, pp. 16, 37, 38, 43; 35, pp. 4, 5; 43, p. 4; 44, p. 1).

Thus, the process sewer lines, while perhaps not an ultimate origin of the contamination may have facilitated its migration in the subsurface and into the plant building. This clarification to the statement in the HRS documentation record at proposal is part of the docket for the Site through inclusion in this support document. As such, these clarifications will be considered in future actions. However, as these clarifications do not impact the HRS score or decision to list the Site on the NPL, the HRS documentation record is not revised.

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

3.17 Likelihood of Exposure

3.17.1 Observed Exposure: Consideration of VI Mitigation System

Comment: Golder asserted that indoor air concentrations dropped below removal levels upon operation of the SSDS, and should continue to decrease below health-based benchmarks and approach background levels with continued operation of the system; therefore Golder concluded that the Site should be evaluated using the potential for exposure, not the observed exposure factor.

Arcadis argued that data presented in the HRS documentation record used to establish an observed exposure in indoor air contamination levels, specifically Tables 3, 5 and 7, and associated chemicals are "incorrect" due to EPA failing to include the indoor air data collected through October 2017 (the SSDS was installed in August 2017).

Arcadis argued that the sample taken from location B-3 for which the HRS documentation record Table 10 recorded as having a concentration of 81 µg /m^3 does not represent current conditions. Arcadis claimed that several sampling events occurred after installation of the SSDS and cites to Figure 2. Arcadis further noted that the TCE concentrations are below 8.8 µg /m^3 since operation of the SSDS began.

Response: The likelihood of exposure factor category value of 550 was assigned correctly in the HRS documentation record at proposal based on an observed exposure by chemical analysis established by documenting indoor air concentrations at the main plant building at the Site meeting observed exposure criteria. The operation of the SSDS and the data generated during its operation do not affect this. Furthermore, data obtained during the SSDS pilot study and supplemental data from samples collected following the December 2017 restart of the SSDS show that subsurface intrusion of contaminants continues, and some concentrations identified indicate that observed exposure levels have not been eliminated by the system. Per the HRS, there is no need to evaluate the potential for exposure factor if an observed exposure is established.

The detection of lower indoor concentrations in samples collected after the samples used in HRS scoring does not negate the observed exposures established in the HRS documentation record at proposal. There is no HRS requirement that concentrations in a given structure/location remain consistent or remain above observed exposure criteria over time. HRS Section 5.2.1.1.1, *Observed exposure*, provides the criteria for establishing observed exposure in a regularly occupied structure. It states:

> Establish observed exposure in a regularly occupied structure by demonstrating that a **hazardous substance has been released** into a regularly occupied structure via the subsurface. Base this demonstration on either of the following criteria: [emphasis added]
>
> Direct observation:
>
> - A solid, liquid, or gaseous material that contains one or more hazardous substances attributable to the site has been observed entering a regularly occupied structure through migration via the subsurface or is known to have entered a regularly occupied structure via the subsurface, or
> - When evidence supports the inference of subsurface intrusion of a material that contains one or more hazardous substances associated with the site into a regularly occupied structure,

demonstrated adverse effects associated with that release may be used to establish observed exposure.

Chemical analysis:

- Analysis of indoor samples indicates that the concentration of hazardous substance(s) is significantly above the background concentration for the site for that type of sample (see section 2.3).
- Some portion of the significant increase above background must be attributable to the site to establish the observed exposure. Documentation of this attribution should account for possible concentrations of the hazardous substance(s) in outdoor air or from materials found in the regularly occupied structure, and should provide a rationale for the increase being from subsurface intrusion.

If observed exposure can be established in a regularly occupied structure, assign an observed exposure factor value of 550, enter this value in Table 5–11, and proceed to section 5.2.1.1.3. HRS section 5.2.1.1.3, *Calculation of likelihood of exposure factor category*, states: If observed exposure is established for the site, assign the observed exposure factor value of 550 as the likelihood of exposure factor category value for the site.

HRS Section 2.3, *Likelihood of release*, describes the evaluation of likelihood of release across pathways (including likelihood of exposure for the SsI component):

Likelihood of release is a measure of the likelihood that a waste has been or will be released to the environment. The likelihood of release factor category is assigned the maximum value of 550 for a migration pathway whenever the criteria for an observed release are met for that pathway. If the criteria for an observed release are met, do not evaluate potential to release for that pathway. When the criteria for an observed release are not met, evaluate potential to release for that pathway, with a maximum value of 500. The evaluation of potential to release varies by migration pathway (see sections 3, 4 and 6).

Establish an observed release either by direct observation of the release of a hazardous substance into the media being evaluated (for example, surface water) or by chemical analysis of samples appropriate to the pathway being evaluated (see sections 3, 4 and 6). The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level. Further, some portion of the release must be attributable to the site. Use the criteria in Table 2–3 as the standard for determining analytical significance. (The criteria in Table 2–3 are also used in establishing observed contamination for the soil exposure component and for establishing areas of observed exposure and areas of subsurface contamination in the subsurface intrusion component of the soil exposure and subsurface intrusion pathway, see section 5.1.0 and section 5.2.0).

HRS Table 2-3 referred to above prescribe the criteria for identifying a significant increase in hazardous substance concentrations:

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: • 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.

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[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 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.

Commenters did not challenge that background levels were correctly established, or that observed exposure samples results met observed exposure criteria and identify a significant increase in hazardous substances in indoor air for samples collected in the main plant building during October 2016 and January 2017 events, as presented in the HRS documentation record at proposal. Pages 19-22 of the HRS documentation record at proposal present data used to establish background levels for October 2016 and January 2017 sampling events based on outdoor ambient air samples collected. The analytical results for the background samples are presented in Table 3 of the of the HRS documentation record at proposal, and page 22 of the HRS documentation record at proposal lists the selected levels:

> The October 2016 background levels selected for comparison are:
> - 0.68 μg/m^3 for cis-1,2-DCE (GRMS1026OA003),
> - 1.5 μg/m^3 for toluene (GRMS1026OA002), and
> - 3.5 μg/m^3 for TCE (GRMS1026OA003).
>
> The January 2017 background levels selected for comparison are:
> - 0.32U μg/m^3 for cis-1,2-DCE (GRMS0120OA001),
> - 1.5 μg/m^3 for toluene (GRMS0120OA001), and
> - 3.02U μg/m^3 for TCE (GRMS0120OA002).

Contaminated indoor air concentrations are discussed on pages 25-27 of the HRS documentation record at proposal. Table 5 of the HRS documentation record at proposal presents the results for indoor air samples collected during the October 2016 and January 2017 events. Results for cis-1,2-DCE, toluene, and TCE meet significant increase criteria established using the selected background levels. The observed exposure samples are further discussed on pages 36-37 of the HRS documentation record at proposal. Page 36 of the HRS documentation record at proposal notes:

> Elevated concentrations of cis-1,2-DCE (ranging from 1.5 μg/m^3 to 3.7 μg/m^3), toluene (ranging from 4.5 μg/m3 to 10 μg/m3), and TCE (ranging from 6.5 μg/m^3 to 81 μg/m^3) have been documented in indoor air samples collected from AOE 1, which is a regularly occupied structure (see Figure 2 and Tables 3 and 5 of this HRS documentation record).

Pages 29-32 of the HRS documentation record at proposal establish that the significant increase in hazardous substances identified in indoor air is attributable to the Site and due to subsurface intrusion. Comments challenging aspects of this attribution are incorrect as discussed in section 3.17.2, Observed Exposure: Attribution, of this support document, and its subsections.

Page 37 of the HRS documentation record at proposal show that a likelihood of exposure factor category value of 550 is correctly assigned based on the established observed exposure.

In determining when to assess the potential for exposure factor, HRS section 5.2.1.1.2, *Potential for exposure*, states to "[e]valuate potential for exposure only if an observed exposure cannot be established." The HRS

evaluation correctly documented observed exposure, therefore, there is no need to evaluate the potential for exposure factor.

Regarding Arcadis' claim that the observed exposure samples cited in Table 3, 5, and 7 and the sample taken from location B-3 cited in Table 10 of the HRS documentation record at proposal were "incorrect" because the most current data, after operation of the SSDS was not included, EPA disagrees. As further explained in section 3.14, Consideration of Removal Action/Current Conditions, of this support document, and its subsections, the SSDS is a temporary mitigation system that does not fully address the contamination at the Site, including the contamination underlying the main plant building. While the goal of the SSDS is to bring levels of contaminants below RMLs for the protection of workers from immediate health threats, it is not intended to address possible long-term remedial goals such as further investigation and remediation of the contamination below the building. Nullifying established observed exposure based on the effects of such a temporary system would artificially shield the contamination underlying the building from scoring and ignore the potential threat posed by this contamination. Additionally, as noted in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, data obtained during the SSDS pilot study and supplemental data from samples collected following the December 2017 restart of the SSDS show that subsurface intrusion of contaminants continues, and some concentrations identified indicate that observed exposure levels have not been eliminated by the system. At least one of three samples detected in each monthly round of sampling documents observed exposure and qualifies as Level I. In June 2018, the indoor air data exceeded the RML as is demonstrated in the Table A-1 of Appendix A of this support document.

That TCE concentrations have decreased below the site-specific RML of 8.8 µg/m^3 for TCE in most of the subsequent sampling events, but not all, does not affect the establishment of an observed exposure or change the assigned value of 550 for the Likelihood of Exposure factor value. See section 3.12, Releases Below Regulatory/Removal Limits, of this support document, for a more detailed explanation that releases of hazardous substances that are below such levels are still eligible for consideration when evaluating a site using the HRS.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.17.2 Observed Exposure: Attribution

Comment: Arcadis called into question aspects of attributing the significant increase in hazardous substances in indoor air to subsurface intrusion at the Site. Arcadis challenged whether contaminants from ground water could migrate into the structure given the presence of a clay layer. Arcadis also cast doubt on statements in the HRS documentation record at proposal identifying spills from the TCE and toluene storage areas to contamination below the main plant building, asserting the more likely origin is spills within the building that were released to the underlying soil.

Response: The HRS documentation record at proposal correctly attributed the significant increase documented in indoor air to the Site and subsurface intrusion.

The following subsections address specific comments on this topic:

- 3.17.2.1 Effect of Clay Layer
- 3.17.2.2 Attribution of Release to the Facility

3.17.2.1 Effect of Clay Layer

Comment: Arcadis questioned the attribution of the contaminant levels in the main Rockwell building as originating from contaminated groundwater, claiming that a clay layer would prevent such migration. Arcadis argued the Rockwell facility has a similar geology beneath the building to that found beneath the Eastern Heights Neighborhood, which includes a clay layer that would prevent vapor intrusion from groundwater into sub-slab

and indoor air. Arcadis cited its August 10, 2017 Source Assessment Report[32] and February 21, 2018 Supplemental Source Assessment Report[33] as documenting that a similar clay layer to that beneath the Eastern Heights Neighborhood is present beneath the main plant building's slab. Arcadis concluded that due to the presence of the clay layer, any indoor air contamination in the building at the Site could not be the result of contaminants in groundwater migrating into the building via the subsurface because the clay layer would prevent it.

Response: Inasmuch as these comments call into question the attribution of indoor air contamination to subsurface intrusion and the Site, this attribution was correctly established in HRS documentation record at proposal. Whether or not the direct subsurface origin is contaminants migrating from contaminated groundwater (vs. contaminants in soil), the evidence from subslab, crack, and indoor air contaminant concentrations that were detected clearly establishes that subsurface intrusion is occurring. Further, although the main plant building may be underlain by silty clay, vertical migration of contaminants in the immediate vicinity of the building indicate this layer is likely not impervious to contaminant migration below the building.

HRS Section 5.2.1.1.1, *Observed exposure*, states in relevant part:

> 5.2.1.1.1 Observed exposure. Establish observed exposure in a regularly occupied structure by demonstrating that a hazardous substance has been released into a regularly occupied structure via the subsurface. Base this demonstration on either of the following criteria:
> . . .
> - Chemical analysis:
> - Analysis of indoor samples indicates that the concentration of hazardous substance(s) is significantly above the background concentration for the site for that type of sample (see section 2.3).
> - Some portion of the significant increase above background must be attributable to the site to establish the observed exposure. Documentation of this attribution should account for possible concentrations of the hazardous substance(s) in outdoor air or from materials found in the regularly occupied structure, and should provide a rationale for the increase being from subsurface intrusion.

Pages 29-32 of the HRS documentation record at proposal discuss attribution of the observed exposure at the Site. Additionally, page 28 notes that elements, including concentration data from samples collected, indicate the site poses a risk to human health via subsurface intrusion are present; it states:

> As discussed below, an observed exposure of cis-1,2-DCE, toluene, and TCE in indoor air is attributable to releases at the facility – in particular, leaks in the TCE and toluene storage areas, and from the process sewer lines beneath the main plant building. This is evidenced by (1) high concentrations of contaminants in soil and groundwater in the storage areas, (2) high concentrations of contaminants in soil and sub-slab vapor beneath the main plant building, (3) documentation of preferential subsurface intrusion pathways in the form of cracks/gaps/holes in the building floor, (4) the contaminants are not linked to ICE operations, and (5) there are no other nearby facilities that account for the indoor air contamination.

Page 29 of the HRS documentation record at proposal discusses characteristics of chemicals and waste associated with historical operations:

[32] Included as Reference 58 of the HRS documentation record at proposal.
[33] Included as Attachment G of the Arcadis comment document (docket IDs EPA-HQ-OLEM-2017-0608-0101 through -0107, -0114, -0115).

> During wheel cover manufacturing operations, the facility contained a main plant building, a warehouse, a drum storage area, two lagoons (equalization and sludge), a WTP, a waste oil tank, a chromium reduction tank, a flash mix tank, a clarifier tank, sumps, chromic acid plating baths, TCE and toluene storage areas, and an on-site landfill, among others (Refs. 7, p. 1; 11, pp. 57 to 60; 13, p. 40). Wastes generated at the facility included paint waste toluene, spent solvents, chromic acid sludge, TCE still bottoms, electroplating wastewaters containing hexavalent chromium, buffing compounds, paint sludge, WTP clarifier sludge, waste oil, metal shavings, and corrosive alkaline wash waters, among others (Ref. 11, pp. 57 to 60).

Pages 29-30 of the HRS documentation record at proposal present information on the TCE and toluene storage in particular, and on the large volumes and high concentrations of each chemical encountered during actions taken to mitigate the spills from these containers:

> The former TCE storage area was located east of the main plant building (see Figure 2 of this HRS documentation record). This area consisted of two ASTs with capacities of 10,000 gallons and 15,000 gallons, as well as associated underground piping that transferred the TCE from the tanks to the main plant building. Reportedly, there was no secondary containment (Refs. 13, p. 49; 14, p. 69). The tanks were installed in 1973 and removed in the early 1980s after a release of TCE into the subsurface via the underground piping, resulting in groundwater contamination (Ref. 14, p. 69). Rockwell discontinued the use of TCE in 1992 (Ref. 14, p. 69). In 1993, an automated DNAPL recovery system was installed in the vicinity of the former TCE storage area to remove DNAPL present in the underlying groundwater (Ref. 10, pp. 11, 12). The automated DNAPL recovery system operated for about 3 years, during which time more than 200 gallons of TCE were removed (Refs. 10, p. 12; 14, p. 70). Recovery of DNAPL continued by manual bailing from 1996 to 2003, when it was decided that no additional free-phase TCE could be recovered. Approximately 39 additional gallons of DNAPL were recovered by manual bailing (Ref. 10, p. 12). ICE does not use TCE in its operation and TCE is not contained in any products used by ICE (Ref. 52). In March and April 2017, T&M collected soil and groundwater samples to a maximum depth of 60 feet bgs from within the former TCE storage area (Refs. 11, p. 60; 61, pp. 8 to 12, 22, 23, 24, 27). Soil samples contained TCE at every depth interval sampled from 4 to 60 feet bgs at concentrations up to 53,895 mg/kg (at 51 feet bgs). Groundwater samples contained TCE at concentrations up to 54,592 µg/L (at 60 feet bgs) (Refs. 10, p. 964; 61, pp. 28 to 48, 51 to 53). Residual DNAPL extends from the former TCE storage area towards the main plant building (Refs. 11, p. 60; 61, p. 25).
>
> For 5 years, from 1983 to 1988, a 2,000-gallon steel UST was used to store toluene (Ref. 13, p. 48). The toluene UST was located east of the main plant building, northwest of the former TCE storage area (Ref. 15, p. 35) (see Figure 2 of this HRS documentation record). When the tank was removed in 1988, toluene LNAPL was observed in the tank cavity at about 5 feet bgs (Refs. 14, p. 74; 15, p. 12). Because the UST appeared intact when it was removed, the most likely source of toluene LNAPL was the underground piping or the result of overfill leaks or spills (Refs. 13, pp. 48, 49; 14, p. 74). In October 1993, an automated LNAPL recovery system was installed to recover free-phase toluene from the former toluene UST area. After it operated for 2 years, more than 2,000 gallons of toluene were recovered before product thickness decreased to the point where additional recovery using the system was no longer considered beneficial (Ref. 15, p. 12). Operation of the automated system ceased in 1995, but periodic manual bailing of LNAPL accumulating in the recovery wells continued to 2016 and is ongoing. Between 2000 and 2010, more than 200 gallons of toluene LNAPL was recovered by manual bailing (Ref. 15, p. 12). Toluene has migrated beneath the main plant building (Ref. 13, p. 113). In 2000, the facility's toluene use was limited to painting activities requiring only small containers, conducted in an isolated area of the main plant building (Ref. 47, pp. 1, 16). ICE does not use toluene in its operation and toluene is not contained in any products used by ICE (Ref. 52).

Page 30 of the HRS documentation record at proposal summarizes detections of contaminants in soil beneath the building, subslab vapor, and indoor air showing a clear link between contamination in the subsurface and indoor air:

> Cis-1,2-DCE, toluene, and TCE are present in shallow soils beneath the main plant building floor (Ref. 58, pp. 10, 11, 12, 15). In June 2017, Arcadis collected sub-slab soil samples to a maximum depth of 10 feet beneath the main plant building (Ref. 58, pp. 2, 5, 6). The highest concentrations of cis-1,2-DCE (39,000J µg/kg in SB-8), toluene (33,000J µg/kg in SB-12), and TCE (1,300,000J µg/kg in SB-12) were detected in soil samples at a depth of 9 to 10 feet below the slab in the eastern portion of the main plant building, near the TCE and toluene storage areas (Ref. 58, pp. 10, 11, 12, 15, 25, 29, 80, 87, 1348, 1385, 1397) (see Figure 2 of this HRS documentation record). TCE was also detected at a concentration of 1,300,000J µg/kg at a depth of 3 to 4 feet below the slab in soil sample SB-5, also in the eastern portion of the main plant building, near the TCE storage area (Ref. 58, pp. 15, 22, 75, 1376) (see Figure 2 of this HRS documentation record).
>
> CTEH collected outdoor air, indoor air, and sub-slab vapor samples in and around the main plant building in October 2016 and January 2017 as part of a vapor intrusion investigation (Refs. 24, p. 1; 27, p. 50). Outdoor air samples were collected from about 100 to 450 feet north, east, south, and west of the main plant building (Ref. 27, p. 60) (see Figure 2 of this HRS documentation record). Indoor air and sub-slab vapor samples were collected from within and beneath the two ventilation subunits, Subunit A group and Subunit B (and the basement, which was not evaluated) (Refs. 26; 27, pp. 50, 51, 53, 59, 64, 68) (see Figure 2 of this HRS documentation record).
>
> Cis-1,2-DCE, toluene, and TCE are present in soil vapor beneath the main plant building. During the October 2016 event, sub-slab vapor samples contained cis-1,2-DCE (up to 54,000 µg/m3), toluene (up to 39 µg/m3), and TCE (up to 2,900,000 µg/m3) (Refs. 27, p. 67; 33, pp. 27 to 32). Indoor air samples contained cis-1,2-DCE (up to 3.7 µg/m3), toluene (up to 10 µg/m3), and TCE (up to 29 µg/m3) (Refs. 27, pp. 64, 67; 33, pp. 12 to 22) (see Figure 2 of this HRS documentation record). Cis-1,2-DCE is a breakdown product of TCE (Ref. 36, p. 24).
>
> During the January 2017 event, sub-slab vapor samples contained cis-1,2-DCE (up to 53,000 µg/m3) and TCE (up to 220,000 µg/m3) (Refs. 27, p. 71; 34, pp. 17, 28, 39, 42, 43, 44). Indoor air samples contained cis-1,2-DCE (up to 3.7 µg/m3), toluene (up to 6.7 µg/m3), and TCE (up to 81 µg/m3) (Refs. 27, pp. 68, 71; 34, pp. 18 to 27, 29, 30, 46, 47) (see Figure 2 of this HRS documentation record).
>
> Cis-1,2-DCE, toluene, and TCE have migrated from the subsurface into indoor air within the main plant building. Concentrations of cis-1,2-DCE, toluene, and TCE in sub-slab vapor samples are up to several orders of magnitude greater than concentrations in the indoor air samples (Refs. 33, pp. 12 to 22, 27 to 32; 34, pp. 17 to 30, 39, 42, 43, 44, 46, 47). Indoor air concentrations of cis-1,2-DCE, toluene, and TCE are present at levels meeting HRS significant increase criteria with respect to outdoor air samples collected during the same timeframe (see Tables 3 and 5 of this HRS documentation record).

Pages 30-31 of the HRS documentation record at proposal discuss the preferential pathways present in the building and clear detections of contaminants entering the building at these points. This discussion includes that actions were attempted to seal these preferential pathways, but that contaminants continued to intrude:

> The main plant building is susceptible to soil vapor entry. In March 2017, Arcadis conducted a sub-slab depressurization system pilot study to identify vapor entry points and determine potential sub-slab source areas for indoor air contamination (Ref. 27, p. 7). Arcadis identified 77 holes, joints, cracks, gaps, cuts, and pipe penetrations in the concrete slab throughout the main plant

> building. Using a hand-held TCE detector, Arcadis measured TCE concentrations at each of the 77 vapor entry points. TCE concentrations ranged from 37 µg/m3 to 168,049 µg/m3 at 35 of the 77 vapor entry points (Ref. 27, pp. 16, 37, 38, 43). In February and March 2017, T&M completed interim measure activities, sealing cracks, holes, joints, and drains in the concrete slab at 22 locations. T&M measured VOC concentrations with a photoionization detector (PID) at each crack, hole, joint, and drain pre-and post-sealing. While VOC concentrations did decrease post-sealing, VOCs were still detected. In addition to these interim measures, Arcadis recommended that a long-term mitigation approach be developed, suggesting consideration of further investigation of the contamination below the facility floor and further exploration of a possible sub-slab depressurization system (Ref. 27, pp. 5, 6, 1797, 1798, 1799).
>
> In May 2017, Arcadis collected indoor air samples from the main plant building using passive air samplers over a duration of 8 hours, 7 days, 14 days, and 30 days (Refs. 59, pp. 1, 2, 4; 60, pp. II, 1, 2). The highest concentrations of toluene (59 µg/m3) and TCE (280 µg/m3) were detected in sample 123 JX collected from Subunit B over an 8-hour period (Ref. 59, pp. 2, 4, 62). The highest concentration of cis-1,2-DCE (19J µg/m3) was detected in sample 093 QK collected from Subunit B over a 7-day period (Ref. 59, pp. 2, 4, 101). In June 2017, Arcadis collected additional indoor air samples from the main plant building using passive air samplers and evacuated canisters for a duration of 24 hours (Refs. 62, p. 1; 63, pp. 4, 5, 10). June 2017 indoor air samples contained cis-1,2-DCE up to 7.6C µg/m3, toluene up to 2.0 µg/m3, and TCE up to 28 µg/m3 (Ref. 62, pp. 7, 20, 29, 47). These indoor air samples were collected after sealing some of the vapor entry points in the concrete slab, indicating there is a continuing release of sub-slab vapors into the indoor air of the main plant building (Refs. 27, pp. 7, 16, 37, 38, 43; 59, pp. 1, 2, 4, 62, 101). As of June 2017, elevated concentrations of VOCs in indoor air support the subsurface intrusion of hazardous substances into the structure.

Pages 31-32 of the HRS documentation record at proposal provide a rationale for why the contamination is not likely coming from current operations or from other off-facility sources:

> Contamination of indoor air and sub-slab vapor by cis-1,2-DCE, toluene, and TCE is not attributable to current operations. In 2008, ICE converted the Rockwell facility to a stamping plant, which manufactures stamp-formed parts for various industries (Ref. 10, p. 830). Specifically, ICE conducts metal stamping, welding, and assembly operations for car parts, HVAC (heating, ventilation, and air conditioning) systems, appliances, and solar power parts. The stamping process involves placing flat sheet metal, in either blank or coil form, into a sampling press where a tool and die surface forms the metal into a net shape (Ref. 48, p. 3). ICE (EPA Identification number MSR000106237) is registered as a Conditionally Exempt Small Quantity Generator of used oil (Refs. 48, p. 3; 49, p. 1; 50). ICE does use small amounts of solvents to clean tools; however, neither TCE nor toluene is used by ICE (Refs. 48, p. 4; 50; 52).
>
> Furthermore, there is no evidence that any nearby facilities released the hazardous substances evaluated in this HRS documentation record. EPA's databases do not list any regulated facilities, other than former or current operators of the Rockwell facility, within 1 mile of the main plant building (Ref. 41). Dunham, Inc. and Kirk Family Holdings LLC (Kirk) are two businesses located within 0.25 mile of the main plant building. For attribution purposes, these businesses were evaluated to determine whether they may be potential off-site sources of contamination. Neither of these operations is listed in any of EPA's regulated facility databases (Refs. 39, p. 2; 40, p. 2; 41; 42, pp. 2, 3, 4). Therefore, concentrations of cis-1,2-DCE, toluene, and TCE in indoor air are unlikely to originate from outdoor air contamination migrating from other facilities (see Tables 3 and 5 of this HRS documentation record).
>
> The Dunham, Inc. property is located about 600 feet east-northeast of the main plant building (Refs. 39, p. 2; 42, p. 3). Dunham, Inc. has been constructing single-family homes for the past 26

years (Ref. 39, p. 5). The Kirk property is located about 0.25 mile northeast of the main plant building, east of the railroad tracks (Refs. 40, p. 2; 42, p. 4; 57, p. 32). This facility is a warehouse with a trucking component (Refs. 51; 57, p. 6). In March 2017, T&M, on behalf of Meritor, Inc., conducted an environmental investigation at the Kirk property, which included soil and groundwater sampling (Ref. 57, pp. 1, 2, 6, 32, 33, 38). Subsurface soil sample SB-43(58-60)GW, collected from the southern property boundary, contained the greatest concentrations of cis-1,2-DCE at 36 µg/kg and TCE at 24 µg/kg at a depth of 58 to 60 feet bgs (Ref. 57, pp. 33, 39). Groundwater sample SB-43(23-25)GW-DUP contained cis-1,2-DCE (470 µg/L) and TCE (540 µg/L) at a depth of 23 to 25 feet bgs (Ref. 57, pp. 33, 44). However, these levels are much lower than the highest concentrations found at the Rockwell facility property—for example, as described in the Site Description of this HRS documentation record, TCE was found near the TCE storage area in soil at up to 53,895 mg/kg and in groundwater at up to 54,592 µg/L, and TCE has been found in recent groundwater samples near the Moose Lodge Road disposal area as high as 3,400 µg/L, with historical concentrations reaching 54,000 µg/L (Refs. 8, pp. 5, 6, 9, 10, 18, 25 to 38; 61, pp. 28-48, 50 to 53). Furthermore, based on potentiometric surface maps, groundwater flow at the Rockwell facility is generally to the west-northwest, but may vary with the season/rainfall. Also, there is a groundwater divide east of Moose Lodge Road, which may direct shallow groundwater in that area to the south, east, and northeast; the position of this divide also varies somewhat with the season/rainfall (Refs. 8, p. 17; 15, pp. 20, 21, 39 to 44; 57, pp. 31, 32). Therefore, this groundwater contamination may have originated at the Moose Lodge Road disposal area, located southeast of the Kirk property. It is unlikely that either of these facilities is a source of groundwater contamination underlying the main plant building area of the Rockwell property (Refs. 15, pp. 33, 39; 42).

In summary, TCE and toluene were used at the facility as part of the wheel cover manufacturing and chrome plating operation (Refs. 10, pp. 11, 12; 13, pp. 48, 49; 14, pp. 69, 74). Releases of TCE and toluene to the subsurface and groundwater have been documented (Refs. 15, p. 11-12; 61, pp. 25, 28 to 48, 51 to 53). TCE, its breakdown product cis-1,2-DCE, and toluene have been detected in soil samples and sub-slab vapor samples collected from beneath the main plant building, as well as indoor air samples collected from within the main plant building (Refs. 26; 27, pp. 50, 51, 53, 59, 64, 67, 68, 71; 33, pp. 12 to 22; 34, pp. 17 to 30, 39, 42, 43, 44, 46, 47; 58, pp. 5, 6, 15, 75, 80, 87, 1376, 1385, 1397). Preferential pathways, such as holes, joints, cracks, gaps, cuts, and pipe penetrations have been documented in the concrete slab throughout the main plant building (Refs. 27, pp. 16, 37, 38, 43; 35, pp. 4, 5; 43, p. 4; 44, p. 1). Use of TCE was discontinued in 1992 and in 2000 toluene use was limited to painting activities in an isolated area of the main plant building requiring only small containers (Refs. 11, p. 60; 14, p. 69; 47, pp. 1, 16). Toluene and TCE are not contained in any products used by ICE (Ref. 52). There are no nearby facilities that can account for the indoor air contamination in the main plant building (Refs. 39, p. 2; 40, p. 2; 41; 42, pp. 2, 3, 4; 51). These multiple lines of evidence indicate a subsurface intrusion release of contamination to indoor air within the main plant building.

Thus, the HRS documentation record at proposal clearly established that the significant increase in contamination in indoor air is attributable to the Site, and contamination is entering indoor air via subsurface intrusion. Even if a clay layer were presumed to be present beneath the facility preventing deeper contaminated groundwater from migrating upward and contributing to the subslab contamination at the Site, the EPA documented historical discharges of contaminants directly to the soil surrounding and under the facility. The subslab contamination is originating from beneath the facility in either contaminated soil directly below the building or from contaminated groundwater at lower depths; whether documented subslab contamination originates in one or the other or both does not impact the attribution of indoor air contamination to the Site via subsurface intrusion and has no impact on the HRS scoring.

Further, it is notable that, as discussed in the HRS documentation record text quoted above, subsurface and groundwater samples in the TCE storage area exhibited TCE contamination from 4 to 60 feet below ground

surface for soils and at 60 feet below ground surface for groundwater, showing contamination at the facility has migrated down into groundwater through the clay layers that exist. Additionally, Reference 35 of the HRS documentation record at proposal (cited in the text quoted above from page 32 of the HRS documentation record at proposal) notes that "[d]irectly outside the [main plant] building, the shallow clay soils are contaminated with TCE and that contamination extends all the way to the bottom of the upper aquifer and into the intermediate clay confining unit." While the reports cited by Arcadis do note approximately 10 feet of silty clay directly below the building (and Reference 35 acknowledges this at page 5), this does not confirm that it is impervious to contaminant migration; indeed, the evidence of vertical migration provided by subsurface samples in the immediate vicinity of the building indicates these clay layers are not perfectly continuous in this area.

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

3.17.2.2 Attribution of Release to the Facility

Comment: Arcadis asserted that the EPA's documentation attributing the presence of cis-1,2-DCE, toluene and TCE in indoor air in the main plant building to a release at the facility was incorrect and not supported by the data presented in the HRS documentation record. Arcadis specifically took issue with the first paragraph of page 29 of the HRS documentation record at proposal, which states:

> "As discussed below, an observed exposure of cis-1,2-DCE, toluene, and TCE in indoor air is attributable to releases at the facility – in particular, leaks in the TCE and toluene storage areas, and from the process sewer lines beneath the main plant building. This is evidenced by (1) high concentrations of contaminants in soil and groundwater in the storage areas, (2) high concentrations of contaminants in soil and sub-slab vapor beneath the main plant building, (3) documentation of preferential subsurface intrusion pathways in the form of cracks/gaps/holes in the building floor, (4) the contaminants are not linked to ICE operations, and (5) there are no other nearby facilities that account for the indoor air contamination."

Instead, Arcadis asserted that the available data demonstrate that the indoor air contamination detected prior to operation of the SSDS is due primarily to releases from inside the main plant building to the underlying shallow soil. Arcadis cited to multiple reports to support these comments.[34] Arcadis added that "[w]ith all of the extensive data collected in and around the Building to date, there is no evidence that releases from the TCE and toluene storage areas outside the Building contribute meaningfully to concentrations of Site constituents detected in indoor air."

Response: The attribution of the indoor air contamination in the main plant building to the Site and subsurface intrusion was correctly established in the HRS documentation record at proposal. The HRS documentation record at proposal presents a reasonable rationale supporting that the contamination likely originated with the nearby TCE and toluene storage tank spills. Regardless, the ultimate origin of the subslab contamination, whether from storage areas outside the building or from releases inside the main plant, has no effect on HRS scoring.

The HRS documentation record provides clear evidence attributing indoor air contamination to intrusion of subsurface contamination into the main plant building, as cited in the previous section (see section 3.17.2.1, Effect of Clay Layer, of this support document for the specific HRS documentation record quotes pertaining to attribution). As shown in the quote of the HRS in that section, the ultimate origin of the contamination residing in the subsurface is not a consideration in the HRS scoring provided that the contamination is attributable to the Site. The commenter argued that instead of contaminant migration from the TCE and toluene storage area spills, the origin of the subsurface contamination is releases inside the building to shallow soil beneath the building floor.

[34] Arcadis cites: the May 5, 2017 Arcadis Interim Measures Evaluation, Focused Facility Sub-Slab Assessment, and Pilot Study Report (included as Reference 27 of the HRS documentation record at proposal); the August 20, 2017 Arcadis Source Assessment Report (included as Reference 58 of the HRS documentation record at proposal); and the Arcadis February 21, 2018 Supplemental Source Assessment Report, included as Attachment G of the Arcadis comment document (docket IDs EPA-HQ-OLEM-2017-0608-0101 through -0107, -0114, -0115).

EPA questions this explanation based on the volume and proximity of spills from nearby tanks; however, even if true, the contamination is still attributable to the Site and is still reentering the building via subsurface intrusion. Thus, there is no effect on the HRS evaluation or score.

The commenter provides no specific evidence to support the assertion that spills inside the building were the origin of contamination beneath the building. The three reports Arcadis points to note higher TCE concentrations near the center of the eastern portion of the facility, near historical powder coat and wet mask wash features; however, this information alone does not discount the likely contributions from the spills at the TCE and toluene storage areas near the building.

Finally, the attribution section of the HRS documentation record at proposal provides substantial evidence supporting that the contamination underlying the main plant building likely came from the TCE and toluene storage areas' spills. The relevant HRS documentation record sections are quoted in the previous section (section 3.17.2.1, Effect of Clay Layer, of this support document). Evidence provided in the HRS documentation record at proposal includes: migration of the contaminants from the location of the original tanks, vertical migration and DNAPL extending from the former TCE storage area toward the main plant building (e.g., cited Reference 61 page 25 showing DNAPL near the east building wall), and toluene migration toward the main plant building (e.g., cited Reference 13 page 113, discussing detections in wells RC-2 and RC-4, whose locations are shown on page 352 of that document). And, these two storage areas are shown on Figure 2 of the HRS documentation record at proposal to be in close proximity to the eastern wall of the main plant building. Further, as discussed on pages 11-12 of the HRS documentation record at proposal, substantial volumes of TCE and toluene (approximately 239 gallons of TCE/DNAPL and approximately 2,200 gallons of toluene/LNAPL) were recovered from these spills.

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

3.17.3 Potential for Exposure

Comment: Golder questioned that the likelihood of exposure evaluation presented in the HRS documentation record at proposal improperly considered only indoor air concentrations prior to operation of the SSDS. Golder commented that after the SSDS became operational, indoor air concentrations fell below EPA Region 4 removal levels and an EPA health-based benchmark was exceeded at only one location for one substance (TCE). With "routine optimization of the SSDS," Golder asserted that further decreases in indoor air concentrations can be expected and therefore stated it is reasonable for the EPA to assess the Site's "Potential for Exposure", not the observed exposure factor.

Response: An observed exposure by chemical analysis was correctly established in the HRS documentation record at proposal. The operation of the SSDS and the data generated during its operation do not affect the observed exposure by chemical analysis established in the HRS evaluation. Per the HRS, when an observed exposure is established, there is no need to evaluate the potential for exposure factor. Evaluation of the potential for exposure factor when an observed exposure has been documented would be inconsistent with the HRS.

Section 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, confirms that the observed exposure by chemical analysis established in the HRS documentation record at proposal was correct and that this observed exposure is not invalidated by the subsequent operation of the SSDS.

Section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, clarifies that implementation of the SSDS system (and sampling results collected during its operation), as a result of the CERCLA time critical removal action, would not affect the Site HRS score. This same section explains that the SSDS system is temporary and does not address the origin of the contamination in the soil or groundwater at the site; therefore, the operation of the SSDS does not affect any HRS scoring factor.

Additionally, section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document further explains that the detection of lower indoor concentrations in samples collected after implementation and operation

of the SSDS would not invalidate the previously established observed exposure concentrations documented at the Site, and:

- There is no HRS requirement that concentrations in a given structure/location remain consistent, remain above observed exposure criteria, or remain above Level I screening concentration benchmarks over time. Lower concentrations at some points in time do not negate observed exposure or Level I concentrations established at other points in time.
- Even a pattern of declining concentrations induced by the operation of the SSDS does not negate prior establishment of observed exposure and Level I concentrations. Because the SSDS is temporary in nature and does not fully address the contamination at the Site, nullifying established observed exposure/Level I concentrations based on the effects of such a temporary system would inappropriately artificially shield the contamination underlying the building from scoring and future remediation, and ignore the potential threat posed by this contamination.

Regarding indoor air concentrations below removal levels, section 3.12, Releases Below Regulatory/Removal Limits, of this support document, explains that releases of hazardous substances below such levels are still eligible for consideration when evaluating a site using the HRS.

In determining when to assess the potential for exposure factor, HRS section 5.2.1.1.2, *Potential for exposure*, states to "[e]valuate potential for exposure only if an observed exposure cannot be established." Therefore, evaluation of the potential for exposure factor when an observed exposure has been documented would be inconsistent with the HRS.

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

3.17.4 Structure Containment

Comment: Meritor and Golder asserted that the EPA had improperly evaluated the structure containment factor in the HRS scoring evaluation and incorrectly assigned a factor value of 10 in the HRS documentation record at proposal. Instead, Golder claimed that a structure containment factor value of 2 should be assigned.

Meritor asserted that the EPA had not complied with the HRS SsI component by not considering the main plant building's SSDS in the structure containment factor evaluation. Meritor emphasized that in the EPA's response to public comments received on the draft HRS SsI component, the component had been revised to consider mitigation systems like the building's SSDS, which were installed as part of a removal or other temporary response action. The commenters claimed that the structure containment factor value of 10 assigned in the HRS documentation record at proposal is inappropriate; Meritor asserted that this value does not apply if there is a mitigation system, and Golder commented a 10 "is only appropriate for structures with evidence of subsurface intrusion or open preferential subsurface intrusion pathways" that lack mitigation systems. Pointing to Golder's rescoring of the site, Meritor further asserted that if the SSDS were considered in the structure containment factor evaluation, the Site's revised HRS score would not qualify it for placement on the NPL.

Response: The structure containment factor value of 10 assigned in the HRS documentation record at proposal was correctly assigned per the HRS, as an observed exposure was documented in AOE 1 and open preferential pathways from the subsurface environment into the main plant building exist. The presence of the SSDS has not addressed the contamination underlying the building, has not nullified the observed exposure established based on samples prior to its operation, and has not negated the presence of preferential pathways. Further, as discussed in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, there is continued detection of hazardous substances entering the building even during SSDS operation, further indicating that preferential pathways remain. Therefore, presence of the SSDS does not affect the assignment of the containment factor value.

HRS Section 5.2.0, *General considerations*, considers the containment factor in identifying the criteria for establishing that a regularly occupied structure or subunit is eligible for consideration in an HRS evaluation. For the subsurface intrusion component, it states in relevant part:

> Evaluate the subsurface intrusion component based on the actual or potential intrusion of hazardous substances into all regularly occupied structures that have structure containment values greater than zero and meet the criteria identified in the section below as being either in an area of observed exposure or in an area of subsurface contamination. These structures may or may not have subunits.

HRS Section 5.2.1.1.2.1, *Structure containment*, directs how to assign each regularly occupied structure a structure containment factor value and instructs that the highest applicable value be used for each structure:

> Calculate containment for eligible hazardous substances within this component as directed in Table 5-12 and enter this value into Table 5-11. Assign each regularly occupied structure within an area of subsurface contamination the highest appropriate structure containment value from Table 5-12 and use the regularly occupied structure at the site with the highest structure containment value in performing the potential for exposure calculation.

HRS Table 5-12, *Structure Containment*, identifies the following structure containment categories:

No.	Evidence of Structure Containment	Assigned value
1.	Regularly occupied structure with evidence of subsurface intrusion, including documented observed exposure or sampling of bio or inert gases, such as methane and radon.	10
2.	Regularly occupied structure with open preferential subsurface intrusion pathways (e.g., sumps, foundation cracks, unsealed utility lines).	10
3.	Regularly occupied structure with an engineered vapor migration barrier system that does not address all preferential subsurface intrusion pathways.	7
4.	Regularly occupied structure with an engineered passive vapor mitigation system without documented institutional controls (e.g., deed restrictions) or evidence of regular maintenance and inspection.	6
5.	Regularly occupied structure with no visible open preferential subsurface intrusion pathways from the subsurface (e.g., sumps, foundation cracks, unsealed utility lines).	4
6.	Regularly occupied structure with an engineered passive vapor mitigation system (e.g., passive venting) with documented institutional controls (e.g., deed restrictions) or evidence of regular maintenance and inspection.	3
7.	Regularly occupied structure with an engineered, active vapor mitigation system (e.g., active venting) without documented institutional controls (e.g., deed restrictions) and funding in place for on-going operation, inspection and maintenance.	2
8.	Regularly occupied structure with a permanent engineered, active vapor mitigation system (e.g., active venting) with documented institutional controls (e.g., deed restrictions) and funding in place for on-going operation, inspection and maintenance.	1
9.	Regularly occupied structure with a foundation raised greater than 6 feet above ground surface (e.g., structure on stilts) or structure that has been built, and maintained, in a manner to prevent subsurface intrusion	0

The HRS documentation record at proposal explains that a structure containment factor value of 10 was assigned to the regularly occupied main plant building due to the documentation of an observed exposure by chemical analysis, and due to the presence of preferential pathways into the main plant building. Pages 32-33 of the HRS documentation record at proposal discuss assignment of the containment factor value of 10, stating:

> Structure Containment
>
> ICE currently occupies the main plant building (Refs. 10, p. 830; 26, pp. 1, 3). The main plant building can be divided into two ventilation subunits, Subunit A group and Subunit B, in describing the air handling systems (Ref. 16, p. 9). AOE 1 is the regularly occupied area of the main plant building where contaminated indoor air contains cis-1,2-DCE, toluene, and TCE at concentrations significantly above background levels and that meet HRS observed exposure criteria (Refs. 5, Section 5.2.1.1; 25; 27, pp. 64, 68; 33, pp. 12 to 25; 34, pp. 18 to 27, 29 to 36,

> 46, 47; 38) (see Figure 2 of this HRS documentation record). Preferential pathways for subsurface intrusion into the main plant building include cracks, crevices, joints, gaps, cuts, pipe penetrations, and/or holes in the concrete floors; cracks in the basement walls; pits and trenches; floor drains; and process sewer lines (Refs. 27, pp. 16, 37, 38, 43; 35, pp. 4, 5; 43, p. 4; 44, p. 1).
>
> The main plant building is a regularly occupied structure with evidence of subsurface intrusion, including documented observed exposure (Ref. 25) (see Tables 3 and 5 of this HRS documentation record). In March 2017, Arcadis conducted a sub-slab depressurization system pilot study to identify vapor entry points and determine potential sub-slab source areas for indoor air contamination (Ref. 27, p. 7). Arcadis identified 77 holes, joints, cracks, gaps, cuts, and pipe penetrations in the concrete slab throughout the main plant building. TCE was detected at 35 of the 77 vapor entry points (Ref. 27, pp. 16, 37, 38, 43). In February and March 2017, T&M completed interim measure activities, sealing cracks, holes, joints, and drains in the concrete slab at 22 locations. T&M measured VOC concentrations with a PID at each crack, hole, joint, and drain pre-and post-sealing. While VOC concentrations did decrease post-sealing, VOCs were still detected. In addition to these interim measures, Arcadis recommended that a long-term mitigation approach be developed, suggesting consideration of further investigation of the contamination below the facility floor and further exploration of a possible sub-slab depressurization system (Ref. 27, pp. 1797, 1798, 1799). In May 2017, Arcadis collected indoor air samples from the main plant building using passive air samplers for a duration of 8 hours, 7 days, 14 days, and 30 days (Refs. 59, pp. 1 to 4; 60, pp. II, 1, 2). In June 2017, Arcadis collected additional indoor air samples from the main plant building using passive air samplers and evacuated canisters for a duration of 24 hours (Refs. 62, p. 1; 63, pp. 4, 5, 10). Indoor air samples during both investigations contained cis-1,2-DCE, toluene, and TCE, indicating there is a continuing release of sub-slab vapors into the indoor air of the main plant building (Refs. 27, pp. 7, 16, 37, 38, 43; 59, pp. 2, 4, 62, 101; 62, pp. 7, 20, 29, 47).
>
> Structure Containment Value: 10 (Ref. 5, Section 5.2.1.1.2.1, Table 5-12)

Page 41 of the HRS documentation record at proposal also discusses the containment factor value, stating:

> Level I Population
>
> Preferential pathways for subsurface intrusion into AOE 1, a regularly occupied structure, include cracks, crevices, pipe penetrations, and/or holes in the concrete floors; cracks in the basement walls; pits and trenches; floor drains; and process sewer lines (Refs. 25; 27, pp. 16, 37, 38, 43; 35, pp. 4, 5; 43, p. 4; 44, p. 1) (see Figure 2 of this HRS documentation record). Therefore, a structure containment value of 10 has been assigned (Ref. 5, Section 5.2.1.1.2.1, Table 5-12).

Similarly, Page 44 of the HRS documentation record at proposal includes discussion on the containment factor value, stating:

> Level II Population
>
> Preferential pathways for subsurface intrusion into the main plant building include cracks, crevices, joints, gaps, cuts, pipe penetrations, and holes in the concrete floors; cracks in the basement walls; pits and trenches; floor drains; and process sewer lines (Refs. 27, pp. 16, 37, 38, 43; 35, pp. 4, 5; 43, p. 4; 44, p. 1) (see Figure 2 of this HRS documentation record). Therefore, a structure containment value of 10 has been assigned (Ref. 5, Section 5.2.1.1.2.1, Table 5-12).

As noted, the presence of the SSDS does not affect the assignment of the containment factor value. Due to the correctly established observed exposure and the continued presence of preferential pathways, a structure

containment factor value of 10, instead of the 2 suggested by the commenters, was appropriately assigned because:

- As discussed in section 3.14, Consideration of Removal Action/Current Conditions, of this support document, and its subsections, the SSDS does not permanently address the subsurface sources of contamination or the subsurface intrusion threat and therefore is not a consideration in scoring.
- As explained in sections 3.14.1, Consideration of the SSDS and Current Conditions, and 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, the operation of the SSDS and lowering of contaminant levels inside the building does not negate the observed exposure established in AOE 1 by samples collected before its operation. While the goal of the SSDS is to bring levels of contaminants below removal levels for the protection of workers, it is not intended to address possible long-term remedial goals such as remediating the contamination below the building. Nullifying established observed exposure based on the effects of such a temporary system would artificially shield the contamination underlying the building from scoring and ignore the potential threat posed by this contamination. Additionally, as discussed in sections 3.14.1, Consideration of the SSDS and Current Conditions, and 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, although concentrations of the scored hazardous substances may have decreased during operation of the SSDS, there is continued indication that levels meeting observed exposure criteria persist.
- The SSDS also does not address existing open preferential pathways from the subsurface environment into the main plant building, and has not halted intrusion of contaminants. As previously noted, the HRS documentation record at proposal indicated that analysis of indoor air samples collected in May and June 2017 continued to detect the same scored hazardous substances (cis-1,2-DCE, toluene, and TCE), even after interim mitigation measures were implemented in February and March 2017 to address possible entry points (e.g., cracks, holes in the concrete slab) into the building. The continued detection of hazardous substances entering the building even during SSDS operation is further evidence that these preferential pathways remain (see section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document describing those detections).

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

3.18 Waste Characteristics - Hazardous Waste Quantity

Comment: Meritor and Golder asserted that the EPA had incorrectly calculated the hazardous waste quantity factor value used in the HRS scoring evaluation because the entire footprint of the main plant building was used instead of the area overlying the subsurface contamination.

Meritor asserted that the EPA had not complied with the HRS subsurface intrusion component by not considering the main plant building's subslab depressurization system in the hazardous waste quantity factor evaluation.

Regarding the hazardous waste quantity evaluation, both commenters asserted that the EPA had erroneously included the entire footprint of the main plant building (208,501 square feet) in the Site's area of observed exposure and in the hazardous waste quantity factor evaluation. The commenters claimed that an area less than 88,000 square feet in size should instead be used in assigning the hazardous waste quantity factor value. The commenters based this assertion on the HRS subsurface intrusion component's requirement that "the footprint of each regularly occupied structure *in areas of observed exposure and areas of subsurface contamination*" be used in the evaluation. [emphasis added by commenters] Using this requirement, Golder argued that based on the available sampling data (e.g., subslab vapor and soil samples) and the performance of the building's SSDS, "the area of subsurface contamination beneath the main plant building contributing to vapor intrusion can be conservatively assessed as the area of influence of the SSDS." Golder cited two reports in support: the *Source*

Assessment Report[35] from 2017, and the *Enhanced Pilot Study Summary Report*[36] from 2017. Specifically, Figure 3 of the *Enhanced Pilot Study Summary Report* was referenced; this figure shows the extent of the SSDS area of influence. Golder therefore argued that "EPA's Hazardous Waste Quantity evaluation, and the associated assigned value of 10,000, is overestimated and a corrected value of 100 is appropriate."

Response: The commenters have misinterpreted the evaluation of the Tier D area measure for the subsurface intrusion component of the HRS evaluation. The hazardous waste quantity estimate of 208,501 ft^2 calculated for AOE 1 and used in the hazardous waste quantity factor value evaluation at proposal, was correctly determined per the HRS based on the entire footprint of the structure/subunit with observed exposure, not based on the portion of the structure overlying an area where contamination is present in the subsurface. The hazardous waste quantity factor value of 10,000 identified in the HRS documentation record at proposal was therefore also correctly assigned in accordance with the HRS. Consistent with the HRS, AOE 1 was composed of two regularly occupied subunits (Subunits A and B) which each had a documented observed exposure by chemical analysis, and the areal footprint of each subunit was used in the hazardous waste quantity evaluation. Furthermore, consideration of the SSDS would not result in a change to the hazardous waste quantity factor value assigned in the HRS documentation record at proposal.

For the Tier D area evaluation, the HRS measures the entire area of the footprint of a structure, and contains no requirements to limit that area to a portion of the footprint or to the specific portions of a structure or subunit that may overlie subsurface contamination or the portions that are considered susceptible to subsurface intrusion. HRS Section 5.2.1.2.2, *Hazardous waste quantity*, explains how a scorer should evaluate the quantity of hazardous substances in regularly occupied structures within areas of observed exposure and areas of subsurface contamination. It states:

> Assign a hazardous waste quantity factor value as specified in section 2.4.2. Consider only those regularly occupied structures or subunits with a non-zero structure containment value. Also include all regularly occupied structures or subunits that have had mitigation systems installed as part of a removal or other temporary response action. If sufficient structure-specific concentration data is available and state of the science shows there is no unacceptable risk of exposure to populations in a regularly occupied structure or subunit in an area of subsurface contamination, that structure or subunit is not included in the hazardous waste quantity evaluation. In estimating the hazardous waste quantity, use Tables 2-5 and 5-19 and:
> …
>
> - For Tier D, area, if volume is unknown, use the area divisor listed in Tier D of Table 5-19 for those regularly occupied structures within areas of observed exposure with observed or inferred intrusion and within areas of subsurface contamination.
> - In evaluating the area measure for these listed areas of observed exposure and areas of subsurface contamination, calculate the area of each regularly occupied structure (including multi-subunit structures) or subunit based on actual footprint area data.
>
> …
>
> § For multi-subunit structures, when calculating Tier D, **calculate area for those subunit spaces with observed or inferred exposure** [emphasis added] and all other regularly occupied subunit spaces on that level, unless available information indicates otherwise. If the structure has multiple stories, also include the area of all regularly occupied subunit spaces below the floor with an observed exposure and one story above, unless evidence indicates otherwise.

[35] The 2017 Arcadis Source Assessment Report was included as Reference 58 of the HRS documentation record at proposal.
[36] Reference cited by Golder: Arcadis, 2017, Enhanced Pilot Study Summary Report, Grenada, Mississippi for Grenada Manufacturing, LLC. Submitted by Golder as an attachment to Meritor's comment document (docket ID EPA-HQ-OLEM-2017-0608).

HRS Table 5-19, Hazardous Waste Quantity Evaluation Equations for Subsurface Intrusion Component, provides the divisors used in assigning values for each tier. Footnote d to that table, attached to the Tier D evaluation row, indeed includes the passage cited by the commenter:

> Calculate area of the footprint of each regularly occupied structure in areas of observed exposure and areas of subsurface contamination. If the footprint area of a regularly occupied structure is unknown, use 1,740 square feet as the footprint area of the structure or subunit space.

However, this again involves the footprint of the structure for each structure in an area of observed exposure or area of subsurface contamination. There is no requirement to limit the footprint to the fraction of that footprint directly overlying contamination.

Furthermore, it is not possible to accurately predict the hazardous substance concentration that receptors would be exposed to over a representative exposure period based on information collected during a site inspection due to the variability in exposure levels over time and space. Instead, hazardous waste quantity is used as a surrogate for dose in the sense that the quantity of the hazardous substances is at least qualitatively correlated to the magnitude of the exposure. Furthermore, using the structure size to project a hazardous waste quantity in the SsI component is representative of the likelihood a target could be exposed to hazardous substances, as a target may be exposed to any portion of the indoor air within the structure; much in the same way a target may be exposed to a portion of all the contaminated soil in the soil exposure component, a portion of the contaminated sediments or surface water in the surface water pathway, and a portion of the contaminated ground water in the ground water pathway. HRS Section 2.4.2.1.5, *Calculation of source hazardous waste quantity value*, explains how to calculate the hazardous waste quantity for an area of observed exposure. It states:

> Select the highest of the values assigned to the source (or areas of observed contamination, areas of observed exposure, or areas of subsurface contamination) for the hazardous constituent quantity, hazardous wastestream quantity, volume, and area measures. Assign this value as the source hazardous waste quantity value. Do not round to the nearest integer.

HRS Section 2.4.2.2, *Calculation of hazardous waste quantity factor value*, explains how to calculate the hazardous waste quantity for the subsurface intrusion component. It states:

> Sum the source hazardous waste quantity values assigned to all sources (including the unallocated source) or areas of observed contamination, areas of observed exposure, or areas of subsurface contamination for the pathway being evaluated and round this sum to the nearest integer, except: if the sum is greater than 0, but less than 1, round it to 1. Based on this value, select a hazardous waste quantity factor value for the pathway from Table 2-6.

The HRS documentation record at proposal describes the evaluation of the area for AOE 1. Pages 34-35 of the HRS documentation record state:

> 5.2.1.2.2 AOE HAZARDOUS WASTE QUANTITY
>
> Insufficient information exists to evaluate hazardous constituent quantity, hazardous wastestream quantity and volume. Therefore, the hazardous waste quantity value will be calculated using Tier D, the area of the AOE (Ref. 5, Section 2.4.2.1).
>
> …
>
> **Area (Tier D)**
>
> The estimated area of the main plant building structure was determined using Figure 2 of this HRS documentation record and Reference 26 that depict the indoor air sampling locations for the

CTEH October 2016 and January 2017 sampling events. The ESRI ArcMap GIS (geographic information system) software was used to calculate the square footage. The approximate area of the structure is 208,501 square feet (the sum of Subunit A group, 18,929 ft^2, and Subunit B, 189,572 ft^2) (see Figure 2 of this HRS documentation record) (Refs. 5, Section 5.2.1.2.2; 26, p. 3).

Sum (square feet): 208,501
Equation for Assigning Value (Table 5-19): Area (A)/13

Area Assigned Value: 16,038.53

The HRS documentation record at proposal then shows how the hazardous waste quantity factor value for AOE 1 was derived. Page 35 of the HRS documentation record states:

Hazardous Waste Quantity

TABLE 6: Hazardous Waste Quantity

Area of Observed Exposure Number	Area (square feet)	Reference
1	208,501	26, p. 3

AOE 1 is the regularly occupied main plant building that contains elevated concentrations of cis-1,2-DCE, toluene, and TCE in indoor air that meet HRS observed exposure criteria (Ref. 25) (see Figure 2 and Tables 3 and 5 of this HRS documentation record). The approximate area of observed exposure is about 208,501 square feet (Ref. 26, p. 3).

Sum of values/13 (A/13): 16,038.53
Equation for Assigning Value (Ref. 5, Table 5-19, Section 5.2.1.2.2)

AOE Hazardous Waste Quantity Factor Value: 10,000
(Ref. 5, Table 2-6, Section 2.4.2.2)

Regarding the claim that an area less than 88,000 ft^2 should instead be used in the evaluation, the implication that only the portion of a building overlying an area where contamination is present in the subsurface (and further represented in this case by the operational area of the SSDS) is eligible for consideration is an incorrect interpretation of HRS requirements, as explained above. Thus, the hazardous waste quantity for AOE 1 was appropriately evaluated according to the HRS. At the time of proposal, the main plant building had a structure containment factor value greater than 0 (i.e., 10) and both Subunits A and B were regularly occupied and were documented to have an observed exposure by chemical analysis. Therefore, the square footage of the basal footprints of the regularly occupied Subunits A and B were calculated using geographic information system (GIS) software and summed together to derive a hazardous waste quantity value for AOE 1. As required by the HRS, the hazardous waste quantity value for AOE 1 was correctly divided by the appropriate area divisor identified in HRS Table 5-19 to derive a final hazardous waste quantity factor value of 10,000.

Regarding the assertion that the EPA did not consider the SSDS in the hazardous waste quantity factor evaluation, this is incorrect; rather, the SSDS has no effect on hazardous waste quantity factor because:

- As discussed in section 3.14, Consideration of Removal Action/Current Conditions, of this support document, and its subsections, the SSDS does not permanently address the subsurface intrusion threat and therefore is not a consideration in scoring.
- As explained in sections 3.14.1, Consideration of the SSDS and Current Conditions, and 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, the operation of the SSDS and lowering of contaminant levels inside the building does not negate the observed exposure established in AOE 1 by samples collected before its operation. While the goal of the SSDS is to bring levels of contaminants below removal levels for the protection of workers from immediate threats, it is not intended to address possible long-term remedial goals such as remediating the contamination below the building. Nullifying established observed exposure based on the effects of such a temporary system would artificially shield the contamination underlying the building from scoring and ignore the potential threat posed by this contamination. Additionally, as discussed in sections 3.14.1, Consideration of the SSDS and Current Conditions, and 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, although concentrations of the scored hazardous substances may have decreased during operation of the SSDS, there is continued indication that levels meeting observed exposure criteria persist.

Therefore, the SSDS does not demonstrate that there is no unacceptable risk of exposure in both regularly occupied subunits. The structure is still subject to a correctly established observed exposure and identified as AOE 1, and the hazardous waste quantity factor value assigned would not change with consideration of the SSDS.

This comment has no effect on the HRS site score or the decision to place the Site on the NPL.

3.19 Targets - Level I Concentrations Benchmarks

Comment: Meritor asserted that the EPA used incorrect screening levels in the HRS documentation record, which "[o]verstates the SsI Component at the Site." Meritor noted that the "EPA attributes these benchmark levels to an internet site titled Superfund Chemical Data Matrix (SCDM) Query." The American Chemistry Council (ACC), Meritor, Arcadis, and Golder questioned the appropriateness of the health-based benchmarks used in the HRS evaluation. The commenters raised several issues, including:

- Incorrect benchmarks are used to score the HRS subsurface intrusion component.
- HRS benchmarks used are below EPA removal and other EPA-approved levels.
- Indoor air concentrations do not reflect current conditions; therefore, this information should not have been used to establish Level I concentrations.

Response: The screening levels used in establishing Level I concentrations in the HRS documentation record at proposal were correctly applied and consistent with the HRS.

The following subsections address specific comments related to the screening concentration benchmarks:

- 3.19.1 SCDM Values and Benchmarks Below Removal Levels
- 3.19.2 Non-Cancer and Cancer Benchmarks
- 3.19.3 Level I Concentrations and Current Levels

3.19.1 SCDM Values and Benchmarks Below Removal Levels

Comment: Meritor argued that the use of TCE cancer and non-cancer benchmarks obtained from SCDM in the HRS evaluation was inappropriate, as the levels are inconsistent with, and below, those that the EPA has

previously established at the Site.[37] Specifically, Meritor identified the following benchmarks that have previously been approved for use by the EPA at the Site[38]:

- An EPA removal level of 8.8 μg/m^3 and a health-based benchmark of 3.0 μg/m^3, "which is the appropriate level for purposes of HRS scoring"
- Interim threshold values of 8.8 and 26.0 μg/m^3
- Indoor air screening values "from the USEPA VI Screening Level (VISL) calculator and USEPA Regional Screening Levels for Worker Composite Air and correspond to hazard index of 1 or a carcinogenic risk level of 1x10E^{-6}"
- Removal management levels of 8.8 μg/m^3 for sensitive populations and 26 μg/m^3 for non-sensitive populations.

Meritor also argued that use of the SCDM benchmarks in the HRS evaluation overstates "indoor air concerns in the Building" and "disregards the criteria set forth" in the HRS subsurface intrusion component, which calls for using a "[s]creening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for inhalation exposures (air migration pathway or subsurface intrusion component of the soil exposure and subsurface intrusion pathway)." Meritor reiterated that the EPA's "published values establish the 10^{-6} individual cancer risk exposure at 3.0 μg/m^3 and the non-cancer risk at 8.8 μg/m^3. Therefore, the "use of SCDM-based benchmarks that are almost an order of magnitude below cancer risk and non-cancer risk benchmarks that have been established by EPA and accepted by the scientific community as protective values is an arbitrary and capricious action and is unacceptable for evaluating the Site under the SsI Pathway."

Response: The HRS documentation record at proposal uses the correct health-based benchmarks to establish populations subject to Level I concentrations, as required by the HRS. The health-based benchmarks required by the HRS are not the same as the removal management levels. (Removal management levels are site-specific levels used in evaluating immediate risks to human health and indicating a need for immediate response actions, and may be different than the benchmarks required by the HRS, which are developed to address long-term risks.) The HRS TCE cancer risk screening concentration of 4E-04 mg/m^3 [or 0.4 μg/m^3] for inhalation exposures is used in scoring HRS sites. This concentration is calculated for inhalation exposures, the inhalation unit risk, a 10^{-6} risk level and *chronic exposure parameters consistent with a resident individual* exposure scenario. Similarly, consistent with the HRS and relevant guidance in calculating the HRS TCE non-cancer risk screening concentration for inhalation exposures, the reference concentration (RfC), a hazard quotient of 1, and *chronic exposure parameters consistent with a resident individual* exposure scenario are used to generate the HRS TCE non-cancer risk screening concentration value of 2E-03 mg/m^3 [2.0 μg/m^3] used in scoring HRS sites. When calculating HRS cancer and non-cancer risk screening concentrations, the reasonable maximum exposure (RME) scenario consistent with a resident individual is uniformly applied across all HRS pathways as this is most protective. This supports consistent application of the HRS as a screening tool to assess the relative risk posed by sites.

The EPA is not relying on SCDM as the authority for assigning the health-based benchmarks. Instead, the directions provided in the HRS and EPA guidance are used to derive the factor values and benchmarks that are presented in the SCDM. HRS directions and EPA guidance on how to calculate cancer and non-cancer screening concentrations for HRS sites are provided in the HRS and in EPA risk assessment guidance document as detailed

[37] Meritor cite to References 43 and 60 of the HRS documentation record at proposal:
- Reference 43: Arcadis. *Revised Facility Interim Air Monitoring Plan, Granada Manufacturing, LLC, Grenada, Mississippi.* April 17, 2017. 15 Pages.
- Reference 60: Arcadis. *Revised Facility Interim Air Monitoring Plan, Grenada Mississippi.* April 17, 2017. 15 Pages.

[38] Meritor cited to Exhibit 6 (a December 26, 2017 letter from EPA Region 4) of its comment document (docket ID EPA-HQ-OLEM-2017-0608-0077).

below. The HRS documentation record at proposal and Reference 2[39]of the HRS documentation record include citations that support the cancer and non-cancer risk screening concentrations. As detailed below, for HRS benchmarks, a residential individual chronic exposure scenario is used in calculating screening concentrations as opposed to an acute and/or subchronic worker exposure scenario used in deriving removal action levels.

HRS Directions

Considerations for the HRS benchmarks applicable for evaluating the subsurface intrusion component of the soil exposure and subsurface intrusion pathway are provided in HRS Section 2.5.2, *Comparison to benchmarks*, and HRS Table 5-20. HRS Section 2.5.2, *Comparison to benchmarks*, (82 FR 2788, January 9, 2017) which provides the media-specific benchmark to consider in an HRS evaluation, and defines the cancer and non-cancer screening concentrations, as follows:

- Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk for inhalation exposures (air migration pathway or subsurface intrusion component of the soil exposure and subsurface intrusion pathway) or for oral exposures (ground water migration pathway; drinking water and human food chain threats in surface water migration pathway; and soil exposure and subsurface intrusion pathway).
- Screening concentration for noncancer toxicological responses corresponding to the RfC for inhalation exposures (air migration pathway and subsurface intrusion component of the soil exposure and subsurface intrusion pathway) or RfD for oral exposures (ground water migration pathway; drinking water and human food chain threats in surface water migration pathway; and soil).

HRS Table 5-20 (82 FR 2800, January 9, 2017) lists the benchmarks specific to the subsurface intrusion component of the soil exposure and subsurface intrusion pathway. These are the benchmarks to be used when evaluating targets subject to actual contamination via the subsurface intrusion component of the HRS. That table lists the following benchmarks:

> Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk using the inhalation unit risk. For oral exposures use the oral cancer slope factor.
>
> Screening concentration for noncancer toxicological Responses corresponding to the reference dose (RfD) for oral exposure and the reference concentration (RfC) for inhalation exposures.

Considerations for the guidance to consider when calculating HRS cancer and non-cancer screening concentrations are provided in the preamble to the 1990 HRS. When the1990 HRS was promulgated, the EPA did not include the risk posed by subsurface intrusion in evaluating sites for the NPL. However the Addition of a Subsurface Intrusion Component to the HRS (82 FR 2760, January 9, 2017) evaluates this threat and the overall structure for benchmarks was retained from the 1990 HRS.

Section III.H, *Benchmarks*, of the 1990 HRS (55 FR 51547) states the following which provides the considerations that should be implemented for calculating HRS benchmarks:

> EPA . . . concluded that the consistent application of benchmarks across all pathways provides for the most reasonable use of data given the purpose of the HRS as a screening tool. [55 FR 51547]
>
> . . .

[39] Reference 2 of the HRS documentation record at proposal: EPA. Superfund Chemical Data Matrix (SCDM). Accessed August 8, 2017. Accessed on-line at: https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm-query. 3 Pages.

> EPA conducted a number of analyses on specific benchmarks and on the modification of factors to consider in establishing HRS benchmarks. As a result of public comments and these analyses, EPA has concluded that the HRS is improved by including concentrations based on nationally uniform standards, criteria, or toxicity values as health-based or ecological- based benchmarks in all pathways and threats. EPA's conclusion is based on several considerations. First, the addition of benchmarks across all pathways and the use of ARARs for those benchmarks improves linkages with the RI/FS process. That is, the HRS benchmarks will be those used most frequently during RI/FS, and the additional points provided by equaling or exceeding a benchmark will aid in identifying areas requiring follow-up in the RI/FS. [55 FR 51547]
>
> . . .
>
> All benchmarks are set in reference to uniform exposure assumptions that are consistent with RI/FS procedures [55 FR 51548]

Section III.D, *Toxicity*, of the 1990 HRS (55 FR 51547) states the following and introduces EPA guidance documents for assessing risk at sites:

> EPA believes that because the HRS is a screening tool, it should maintain a conservative (i.e., protective) approach to evaluation of potential cancer risks. EPA'S 1986 *Guidelines for Carcinogen Risk Assessment* (51 FR 34014, September 24, 1986)…. In general, according to EPA's 1989 *Risk Assessment Guidance for Superfund: Human Health Evaluation Manual* [RAGS/HHEM] ….[55 FR 51544]

The Technical Support Document for the 1990 HRS explains that a maximally exposed individual should be considered; this is in keeping with risk assessment procedures performed in an RI/FS (Sections 3.5.1, 4.4.3.1 and 5.6.2 of the *1988 Revised HRS Technical Support Document*). Similarly, the Technical Support Document for the Addition of the Subsurface Intrusion Component to the HRS reiterates this consideration because the EPA believes that this approach improves the ability of the HRS to identify sites that pose the greatest threat to human health and the environment and increases the internal consistency of the HRS (Section 5.2.b.i of the *Technical Support Document for U.S. EPA's Final Rule: Addition of a Subsurface Intrusion Component to the Hazard Ranking System*[40]).

Risk Assessment Guidance

When the 1990 HRS was developed, the guidance for calculating screening concentrations was provided in the EPA's *Risk Assessment Guidance for Superfund: Human Health Evaluation Manual* (1989)[41]. Section 6.1.2 of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (1989)[42], which states:

> Actions at Superfund sites should be based on an estimate of the reasonable maximum exposure (RME) expected to occur under both current and future land-use conditions. The reasonable maximum exposure is defined here as the highest exposure that is reasonable expected to occur at a site.

Thus, for HRS scoring purposes the reasonable maximum exposure considers long-term/chronic exposures and is based on the methodology outlined in the EPA's *Risk Assessment Guidance for Superfund, Part B* (1991) and

[40] Available at https://www.regulations.gov/document?D=EPA-HQ-SFUND-2010-1086-0105.
[41] Risk Assessment Guidance for Superfund: Human Health Evaluation Manual (1989) has since been updated and is accessible at: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part.
[42] EPA/540/1-89/002, *Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)* (December 1989) [with EPA notes]: https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf.

Exposure Factors Handbook (2011)[43]. The *Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual* (RAGS/HHEM) Part B provides guidance on using U.S. Environmental Protection Agency (EPA) toxicity values and exposure information to derive risk-based preliminary remedial goals (PRGs) for a CERCLA site. PRGs are initial clean-up goals that (1) are protective of human health and the environment and (2) comply with ARARs. PRGs are developed early in the process based on readily available information and are modified to reflect results of the baseline risk assessment. They also are used during analysis of remedial alternatives in the remedial investigation/feasibility study (RI/FS).

HRS Documentation Record at Proposal

The HRS documentation record at proposal, on pages 40 and 41 and Table 10, presents the samples meeting Level I concentrations and the HRS benchmarks that were applicable for evaluating Level I concentrations. Table 10 on page 41 of the HRS documentation record at proposal correctly lists the TCE benchmarks used for HRS purposes—a non-cancer benchmark of 2.0 µg/m^3 and a cancer benchmark of 0.40 µg/m^3, citing to page 3 of Reference 2 of the HRS documentation record at proposal, which is an excerpt of output from the Superfund Chemical Data Matrix [44].

Superfund Chemical Data Matrix

The Superfund Chemical Data Matrix (SCDM) contains factor values and screening concentration benchmarks for those hazardous substances frequently found at sites; these factor values and benchmarks are used when applying the Hazard Ranking System. The SCDM methodology describes the data collection process and screening concentration calculations and is publicly accessible at: https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm. As described in section 1.0, Introduction, of that methodology, all factor values and benchmarks contained in SCDM are derived according to the directions of the HRS and EPA guidance. The SCDM Query function enables the public to access all data parameters used to derive HRS factor values and benchmarks. A link to SCDM was provided on page 1 of Reference 2 of the HRS documentation record at proposal. The SCDM query page is accessible at: https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm-query.

Documentation of how the TCE cancer and non-cancer screening concentration benchmarks are calculated is provided in the following sections of the SCDM Methodology: 4.1, Screening Concentration Benchmarks for the Air Migration Pathway and SsI Component; 4.1.1 Non-carcinogenic – Air and SsI, Inhalation; 4.1.2, Carcinogenic – Air and SsI, Inhalation; 4.1.4, Carcinogenic through a Mutagenic Mode of Action – Air and SsI, Inhalation; and 4.1.4.2, Trichloroethylene – Air and SsI, Inhalation.

Section 4.1, Screening Concentration Benchmarks for the Air Migration Pathway and SsI Component, of the SCDM Methodology provides an introduction to the equations and the exposure parameters used in those equations. All HRS screening concentrations use exposure parameters consistent with reasonable maximum exposure conditions for long-term/chronic exposure. Regarding the cancer and non-cancer risk screening concentrations/benchmarks for inhalation, SCDM Methodology section 4.1 explains:

> The following equations are used to determine air inhalation screening concentration benchmarks for the air migration pathway and SsI component. The benchmarks use exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for long-term/chronic exposures and are based on the methodology outlined in the EPA's *Risk Assessment Guidance for Superfund, Part B* (1991), *Risk Assessment Guidance for Superfund, Part F* (2009) and *Exposure Factors Handbook* (2011). General equations are provided in Section 4.1.1 (non-carcinogenic benchmarks) and Section 4.1.2 (carcinogenic benchmarks). An equation specific for asbestos is

[43] EPA/540/R-92/003, *Risk Assessment Guidance for Superfund: Volume I -Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals)* (December 1991): https://epa-prgs.ornl.gov/radionuclides/HHEMB.pdf.

[44] Reference 2 of the HRS documentation record at proposal, as described in the Reference List of the HRS documentation record at proposal: EPA. *Superfund Chemical Data Matrix (SCDM).* Accessed August 8, 2017. Accessed on-line at: https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm-query. 3 Pages.

> provided in Section 4.1.3. Equations that are specific for substances that are carcinogenic through a mutagenic mode of action, including vinyl chloride and trichloroethylene (TCE), are provided in Section 4.1.4; these equations are taken from EPA's *Handbook for Implementing the Supplemental Cancer Guidance at Waste and Cleanup Sites*. Equations used for radionuclides are provided in Section 4.1.5.

Comparison of HRS TCE Screening Concentrations and Removal Management Levels

HRS screening concentrations and removal management levels are not calculated using the same exposure scenarios. The HRS cancer risk and non-cancer risk screening concentrations are protective for long-term exposures. The reasonable maximum exposure conditions reflect long-term/chronic exposures and are uniformly applied in calculating HRS cancer and non-cancer risk benchmarks. In contrast, RMLs are used to support EPA's decision to undertake a removal action.

RMLs may or may not be site-specific and more importantly are not intended for long-term exposures or remedial purposes. The Regional Removal Management Levels (RMLs) User's Guide[45] notes that:

> Calculated RMLs should not be confused with or used as Preliminary Remediation Goals (PRGs), cleanup levels or cleanup standards required by the Applicable or Relevant and Appropriate Requirements (ARARs) under CERCLA. RMLs may be used to support the decision to undertake a removal action, but final cleanup levels should be selected to address the site-specific threat. . . . calculated RMLs are not meant to define protective levels and are not de facto cleanup levels.

The HRS TCE cancer risk screening concentration for inhalation [4E-04 mg/m^3 (or 0.4 $\mu g/m^3$)] uses the inhalation unit risk [4.1 E-06 $(\mu g/m^3)^{-1}$], a 10^{-6} risk level, and chronic exposure parameters consistent with a resident individual. These parameters are an exposure time of 24 hours per day, an exposure frequency of 350 days per year, an exposure duration of 26 years, and an averaging time of 365 days for 70-year life. The HRS TCE non-cancer risk screening concentration for inhalation [2E-03 mg/m^3 (2.0 $\mu g/m^3$)], uses the reference concentration (RfC)[46] [2.0 E-03 mg/m^3], a hazard quotient of 1, and chronic exposure parameters consistent with a resident individual. These parameters are an exposure time of 24 hours per day, an exposure frequency of 350 days per year, and an exposure duration of 26 years. (See Sections 4.1.1 and 4.1.4.2 of the SCDM Methodology; https://semspub.epa.gov/work/HQ/100001070.pdf).

Regarding the levels noted by the commenter, each represents a different kind of value than the SsI component screening concentrations calculated for HRS purposes:

- EPA RML of 8.8 $\mu g/m^3$ and regional screening level (RSL) of 3.0 $\mu g/m^3$
  - These levels were calculated using different exposure scenarios than the long term/chronic exposure scenario considered for HRS screening concentrations benchmarks.
  - The EPA site-specific TCE RML of 8.8 $\mu g/m^3$ considers a *composite worker* scenario, the TCE *reference concentration* of 2E-03 mg/m^3, and a target hazard quotient of 1. This scenario considers a noncarcinogenic endpoint and thus *is reflective of a noncarcinogenic screening concentration in a worker setting.* Because a composite worker scenario is considered, the exposure time (8 hours per day), exposure frequency (250 days per year), and the exposure duration (25 years) are different than that considered for a long-term resident individual exposure as stated above.[47] Note that such

[45] Available at https://www.epa.gov/risk/regional-removal-management-levels-rmls-users-guide.

[46] The inhalation unit risk and reference concentration are sourced from the EPA IRIS database, as shown in the SCDM website toxicity data elements table for TCE (available at https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm-query?substanceAuto=&c=000079-01-6&d=d1).

[47] For this bullet on the TCE removal level of 8.8 $\mu g/m^3$ and the next bullet on EPA TCE removal level of 3.0 $\mu g/m^3$ see: EPA Regional Removal Management Levels (RMLs) User's Guide, https://www.epa.gov/risk/regional-removal-management-levels-rmls-users-guide; Regional Screening Levels (RSLs) - User's Guide, 4.2 Composite Worker, https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide#compositeworker; Regional Screening Level (RSL)

weighting specific to worker exposure scenarios is not built into the HRS-specified screening concentrations, but is included elsewhere in the HRS SsI component. For example, HRS Section 5.2.1.3.2.1, *Level I concentrations*, instructs dividing the number of full-time workers by 3 and the number of part-time workers by 6. Section III.B.5.c of the preamble to the 2017 SsI Addition (82 FR 2769, January 9, 2017) explains this population weighting for workers is to reflect the limited exposure of a worker in the workplace.

- The EPA TCE RSL of 3.0 µg/m^3 considers a *composite worker* and an *indoor worker* scenario, the TCE inhalation unit risk, and the target risk of 10^{-6}. This scenario considers a carcinogenic endpoint and thus *is reflective of a carcinogenic screening concentration in a composite worker setting or an indoor worker.* Because a worker scenario is considered, exposure parameters (e.g., the exposure duration, exposure frequency, and average time of the exposure to the substance) are different for a worker and they impact the RSL calculated.

- RMLs of 8.8 and 26.0 µg/m^3
  - The RML of 8.8 µg/m^3 is discussed above.
  - The EPA TCE RML for non-sensitive populations of 26.0 µg/m^3 considers a *composite worker* and an *indoor worker scenario*, the same reference concentration, and a *target hazard quotient of 3*. This scenario considers a noncarcinogenic endpoint and thus *is reflective of a noncarcinogenic screening concentration in composite worker* or an *indoor worker setting.* Because a composite worker or an indoor worker scenario is selected, and the target hazard quotient is increased, the exposure duration, exposure frequency, averaging time, and risk level for an adverse effect from the exposure to the substance are different than that of a resident individual and, thus, they impact the action level calculated.[48]

- Indoor air screening values "from the USEPA VI Screening Level (VISL) calculator and USEPA Regional Screening Levels for Worker Composite Air and correspond to hazard index of 1 or a carcinogenic risk level of 1x10E-6"
  - The Commercial Vapor Intrusion Screening Level (VISL)[49] of 8.76 [rounded to 8.8] µg/m^3 for indoor air for TCE is based on a noncarcinogenic endpoint and a hazard quotient of 1. The commercial VISL of 2.99 [rounded to 3.0] µg/m^3 for indoor air for TCE is based on a carcinogenic endpoint and a target risk of 10^{-6}.[50]
  - The EPARSL for a composite worker of 2.99 [rounded to 3.0] µg/m^3 for TCE is based on a carcinogenic endpoint and a target risk of 10^{-6}. The USEPA RSL for an indoor worker of 8.76 [rounded to 8.8] µg/m^3 for TCE is based on a noncarcinogenic endpoint and a target hazard quotient of 1.[51]
  - The EPA notes that the VISL and the RSL are consistent with each other for the screening levels commented on by the commenter.

- Removal management levels of 8.8 µg/m^3 for sensitive populations and 26 µg/m^3 for non-sensitive populations

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Composite Worker Ambient Air Table, https://semspub.epa.gov/work/HQ/197249.pdf; RSL Calculator, https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search.

[48] See: EPA Regional Removal Management Levels (RMLs) User's Guide, https://www.epa.gov/risk/regional-removal-management-levels-rmls-users-guide; EPA Regional Screening Levels (RSLs) - User's Guide, 4.2 Composite Worker, https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide#compositeworker; EPA RML Calculator, https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search?tool=rml.

[49] See: EPA Vapor Intrusion Screening Levels (VISL) Calculator, https://epa-visl.ornl.gov/cgi-bin/visl_search

[50] See: EPA Vapor Intrusion Screening Level Calculator, https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator; EPA Vapor Intrusion Screening Levels (VISL) Calculator, https://epa-visl.ornl.gov/cgi-bin/visl_search.

[51] See: EPA Regional Screening Level (RSL) Composite Worker Ambient Air Table https://semspub.epa.gov/work/HQ/197249.pdf.

- The removal management level of 8.8 µg/m^3 is explained above.
- The removal management level of 26 µg/m^3 is explained above.

Implementation by EPA Region 4

Finally, the specific implementation of the RMLs by Region 4 further identifies that the approach and purpose of these values is different from that of HRS-specified screening concentrations. EPA Region 4's Scientific Support Section (SSS) uses the indoor air screening levels from EPA's RSLs table (https://www.epa.gov/risk/regional-screening-levels-rsls) to screen data from indoor air samples. SSS calculates removal management levels, sometimes referred to as action levels, using the same protocols provided in the Regional RMLs table (https://www.epa.gov/risk/regional-removal-management-levels-chemicals-rmls). Below is a table that provides the RSLs and RMLs for TCE in a commercial/industrial (i.e., worker) setting:

Commercial/Industrial Indoor Air Regional Screening Levels	Commercial/Industrial Indoor Air Removal Management Levels	Commercial/Industrial Indoor Air Removal Management Levels for Sensitive Sub-population
3 µg/m^3	26 µg/m^3	8.8 µg/m^3

The above levels are in place to address inhalation exposures to TCE in indoor air from the subsurface vapor intrusion pathway and/or ambient air. The purpose of these screening and removal management levels is to be protective of sensitive and vulnerable populations, especially women in the first trimester of pregnancy, because of the potential for cardiac malformations to the developing fetus. This approach is consistent with recommendations provided in EPA's Office of Solid Waste and Emergency Response (OWSER; now called Office of Land and Emergency Management (OLEM)) memo titled *Compilation of Information Relating to Early/Interim Actions at Superfund Sites and the TCE IRIS Assessment* dated August 27, 2014.

EPA identifies an inhalation level of concern for non-cancer hazards based on the ratio of the exposure concentration in air to a reference concentration (RfC), which includes a margin of safety such that at the RfC and below there is little chance of an adverse effect. This ratio is defined as a Hazard Quotient and abbreviated "HQ". EPA's Integrated Risk Information System (IRIS) 2011 toxicity assessment concluded that TCE exposure poses potential human health hazards for non-cancer toxicity to multiple organs and systems and to the developing fetus, including fetal cardiac malformations. This and other findings in the IRIS assessment of TCE indicates that women in the first trimester of pregnancy are one of the most sensitive populations to TCE inhalation exposure. For fetal cardiac malformations, a specific developmental effect, the critical period for exposure is considered to be the approximate 3-week period in the first trimester of pregnancy during which the heart develops. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and OSWER, now called Office of Land and Emergency Management (OLEM), guidance memorandum provides for early or interim actions where warranted by the hazards posed by site-related contamination. The RMLs for sensitive sub-populations protect against potential non-cancer outcomes, including developmental effects such as cardiac malformations. The EPA is trying to protect women of reproductive age as the sensitive population of concern, rather than only pregnant women, because some women may not be aware of their pregnancy during the critical period of the first trimester.

It is recommended that once these RMLs are exceeded and exposures are occurring, that early actions are taken as soon as possible. When selecting a response to reduce or avoid inhalation exposures to TCE, the EPA recommends the following early or interim response actions (mitigation measures) be considered, along with how quickly they can be implemented:

- Increasing building pressurization and/or ventilation
- Sealing potential conduits where vapors may be entering the building
- Treating indoor air (carbon filtration, air purifiers)

- Installing and operating engineered exposure controls (sub-slab/crawlspace, depressurization systems)
- Temporarily relocating occupants until concentrations are reduced to below the appropriate RML.

The goal of early, interim, and/or final remedial actions should be to reduce indoor air concentrations to remain below a HQ of 1 in all areas of the building. This would allow for a safe work environment for all workers.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19.2 Non-Cancer and Cancer Benchmarks

Comment: ACC and Meritor questioned the appropriateness of the health-based benchmarks used in the HRS targets factor category evaluation.

ACC questioned the science used to establish the non-cancer health-based benchmark identified in the EPA's Superfund Chemical Data Matrix (SCDM). ACC identified that the non-cancer screening concentration for TCE of 2.0 µg/m^3 used in the HRS documentation record is based on toxicological information in the EPA Integrated Risk Information System (IRIS) assessment of TCE (specifically the IRIS reference concentration [RfC] for TCE). ACC challenged that this underlying assessment is not based on the best available science and provided a detailed critique of the IRIS assessment. ACC in particular questioned the validity of one of the two studies used in IRIS as a point of departure for derivation of the RfC, Johnson *et. al*.[52] As part of this critique, ACC cited the findings of other authorities:

> In reviewing the same data, the National Research Council dismissed the FHM [fetal heart malformations] findings because of the unusually flat dose-response curve and the inconsistency of the results with those from other, better conducted studies.[53] Similarly California's Office of Environmental Health Hazard Assessment (OEHHA) rejected the FHM studies because they did not produce a meaningful or interpretable dose-response relationship.[54] OEHHA also noted that the results are not consistent with earlier developmental and reproductive toxicological studies done outside this lab in other animal species. More recently, in a 2014 update of the assessment of the fetal heart data, seven of 11 EPA scientists characterized the confidence in the dose-response evaluation of the cardiac data as "low," a conclusion which differs significantly from that of the 2011 IRIS assessment. [citing an EPA OPPT document[55]] Despite the clear concern about the FHM studies expressed by most scientists -- including many within the Agency -- EPA has made no attempt to update or correct its assessment.

ACC asserted that due to the "significant criticism of the study underlying the Non-Cancer Risk Benchmark Concentration for TCE, EPA should withdraw the proposed listing of the Site on the NPL" until the EPA's re-evaluation of TCE under the Lautenberg Chemical Safety Act is complete.

Meritor argued that the HRS evaluation used the incorrect screening levels. Specifically, Meritor stated that the EPA's "published values establish the 10^{-6} individual cancer risk exposure at 3.0 µg/m^3 and the non-cancer risk at

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[52] ACC cites EPA. IRIS Toxicity Profile for Trichloroethylene (CASRN 79-0 1-6) (2011). (Available at https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=199.); specifically pointing to the study performed by Johnson *et. al*. (Johnson, P.; Goldberg, S.; Mays, M.; Dawson, B. (2003). Threshold of trichloroethylene contamination in maternal drinking waters affecting fetal heart development in the rat. Environ Health Perspect, 111, 289-292. http://www.ncbi.nlm.nih.gov/pubmed/12611656)

[53] ACC cites National Research Council (NRC). Assessing the Human Health Risks of Trichloroethylene: Key Scientific Issues. Washington, DC: National Academies Press. (2006).

[54] ACC cites Office of Environmental Health Hazard Assessment (OEHHA). Public health goals for chemicals in drinking water – trichloroethylene. OEHHA. Sacramento, CA (2009).

[55] ACC cites TCE developmental cardiac toxicity assessment update (undated). Document ID EPA-HQ-OPPT-2012-0723-0045.

8.8 μg/m^3. Meritor asserted that the use of SCDM-based benchmarks that are almost an order of magnitude below cancer risk and non-cancer risk benchmarks that have been established by EPA and accepted by the scientific community as protective values is an arbitrary and capricious action and is unacceptable for evaluating the Site under the SsI Pathway." Meritor commented that the TCE screening levels used rely on a specific study of teratogenicity in rats, and that the scientific community has found fault in the study.

Response: The documentation record at proposal used the correct screening concentration benchmarks, as required by the HRS. Further, the TCE Level I concentrations identified exceed both the cancer and non-cancer screening concentrations; because the cancer screening concentration is the lower of the two benchmarks, the non-cancer screening concentration in question is not needed in establishing Level I concentrations for the Site, as the HRS specifies that Level I concentrations are established based on the lower of the applicable benchmarks. Thus, the Site score is not affected by the non-cancer benchmark. Additionally, the basis of the non-cancer screening concentration—the IRIS RfC, and specifically the point of departure from the Johnson *et. al.* study used in the IRIS assessment—is not the subject of this NPL listing, and this rulemaking is not the appropriate forum for scientific debate on these values. Finally, ACC misrepresented the findings of the EPA Office of Pollution Prevention and Toxics (OPPT) assessment; the assessment does identify reduced confidence in the Johnson et. al. study, however, ACC omits the assessment team's conclusion that in spite of this, the results of the study are appropriate for generating a point of departure.

As explained in section 3.19.1, SCDM Values and Benchmarks Below Removal Levels, of this support document, the cancer risk screening concentration and non-cancer risk screening concentration presented in the HRS documentation record at proposal were generated consistent with the HRS (and the cancer and non-cancer screening concentrations are based on the inhalation unit risk and reference concentration values, respectively, published by EPA IRIS).

The non-cancer screening concentration is not needed in establishing Level I concentrations for the Site. That is, although both the cancer and non-cancer benchmarks are presented in the HRS documentation record, per the HRS, observed exposure concentrations need only exceed the lower of the two; the cancer screening concentration is the lower, and therefore the non-cancer benchmark is not needed for the identification of Level I target concentrations for TCE. In the identification of Level I targets for the SsI component, HRS Section 5.2.1.3.1, *Exposed individual*, states:

> Evaluate this factor based on whether there is an exposed individual, as specified in sections 2.5.1, 2.5.2 and 5.2.1.3, who is subject to Level I or Level II concentrations.
>
> First, determine those regularly occupied structures or partitioned subunit(s) within structures in an area of observed exposure subject to Level I concentrations and those subject to Level II concentrations as specified as follows (see section 5.2.0):
>
> - Level I Concentrations: For contamination resulting from subsurface intrusion, compare the hazardous substance concentrations in any sample meeting the observed exposure by chemical analysis criteria to the appropriate benchmark. Use the health-based benchmarks from Table 5– 20 to determine the level of contamination.
>   - If the sample is from a structure with no subunits and the concentration equals or exceeds the appropriate benchmark, assign Level I concentrations to the entire structure.
>   - If the sample is from a subunit within a structure and the concentration from that subunit equals or exceeds the appropriate benchmark, assign Level I concentrations to that subunit.

HRS Table 5-20, *Health-Based Benchmarks for Hazardous Substances in the Subsurface Intrusion Component*, lists the following benchmarks:

> Screening concentration for cancer corresponding to that concentration that corresponds to the 10^{-6} individual cancer risk using the inhalation unit risk. For oral exposures use the oral cancer slope factor.
>
> Screening concentration for noncancer toxicological Responses corresponding to the reference dose (RfD) for oral exposure and the reference concentration (RfC) for inhalation exposures.

HRS Section 2.5.1 *Determination of level of actual contamination at a sampling location*, states in relevant part:

> Determine whether Level I concentrations or Level II concentrations apply at a sampling location (and thus to the associated targets) as follows:
> - Select the benchmarks applicable to the pathway (component or threat) being evaluated.
> - Compare the concentrations of hazardous substances in the sample (or comparable samples) to their benchmark concentrations for the pathway (component or threat), as specified in section 2.5.2.
> - Determine which level applies based on this comparison.

HRS Section 2.5.2, *Comparison to benchmarks*, lists media-specific benchmarks for use across HRS pathways, and instructs that Level I concentrations are identified based on the lowest applicable benchmark, stating:

> Select the benchmark(s) applicable to the pathway (component or threat) being evaluated as specified in sections 3 through 6. Compare the concentration of each hazardous substance from the sampling location to its benchmark concentration(s) for that pathway (component or threat). Use only those samples and only those hazardous substances in the sample that meet the criteria for an observed release (or observed contamination or observed exposure) for the pathway, except: Tissue samples from aquatic human food chain organisms may be used as specified in sections 4.1.3.3 and 4.2.3.3. If the concentration of any applicable hazardous substance from any sample equals or exceeds its benchmark concentration, consider the sampling location to be subject to Level I concentrations for that pathway (or threat). **If more than one benchmark applies to the hazardous substance, assign Level I if the concentration of the hazardous substance equals or exceeds the lowest applicable benchmark concentration**. [emphasis added]

Table 10 of the HRS documentation record at proposal presents the TCE concentrations identifying Level I concentrations, and each exceeds both the cancer and non-cancer screening concentrations:

TABLE 10: AOE 1 Level I Concentrations – Subunit B

Sample ID	Hazardous Substance	Concentration	Background Level	Benchmark Concentrations	Benchmarks*	References
GRMS1026IA0B1	TCE	11 µg/m^3	3.5 µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 33, pp. 17, 25
GRMS1026IA0B2	TCE	11 µg/m^3	3.5 µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 33, pp. 18, 25
GRMS1026IA0B3	TCE	29 µg/m^3	3.5 µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 33, pp. 19, 25
GRMS1026IA0B4	TCE	13 µg/m^3	3.5 µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 33, pp. 20, 25
GRMS1026IA0B5	TCE	12 µg/m^3	3.5 µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 33, pp. 21, 25
GRMS0120IA0B1	TCE	23 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 23, 32

GRMS0120IA0B2	TCE	22 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 24, 32
GRMS0120IA0B3	TCE	81 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 25, 32
GRMS0120IA0B4	TCE	12 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 26, 32
GRMS0120IA0B5	TCE	12 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 27, 32
GRMS0120IA0B6	TCE	6.5 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 29, 32
GRMS0120IA0B7	TCE	35 µg/m^3	3.02U µg/m^3	2.0/0.40 µg/m^3	NCR/CR	2, p. 3; 34, pp. 30, 32

Additionally, the basis of the non-cancer screening concentration—the IRIS RfC, and specifically the point of departure from the Johnson et. al. study used in the IRIS assessment as one of the two values to determine the RfC—are not the subject of this NPL listing, and this rulemaking is not the appropriate forum for scientific debate on these values. As further described in section 3.19.1, SCDM Values and Benchmarks Below Removal Levels, of this support document, the non-cancer screening concentration was generated based on EPA's currently accepted RfC for TCE, as published in EPA's IRIS database[56]. This assessment published in 2011 was subjected to peer review and public comment, as detailed in the IRIS September 2011 document, Toxicological Review of Trichloroethylene, Appendix I: EPA Response to Major Peer Review and Public Comments[57].

Finally, ACC misrepresented the findings of the EPA Office of Pollution Prevention and Toxics (OPPT) assessment in asserting that:

> [in] a 2014 update of the assessment of the fetal heart data, seven of 11 EPA scientists characterized the confidence in the dose-response evaluation of the cardiac data as "low," a conclusion which differs significantly from that of the 2011 IRIS assessment.

The document to which ACC refers is a 2014 OPPT evaluation, TCE Developmental Cardiac Toxicity Assessment Update, available at Regulations.gov under ID EPA-HQ-OPPT-2012-0723-0045 (https://www.regulations.gov/document?D=EPA-HQ-OPPT-2012-0723-0045). Page 1 of the document identifies that it is "an update on the potential for cardiac defects resulting from exposures to trichloroethylene," and that its purpose is to "address the identified issues and to ensure rigorous scientific review of associations between short-term exposure to TCE and fetal cardiac defects," stating that "EPA decided to update the analysis of the developmental cardiac toxicity data." Included in the background, the document notes concerns associated with the Johnson *et. al.* study, stating that:

> After the IRIS document was finalized, some concerns were raised with respect to short-term exposures to TCE and one of the health effects, fetal heart defects, identified in the IRIS assessment and on which the inhalation reference concentration is partially based. A study by Johnson et al. (2003), which reports the results of research on TCE in drinking water, including the findings of Dawson et al. (1993), is included in a group of studies on which the reference values are based in the 2011 IRIS assessment, and is one of several lines of evidence regarding the potential developmental toxicity of TCE. Concerns have been raised by stakeholders about the Johnson et al. (2003) study and EPA's use of this study for short-term risk evaluation. Specific issues raised include the need for 1) a systematic evaluation of study quality, 2) a detailed description of the study design (e.g., the source of concurrent controls), 3) a reexamination of the dose response for cardiac defects, and 4) an evaluation of the study results in light of studies that did not observe cardiac defects with in utero exposures. In addition, concerns have been raised

[56] The IRIS TCE assessment is available at https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=199.
[57] Available at https://www.epa.gov/iris/supporting-documents-trichloroethylene.

> regarding the interpretation of the epidemiological database for cardiac defects associated with TCE exposures.

In the Dose-Response analysis of the Johnson *et. al.* study, concerning the suitability of the study in determining a point of departure, it states:

> **On the whole, a majority of the team members agreed that the Johnson et al. (2003) is suitable for use in deriving a point of departure**. The study has an appropriate design for dose-response analysis in terms of route, duration, and number dose groups. Additionally, this judgment also took into consideration the strengths and limitations of the study and uncertainties identified in the weight of evidence analysis. Additional support was derived from the finding of a robust, statistically significant dose-response relationships not only for the dataset as a whole, but also for various subsets of the dataset. Although some concern was raised regarding the plateau in the Johnson et al. (2003) response, its biological plausibility could not be ruled out based on examination of available historical developmental toxicity datasets. [emphasis added]

In the summary of animal toxicology data, it was determined that there has not been an exact repeat of the Johnson et al. (2003) and Dawson et al. (1993) studies that would corroborate or refute the cardiac defect findings of these two studies. In the summary of animal toxicology data on pages 5-6 the document states:

> In spite of the concordant evidence that TCE can be associated with cardiac defects, controversy centers on the studies by Johnson et al. (2003) and Dawson et al. (1993) and that two other well-conducted developmental toxicity studies in rats did not observe treatment-related cardiac defects following gavage or inhalation gestational exposures to TCE, i.e., in Fisher et al. (2001) and Carney et al. (2006), respectively). **Detailed examination of the study protocols has identified several differences in study design and conduct**, including but not limited to differences in route of administration that may have contributed to the variant study outcome. In the case of the Fisher et al. (2001) study, as previously noted, care was taken to follow the Johnson et al. (2003) fetal evaluation procedures as closely as possible, yet a number of other differences in study design and conduct remained. For example, the source of the animals, the route of exposure, the vehicle/control substance, fetal cardiac tissue preservation methods, and some fetal cardiac evaluation procedures were different. In conclusion, **there has not been a confirmation of the results of the Johnson et al. (2003) and Dawson et al. (1993) studies by another laboratory, but there has also not been a repeat of the exact same study design that would corroborate or refute their findings**. [emphasis added]

In its conclusion on pages 11-12 of the document, the assessment confirms ACC's statements regarding reduced confidence in the Johnson *et. al.* study, however, ACC omits the assessment team's conclusion that in spite of this, the results of the study are appropriate for generating a point of departure.

> Overall, taking into account the study's design, its strengths and limitations, and uncertainties in the weight of evidence, **a majority of the team members agreed that the Johnson et al. (2003) study was suitable for use in deriving a point of departure**. However, confidence of team members in the dose response evaluation of the cardiac defect data from the Johnson et al. (2003) study was characterized as between "low" and "medium" (with 7 of 11 team members rating confidence as "low" and four team members rating confidence as "low to medium"). **Nonetheless, the team members concluded that the point of departure derived in the 2011 TCE assessment, which used an approach consistent with standard U.S. EPA dose response practices, remained a reasonable choice**. The IRIS TCE assessment (U.S. EPA, 2011) indicated "moderate" confidence in the candidate reference values for developmental cardiac effects (pp. 5-96 and 5-100) and "high" confidence for the non-cancer reference values based upon multiple effects which included the developmental cardiac defects (p. 6-43). **The majority of the team**

> **agreed that the results of the present analysis are consistent with the dose-response conclusions of the 2011 IRIS TCE assessment.**

Additionally, page 12 of the OPPT assessment acknowledges the 2006 National Research Council document pointed to by ACC and suggests future research based on the recommendations of that document.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.19.3 Level I Concentrations and Current Levels

Comment: Arcadis asserted that the TCE sample concentration of 81 $\mu g/m^3$ (sample GRMS0120IA0B3) and the concentration values in Table 10 of the HRS documentation record at proposal used to establish that indoor air concentrations exceed the applicable health-based benchmark is not "representative of current conditions prior to listing, or even conditions starting in August 2017 when the SSDS began to operate." Arcadis noted that numerous samples have been collected at the same location at which the relevant sample identified in the HRS documentation record was collected in January 2017 and some of these samples exhibited TCE concentrations below the 8.8 $\mu g/m^3$ RML established for the Site.

Response: The HRS documentation record at proposal correctly established that the TCE concentration present in sample GRMS0120IA0B3 and other samples identified in Table 10 qualify as Level I contaminant concentrations, as the sample concentrations are greater than the cancer risk benchmark. The presence of lower TCE levels at other points in time does not negate the established observed exposure and Level I concentrations. Similarly, the effects of the temporary mitigation system do not nullify observed exposure and Level I concentrations established in samples collected prior to its operation.

As detailed in sections 3.19.1, SCDM Values and Benchmarks Below Removal Levels, and 3.19.2, Non-Cancer and Cancer Benchmarks, of this support document, the HRS documentation record used a cancer screening concentration benchmark consistent with the HRS, and presented indoor air concentrations exceeding that benchmark to correctly identify Level I concentrations.

The detection of lower indoor concentrations in samples collected after the samples used in HRS scoring does not negate the observed exposures and Level I concentrations established in the HRS documentation record at proposal. First, there is no HRS requirement that concentrations in a given structure/location remain consistent, remain above observed exposure criteria, or remain above Level I screening concentration benchmarks over time. HRS Section 5.2.1.1.1, *Observed exposure*, provides the criteria for establishing observed exposure in a regularly occupied structure. It states:

> Establish observed exposure in a regularly occupied structure by demonstrating that a **hazardous substance has been released** into a regularly occupied structure via the subsurface. Base this demonstration on either of the following criteria: [emphasis added]
>
> Direct observation:
>
> - A solid, liquid, or gaseous material that contains one or more hazardous substances attributable to the site has been observed entering a regularly occupied structure through migration via the subsurface or is known to have entered a regularly occupied structure via the subsurface, or
> - When evidence supports the inference of subsurface intrusion of a material that contains one or more hazardous substances associated with the site into a regularly occupied structure, demonstrated adverse effects associated with that release may be used to establish observed exposure.
>
> Chemical analysis:

- Analysis of indoor samples indicates that the concentration of hazardous substance(s) is significantly above the background concentration for the site for that type of sample (see section 2.3).
- Some portion of the significant increase above background must be attributable to the site to establish the observed exposure. Documentation of this attribution should account for possible concentrations of the hazardous substance(s) in outdoor air or from materials found in the regularly occupied structure, and should provide a rationale for the increase being from subsurface intrusion.

If observed exposure can be established in a regularly occupied structure, assign an observed exposure factor value of 550, enter this value in Table 5–11, and proceed to section 5.2.1.1.3. If no observed exposure can be established, assign an observed exposure factor value of 0, enter this value in Table 5– 11, and proceed to section 5.2.1.1.2.

In determining whether a structure is subject to Level I concentrations, HRS Section 5.2.1.3.1, *Exposed individual*, states in relevant part:

- Level I Concentrations: For contamination resulting from subsurface intrusion, compare the hazardous substance concentrations **in any sample meeting the observed exposure by chemical analysis criteria to the appropriate benchmark**. Use the health-based benchmarks from Table 5–20 to determine the level of contamination. [emphasis added]
  - If the sample is from a structure with no subunits and the concentration equals or exceeds the appropriate benchmark, assign Level I concentrations to the entire structure.
  - If the sample is from a subunit within a structure and the concentration from that subunit equals or exceeds the appropriate benchmark, assign Level I concentrations to that subunit.

Therefore, the HRS does not require that concentrations in a given structure/location remain consistent, remain above observed exposure criteria, or remain above Level I screening concentration benchmarks over time. And, such temporal variability is expected—e.g., in the preamble to the 2017 SsI Addition, section V.B Major Comment Theme Summaries and Responses, Establishing Observed Exposure (82 FR 2777, January 9, 2017), temporal and spatial variability contaminant levels associated with subsurface intrusion (as well as contaminant levels in other HRS pathways) is acknowledged and expected. However, lower concentrations at one point in time do not nullify the identification of observed exposure or Level I concentrations identified at the same location at another point in time.

Further, even a pattern of declining concentrations induced by the operation of the SSDS does not negate prior establishment of observed exposure and Level I concentrations. As further explained in section 3.14, Consideration of Removal Action/Current Conditions, of this support document, and its subsections, the SSDS is a temporary mitigation system that does not fully address the contamination at the Site, including the contamination underlying the main plant building. While the goal of the SSDS is to bring levels of contaminants below removal levels for the protection of workers, it is not intended to address possible long-term remedial goals such as dealing with the contamination below the building. Nullifying established observed exposure/Level I concentrations based on the effects of such a temporary system would artificially shield the contamination underlying the building from scoring and ignore the potential threat posed by this contamination. Additionally, as noted in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, data obtained during the SSDS pilot study and supplemental data from samples collected following full scale operation of the SSDS, which began on December 29, 2017, show that subsurface intrusion of contaminants continues, and some concentrations identified indicate that observed exposure levels and Level I concentrations have not been eliminated by the system (and one result during SSDS operation exceeded the TCE RML).

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.20 Site Score

Comment: Meritor and Golder asserted that after consideration of the operational SSDS and correction of some incorrect assumptions by the EPA, the Site's HRS site score decreases from 50.00 to 1.96 and the Site is no longer eligible for placement on the NPL.

On the likelihood of exposure, Golder asserted that with optimal operation of the SSDS, indoor air concentrations would consistently fall "below Health-Based Benchmarks and approach background levels"; therefore, it argued that it is appropriate to "assess the Potential for Exposure" using the following scoring:

Structure containment:	Assigned value 2 (Regularly occupied structure with a permanent engineered, active vapor mitigation without documented institutional controls and funding in place for ongoing operation, inspection and maintenance)
Depth to contamination:	Assigned value 10 (least depth to contaminated media less than 10 ft.)
Vertical Migration:	Assigned value 15 (Depth to contamination 10 ft. or less)
Vapor Migration Potential:	Assigned value 25 (Depth to contamination 10 ft. or less)

This yields an assigned Potential for Exposure value of 100 and a corresponding Likelihood of Exposure of 100

Golder asserted that the HRS documentation record erroneously included the entire footprint of the main plant building (208,501 square feet) in the Site's area of observed exposure and in the hazardous waste quantity factor evaluation. Instead, it claimed that an area less than 88,000 square feet in size should be used in assigning the hazardous waste quantity factor value. Golder based this assertion on the HRS subsurface intrusion component's requirement that "the footprint of each regularly occupied structure *in areas of observed exposure and areas of subsurface contamination*" be used in the evaluation. Using this requirement, Golder argued that based on the available sampling data (e.g., subslab vapor and soil samples) and the performance of the building's SSDS, "the area of subsurface contamination beneath the main plant building contributing to vapor intrusion can be conservatively assessed as the area of influence of the SSDS." Golder therefore argued that "EPA's Hazardous Waste Quantity evaluation, and the associated assigned value of 10,000, is overestimated and a corrected value of 100 is appropriate."
Golder asserted that the waste characteristics factor category value of 56 presented in the HRS documentation record is incorrect and a corrected value of 18 should be assigned instead due to the aforementioned revised hazardous waste quantity factor value of 100.

Golder stated that, "only one location sampled during operation of the SSDS exceeded Health-Based Benchmarks, and further improvements in indoor air quality are anticipated." Nonetheless, Golder stated that it is "conservative to assume that Level I concentrations could occur." Therefore, Golder asserted that an exposed individual factor value of 50 should be assigned.

Golder stated that since the SSDS began operation, an observed exposure has not been documented in Sub-Unit A and, based on the observations in Sub-Unit B and the known source location, observed exposures would not be expected in Sub-Unit A. Golder further noted that if Level II concentrations are still present in Sub-Unit A, "their inclusion would make a minimal difference to the Target score."

Regarding the workers present in Sub-Unit B, Golder agreed with the HRS documentation record that the population subject to Level I concentrations would be calculated by dividing the number of workers by 3. However, Golder asserted that based on current conditions, these workers would be subject to a structure containment value of 2, which after being multiplied by the structure containment factor value results in a population factor value of 130. Regarding the structure containment factor evaluation in the HRS documentation record, Golder and Meritor disagreed with the structure containment factor value of 10 that was assigned, stating that it "is only appropriate for structures with evidence of subsurface intrusion or open preferential subsurface intrusion pathways and without mitigation systems." Based on the corrections to the population evaluation, Golder stated that a revised target factor category value of 180 results.

Golder stated that based on the aforementioned corrections to the HRS scoring evaluation, if the potential for exposure factor were evaluated, the resulting subsurface intrusion component score would be 3.93. Golder continued, asserting that if the "EPA's less representative assumption of 'Observed Exposure' is made, the corresponding score is 21.60."

Golder contended that the HRS site score should be 1.96 based on the Site conditions at the time of proposal to the NPL and evaluating the potential for exposure. Alternatively, Golder argued that using the one indoor air concentration exceeding the health-based benchmark and "EPA's less representative assumption of 'Observed Exposure,'" an HRS site score of 10.80 would result.

Golder reiterated that using "information available to EPA at the time of publication of the HRS documentation record" to revise the HRS subsurface intrusion component evaluation, the correct HRS site score is 1.96. Golder also emphasized that the revisions would be consistent with "EPA's published policies on consideration of proactive Removal Actions and updating of HRS scores." Golder asserted that whether the potential for exposure or observed exposure factor is evaluated, the resulting site score (1.96) does not meet the criteria for placement on the NPL.

Response: The HRS Site score was correctly calculated in the HRS documentation record at proposal. On each point, Golder's scoring assessment is shown to be incorrect in other sections of this support document, as follows:

- Section 3.17.1, Observed Exposure: Consideration of VI Mitigation System, of this support document, explains that the observed exposure established in the HRS documentation record at proposal is correct. An observed exposure is unaffected by the operation of the SSDS and not invalidated by the data generated following operation of the system. Therefore, the likelihood of exposure factor category value of 550 is correct.
- As explained in sections 3.17.1, Observed Exposure: Consideration of VI Mitigation System, and 3.17.3, Potential for Exposure, of this support document, because a valid observed exposure was established, it is inappropriate to evaluate the potential for exposure factor per the HRS.
- As explained in section 3.17.4, Structure Containment, of this support document, the structure containment factor value of 10 assigned in the HRS documentation record at proposal is correctly assigned per the HRS, as an observed exposure was documented in AOE 1 and open preferential pathways from the subsurface environment into the main plant building exist.
- As explained in section 3.18, Waste Characteristics - Hazardous Waste Quantity, of this support document, the commenters have misinterpreted the evaluation of the Tier D area measure for the subsurface intrusion component. The hazardous waste quantity estimate of 208,501 ft^2 calculated for AOE 1, and used in the hazardous waste quantity factor value evaluation at proposal, was correctly determined per the HRS based on the entire footprint of the structure/subunit(s) with observed exposure. This quantity is appropriately not based on only the portion of the structure overlying an area where contamination is known to be present in the subsurface. Therefore, the hazardous waste quantity factor value of 10,000 identified in the HRS documentation record at proposal is correctly assigned in

accordance with the HRS and the resulting waste characteristics factor category value remains unchanged from 56 as assigned in the HRS documentation record at proposal.

Golder did not challenge the establishment of Level I concentrations in its rescoring. However, its statement that "only one" sample during SSDS exceeded health-based benchmarks implies that this is somehow barely sufficient. It is notable that the HRS only requires one sample exceeding the HRS-prescribed pathway/component-specific benchmarks to identify Level I concentrations (as shown in quotes from HRS Section 5.2.1.3.1, *Exposed individual*, HRS Section 2.5.1 *Determination of level of actual contamination at a sampling location*, and HRS Section 2.5.2, *Comparison to benchmarks*, provided in section 3.19.2, Non-Cancer and Cancer Benchmarks, of this support document). Additionally, the sample result mentioned by Golder collected during SSDS operation exceeding the Level I benchmark further indicates a persisting threat in indoor air.

Further, on the subject of Level I concentrations, as shown in section 3.19.2, Non-Cancer and Cancer Benchmarks, of this support document, several samples presented in the HRS documentation record at proposal exceeded the relevant cancer screening concentration benchmark identifying Level I concentrations. And, as explained in section 3.19.3, Level I Concentrations and Current Levels, of this support document, the presence of lower levels at other points in time does not negate the established observed exposure and Level I concentrations. The effects of the temporary mitigation system do not nullify observed exposure and Level I concentrations established in samples collected prior to its operation.

Finally, it is noted that in Golder's rescoring, Golder multiplied target population by the containment factor. This is not a calculation specified by the HRS and would be incorrect if potential for exposure were evaluated.

Therefore, Golder's rescoring of the site is incorrect and the HRS scoring presented in the HRS documentation record at proposal is correct and consistent with the HRS.

These comments result 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 Rockwell International Wheel & Trim site are:

Ground Water Migration	Not Scored
Surface Water Migration	Not Scored
Soil Exposure and Subsurface Intrusion	100.00
Air Migration	Not Scored
HRS SITE SCORE	50.00

Appendix A

Supplemental Indoor Air Monitoring Data

Appendix A – Supplemental Indoor Air Monitoring Data

The following Tables (A-1 and A-2) summarize analytical results for indoor air and outdoor air samples collected for the Site between June 2017 and June 2018. Of the available data, results for cis-1,2-DCE, TCE, and toluene—the hazardous substances scored in the HRS evaluation—are summarized below, and supplement the results provided in the HRS documentation record at proposal and analytical results submitted as part of comment documents. As discussed in section 3.14.1, Consideration of the SSDS and Current Conditions, of this support document, these results confirm the continued intrusion of contamination into indoor air.

Table A-1 contains passive sampler results for indoor air and these results are paired with the outdoor ambient air sample collected during the same timeframe. Table A-2 contains evacuated cylinder sampler results analyzed by EPA Method TO-15. Some of these data were collected during operation of the SSDS, which ran for 30 days during pilot study activities from August 12, 2017 to September 11, 2017, then was permanently restarted December 29, 2017; indoor air samples collected during those timeframes represent the effects of the SSDS on indoor contaminant levels. In Table A-1, bolded results appear to indicate observed exposure levels based on comparison with the associated ambient air background sample results for the same sampling event. For TCE, each of the bolded results also exceeds the HRS cancer screening concentration (0.4 µg/m3), indicating HRS Level I concentrations. Yellow-highlighted results for TCE also exceed the removal management level of 8.8 µg/m^3.

Following these tables are the June 2018 updated table of air monitoring results submitted to EPA by Arcadis as part of the routine monitoring activities (in Appendix B of this support document) from which the below data were extracted. Also, following Tables A-1 and A-2 is a list of relevant reports associated with these data that are part of the docket documents submitted by Meritor, or have been added to the Region 4 docket as further supplemental information (including validation reports and laboratory reports submitted to the EPA by Arcadis).

Table A-1 Passive Sampler Radiello 130 Results (µg/m^3)

Sample ID	Sample Location ID	Location / Column	Sample Duration	Sample Dates	cis-1,2-DCE	TCE	Toluene
A-5-BC	A-5	CMM Room / C-12	24-hrs	6/28/2017	2.0 J	**6.4**	**2**
B-3-BC	B-3	F-16	24-hrs	6/28/2017	2.2 J	**28**	**1.5**
B-4-BC	B-4	D-14	24-hrs	6/28/2017	1.4 J	**6.9**	**1.8**
B-6-BC	B-6	B-19	24-hrs	6/28/2017	7.6 J	**12**	< 0.95
B-8-BC	B-8	G-18	24-hrs	6/28/2017	1.6 J	**8**	**1.5**
B-9-BC	B-9	E-10	24-hrs	6/28/2017	2.5 J	**14**	**2**
Amb-1-BC	AMB-SW	Southwest side of the facility	24-hrs	6/28/2017	< 0.99 UJ	< 0.90	< 0.84
A-5	A-5	CMM Room / C-12	28-days	7/13/2017 - 8/10/2017	4.1 J	**11**	**1.5**
B-3	B-3	F-16	28-days	7/13/2017 - 8/10/2017	0.56 J	**26**	**1.7**
R-B-4	B-4	D-14	7-days	7/13/2017 - 7/20/2017	2.4 J	**11**	**3.5**
B-4	B-4	D-14	28-days	7/13/2017 - 8/10/2017	0.74 J	**10**	**2.7**
R-B-6	B-6	B-19	7-days	7/13/2017 - 7/20/2017	1.9 J	**6.1**	1.5
B-6	B-6	B-19	28-days	7/13/2017 - 8/10/2017	1.1 J	**6.6**	**1.4**
B-8	B-8	G-18	28-days	7/13/2017 - 8/10/2017	0.63 J	**10**	**1.7**
B-9	B-9	E-10	28-days	7/13/2017 - 8/10/2017	0.82 J	**10**	**1.8**
AMB-7D*	AMB-SW	Southwest side of the facility	7-days	7/13/2017 - 7/20/2017	0.16 UJ	< 0.14	0.57

Sample ID	Sample Location ID	Location / Column	Sample Duration	Sample Dates	cis-1,2-DCE	TCE	Toluene
AMB-28D	AMB-SW	Southwest side of the facility	28-days	7/13/2017 - 8/10/2017	< 0.040 C	0.044	0.45
A-5	A-5	CMM Room / C-12	28-days	8/13/2017 - 9/11/2017	0.34 J	**0.93**	**2**
B-3	B-3	F-16	28-days	8/13/2017 - 9/11/2017	0.20 J	**6.3**	**1.6**
B-4	B-4	D-14	28-days	8/13/2017 - 9/11/2017	0.22 J	**1.8**	**2**
B-6	B-6	B-19	28-days	8/13/2017 - 9/11/2017	1.2 J	**2.6**	0.94
B-8	B-8	G-18	28-days	8/13/2017 - 9/11/2017	0.11 J	**1.2**	0.94
B-9	B-9	E-10	28-days	8/13/2017 - 9/11/2017	0.23 J	**2.6**	**2.5**
AMB-28D	AMB-SW	Southwest side of the facility	28-days	8/13/2017 - 9/11/2017	< 0.038 UJ	0.048	0.5
A-5	A-5	CMM Room / C-12	24-hrs	8/31/2017	< 1.1 UJ	< 0.99	**1.5**
B-3	B-3	F-16	24-hrs	8/31/2017	< 1.1 UJ	**5.2**	**1.7**
B-4	B-4	D-14	24-hrs	8/31/2017	< 1.1 UJ	< 0.98	**2**
B-6	B-6	B-19	24-hrs	8/31/2017	< 1.1 UJ	< 0.99	< 0.92
B-8	B-8	G-18	24-hrs	8/31/2017	< 1.1 UJ	**1.1**	**1.2**
B-9	B-9	E-10	24-hrs	8/31/2017	< 1.1 UJ	**1.6**	**1.8**
AMB-24H	AMB-SW	Southwest side of the facility	24-hrs	8/31/2017	< 1.1 UJ	< 0.99	< 0.93
B-4-7D	B-4	D-14	7-days	8/31/2017 - 9/7/2017	0.34 J	**1.7**	**2.5**
B-6-7D	B-6	B-19	7-days	8/31/2017 - 9/7/2017	1.4 J	**2.4**	1.1
AMB-7D	AMB-SW	Southwest side of the facility	7-days	8/31/2017 - 9/7/2017	< 0.16 UJ	< 0.14	0.53
A-5	A-5	CMM Room / C-12	28-days	9/11/2017 - 10/9/2017	2.1 J	**2.6**	**2.2**
B-3	B-3	F-16	28-days	9/11/2017 - 10/9/2017	0.37 J	**7.6**	**2.2**
B-4	B-4	D-14	28-days	9/11/2017 - 10/9/2017	0.48 J	**4.2**	**1.7**
B-6	B-6	B-19	28-days	9/11/2017 - 10/9/2017	1.9 J	**6.1**	0.92
B-8	B-8	G-18	28-days	9/11/2017 - 10/9/2017	0.20 J	**2**	0.92
B-9	B-9	E-10	28-days	9/11/2017 - 10/9/2017	0.65 J	**4.7**	**1.8**
AMB-28D	AMB-SW	Southwest side of the facility	28-days	9/11/2017 - 10/9/2017	< 0.040 UJ	0.082	0.52
A-5	A-5	CMM Room / C-12	24-hrs	9/27/2017	4.1 J	**4.1**	**2.3**
B-3	B-3	F-16	24-hrs	9/27/2017	< 1.1 UJ	**7.8**	**1.4**
B-4	B-4	D-14	24-hrs	9/27/2017	1.2 J	**4.7**	**2**
B-6	B-6	B-19	24-hrs	9/27/2017	2.9 J	**4.8**	< 0.94
B-8	B-8	G-18	24-hrs	9/27/2017	< 1.1 UJ	**3.1**	**1.1**
B-9	B-9	E-10	24-hrs	9/27/2017	1.6 J	**5.1**	**1.7**
AMB-24hr	AMB-SW	Southwest side of the facility	24-hrs	9/27/2017	< 1.1 UJ	< 1.0	< 0.94
B-3	B-3	F-16	7-days	1/11/2018 - 1/18/2018	0.44 J	**2.2**	**7.4**
B-6	B-6	B-19	7-days	1/11/2018 - 1/18/2018	1.2 J	**2**	**6.2**
B-9	B-9	E-10	7-days	1/11/2018 - 1/18/2018	0.90 J	**2.8**	**7.4**
AMB-SW-7D	AMB-SW	Southwest side of the facility	7-days	1/11/2018 - 1/18/2018	< 0.17 UJ	< 0.15	0.41
B-3	B-3	F-16	28-days	2/6/2018 - 3/6/2018	0.22 J	**1.9**	< 0.034
B-6	B-6	B-19	28-days	2/6/2018 - 3/6/2018	2.6 J	**7**	< 0.034
B-9	B-9	E-10	28-days	2/6/2018 - 3/6/2018	0.23 J	**1.7**	< 0.034
AMB-SW-28D	AMB-SW	Southwest side of the facility	28-days	2/6/2018 - 3/6/2018	< 0.040 UJ	< 0.036	< 0.034

Sample ID	Sample Location ID	Location / Column	Sample Duration	Sample Dates	cis-1,2-DCE	TCE	Toluene
B-3	B-3	F-16	28-days	3/6/2018 - 4/3/2018	0.26 J	**2**	**2.1**
B-6	B-6	B-19	28-days	3/6/2018 - 4/3/2018	1.7 J	**4.7**	**1.3**
B-9	B-9	E-10	28-days	3/6/2018 - 4/3/2018	0.30 J	**1.7**	**2.1**
AMB-SW-28D	AMB-SW	Southwest side of the facility	28-days	3/6/2018 - 4/3/2018	< 0.040 UJ	< 0.036	0.41
B-3	B-3	F-16	28-days	4/3/2018 - 5/1/2018	0.19 J	**1.6**	**1.5**
B-6	B-6	B-19	28-days	4/3/2018 - 5/1/2018	1.8 J	**4.7**	**1.9**
B-9	B-9	E-10	28-days	4/3/2018 - 5/1/2018	0.26 J	**1.5**	**2**
AMB-SW-28D	AMB-SW	Southwest side of the facility	28-days	4/3/2018 - 5/1/2018	< 0.040 UJ	< 0.036	0.31
B-3	B-3	F-16	28-days	5/1/2018 - 5/29/2018	0.077 J	**2**	1.2
B-6	B-6	B-19	28-days	5/1/2018 - 5/29/2018	1.1 J	**4.8**	0.46
B-9	B-9	E-10	28-days	5/1/2018 - 5/29/2018	0.065 J	**0.73**	1.3
AMB-SW-28Day	AMB-SW	Southwest side of the facility	28-days	5/1/2018 - 5/29/2018	< 0.040 UJ	< 0.036	0.44
B-3	B-3	F-16	28-days	5/29/2018 - 6/26/2018	0.091 J	**2.2**	**1.5**
B-6	B-6	B-19	28-days	5/29/2018 - 6/26/2018	0.65 J	**4.7**	1.2
B-9	B-9	E-10	28-days	5/29/2018 - 6/26/2018	0.047 J	**26**	**1.8**
AMB-SW-28D	AMB-SW	Southwest side of the facility	28-days	5/29/2018 - 6/26/2018	< 0.040 UJ	< 0.036	0.45

J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
Bold Appear to indicate observed exposure levels based on associated ambient air background sample.
Yellow Exceeds TCE removal management level of 8.8 µg/m^3.
Note: All TCE concentrations indicating observed exposure levels also exceed HRS cancer screening concentration (0.4 µg/m^3), qualifying as Level I concentrations.
* 7-day ambient air sample AMB-7D collected 7/13/2017 - 7/20/2017 was not included in the tables in Appendix B of this support document, but is included in the validation report for July 20, 2017, samples (see Arcadis Data Review document for SDG #1707320 and Eurofins package for work order #1707320 included in the Region 4 docket).

Table A-2 TO-15 Results (µg/m^3)

Sample ID	Sample Location ID	Location / Column	Sample Duration	Sample Dates	cis-1,2-DCE	TCE	Toluene
A-5-BC	A-5	CMM Room / C-12	24-hrs	6/28/2017	1.4	5.8	1.7
B-3-BC	B-3	F-16	24-hrs	6/28/2017	1.8	25	1.4
B-4-BC	B-4	D-14	24-hrs	6/28/2017	1.1	6.1	1.7
B-6-BC	B-6	B-19	24-hrs	6/28/2017	2.5	4.8	0.51
B-8-BC	B-3	G-18	24-hrs	6/28/2017	1.2	7.1	1.5
B-9-BC	B-9	E-10	24-hrs	6/28/2017	1.8	12	1.9

Yellow Exceeds TCE removal management level of 8.8 µg/m^3

List of associated reports:

- Reports available as part of comment submittals
  - Arcadis Facility Indoor Air Monitoring Report, December 4, 2017. Available in Meritor submissions, docket IDs EPA-HQ-OLEM-2017-0608-0093 through -0098, -0111 through -0113.
  - Arcadis Enhanced Pilot Study Summary Report, November 1, 2017. Available in Meritor submissions, docket IDs EPA-HQ-OLEM-2017-0608-0082 through -0091, -109, -110, -0209, -0210.

- Reports available at the Region 4 docket[58]
  - Arcadis Grenada Manufacturing Data Review for SDG #1707036R1, SDG #1707045R3, SDG #1707320 (Report 28167R, Report #28166R, Report #28194R). This includes:
    - Arcadis Grenada Manufacturing Data Review for SDG #1707036R1, Report #28167R.
    - Arcadis Grenada Manufacturing Data Review for SDG #1707045R3, Report #28166R.
    - Arcadis Grenada Manufacturing Data Review for SDG #1707320, Report #28194R.
    - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1707036R1.
    - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1707045R3.
    - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1707320.
  - Arcadis Grenada Manufacturing Data Review for SDG #1801269, Report #29195R.
  - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1801269.
  - Arcadis Grenada Manufacturing Data Review for SDG #1803108, Report #29516.
  - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1803108.
  - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1804568.
  - Arcadis Grenada Manufacturing Data Review for SDG #1805039, Report #29761R.
  - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1805039.
  - Arcadis Grenada Manufacturing Data Review for SDG #1805548, Report #29962R.
  - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1805548.
  - Arcadis Grenada Manufacturing Data Review for SDG #1806519, Report #30201R.
  - Eurofins Laboratory Electronic Comprehensive Validation Package for Work Order #1806519.

[58] To view these documents, please contact the Region 4 docket. The contact information for the Region 4 docket is Cathy Amoroso, Region 4, U.S. EPA, 61 Forsyth Street SW, Mailcode 9T25, Atlanta, GA 30303; 404/562-8637.

Appendix B

June 2018 Indoor Air Monitoring Results Table

Table 1
Summary of Indoor Air and Ambient Air Analytical Results - June 2017 through June 2018
Grenada Manufacturing
Grenada, Mississippi

Sample Details								Constituent (µg/m^3)									
Sample ID	Sample Location ID	Location / Column	Consultant	Worker Shift	Sample Duration‡	Sample Dates	Analysis	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2-TCA	Benzene	Methylene Chloride	PCE	TCE	Toluene	Vinyl Chloride
Indoor Air - Zone B: Production Area																		
A-5-BC	A-5	CMM Room / C-12	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.13	< 0.064	1.4	< 0.64	< 0.18	0.30	< 1.1	< 0.22	5.8	1.7	< 0.041
A-5-BC			Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.94	< 3.8 UJ	2.0 J	< 2.4 UJ	< 1.1 UJ	< 3.6	NA	< 1.2	6.4	2.0	< 3.2 UJ
A-5			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	0.058	< 0.13 UJ	4.1 J	0.14 J	< 0.038 UJ	0.43	NA	0.18	11	1.5	< 0.11 UJ
A-5			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	< 0.99	1.5	< 3.0 UJ
A-5			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	0.084	< 0.12 UJ	0.34 J	< 0.080 UJ	< 0.036 UJ	0.46	NA	0.21	0.93	2.0	< 0.11 UJ
A-5			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	4.1 J	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	4.1	2.3	< 3.1 UJ
A-5			Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	0.044	< 0.13 UJ	2.1 J	< 0.083 UJ	< 0.038 UJ	0.46	NA	0.17	2.6	2.2	< 0.11 UJ
B-3-BC	B-3	F-16	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.13	0.073	1.8	< 0.65	< 0.18	0.28	< 1.1	0.47	25	1.4	< 0.042
B-3-BC			Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.82	< 3.3 UJ	2.2 J	< 2.1 UJ	< 0.96 UJ	< 3.2	NA	< 1.1	28	1.5	< 2.8 UJ
B-3			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 UJ	0.56 J	0.33 J	< 0.038 UJ	0.32	NA	0.18	26	1.7	< 0.11 UJ
B-3			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.2 UJ	< 1.0 UJ	< 3.4	NA	< 1.1	5.2	1.7	< 3.0 UJ
B-3			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	0.20 J	< 0.080 UJ	< 0.036 UJ	0.26	NA	0.091	6.3	1.6	< 0.11 UJ
B-3			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	7.8	1.4	< 3.1 UJ
B-3			Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	0.37 J	< 0.083 UJ	< 0.038 UJ	0.32	NA	0.30	7.6	2.2	< 0.11 UJ
B-3			Arcadis	All	7-days	1/11/2018 - 1/18/2018	RAD 130	< 0.12	< 0.50 UJ	0.44 J	< 0.32 UJ	< 0.14 UJ	3.3	NA	< 0.16	2.2	7.4	< 0.43 UJ
B-3			Arcadis	All	28-days	2/6/2018 - 3/6/2018	RAD 130	< 0.032	< 0.13 UJ	0.22 J	< 0.083 UJ	< 0.038 UJ	< 0.12	NA	0.15	1.9	< 0.034	< 0.11 UJ
B-3			Arcadis	All	28-days	3/6/2018 - 4/3/2018	RAD 130	0.060	< 0.13 UJ	0.26 J	< 0.082 UJ	< 0.037 UJ	0.57	NA	0.42	2.0	2.1	< 0.11 UJ
B-3			Arcadis	All	28-days	4/3/2018 - 5/1/2018	RAD 130	0.059	< 0.13 UJ	0.19 J	< 0.083 UJ	< 0.038 UJ	0.37	NA	0.67	1.6	1.5	< 0.11 UJ
B-3			Arcadis	All	28-days	5/1/2018 - 5/29/2018	RAD 130	0.042	< 0.13 UJ	0.077 J	< 0.082 UJ	< 0.037 UJ	0.29	NA	0.064	2.0	1.20	< 0.11 UJ
B-3			Arcadis	All	28-days	5/29/2018 - 6/26/2018	RAD 130	< 0.032	< 0.13 UJ	0.091 J	< 0.083 UJ	< 0.038 UJ	0.26	NA	0.098	2.2	1.5	< 0.11 UJ
B-4-BC	B-4	D-14	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.50	< 0.24	1.1	< 2.4	< 0.68	< 0.99	< 4.3	< 0.84	6.1	1.7	< 0.16
B-4-BC			Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.86	< 3.5 UJ	1.4 J	< 2.2 UJ	< 1.0 UJ	< 3.3	NA	< 1.1	6.9	1.8	< 3.0 UJ
R-B-4			Arcadis	All	7-days	7/13/2017 - 7/20/2017	RAD 130	< 0.13	< 0.53 UJ	2.4 J	< 0.33 UJ	< 0.15 UJ	< 0.50	NA	< 0.17	11.0	3.5	< 0.45 UJ
B-4			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 UJ	0.74 J	0.22 J	< 0.038 UJ	0.44	NA	0.18	10	2.7	< 0.11 UJ
B-4			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	< 0.98	2.0	< 3.0 UJ
B-4-7D			Arcadis	All	7-days	8/31/2017 - 9/7/2017	RAD 130	< 0.13	< 0.51 UJ	0.34 J	< 0.32 UJ	< 0.15 UJ	0.51	NA	< 0.16	1.7	2.5	< 0.43 UJ
B-4			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	0.22 J	< 0.080 UJ	< 0.036 UJ	0.58	NA	0.12	1.8	2.0	< 0.11 UJ
B-4			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	1.2 J	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	4.7	2.0	< 3.1 UJ
B-4			Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	0.48 J	< 0.083 UJ	< 0.038 UJ	0.49	NA	0.23	4.2	1.7	< 0.11 UJ
B-6-BC	B-6	B-19	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.13	< 0.065	2.5	< 0.65	< 0.18	< 0.26	< 1.1	< 0.22	4.8	0.51	< 0.042
B-6-BC			Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.91	< 3.7 UJ	7.6 J	< 2.3 UJ	< 1.1 UJ	< 3.5	NA	< 1.2	12	< 0.95	< 3.1 UJ
R-B-6			Arcadis	All	7-days	7/13/2017 - 7/20/2017	RAD 130	< 0.13	< 0.53 UJ	1.9 J	< 0.33 UJ	< 0.15 UJ	< 0.50	NA	< 0.17	6.1	1.5	< 0.44 UJ
B-6			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 UJ	1.1 J	< 0.083 UJ	< 0.038 UJ	0.35	NA	0.12	6.6	1.4	< 0.11 UJ
B-6			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.89	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	< 0.99	< 0.92	< 3.0 UJ
B-6-7D			Arcadis	All	7-days	8/31/2017 - 9/7/2017	RAD 130	< 0.13	< 0.51 UJ	1.4 J	< 0.32 UJ	< 0.15 UJ	< 0.49	NA	< 0.16	2.4	1.1	< 0.43 UJ
B-6			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	1.2 J	< 0.080 UJ	< 0.036 UJ	0.34	NA	0.089	2.6	0.94	< 0.11 UJ
B-6			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	2.9 J	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	4.8	< 0.94	< 3.1 UJ

Table 1
Summary of Indoor Air and Ambient Air Analytical Results - June 2017 through June 2018
Grenada Manufacturing
Grenada, Mississippi

ARCADIS Design & Consultancy for natural and built assets

Sample Details								Constituent (µg/m^3)									
Sample ID	Sample Location ID	Location / Column	Consultant	Worker Shift	Sample Duration‡	Sample Dates	Analysis	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2-TCA	Benzene	Methylene Chloride	PCE	TCE	Toluene	Vinyl Chloride
B-6	B-6	B-19	Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	1.9 J	< 0.083 UJ	< 0.038 UJ	0.34	NA	0.098	6.1	0.92	< 0.11 UJ
B-6			Arcadis	All	7-days	1/11/2018 - 1/18/2018	RAD 130	< 0.12	< 0.50 UJ	1.2 J	< 0.32 UJ	< 0.14 UJ	2.5	NA	< 0.16	2.0	6.2	< 0.43 UJ
B-6			Arcadis	All	28-days	2/6/2018 - 3/6/2018	RAD 130	< 0.032	< 0.13 UJ	2.6 J	< 0.083 UJ	< 0.038 UJ	< 0.12	NA	0.15	7.0	< 0.034	< 0.11 UJ
B-6			Arcadis	All	28-days	3/6/2018 - 4/3/2018	RAD 130	0.052	< 0.13 UJ	1.7 J	< 0.082 UJ	< 0.037 UJ	0.45	NA	0.12	4.7	1.3	< 0.11 UJ
B-6			Arcadis	All	28-days	4/3/2018 - 5/1/2018	RAD 130	0.062	< 0.13 UJ	1.8 J	< 0.083 UJ	< 0.038 UJ	0.34	NA	0.24	4.7	1.9	< 0.11 UJ
B-6			Arcadis	All	28-days	5/1/2018 - 5/29/2018	RAD 130	0.037	< 0.13 UJ	1.1 J	< 0.082 UJ	< 0.038 UJ	0.25	NA	0.061	4.8	0.46	< 0.11 UJ
B-6			Arcadis	All	28-days	5/29/2018 - 6/26/2018	RAD 130	< 0.032	< 0.13 UJ	0.65 J	< 0.083 UJ	< 0.038 UJ	0.31	NA	0.067	4.7	1.2	< 0.11 UJ
B-8-BC	B-8	G-18	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.14	< 0.068	1.2	< 0.68	< 0.19	0.63	< 1.2	< 0.23	7.1	1.5	< 0.044
B-8-BC			Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.80	< 3.2 UJ	1.6 J	< 2.1 UJ	< 0.94 UJ	< 3.1	NA	< 1.0	8.0	1.5	< 2.7 UJ
B-8			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 UJ	0.63 J	0.25 J	< 0.038 UJ	0.38	NA	0.18	10	1.7	< 0.11 UJ
B-8			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	1.1	1.2	< 3.0 UJ
B-8			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	0.11 J	< 0.080 UJ	< 0.036 UJ	0.29	NA	0.077	1.2	0.94	< 0.11 UJ
B-8			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	3.1	1.1	< 3.1 UJ
B-8			Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	0.20 J	< 0.083 UJ	< 0.038 UJ	0.31	NA	0.19	2.0	0.92	< 0.11 UJ
B-9-BC	B-9	E-10	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.12	< 0.061	1.8	< 0.61	< 0.17	0.44	< 1.1	0.26	12	1.9	< 0.040
B-9-BC			Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.88	< 3.6 UJ	2.5 J	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	14	2.0	< 3.0 UJ
B-9			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 UJ	0.82 J	0.22 J	< 0.038 UJ	0.38	NA	0.26	10	1.8	< 0.11 UJ
B-9			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	1.6	1.8	< 3.0 UJ
B-9			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	0.23 J	< 0.080 UJ	< 0.036 UJ	0.48	NA	0.21	2.6	2.5	< 0.11 UJ
B-9			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	1.6 J	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	5.1	1.7	< 3.1 UJ
B-9			Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	0.65 J	< 0.083 UJ	< 0.038 UJ	0.42	NA	0.42	4.7	1.8	< 0.11 UJ
B-9			Arcadis	All	7-days	1/11/2018 - 1/18/2018	RAD 130	< 0.12	< 0.50 UJ	0.90 J	< 0.32 UJ	< 0.14 UJ	2.9	NA	< 0.16	2.8	7.4	< 0.43 UJ
B-9			Arcadis	All	28-days	2/6/2018 - 3/6/2018	RAD 130	< 0.032	< 0.13 UJ	0.23 J	< 0.083 UJ	< 0.038 UJ	< 0.12	NA	0.21	1.7	< 0.034	< 0.11 UJ
B-9			Arcadis	All	28-days	3/6/2018 - 4/3/2018	RAD 130	0.053	< 0.13 UJ	0.30 J	< 0.082 UJ	< 0.037 UJ	0.57	NA	0.47	1.7	2.1	< 0.11 UJ
B-9			Arcadis	All	28-days	4/3/2018 - 5/1/2018	RAD 130	0.076	< 0.13 UJ	0.26 J	< 0.083 UJ	< 0.038 UJ	0.48	NA	1.4	1.5	2.0	< 0.11 UJ
B-9			Arcadis	All	28-days	5/1/2018 - 5/29/2018	RAD 130	0.054	< 0.13 UJ	0.065 J	< 0.082 UJ	< 0.037 UJ	0.32	NA	0.11	0.73	1.3	< 0.11 UJ
B-9			Arcadis	All	28-days	5/29/2018 - 6/26/2018	RAD 130	< 0.032	< 0.13 UJ	0.047 J	< 0.083 UJ	< 0.038 UJ	0.32	NA	0.190	26	1.8	< 0.11 UJ
Ambient Air																		
Amb-1-BC	AMB-SW	Southwest side of the facility	Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.80	< 3.2 UJ	< 0.99 UJ	< 2.1 UJ	< 0.94 UJ	< 3.1	NA	< 1.0	< 0.90	< 0.84	< 2.7 UJ
AMB-28D			Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 C	< 0.040 C	< 0.083 C	< 0.038 C	0.22	NA	< 0.042	0.044	0.45	< 0.11
AMB-24H			Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.89	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	< 0.99	< 0.93	< 3.0 UJ
AMB-7D			Arcadis	All	7-days	8/31/2017 - 9/7/2017	RAD 130	< 0.13	< 0.51 UJ	< 0.16 UJ	< 0.33 UJ	< 0.15 UJ	< 0.49	NA	< 0.16	< 0.14	0.53	< 0.43 UJ
AMB-28D			Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	< 0.038 UJ	< 0.080 UJ	< 0.036 UJ	0.30	NA	< 0.040	0.048	0.50	< 0.11 UJ
AMB-24hr			Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	< 1.0	< 0.94	< 3.1 UJ
AMB-28D			Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	< 0.040 UJ	< 0.083 UJ	< 0.038 UJ	0.27	NA	< 0.042	0.082	0.52	< 0.11 UJ
AMB-SW-7D			Arcadis	All	7-days	1/11/2018 - 1/18/2018	RAD 130	< 0.14	< 0.56 UJ	< 0.17 UJ	< 0.36 UJ	< 0.16 UJ	< 0.53	NA	< 0.18	< 0.15	0.41	< 0.47 UJ
AMB-SW-28D			Arcadis	All	28-days	2/6/2018 - 3/6/2018	RAD 130	< 0.032	< 0.13 UJ	< 0.040 UJ	< 0.083 UJ	< 0.038 UJ	< 0.12	NA	< 0.042	< 0.036	< 0.034	< 0.11 UJ
AMB-SW-28D			Arcadis	All	28-days	3/6/2018 - 4/3/2018	RAD 130	0.040	< 0.13 UJ	< 0.040 UJ	< 0.082 UJ	< 0.037 UJ	0.37	NA	< 0.042	< 0.036	0.41	< 0.11 UJ
AMB-SW-28D			Arcadis	All	28-days	4/3/2018 - 5/1/2018	RAD 130	0.033	< 0.13 UJ	< 0.040 UJ	< 0.083 UJ	< 0.038 UJ	0.26	NA	< 0.042	< 0.036	0.3	< 0.11 UJ
AMB-SW-28Day			Arcadis	All	28-days	5/1/2018 - 5/29/2018	RAD 130	< 0.032	< 0.13 UJ	< 0.040 UJ	< 0.082 UJ	< 0.037 UJ	0.22	NA	< 0.042	< 0.036	0.4	< 0.11 UJ
AMB-SW-28D			Arcadis	All	28-days	5/29/2018 - 6/26/2018	RAD 130	< 0.032	< 0.13 UJ	< 0.040 UJ	< 0.083 UJ	< 0.038 UJ	0.22	NA	< 0.042	< 0.036	0.45	< 0.11 UJ

Table 1
Summary of Indoor Air and Ambient Air Analytical Results - June 2017 through June 2018
Grenada Manufacturing
Grenada, Mississippi

Sample Details								Constituent (µg/m^3)									
Sample ID	Sample Location ID	Location / Column	Consultant	Worker Shift	Sample Duration‡	Sample Dates	Analysis	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	1,1,2-TCA	Benzene	Methylene Chloride	PCE	TCE	Toluene	Vinyl Chloride
QA/QC																		
DUP-1-BC	B-4	D-14	Arcadis	All	24-hrs	6/28/2017	TO-15	< 0.14	< 0.069	1.1	< 0.69	< 0.19	0.41	< 1.2	< 0.24	6.2	1.6	< 0.044
DUP-1-BC	B-4	D-14	Arcadis	All	24-hrs	6/28/2017	RAD 130	< 0.86	< 3.5 UJ	1.5 J	< 2.2 UJ	< 1.0 UJ	< 3.3	NA	< 1.1	7.3	1.9	< 3.0 UJ
DUP-2-BC	B-4	D-14	Arcadis	All	7-days	7/13/2017 - 7/20/2017	RAD 130	< 0.13	< 0.53 UJ	1.5 J	< 0.33 UJ	< 0.15 UJ	< 0.50	NA	< 0.17	11.0	3.2	< 0.45 UJ
Dup-3	B-3	F-16	Arcadis	All	28-days	7/13/2017 - 8/10/2017	RAD 130	< 0.032	< 0.13 UJ	0.29 J	0.15 J	< 0.038 UJ	0.26	NA	0.19	24	1.7	< 0.11 UJ
Dup-1	B-3	F-16	Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.2 UJ	< 1.0 UJ	< 3.4	NA	< 1.1	5.5	1.6	< 3.0 UJ
Dup-2	B-4	D-14	Arcadis	All	24-hrs	8/31/2017	RAD 130	< 0.88	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.4	NA	< 1.2	< 0.98	2.3	< 3.0 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	8/13/2017 - 9/11/2017	RAD 130	< 0.031	< 0.12 UJ	0.23 J	< 0.080 UJ	< 0.036 UJ	0.27	NA	0.091	6.4	1.7	< 0.11 UJ
Dup-1	B-3	F-16	Arcadis	All	24-hrs	9/27/2017	RAD 130	< 0.90	< 3.6 UJ	< 1.1 UJ	< 2.3 UJ	< 1.0 UJ	< 3.5	NA	< 1.2	6.8	1.5	< 3.1 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	9/11/2017 - 10/9/2017	RAD 130	< 0.032	< 0.13 UJ	0.32 J	< 0.083 UJ	< 0.038 UJ	0.29	NA	0.26	6.7	1.9	< 0.11 UJ
Dup-1	B-6	B-19	Arcadis	All	7-days	1/11/2018 - 1/18/2018	RAD 130	< 0.12	< 0.50 UJ	1.1 J	< 0.32 UJ	< 0.14 UJ	2.5	NA	< 0.16	1.9	6.0	< 0.43 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	2/6/2018 - 3/6/2018	RAD 130	< 0.032	< 0.13 UJ	0.22 J	< 0.083 UJ	< 0.038 UJ	< 0.12	NA	0.14	1.8	< 0.034	< 0.11 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	3/6/2018 - 4/3/2018	RAD 130	0.062	< 0.13 UJ	0.25 J	< 0.082 UJ	< 0.037 UJ	0.60	NA	0.40	2.0	2.0	< 0.11 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	4/3/2018 - 5/1/2018	RAD 130	0.054	< 0.13 UJ	0.21 J	< 0.083 UJ	< 0.038 UJ	0.45	NA	0.71	1.7	1.6	< 0.11 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	5/1/2018 - 5/29/2018	RAD 130	0.039	< 0.13 UJ	0.070 J	< 0.082 UJ	< 0.037 UJ	0.26	NA	0.056	1.7	1.0	< 0.11 UJ
Dup-1	B-3	F-16	Arcadis	All	28-days	5/29/2018 - 6/26/2018	RAD 130	< 0.032	< 0.13 UJ	0.074 J	< 0.083 UJ	< 0.038 UJ	0.20	NA	0.078	1.7	1.2	< 0.11 UJ

Notes:
‡ Sample duration is approximate.

Abbreviations:
µg/m^3 micrograms per cubic meter.
DCA Dichloroethane.
DCE Dichloroethene.
J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
NA Not available by Method Radiello 130 Solvent Panel Scan.
PCE Tetrachloroethene.
RAD 130 Samples collected in Radiello 130 passive samples and analyzed by solvent panel scan by gas chromatography/mass spectrometry.
TCA Trichloroethane.
TCE Trichloroethene.
TO-15 TO-15 samples collected in 6-liter summa canisters and analyzed by modified U.S. Environmental Protection Agency Method TO-15 gas chromatography/mass spectrometry.
UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.