



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

September 12, 2019

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Mr. Brian T. Hennessey, 730-B  
SRS Remedial Project Manager  
Savannah River Operations Office  
Area Completion Projects  
Post Office Box A  
Aiken, South Carolina 29802

ENVIRONMENTAL COMPLIANCE &

SEP 12 2019

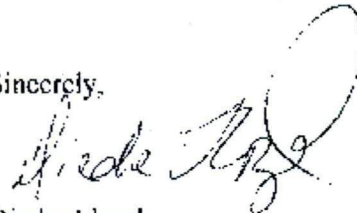
AREA COMPLETION PROJECTS

Dear Mr. Hennessey:

The U.S. Environmental Protection Agency (EPA) has reviewed the Department of Energy, Savannah River Site Performance Evaluation Report of 2018 for the M-Area Inactive Process Sewer Lines (MIPSL) Operable Unit (OU), January through December 2018, SEMS Number: 19, March 2019.

EPA cannot provide approval for this report until the below comments have been addressed. As always, please feel free to call with any questions or comments.

Sincerely,

  
Diedre Lloyd  
Remedial Project Manager  
Restoration and Sustainability Branch  
Superfund Division

cc: Angelia Adams, DOE-SRS, Phil Prater, DOE-SRS, Karen Adams, DOE-SRS, C.L. Bergren, SRNS-ACP (Signed Original), Susan Fulmer, SCDHEC

**EPA COMMENTS on the  
PERFORMANCE EVALUATION REPORT of 2018  
M-AREA INACTIVE PROCESS SEWER LINES (MIPSL)  
JANUARY THROUGH DECEMBER 2018**

**MARCH 2019  
Revision 0**

**SAVANNAH RIVER SITE  
SOUTH CAROLINA**

**EPA GENERAL COMMENT:**

EPA renews the request to address the issue noted below in italics from 2 previous EPA comments made during the last two MIPSL reporting efforts in order to ensure that this concern is addressed during this reporting interval. Please see EPA General Comment #1, below.

EPA's comment on the 2016 and 2017 Performance Evaluation Report for MIPSL comment is copied (in italics) and pasted below:

*Based on the information presented in the 2016 MIPSL it appears the contaminant mass that exists below the Upland Unit is more significant than has been previously reported. For example, the text in Section 2.1 (System Overview) states the contamination is predominately within the fine-grained sediments (Upland Unit) in the zone below the sewer line to 35-feet below ground surface (bgs). However, the text in Section 1.2 (Nature and Extent of Contamination), Page 2 of 56 states the Upland Unit has limited contaminant mobility to a significant degree although volatile organic compounds (VOCs) have migrated downward, into the more permeable sediments below the Upland Unit. Furthermore, the text in Section 3.0 (Conclusions/Recommendations) on Page 10 of 56, states the vast majority of VOC production at MIPSL has been from MH-01, and approximately 94% of MH-01 production has been from the deeper extraction well screened in the Tobacco Road formation. As seen in Figure 3 Surface Well Configuration (Typical Cutaway View), Page 17 of 56 the SVE well is screened from 60 to 100 feet bgs and only a fraction of the total well screen length is located within the silty sand unit below the Upland Unit and above the clay unit. As such, it appears a majority of the mass removal is from below the Upland Unit and it is uncertain how this may impact the mass removal estimates and the overall remedial cleanup timeframes. Please revise the **next submittal** of the Performance Evaluation Report for the M-Area Inactive Process Sewer Lines (MIPSL) (081-M) Operable Unit (OU) (U), CERCLIS Number 19, (2017 MIPSL) to address this issue.*

DRAFT SRS Responses to EPA Comments on the PER for Revision 0 MIPSL dated, October 23, 2017  
Page 1 of 4

**DOE SRS Response: Agree. The majority of the mass removal at MH-01 has occurred in the sediment below the Upland Unit. Based on a review of the soil vapor data collected from the CPT bore nearest MH-01 (i.e., MIPS-CP007) there was elevated PCE from 30 to 60 ft bgs and a significant indication of PCE at 88 ft bgs. The PCE observed from 30 to 60 ft bgs is below the upland unit in a sandy unit. The PCE hit at 88 ft corresponds to a low permeability unit. In reviewing the hydro-conceptual model (HCM) for the site, it appears that a revision is warranted to more accurately project the Upland Unit and the screened intervals of the well at MH-01. As a**

result, Section 2.1 will be revised in the 2017 PER to more accurately explain mass removal relative to the geology of the unit as well as future expectations for the remediation. No change to the 2016 PER is proposed.

**Responsible Party: John Bradley, 803-952-2301, [john02.bradley@srs.gov](mailto:john02.bradley@srs.gov)**

Text from DOE-SRS PER of 2017 for the MIPS L, page 6 of 58, dated March 2018

The majority of the mass removed by the AS VEU has been from MH-01 and more specifically from SVE-01 which is screened from 70- to 110-ft bgs. The higher concentrations observed at this SVE well are likely a product of mass diffusing from the base of the Upland Unit and other low permeability sediments located between the Upland Unit and the water table. Evidence of this VOC mass was observed at an adjacent soil boring (i.e., MIPS-CP007) drilled and sampled for soil vapor in 2003. At MIPS-CP007, PCE concentrations were elevated from 30- to 60-ft bgs and at 88-ft bgs. The highest PCE concentration was observed at 35-ft bgs and generally decreased with depth, indicating the Upland Unit as the source. The lithology at MIPS-CP007 reveals relatively sandy sediment from 35- to 85-ft bgs, so the ZOI at SVE-01 could extend into the shallow vadose zone.

1. **Page 5 of 58, DOE-SRS PER of 2018 for MIPS L, dated March 2019 – This report:** DOE-SRS asserts that observed changes in VOC vapor concentrations are directly related to mass of VOCs remaining in the Upland Unit and that the mass of VOCs in the Upland Unit will decrease to a point where the efficacy of the mobile SVEU will be minimal resulting in a transition and ultimate recommendation to passive SVEU.
  - a. EPA renews it's request for a 3<sup>rd</sup> time for DOE-SRS to address the uncertainty associated with mass removal estimates and overall remedial cleanup timeframes since it appears that only a fraction of the total well screen length is located within the silty sand unit below the Upland Unit and above the clay unit. As such, it appears a majority of the mass removal is from below the Upland Unit leading to uncertainties as outlined above.
  - b. Please construct a specific cutaway figure for the SVE Well Configuration associated with Manhole 01 to facilitate review of this issue.
  - c. Provision of the above information is requested for this PER reporting interval and prior to the soil sampling effort for MIPS L since the data will be useful in present site conceptualization and future decisions, especially in conjunction with an updated contaminant migration analysis and future decisions as they pertain to the efficacy of the SVE remediation (transition to passive vs active) and in reaching the RGs for TCE and PCE for the MIPS L OU.
  - d. Provision of this information is requested prior to any transition to passive SVE

#### **EPA SPECIFIC COMMENTS**

- 1) **Page 3 of 58, Nature and Extent of Contamination, paragraph three:**
  - a. Please provide a timeframe for the computer modeling and a reference for the document that contains the referenced computer modeling.
- 2) **Page 3 of 58, Section 1.2, Nature and Extent of Contamination:**
  - a. Please include a brief discussion of seasonal water surface fluctuations (potentiometric surface) and indicate over what range these fluctuations occur to facilitate an understanding of when or if the water surface may come near or intersect the longer screened interval of the deeper SVE wells.
  - b. A figure that depicts this would be helpful and could be included in Figure 3 or another figure, whichever is preferred.

- 3) **Page 7 of 58, Section 2.2, Soil Vapor Extraction Operations:** Please provide clarification (table or text) about the timing of lockout/system repairs. From the dates given, it appears that the system was down for ~ 50 days.
- The number of consecutive days the soil vapor extraction unit (SVEU) was inoperable on two occasions in calendar year 2018 (CY2018) is not clearly presented in this section. For example, the second paragraph on Page 7 of 58 states the M-Area Inactive Process Sewer Line (MIPSL) SVEU was inoperable for seven consecutive days on two occasions. However, the text states the MIPSL was down from March 6 to March 23, 2018 and from June 14, 2018 to July 3, 2018, which is more than 14 consecutive days on two occasions. Revise the PER 2018 to address this discrepancy.
- 4) **Section 2.2, Soil Vapor Extraction Operations, Page 7 of 58:** The first sentence in the second paragraph indicates the electrical power for the MIPSL SVEU originates from the same circuit as the M-1 Air Stripper. The text also discusses the periods in CY2018 when the MIPSL SVEU system was inoperable due primarily to the M-1 Air Stripper being locked out either for repairs or recovery well installation. As such, it appears the performance of the M-1 Air Stripper directly impacts the performance of the MIPSL SVEU. To ensure future performance of the MIPSL SVEU is not impacted by M-1 Air Stripper lock out power interruptions, revise the PER 2018 to address this issue.
- 5) **Page 8 of 58, Samples and Analyses:** Please provide a reference or information in an appendix which includes the modifications to the Modified Method 18.
- 6) **Page 9 of 58, Section 2.2.2 Performance Results:** EPA's Conditional Approval Letter dated October 21, 2018 in reference to the MIPSL PER of 2017 provided conditional approval for the 2017 PER with the "understanding that additional discussion will be provided in the next reporting effort (this report – MIPSL 2018 PER) include additional discussion, clarification and comparison of the use of the average 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> highest flow rates versus the use of an average flow rate at each well." This level of discussion has NOT been provided in this report.
- EPA renews it's request as outlined above and further requests that this information be included in this reporting effort since it is the 2<sup>nd</sup> time it has been requested and is important when evaluating future site decisions to move to a passive instead of active SVE system
  - This comment which was included in EPA Comment Letter for the MIPSL PER of 2017 and is provided here as background information for the above EPA comment 4**
    - Section 3.0, Conclusions/Recommendations, Page 11 of 58:**

*Section 3.0 states, "SRS recommends that the monitoring of the ASVE unit and the sampling frequency remain unchanged, but that a different approach to flow rate evaluation be implemented for the MicroBlower™ systems. SRS determined that the eleven fractured MicroBlower™ wells with the smaller blower (Wells F11-1, F11-2, F11-3, F11-4, F12-1, F12-2, F12-4, F13-1, F13-2, F13-3, and F13-4) have an average flow rate of 2 cubic feet per minute (cfm). This average was obtained by taking the average of the second, third, and fourth highest flow rates of the five most recent flow measurements at each well..." However, it is unclear why the average flow rate was not calculated using all of the data obtained from the most recent flow measurement events at each well location. Revise the 2017 PER to provide a calculated average flow measurement using all of the recent flow rates for a comparison.*
- 7) **Page 10 of 58, Section 2.3 Soil Gas Performance Data, 3<sup>rd</sup> paragraph:** DOE-SRS refers to "spurious" 2018 data from Well 11-3 and Well 11-4 based on historical values. However, no further information is provided except to offer that that it will be considered in 2019.
- EPA requests additional clarification to support and explain DOE-SRS's assertion as to spurious data.

- 8) **Page 10 of 58, Section 2.3 Soil Gas Performance Data:** The text in the first paragraph indicates the maximum tetrachloroethylene (PCE) concentration in CY2018 was 17.0 parts per million by volume (ppmv). However, the maximum CY2018 PCE concentration summarized in the table on Page 10 of 58 is 15.5 ppmv. Revise the PER 2018 as appropriate to address this discrepancy.
- 9) **Page 16 of 58, Figure 2:** Please depict the Manhole locations within the MIPS L OU Boundary Map to facilitate overview of manhole locations with respect to the MIPS L boundary.
- 10) **Pages 25-45, Tables 3, 4 and 5:** In future reporting efforts, please include Manhole designation associated with the Well ID and station ID.