



Department of Energy
 Savannah River Operations Office
 P O Box A
 Aiken, South Carolina 29802

NOV 14 2023

Ms. Susan B. Fulmer, P. G., Manager
 Federal Remediation Section
 Division of Site Assessment, Remediation and Revitalization
 Bureau of Land and Waste Management
 South Carolina Department of Health and Environmental Control
 2600 Bull Street
 Columbia, South Carolina 29201

Mr. Jon Richards
 Savannah River Site Remedial Project Manager
 Superfund Division
 U. S. Environmental Protection Agency, Region 4
 61 Forsyth Street, SW
 Atlanta, Georgia 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Savannah River Site's Responses to the Regulatory Comments on the Performance Evaluation Report for the A-Area Burning/Rubble Pits (731-A, -1A) and Rubble Pit (731-2A) and the Miscellaneous Chemical Basin/Metals Burning Pit (731-4A, -5A) Operable Unit - January through December 2022 (U) (SRNS-RP-2023-00127, Revision 0, May 2023) SEMS Number: 28

In accordance with the terms of the Federal Facility Agreement, the U.S. Department of Energy (DOE) is submitting the subject comment responses for your review and approval. The U.S. Environmental Protection Agency (EPA) provided comments on the report and South Carolina Department of Health and Environmental Control (SCDHEC) approved the report on August 25, 2023, and August 29, 2023, respectively. This performance evaluation report (PER) will not be revised; however, all comment responses will be included in the next scheduled PER, as applicable. Please review these responses and provide your approval within thirty (30) days from receipt. The time and effort that the SCDHEC and the EPA have given on the subject operable unit are greatly appreciated.

Questions from your staff concerning this matter may be directed to me at (803) 952-7805, or the DOE Operable Unit Manager, Ms. Karen Adams, at (803) 952-7871.

Sincerely,

**AVERY
 HAMMETT**

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Avery G. Hammett
 FFA Project Manager, DOE-Savannah River
 Remediation and Deactivation & Decommissioning Division

RDDD-24-104

NOV 14 2023

Ms. Susan Fulmer
Mr. Jon Richards

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Enclosure:

SRS Responses to the U. S. Environmental Protection Agency's Comments on the Performance Evaluation Report for the A-Area Burning/Rubble Pits (731-A, -1A) and Rubble Pit (731-2A) and the Miscellaneous Chemical Basin/Metals Burning Pit (731-4A, -5A) Operable Unit - January through December 2022 (SRNS-RP-2023-00127, Revision 0, May 2023) SEMS Number: 28

cc w/o encl:

J. Blalock, SCDHEC-Columbia
S. French, SCDHEC-Columbia
M. Reece, SCDHEC-Columbia
G. K. Taylor, SCDHEC-Columbia
G. Stewart, SCDHEC-Columbia
T. R. Fuss, SCDHEC-Aiken Environmental Affairs Office
G. O'Quinn, SCDHEC-Aiken Environmental Affairs Office
B. A. Cameron, SCDHEC-Aiken Environmental Affairs Office
K. L. Beatty, SCDHEC-Aiken Environmental Affairs Office
H. L. Herlong, SCDHEC-Aiken Environmental Affairs Office

SRS Responses to U.S Environmental Protection Agency Comments on the Performance Evaluation Report for the A-Area Burning/Rubble Pits (731-A, -1A) and Rubble Pit (731-2A) and the Miscellaneous Chemical Basin/Metals Burning Pit (731-4A, -5A) Operable Unit – January through December 2022 (U), SEMS Number: 28 (SRNS-RP-2023-00127, Revision 0, May 2023)

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Comments received 08/25/2023.

GENERAL COMMENTS

1. The PER discusses the monitoring wells screened in the water table aquifer (M-Area Aquifer Zone [MAAZ]) near the ABRP and MCB source areas and indicates the wells have historically shown elevated levels of tetrachloroethylene (PCE) and trichloroethylene (TCE) contamination. The text also indicates MAAZ wells near the ABRP source have decreasing volatile organic compound (VOC) trends indicating mass depletion of the source; however, a figure depicting the locations of the MAAZ monitoring wells was not provided. While it is understood groundwater is not part of the ABRP/MCB/MBP OU, a figure depicting the monitoring wells discussed in the PER should be provided. *Please revise the PER to provide a figure depicting the monitoring wells discussed in the PER.*

Response: Agree with Clarification.

Attachment 1 to these responses depicts the locations of the eight MAAZ monitoring wells. No change to the current report is proposed.

Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov

SPECIFIC COMMENTS

1. **Section 1.3, Groundwater, Page 2 of 52, and Table 1, ABRP/MCB/MBP OU Subunit Remedial Actions and Regulatory Decision Documents, Page 28 of 52:** The information in Section 1.3 and Table 1 indicates TCE concentrations will be below the maximum contaminant level (MCL) in the near future in two of eight MAAZ wells where TCE exceeded the MCL; however, there is no information (e.g., concentration trend data) presented as a supporting line of evidence that these concentrations will be below the MCL in the near future. Therefore, the effectiveness of the vadose zone remedial action (RA) on reducing TCE concentrations in the MAAZ is unclear. *Please revise the text to provide additional information (e.g., concentration trend data) regarding the TCE results for the two MAAZ wells located near the ABRP subunit source as a line of evidence to support vadose zone RA effectiveness.*

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Response: Agree with Clarification.

For reference, the PCE and TCE time series graphs for monitoring wells ARP 3DR and MCB 5 are provided as Attachments 2 and 3 to these comment responses. Because of their location within the footprint of the SVE systems, ARP 3DR and MCB 5 are the monitoring wells that best demonstrate the effectiveness of the SVE systems on depleting VOC mass from the vadose zone. At ARP 3DR, PCE and TCE concentrations declined sharply in 2003, likely in response to the operation of active SVE starting at ABRP in 2001. PCE and TCE concentrations continued to decline after 2003 and have been below detection limits and less than the maximum contaminant level (MCL, 5 µg/L) since 2010 for PCE and 2016 for TCE. At MCB 5, PCE and TCE concentrations started to decline after 2001. PCE and TCE concentrations declined much slower at MCB 5 considering SVE started in 1997. PCE concentrations have been less than the MCL since 2009 with a concentration of 0.6 µg/L in 2022. The TCE concentration at MCB 5 declined from 2001 to 2016. From 2016 through 2020, the TCE concentration increased slightly but has since declined in 2021 and 2022. In 2022, the TCE concentration at MCB 5 was 9.9 µg/L.

The media of concern for ABRP/MCB/MBP OU are surface and vadose zone soils. Groundwater is not part of the ABRP/MCB/MBP OU, and groundwater monitoring and corrective action are addressed under the RCRA Corrective Action Program per Core Team Agreement. The remedial action objective for the trench subunit and MCB vadose zone is to prevent migration of PCE and/or TCE to the groundwater above the MCL. To evaluate this objective, remedial goals for soil were established. VOC vapor concentrations, presented in the performance evaluation reports (PERs), have been used as the primary indicator for evaluating progress of the SVE systems. VOC vapor concentrations have been declining since SVE started operation at ABRP/MCB/MBP OU and have remained low. Based on this observation, soil sampling will be conducted in fiscal year 2024 to determine if remedial goals have been met. Results from the soil sampling will be compared to the remedial goals to make recommendations on the need for future SVE at ABRP/MCB/MBP OU. While the downward trend in groundwater concentrations is a supportive line of evidence as previously discussed, the next PER report will focus on the 2024 soil sampling results to determine if remedial goals have been met. No change to the current report is proposed.

Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov

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2. Table 5, ABRP PSVE BaroBalls™ Well Exhaust Gas TCE Results, Pages 36 & 37 of 52:

The well exhaust gas TCE results for ABRP passive soil vapor extraction (PSVE) BaroBall™ wells ATH007A, AHT009A and AHT009B are not presented in the table. According to the table notes, wells AHT007A, AHT009A and AHT009B were converted to PSVE BaroBalls™ on 11/17/2025; however, TCE results are not presented. *Please revise the table to present the exhaust gas TCE results for BaroBall™ wells ATH007A, AHT009A and AHT009B.*

Response: Agree

That portion of the table was omitted but has been included for reference with these responses. No change to the current report is proposed.

The corrected table will be included in the next PER similar to the following:

SRS Responses to U.S Environmental Protection Agency Comments on the
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Table 5. ABRP Trench Subunit BaroBall™ Well Exhaust Gas TCE Results

Collection Date	Station ID – TCE Soil-Gas Concentration (ppmV)						
	AHT-06	ARV-1D1	ARV-2D2	ARV-3D3	AHT007A	AHT009A	AHT009B
Well History Notes	2	1	1, 3	1	5, 6	5, 6	5, 6
2/8/2016	ND	ND	*	ND	0.067	ND	0.031
5/17/2016	ND	ND	*	ND	ND	ND	ND
9/13/2016	0.091	ND	*	ND	ND	ND	ND
12/12/2016	0.045	ND	*	ND	0.042	ND	ND
2/13/2017	0.132	ND	*	ND	ND	ND	ND
5/16/2017	0.041	ND	*	ND	ND	ND	ND
9/14/2017	ND	ND	*	ND	ND	ND	ND
12/13/2017	ND	ND	*	ND	ND	ND	ND
2/12/2018	ND	ND	*	ND	ND	ND	ND
5/14/2018	ND	ND	*	ND	ND	ND	ND
9/18/2018	ND	ND	*	ND	ND	ND	ND
12/17/2018	ND	ND	*	ND	ND	ND	ND
2/11/2019	ND	ND	*	ND	0.135	ND	0.036
5/13/2019	ND	ND	*	ND	ND	ND	0.037
9/23/2019	0.589	ND	*	ND	ND	ND	ND
12/10/2019	ND	ND	*	ND	ND	ND	ND
2/10/2020	ND	ND	*	ND	ND	ND	ND
5/11/2020	ND	ND	*	ND	ND	ND	ND
9/21/2020	ND	ND	*	ND	0.075	ND	ND
12/14/2020	ND	ND	*	ND	0.040	ND	ND
2/22/2021	ND	ND	*	ND	ND	ND	0.018
5/10/2021	NA	NA	*	NA	NA	NA	NA
8/20/2021	ND	ND	*	ND	0.018	ND	ND
11/17/2021	0.581	ND	*	ND	0.033	ND	0.014
2/25/2022	ND	ND	*	ND	ND	ND	0.015
6/15/2022	ND	ND	*	ND	ND	ND	ND
9/7/2022	ND	ND	*	ND	0.037	ND	ND
10/12/2022	ND	ND	*	ND	0.016	ND	0.012

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3. **Section 2.1.4, Sampling Methods and Results, Page 5 of 52 and Section 2.2.4 PSVE Results, Page 8 of 52:** It is unclear why average TCE results are used for comparison of historic results in ABRP MicroBlower™ and BaroBall™ wells when the maximum TCE and PCE concentrations are used for comparison of historical results in MicroBlower™ and BaroBall™ wells located at the miscellaneous chemical basin (MCB). For example, the table in Section 2.1.4 presents the average TCE sample results for comparison of historic (2007) with current 2022 results for MicroBlower™ and BaroBall™ wells at the ABRP; however, the table in Section 2.2.4 presents the maximum TCE and PCE sample results for comparison of historic (before 2009) with current 2022 results for MicroBlower™ and BaroBall™ wells at the MCB. *Please revise the PER to present average and maximum exhaust gas results for both ABRP and MCB subunits.*

Response: Agree

In the next PER, the tables in Sections 2.1.4 and 2.2.4 will be revised to include the average and maximum concentrations as shown below. No change to the current report is proposed.

Calendar Year	MicroBlower™ Sample Results TCE		BaroBall™ Sample Results TCE	
	<i>Parts per million by volume (ppmV)</i>			
	Average	Maximum	Average	Maximum
2007	33.0	71.7	12.1	54.0
2022	0.090	1.20	0.015	0.037

Calendar Year	MCB MicroBlower™ Maximum Sample Results				MCB BaroBall™ Maximum Sample Results			
	TCE		PCE		TCE		PCE	
	<i>(ppmV)</i>							
	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Before 2009	1.05	8.02	1.69	8.25	2.30	3.46	1.69	2.49
2022	0.052	0.85	0.031	1.39	0.029	0.30	0.018	0.11

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Comments received 08/25/2023.

4. **Section 4.3, Overall Recommendations, Page 11 of 52:** The text states “The MAAZ monitoring wells in the area are below respective MCLs for PCE, also indicating no impact to the water table for these units”; however, TCE concentrations exceeding the MCL in two of eight ABRP MAAZ wells are not discussed. According to Section 1.3, the MAAZ wells near the ABRP source have decreasing VOC trends indicating mass depletion of the source. *Please revise the text to discuss the TCE groundwater results that exceed the MCL and how this relates to mass depletion of ABRP source.*

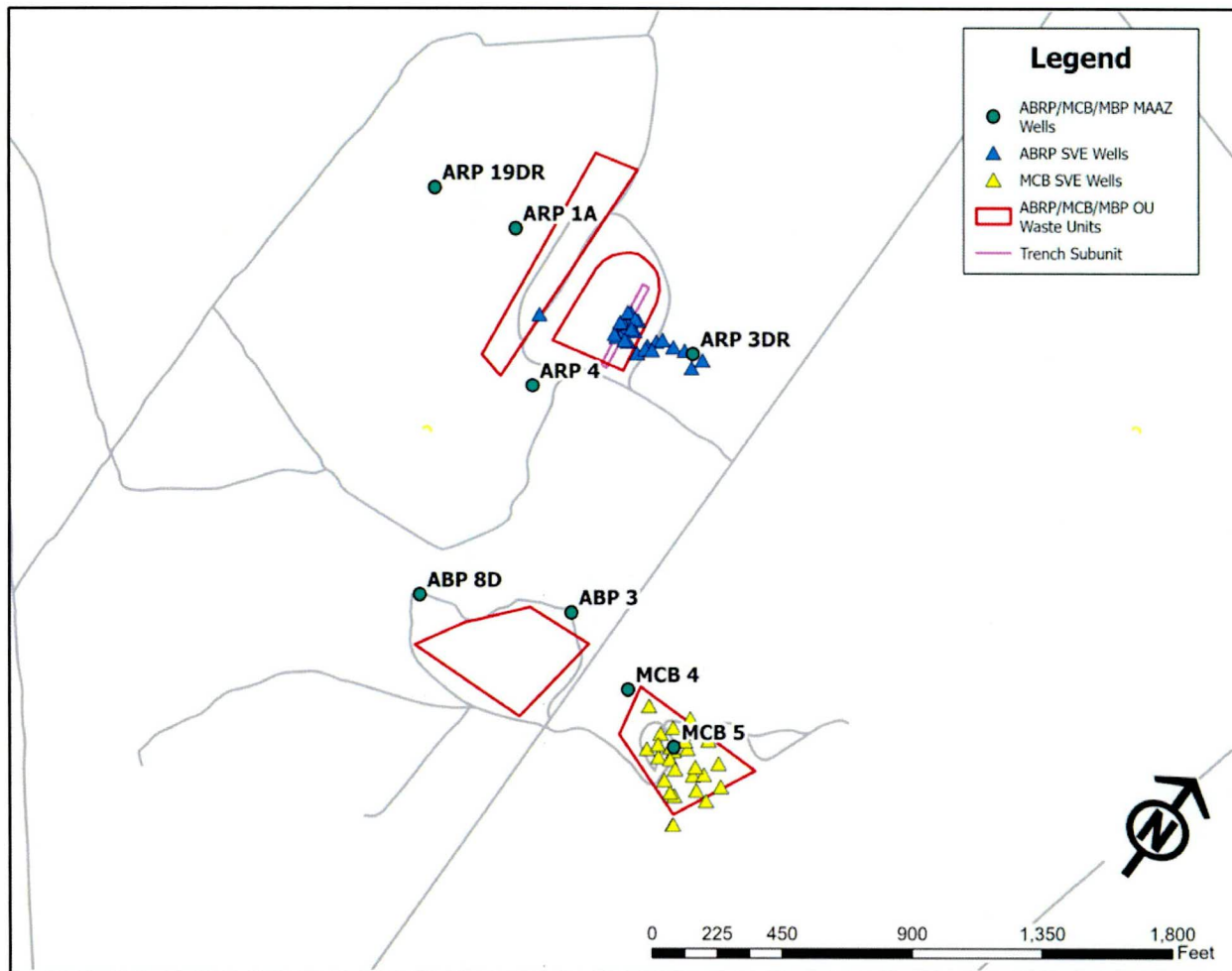
Response: Agree with Clarification

VOC mass in the vadose zone can migrate through the vadose zone by gravity-driven (i.e., source loading and infiltration) and diffusive forces. With source loading eliminated and infiltration reduced by the placement of caps, VOC mass remains in the pore space of the vadose zone with the potential to impact groundwater over time. SVE helps to remove the VOC mass in the vadose zone, reducing the potential impact to groundwater. With little to no VOC mass impacting the groundwater, VOC concentrations in the groundwater decline with time. Monitoring wells ARP 3DR and MCB 5 are located within the footprint of the SVE systems at the ABRP trench subunit and MCB, respectively. As described in the response to EPA specific comment #1, the VOC concentrations in these wells have declined since the SVE systems started operations. No change to the current report is proposed.

Responsible Party: Eric Schiefer, (803) 952-6273, eric.schiefer@srs.gov

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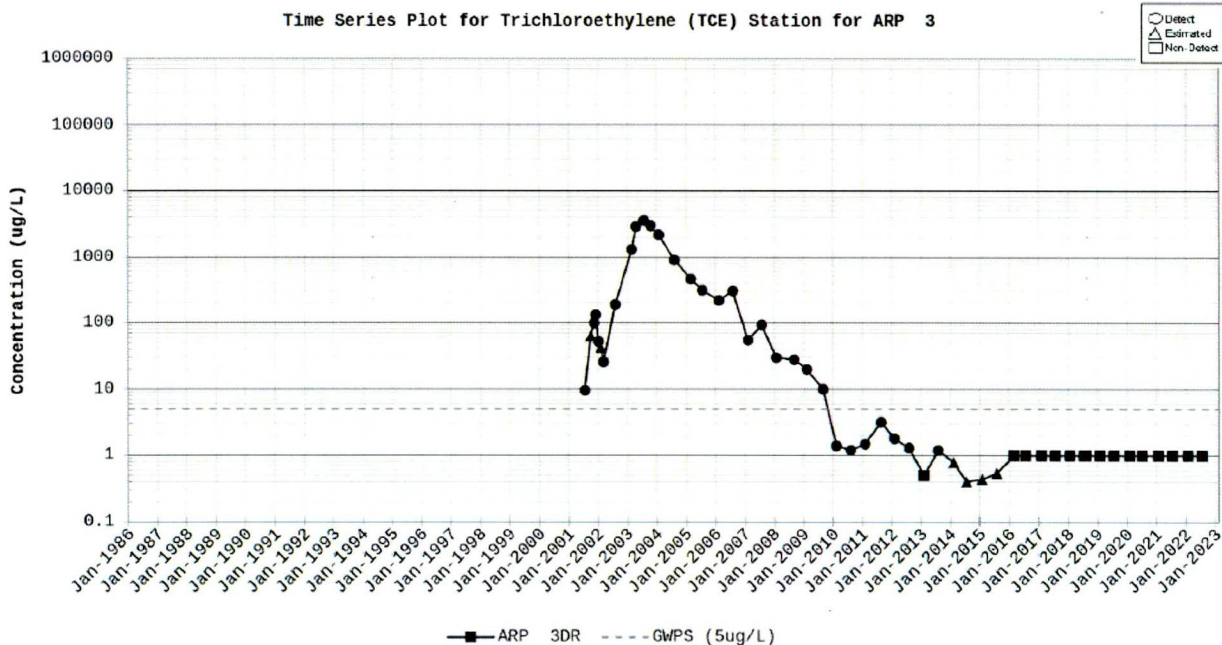
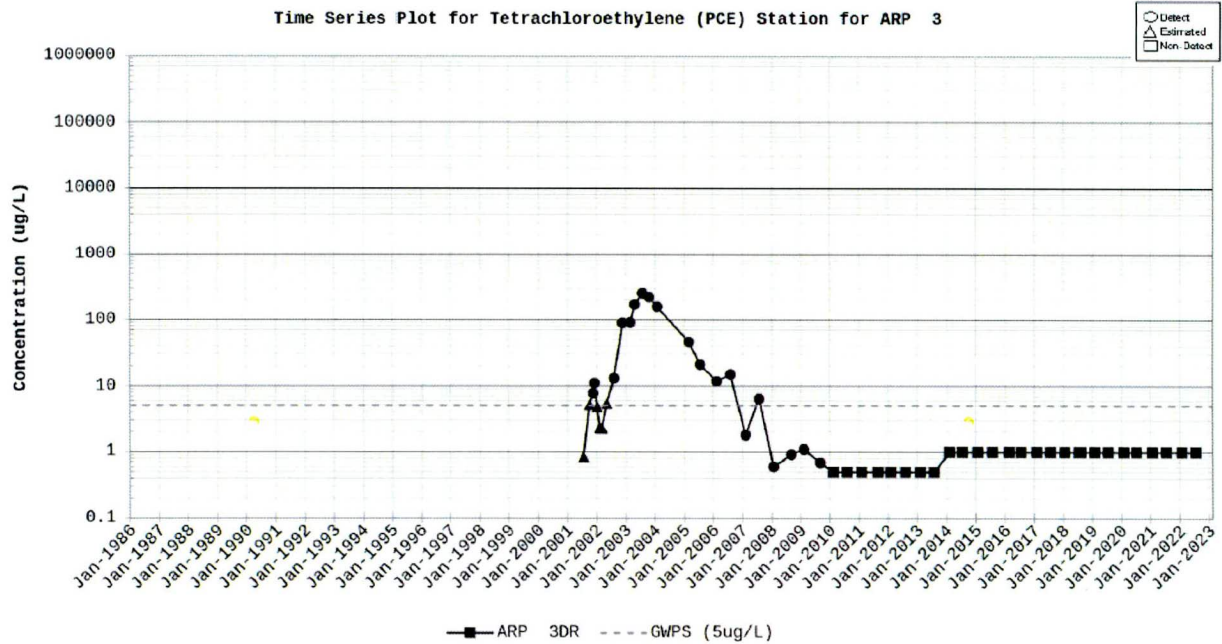
Comments received 08/25/2023.



Attachment 1. MAAZ Groundwater Monitoring Wells near the ABRP/MCB/MBP OU

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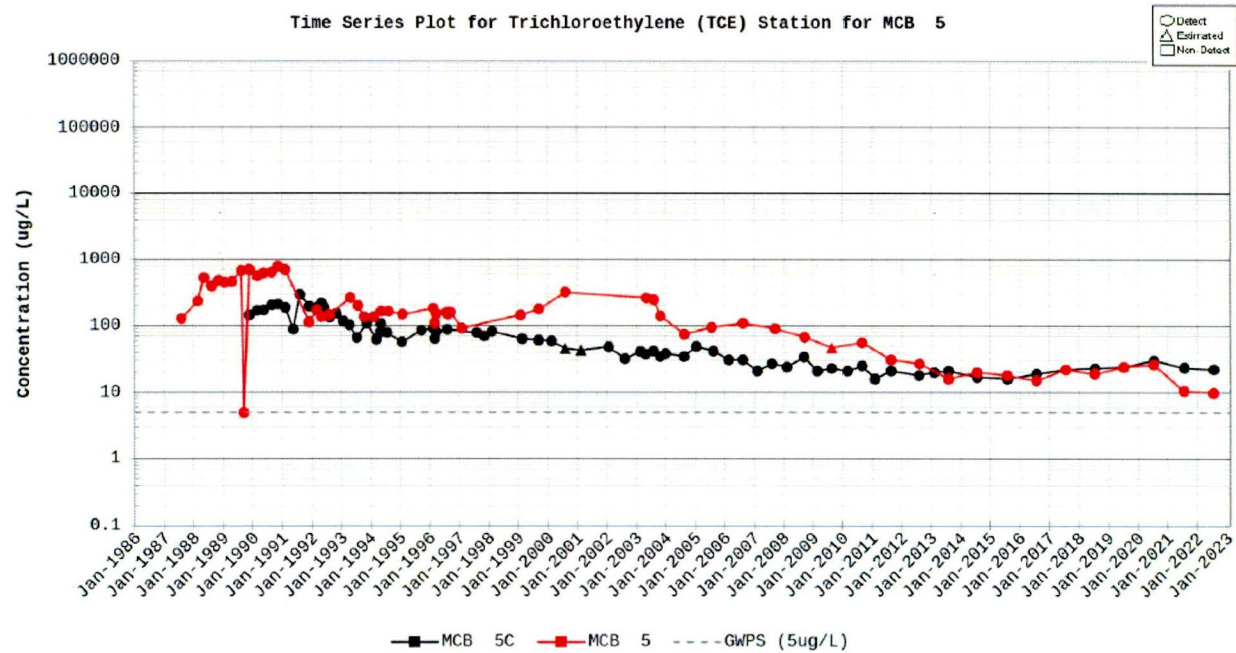
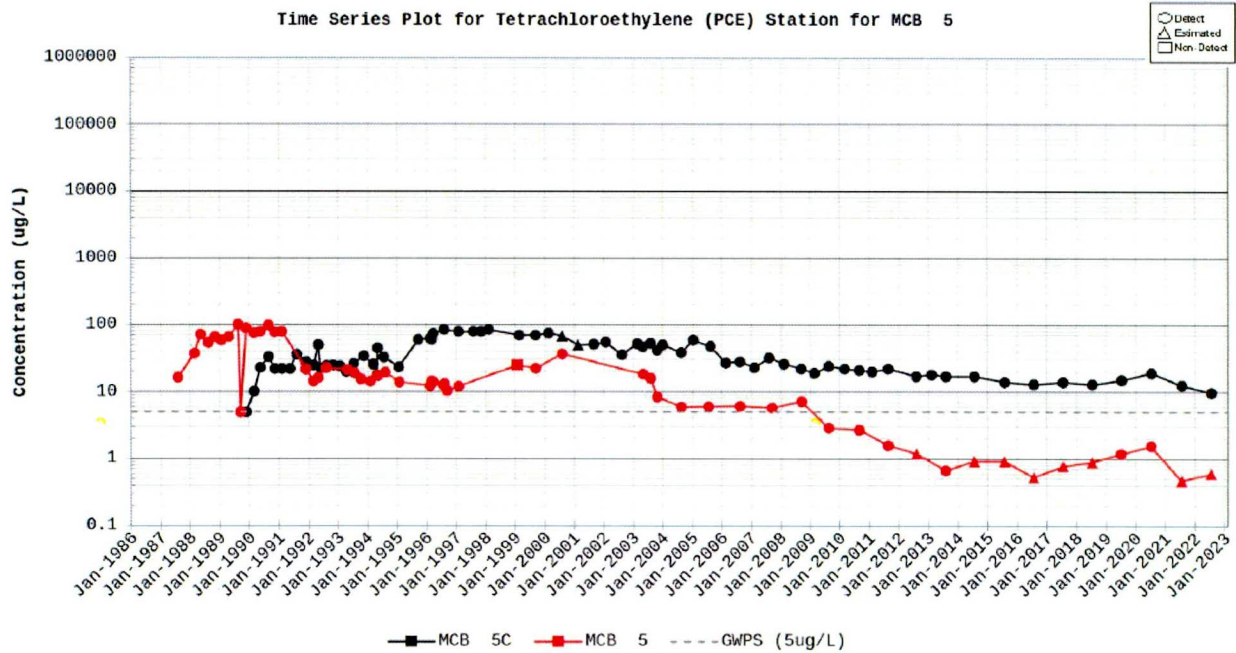
Comments received 08/25/2023.



Attachment 2. PCE and TCE Time Series Graphs for ARP 3DR.

SRS Responses to U.S Environmental Protection Agency Comments on the Performance Evaluation Report for the A-Area Burning/Rubble Pits (731-A, -1A) and Rubble Pit (731-2A) and the Miscellaneous Chemical Basin/Metals Burning Pit (731-4A, -5A) Operable Unit – January through December 2022 (U), SEMS Number: 28 (SRNS-RP-2023-00127, Revision 0, May 2023)

Comments received 08/25/2023.



Attachment 3. PCE and TCE Time Series Graphs for MCB 5.