Savannah River NUCLEAR SOLUTIONS℠

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

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LIST OF ABBREVIATIONS AND ACRONYMS

ABRP	A-Area Burning/Rubble Pits and Rubble Pit
amsl	Above mean sea level
ASVE	active soil vapor extraction
bgs	below ground surface
CM	contaminant migration
CMI/RAIP	Corrective Measures Implementation/Remedial Action Implementation Plan
CO_2	carbon dioxide
COC	constituent of concern
CY	calendar year
ft	feet or foot
FY	fiscal year
hr	hour
IROD	Interim Record of Decision
kg	kilogram
km	kilometer
lb	pound
LLC	limited liability company
µg/kg	microgram per kilogram
m	meter
m^3	cubic meter
MAAZ	M-Area Aquifer Zone
MBP	Metals Burning Pit
MCB	Miscellaneous Chemical Basin
MCL	maximum contaminant level
mi	mile
ND	non-detect
OU	operable unit
PCE	Tetrachloroethylene
PCR	Post-Construction Report
PER	Performance Evaluation Report
ppm	parts per million
ppmV	parts per million by volume
PSVE	passive soil vapor extraction
RA	remedial action
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFI/RI/BRA	RCRA Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment
RG	remedial goal
ROD	Record of Decision

LIST OF ABBREVIATIONS AND ACRONYMS *(Continued/End)*

SAP	Sampling Analysis Plan
SEMS	Superfund Enterprise Management System
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
SVE	soil vapor extraction
TCE	trichloroethylene
UTM	Universal Transverse Mercator
VOC	volatile organic compound
WSRC	Washington Savannah River Company, LLC

1.0 INTRODUCTION

This Performance Evaluation Report (PER) addresses remedial system performance at the consolidated A-Area Burning/Rubble Pits (731-A, -1A) and Rubble Pit (731-2A) (ABRP) and Miscellaneous Chemical Basin (MCB)/Metals Burning Pit (MBP) (731-4A, 5A) Operable Unit (OU) for calendar year (CY) 2023. Monitoring requirements for ABRP/MCB/MBP are identified in the Corrective Measure Implementation/Remedial Action Implementation Plan (CMI/RAIP) (Westinghouse Savannah River Company, LLC [WSRC] 2006) and Post-Construction Report (PCR) for the ABRP/MCB/MBP OU (Savannah River Nuclear Solutions, LLC [SRNS] 2009). For additional information, refer to previous PERs (SRNS 2016, 2017, 2018a, 2019, 2020, 2021, 2022 and 2023a).

The ABRP/MCB/MBP OU is located approximately 2.4 kilometers (km [1.5 miles {mi}]) south of M Area and 4.8 km (3-mi) east of the Savannah River Site (SRS) boundary, in the Upper Three Runs watershed (Figure 1). The ABRP/MCB/MBP OU comprises 11 subunits. This PER specifically addresses the remedial actions (RAs) conducted at the ABRP Trench (vadose zone soil) Subunit and the 731-4A MCB Vadose Zone Subunit, which are summarized in Section 2.0. Remedial actions for the remaining nine subunits are complete or were not required.

1.1 ABRP Area Subunits

The Trench Subunit (outlined in blue on Figure 2), located beneath the A-Area Ash Pile Subunit (788-2A), has been identified as a source for volatile organic compound (VOC) contamination. Trichloroethylene (TCE) was identified as a contaminant migration (CM) constituent of concern (COC) for the Trench Subunit. Contamination leaching from this area has impacted vadose zone soils and groundwater beneath ABRP. A detailed facility description is provided in the Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment (RFI/RI/BRA), Revision 1.2 (WSRC 1997) and the Addendum to the Revision 1.2, RFI/RI/BRA (WSRC 2003a).

1.2 MCB Subunits

The MCB (731-4A) (Figure 2) is believed to have been a disposal site for solvents and oils based on the type of contamination in the vadose zone and groundwater beneath the area. TCE and tetrachloroethylene (PCE) were identified as CM COCs for the MCB Vadose Zone Subunit. A detailed facility description is provided in the RFI/RI/BRA (WSRC 1992).

1.3 Groundwater

Groundwater is not part of the ABRP/MCB/MBP OU. The Core Team representatives from the U.S. Environmental Protection Agency, South Carolina Department of Health and Environmental Control, and U.S. Department of Energy - SRS, agreed to transfer responsibility for the ABRP/MCB/MBP groundwater from the Federal Facility Agreement to the RCRA program as part of the M-Area VOC plume under the *2000 RCRA Part B Permit Renewal Application: M-Area and Metallurgical Laboratory Hazardous Waste Management Facilities Postclosure* (SRNS 2018b).

Monitoring wells screened in the water table aquifer (M-Area Aquifer Zone [MAAZ]) near the ABRP and MCB source areas have historically shown elevated levels of PCE and TCE contamination. TCE and PCE concentrations observed in the monitoring wells located in the Lost Lake Aquifer Zone are impacted from upgradient M Area sources in addition to ABRP/MCB sources. In the Upper Lost Lake Aquifer Zone, wells near the source areas have had historically elevated TCE concentrations that have decreased with time, indicating less M Area influence. Monitoring wells in the Lower Lost Lake Aquifer Zone have had stable TCE concentrations with minimal change over time, indicating more influence from upgradient M Area sources.

Soil vapor extraction (SVE) was deployed to reduce the vadose zone source term and has a delayed impact on groundwater contamination by inhibiting further contamination. SRS expects to see a long-term impact on groundwater contamination from SVE operations in shallower groundwater; however, deeper groundwater impacts from this system may be less apparent due to commingling of the plumes. Therefore, it is important to focus on the MAAZ (water table aquifer) wells when evaluating the effectiveness of the vadose zone RAs. MAAZ wells near the ABRP source have decreasing VOC trends, indicating mass depletion of the source. PCE is below the groundwater

maximum contaminant level (MCL, 0.005 parts per million [ppm]) in all eight MAAZ wells. TCE is trending downward to the MCL (0.005 ppm).

2.0 REMEDIAL ACTIONS

The final RAs for the ABRP Trench Subunit and the MCB Vadose Zone Subunit are ongoing. In CY2023 the ABRP RA and the MCB RA operated passive SVE (PSVE) using MicroBlowers™ and BaroBalls™. All MicroBlowers™ are equipped with BaroBalls™ for backup operation. See Figures 3 and 4 aerial photos of the MicroBlowers™ and BaroBalls™ at ABRP and MCB, respectively.

The RAs and the regulatory decision documents for all 11 ABRP/MCB/MBP OU subunits are listed in Table 1.

2.1 ABRP Trench Subunit

2.1.1 Treatment Area

The treatment area for the ABRP Trench Subunit was established by the ABRP/MCB/MBP CMI/RAIP (WSRC 2006) based on a soil concentration remedial goal (RG) (i.e., cleanup level) of 610 micrograms per kilogram (µg/kg) for TCE. To identify the areas exceeding the RG, the CMI/RAIP composited the sampling results provided by extensive soil sampling and cone penetrometer characterization conducted between CY1996 and CY2004. The CY1996-CY2004 TCE Composite 610 µg/kg contour location is shown on Figure 5.

2.1.2 Historical Information

Characterization

Detailed analytical data for all environmental media samples taken in the characterization of the ABRP OU is presented in the RFI/RI/BRA (WSRC 1997). Characterization of the Trench Subunit occurred in April 2001 (WSRC 2003a). Following characterization activities, an Explanation of Significant Difference (WSRC 2001) to the Interim Record of Decision (IROD) was issued in CY2002 to expand the SVE portion of the interim action to include the Trench Subunit where

VOCs were identified at levels that would likely leach to groundwater. In CY2002, the CM analysis of the Trench Subunit determined that although TCE; PCE; and cis-1,2-dichloroethylene were present in vadose zone soils, only TCE was present at levels that could potentially migrate to groundwater above the MCL. Thus, the Addendum to the RFI/RI/BRA for the ABRP (WSRC 2002b) and the CY2007 Record of Decision (ROD) identified TCE as the only CM COC in the Trench Subunit. The approved ROD for the ABRP/MCB/MBP OU (WSRC 2007) selected phased SVE as the RA for the Trench Subunit vadose zone and a soil cover as the RA for the A-Area Ash Pile Subunit (788-2A).

Characterization indicated the Trench Subunit contaminant plume is migrating laterally along a perched water table to a point where it has impacted the MAAZ (WSRC 2005a). The path of migration goes across the area of the Potential Pit Subunit. The Potential Pit was previously characterized, and there are no problems warranting action for near-surface soils (WSRC 1997). The wells of the SVE system (interim and final RAs) established at the Potential Pit are treating deep, vadose-zone contamination migrating from the Trench Subunit.

Rebound testing conducted on September 12 and 13, 2012, indicated that the VOC removal at the ABRP Trench Subunit is significantly diffusion limited (SRNS 2017).

Configuration Changes

During the operational life of SVE at ABRP, many modifications to the system were made between CY2008 and CY2018 to adjust to changing field conditions. These changes are listed in Table 2. Historical configuration changes to the SVE at ABRP are provided in more detail in the previous PERs. For details regarding construction of the SVE at ABRP, refer to the PCR (SRNS 2009).

2.1.3 Current Configuration

The ABRP RA operated only PSVE systems in 2023. The current PSVE system uses 26 wells consisting of 13 wells equipped with MicroBlowers™ powered by photovoltaic units and 13 wells equipped with passive BaroBalls™. Construction details for the SVE wells are shown in Table 3. The well locations are shown in Figure 5 and are in the following subunits:

- ABRP Trench Subunit – Three wells (AHT-05, -06 and ASH-06). The ABRP Trench is 4.6 meters (m [15 feet {ft}]) wide by 91.4 m (300 ft) long and between 2.4 m and 4.6 m (8 to 15 ft) deep, most of which is overlain by about 6.1 m (20 ft) of compacted ash.
- Ash Pile Subunit – Twelve wells (AHT-7A, -7B through AHT-12A, -12B) clustered in sets of two.
- Potential Pit Subunit – Ten single wells (ABV-01, ARV-1D1, -2D1, -2D2, and -2D3, and AHT-13 through AHT-17) along the northern, cleared edge in an east-to-west orientation.
- Rubble Pit Subunit – One well (ARV-3D3).

2.1.4 Sampling Methods and Results

ABRP TCE concentrations at the MicroBlowers™ and BaroBalls™ wells have decreased significantly since 2007, prior to active SVE (ASVE) system operations (2008 – 2017) (Figure 6). TCE concentrations continue to be low in 2023 as indicated below:

Calendar Year	MicroBlower™ Sample Results Average TCE	BaroBall™ Sample Results Average TCE
	Parts per million by volume (ppmV)	
2007	33.0	12.1
2023	0.066	0.018

In CY2023 at ABRP, three of 13 wells with MicroBlowers™ had detectable sample results (maximum value was 0.947 ppmV at ASH-06) and three of 13 wells with BaroBalls™ had detectable sample results (maximum value was 0.131 ppmV at AHT007A). Quarterly MicroBlower™ wells with TCE exhaust gas results are listed in Table 4 and quarterly BaroBall™ wells with exhaust gas TCE results are listed in Table 5. For all BaroBall™ samples collected during 2023, there were no unfavorable atmospheric conditions that impacted sampling (i.e., BaroBall™ wells are considered not venting during high barometric pressure events when no subsurface vapor is exiting the well.).

In the event that unfavorable atmospheric conditions (i.e., high barometric pressure) are present during future sampling events, an alternative sampling method that applies a vacuum to the well head using a portable vacuum pump will be employed to collect the soil vapor sample and carbon dioxide (CO_2) concentrations. The CO_2 concentrations will be measured during sample collection

to determine if a representative soil vapor sample is being collected. CO_2 concentrations are significantly higher in subsurface vapor from the aerobic respiration of microbial communities than in atmospheric CO_2 concentrations. It is still possible that no sample can be collected using the alternative sampling method when CO_2 concentrations are lower than expected. If no sample can be collected during unfavorable atmospheric conditions using the alternative method, then the sample will be cancelled for that quarter, and resampling will be attempted during subsequent quarters.

MicroBlowers™ and BaroBalls™ combined removed approximately 0.913 kilograms (kg [2.014 pounds {lb}]) of VOC contamination in 2023.

Calendar Year	Total TCE Mass Removed	Maximum TCE Mass Removed from One Well
2023	0.913 kg (2.014 lb)	0.759 kg (1.674 lb) at ASH-06

The VOC mass (TCE) removed from the SVE wells was estimated from the vapor-phase concentrations, flow rates, and operational period. This method, like the method used in a study of SVE and air sparging (Holbrook et al. 1998), calculates mass removal by converting soil gas concentrations to mass removal rates using the extraction flow rate and the Ideal Gas Law. The generalized equation for mass removal is given in Equation 1.

$$\mathbf{M = C \times Q \times T \times MW} \qquad \text{(Equation 1)}$$

where,

M = cumulative mass removed (kg)
C = vapor concentration (kg/m^3)
Q^1 = extraction flow rate (m^3/hour [hr])
T^2 = operational period (hr)
MW = molecular weight (grams/mole)

Notes:

[1] - MicroBlower™ extraction flow rates were measured monthly. However, BaroBall™ flow rates were estimated to be a uniform average of one cubic foot per minute based on the estimated flow rates at Met Lab PSVE wells (WSRC 2000b)

[2] - An operational period of 12 hours/day for MicroBlowers™ and 24 hours/day for BaroBalls™ was used.

2.2 MCB Vadose Zone Subunit

2.2.1 Treatment Area

The treatment area for the MCB Vadose Zone Subunit was established by the IROD (WSRC 1999) based on the soil RG of 344 µg/kg for TCE and PCE concentration contours as shown in Figure 7. The areas were identified by extensive characterization and sampling history at the MCB Subunit since CY1996. This sampling provided sufficient data to identify the location of ASVE in high VOC concentration areas (greater than 50 ppmV, defined for this OU as a hot spot area), the location of PSVE in lower concentration areas (less than 50 ppmV), and the SVE design requirements.

2.2.2 Historical Information

At MCB, the upper 9 to 11 m (30 to 35 ft) of the vadose zone consists of fine-grained sediments (the Upland Unit). Capillary forces within the sediments tend to restrict migration of contaminants. Characterization data at MCB showed that VOCs disposed at the surface have migrated downward into the Upland Unit where further migration downward into the underlying sandy soils is limited.

A network of BaroBall™-equipped PSVE wells was installed during characterization activities, with operations starting up on November 1, 1996. The MCB ASVE system started operation on October 29, 2001, operated for approximately one year, and then was removed from service after demonstrating that exhaust emissions were significantly below the target 50 ppmV. The ASVE wells were restored to passive operation with BaroBalls™ and are still in service. MCSV-7 and MCSV-17 were converted to MicroBlowers™ and began operation on December 10, 2008.

The MCB SVE wells are screened in the sandy zone below the Upland Unit and have been able to remove VOC mass at a rate approximately equal to the downward migration rate from the Upland Unit, with some variation, as demonstrated by a diffusion rate study conducted by the Savannah River National Laboratory (WSRC 2005b) in CY2004 and as evidenced by the relative stability in soil-gas concentration seen across the MCB Subunit.

2.2.3 Current Configuration

Since December 10, 2008, the MCB Subunit RA operates a network of 26 PSVE wells consisting of 24 wells equipped with BaroBalls™ and 2 wells, MCSV-07 and MCSV-17, equipped with MicroBlowers™. Locations of the wells are shown in Figure 7. Construction details of these wells are provided in Table 6. The PSVE system at MCB operates under the same principles and limitations discussed for PSVE operations at the ABRP Trench Subunit.

2.2.4 PSVE Results

Soil-gas concentrations of TCE and PCE from PSVE wells at MCB declined significantly until 2010 and have remained steady through 2023 (Figure 8). A comparison between maximum TCE and PCE concentrations before 2009 and in 2023 at the MCB PSVE wells is provided in the table below:

Calendar Year	MCB MicroBlower™ Maximum Sample Results		MCB BaroBall™ Maximum Sample Results	
	TCE	PCE	TCE	PCE
	(ppmV)			
Before 2009	8.02	8.25	37.35	18.60
2023	1.14	1.70	0.192	0.026

Since CY2008, sample results from both wells tend to be consistent and nearing the lower laboratory detection limits. In CY2023 at MCB, both wells with MicroBlowers™ had detectable sample results (maximum value was 1.70 ppmV of PCE at MCSV-07) and nine of 24 wells with BaroBalls™ had detectable sample results (maximum value was 0.192 ppmV of TCE at MCSV-27). Quarterly analytical results of MCB PSVE wells sampling are provided for PCE in Table 7 and for TCE in Table 8. For all BaroBall™ samples collected during 2023, there were no unfavorable atmospheric conditions that impacted sampling (i.e., BaroBall™ wells are considered not venting during high barometric pressure events when no subsurface vapor is exiting the well).

The four wells (MCSV-07, -17, -25, -27) with the highest concentrations continue to produce TCE, but at low concentrations. From CY2011 to CY2023, the following average and maximum TCE concentrations were recorded:

Well	TCE *(ppmV)*		PCE *(ppmV)*	
	Average Exhaust Gas Concentration	Maximum Exhaust Gas Concentration	Average Exhaust Gas Concentration	Maximum Exhaust Gas Concentration
MCSV-07	0.626	1.153 in 2017	0.730	1.81 in 2021
MCSV-17	0.787	1.734 in 2011	0.035	0.435 in 2018
MCSV-25	0.227	1.228 in 2011	0.030	0.087 in 2011
MCSV-27	0.211	1.122 in 2011	0.030	0.072 in 2011

All four wells remain stable in sampled soil-gas concentrations.

During 2023, total TCE and PCE mass removed from the MicroBlowers™ and BaroBalls™ are as follows:

Calendar Year	Total TCE and PCE Mass Removed	Maximum TCE and PCE Mass Removed from One Well
2023	1.028 kg (2.266 lb)	0.692 kg (1.525 lb) at MCSV-07

Wells near the dilute edge of the plume (e.g., MCSV-5, -8, -9, -11, -15, -23) produce very little contaminant removal, as indicated by sampling results. See Figure 7 for well locations.

3.0 CLOSURE CRITERIA FOR WASTE UNITS WITH SVE SYSTEMS

SRS is committed to SVE operations until the RGs are achieved. The closure criteria for determining when to terminate SVE operations is based on the attainment of the Remedial Action Objectives (RAOs)/RGs. The RAO will be met when residual TCE and PCE contamination in the vadose zone soil is reduced below their respective RG in accordance with the action plan described in the ABRP/MCB/MBP OU CMI/RAIP (WSRC 2006). The Core Team met in December 2022 to discuss the Sampling Analysis Plan (SAP) which was subsequently submitted in January 2023.

Sampling will be conducted in fiscal year (FY) 2024 in accordance with the SAP (SRNS 2023b) to measure and evaluate the residual solvent contamination in the soil media to verify RAOs/RGs.

4.0 CONCLUSIONS/RECOMMENDATIONS

4.1 ABRP Trench Subunit Conclusion

The current PSVE system uses 26 wells consisting of 13 wells equipped with MicroBlowers™ powered by photovoltaic units and 13 wells equipped with passive BaroBalls™. This system is functioning as expected.

Compliance sampling was discontinued after shutdown of the ASVE system in December 2017. An internal exemption from air permitting was obtained based on the Potential to Emit calculation that determined the ABRP PSVE (i.e., well sources fitted with MicroBlowers™ and BaroBalls™) is an Insignificant Activity. Emissions, including trace constituent emissions, will be reported, as required, in the annual SRS Air Emissions Inventory. Performance monitoring (Table 9) of the MicroBlowers™ and BaroBalls™ will continue until RGs are achieved.

Overall soil-gas vapor samples have remained at very low (near the lower laboratory detection limits) asymptotic levels indicating VOCs are no longer productively being removed and VOCs are nearly depleted, as shown on Figures 6 and 8. Annual average soil-gas concentrations at the highest producing wells (i.e., ASH-06 and MCSV-07) have remained low. In CY2023, 6 of 26 wells at ABRP had detectable sample results of TCE (Tables 4 and 5). Only 0.913 kg (2.014 lb) of TCE were removed at ABRP.

4.2 MCB Vadose Zone Subunit Conclusion

Currently, the PSVE system consists of two wells equipped with MicroBlowers™ and 24 wells equipped with BaroBalls™. The system continues to perform well and remains a cost-effective treatment technology in removing low concentration VOC contaminants.

Based on the extensive characterization and sampling history documented for the MCB Subunit since CY1996, concentrations are expected to continue to decrease with source depletion.

Performance monitoring (Table 9) of the MicroBlowers™ and BaroBalls™ will continue until RGs are achieved. If concentrations from any MCB BaroBall™ well above a threshold of 0.5 ppmV or indicating an upward trend for VOC concentrations, the well will be converted to MicroBlowers™ to ensure protection of underlying groundwater. An upward trend is determined when the annual average concentration is more than two times greater than the previous annual average. For example, during CY2006 through CY2008, this condition occurred at wells MCSV-07 and MCSV-17, and MicroBlowers™ were installed on these wells in 2008.

If concentrations from either MicroBlower™ well (MCSV-07 and MCSV-17) show three consecutive results of both PCE and TCE that are less than detection limits (non-detect), the well will be converted back to BaroBalls™.

Declining exhaust concentrations indicate contaminant mass is being removed as it diffuses downward from the Upland Unit, depleting the VOC source. The decrease in soil-gas concentrations is indicative that the VOC mass is not migrating downward from the fine-grained Upland Unit at a faster rate than it is being removed by PSVE. Therefore, since more mass is being removed than is diffusing down from the Upland Unit, the RA is protective of underlying groundwater.

In CY2023, 9 of 26 wells at MCB had detectable sample results for either TCE or PCE (Tables 7 and 8). Only 1.028 kg (2.266 lb) of TCE and PCE combined at MCB were removed in CY2023. The MAAZ monitoring wells in the area are below respective MCLs for PCE, also indicating no impact to the water table for these units.

4.3 Overall Recommendations

The PSVE system operation and well sampling at the ABRP Trench Subunit and the MCB Vadose Zone Subunit will continue until the RAOs/RGs are achieved as stated in the ROD (WSRC 2007).

In FY2024, the project team is performing confirmation soil sampling at the ABRP Trench Subunit and the MCB Vadose Zone Subunit. Strategically located samples will assist in evaluating the effectiveness of the current SVE remediation method in reaching the ABRP/MCB/MBP OU RGs (i.e., cleanup levels) and preventing PCE and TCE in the vadose zone soil from leaching to

groundwater above MCLs. The intent of this evaluation is to justify shutting down the PSVE systems at both ABRP and MCB. The SAP (SRNS 2023b) was approved by the Core Team in FY2023. Upon completion of the sampling, a Core Team meeting will be convened to discuss the results of the sampling in context to the RAOs/RGs. Annual performance reviews will continue until the Core Team reaches agreement that the RAOs/RGs have been met.

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WSRC, 2002b. *Addendum to the RCRA Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment for the A-Area Burning/Rubble Pits and Rubble Pit* (U), WSRC-RP-96-168, Revision 1.3, Westinghouse Savannah River Company, Savannah River Site, Aiken SC

WSRC, 2003a. *Addendum to the Revision 1.2 RFI/RI with BRA for the A-Area Burning/Rubble Pit (WSRC-RP-96-168)*, WSRC-RP-2002-4209, Revision 1, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2003b. *(Interim) Post-Construction Report (PCR) for the A-Area Burning/Rubble Pits (731-A/1A) and Rubble Pit (731-2A) (U),* WSRC-RP-2003-4019, Revision 0, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2005a. *Corrective Measures Study/Feasibility Study Report for A-Area Burning/Rubble Pits (731-A, -1A) and Rubble Pit (731-2A) and Miscellaneous Chemical Basin/Metals Burning Pit (731-4A/5A) Operable Unit (U)*, WSRC-RP-2003-4116, Rev. 1, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2005b. *Vadose Zone VOC Mass Transfer Testing at the SRS Miscellaneous Chemical Basin,* WSRC-TR-2005-00266, October 2005, Washington Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2006. *Corrective Measures Implementation/Remedial Action Implementation Plan (CMI/RAIP) 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 (U)*, WSRC-RP-2006-4071, Revision 0, Washington Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2007. *Record of Decision Remedial Alternative Selection 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 (U),* WSRC-RP-2005-4095, Revision 1.1, Washington Savannah River Company, LLC., Savannah River Site, Aiken, SC

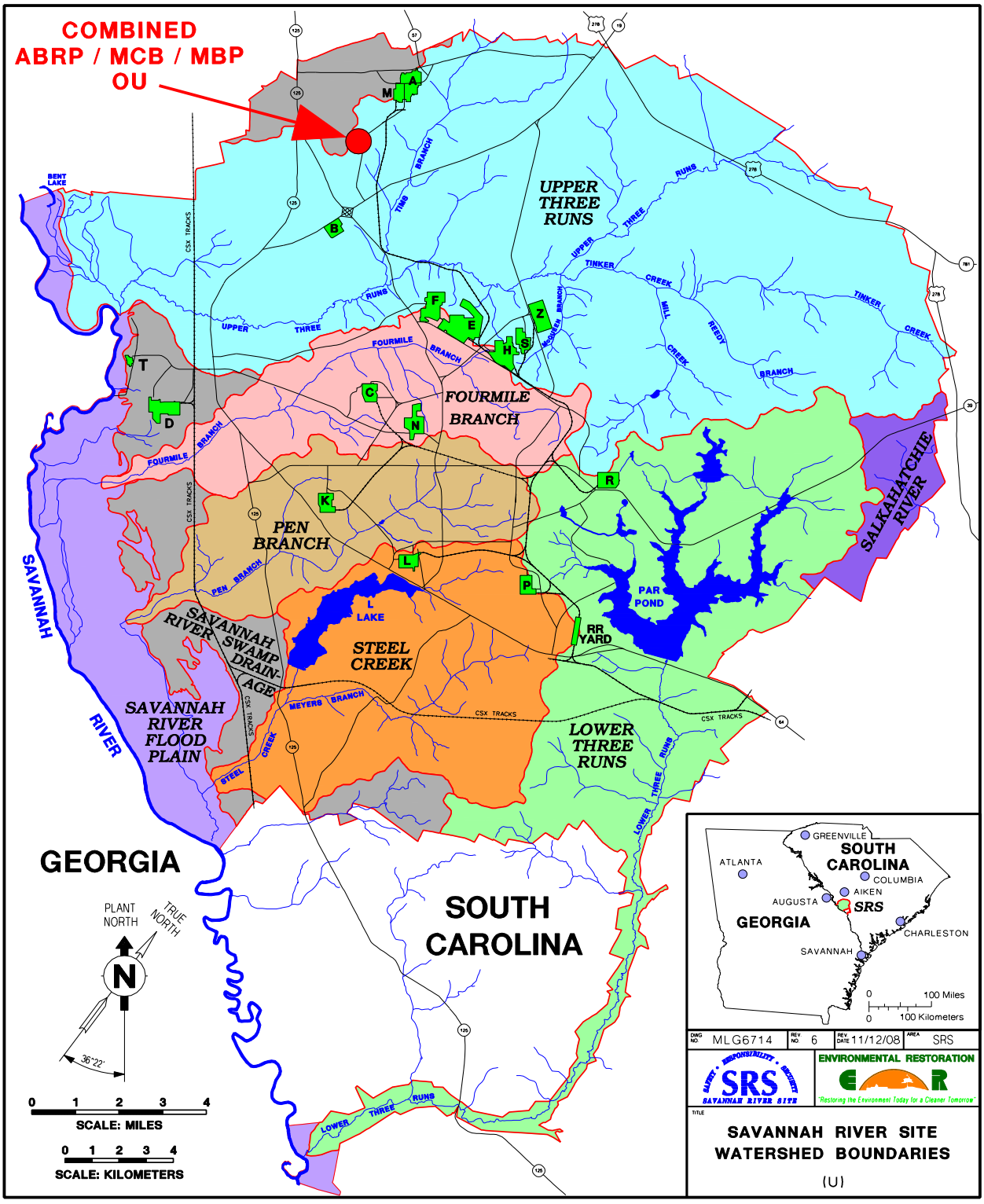

Figure 1. Location of the ABRP/MCB/MBP OU at Savannah River Site

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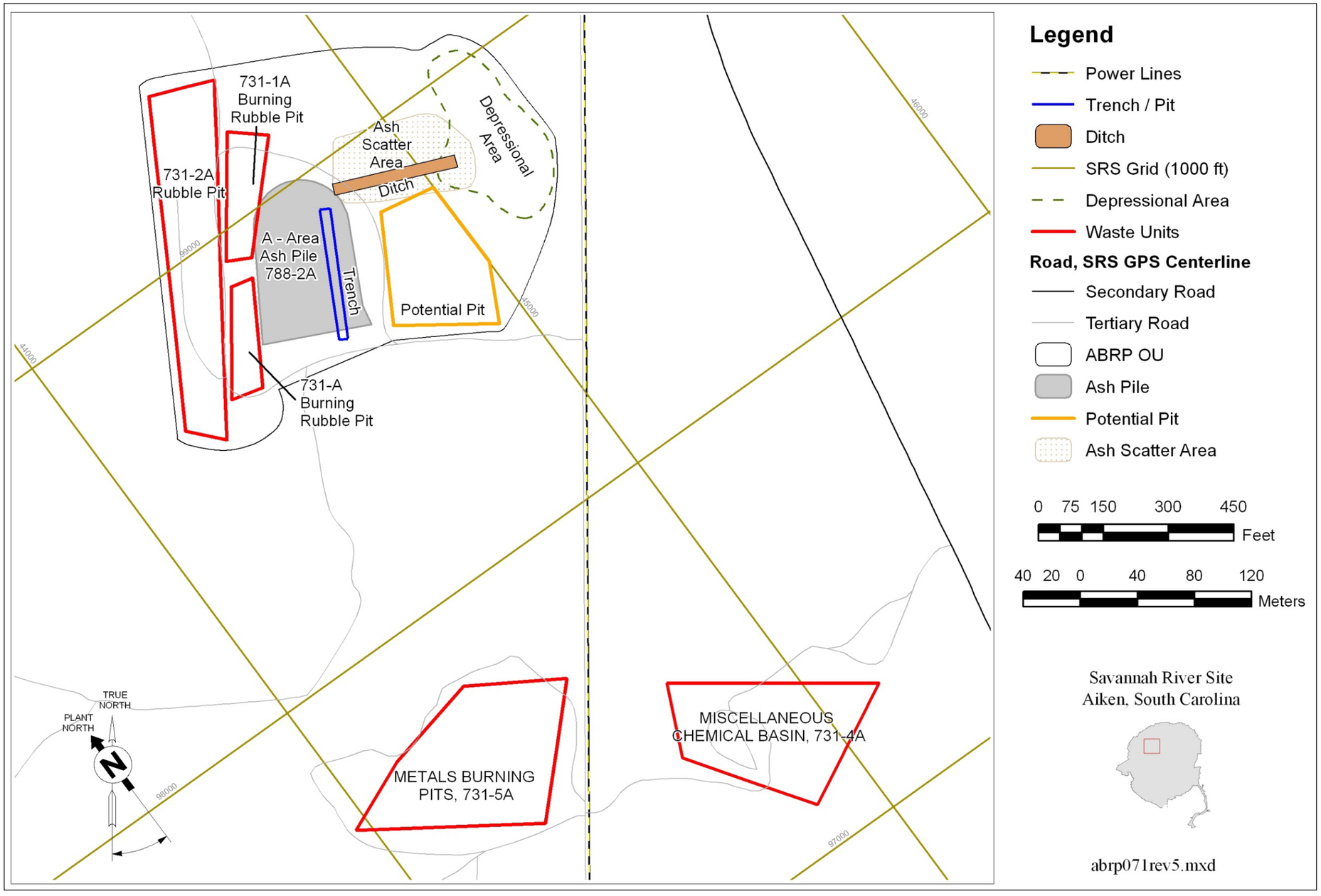

Figure 2 ABRP/MCB/MBP OU Subunits at Savannah River Site

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Figure 3. Aerial Photo of the ABRP MicroBlowers™ and BaroBalls™ at SRS (2022)

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Figure 4. Aerial Photo of the MCB MicroBlowers™ and BaroBalls™ at SRS (2022)

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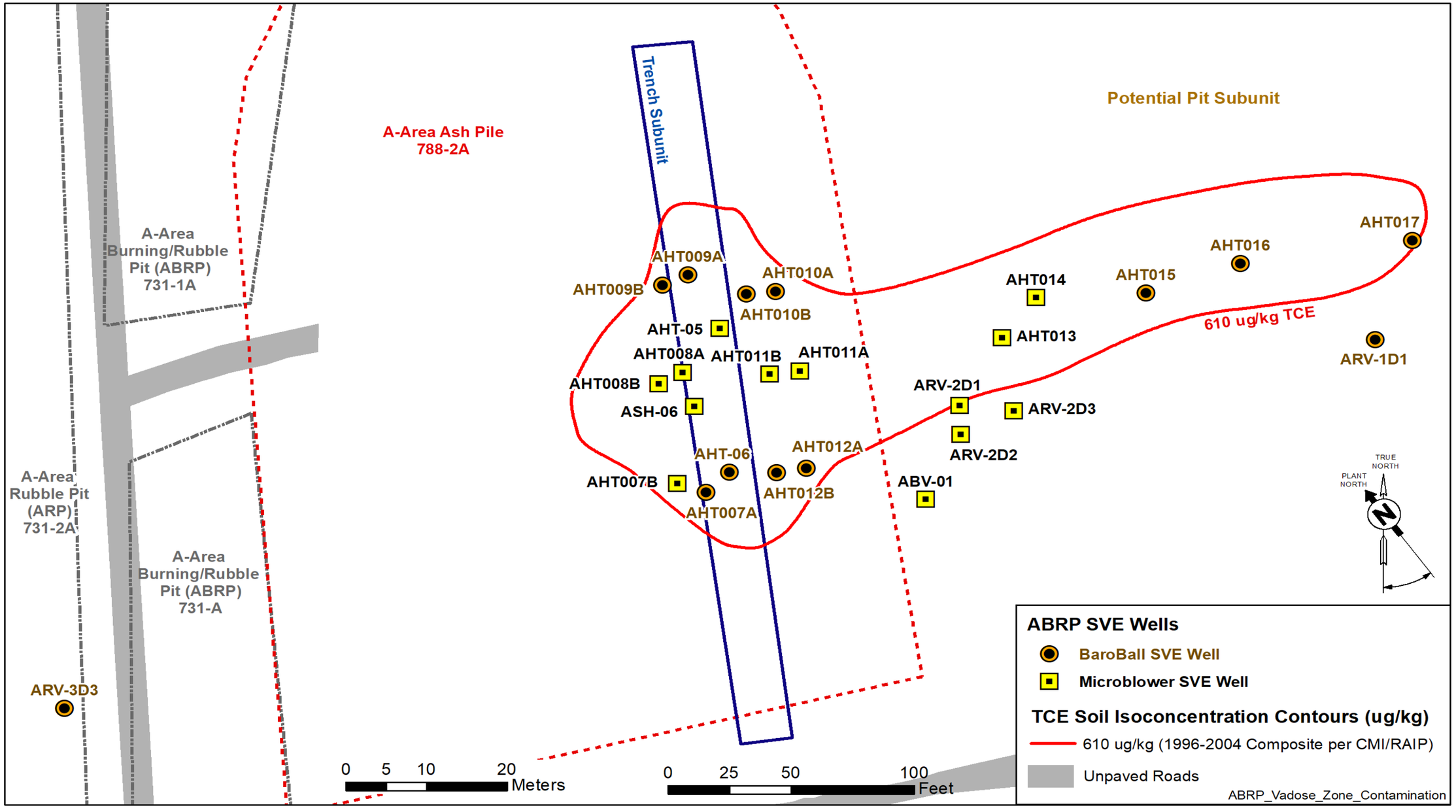

Figure 5. ABRP Vadose Zone Well Configuration and Treatment Area

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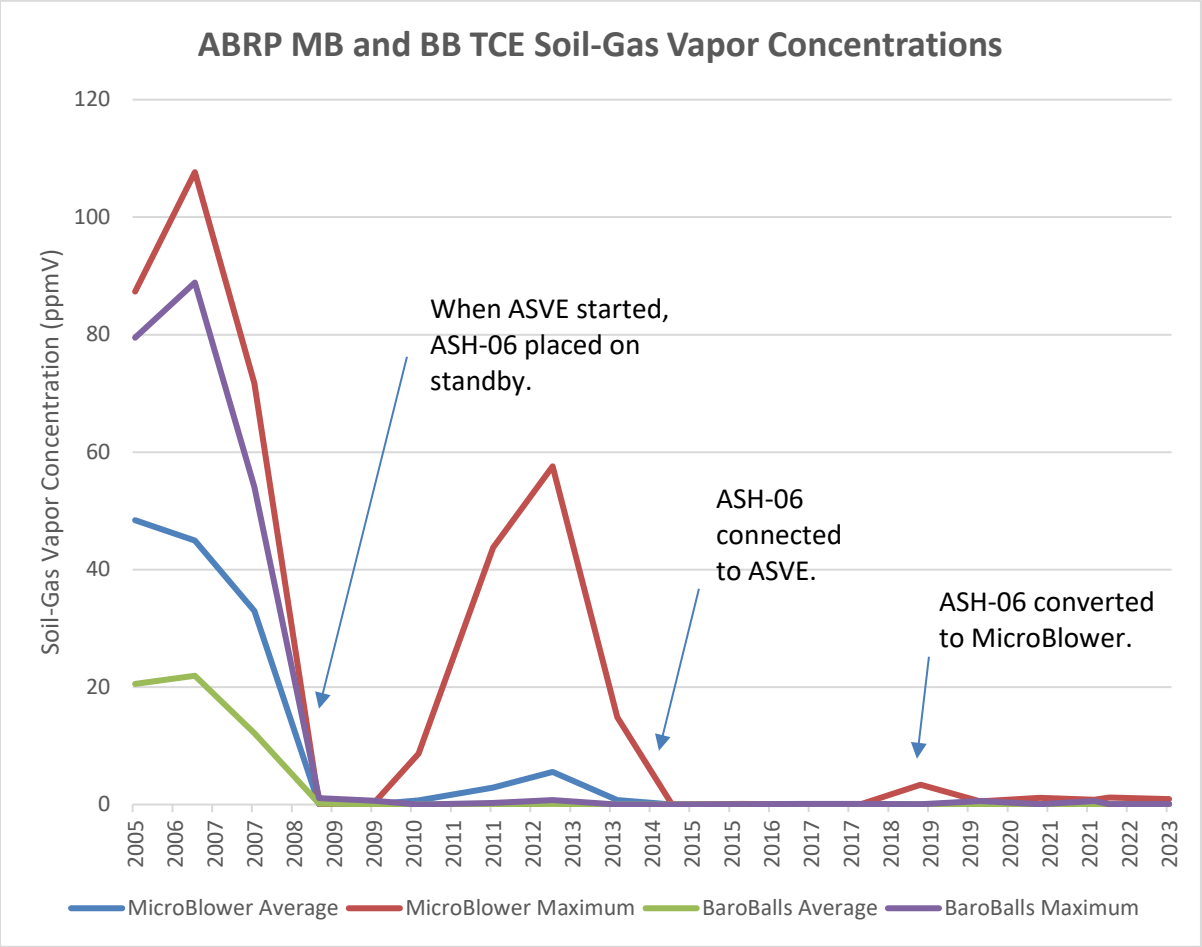

Figure 6. ABRP Passive Soil-Gas Vapor Concentration Over Time Trend Diagram

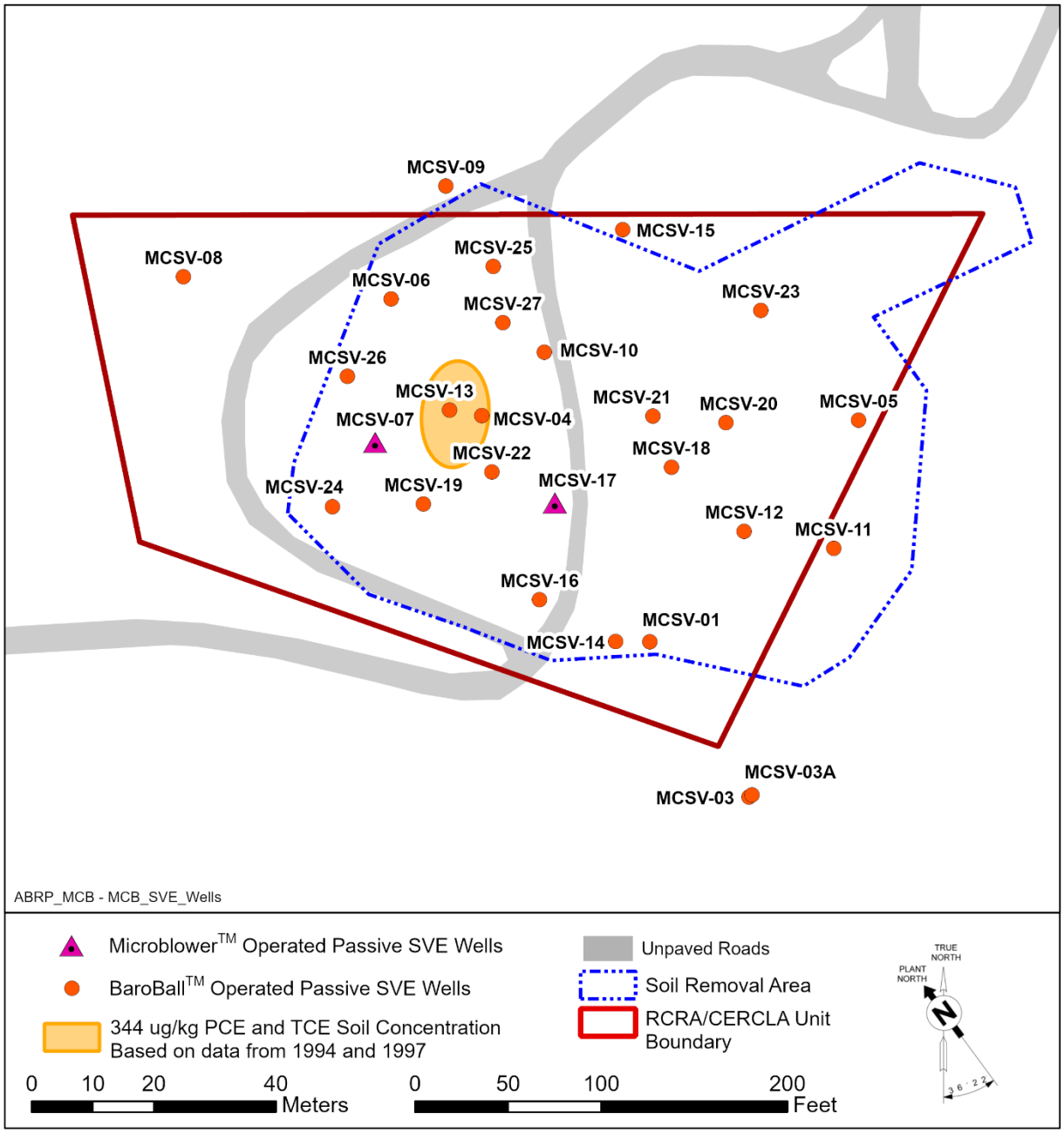

Figure 7. Miscellaneous Chemical Basin SVE Wells

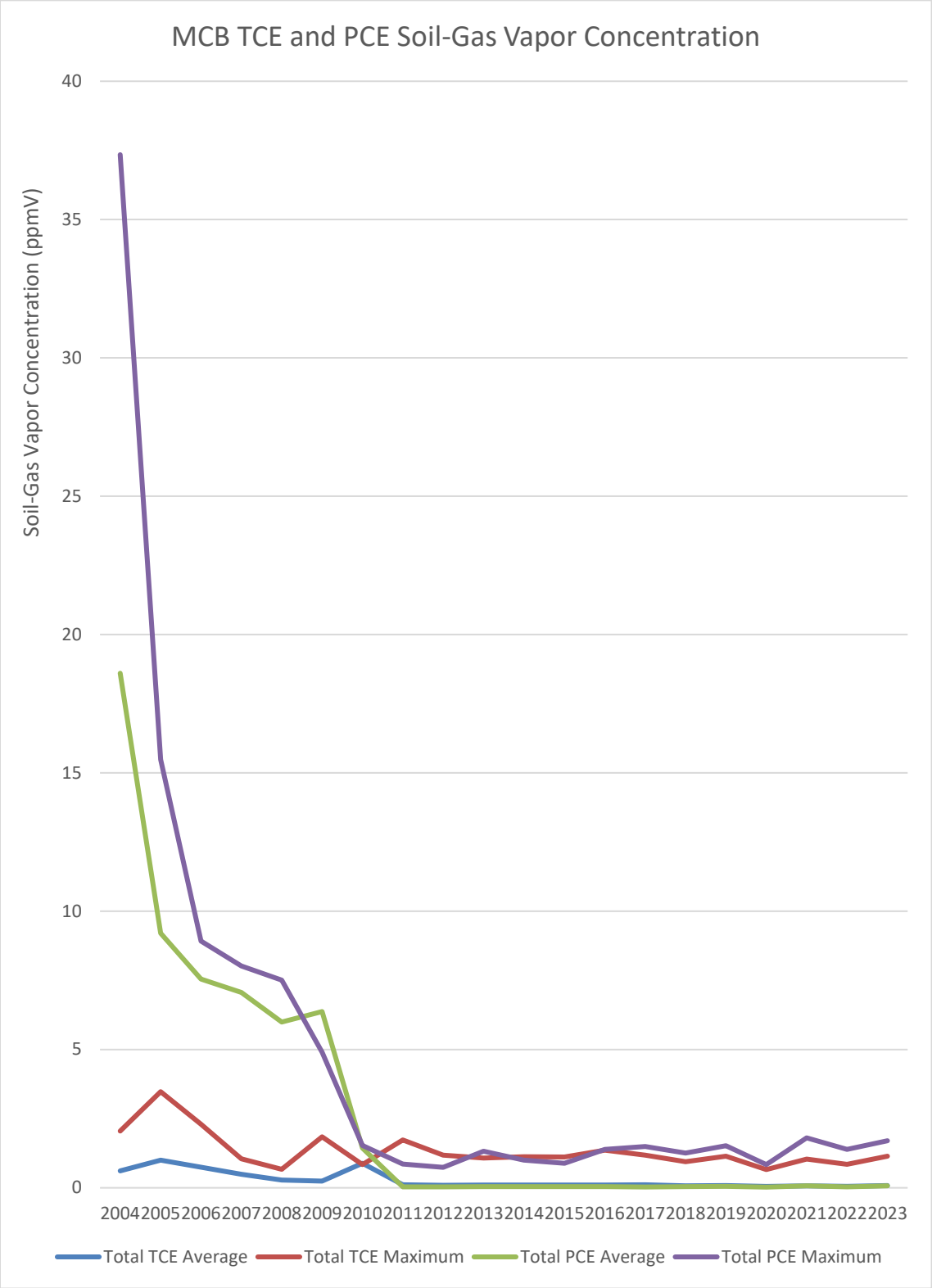

Figure 8. MCB Soil-Gas Vapor Concentration Over Time Trend Diagram

Table 1. ABRP/MCB/MBP OU Subunit Remedial Actions and Regulatory Decision Documents

The RAs and the regulatory decision documents for the eleven ABRP/MCB/MBP OU subunits

ABRP Area Subunits

Subunit (Decision Document)	RA Status	RA Description
Trench (vadose zone soil) (WSRC 2007, SRNS 2009)	Final RA Ongoing	PSVE operation - 13 wells equipped with MicroBlowers™ and 13 wells equipped with BaroBalls™). PCE is below the groundwater MCL in all eight MAAZ wells. TCE is below the groundwater MCL in six wells. The two wells which exceed MCL have decreasing trends and are expected to be below MCL in the near future. The final RG for TCE in the soil at the Trench subunit is 610 µg/kg.
731-2A Rubble Pit (WSRC 2000a, WSRC 2003b).	Complete	A 0.3-meter (m [1-foot {ft}]) thick soil cover for benzo(a)pyrene contamination in surface soil. The RA meets the RAOs to prevent human exposure to COCs that present a risk to future industrial workers and to prevent ecological exposure to COCs that present a hazard to ecological receptors.
788-2A Ash Pile (SRNS 2009).	Complete	A 0.6-m (2-ft) minimum thick vegetative soil cover and institutional controls (i.e., land use controls) for arsenic, selenium, potassium-40, radium-226, radium-228, thorium-228 and uranium-238 contamination in surface soil. The RA meets the RAOs to prevent human exposure to COCs that present a risk to future industrial workers and to prevent ecological exposure to COCs that present a hazard to ecological receptors.
731-A Burning/Rubble Pit (WSRC 2000a)	No RA Required	
731-1A Burning/Rubble Pit (WSRC 2000a)	No RA Required	
Potential Pit (WSRC 2000a)	No RA Required	
Depressional Area (WSRC 2000a)	No RA Required	
Ash Scatter Area/Ditch (WSRC 2001)	No RA Required	

Table 1. ABRP/MCB/MBP OU Subunit Remedial Actions and Regulatory Decision Documents *(Continued/End)*

MCB/MBP Subunits

Subunit (Decision Document)	RA Status	RA Description
731-4A MCB Vadose Zone (WSRC 2007, SRNS 2009)	Ongoing	PSVE operation - 2 wells equipped with MicroBlowers™ and 24 wells equipped with BaroBalls™. The 26 PSVE wells installed as part of the interim RA (WSRC 1999, WSRC 2002a) were deemed sufficient to meet the RAOs of the final RA to prevent migration of TCE and PCE contamination in soil to groundwater at a concentration above the MCLs (5 µg/L for each). The RGs for TCE and PCE in the soil at the MCB Vadose Zone subunit are 344 µg/kg for each compound.
731-4A MCB Surface Soil (WSRC 1999, WSRC 2002a).	Complete	Excavation and off-SRS disposal of elevated levels of polychlorinated biphenyls MCB soils.
731-5A MBP Surface Soil (WSRC 1999, WSRC 2002a).	Complete	Excavation and off-SRS disposal of elevated levels of aluminum in MBP surface soils.

Table 2. Historical ABRP SVE Operating Configurations

Interim Remedial Action (WSRC 2000a)		
Originally, 9 Wells Fitted with BaroBalls™		
ABV-01, AHT-05, AHT-06, ARV-1D1, ARV-2D1, -2D2, -2D3, -3D3, ASH-06		
Start Date	**End Date**	**Technology**
10/5/2001	12/3/2001	PSVE w/ BaroBalls™
12/3/2001	12/17/2001	4 wells (ABV-01, AHT-05, AHT-06, ASH-06) connected to ASVE
12/17/2001	9/1/2002	All 9 wells PSVE w/ BaroBalls™
Explanation of Significant Differences (WSRC 2001)		
Operate 4 SVE Wells in the Trench/Pit Area		
(ABV-01, AHT-05, AHT-06, ASH-06)		
Start Date	**End Date**	**Technology**
9/1/2002	7/15/2003	4 wells (ABV-01, AHT-05, AHT-06, ASH-06) converted to MicroBlowers™
7/15/2003	9/16/2003	4 wells (ABV-01, AHT-05, AHT-06, ASH-06) connected to ASVE
9/16/2003	12/18/2003	4 wells (ABV-01, AHT-05, AHT-06, ASH-06) capped for rebound test
12/18/2003	Current	3 wells (ABV-01, AHT-05, ASH-06) converted to MicroBlowers™
12/18/2003	11/28/2007	1 well (AHT-06) converted to BaroBalls™
11/28/2007	8/7/2008	Operation Suspended
Final Remedial Action (WSRC 2007)		
17 Wells Added and Connected to ASVE		
AHT-07A, -07B, -08A, -08B, -09A, -09B, -10A, -10B, -11A, -11B, -12A, -12B, -13, -14, -15, -16, -17		
Start Date	**End Date**	**Technology**
06/23/2008	12/13/2018	ASVE
8/7/2008	Current	2 wells (ARV-2D1, -2D3) converted to MicroBlowers™, Operations Intermittent
10/01/2009	Current	1 well (ARV-2D2) converted to MicroBlowers™, Operations Intermittent
11/17/2015	Current	10 wells (AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16, -17) converted to BaroBalls™
12/7/2015	Current	5 wells (AHT-07B, -08A, -11B, 13, -14) converted to MicroBlowers™
4/4/2013	12/13/2018	1 well (ASH-06) added to ASVE
	12/13/2018	3 wells (AHT-08B, -11A, ASH-06) ASVE shutdown
10/17/2018	Current	3 wells (AHT-08B, -11A, ASH-06) converted to MicroBlowers™
Current Configuration - 13 MicroBlowers™, 13 BaroBalls™		

Table 3. ABRP Well Construction Details

Well ID	East Coordinate (UTM)	North Coordinate (UTM)	Ground Surface	Screen Top	Screen Bottom	Screen Length
			(ft amsl)	*(ft bgs)*		*(ft)*
Installed for Final RA in 2008						
AHT-7A	431,024.385	3,686,483.710	357.04	82.2	102.2	20
AHT-7B	431,020.836	3,686,484.858	357.43	45.7	70.7	25
AHT-8A	431,021.492	3,686,499.696	357.42	82.8	102.8	20
AHT-8B	431,018.533	3,686,498.220	357.69	45.4	70.4	25
AHT-9A	431,022.143	3,686,512.833	357.29	82.6	102.6	20
AHT-9B	431,019.003	3,686,511.452	357.52	46.0	71.0	25
AHT-10A	431,033.003	3,686,510.600	355.79	81.0	121.0	40
AHT10B	431,029.389	3,686,510.231	356.16	30.4	70.4	40
AHT-11A	431,036.050	3,686,499.890	355.39	80.4	120.4	40
AHT-11B	431,032.284	3,686,499.523	356.04	30.6	70.6	40
AHT-12A	431,036.846	3,686,486.939	355.81	80.4	120.4	40
AHT-12B	431,033.168	3,686,486.297	356.06	30.4	70.4	40
AHT-13	431,061.061	3,686,504.415	340.63	79.9	109.9	30
AHT-14	431,065.313	3,686,509.809	340.19	80.1	115.1	35
AHT-15	431,078.882	3,686,510.377	338.72	74.7	119.7	45
AHT-16	431,090.604	3,686,514.312	337.64	80.0	120.0	40
AHT-17	431,111.851	3,686,517.379	335.95	95.0	120.0	25
Installed for Interim RA in 2003						
ABV-01	431,051.581	3,686,482.763	340.7	73	123	50
ASH-06	431,022.923	3,686,495.167	360.7	40	140	100
AHT-05 – upper screen	431,026.137	3,686,505.643	359.3	50	70	20
– middle screen				90	100	10
– lower screen				120	140	20
AHT-06 – upper screen	431,027.323	3,686,486.373	361.2	45	80	35
– middle screen				95	105	10
– lower screen				120	125	5
Installed for Sparging System in 2001						
ARV-1D1	431,107.28	3,686,504.15	337.99	97.05	117.12	20.07
ARV-1D2	431,106.85	3,686,499.89	337.96	96.60	116.50	19.90
ARV-1D3	431,112.66	3,686,503.08	337.44	93.70	133.80	40.10
ARV-2D1	431,055.82	3,686,495.32	340.79	97.00	107.12	10.12
ARV-2D2	431,055.97	3,686,491.45	340.66	97.00	117.08	20.08
ARV-2D3	431,062.53	3,686,494.61	340.25	106.96	117.00	10.04
ARV-3D1	430,948.38	3,686,457.29	350.44	100.88	121.00	20.12
ARV-3D2	430,947.90	3,686,453.26	350.49	101.00	111.11	10.11
ARV-3D3	430,944.96	3,686,454.78	350.72	105.00	115.06	10.06

Table 3. ABRP Well Construction Details *(Continued/End)*

Well ID	East Coordinate (UTM)	North Coordinate (UTM)	Ground Surface	Screen Top	Screen Bottom	Screen Length
			(ft amsl)	*(ft bgs)*		*(ft)*
Installed for Sparging System in 2001						
ARV-4D1	430,946.09	3,686,501.62	350.00	106.75	126.87	20.12
ARV-4D2	430,946.22	3,686,497.46	349.94	115.24	125.29	10.05
ARV-4D3	430,943.01	3,686,498.91	350.28	115.00	125.04	10.04
ARV-5D1	430,943.05	3,686,557.91	349.35	110.00	130.08	20.08
ARV-5D2	430,944.24	3,686,553.81	349.18	110.00	130.12	20.12
ARV-5D3	430,940.69	3,686,554.81	349.61	113.50	143.68	30.18
ARV-6D1	430,946.95	3,686,483.83	350.18	110.00	130.14	20.14
ARV-6D2	430,946.75	3,686,479.48	350.25	110.25	130.39	20.14
ARV-6D3	430,943.31	3,686,482.38	350.33	106.00	126.18	20.18
ARV-7D1	430,944.63	3,686,533.01	349.62	107.00	117.12	10.12
ARV-7D2	430,943.83	3,686,528.32	349.91	115.45	125.60	10.15
ARV-7D3	430,941.18	3,686,530.50	350.07	115.00	125.05	10.05
ARV-8D1	430,903.32	3,686,462.86	350.65	108.00	128.10	20.10
ARV-8D2	430,902.72	3,686,461.02	350.66	112.00	132.13	20.13
ARV-8D3	430,896.44	3,686,463.66	350.35	114.50	144.70	30.20
ARV-9D1	430,901.07	3,686,492.47	349.71	112.00	132.12	20.12
ARV-9D2	430,901.09	3,686,496.75	349.45	112.00	132.14	20.14
ARV-9D3	430,893.65	3,686,493.31	350.29	112.00	132.12	20.12
ARV-10D1	430,896.57	3,686,530.10	348.64	107.00	127.12	20.12
ARV-10D2	430,896.27	3,686,534.61	348.64	107.00	127.12	20.12
ARV-10D3	430,889.35	3,686,530.87	349.54	106.59	126.71	20.12

amsl – above sea level
bgs – below ground surface
ft – feet
ABV – A-Area Burning/Rubble Pit Vadose Zone
AHT – A-Area Hidden Trench
ARV – A-Area Recovery Vapor
UTM – Universal Transverse Mercator

Table 4. ABRP MicroBlowers™ Well Exhaust Gas TCE Results

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)					
	ABV-01	AHT-05	ARV-2D1	ARV-2D2	ARV-2D3	ASH-06
Well History Notes	1	1	3	4	3	1, 5, 7
10/17/2005	30.000	27.900	*	*	*	87.330
1/4/2006	29.987	29.929	*	*	*	97.494
4/17/2006	29.974	31.957	*	*	*	107.659
8/28/2006	27.702	32.292	*	*	*	58.957
10/12/2006	26.104	30.227	*	*	*	36.869
1/17/2007	27.302	31.093	*	*	*	46.688
4/19/2007	28.500	34.503	*	*	*	71.700
7/18/2007	25.015	15.046	*	*	*	39.847
10/23/2007	27.683	21.676	*	*	*	26.609
9/23/2008	0.057	0.023	0.068	*	0.134	0.016
11/17/2008	0.007	0.031	0.021	*	0.076	ND
1/27/2009	0.045	0.226	0.014	*	ND	ND
4/21/2009	ND	ND	ND	*	ND	ND
7/16/2009	ND	0.119	ND	*	ND	ND
10/26/2009	ND	ND	ND	ND	ND	ND
1/19/2010	ND	ND	ND	ND	ND	ND
7/19/2010	ND	ND	ND	ND	ND	8.640
1/18/2011	ND	ND	ND	ND	ND	ND
4/18/2011	ND	ND	ND	ND	ND	10.218
7/12/2011	ND	ND	ND	ND	ND	43.769
10/19/2011	ND	ND	ND	ND	ND	14.838
1/24/2012	ND	ND	ND	ND	ND	9.195
4/23/2012	ND	ND	ND	ND	ND	38.244
7/16/2012	ND	ND	ND	ND	ND	57.557
10/16/2012	ND	ND	ND	ND	ND	27.504
1/14/2013	ND	ND	ND	ND	ND	14.900
4/15/2013	ND	ND	ND	ND	ND	3.290
7/17/2013	ND	ND	ND	ND	ND	**
11/19/2013	ND	ND	ND	ND	ND	**
2/19/2014	ND	ND	ND	ND	ND	**
4/22/2014	ND	ND	ND	ND	ND	**
8/12/2014	ND	ND	ND	ND	ND	**
10/14/2014	ND	ND	ND	ND	ND	**
2/9/2015	ND	ND	ND	ND	ND	**
4/28/2015	ND	ND	ND	ND	ND	**
7/21/2015	ND	0.104	ND	ND	ND	**
12/8/2015	ND	ND	ND	ND	ND	**

Table 4. ABRP MicroBlowers™ Well Exhaust Gas TCE Results *(Continued)*

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)					
	ABV-01	AHT-05	ARV-2D1	ARV-2D2	ARV-2D3	ASH-06
Well History Notes	1	1	3	4	3	1, 5, 7
2/8/2016	ND	ND	ND	ND	0.036	**
5/17/2016	ND	ND	ND	0.049	ND	**
9/13/2016	ND	ND	ND	ND	ND	**
12/12/2016	ND	ND	ND	0.068	ND	**
2/13/2017	0.036	ND	ND	0.034	ND	**
5/16/2017	ND	0.029	ND	ND	ND	**
9/14/2017	ND	ND	ND	ND	ND	**
12/13/2017	ND	ND	ND	0.033	ND	**
2/12/2018	ND	ND	ND	ND	0.033	**
5/14/2018	0.033	0.089	0.046	0.078	0.295	ND
9/18/2018	ND	0.078	ND	0.045	0.208	3.383
12/17/2018	0.028	ND	ND	0.042	0.038	0.429
2/11/2019	ND	ND	ND	ND	ND	0.305
5/13/2019	ND	ND	ND	ND	ND	0.486
9/23/2019	0.036	ND	ND	ND	ND	ND
12/10/2019	ND	ND	ND	ND	ND	0.520
2/10/2020	ND	ND	ND	ND	ND	0.501
5/11/2020	ND	ND	ND	ND	ND	0.433
9/21/2020	ND	ND	ND	ND	ND	0.954
12/14/2020	ND	ND	ND	ND	ND	1.140
2/22/2021	ND	0.015	ND	ND	ND	0.841
5/10/2021	ND	ND	ND	ND	ND	0.403
8/20/2021	ND	ND	ND	ND	ND	0.036
11/17/2021	ND	ND	ND	ND	ND	0.020
2/25/2022	ND	ND	ND	ND	ND	0.645
6/15/2022	ND	ND	ND	ND	ND	0.357
9/7/2022	ND	ND	ND	0.016	ND	0.824
10/12/2022	ND	ND	ND	ND	ND	1.200
2/20/2023	ND	ND	ND	ND	ND	0.947
5/17/2023	ND	ND	ND	ND	ND	0.258
8/22/2023	ND	ND	ND	ND	ND	0.504
11/7/2023	ND	ND	ND	ND	ND	0.626

Well History Notes:

[1] ABV-01, AHT-05 and ASH-06 were converted to a MicroBlowers™ SVE well on 9/1/2002

[2] AHT-07B, -08A, -08B, -11A, -11B, -13, -14 were installed in April 2008 and connected to ASVE.

[3] ARV-2D1 and ARV-2D3 was converted to a MicroBlowers™ SVE well in 8/7/2008

[4] ARV-2D2 was converted to a MicroBlowers™ SVE well in Q3, 2009

[5] ASH-06 was converted to ASVE in April 2013

[6] AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16 , -17 were converted to PSVE BaroBalls on 11/17/2015

Table 4. ABRP MicroBlowers™ Well Exhaust Gas TCE Results *(Continued/End)*

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)						
	AHT007B	AHT008A	AHT008B	AHT011A	AHT011B	AHT013	AHT014
Well History Notes	2, 6	2, 6	2, 7	2, 7	2, 6	2, 6	2, 6
2/8/2016	ND	ND	**	**	ND	ND	ND
5/17/2016	ND	ND	**	**	ND	ND	ND
9/13/2016	ND	0.068	**	**	ND	ND	ND
12/12/2016	ND	ND	**	**	ND	ND	ND
2/13/2017	ND	ND	**	**	ND	ND	ND
5/16/2017	ND	ND	**	**	ND	ND	ND
9/14/2017	ND	ND	**	**	ND	ND	ND
12/13/2017	ND	ND	**	**	ND	ND	ND
2/12/2018	0.082	ND	**	**	0.038	ND	ND
5/14/2018	0.156	ND	ND	ND	0.044	0.036	ND
9/18/2018	0.139	ND	0.027	ND	ND	0.071	ND
12/17/2018	0.171	ND	0.273	ND	ND	ND	ND
2/11/2019	0.109	ND	0.194	ND	ND	0.033	ND
5/13/2019	0.109	ND	0.139	ND	ND	ND	ND
9/23/2019	0.106	ND	0.161	ND	ND	ND	ND
12/10/2019	ND	ND	ND	ND	ND	ND	ND
2/10/2020	0.079	ND	0.176	ND	0.045	ND	ND
5/11/2020	0.070	ND	0.062	ND	ND	ND	ND
9/21/2020	0.035	ND	ND	ND	ND	ND	ND
12/14/2020	ND	ND	0.304	ND	ND	ND	ND
2/22/2021	0.103	0.353	ND	ND	ND	ND	ND
5/10/2021	0.078	ND	ND	ND	ND	ND	ND
8/20/2021	0.051	ND	0.043	ND	ND	ND	ND
11/17/2021	0.077	ND	0.304	ND	ND	ND	ND
2/25/2022	0.074	ND	0.263	ND	ND	ND	ND
6/15/2022	0.081	ND	0.050	ND	ND	ND	ND
9/7/2022	0.036	ND	0.114	0.049	0.016	ND	ND
10/12/2022	0.117	ND	0.339	ND	ND	ND	ND
2/20/2023	0.121	ND	0.079	ND	ND	ND	ND
5/17/2023	ND	ND	ND	ND	ND	ND	ND
8/22/2023	0.062	ND	ND	ND	ND	ND	ND
11/7/2023	0.131	ND	0.126	ND	ND	ND	ND

Well History Notes:
[1] ABV-01, AHT-05 and ASH-06 were converted to a MicroBlowers™ SVE well on 9/1/2002
[2] AHT-07B, -08A, -08B, -11A, -11B, -13, -14 were installed in April 2008 and connected to ASVE.
[3] ARV-2D1 and ARV-2D3 was converted to a MicroBlowers™ SVE well in 8/7/2008
[4] ARV-2D2 was converted to a MicroBlowers™ SVE well in Q3, 2009
[5] ASH-06 was converted to ASVE in April 2013
[6] AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16 , -17 were installed in April 2008 and connected to ASVE.
[7] AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16 , -17 were converted to PSVE BaroBalls on 11/17/2015
*- Connected to BaroBall.
** - Connected to ASVE.
* –Connected to MicroBlower™.

Acronyms:
ABV – A-Area Burning/Rubble Pit Vadose Zone
AHT – A-Area Hidden Trench
ARV – A-Area Recovery Vapor
ASH – A-Area Ash Pile
ND – non-detect
ppmV – parts per million by volume

Table 5. ABRP PSVE BaroBalls™ 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
10/17/2005	ND	1.550	79.500	1.050			
1/4/2006	ND	1.445	75.073	1.689			
4/17/2006	14.308	1.590	88.868	2.565			
8/28/2006	44.583	1.358	56.672	3.125			
10/12/2006	5.310	0.955	51.060	2.248			
1/17/2007	2.606	1.130	54.020	1.470			
4/19/2007	ND	0.623	45.571	0.995			
7/18/2007	1.079	0.620	43.143	0.553			
10/23/2007	0.057	0.703	40.715	0.876			
9/23/2008	1.079	0.020	0.132	ND			
11/17/2008	0.057	0.018	0.128	ND			
1/27/2009	0.097	0.006	0.659	ND			
4/21/2009	ND	ND	ND	ND			
7/16/2009	ND	ND	ND	ND			
10/26/2009	ND	ND	*	ND			
1/19/2010	ND	ND	*	ND			
7/19/2010	ND	ND	*	ND			
1/18/2011	ND	ND	*	ND			
4/18/2011	0.269	ND	*	ND			
7/12/2011	ND	ND	*	ND			
10/19/2011	ND	ND	*	ND			
1/24/2012	0.745	ND	*	ND			
4/23/2012	0.140	ND	*	ND			
7/16/2012	ND	ND	*	ND			
10/16/2012	0.202	ND	*	ND			
1/14/2013	ND	ND	*	ND			
4/15/2013	ND	ND	*	ND			
7/17/2013	ND	ND	*	ND			
11/19/2013	ND	ND	*	ND			
2/19/2014	ND	ND	*	ND			
4/22/2014	ND	ND	*	ND			
8/12/2014	ND	ND	*	ND			
10/14/2014	ND	ND	*	ND			
2/9/2015	ND	ND	*	ND			
4/28/2015	ND	ND	*	ND			
7/21/2015	ND	ND	*	ND			
12/8/2015	ND	ND	*	ND			

Table 5. ABRP PSVE BaroBalls™ Well Exhaust Gas TCE Results *(Continued)*

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
2/20/2023	ND	ND	*	ND	0.032	ND	0.011
5/17/2023	ND	ND	*	ND	0.027	ND	0.010
8/22/2023	ND	ND	*	ND	0.013	ND	0.015
11/7/2023	ND	ND	*	ND	0.131	ND	0.013

Table 5. ABRP PSVE BaroBalls™ Well Exhaust Gas TCE Results *(Continued/End)*

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)						
	AHT010A	AHT010B	AHT012A	AHT012B	AHT015	AHT016	AHT017
Well History Notes	5, 6	5, 6	5, 6	5, 6	5, 6	5, 6	5, 6
2/8/2016	0.067	0.045	ND	ND	ND	ND	ND
5/17/2016	ND	ND	ND	ND	ND	ND	ND
9/13/2016	ND	ND	ND	ND	ND	ND	ND
12/12/2016	0.032	ND	ND	ND	ND	ND	ND
2/13/2017	ND	ND	ND	ND	ND	ND	ND
5/16/2017	ND	ND	ND	ND	ND	ND	ND
9/14/2017	ND	ND	ND	ND	ND	ND	ND
12/13/2017	ND	ND	ND	ND	ND	ND	ND
2/12/2018	ND	0.032	ND	ND	ND	ND	ND
5/14/2018	ND	ND	ND	ND	ND	ND	ND
9/18/2018	ND	ND	ND	ND	ND	ND	ND
12/17/2018	ND	ND	ND	ND	ND	ND	ND
2/11/2019	0.039	0.067	ND	ND	ND	ND	ND
5/13/2019	ND	ND	ND	ND	ND	ND	ND
9/23/2019	ND	ND	ND	ND	ND	ND	ND
12/10/2019	ND	ND	ND	ND	ND	ND	ND
2/10/2020	ND	ND	ND	ND	ND	ND	ND
5/11/2020	ND	ND	ND	ND	ND	ND	ND
9/21/2020	ND	0.016	ND	ND	ND	ND	ND
12/14/2020	ND	0.023	ND	ND	ND	ND	ND
2/22/2021	0.020	0.017	ND	ND	ND	ND	ND
5/10/2021	NA	NA	NA	NA	NA	NA	NA
8/20/2021	ND	0.013	ND	ND	ND	ND	ND
11/17/2021	0.010	0.021	ND	ND	ND	ND	ND
2/25/2022	ND	0.025	ND	ND	ND	ND	ND
6/15/2022	ND	0.015	ND	ND	ND	ND	ND
9/7/2022	ND	0.015	ND	ND	ND	ND	ND
10/12/2022	ND	0.025	ND	ND	ND	ND	ND
2/20/2023	ND	0.025	ND	ND	ND	ND	ND
5/17/2023	ND	0.028	ND	ND	ND	ND	ND
8/22/2023	ND	0.029	ND	ND	ND	ND	ND
11/7/2023	ND	0.024	ND	ND	ND	ND	ND

Well History Notes:

[1] ARV-1D1, -2D2, -3D3 were converted to a BaroBall™ SVE well in 10/5/2001.

[2] AHT-06, ASH-06 was converted to a BaroBall™ SVE well in 12/18/2003.

[3] ARV-2D2 was converted to a MicroBlower™ SVE well in Q3, 2009

[4] ASH-06 was converted to a ASVE well on 4/4/13

[5] AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16 , -17 were installed in April 2008 and connected to ASVE.

[6] AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16 , -17 were converted to PSVE BaroBalls on 11/17/2015

[*] –Connected to MicroBlower™.

*Connected to ASVE

Acronyms:

ABV – A-Area Burning/Rubble Pit Vadose Zone
AHT – A-Area Hidden Trench
ARV – A-Area Recovery Vapor
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ND – non-detect
ppmV – parts per million by volume

Table 6. MCB SVE Well Construction Details

Well ID	East Coordinate (UTM)	North Coordinate (UTM)	Ground Surface	Screen Top	Screen Bottom	Screen Length
			(ft amsl)	*(ft bgs)*		*(ft)*
MCSV-01	431,353.543	3,686,134.387	336.11	unknown		
MCSV-03	431,369.808	3,686,108.869	331.169	80	95	15
MCSV-03A				57	72	15
MCSV-04 – upper screen	431,326.036	3,686,171.426	337.083	15	30	15
MCSV-04 – intermediate screen				35	40	5
MCSV-04 – intermediate screen				45	50	5
MCSV-04 – intermediate screen				55	60	5
MCSV-04 – intermediate screen				65	70	5
MCSV-04 – lower screen				75	80	5
MCSV-05	431,387.721	3,686,170.675	330.978	60	90	30
MCSV-06 – upper screen	431,311.184	3,686,190.540	338.85	15	25	10
MCSV-06 – intermediate screen				30	35	5
MCSV-06 – intermediate screen				40	45	5
MCSV-06 – intermediate screen				50	55	5
MCSV-06 – intermediate screen				60	65	5
MCSV-06 – lower screen				70	80	10
MCSV-07 – upper screen	431,308.585	3,686,167.041	338.62	15	50	35
MCSV-07 – lower screen				75	80	5
MCSV-08	431,277.191	3,686,194.175	339.887	51	81	30
MCSV-09	431,320.147	3,686,209.038	337.55	50	80	30
MCSV-10	431,336.278	3,686,181.809	336.564	15	55	40
MCSV-11	431,383.657	3,686,149.697	330.341	55	85	30
MCSV-12	431,368.997	3,686,152.466	332.922	55	85	30
MCSV-13	431,320.744	3,686,172.337	338.071	20	50	30
MCSV-14	431,347.959	3,686,134.427	336.498	68	88	20
MCSV-15 – upper screen	431,349.123	3,686,201.887	334.411	50	70	20
MCSV-15 – lower screen				80	100	20
MCSV-16	431,335.487	3,686,141.283	336.761	40	70	30
MCSV-17 – upper screen	431,338.008	3,686,157.116	336.821	15	50	35
MCSV-17 – lower screen				75	80	5
MCSV-18	431,357.083	3,686,162.966	334.199	55	70	15
MCSV-19 – upper screen	431,316.481	3,686,156.959	337.746	15	50	35
MCSV-19 – lower screen				75	80	5
MCSV-20	431,365.996	3,686,170.283	333.381	55	70	15
MCSV-21	431,354.048	3,686,171.351	334.523	55	70	15
MCSV-22	431,327.679	3,686,162.193	337.088	20	70	50
MCSV-23	431,371.738	3,686,188.657	332.497	55	75	20
MCSV-24	431,301.588	3,686,156.502	339.139	60	90	30
MCSV-25 – upper screen	431,327.922	3,686,195.857	337.024	55	70	15
MCSV-25 – lower screen				80	95	15
MCSV-26 – upper screen	431,304.040	3,686,177.862	339.546	30	35	5
MCSV-27	431,329.482	3,686,186.662	336.89	64	99	35

Table 7. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas PCE Results

Collection Date	Station ID — PCE Soil-Gas Concentration (ppmV)							
	MCSV-01	MCSV-03A	MCSV-04	MCSV-05	MCSV-06	MCSV-07	MCSV-08	MCSV-09
2/24/04	0.007	0.000	0.570	0.014	0.070	1.294	0.004	0.015
3/16/04	nr	0.002	0.637	nr	0.043	0.843	nr	nr
3/31/04	0.004	0.037	0.941	0.008	0.038	0.091	nr	0.008
6/10/04	0.007	0.355	**18.601**	0.045	0.111	0.126	0.014	0.013
8/5/04	0.006	0.063	3.602	0.006	0.061	0.246	0.002	0.006
9/7/04	0.004	ND	nr	0.006	0.056	0.752	0.007	0.004
12/7/04	0.005	ND	2.539	0.010	0.212	1.016	0.002	0.007
1/5/05	0.006	ND	1.424	0.012	0.142	0.656	0.002	0.006
2/16/05	nr	ND	0.828	nr	nr	0.542	nr	nr
3/23/05	nr	0.000	1.493	nr	0.118	0.869	nr	nr
7/7/05	nr	0.004	2.050	nr	0.022	5.775	nr	nr
8/30/05	0.003	0.002	2.536	nr	NR	5.624	nr	nr
9/26/05	0.042	0.007	2.009	nr	0.037	6.469	nr	nr
10/6/05	0.024	0.000	2.909	nr	1.033	8.247	nr	nr
1/30/06	0.081	0.000	1.270	nr	0.040	4.308	nr	nr
5/2/06	ND	0.000	0.918	nr	0.010	7.550	nr	nr
6/26/06	nr	0.000	1.963	0.123	0.052	5.624	nr	nr
11/15/06	nr	0.000	0.677	0.018	0.025	5.893	nr	0.032
11/30/06	nr	0.000	0.018	0.107	0.115	0.018	nr	0.345
12/15/06	nr	0.000	0.904	0.035	0.052	3.992	nr	0.049
9/27/07	nr	0.000	nr	0.022	0.056	7.063	nr	0.044
4/18/08	ND	nr	0.040	0.010	ND	5.354	nr	0.020
6/26/08	nr	nr	0.018	0.020	0.002	5.524	0.016	0.016
9/22/08	0.013	0.014	0.596	0.026	0.040	0.195	0.003	0.019
11/17/08	0.004	0.013	0.226	0.026	0.009	5.995	0.008	0.010
1/27/09	0.008	0.024	0.348	ND	0.039	6.370	0.007	nr
4/21/09	0.014	ND	0.380	0.041	0.536	0.720	0.003	0.036
7/16/09	0.003	0.003	nr	0.016	0.015	2.506	0.007	0.006
10/28/09	ND	ND	0.082	ND	ND	0.116	ND	ND
1/19/10	ND	ND	ND	ND	ND	0.785	ND	ND
4/19/10	ND	ND	ND	ND	ND	0.429	ND	ND
7/19/10	ND	ND	ND	ND	ND	1.432	ND	ND
10/19/10	ND	ND	ND	ND	ND	1.065	ND	ND
1/18/11	ND	ND	ND	ND	ND	0.576	ND	ND
4/18/11	ND	ND	ND	ND	ND	0.558	ND	ND
7/12/11	ND	ND	ND	ND	ND	0.421	ND	ND
10/19/11	ND	ND	ND	ND	ND	0.861	ND	ND

Table 7. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas PCE Results *(Continued)*

Collection Date	Station ID — PCE Soil-Gas Concentration (ppmV)							
	MCSV-01	MCSV-03A	MCSV-04	MCSV-05	MCSV-06	MCSV-07	MCSV-08	MCSV-09
1/24/12	ND	ND	ND	ND	ND	ND	ND	ND
4/23/12	ND	ND	ND	ND	ND	0.740	ND	ND
7/16/12	ND	ND	ND	ND	ND	0.605	ND	ND
10/16/12	ND	ND	ND	ND	ND	0.693	ND	ND
1/14/13	ND	ND	ND	ND	ND	0.887	ND	ND
4/15/13	ND	ND	ND	ND	ND	0.704	ND	ND
7/17/13	ND	ND	ND	ND	ND	0.562	ND	ND
11/18/13	ND	ND	ND	ND	ND	1.320	ND	ND
2/19/14	ND	ND	ND	ND	ND	0.382	ND	ND
4/22/14	ND	ND	ND	ND	ND	0.543	ND	ND
8/12/14	ND	ND	ND	ND	ND	1.001	ND	ND
10/14/14	ND	ND	ND	ND	ND	0.957	ND	ND
2/9/15	ND	ND	ND	ND	ND	0.888	ND	ND
4/28/15	ND	ND	ND	ND	ND	0.558	ND	ND
7/21/15	ND	ND	ND	ND	ND	0.828	ND	ND
12/8/15	ND	ND	ND	ND	ND	0.787	ND	ND
2/8/16	ND	ND	ND	ND	ND	1.083	ND	ND
5/17/16	ND	ND	ND	ND	ND	0.068	ND	ND
9/13/16	ND	ND	ND	ND	ND	1.393	ND	ND
12/14/16	ND	ND	ND	ND	ND	0.285	ND	ND
2/14/17	ND	ND	ND	ND	ND	1.492	ND	ND
5/16/17	ND	ND	ND	ND	ND	ND	ND	ND
9/14/17	ND	ND	ND	ND	ND	ND	ND	ND
12/13/17	ND	ND	ND	ND	ND	ND	ND	ND
2/13/18	ND	ND	ND	ND	ND	ND	ND	ND
5/15/18	ND	ND	ND	ND	ND	0.844	ND	ND
9/17/18	ND	ND	ND	ND	ND	0.378	ND	ND
12/18/18	ND	ND	ND	ND	ND	1.252	ND	ND
2/11/19	ND	ND	ND	ND	ND	1.517	ND	ND
5/14/19	ND	ND	ND	ND	ND	0.860	ND	ND
9/24/19	ND	ND	ND	ND	ND	0.943	ND	ND
12/16/19	ND	ND	ND	ND	ND	0.347	ND	ND
2/10/20	ND	ND	ND	ND	ND	ND	ND	ND
5/11/20	ND	ND	ND	ND	ND	0.842	ND	ND
9/28/20	ND	ND	ND	ND	ND	0.550	ND	ND
12/14/20	ND	ND	ND	ND	ND	0.263	ND	ND
2/22/21	ND	0.014	ND	ND	ND	1.490	ND	ND
8/20/21	ND	ND	ND	0.012	0.050	0.635	ND	ND
11/22/21	ND	0.010	ND	ND	ND	1.810	ND	ND
3/7/22	0.073	0.018	ND	0.012	ND	ND	0.027	ND
6/1/22	ND	0.013	0.108	ND	ND	ND	ND	ND
8/15/22	ND	0.011	0.032	0.010	ND	ND	ND	ND
10/13/22	ND	0.012	0.029	ND	ND	1.390	ND	ND
2/20/23	ND	ND	0.025	ND	ND	1.700	ND	ND
5/16/23	ND	0.012	ND	ND	ND	1.170	ND	ND
9/6/23	ND	ND	ND	ND	ND	1.230	ND	ND
12/10/23	0.014	NA	0.011	ND	ND	1.570	ND	ND

Table 7. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas PCE Results *(Continued)*

Collection Date	Station ID — PCE Soil-Gas Concentration (ppmV)								
	MCSV-10	MCSV-11	MCSV-12	MCSV-13	MCSV-14	MCSV-15	MCSV-16	MCSV-17	MCSV-18
2/24/04	0.050	0.020	0.023	4.158	0.003	0.006	nr	nr	0.016
3/16/04	0.043	nr	nr	9.980	nr	nr	nr	0.063	nr
3/31/04	0.034	0.015	0.011	5.704	0.002	0.004	nr	0.019	0.017
6/10/04	0.058	0.018	0.016	3.672	0.021	0.018	nr	0.032	nr
8/5/04	0.051	nr	0.012	11.154	0.002	0.003	0.026	nr	nr
9/7/04	0.040	0.010	0.009	6.459	0.020	0.010	nr	0.057	nr
12/7/04	0.044	0.014	0.013	3.565	nr	0.004	nr	0.025	nr
1/5/05	0.037	0.015	nr	9.207	0.002	0.004	nr	0.033	nr
2/16/05	0.040	nr	nr	1.112	nr	nr	nr	0.014	nr
3/23/05	nr	nr	nr	6.979	nr	nr	nr	0.025	nr
7/7/05	0.071	nr	nr	1.897	nr	nr	nr	0.031	nr
8/30/05	0.101	nr	nr	5.751	nr	nr	nr	NR	nr
9/26/05	0.122	nr	nr	1.568	nr	nr	nr	0.059	nr
10/6/05	0.164	0.591	nr	3.955	nr	nr	nr	0.724	nr
1/30/06	0.083	nr	nr	6.119	nr	nr	nr	0.068	nr
5/2/06	0.064	nr	nr	0.727	nr	nr	nr	0.055	nr
6/26/06	0.080	nr	0.032	3.292	nr	nr	nr	nr	nr
11/15/06	0.075	nr	0.014	1.818	0.010	0.009	0.009	0.064	nr
11/30/06	0.146	nr	0.031	0.001	1.055	0.997	0.579	5.368	nr
12/15/06	0.080	nr	0.016	2.815	0.017	0.011	0.019	0.105	nr
9/27/07	0.267	0.028	nr	0.060	0.010	0.013	0.022	0.160	0.024
4/18/08	0.000	ND	ND	0.058	ND	ND	0.000	0.180	0.043
6/26/08	0.049	0.002	0.011	0.341	0.003	0.008	0.007	0.157	ND
9/22/08	0.012	0.002	0.007	0.044	0.002	0.008	0.003	0.038	0.004
11/17/08	0.042	0.003	0.009	0.007	0.002	0.005	0.002	0.078	0.005
1/27/09	nr	0.011	ND	nr	ND	0.002	ND	0.069	ND
4/21/09	0.024	ND	0.004	0.033	ND	ND	ND	0.046	0.008
7/16/09	ND	0.007	0.006	ND	ND	ND	ND	0.050	ND
10/28/09	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/18/11	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/18/11	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/12/11	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/19/11	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 7. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas PCE Results *(Continued)*

Collection Date	Station ID — PCE Soil-Gas Concentration (ppmV)								
	MCSV-10	MCSV-11	MCSV-12	MCSV-13	MCSV-14	MCSV-15	MCSV-16	MCSV-17	MCSV-18
1/24/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/14/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/18/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/19/14	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/22/14	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/12/14	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/14/14	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/9/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/28/15	ND	NA	ND	ND	ND	ND	ND	ND	ND
7/21/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/8/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/8/16	ND	ND	ND	0.086	ND	ND	ND	ND	ND
5/17/16	ND	ND	ND	ND	ND	ND	ND	0.030	ND
9/13/16	ND	ND	ND	ND	ND	ND	ND	0.033	ND
12/14/16	ND	ND	ND	ND	ND	ND	ND	0.033	ND
2/14/17	ND	ND	ND	0.065	ND	ND	ND	ND	ND
5/16/17	ND	ND	ND	ND	ND	ND	ND	0.035	ND
9/14/17	ND	ND	ND	ND	ND	ND	ND	0.031	ND
12/13/17	ND	ND	ND	ND	ND	ND	ND	0.031	ND
2/13/18	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/15/18	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/17/18	ND	ND	ND	ND	ND	ND	ND	0.435	ND
12/18/18	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/11/19	ND	ND	ND	0.055	ND	ND	ND	ND	ND
5/14/19	ND	ND	ND	ND	ND	ND	ND	0.031	ND
9/24/19	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/16/19	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/10/20	ND	ND	ND	ND	ND	ND	ND	0.014	ND
5/11/20	ND	ND	ND	ND	ND	ND	ND	0.016	ND
9/28/20	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/14/20	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/22/21	ND	0.011	ND	ND	ND	ND	ND	0.015	ND
8/20/21	ND	ND	ND	ND	ND	ND	ND	0.018	0.033
11/22/21	ND	ND	ND	ND	ND	ND	ND	0.026	ND
3/7/22	ND	ND	0.021	0.025	ND	ND	0.049	0.014	ND
6/1/22	ND	0.012	ND	0.044	ND	ND	ND	ND	ND
8/15/22	ND	ND	ND	0.039	ND	ND	ND	ND	ND
10/13/22	ND	ND	ND	ND	ND	ND	ND	0.046	0.016
2/20/23	ND	ND	ND	ND	ND	ND	ND	0.024	ND
5/16/23	ND	ND	ND	ND	ND	ND	ND	0.019	ND
9/6/23	ND	ND	ND	ND	ND	ND	ND	0.023	ND
12/10/23	ND	ND	ND	ND	ND	ND	ND	0.023	ND

Table 7. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas PCE Results *(Continued)*

Collection Date	Station ID — PCE Soil-Gas Concentration (ppmV)								
	MCSV-19	MCSV-20	MCSV-21	MCSV-22	MCSV-23	MCSV-24	MCSV-25	MCSV-26	MCSV-27
2/24/04	0.051	0.053	0.060	0.048	0.007	0.011	0.110	0.073	nr
3/16/04	0.042	nr	nr	nr	nr	nr	0.081	0.051	0.311
3/31/04	0.045	0.040	0.043	0.050	0.005	0.008	0.062	0.043	nr
6/10/04	0.066	0.063	0.071	0.029	0.006	0.016	0.055	0.124	nr
8/5/04	0.162	0.038	0.042	0.058	0.006	0.008	0.053	0.090	0.014
9/7/04	0.064	0.039	0.037	0.062	0.004	0.006	nr	0.090	nr
12/7/04	0.112	0.052	0.036	0.262	0.007	0.012	0.030	0.142	0.265
1/5/05	0.064	0.034	0.037	0.088	0.005	0.009	0.040	0.084	0.183
2/16/05	0.030	nr	nr	0.037	nr	nr	0.016	0.094	0.138
3/23/05	0.090	nr	nr	0.051	nr	nr	nr	0.135	nr
7/7/05	0.119	nr	nr	0.113	nr	nr	0.056	0.196	0.026
8/30/05	0.193	nr	nr	0.157	nr	nr	0.096	0.176	0.208
9/26/05	0.212	nr	nr	0.254	nr	nr	0.080	0.286	0.337
10/6/05	0.789	nr	0.112	0.830	nr	nr	2.488	0.962	0.468
1/30/06	0.043	nr	0.065	0.154	nr	nr	0.087	0.384	0.489
5/2/06	0.033	nr	nr	0.063	nr	nr	0.042	0.241	0.081
6/26/06	0.077	nr	0.083	0.238	nr	nr	nr	0.330	0.013
11/15/06	0.048	0.053	0.047	0.085	0.011	0.019	0.055	0.328	0.067
11/30/06	0.111	0.381	1.910	0.197	0.185	0.165	0.183	0.108	0.037
12/15/06	0.074	0.053	0.063	0.152	0.011	0.014	0.073	0.337	0.004
9/27/07	0.085	nr	nr	0.158	0.014	0.020	0.504	nr	0.050
4/18/08	0.020	0.040	ND	0.010	0.000	nr	ND	ND	0.210
6/26/08	0.020	0.051	0.080	0.034	0.006	0.008	0.054	0.249	0.304
9/22/08	0.022	0.017	0.055	0.015	0.007	0.002	0.017	0.170	1.866
11/17/08	0.061	0.011	0.038	0.021	0.008	0.003	0.006	0.058	0.064
1/27/09	0.054	ND	0.007	0.004	0.012	0.004	nr	0.101	0.114
4/21/09	ND	0.031	0.017	0.056	0.005	ND	0.182	0.193	0.274
7/16/09	ND	ND	0.003	0.011	0.006	0.002	0.025	0.043	0.012
10/28/09	ND	ND	ND	ND	ND	ND	0.224	ND	0.129
1/19/10	ND	ND	ND	ND	ND	ND	0.101	ND	ND
4/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/19/10	ND	ND	ND	ND	ND	ND	ND	0.000	0.000
1/18/11	ND	ND	ND	ND	ND	ND	ND	ND	0.072
4/18/11	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/12/11	ND	ND	ND	0.041	ND	ND	ND	ND	ND
10/19/11	ND	ND	ND	ND	ND	ND	0.087	ND	0.069

Table 7. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas PCE Results
(Continued/End)

Collection Date	Station ID — PCE Soil-Gas Concentration (ppmV)								
	MCSV-19	MCSV-20	MCSV-21	MCSV-22	MCSV-23	MCSV-24	MCSV-25	MCSV-26	MCSV-27
1/24/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/16/12	ND	ND	ND	ND	ND	ND	0.046	ND	0.044
10/16/12	ND	ND	ND	ND	ND	ND	ND	ND	ND
1/14/13	ND	ND	ND	ND	ND	ND	0.050	ND	ND
4/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/18/13	ND	ND	0.031	ND	ND	ND	0.034	ND	ND
2/19/14	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/22/14	ND	ND	ND	ND	ND	ND	0.038	ND	ND
8/12/14	ND	ND	ND	ND	ND	ND	0.043	ND	0.034
10/14/14	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/9/15	ND	ND	ND	ND	ND	ND	0.048	ND	ND
4/28/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/21/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/8/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/8/16	ND	0.032	0.031	ND	ND	ND	0.044	ND	0.030
5/17/16	ND	ND	0.030	ND	ND	ND	ND	NA	NA
9/13/16	ND	0.029	ND	ND	ND	ND	ND	ND	ND
12/14/16	ND	0.041	ND	ND	ND	ND	0.047	ND	ND
2/14/17	ND	ND	ND	ND	ND	ND	0.037	ND	ND
5/16/17	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/14/17	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/13/17	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/13/18	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/15/18	ND	0.031	0.042	ND	ND	ND	0.061	ND	0.052
9/17/18	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/18/18	ND	0.031	ND	ND	ND	ND	0.039	ND	0.043
2/11/19	ND	0.039	ND	ND	ND	ND	ND	ND	ND
5/14/19	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/24/19	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/16/19	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/10/20	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/11/20	ND	0.014	ND	ND	ND	ND	ND	ND	ND
9/28/20	ND	0.017	ND	ND	ND	ND	0.012	ND	ND
12/14/20	ND	0.014	ND	ND	ND	ND	0.012	ND	0.024
2/22/21	ND	0.036	ND	ND	ND	0.060	ND	0.021	ND
8/20/21	ND	0.015	ND	ND	ND	0.291	0.023	0.018	ND
11/22/21	ND	0.012	ND	ND	ND	ND	0.021	ND	0.022
3/7/22	ND	0.015	ND	ND	ND	0.055	0.020	ND	ND
6/1/22	ND	0.025	ND	ND	ND	ND	0.011	ND	ND
8/15/22	ND	0.022	ND	ND	NA	ND	0.020	ND	0.028
10/13/22	ND	0.029	ND	ND	ND	ND	ND	ND	0.019
2/20/23	ND	0.026	ND	ND	ND	ND	0.016	ND	ND
5/16/23	ND	0.015	ND	ND	ND	ND	ND	ND	ND
9/6/23	ND	0.014	ND	ND	ND	ND	0.011	ND	0.016
12/10/23	ND	0.021	ND	ND	ND	ND	0.014	ND	0.012

ND – Non-Detect MCSV – Miscellaneous Chemical Soil Vapor nr – no result

MicroBlower™ - Capped for Rebound Testing

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE Results

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)							
	MCSV-01	MCSV-03A	MCSV-04	MCSV-05	MCSV-06	MCSV-07	MCSV-08	MCSV-09
2/24/04	0.007	0.000	2.310	0.050	0.183	0.547	0.003	0.031
3/16/04	nr	0.009	3.551	nr	0.158	0.577	nr	nr
3/31/04	0.005	0.411	3.085	0.026	0.112	0.306	nr	0.021
6/10/04	nr	0.414	37.345	0.052	0.227	0.098	0.008	0.029
8/5/04	0.008	0.531	11.379	0.030	0.314	0.462	0.006	0.038
9/7/04	0.011	ND	nr	0.023	0.143	0.466	0.020	0.021
12/7/04	0.018	ND	7.119	0.018	0.237	0.389	nr	0.018
1/5/05	0.011	ND	6.190	0.020	0.212	0.350	nr	0.016
2/16/05	nr	ND	5.095	nr	nr	0.340	nr	nr
3/23/05	nr	0.000	6.053	nr	0.171	0.412	nr	nr
7/7/05	nr	0.055	7.373	nr	0.048	3.145	nr	nr
8/30/05	0.007	0.010	14.000	nr	0.162	4.848	nr	nr
9/26/05	0.302	0.034	7.768	nr	0.067	3.705	nr	nr
10/6/05	0.041	0.000	15.478	nr	0.899	5.275	nr	nr
1/30/06	0.483	0.000	5.689	nr	0.123	3.227	nr	nr
5/2/06	0.110	0.000	3.947	nr	0.033	4.997	nr	nr
6/26/06	nr	0.000	8.918	0.572	0.088	3.685	nr	nr
11/15/06	nr	0.000	3.363	0.023	0.062	4.322	nr	0.058
11/30/06	nr	0.000	0.059	0.290	0.269	0.026	nr	0.081
12/15/06	nr	0.000	4.670	0.038	0.118	2.879	nr	0.067
9/27/07	nr	0.000	nr	0.009	0.068	5.439	nr	0.061
4/18/08	0.110	nr	0.020	0.050	0.030	4.354	nr	0.060
6/26/08	nr	nr	0.082	0.013	0.006	4.605	0.009	0.045
9/22/08	0.037	0.212	3.159	0.086	0.052	1.088	0.006	0.064
11/17/08	0.027	0.186	1.332	0.045	0.020	5.909	0.010	0.042
1/27/09	0.071	0.385	1.385	ND	0.054	4.904	0.009	nr
4/21/09	0.134	ND	1.088	0.356	0.627	0.737	ND	0.159
7/16/09	0.026	0.058	nr	0.086	0.026	2.104	0.009	0.033
10/28/09	ND	ND	0.584	ND	ND	ND	ND	ND
1/19/10	ND	0.139	0.289	ND	ND	0.793	ND	ND
4/19/10	ND	ND	ND	ND	ND	0.429	ND	ND
7/19/10	ND	ND	ND	ND	ND	1.160	ND	ND
10/19/10	ND	ND	ND	ND	ND	0.855	ND	0.187
1/18/11	ND	0.174	ND	ND	ND	0.442	ND	0.129
4/18/11	ND	ND	ND	ND	ND	0.430	ND	ND
7/12/11	ND	ND	ND	ND	ND	0.427	ND	ND
10/19/11	ND	ND	ND	0.145	ND	0.718	ND	ND

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE Results (Continued)

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)							
	MCSV-01	MCSV-03A	MCSV-04	MCSV-05	MCSV-06	MCSV-07	MCSV-08	MCSV-09
1/24/12	ND	ND	ND	ND	ND	ND	ND	ND
4/23/12	ND	ND	ND	ND	ND	0.962	ND	ND
7/16/12	ND	ND	ND	ND	ND	0.566	ND	0.193
10/16/12	ND	ND	ND	ND	ND	0.667	ND	ND
1/14/13	ND	0.111	ND	ND	ND	0.891	ND	ND
4/15/13	ND	ND	ND	ND	ND	0.739	ND	ND
7/17/13	ND	ND	ND	ND	ND	0.698	ND	ND
11/18/13	ND	0.122	ND	ND	ND	1.080	ND	ND
2/19/14	ND	0.130	ND	ND	ND	0.520	ND	ND
4/22/14	ND	0.134	ND	ND	ND	0.581	ND	ND
8/12/14	ND	ND	ND	ND	ND	0.780	ND	ND
10/14/14	ND	ND	ND	ND	ND	0.831	ND	ND
2/9/15	ND	ND	ND	0.099	ND	0.660	ND	ND
4/28/15	ND	ND	ND	ND	ND	0.533	ND	ND
7/21/15	ND	ND	ND	0.070	ND	0.829	ND	ND
12/8/15	ND	0.099	ND	0.123	ND	0.772	ND	0.103
2/8/16	ND	0.184	0.069	0.099	0.044	0.803	ND	0.142
5/17/16	ND	0.092	ND	ND	ND	0.081	ND	ND
9/13/16	ND	0.086	0.083	0.047	ND	1.002	ND	ND
12/14/16	ND	0.229	0.070	0.079	ND	0.192	ND	0.074
2/14/17	ND	0.260	0.057	0.075	ND	1.023	ND	0.094
5/16/17	ND	ND	0.029	ND	ND	1.153	ND	ND
9/14/17	ND	0.060	ND	ND	ND	1.047	ND	ND
12/13/17	ND	ND	0.057	ND	ND	1.130	ND	ND
2/13/18	ND	ND	ND	ND	ND	ND	ND	ND
5/15/18	ND	0.208	0.036	0.147	ND	0.484	ND	0.092
9/17/18	ND	0.037	0.037	ND	ND	0.281	ND	ND
12/18/18	ND	ND	0.069	0.067	ND	0.678	ND	0.054
2/11/19	ND	0.227	0.089	0.064	ND	1.143	ND	ND
5/14/19	ND	ND	0.041	0.037	ND	0.611	ND	ND
9/24/19	ND	0.214	0.060	0.055	ND	0.709	ND	0.045
12/16/19	ND	0.030	ND	ND	ND	0.285	ND	ND
2/10/20	ND	0.011	ND	ND	ND	ND	ND	ND
5/11/20	ND	0.126	ND	0.025	ND	0.552	ND	ND
9/28/20	ND	0.132	ND	0.027	ND	0.660	ND	0.036
12/14/20	ND	0.093	ND	0.013	ND	0.130	ND	0.015
2/22/21	ND	0.165	ND	ND	ND	1.040	ND	0.014
8/20/21	ND	0.101	ND	0.032	ND	0.386	ND	ND
11/22/21	ND	0.111	ND	0.032	ND	0.970	ND	ND
3/7/22	ND	0.089	ND	0.040	ND	ND	ND	ND
6/1/22	ND	0.153	0.059	0.030	ND	ND	ND	ND
8/15/22	ND	0.124	0.035	0.089	ND	ND	ND	ND
10/13/22	ND	0.129	0.027	0.024	ND	0.854	ND	0.017
2/20/23	ND	0.110	0.035	0.033	ND	1.140	ND	0.012
5/16/23	ND	0.121	0.012	0.023	ND	0.668	ND	0.011
9/6/23	ND	0.109	ND	0.027	ND	0.753	ND	ND
12/10/23	ND	NA	0.020	0.028	ND	0.849	ND	0.012

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE Results (*Continued*)

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)								
	MCSV-10	MCSV-11	MCSV-12	MCSV-13	MCSV-14	MCSV-15	MCSV-16	MCSV-17	MCSV-18
2/24/04	0.284	0.180	0.251	4.674	0.017	0.037	nr	nr	0.129
3/16/04	0.286	nr	nr	11.465	nr	nr	nr	1.408	nr
3/31/04	0.195	0.085	0.084	6.445	0.012	0.025	nr	0.691	0.163
6/10/04	0.231	0.092	0.148	3.742	0.019	0.030	nr	1.309	nr
8/5/04	0.710	nr	0.204	14.074	0.031	0.043	3.059	nr	nr
9/7/04	0.302	0.103	0.126	10.914	0.035	0.030	nr	3.327	nr
12/7/04	0.220	0.085	0.083	3.696	nr	0.026	nr	1.438	nr
1/5/05	0.226	0.084	nr	9.929	0.008	0.026	nr	2.060	nr
2/16/05	0.207	nr	nr	1.598	nr	nr	nr	0.505	nr
3/23/05	nr	nr	nr	6.681	nr	nr	nr	1.134	nr
7/7/05	0.432	nr	nr	2.594	nr	nr	nr	1.960	nr
8/30/05	0.889	nr	nr	10.232	nr	nr	nr	3.693	nr
9/26/05	0.771	nr	nr	2.250	nr	nr	nr	2.965	nr
10/6/05	1.268	0.517	nr	7.321	nr	nr	nr	3.386	nr
1/30/06	0.481	nr	nr	7.589	nr	nr	nr	4.562	nr
5/2/06	0.236	nr	nr	0.997	nr	nr	nr	3.227	nr
6/26/06	0.255	nr	0.052	4.351	nr	nr	nr	nr	nr
11/15/06	0.521	nr	0.071	3.681	0.042	0.041	0.124	4.416	nr
11/30/06	0.348	nr	0.024	NR	0.831	0.818	0.853	1.247	nr
12/15/06	0.529	nr	0.074	4.217	0.050	0.045	0.203	7.557	nr
9/27/07	1.373	0.104	nr	0.080	0.042	0.039	0.108	8.019	0.267
4/18/08	0.010	ND	0.030	0.076	0.050	0.010	0.020	7.510	0.509
6/26/08	0.264	0.009	0.060	0.588	0.038	0.027	0.065	6.795	0.030
9/22/08	0.070	0.006	0.087	0.088	0.012	0.044	0.043	2.078	0.054
11/17/08	0.245	0.007	0.068	0.033	0.006	0.030	0.006	3.816	0.052
1/27/09	nr	0.019	ND	nr	ND	0.015	0.022	3.196	0.022
4/21/09	0.119	ND	0.044	0.026	ND	0.010	0.013	1.205	0.073
7/16/09	ND	0.008	0.011	ND	ND	ND	ND	1.346	ND
10/28/09	ND	ND	ND	ND	ND	ND	ND	2.153	ND
1/19/10	ND	ND	ND	ND	ND	ND	ND	0.708	ND
4/19/10	ND	ND	ND	ND	ND	ND	ND	0.900	ND
7/19/10	ND	ND	ND	ND	ND	ND	ND	0.734	ND
10/19/10	ND	ND	ND	ND	ND	ND	ND	1.346	ND
1/18/11	ND	ND	ND	ND	ND	ND	ND	0.050	ND
4/18/11	ND	ND	ND	ND	ND	ND	ND	0.868	ND
7/12/11	ND	ND	ND	ND	ND	ND	ND	1.045	ND
10/19/11	ND	ND	ND	ND	ND	ND	ND	1.734	ND

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE Results (*Continued*)

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)								
	MCSV-10	MCSV-11	MCSV-12	MCSV-13	MCSV-14	MCSV-15	MCSV-16	MCSV-17	MCSV-18
1/24/12	ND	ND	ND	ND	ND	ND	ND	0.428	ND
4/23/12	ND	ND	ND	ND	ND	ND	ND	0.972	ND
7/16/12	ND	ND	ND	ND	ND	ND	ND	1.182	ND
10/16/12	ND	ND	ND	ND	ND	ND	ND	0.897	ND
1/14/13	ND	ND	ND	ND	ND	ND	ND	0.896	ND
4/15/13	ND	ND	ND	ND	ND	ND	ND	0.810	ND
7/17/13	ND	ND	ND	ND	ND	ND	ND	0.931	ND
11/18/13	ND	ND	ND	ND	ND	ND	ND	0.972	ND
2/19/14	ND	ND	ND	ND	ND	ND	ND	0.878	ND
4/22/14	ND	ND	ND	ND	ND	ND	ND	0.765	ND
8/12/14	ND	ND	ND	ND	ND	ND	ND	1.057	ND
10/14/14	ND	ND	ND	ND	ND	ND	ND	1.121	ND
2/9/15	ND	ND	ND	ND	ND	ND	ND	1.112	ND
4/28/15	ND	NA	ND	ND	ND	ND	ND	0.744	ND
7/21/15	ND	0.045	ND	ND	ND	ND	ND	1.018	ND
12/8/15	ND	ND	ND	ND	ND	ND	ND	0.983	0.029
2/8/16	ND	ND	ND	0.132	ND	ND	ND	1.125	0.028
5/17/16	ND	ND	ND	ND	ND	ND	ND	0.954	ND
9/13/16	ND	ND	ND	ND	ND	ND	ND	1.361	ND
12/14/16	ND	ND	ND	0.033	ND	ND	ND	0.993	ND
2/14/17	ND	ND	ND	0.119	ND	ND	ND	1.063	0.027
5/16/17	ND	ND	ND	ND	ND	ND	ND	0.987	ND
9/14/17	ND	ND	ND	ND	ND	ND	ND	1.180	ND
12/13/17	ND	ND	ND	ND	ND	ND	ND	1.057	ND
2/13/18	ND	ND	ND	ND	ND	ND	ND	0.050	ND
5/15/18	ND	ND	ND	ND	ND	ND	ND	0.897	ND
9/17/18	ND	ND	ND	ND	ND	ND	ND	0.609	ND
12/18/18	ND	ND	ND	ND	ND	ND	ND	0.943	ND
2/11/19	ND	ND	ND	0.071	0.047	ND	ND	0.586	ND
5/14/19	ND	ND	ND	ND	ND	ND	ND	0.771	ND
9/24/19	ND	ND	ND	ND	ND	ND	ND	0.808	ND
12/16/19	ND	ND	ND	ND	ND	ND	ND	0.201	ND
2/10/20	ND	ND	ND	ND	ND	ND	ND	0.568	ND
5/11/20	ND	ND	ND	ND	ND	ND	ND	0.591	ND
9/28/20	ND	ND	ND	ND	ND	ND	ND	0.302	ND
12/14/20	ND	ND	ND	ND	ND	ND	ND	0.178	0.013
2/22/21	ND	0.012	ND	0.012	ND	ND	ND	0.414	ND
8/20/21	ND	ND	ND	ND	ND	ND	ND	0.713	ND
11/22/21	ND	ND	ND	ND	ND	ND	ND	0.810	0.017
3/7/22	ND	ND	ND	0.013	ND	ND	ND	0.601	ND
6/1/22	ND	ND	ND	0.032	0.020	ND	ND	0.175	ND
8/15/22	ND	ND	ND	0.027	ND	ND	ND	0.175	ND
10/13/22	ND	ND	ND	ND	ND	ND	ND	0.801	ND
2/20/23	ND	ND	ND	ND	ND	ND	ND	0.706	0.017
5/16/23	ND	ND	ND	ND	ND	ND	ND	0.480	ND
9/6/23	ND	ND	ND	ND	ND	ND	ND	0.723	ND
12/10/23	ND	ND	ND	ND	ND	ND	ND	0.844	0.012

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE Results (*Continued*)

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)								
	MCSV-19	MCSV-20	MCSV-21	MCSV-22	MCSV-23	MCSV-24	MCSV-25	MCSV-26	MCSV-27
2/24/04	0.088	0.067	0.207	1.029	0.039	0.059	0.558	0.066	nr
3/16/04	0.117	nr	nr	nr	nr	nr	0.537	0.079	3.061
3/31/04	0.075	0.054	0.159	1.574	0.027	0.043	0.312	0.053	nr
6/10/04	0.094	0.082	0.217	0.477	0.026	0.079	0.168	0.092	nr
8/5/04	0.378	0.195	0.448	0.674	0.066	0.107	0.714	0.189	0.245
9/7/04	0.121	0.083	0.183	2.147	0.029	0.053	nr	0.092	nr
12/7/04	0.121	0.054	0.150	3.766	0.025	0.049	0.130	0.088	2.210
1/5/05	0.082	0.048	0.133	2.533	0.022	0.038	0.199	0.074	2.093
2/16/05	0.066	nr	nr	0.636	nr	nr	0.094	0.080	1.367
3/23/05	0.086	nr	nr	1.289	nr	nr	nr	0.099	nr
7/7/05	0.206	nr	nr	2.413	nr	nr	0.343	0.202	0.195
8/30/05	0.508	nr	nr	4.985	nr	nr	1.023	0.214	2.893
9/26/05	0.331	nr	nr	2.415	nr	nr	0.493	0.306	2.543
10/6/05	0.777	nr	0.179	6.656	nr	nr	2.663	0.814	3.053
1/30/06	0.076	nr	0.282	2.576	nr	nr	0.526	0.449	3.460
5/2/06	0.074	nr	nr	0.932	nr	nr	0.239	0.266	0.537
6/26/06	0.118	nr	0.318	3.603	nr	nr	nr	0.257	0.049
11/15/06	0.163	0.089	0.460	1.334	0.035	0.079	0.393	0.394	0.297
11/30/06	0.099	0.251	0.230	0.637	0.648	0.575	0.243	0.076	0.238
12/15/06	0.229	0.103	0.590	2.456	0.037	0.086	0.483	0.440	0.006
9/27/07	0.229	nr	nr	1.834	0.026	0.077	0.552	nr	0.284
4/18/08	0.030	0.100	0.040	0.030	0.010	nr	0.010	ND	0.540
6/26/08	0.026	0.138	1.251	0.208	0.016	0.045	0.269	0.243	0.993
9/22/08	0.071	0.029	0.786	0.033	0.013	0.013	0.061	0.191	1.949
11/17/08	0.170	0.008	0.244	0.029	0.013	0.028	0.024	0.061	0.434
1/27/09	0.183	ND	0.026	0.007	0.007	0.041	nr	0.107	0.727
4/21/09	ND	0.014	0.034	0.107	ND	0.014	1.503	0.218	1.522
7/16/09	ND	ND	ND	ND	ND	0.006	0.260	0.066	0.173
10/28/09	ND	ND	ND	ND	ND	ND	2.570	ND	1.874
1/19/10	ND	ND	ND	ND	ND	ND	1.530	ND	0.331
4/19/10	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/19/10	ND	ND	ND	ND	ND	ND	0.210	ND	ND
10/19/10	ND	ND	ND	ND	ND	ND	ND	0.000	0.000
1/18/11	ND	ND	ND	ND	ND	ND	ND	ND	1.122
4/18/11	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/12/11	ND	ND	ND	ND	ND	ND	0.357	ND	0.124
10/19/11	ND	ND	ND	ND	ND	ND	1.228	ND	1.122

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE Results (*Continued/End*)

Collection Date	Station ID — TCE Soil-Gas Concentration (ppmV)								
	MCSV-19	MCSV-20	MCSV-21	MCSV-22	MCSV-23	MCSV-24	MCSV-25	MCSV-26	MCSV-27
1/24/12	ND	ND	ND	ND	ND	ND	0.217	ND	ND
4/23/12	ND	ND	ND	ND	ND	ND	ND	ND	0.220
7/16/12	ND	ND	ND	ND	ND	ND	0.747	ND	0.895
10/16/12	ND	ND	ND	ND	ND	ND	0.142	ND	0.374
1/14/13	ND	ND	ND	ND	ND	ND	0.807	ND	ND
4/15/13	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/17/13	ND	ND	ND	ND	ND	ND	ND	ND	0.163
11/18/13	ND	ND	ND	ND	ND	ND	0.507	ND	0.213
2/19/14	ND	ND	ND	ND	ND	ND	0.291	ND	0.139
4/22/14	ND	ND	ND	ND	ND	ND	0.672	ND	0.281
8/12/14	ND	ND	ND	ND	ND	ND	0.542	ND	0.490
10/14/14	ND	ND	ND	ND	ND	ND	0.205	ND	ND
2/9/15	ND	ND	ND	ND	ND	ND	0.588	ND	0.457
4/28/15	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/21/15	ND	ND	ND	ND	ND	ND	0.333	ND	0.063
12/8/15	ND	ND	ND	ND	ND	ND	0.147	ND	0.318
2/8/16	ND	ND	ND	0.056	ND	ND	0.612	ND	0.369
5/17/16	ND	ND	ND	ND	ND	ND	0.043	NA	NA
9/13/16	ND	ND	ND	ND	ND	ND	ND	ND	0.074
12/14/16	ND	ND	ND	0.035	ND	ND	0.371	ND	ND
2/14/17	ND	ND	ND	ND	ND	ND	0.371	ND	0.317
5/16/17	ND	ND	ND	ND	ND	ND	0.028	ND	ND
9/14/17	ND	ND	ND	ND	ND	ND	0.049	0.059	ND
12/13/17	ND	ND	ND	ND	ND	ND	0.097	ND	ND
2/13/18	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/15/18	ND	ND	ND	ND	ND	ND	0.378	ND	0.492
9/17/18	ND	ND	ND	ND	ND	ND	ND	ND	0.069
12/18/18	ND	ND	ND	ND	ND	ND	0.261	ND	0.361
2/11/19	ND	ND	ND	ND	ND	ND	0.218	ND	0.135
5/14/19	ND	ND	ND	ND	ND	ND	ND	ND	0.215
9/24/19	ND	ND	ND	ND	ND	ND	0.234	ND	0.336
12/16/19	ND	ND	ND	ND	ND	ND	ND	ND	ND
2/10/20	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/11/20	ND	ND	ND	ND	ND	ND	0.071	ND	0.104
9/28/20	ND	ND	ND	ND	ND	ND	0.111	ND	0.101
12/14/20	ND	ND	ND	ND	ND	ND	0.110	ND	0.264
2/22/21	ND	ND	ND	ND	ND	0.022	0.030	ND	ND
8/20/21	ND	ND	ND	ND	ND	ND	0.110	ND	0.011
11/22/21	ND	ND	ND	ND	ND	ND	0.131	ND	0.103
3/7/22	ND	ND	ND	ND	ND	ND	0.079	ND	0.061
6/1/22	ND	ND	ND	ND	ND	ND	0.068	ND	0.068
8/15/22	ND	ND	ND	ND	NA	ND	0.142	ND	0.298
10/13/22	ND	ND	ND	ND	ND	ND	0.048	ND	0.166
2/20/23	ND	ND	ND	ND	ND	ND	0.109	ND	0.056
5/16/23	ND	ND	ND	ND	ND	ND	0.023	ND	0.066
9/6/23	ND	ND	ND	ND	ND	ND	0.078	ND	0.192
12/10/23	ND	ND	ND	ND	ND	ND	0.085	ND	0.143

ND – Non-Detect MCSV – Miscellaneous Chemical Soil Vapor nr – no result
MicroBlower™ - Capped for Rebound Testing

Table 9. ABRP and MCB PSVE Well Performance Sampling Requirements

Sample Location	Sample Media	Sample Parameters	Minimum Frequency*	Comments
PSVE System	Vapor	Effluent Flow Rate, Pressure	Quarterly	Air flow per flow meter reading.
		TCE, PCE	Quarterly	Vapor analyses with portable gas analyzer (e.g., Bruel and Kjaer or Innova) or other approved equipment/technique.

*Notes:
ABRP/MCB/MBP CMI/RAIP (WSRC 2006)
Minimum frequency may be increased at Design Authority discretion. The MicroBlowers™ are sampled monthly for flowrate and pressure.
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