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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 2019 (U)

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LIST OF ABBREVIATIONS AND ACRONYMS

ABRP	A-Area Burning/Rubble Pits and Rubble Pit
asl	above sea level
ASVE	active soil vapor extraction
bgs	below ground surface
CM	contaminant migration
CMI/RAIP	Corrective Measures Implementation/Remedial Action Implementation Plan
COC	constituent of concern
CY	calendar year
ft	feet or foot
hr	hour
IROD	Interim Record of Decision
kg	kilogram
km	kilometer
lb	pound
LLC	limited liability company
µg/kg	microgram per kilogram
µg/L	microgram per liter
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
NA	not applicable
ND	non-detect
OU	operable unit
PCE	Tetrachloroethylene
PCR	Post-Construction Report
PER	Performance Evaluation Report
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)*

SCDHEC	South Carolina Department of Health and Environmental Control
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) 2019. Monitoring requirements for ABRP/MCB/MBP are identified in the Corrective Measure Implementation/Remedial Action Implementation Plan (CMI/RAIP) (Westinghouse Savannah River Company [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, and 2019).

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 several 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 and are summarized in Section 2.0.

1.1 ABRP Area Subunits

The Trench Subunit (outlined in blue on Figure 2), located beneath the A-Area Ash Pile (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) (WSRC 1997) and the Addendum to the Revision 1.2, RFI/RI/BRA (WSRC 2003a).

1.2 MCB/MBP 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 (SCDHEC), 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) is designed 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) in all eight MAAZ wells.

2.0 REMEDIAL ACTIONS

The final RAs for the ABRP Trench Subunit and the MCB Vadose Zone Subunit are ongoing. In CY2019 the ABRP RA and the MCB RA operated passive SVE (PSVE) using MicroBlowers™ and BaroBalls™. All MicroBlowers™ are equipped with BaroBalls™ for backup operation.

The RAs and the regulatory decision documents for all eleven ABRP/MCB/MBP OU subunits (Figure 2) 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) of 610 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. For location of the CY1996-CY2004 TCE Composite 610 µg/kg contour see Figure 3.

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 (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. 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 5, 2012, indicated that the VOC removal at the ABRP Trench Subunit is mostly 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 2019. 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 3 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 active SVE (ASVE) system began operations. Prior to ASVE operation in CY2007, MicroBlowers™ sample results averaged 33 parts per million by volume (ppmV) and BaroBalls™ sample results averaged 16 ppmV. In CY2019, MicroBlower™ sample results averaged 0.053 ppmV and BaroBall™ sample results averaged 0.029 ppmV. Five of 13 wells with BaroBall™ had detectable sample results (maximum value was 0.589 ppmV (AHT-06)) in CY2019.

Quarterly MicroBlowers™ well TCE exhaust gas results are listed in Table 4 and quarterly BaroBalls™ well exhaust gas TCE results are listed in Table 5. MicroBlowers™ and BaroBalls™ combined extracted 0.50 kilograms (kg [1.1 pound {lb}]) of TCE in CY2019 (primarily from ASH-06 – 0.27 kg (0.59 lb) of TCE).

The VOC mass (PCE and 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/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 (Ref.: 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 4. 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 area (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 of at the surface have migrated downward into the Upland Unit where further migration downward into the underlying sandy soils is limited.

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 active SVE wells were restored to passive operation with BaroBalls™ and are still in service.

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 two wells, MCSV-07 and MCSV-17, equipped with

MicroBlowers™. Locations of the wells are shown in Figure 4. 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 wells MSCV-07 and MSCV-17 have declined significantly after peaking at 5.9 ppmV TCE at MCSV-07 and 8.0 ppmV TCE at MCSV-17 in the years prior to the conversion to MicroBlowers™ in December 2008. Since CY2008 sample results from both wells tend to be consistent and nearing the lower lab detection limits with concentrations less than 1.2 ppmV. Quarterly analytical results of MCB PSVE wells sampling are provided for PCE in Table 7 and for TCE in Table 8.

Four wells (MCSV-07, -17, -25, -27) continue to produce TCE, but at low rates. From CY2011 to CY2019, the following average and maximum TCE concentrations were recorded:

- MCSV-07 had an average exhaust gas TCE concentration of 0.66 ppmV, with a high value of 1.153 ppmV in CY2017. MCSV-07 remains stable in sampled exhaust gas concentrations.
- MCSV-17 had an average exhaust gas TCE concentration of 0.89 ppmV, with a high value of 1.734 ppmV in CY2011. MCSV-17 remains stable in sampled exhaust gas concentrations.
- MCSV-25 had an average exhaust gas TCE concentration of 0.27 ppmV, with a high value of 1.228 ppmV in CY2011. MCSV-25 remains stable in sampled exhaust gas concentrations.
- MCSV-27 had an average exhaust gas TCE concentration of 0.24 ppmV, with a high value of 1.122 ppmV in CY2011. MCSV-27 remains stable in sampled exhaust gas concentrations.

MicroBlowers™ and BaroBalls™ combined to extract approximately 0.91 kg (2.0 lb) of PCE and TCE in CY2019. Wells near the dilute edge of the plume produce very little contaminant removal, as indicated by sampling.

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 RGs/Remedial Action Objectives (RAOs). The RAO will be met when residual TCE and PCE contamination in the vadose zone soil is reduced below RGs in accordance with the action plan described in the ABRP/MCB/MBP OU CMI/RAIP (WSRC 2006). RGs/RAOs will be verified based on the measurement and evaluation of residual solvent contamination in soil media.

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.

After Core Team approval of the 2017 PER (SRNS 2017), the transition to fully PSVE (described below) started when the ABRP Trench ASVE System ended operations in December 2017. The transition was completed when the last three remaining ASVE wells were converted to MicroBlowers™ operation in October 2018. The technical basis for ending operations is that the ASVE system had reached a point of diminishing returns as indicated by the following:

- Soil-gas vapor samples are at very low (near) asymptotic levels
- Energy expended in extraction of VOCs and equivalent carbon production is very high compared to the actual quantity of VOCs extracted (SRNS 2018a).
- The soil formation is considered “diffusion limited” and energy intensive ASVE methods are not as efficient as PSVE for this condition.

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.

4.2 MCB Vadose Zone Subunit Conclusion

Currently, the PSVE system consists of 2 wells equipped with MicroBlowers™/BaroBalls™ 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 and, in the meantime, check for any upward trends in VOC concentrations. If concentrations from any MCB BaroBall™ well indicate an upward trend for VOC concentrations, the well will be converted to MicroBlowers™ to ensure protection of underlying groundwater.

For example, during CY2006 through CY2008, an increase was indicated at wells MCSV-07 and MCSV-17. Subsequently, MicroBlowers™ were installed on these wells. 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.

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 RGs are achieved as stated in the ROD (WSRC 2007).

When vapor gas sampling indicates VOCs are no longer being removed or concentrations indicate VOCs are nearly depleted, confirmation soil sampling will be performed per a Core Team approved sampling plan to verify RGs have been met. If the confirmation soil sampling indicates RGs are met, PSVE will be shutdown. Otherwise, PSVE will continue.

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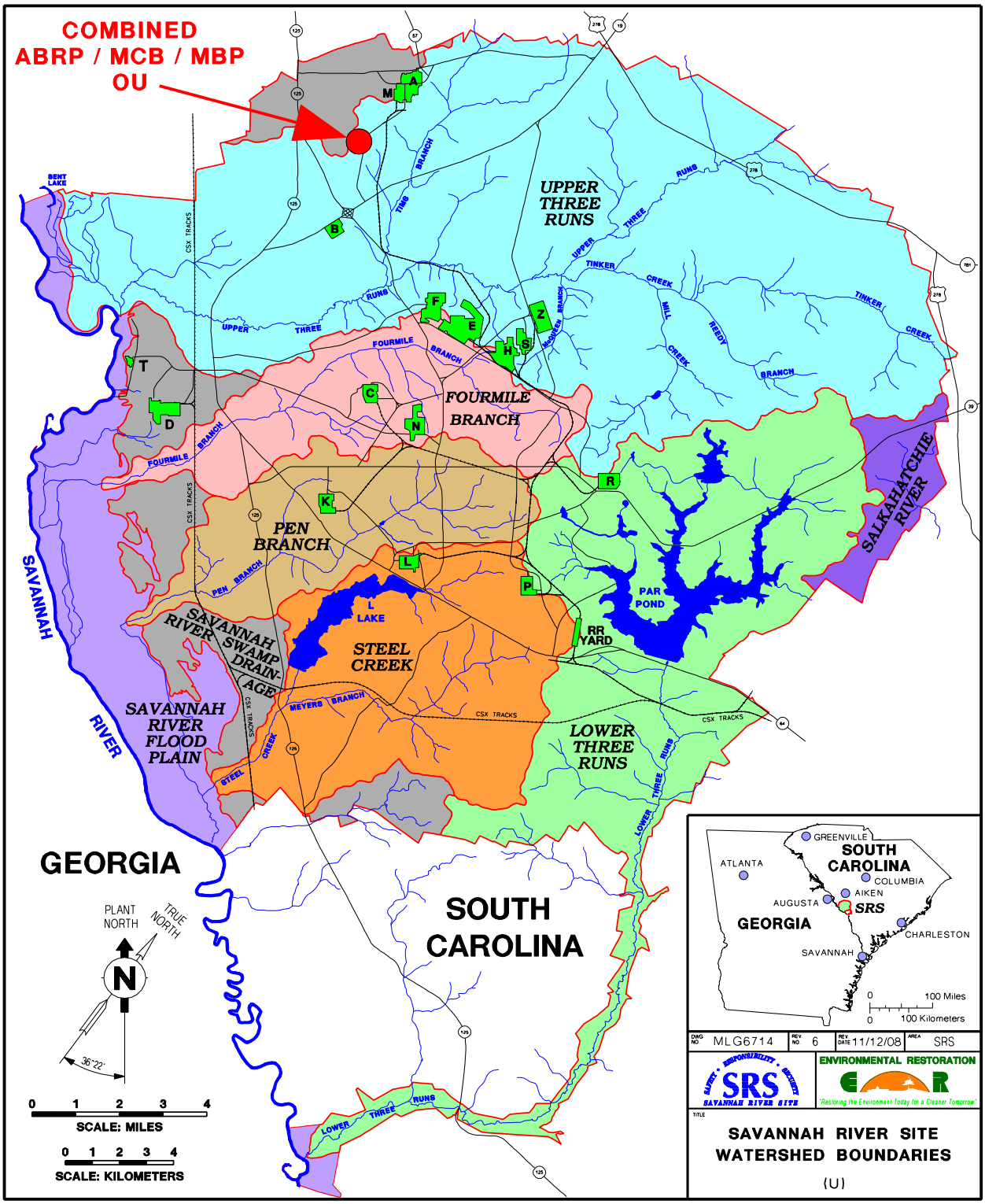

Figure 1. Location of the ABRP/MCB/MBP OU at Savannah River Site

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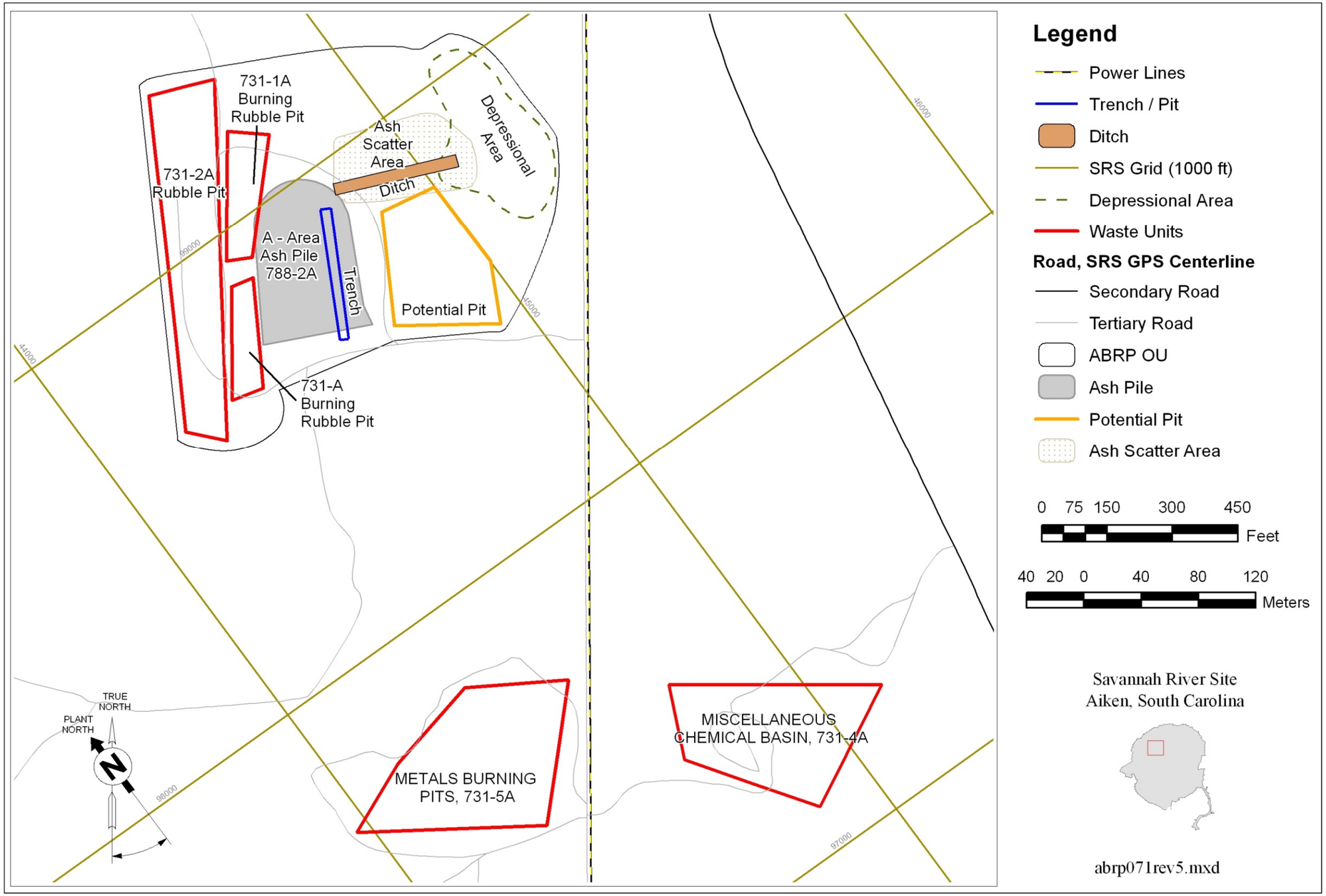

Figure 2. ABRP/MCB/MBP OU Subunits at Savannah River Site

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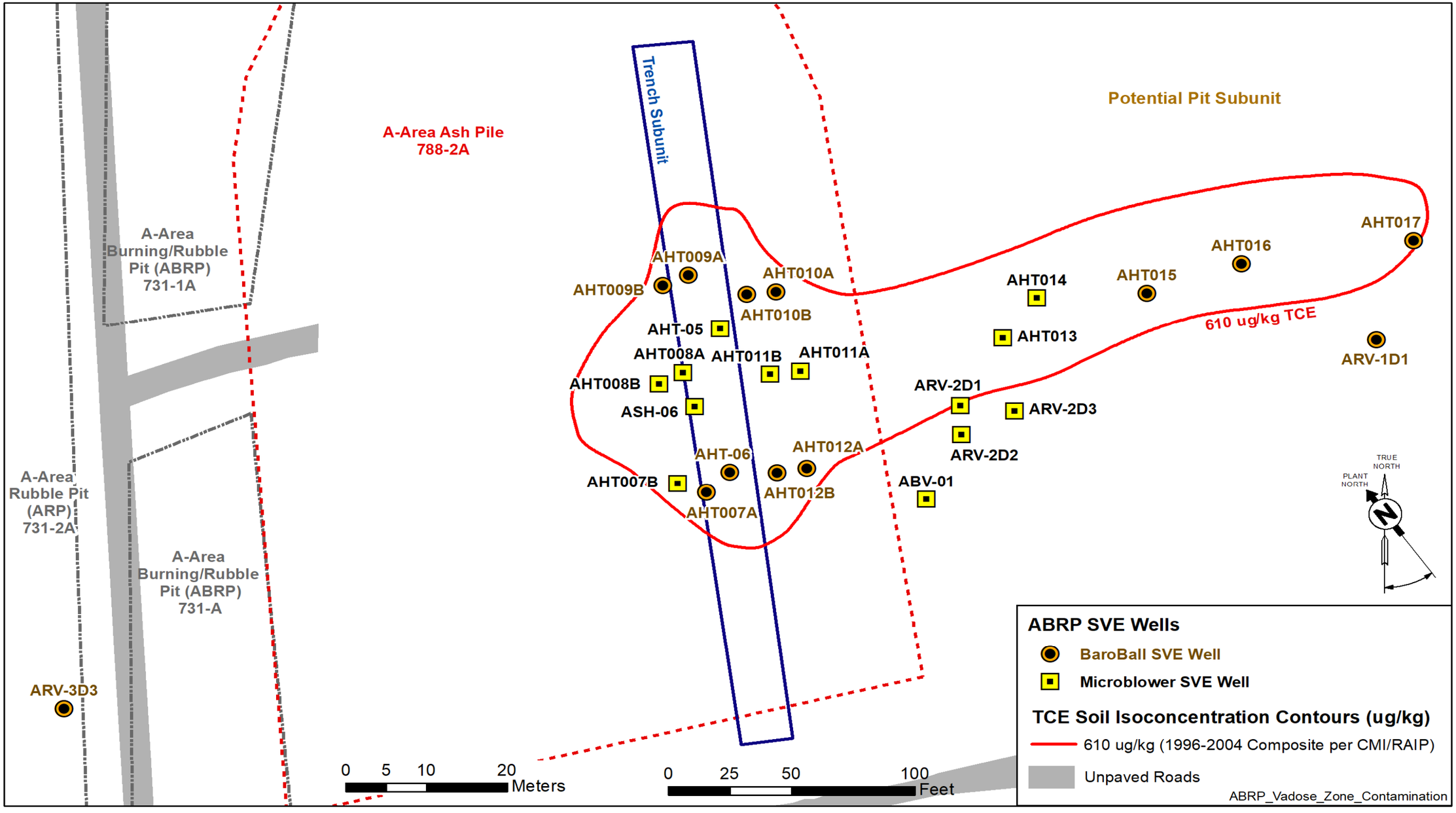

Figure 3. ABRP Vadose Zone Well Configuration and Treatment Area

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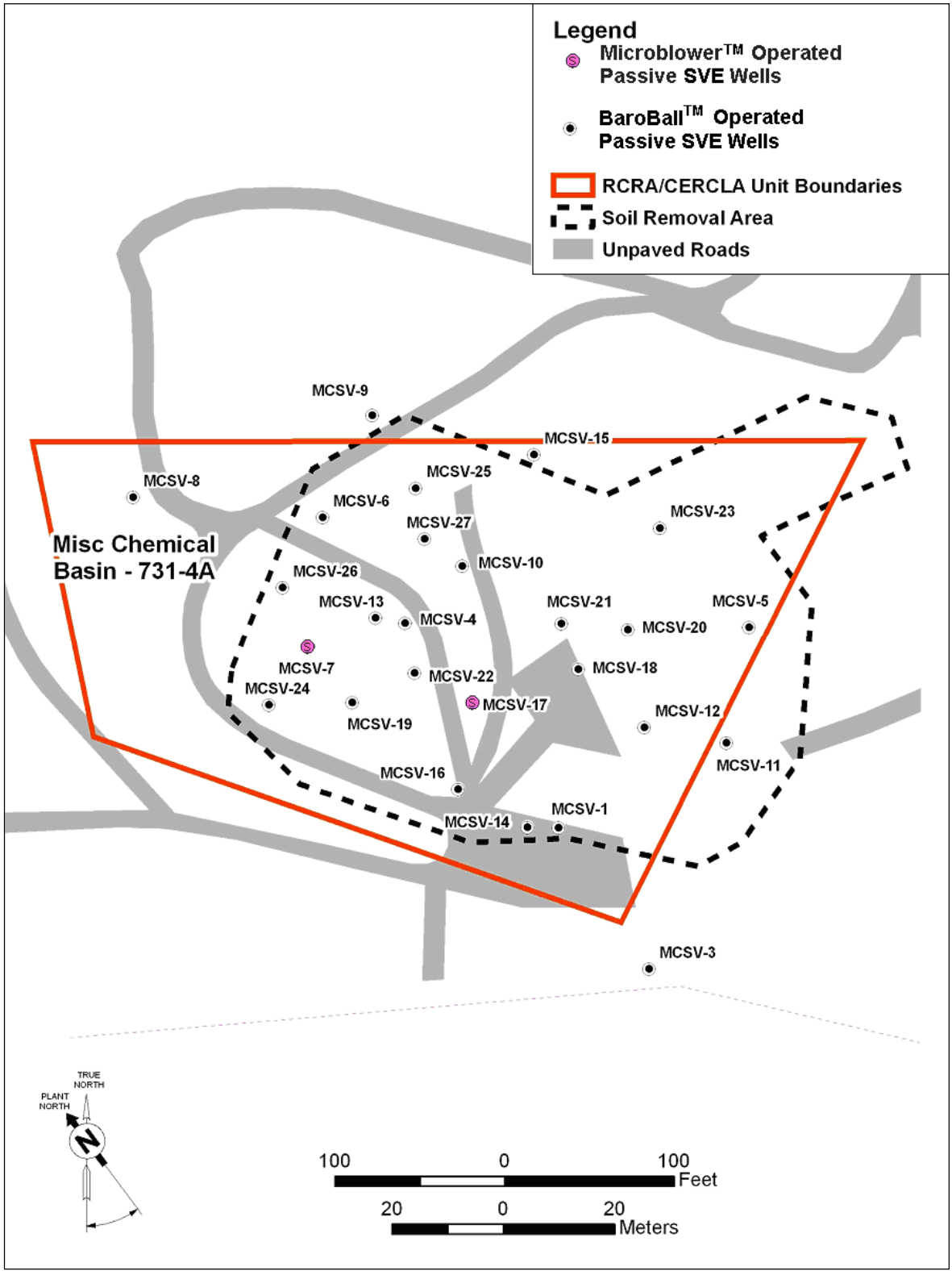

Figure 4. Miscellaneous Chemical Basin SVE Wells

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)*

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

Start Date	End Date	Technology
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		
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)		
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		
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) 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 asl)	*(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	
AHT-17	431,111.851	3,686,517.379	335.95	95.0	120.0	
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 asl)	*(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

asl – 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	**
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	0.056
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

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

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

[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-07B, -08A, -11B, -13, -14 were converted to a MicroBlowers™ SVE well on 12/7/15

[7] AHT-08B, -11A and ASH-06 were converted to a MicroBlowers™ SVE well on 10/17/18

–Connected to MicroBlower™.

*Connected to BaroBalls™.

**Connected to ASVE

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	6, 7	6, 7	6, 7
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			
2/8/2016	ND	ND	*	ND	0.067	ND	0.031
5/17/2016	ND	ND	*	ND	0.054	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

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	6, 7	6, 7	6, 7	6, 7	6, 7	6, 7	6, 7
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

Well History Notes:

[1] ARV-1D1, -2D2, -3D3 was 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

[6] AHT-07A, -09A, -09B, -10A, -10B, -12A, -12B, -15, -16 , -17 were converted to 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
ASH – A-Area Ash Pile
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 asl)	*(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
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
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

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
1/18/11	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
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	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	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

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
1/18/11	ND	ND	ND	ND	ND	ND	0.072	0.000	0.000
4/18/11	ND	ND	ND	ND	ND	ND	ND	0.000	0.000
7/12/11	ND	0.041	ND	ND	ND	ND	ND	0.000	0.000
10/19/11	ND	ND	ND	ND	0.087	ND	0.069	0.000	0.000
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	NR	NR
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

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
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

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

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
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

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

MicroBlower™ - Capped for Rebound Testing

Table 8. MCB MicroBlowers™ and BaroBallsTM 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
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
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

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
1/18/11	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
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	ND	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

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
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
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	NR	NR
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

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

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE 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
1/18/11	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
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	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	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

Table 8. MCB MicroBlowers™ and BaroBalls™ Well Exhaust Gas TCE 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
1/18/11	ND	ND	ND	ND	ND	ND	0.072	0.000	0.000
4/18/11	ND	ND	ND	ND	ND	ND	ND	0.000	0.000
7/12/11	ND	0.041	ND	ND	ND	ND	ND	0.000	0.000
10/19/11	ND	ND	ND	ND	0.087	ND	0.069	0.000	0.000
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	NR	NR
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

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. Actual monitoring does exceed minimum requirements. The MicroBlowers™ are sampled monthly for flowrate and pressure.
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