U.S. DEPARTMENT OF ENERGY | Savannah River Site

A Presentation to the
Facilities Disposition and Site Remediation Committees
SRS Citizens Advisory Board

M Area Inactive Process Sewer Lines (MIPSL) Operable Unit CAB Recommendation #236 Update

A Presentation By:

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June 23, 2009

AMERICAN RECOVERY AND REINVESTMENT ACT

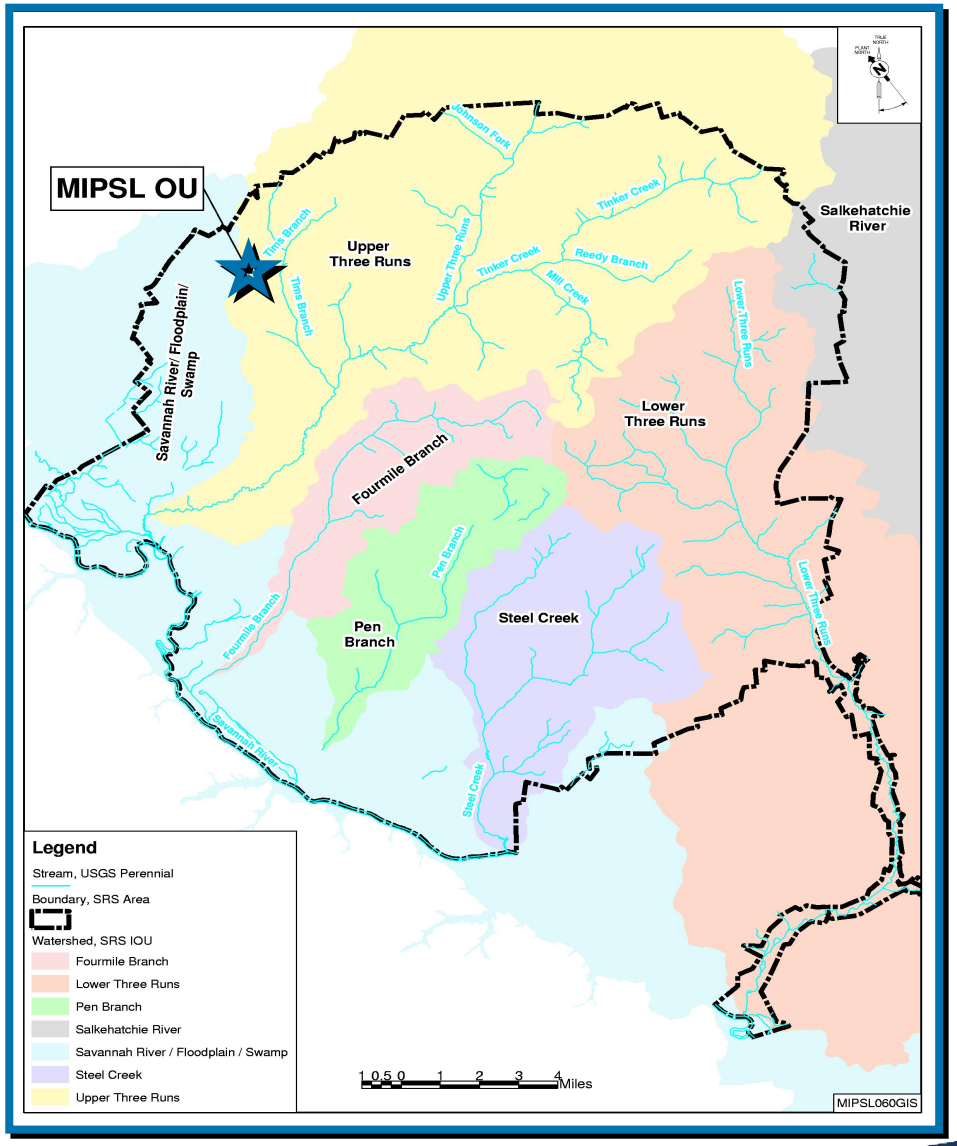
Acronyms

bgs	Below Ground Surface
CFM	Cubic Feet Per Minute
DOE-SR	Department of Energy - Savannah River
Ft	Feet
Lbs	Pounds
MH	Manhole
MIPSL	M Area Inactive Process Sewer Line
OU	Operable Unit
PCE	Tetrachloroethylene
PPMV	Parts Per Million by Volume
ROD	Record of Decision
SVE	Soil vapor extraction
SVEU	Soil vapor extraction unit
TCE	Trichloroethylene
VOC	Volatile organic compound

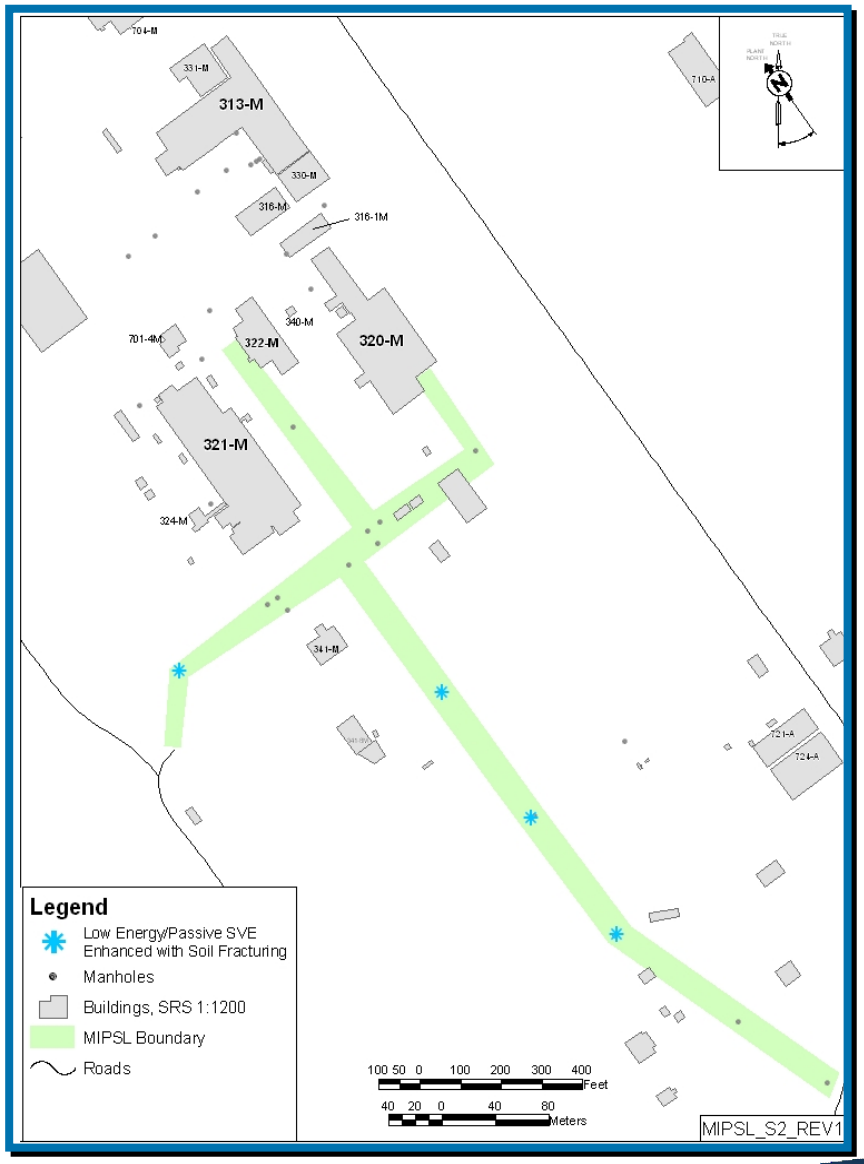
Meeting Purpose

- **To report progress removing contaminants from the M Area Inactive Process Sewer Lines Operable Unit (MIPSL OU) as requested by Citizens Advisory Board Recommendation #236.**

Location of MIPSL OU within SRS



MIPSL OU Layout



MIPSL OU Facts

History

- MIPSL OU is a network of process sewer lines from three former production buildings (322-M, 320-M, 313-M and 321-M) that transported effluents to discharge at the A-014 outfall and M-Area Settling Basin
- Effluents contained metal degreasing agents, acids, heavy metals, and minor amounts of radionuclides

Safety

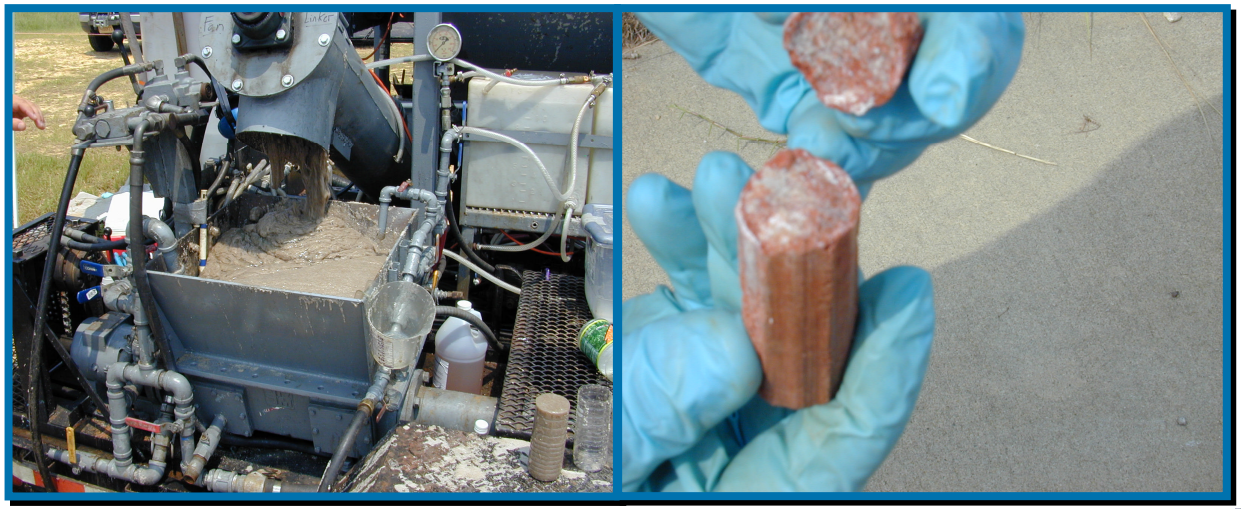
- No incidents

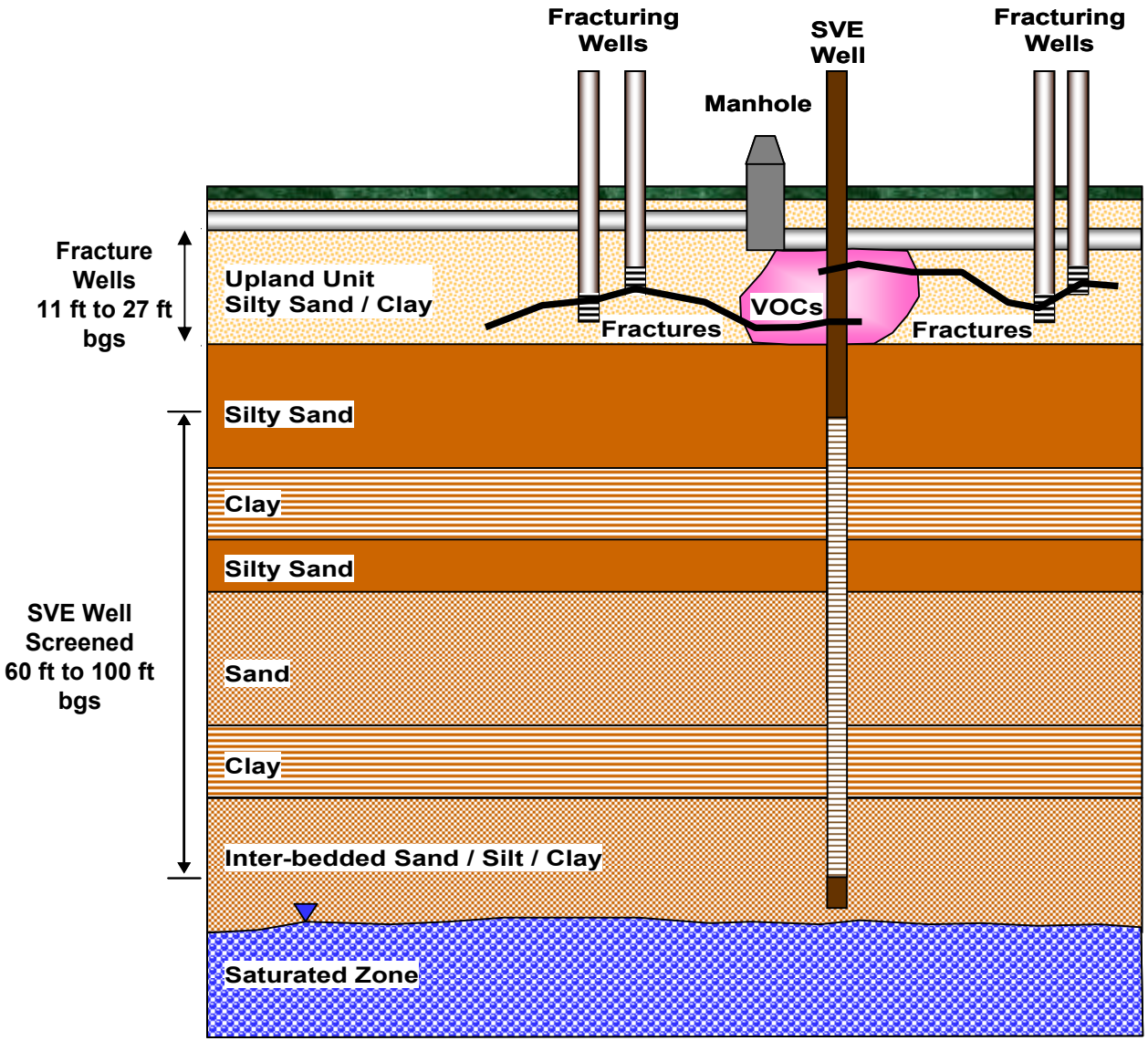
Total Project Costs

- Characterization and Remedial Action Construction: $5,258K
- Operation / Maintenance, Monitoring, and Reporting: $5,463K

Soil Fracturing at MIPSL OU

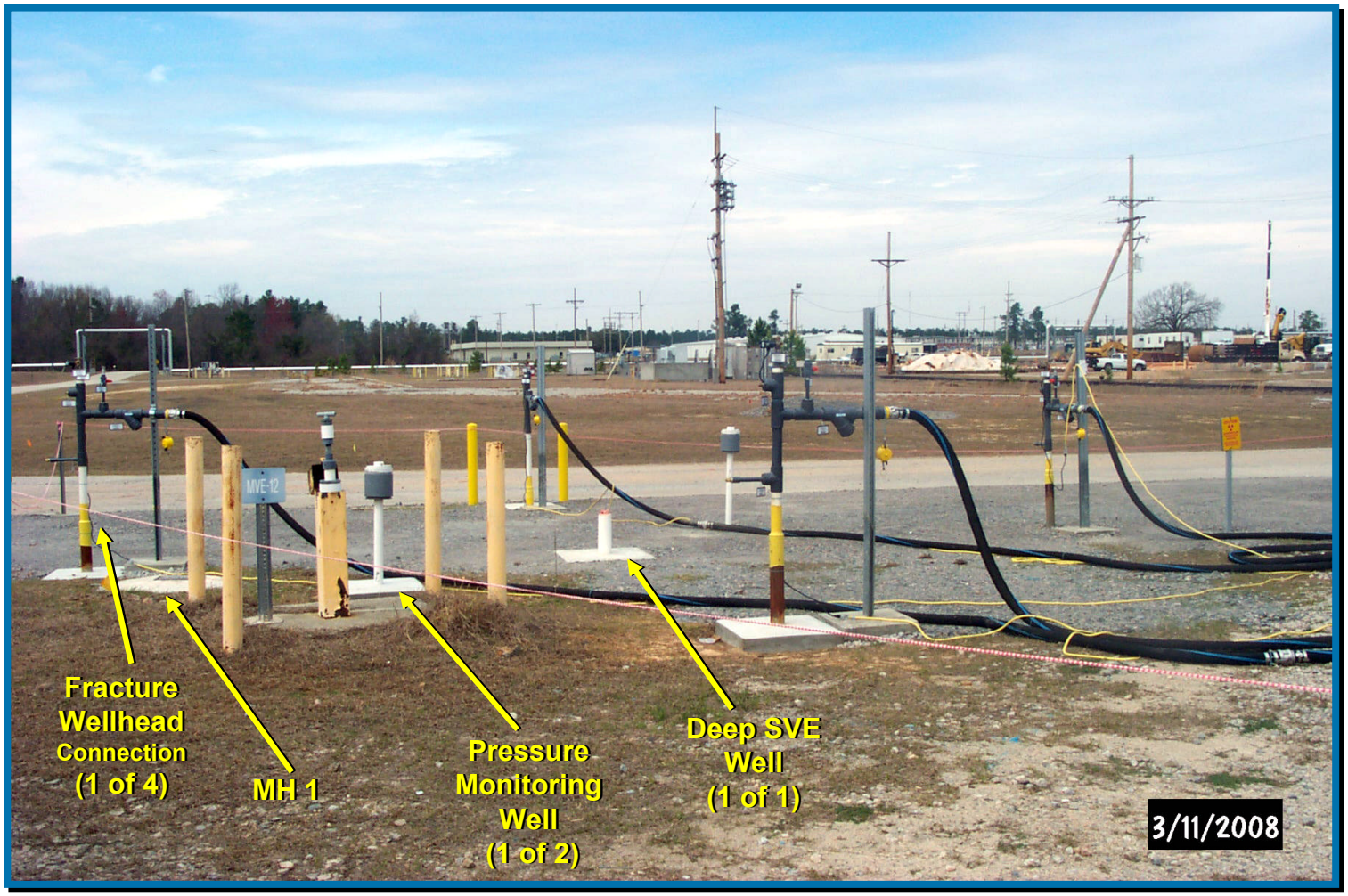
- Soil fracturing is a component of the remedial action because, in some instances, the VOCs are trapped in the low permeability (clay rich) soils
- A mixture of sand and a viscous fluid (i.e., guar gum) was injected at high pressure to create multiple sand-filled fractures, thus enhancing the permeability of the formation





Soil Fracturing at MIPSL OU

MIPSL OU - First Year of Operations



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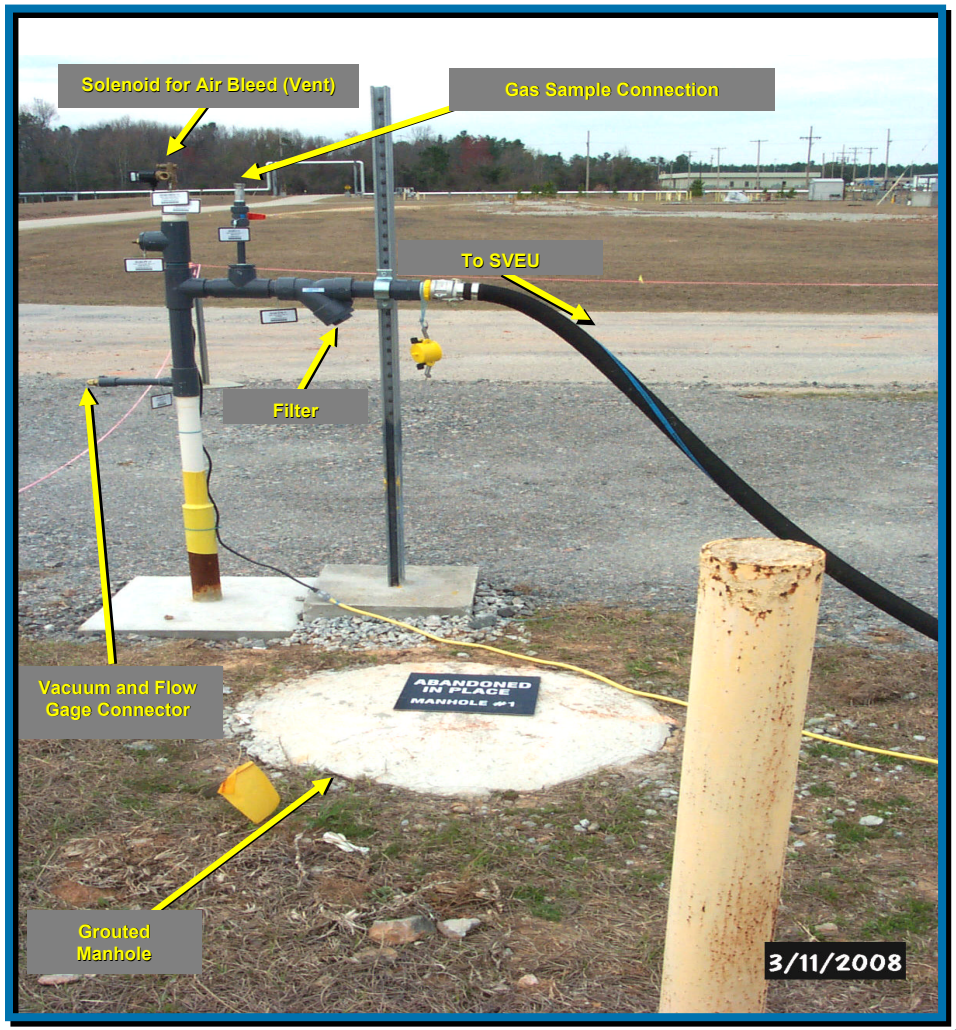

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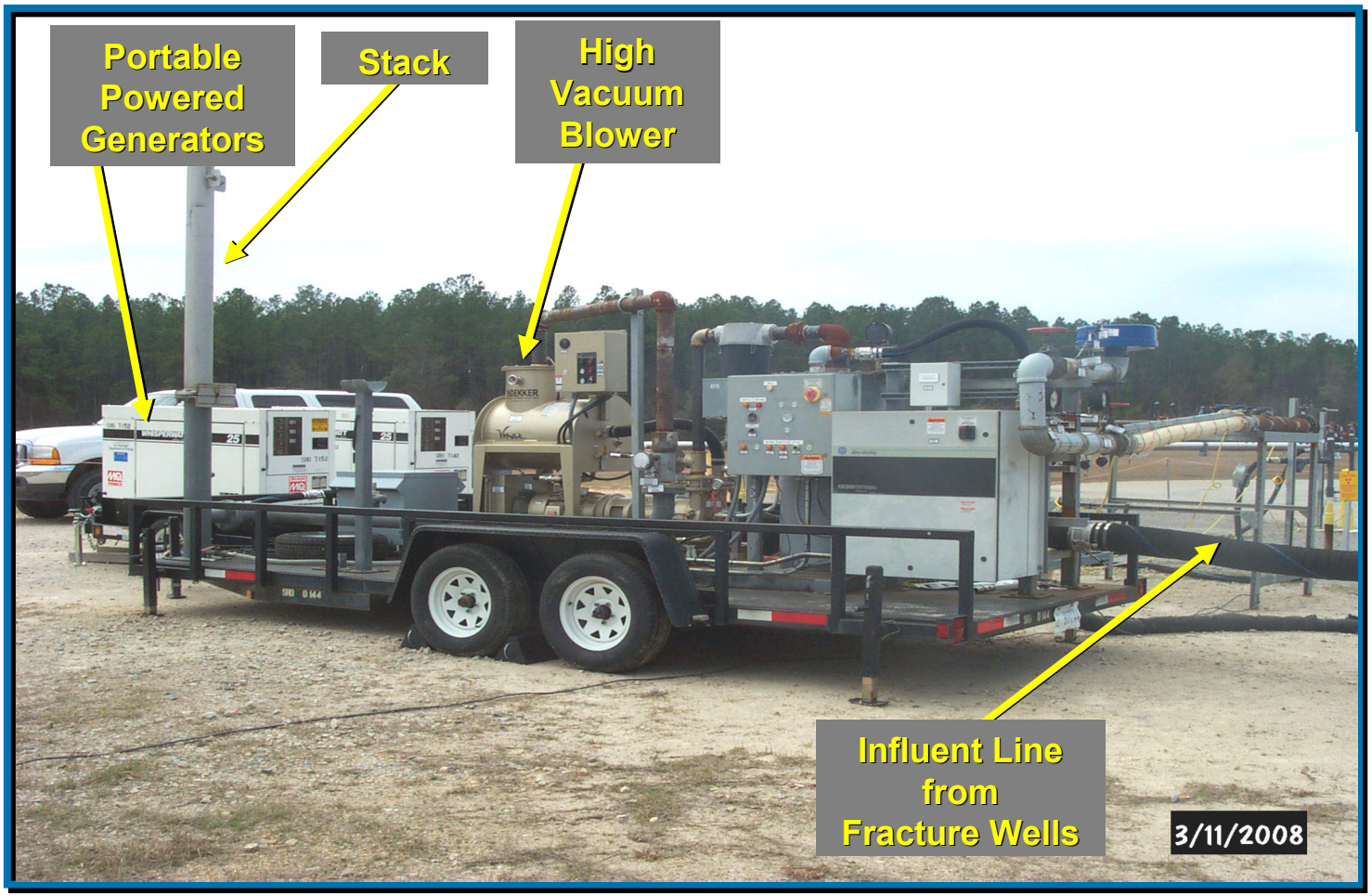

MIPSL OU - First Year of Operations

- Operation of the SVE system began January 1, 2008
- The portable SVE unit cycled twice through the four manhole (MH) well locations

Cycle #1 –To remove fracture generated water

MH 12	01/01/08 through 01/14/08
MH 11	01/16/08 through 02/04/08
MH 01	02/05/08 through 04/21/08
MH 13	04/23/08 through 05/22/08

+

Cycle #2- To remove VOCs

MH 12	05/29/08 through 07/18/08
MH 11	07/28/08 through 08/19/08
MH 01	08/21/08 through 12/31/08

MIPSL OU - First Year of Operations

VOC Mass Removal

Location	Hours Operated	PCE Cumulative (lbs)	TCE Cumulative (lbs)
MH 01 Location	742	727.64	167.03
MH 11 Location	108	0.90	0.21
MH 12 Location	398	42.59	1.49
MH 13 Location	268	1.50	3.19

MIPSL OU - Conclusions

- Operation of the fracture-enhanced phased (active transitioning to passive) SVE system began January 1, 2008 and continues
- The system is performing as intended
  - 773 lbs of PCE and 172 lbs of TCE (total VOC of 945 lbs) removed during the first year of operation
- After two rounds of active SVE, maximum VOC concentrations have decreased from 155 to 43 ppmv PCE and 89 to 8 ppmv TCE

MIPSL OU - Conclusions

- **After evaluation of data from the second year of operation, SRS will propose phasing down from active SVE to passive SVE (BaroBalls and MicroBlowers)**

Typical MicroBlower Well

Typical BaroBall Well