

## MINUTES

St. Louis Site Remediation Task Force  
Technologies Working Group

February 20, 1996 Meeting

World Trade Center  
Clayton, Missouri

APPROVED

Participants Attending

Tom Binz, Laclede Gas

Kay Drey

Bob Geller, MDNR

Jeff Golden, Clean Earth Technologies

Jim Grant, Mallinckrodt Chemical

Bob Morgan, Clean Earth Technologies

Laurie Peterfreund, NCEIT

Sally Price

Mitch Scherzinger, MDNR

Clarence Styron, R.M. Wester &amp; Associates

Robert Wester, R.M. Wester &amp; Associates

Support

Jim Dwyer, Facilitator

Dave Miller, SAIC

Agenda ItemMinutesDetermination*Call to Order*

Jim Dwyer called the meeting to order about 11:30 a.m.

*Approval of Minutes*

Mr. Dwyer then asked for comments on the draft minutes of the November 14, 1995 and January 16, 1996 meetings.

The minutes of the November 14, 1995 meeting were approved as amended. The minutes of the January 16, 1996 meeting were approved without amendment.

The minutes of the November 14, 1995 meeting were approved as amended. The minutes of the January 16, 1996 meeting were approved without amendment.

*Objectives of Technologies Working Group*

Jim Grant provided a summary overview of the purpose of the Technologies Working Group. He stated that the objective of the working group is to screen all known technologies for those that may have potential application in the cleanup of the St. Louis Site (or any part thereof), and to

Modifying Criteria

8. State acceptance
9. Community acceptance

Mr. Grant referred the group to Table 2.4, List of Technologies, and suggested that the working group focus on remediation and disposal technologies, not on those designed for characterization purposes. Mr. Grant further suggested that the initial focus be on technologies applicable to soils, surface water and groundwater issues, to be followed by those related to remediation of buildings (or rubble), and then (perhaps) technologies used for characterization.

Mr. Grant then distributed copies of Dave Miller's (SAIC) letter of November 6, 1995. Mr. Miller advised the group that new technologies are emerging regularly and he suggested that it be alert on a continuing basis for those that may be applicable to the St. Louis Site.

Mr. Miller discussed several new ideas and provided updates on emerging technologies. He advised that vitrification has advanced substantially since the Initial Screening of Alternatives document was prepared in 1993, and that there are new groundwater management strategies being developed, particularly for environments containing volatile or semi-volatile organic compounds. He described one strategy involving manipulation of magnetic fields to redirect ground water flow, which he said is early in the research cycle and is being tested at the Savannah River Site.

He also mentioned advanced capping techniques (e.g., Dawn Mining Co.), the use of prairie grasses (for evaporation), in situ versus ex situ remedies, and the use of hydraulic conductivity mixing technologies to

eliminate or reduce migration of contaminants.

*Discussion of  
Volume Reduction*

Bob Morgan and Jeff Golden, representing Clean Earth Technologies, then introduced a discussion of volume reduction techniques, specifically ex-situ vitrification. They described tests they have conducted using varying degrees (0%, 5%, 10%, 15%) of additives (frit) in which 40% to 50% volume reduction of contaminated material was achieved. In response to questions, they advised that the vitrified product has been subjected to accelerated life testing, with results indicating reliability for tens of thousands of years, and that energy costs associated with the process have been less than \$30 per ton.

*In-Situ Microwave  
Vitrification*

Bob Wester then distributed information concerning ex-situ microwave vitrification. Jeff Golden described the process developed by Rocky Flats and being used by Clean Earth Technologies and said:

1. Radon releases are not increased by the process. Most radon releases are associated with the excavation of contaminated soils, which would be the same whether the material were being shipped for disposal or vitrified on site.
2. Concentration of radioactive material in the vitrified state is increased by a factor of three (3) due to the vitrification process.
3. This process has proven successful in tests performed on materials at Rocky Flats.
4. Existing processing units are capable of producing 1 ton/hour (product out)

yielding a 400 kilogram mass in a 55-gallon drum.

Extensive discussion ensued concerning various related matters, including cost analysis (from the hopper to the finished product) and principal merits of the technology (volume reduction and waste stabilization).

Clarence Styron discussed how detection techniques such as laser ablation-inductively coupled plasma (for uranium and thorium) and mobile gamma-ray spectroscopy (for radium) can be brought to the field and used jointly with in-situ microwave vitrification. He described them as three independent technologies that blend nicely.

A discussion paper on each technology was presented and distributed to each participant.

*Excavation of  
Contamination  
from Groundwater*

Kay Drey then initiated discussion of how to handle excavation of contaminated wastes in groundwater. The working group was referred to pages 2 through 30 of the Initial Screening of Alternatives (ISA) document for techniques for addressing contaminated soils.

Jim Grant proposed that the working group first review the charts provided and delete any technologies not applicable to the St. Louis Site, then add any new technologies not listed and then re-screen the list. He suggested a focus on technologies for solidification, vitrification and soil management.

Mitch Scherzinger emphasized the importance of cost analysis and the need for "apples to apples" comparisons.

Mr. Miller said that SAIC would perform costs analysis on all technologies deemed potentially applicable. It was agreed that costs common to all remediation techniques would first be identified, and then a comparative analysis of the costs unique to each technology would be developed. Examples include ex-situ microwave vitrification, bulk shipment of contaminated material (Envirocare), containerized shipments (Dawn Mining Co.) and solidification (bricks and ceramics).

The meeting adjourned shortly after 3 p.m.

The next meeting of the Technologies Working Group is scheduled for March 13, 1996.

Approved April 25, 1996

---

00-1898

---

Formerly Utilized Sites Remedial Action Program (FUSRAP)

---

# ADMINISTRATIVE RECORD

for the St. Louis Site, Missouri

---



Property  
of  
ST LOUIS FUSRAP LIBRARY

U.S. Department of Energy