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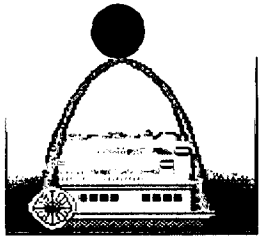
# Welcome



Gateway to Excellence

## Tonight's Agenda

| | |
|---|---|
| • Poster session with subject matter experts | 4:15 pm |
| • Facilitator Comments | 4:45 pm |
| • Project Manager's Briefing | 4:50 pm |
| • Public Comments | 5:05 pm |
| • Facilitator Summation and Conclusion | 6:25 pm |
| • Meeting Conclusion | 6:30 pm |

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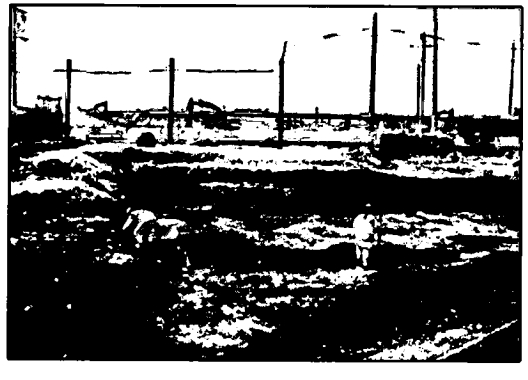
FUSRAP

Gateway to Excellence

# Proposed Plan
# St. Louis Downtown Site
# Inaccessible Soils Operable Unit
# Group 1 Properties

**Steve Hamm, U.S. Army Corps of Engineers, St. Louis District**
**FUSRAP Formerly Utilized Sites Remedial Action Program**



**30 January 2014**

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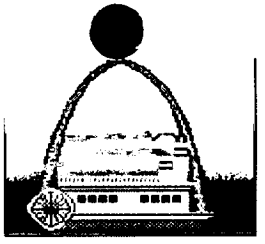
# Summary of the Briefing



Gateway to Excellence

- Purpose
- What is FUSRAP
- Background and History of SLDS
- SLDS Operable Units
- ISOU
- ISOU RI BRA
- What is Risk?
- Receptor Scenarios
- ISOU Property Groups
- Proposed Plan for Group 1 Properties
- Conclusion
- Where we are now
- What happens to my comments?
- Community Involvement

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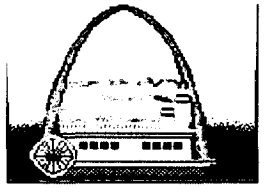
# Purpose of this Public Hearing



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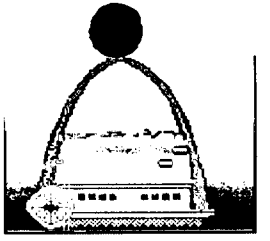
- **Present the Proposed Plan for the Group 1 Properties associated with the Inaccessible Soils Operable Unit at the St. Louis Downtown Site.**
- **Identify the preferred remedy for the Group 1 Properties.**
- **Receive comments on the Proposed Plan for incorporation into the Responsiveness Summary in the Record of Decision.**

# What is FUSRAP

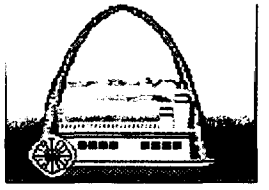




**The Formerly Utilized Sites Remedial Action Program (FUSRAP) is a national program.**

- FUSRAP identifies and addresses contamination resulting from the Nation's early atomic weapons program
- Originally managed by the Department of Energy
- In October 1997 Congress transferred FUSRAP execution from the Department of Energy to USACE
- Legally required to follow the CERCLA planning process
- Requires investigations to protect public health, welfare, and the environment

# St. Louis Downtown Site (SLDS)





## Background and History

- From 1942 to 1957, under contract to Manhattan Engineer District (MED) and Atomic Energy Commission (AEC), Mallinckrodt processed uranium feed materials in support of the Nation's early atomic weapons program.
- The work conducted by Mallinckrodt included the development of uranium processing techniques and the production of uranium metal.
- Process residuals including radium, thorium, uranium, and their decay products were inadvertently released to the environment.
- Shutdown of remaining MED/AEC operations at Mallinckrodt began in 1958.
- SLDS consists of land owned by Mallinckrodt and surrounding land that is owned by various private and government entities. The properties that are not owned by Mallinckrodt are referred to as SLDS Vicinity Properties.

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# St. Louis Downtown Site (SLDS)

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## SLDS ACCESSIBLE Soil & Ground Water Operable Unit

- Accessible areas
- Addresses soils & ground water
- Record of Decision was completed in 1998
- Remedial Action Ongoing

## SLDS INACCESSIBLE Soil Operable Unit

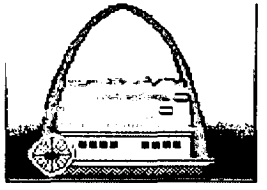
### Group 1 Properties

- Proposed Plan was Issued in Jan 2014
- Recommends No Further Action
- Areas do not pose unacceptable risk
- Subject of tonight's meeting

### Group 2 Properties

- Remaining Inaccessible Areas
- Currently in Feasibility Study Phase

# Inaccessible Soil Operable Unit (ISOU)





- **Inaccessible Soils Operable Unit (ISOU)** – The ISOU addresses all areas not addressed by the accessible soils ROD

**The ISOU includes:**

- Soil that is inaccessible due to the presence of buildings or permanent structures
- Soil located under active roadways
- Soil located under active railroads
- Soil on the exteriors or interiors of buildings or permanent structures
- Soils adjacent to sewers and interior sediments

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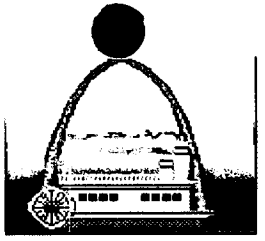
# ISOU Remedial Investigation and Baseline Risk Assessment (RI/BRA) Summary



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- The purpose of the RI/BRA is to define the nature and extent of MED/AEC soil contamination present in the ISOU and assess the associated risk to human health and the environment.
- Remedial Investigation sampling began in June 2009 and ended in August 2010.
- A total of 8000 samples were collected during the Remedial Investigation efforts.
- This data combined with other data from USACE investigations were used to evaluate the nature and extent of MED/AEC contamination in the ISOU.
- The Baseline Risk Assessment was performed to estimate potential risks to human and ecological receptors from the ISOU.

The RI/ BRA Report for the ISOU at SLDS is available to review on the FUSRAP website and in the Administrative Record File for the SLDS ISOU

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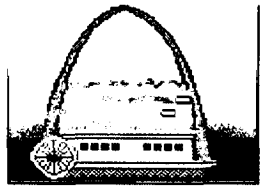
# Potential Contaminants of Concern



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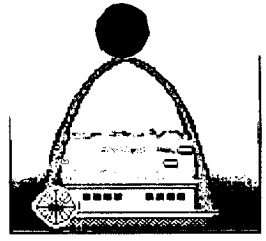
- The Group 1 ISOU potential contaminants of concern (PCOCs) selected as the starting point for the RI/BRA at the SLDS ISOU were the same radionuclides identified as contaminants of concern (COCs) in the 1998 ROD.

- The PCOC's are: actinium (Ac)-227, protactinium (Pa)-231, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-235, and U-238.

# What is Risk?





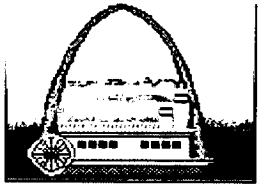
- **Risk is determined as an increase in lifetime probability of one additional cancer case occurring over the baseline cancer rate (i.e., from other causes such as smoking tobacco) for a specified population.**

- **EPA methods and a DOE (computer) model are used to calculate radiological cancer risk at the SLDS.**

- **Radiological risks are calculated/modeled over a 1,000 year period of evaluation.**

- **The computer model (used to calculate the risk) requires the input of certain pieces of information. That information is based on numerous assumptions regarding the site such as future land use (i.e.whether the land will be used for industrial, recreational or residential purposes.)**

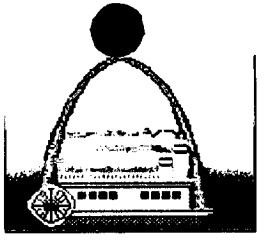
# Data Input to Calculate Risk?





- **Information that goes into the model to calculate risk include:**
  - The levels of specific contaminants found on the site
    - Which is based on the sampling done on the site.
  - Toxicological factors associated with the contaminants (i.e. what are the effects of those contaminants?)
    - Which is based on published standards/data.
  - Identification of potential receptors (i.e. who will be exposed?)
    - Which is based on assumptions regarding who will be on the site.
  - Identification of exposure pathways. (i.e. how will they be exposed?)
    - An exposure pathway is the course that a contaminant takes from a source (e.g. a contaminated soil) to an exposed person or animal.
  - Identification of exposure scenarios
    - Exposure scenarios combine the levels of contaminants, their effects, the specific receptors involved, & the way in which they will be exposed to create a hypothetical exposure situation and to calculate a risk value (for those conditions.)

# Risk at SLDS?



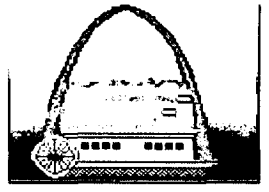


- **Exposure pathways evaluated for radioactive contaminants at the SLDS are:**
  - Accidental ingestion of contaminated soil at the site
  - Inhalation of contaminated soil particles in the air
  - External radiation from contaminated soil.

- **Land Use Scenarios evaluated in the Human Health Risk Assessment include:**
  - industrial,
  - recreational, and
  - residential land uses.

- **The risk reported for each receptor at a SLDS property is the maximum risk level modeled over a 1,000-year period of evaluation.**

# Receptor Scenarios

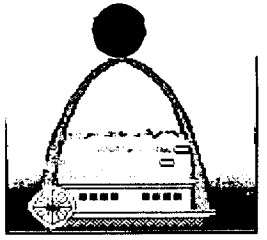




**Here are some examples of receptor scenarios used when evaluating radiological risk:**

- **Industrial Worker – Works full time for 25 years, mostly indoors, at a plant or vicinity property and is assumed to be exposed directly to soil and interior building surfaces.**
- **Construction Worker – Contract worker who works on excavation and construction projects across a property lasting up to 1 year. The construction worker is assumed to be exposed to soil without protection from ground cover.**
- **Utility Worker – Works in one localized area of a property on an underground utility project lasting 10 days. The utility worker is assumed to be exposed to soil without ground cover.**
- **Building Maintenance Worker – Performs exterior building maintenance work and is exposed to soil adhered onto building surfaces, 10 days per year for 25 years.**
- **Sewer Maintenance Worker – Performs infrequent work inside of manholes and sewers and is exposed to sediment inside of sewer lines, 1 day per year for 25 years.**

# Receptor Scenarios (Continued)





•Sewer Utility Worker – Performs work on excavated sewer lines and is exposed to soil next to the sewer lines for up to 10 days. No ground cover assumed.

•Recreational User – Adolescent who walks, jogs, or bikes along the St. Louis Riverfront Trail. Evaluated for external radiation exposures to soil beneath the levee, 1 hour per day, 75 days per year. Levee is assumed to be ground cover.

•Hypothetical (Future) Residential Gardener – This scenario was evaluated as the worst-case scenario, in accordance with EPA risk assessment methods, to determine the need for no action at the Group 1 properties.

- Young child (ages 0 to 6 years) and adult living on a property 350 days per year for 30 years.
- Exposures to soil (no ground cover) and from eating fruits and vegetables grown in a garden.
- 2 Hours outdoors and 16 hours indoors per day

- Note that risks are estimated based on numerous assumptions which often result in overestimating the risk. However, because the overall goal is to protect humans & the environment, a conservative approach is warranted.

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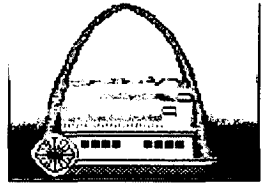
# ISOU Property Groups



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- **Group 1 Properties**
  - Subject of tonight's Public Hearing
  - Proposed Plan was issued in January 2014
  - This Proposed Plan recommends No Further Action for the inaccessible soils on the Group 1 Properties

- **Group 2 Properties**
  - All remaining Inaccessible areas not addressed in the Group 1 Properties
  - Currently being addressed in a Feasibility Study



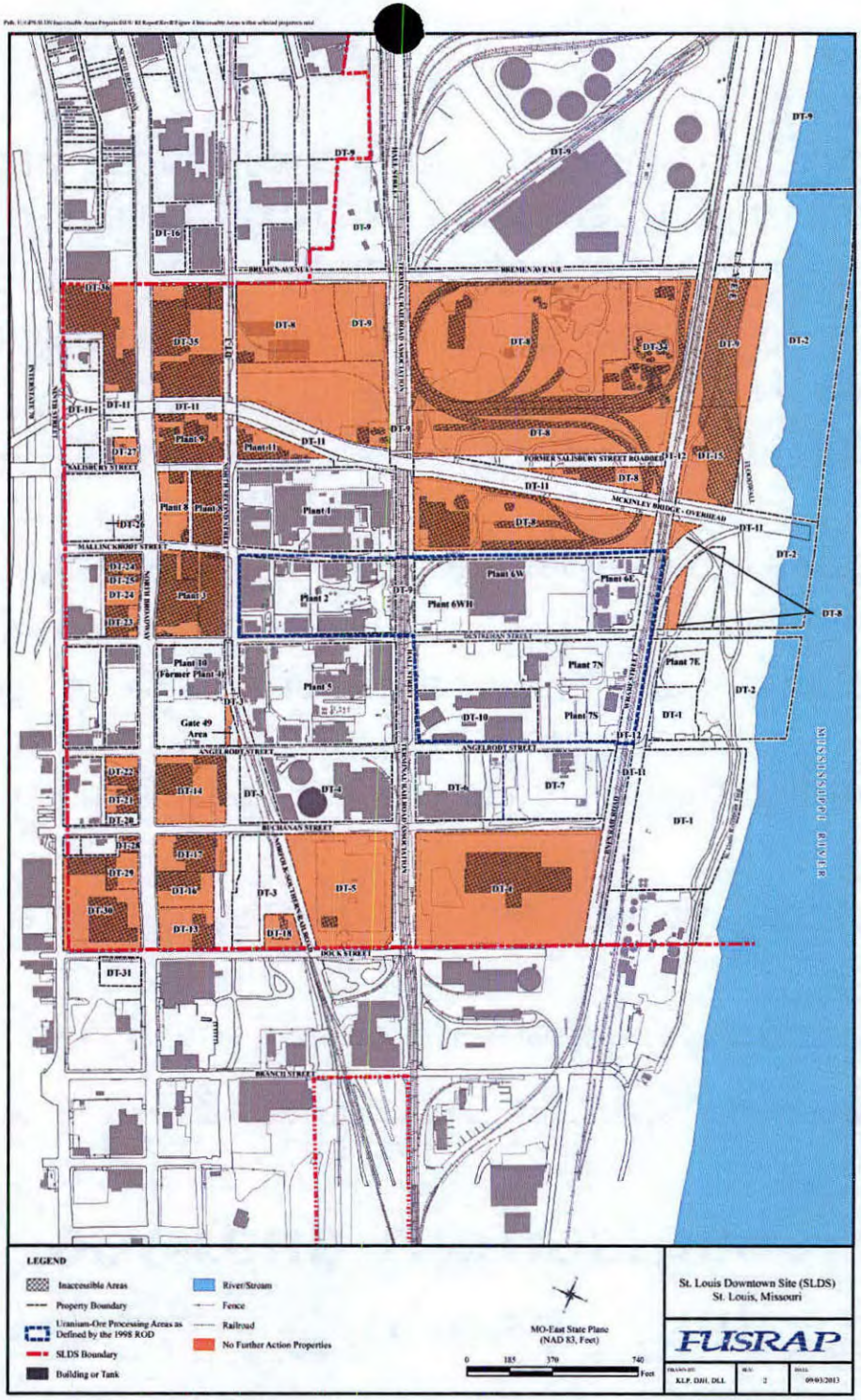
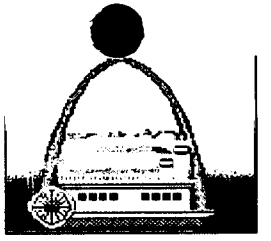



Figure 4. Inaccessible Areas within Group 1 Properties

# Conclusion





- **The Proposed Plan Recommends No Further Action for the inaccessible soils on the Group 1 Properties.**
- **The Public Comment Period will conclude on February 13, 2014.**
- **Written comments can be mailed to the FUSRAP Project Office or dropped in the comment box at our table.**
- **Oral comments will be recorded after this briefing.**

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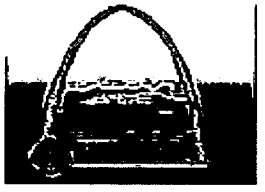
# Where we are now ?



Gateway to Excellence

- **January 13** — **Public Comment Period Begins**
- **January 30** — **Public Hearing**
- **February 13** — **30-day public comment period ends**
- **2014** — **Record of Decision for the ISOU Group 1 Properties**

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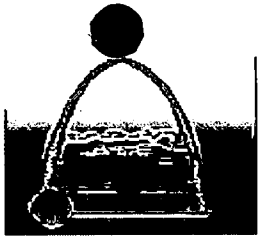
# What Happens to My Comments?



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- USACE will respond to comments received during the comment period in a Responsiveness Summary
- The Responsiveness Summary will be included in the Record of Decision for the SLDS ISOU Group 1 Properties
- USACE anticipates that the Responsiveness Summary will be available to the public in 2014
- After consideration of the comments, USACE, in coordination with the EPA, will make a final decision on the inaccessible soils on the Group 1 Properties

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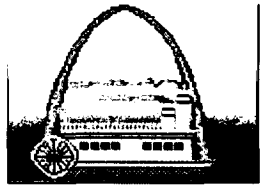
# Community Involvement



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## The USACE encourages Community Involvement

What you can do:

1. **Learn More**
   - http://www.mvs.usace.army.mil/Missions/CentersofExpertise/FormerlyUtilizedSitesRemedialActionProgram.aspx

2. **Review the Proposed Plan**
   - An electronic copy of the Proposed Plan can be viewed on the St Louis District FUSRAP website under the SLDS documents section. A hard copy of this Proposed Plan is available for review at the Administrative Record File locations:

| | |
|---|---|
| **St Louis Public Library** | **FUSRAP Project Office** |
| **1301 Olive Street** | **8945 Latty Ave.** |
| **St. Louis, Missouri 63103** | **Berkeley, Missouri 63134** |

3. **Send us your thoughts**
   - Written comments may be submitted to USACE at any time during the 30-day period (including tonight). Oral comments will be recorded tonight.

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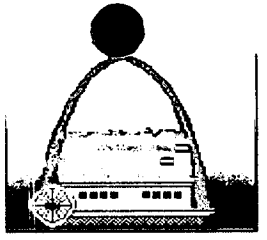
# We'd like to hear from you...



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## Written comments may be mailed during the 30-day comment period to

US Army Corps of Engineers
FUSRAP Project Office
8945 Latty Avenue
Berkeley, MO 63134

**Written comments are due to USACE by February 13, 2014**

## USACE will be available to answer any questions after the oral comment portion of this Public Hearing.

**This concludes the formal briefing portion of the Public Hearing.**

**We will now begin the oral comment portion of the Public Hearing**

# AR-267