



## St. Louis North County Sites Overview

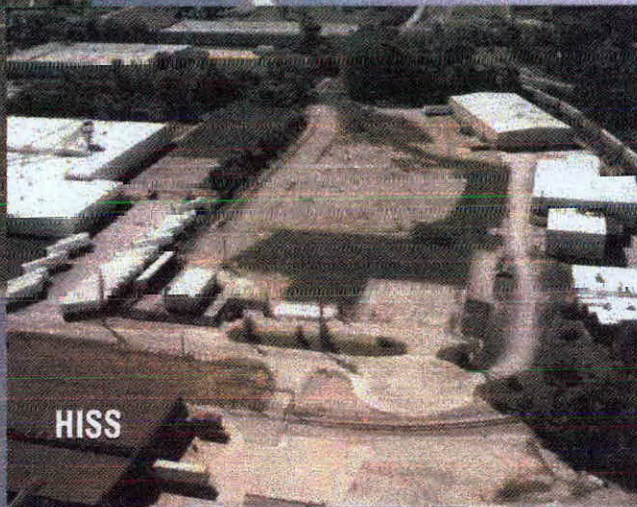
FUSRAP

The U.S. Army Corps of Engineers (USACE), St. Louis District, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), is working to clean up contaminants at the St. Louis North County Site in St. Louis, Missouri.



SLAPS

*Aerial view of SLAPS and HISS, which are part of the St. Louis North County Site in St. Louis, Missouri*



HISS

**Contamination at North County Site** is the result of the storage of uranium processing wastes from the 1940s and 1950s. The North County Site includes the St. Louis Airport Site (SLAPS), Hazelwood Interim Storage Site (HISS), SLAPS Vicinity Properties (VPs), Futura, Latty Avenue VPs, and Coldwater Creek. Samples of these site's soil and sediment confirmed the presence of radium, thorium, and uranium.

As required by CERCLA, a Remedial Investigation was conducted to determine the extent of contamination. Additionally, a Feasibility Study discussing the proposed remedial alternatives and a Proposed Plan detailing the preferred alternative are now available for public review and comment.

North County Public Meeting Posters - 1 of 11



# CERCLA Review Process

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The U.S. Army Corps of Engineers (USACE), St. Louis District, will remediate the St. Louis area site in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Cleanup activities at the site are being conducted under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Values of the National Environmental Policy Act (NEPA) have also been integrated into the cleanup process.

## REMOVAL ACTIONS

### SITE EVALUATION

Determine the extent of contamination  
Select removal criteria  
Define area to be remediated

### ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

Develop focused range of remedial alternatives  
Determine practicality and cost of alternatives  
Integrate NEPA Values

### ACTION MEMORANDUM

Presents selected remedy (after public comment)

## GENERAL PROCESS

If the needed remedy is a short-duration or partial solution with limited options, the project proceeds as a removal action. If the needed remedy is a final action or must consider many options, the project proceeds as a remedial action.

### DEFINE PROBLEM

The area is studied to find out what contamination exists. Once this is determined, current and future public health issues are reviewed and ecological impacts are evaluated to discern the overall risks posed by the site.

### EVALUATE POSSIBLE SOLUTIONS

At this stage, different remediation alternatives are identified and reviewed to determine their effectiveness and likely performance. The impact of each alternative on the community, its costs, and the ease of implementation are also considered.

### PROPOSE AND SELECT REMEDY

USACE's recommendations for a remediation alternative are proposed. A comment period is announced to get public input and a public meeting is held to discuss the recommended alternative. Public comments are addressed in a summary as part of the final decision.

### IMPLEMENT PLAN

The last phase is to prepare engineering designs and to conduct the remediation. This process includes developing design drawings, construction activities, and environmental monitoring.

## REMEDIAL ACTIONS

### REMEDIAL INVESTIGATION

Describe field investigation  
Define nature and extent of contamination  
Incorporate federal and state compliance regulations  
Determine baseline risk

### FEASIBILITY STUDY (FS)

Develop range of alternatives to remediate site  
Determine practicality and cost of alternatives  
Integrate NEPA Values

### PROPOSED PLAN/ RECORD OF DECISION

Proposed Plan presents USACE's recommendation  
Record of Decision presents selected remedy (after public comment)

### REMEDIAL DESIGN, REMEDIAL ACTION

Presents engineering plans  
Implements selected remedy



## What is Radiation?

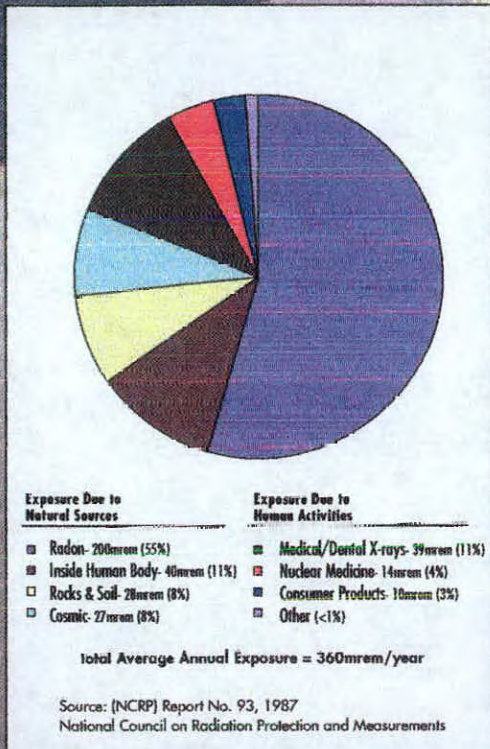
Radiation is all around us, all the time, everywhere. It is energy that travels in the form of unseen waves or particles.

Depending on how much energy it has, radiation can be:

- Non-ionizing (high energy) such as rays from the sun, or
- Ionizing (low energy) such as x-ray machines.

Ionizing radiation may be one of three types.

- Alpha - particles can travel approximately one to two inches in air and can be blocked by a sheet of paper.
- Beta - particles can travel 6-10 feet in air, but can be blocked by a few millimeters of substance (i.e. clothing, glass, plastic, aluminum.)
- Gamma - particles can travel the farthest but may be stopped with lead or concrete.



## How are we exposed to radiation?

The average American receives 300 millirem of radiation every year from natural sources. An additional 60 millirem per year is received from man-made sources, like x-rays.

At the FUSRAP St. Louis Sites, uranium, thorium, and radium are the primary radioactive contaminants. By testing the North County FUSRAP sites, scientists assess what needs to be cleaned up, where and to what level to reduce the overall risk to human health and the environment.

Source of Exposure	Amount of Exposure
Average Cigarette Smoker (1 pack/day)	1300 mrem/year
Nuclear Medicine Examination of Brain	650 mrem/exam
Nuclear Medicine Examination of the Thyroid	509 mrem/exam
Upper Gastrointestinal Tract Series	245 mrem/exam
Nuclear Medicine Examination of the Lungs	150 mrem/exam
CT Scan of the Head and Body	110 mrem/exam
Dental X-ray	6 mrem/x-ray
Foods Grown with Phosphate Fertilizers	5 mrem/year
Highway and Road Construction Materials	4 mrem/year
Gas Mantles for Camping Lantern	2 mrem/year
Cross Country Airline Trip	1.5 mrem/year
Domestic Water Supply	1 to 6 mrem/year
Television Receivers	1 mrem/year
Eating Pound of Brazil Nuts	0.5 mrem/year
Sleeping with Spouse (or significant other)	0.1 mrem/year



US Army Corps  
of Engineers®,  
St. Louis District

# The St. Louis North County Site Contaminant Chronology

*FUSRAP*

**1966:** Residues purchased by Continental Mining and Milling Company, removed from SLAPS and transported to 9200 Latty Avenue, under an AEC license, then shipped to Carson City, Colorado.

After removal of most residuals at SLAPS, site structures demolished and buried on the property. 60 truck loads of scrap metal are buried on the property. 1 to 3 feet of clean fill material spread over disposal area to achieve surface levels of radioactivity acceptable at that time.

**1986:** U.S. Department of Energy (DOE) provided radiological support to the cities of Hazelwood and Berkeley for a drainage and road improvement project, resulting in an additional 4,600 cubic yards of contaminated soil being placed at HISS in a supplemental storage pile.

**1977 - 1998:** Radiological and chemical characterization surveys and field investigations conducted at the St. Louis sites to determine nature and distribution of radiological and chemical contaminants and to characterize the geological and hydrogeological features.

**1997:** FUSRAP transferred from the DOE to USACE. USACE completed the cleanup of the West End of SLAPS.

**1942 - 1957:** Uranium and radium extracted from ore at the Mallinckrodt Chemical Plant in downtown St. Louis.

**1969:** Cotter Corporation purchased the remaining source material and dried and shipped more material to Canon City, Colorado.

Improper storage, handling, and transportation of materials spread materials along haul routes to vicinity properties.

**1984:** DOE's performed limited removal activities at 9200 Latty Avenue and surrounding properties. An additional 14,000 cubic yards of contaminated soils were added to the main pile for storage at HISS.

**1998-1999:** USACE constructed rail spurs at SLAPS and HISS.

A sedimentation basin is constructed at SLAPS to limit migration of contamination. Site stabilization work is initiated at the SLAPS East End.

**2002:** USACE successfully complete removal of the HISS stockpiles under the HISS EE/CA.

Successful completion of the SLAPS East End Extension, McDonnell Boulevard shoulder and ditch, and northern border of SLAPS.

**1942:** Manhattan Engineer District (MED) achieves first self-sustained nuclear chain reaction.

Uranium oxide used in the MED experiment produced by Mallinckrodt.

**1970:** EPA formed.

**1977:** DOE established.

1940 1950 1960 1970 1980 1990 2000 2001 2002 2003

**1967:** Latty Avenue residues purchased by Commercial Discount Corporation. Much of the material is dried and shipped to Canon City, Colorado.

**1974:** AEC established FUSRAP.

**1989:** SLAPS & HISS placed on NPL.

**1998:** SLAPS and HISS EE/CAs finalized.

**2001-2002:** The Radium Pits at SLAPS are removed.

**1946 - 1966:** St. Louis Airport Site (SLAPS) purchased by AEC and used to store process byproducts containing residual radioactive materials.

**1973:** The AEC transferred SLAPS by quitclaim deed to the St. Louis Airport Authority.

**1979:** 13,000 cubic yards excavated from western half of property and stockpiled at what is now known as the Hazelwood Interim Storage Site (HISS).

**1996:** VP-2(L), the property to the east of the HISS, expanded its facility and stockpiled 8,000 cubic yards of soil on the southwestern corner of the property.

**2003:** St. Louis North County FS/PP released for 30-day public review.

**1990:** A Federal Facilities Agreement, describing the process to be used to address the St. Louis Sites and the responsibilities of each agency, was negotiated.



# St. Louis North County Sites Feasibility Study

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The U. S. Army Corps of Engineers (USACE), St. Louis District, recently completed a Feasibility Study (FS) of the St. Louis North County Site. Storage of wastes from the extraction of radium and uranium from ore at the St. Louis Downtown Site in St. Louis, Missouri, has left radium, thorium, and uranium in soils and sediments.



## The FS identifies six remedial alternatives for consideration:

### Alternative 1

#### No Action

Leave site as is with periodic environmental monitoring

Cost: \$1.5 million

### Alternative 2

#### Partial Excavation and Capping

Excavate soil from the VPs and dispose out-of-state. Cap SLAPS and HISS and use institutional controls to limit access to contaminated areas

Cost: \$205 million

### Alternative 3

#### Partial Excavation and Treatment

Excavate soil from the VPs and HISS, then consolidate and treat at SLAPS. Use institutional controls to limit access to contaminated areas

Cost: \$284 million

### Alternative 4

#### Institutional Controls

Use institutional controls such as deed notices, land use restriction, and zoning restrictions to limit future land use at SLAPS, HISS, and the VPs

Cost: \$129 million

### Alternative 5

#### Excavation with Institutional Controls Under Roads, Bridges, Railroads, and Other Permanent Structures

Remove Contamination to allow unrestricted use at all sites. Control access under roads, bridges, railroads and other permanent structures.

Cost: \$223 million

### Alternative 6

#### Excavation at all Properties

Excavate impacted soils from all locations, regardless of accessibility, for out-of-state disposal.

Cost: \$286 million

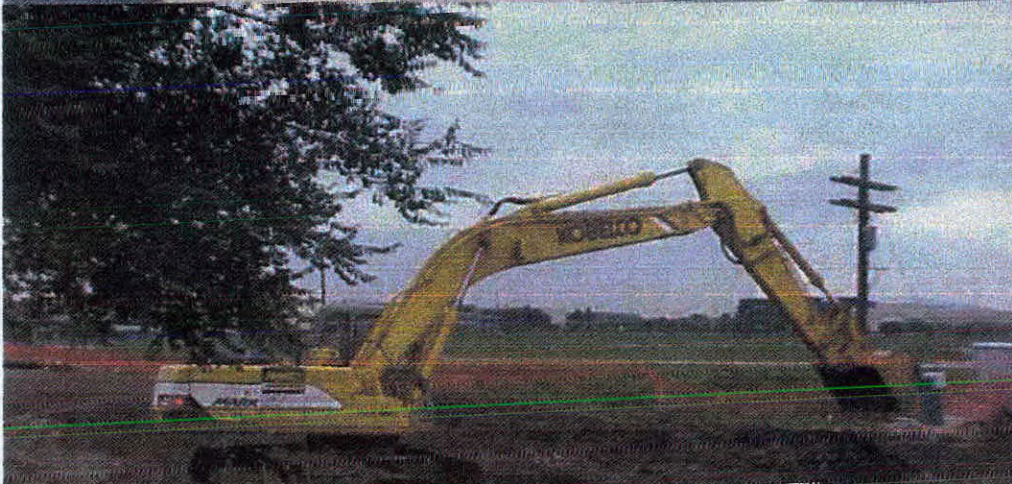
SLAPS - St. Louis Airport Site  
HISS - Hazelwood Interim Storage Site  
VPs - Vicinity Properties



## St. Louis North County Site Proposed Plan

FLUGRAP

The U.S. Army Corps of Engineers (USACE), St. Louis District, outlined its preferred alternative for remediating the St. Louis North County Site in a recently issued Proposed Plan. The USACE believes that **Alternative 5, Excavation with Institutional Controls Under Roads, Bridges, Railroads, and Other Permanent Structures**, will provide the best balance of effectiveness, cost, and ease of application.

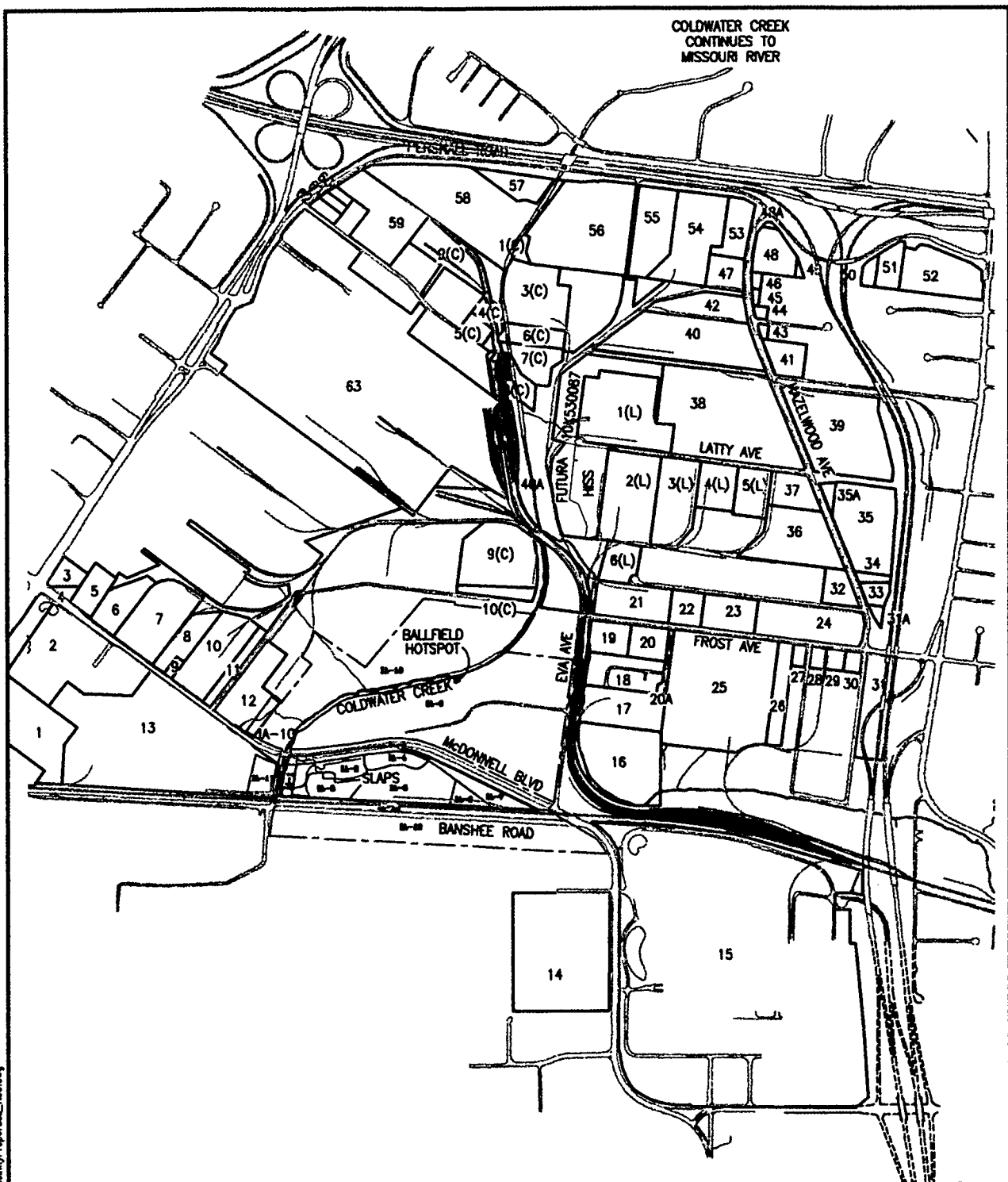


*Alternative 5 includes excavating accessible soil and sediment and shipping to a properly permitted out-of-state disposal facility.*



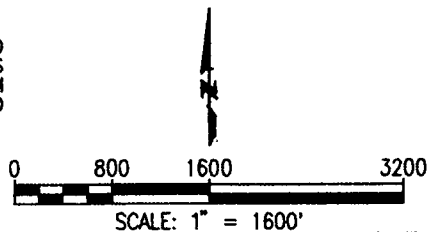
## Public Participation

**USACE encourages public input** to ensure the remedy selected for the North County Site meets the needs of the local community and is an effective solution to the problem. The preferred alternative may change based on new information or public comments. Written comments on the proposed remedial action may be submitted at any time during the comment period. Spoken comments will be recorded during the May 29, 2003 public meeting. The final decision will be documented in a Record of Decision.



# LEGEND:

..... ASPHALT ROAD  
 ..... RAILROAD TRACKS  
 ..... STREAM  
 ..... POND



**FUSRAP**

SLAPS Vicinity Properties  
 Predesign Investigation  
 St. Louis, Missouri

DRAWN BY:  
 F. Bower

REV. NO./DATE:  
 0 - 05/21/03



## Long-Term Stewardship

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Long-term Stewardship includes all activities necessary to protect human health and the environment at sites that have residual contamination present after "cleanup" is complete.



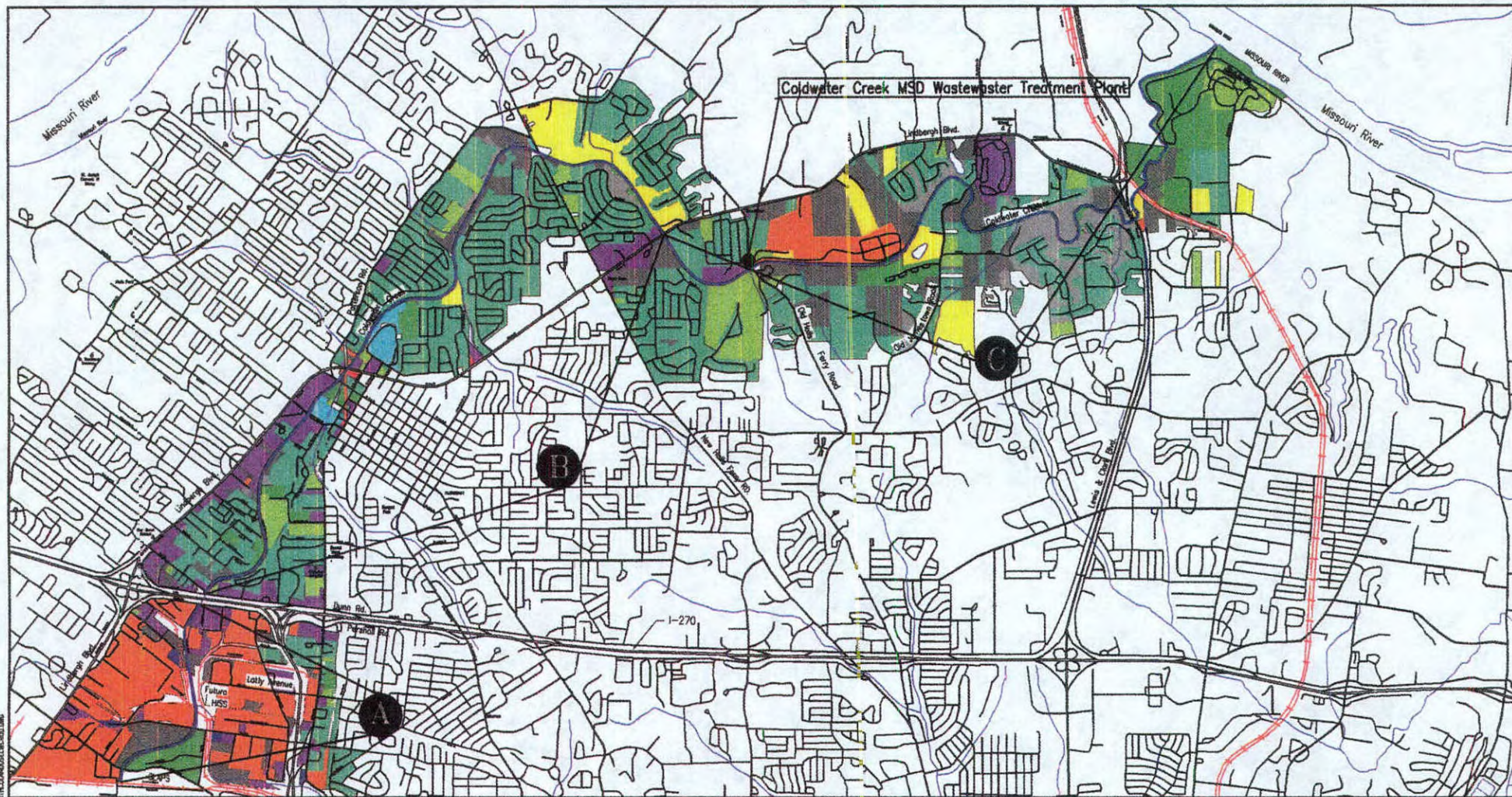
The Record of Decision will address the Long-Term Stewardship plan by stating that the USACE will develop it in collaboration with the stakeholders. The plan will include:

- 1) site monitoring, maintenance, and reporting
- 2) institutional controls
- 3) information and records



The Institutional Controls will:

- be enforceable against any owner
- be enforceable by parties other than the landowner
- include provisions to transfer enforcement authority
- indicate procedures for enforcement
- remain in place for the duration they are needed
- be recorded.



**LEGEND:**

- |         |   |   |
|---------|---|---|
| PARK    | COMMON GROUND                             | MEDICAL FACILITY, EMERGENCY SERVICES, FIRE                    |
| FARM    | HISTORICAL BUILDING/AREA                  | SINGLE FAMILY ATTACHED APARTMENT, RESIDENTIAL                 |
| VACANT  | COMMERCIAL, RETAIL, WHOLESALE, OFFICE     | COMMUNITY FACILITY, GOVERNMENT FACILITY, BUSINESS, CIVIC ORG. |
| PARKING | UTILITY/INDUSTRIAL MAINTENANCE, WAREHOUSE | CREEK SECTION AS USED IN FS DISCUSSIONS                       |

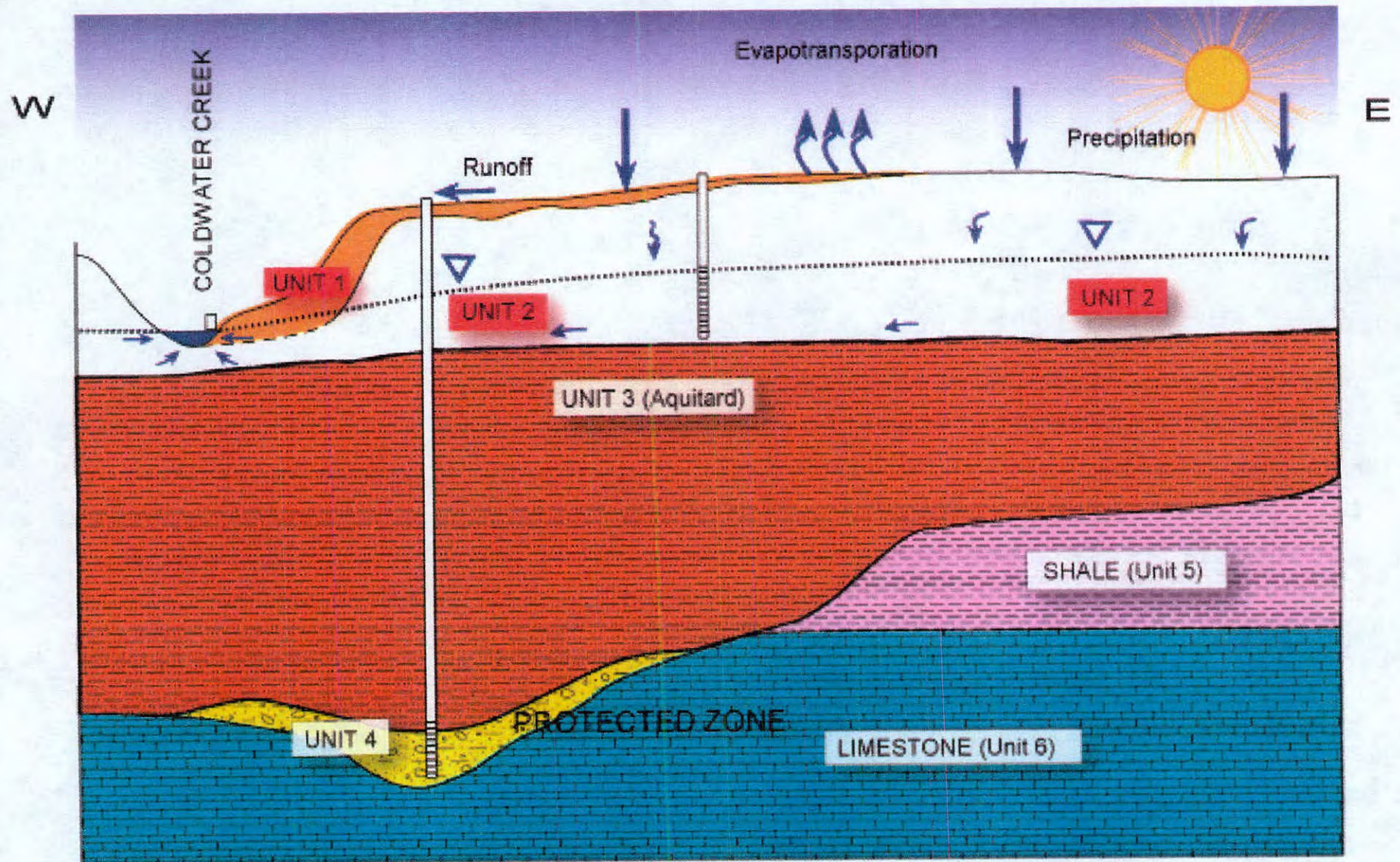
0 1750 3500 7000  
SCALE: 1" = 3,500'

**FUSRAP**  
St. Louis North County Site  
Land Use Along Coldwater Creek  
St. Louis, Missouri  
DRAWN BY: S. Kibbings REV. NO./DATE: 0 - 8/15/98

## Ground-water Monitoring

- The protected ground-water aquifer is not impacted by site contaminants.
- The movement of water from the shallow zone to the protected aquifer exceeds 1,000 years.
- No long-term monitoring is anticipated.
- For areas which achieve unlimited use and unrestricted exposure the results from short term monitoring would be used to determine if long-term monitoring is required to assess contaminant migration from areas under roads, bridges, railroads and other structures.
- For areas with contamination remaining, monitoring may be performed until authorized to be discontinued or modified pursuant to 5-year reviews.

## North County Water Features



# FUSRAP Document Management System

Year ID  
00 3533

Further Info?  
☐

Operating Unit  
North County

Site

Area

MARKS Number  
FN:1110-1-8100g

Primary Document Type  
Public Affairs/Community Relation

Secondary Document Type  
Fact Sheets/Newsletters

## Subject or Title

St. Louis North County Public Meeting Posters (8.5x11 copies of the posters displayed)

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SAIC

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CEMVS

Final

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Confidential File?

Central Files

Paper

☐

Comments

Include in which AR(s)?

- ☒ North County
- ☐ Madison
- ☐ Downtown
- ☐ Iowa

ETL

8.11

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