



**US Army Corps
of Engineers®**
St. Louis District

St. Louis Sites Fact Sheet

CONCEPTUAL SITE MODEL AND COLDWATER CREEK



Cleanup activities at the St. Louis Sites are part of a nationwide U.S. Department of Defense (DOD) Army Corps of Engineers (USACE) environmental program known as Formerly Utilized Sites Remedial Action Program (FUSRAP). FUSRAP in St. Louis includes four Missouri sites (SLDS, SLAPS, Latty, and SLAPS VPs). These sites contain soils contaminated with radium, thorium, and uranium as a result of activities associated with the Manhattan Engineer District/Atomic Energy Commission (MED/AEC) during the nation's 1940s and 1950s atomic program.

USACE uses scientific knowledge and skilled investigators to identify places along Coldwater Creek that may need cleanup. The work requires deliberate sample site selection and then precise laboratory analysis in order to prioritize cleanup actions.

To learn more about FUSRAP, contact the FUSRAP Area Office at (314) 260-3905 or write to the U.S. Army Corps of Engineers, St. Louis District, FUSRAP Area Office, 114 James S. McDonnell Blvd., Hazelwood, MO 63042

Before the Record of Decision (ROD) was prepared for the North County sites (including Coldwater Creek [CWC]), a Conceptual Site Model (CSM) was developed. A CSM presents the conditions and the physical, chemical, and biological processes that control the transport, migration, and potential impacts of contamination to human and/or ecological receptors. It may be a simple illustration (i.e., a drawing) or a sophisticated, comprehensive document. In the pre-ROD phase of a project, a CSM is used to identify the sources, receptors and pathways associated with the site, to identify data gaps and develop a sampling plan to address those gaps, and to support remedial decision making.

In the post-ROD phase of a project, a CSM is continually reexamined to ensure that the most recent understanding of the site (based on additional sampling and actual remedial action data) continues to support the original CSM. This assists in the development of pre-design sampling and remedial action design documents (if such action is needed) and ensures protection of the public and environment.

In the case of CWC, the original CSM (as presented in the Feasibility Report/Baseline Risk Assessment) was reexamined. Historical characterization data and remediation activities in North County supported the conclusions of the original model. The model was then developed in greater detail with specific focus on CWC to identify target areas for the currently planned round of sampling.

The CSM indicated that the original sources of contamination for CWC were the storage of materials at the St. Louis Airport Site (SLAPS), the stockpiling and processing of materials at the Latty Avenue Site, and the transportation of the material (by truck) when the material was moved from SLAPS to the Latty Avenue Site.

Potential transport mechanisms are ways by which material could move from SLAPS, the Latty Avenue Site, and roads into CWC. These mechanisms include surface water (i.e., storm water runoff), ground water seepage from beneath storage areas to CWC, windblown emissions (in the immediate



Coldwater Creek

vicinity) and physical movement (i.e., falling off trucks into CWC or falling off trucks and being carried by storm water into CWC).

After evaluating these transport mechanisms and how the material would be moved by water within the creek, the following target areas were identified:

- Areas where channel improvements, realignments, or obstructions could have trapped sediment between 1946 and present;
- Tributaries and drainage areas within the 10-year floodplain of CWC;
- Depositional areas within the creek; and,
- Topographical low-lying areas outside the banks of CWC.

In addition to sampling these target areas, a systematic sampling grid will be applied to the area to ensure suitable coverage for statistical purposes. Flooded structures will be scanned, and gamma walkover surveys will be performed to cover those areas not previously evaluated.

Because USACE will require access to private property to perform portions of the sampling, landowners may be contacted by USACE real estate personnel. A signed right-of-entry document will be required before sampling can proceed on private property.



Coldwater Creek - Sampling Depositional Areas

Educational Information

Q: What is a conceptual site model?

A: A conceptual site model (CSM) is an illustration or a document with tables and illustrations that show the physical, chemical, and biological processes that impact an area. These are the processes that control the way contamination in soil, air, groundwater, surface water, and sediments move around. The CSM shows investigators where contamination is likely to be. It also shows how people or the environment might be affected. Because of weather and land use changes, these conditions change often so USACE reflects those changes in the CSM. Scientists use CSMs to identify site features, including those on the surface and below, to understand the extent of identified contamination.

USACE uses systematic sampling of soil and sediment in the Coldwater Creek 10-year floodplain in order to collect data for a complete CSM. After evaluating the CSM's "picture" of how materials move and collect in Coldwater Creek, USACE identifies sampling target areas. In addition to sampling these target areas, a systematic sampling grid is applied to the area to ensure suitable coverage.

