



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

St. Louis Sites Fact Sheet

HOW CLEAN-UP GOALS PROTECT PUBLIC HEALTH



Clean-up activities at the St. Louis Sites are part of a nationwide U.S. Army Corps of Engineers (USACE) environmental program known as the Formerly Utilized Sites Remedial Action Program (FUSRAP).

These sites contain soils contaminated with uranium, thorium and radium because of activities associated with the Manhattan Engineer District/Atomic Energy Commission (MED/AEC) during the nation's early atomic program in the 1940s and 1950s. The radionuclides are called contaminants of concern (COCs). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is a federal law aimed at cleaning up sites contaminated with hazardous waste, like these COCs.

USACE St. Louis District is conducting a clean-up program for the North St. Louis County FUSRAP Sites (North County Sites). The U.S. Environmental Protection Agency and USACE have signed the Record of Decision (ROD) that outlines the final remedy to clean up the North County Sites. The ROD describes the technical parameters of the clean-up remedy, specifying the methods selected to protect human health and the environment, specifically including clean-up goals (also called remediation levels or goals).

To learn more about FUSRAP, visit the FUSRAP webpage at <https://go.usa.gov/xANRb> or www.mvs.usace.army.mil/Missions/FUSRAP. Contact the FUSRAP Area Office at 314-260-3905 or by email at STLFUSRAP@usace.army.mil.

For nearly 20 years, the cleanup and redevelopment of the St. Louis FUSRAP Sites has followed the recommended scientific practices required, resulting in steady progress. These clean-up actions were selected primarily on how well they protect human health and the environment and on how well they meet safety requirements.

How were the clean-up goals established? How do we know they are protective of community members health, welfare and future that we all have at stake?

CLEAN-UP GOALS ESTABLISHED

Clean-up goals are numerical concentration limits established for each COC. The COCs found above clean-up goal concentrations will be remediated. The levels are set by "applicable or relevant and appropriate requirements," or ARARs, which refer to a federal or state standards that are in place to ensure health protectiveness. They are also set by calculations of health-based, clean-up goals that are specific to the unique exposure setting of a site. Both are aimed at protecting human health and the environment during the cleanup.



Sediment samples taken at Coldwater Creek are collected and tested to determine if they meet the health-protective requirements of the North County clean-up goals.

HOW ARE CLEAN-UP GOALS DETERMINED?

FUSRAP ensures health protectiveness at the North County Sites by using the clean-up goals published in the North County Sites [Record of Decision](#). Those goals are based on the findings of a [risk assessment](#) that follow these general steps.

Step 1. Hazards are identified.

To evaluate the potential for exposure to hazards and determine the likelihood for unhealthy effects on humans or the environment, risk assessors consider these questions:

1. Hazard Identification – What contaminants exist at the site?
2. Exposure – How are people exposed to them?
3. Toxicity Assessment – How dangerous could the contaminants be to human health?
4. Risk Calculations – What are the health risks to people exposed to contaminants?

The risks of getting cancer from exposure to site waste are expressed in probabilities with limits set by the U.S. Environmental Protection Agency (EPA).

Step 2. Decide what is applicable or relevant and appropriate.

All remedial actions at EPA's CERCLA sites must be protective of human health and the environment and comply with applicable or relevant and appropriate requirements ([ARARs](#)). Clean-up levels for response actions under CERCLA are developed based on site-specific risk assessments and ARARs. ARARs are required by federal or stringent state law or regulations. They have been evaluated by EPA and found to be legally applicable and relevant for the site. Generally, knowing the ARARs helps develop a numeric clean-up goal for each COC.

Step 3. Health-based levels are calculated.

By examining the potential unhealthy effects caused by a radioactive or hazardous chemical substance, a risk assessment can help USACE decide what needs to be cleaned up, where, how, and to what level. USACE's clean-up actions are primarily based on how well they protect human health and the environment and how well they meet safety requirements.

A health-based level may also be calculated so that the resulting soil concentration corresponds to the EPA's target cancer-risk range. Alternatively, a health-based level may be calculated so that the resulting soil concentration corresponds to a radiological dose limit. Unlike risk, dose is a measure of the amount of radiation to which a person is exposed. Calculations of site-specific health-based levels are done using equations that make assumptions about how people may be exposed. For example, exposure to radiation can occur outside the body. Also, radiation from COCs may reach people internally if they inhale or ingest contaminated air, water or soil. That occurrence would increase the risk of a health consequence.

Health-based clean-up goals are determined to protect against health consequences.

Step 4. Clean-up goals are determined.

The most health-protective and achievable health-based levels calculated for a site are always used, together with ARARs, to determine the clean-up goal. This is consistent with EPA's CERCLA regulations so that the selected clean-up goals are protective of human health and the environment. Clean-up goals are determined for any contaminant posing a high risk or immediate threat to human health, or the environment that is determined to be a priority for clean-up.

PUBLIC HEALTH IMPLICATIONS

St. Louis Sites have specific standards and guidelines set by federal and state regulators that define the allowable risk and dose limits. How USACE carries out the EPA's CERCLA regulations by meeting the health protectiveness of the clean-up goals, and other criteria, is evaluated every five years during [Five-Year Reviews](#).