

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY & NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

CARSON RIVER INCREMENTAL SOIL SAMPLING STUDY

1. Background

i Due to widespread mercury contamination within the Carson River Mercury Superfund Site, soil sampling is required prior to development or earth disturbance in certain areas. EPA and NDEP also conduct soil sampling to characterize the nature and extent of mercury contamination throughout the site.

The Carson River Mercury Superfund Site encompasses five counties and is unique in that EPA and NDEP have a very large area to cover with minimal resources. Traditional sampling methods for a site of this size is costly and time consuming.

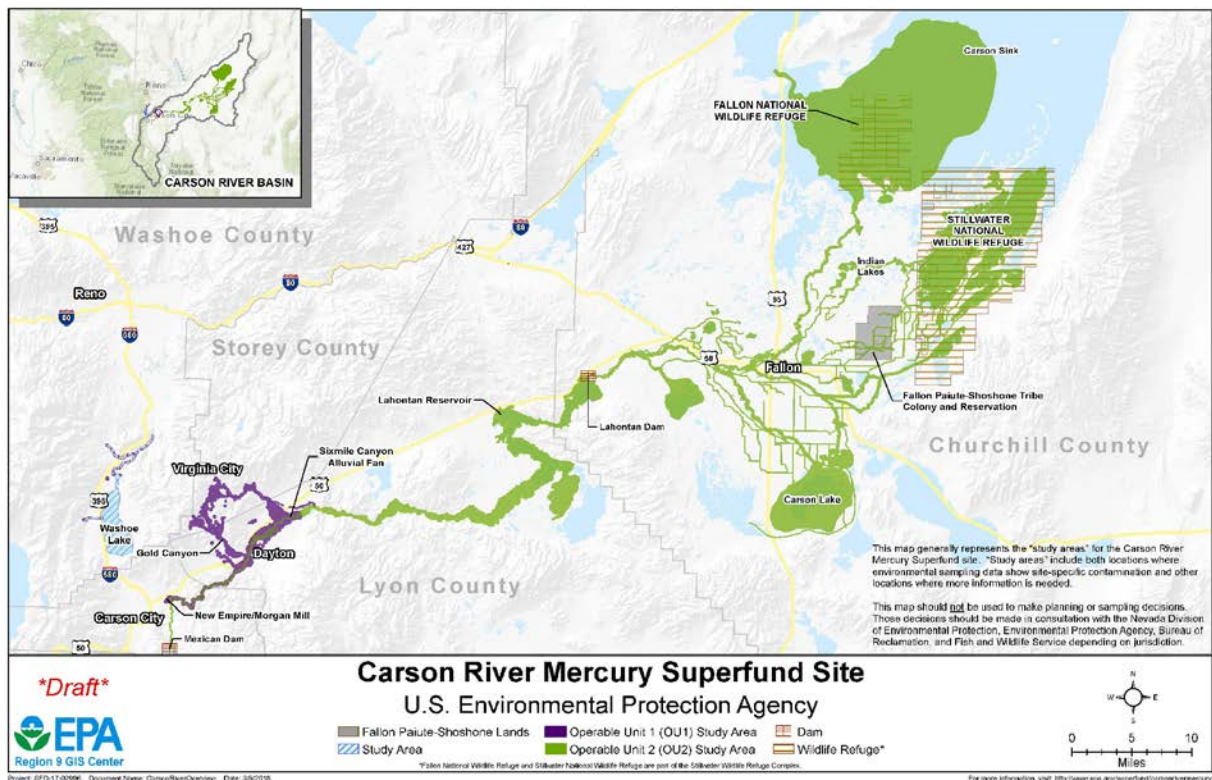


Figure 1: Carson River Mercury Superfund Site location

2. Project Description

i EPA is evaluating a new use of a proven technology for measuring soil-metals in the field. This technology may be able to provide a more rapid assessment of the soil.

- We will use a hand-held soil-metal detector to assess the presence of the elements mercury, lead, and arsenic. We will take approximately 1,600 samples from defined areas.
- During this small-scale pilot study, EPA will target three non-residential areas where we expect to find mercury contamination based on the original mill sites where mercury was introduced.
- We will take shallow soil samples from several areas downstream from historic mill sites and tailings piles. Samples will be from surface to six inches in depth in Virginia City, with some samples collected from up to two feet deep in Mark Twain.
- We will use the results from the soil-metal detector to evaluate a more efficient soil sampling approach. This sampling approach will help EPA determine how the mercury, arsenic, and lead spread across the land over time and where it is most likely to be found at the present time.
- We must work closely with the State Historic Preservation Office to protect underground artifacts from being potentially damaged by our work.

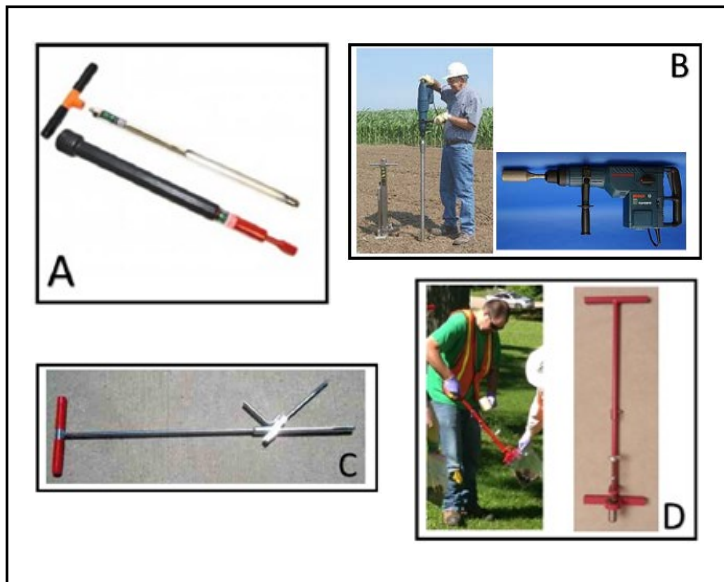


Figure 2: Soil sampling devices



Figure 3: Hand-held soil-metal detector being used to assess the presence of specific metals in soil samples.

3. Project Significance

i **Faster investigation at the Carson River Mercury Superfund Site enables more timely decisions and saves taxpayer money.**

- Rapid assessment of soil-metals allows us to be more effective and efficient with EPA's resources.
- Families will be able to get answers sooner about the safety of the soil in their yards, especially when they are planning to conduct construction activities on their property.

i **Soil sampling results will help identify priority areas where, based on funding availability, EPA could offer to remedy metals-contamination issues.**

4. Additional Information

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- EPA is partnering with the National Institute of Environmental Health Science grantees to further the science and technology on soil-metals resource beyond the Carson River Mercury Superfund Site.
 - Mercury, arsenic, and lead in soil are typically not a problem in background concentrations, but they can represent a potential health threat at elevated concentrations and where people, especially children, can come into frequent contact with soil contaminated by these elements.
 - We rely on cooperation with residents and local government to continue conducting sampling to protect current and future generations of people, especially children, living near the historic mill sites.
 - Maps are available on our website that show the extent of potentially contaminated areas. These maps are based on previous sampling activities, topographic and cultural resources maps indicating where the original mills were located, and information on the size of historic milling operations.