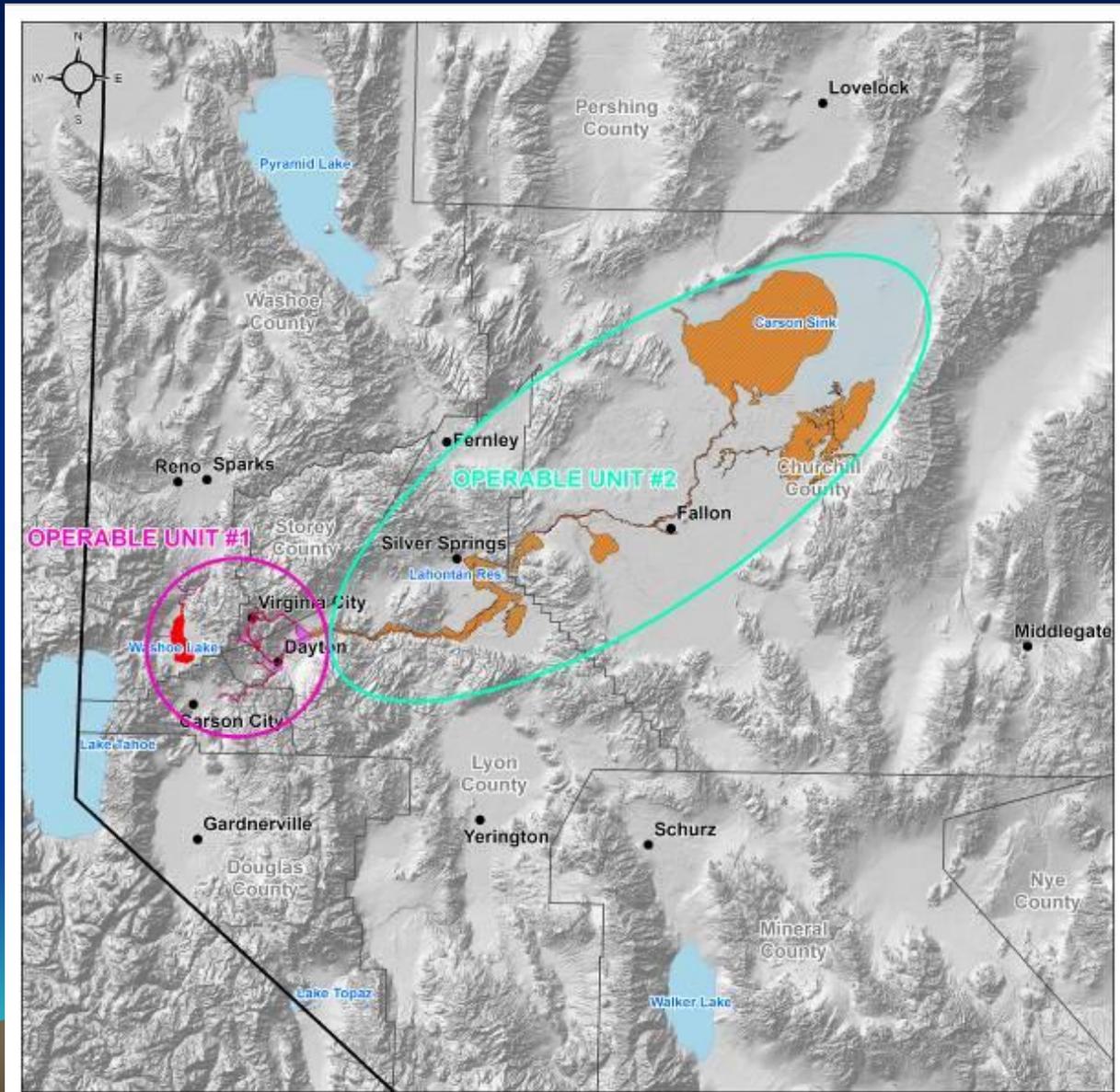


Carson River Mercury Superfund Site

June 2012



Carson River Mercury Site and Operable Unit Locations



What is Superfund?

- Superfund is the name given to the Federal environmental program established to address abandoned hazardous waste sites. It is also the name of the fund established by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980.
- This law was enacted in the wake of the discovery of toxic waste dumps discovered in the 1970s. It allows the EPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-led cleanups.



What is Superfund (cont.)?

- Law provided for a tax on hazardous waste generating industry which was put in a “Superfund” account to pay for cleanup of sites.
- Law provided for generation of a ranking list (National Priority List – NPL) with which to score and rank contaminated sites nationwide.
- Only sites presenting the highest hazard to human health and the environment make the NPL. The CRMS was added to the list in 1990.



What are the hazards at the CRMS?

- Millions of pounds of mercury were imported and used in approximately 250 Comstock mills to recover gold and silver.
- An estimated 14,000,000 pounds of mercury was lost to the environment during that process.
- Arsenic and Lead, which were common constituents of the mined ore, were concentrated by the milling process and were also released to the environment.
- Therefore, the Contaminants of Concern (CoC's) at the site are Mercury, Arsenic and Lead.



Mercury Amalgamation Pans in the Brunswick Mill



Tail-race of Brunswick Mill On The Carson River



So how can the site affect my health?

- Mercury, Arsenic and Lead are known or suspected carcinogens (cancer causing agents) and/or detrimental to human health in some other way.
- They do, however, need a route into the human body.
- Direct contact with soils and subsequent ingestion and/or eating fish and waterfowl taken from the CRMS area, which may have already ingested CoC's, provide the most likely route into the body.
- Small children have highest risk due to developing bodies and their propensity for ingesting soil while at play.



Has human health been impacted by the CRMS?

- The EPA and other scientists studied residents of contaminated areas and found no direct evidence of increased metals in blood, hair and urine samples.
- They did find elevated levels in certain fish and waterfowl. Some of the highest levels in the nation.
- Human health, if impacted, would be impacted slowly, over years of small amounts of exposure and could be hard to detect.



So I live there, how do I prevent exposure to CoC's?

- A few simple measures can greatly decrease soil ingestion rates, like washing hands and dusting and vacuuming regularly.
- Take care with the amount of fish and waterfowl that are taken and eaten from the Carson River, Lake Lahontan, Indian Lakes, Big and Little Washoe Lakes and the Stillwater Wildlife Refuge (review NDOW guidance).
- Remember that smaller fish typically contain less mercury than larger fish and eating small portions over a broader time presents less risk than eating large portions over short time periods.

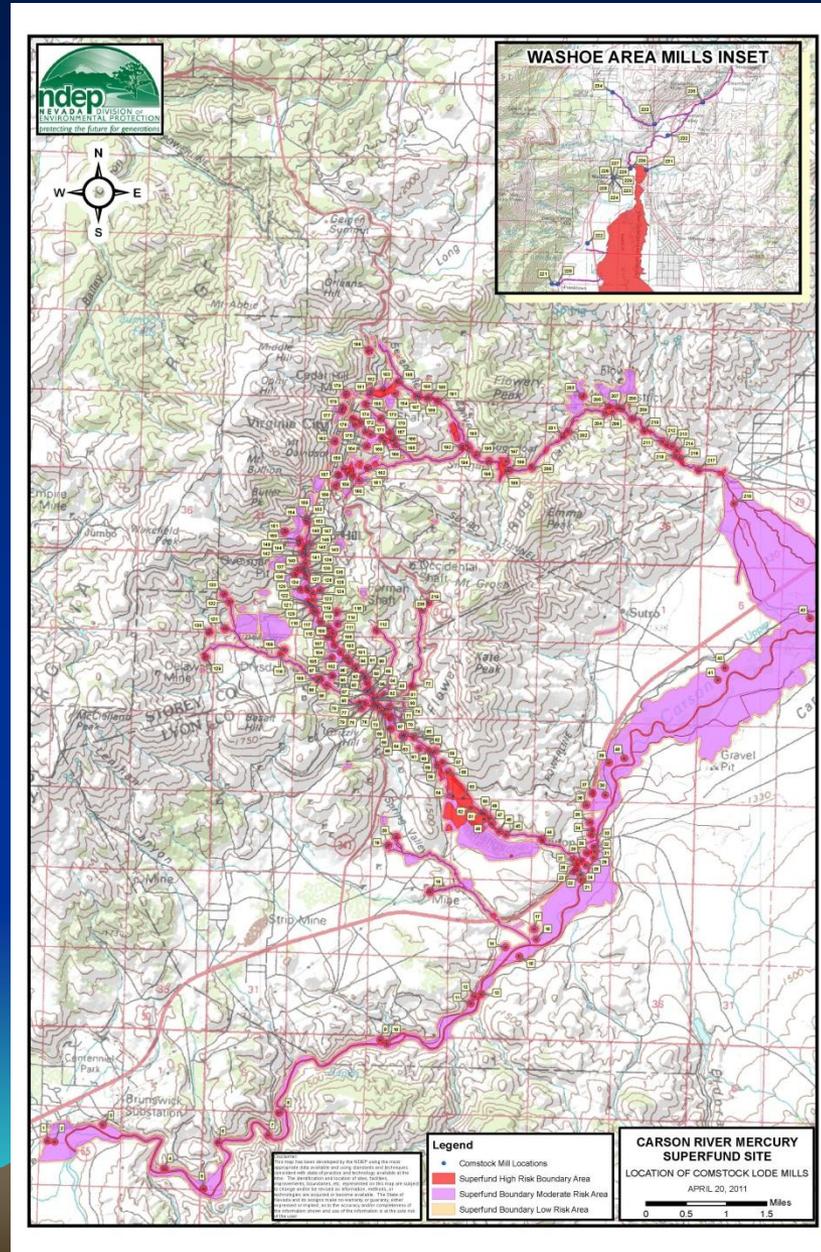


Operating Unit 1 (OU-1)

- The upland (dry-land) contamination source area of the CRMS.
- OU-1 is undergoing continued management and monitoring to assure public protection from mine wastes.
- The most significant health risk in OU-1 is direct contact and ingestion of contaminated soils.



2011 NDEP Compilation Map of Mill Site Locations (236 Total) and Risk Zones

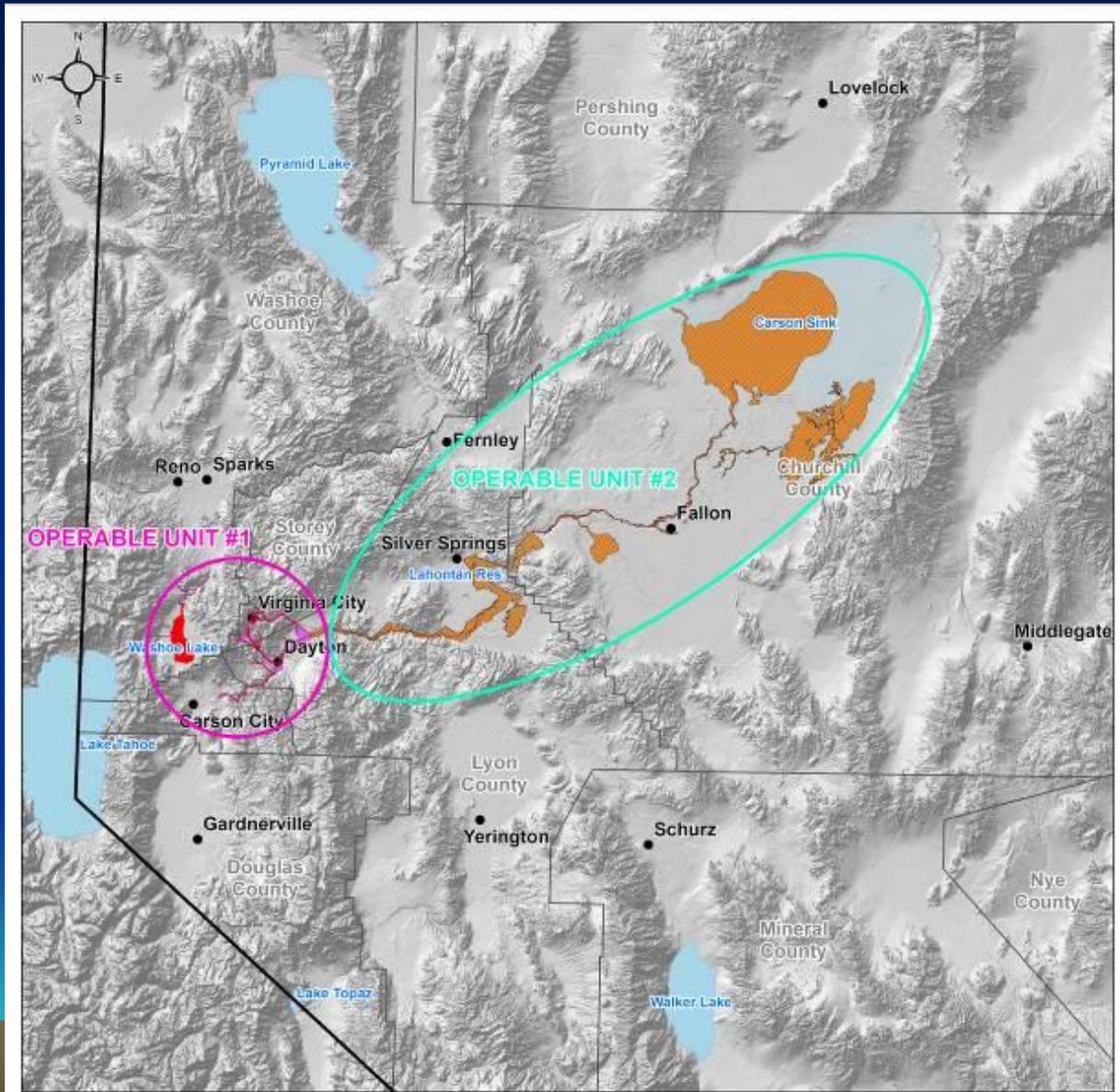


Operating Unit 2 (OU-2)

- OU-2 is defined as the water, sediment and biologic resources of the Carson River, Lahontan Reservoir, Washoe Lakes, Steamboat Creek, associated Irrigation Ditches and Stillwater Wildlife Refuge.
- EPA Contractor and USGS are continuing studies of OU-2 areas and will be producing a (RI/FS).
- The most significant health risk posed by mercury in OU-2 is consumption of fish and waterfowl from affected lake & river systems.



CRMS Operable Unit Locations



What cleanup has been done?

- In the 1990's the EPA compelled several limited area cleanups to be completed by third parties and completed cleanup on a half dozen areas themselves. The cleanups occurred primarily in residential areas of Dayton.
- The remainder of the site has not undergone cleanup and due to the size and scope of the area impacted; most likely never will.



How is the site being managed?

- Since complete site cleanup is not economically viable. A Long Term Sampling and Response Plan (LTSRP) was developed to manage site contamination into the future.
- The LTSRP provides guidance for land development activities (both commercial and residential) to help assure site CoC's do not impact human health and the environment.
- Typically, soil sampling is required to verify developed area soils do not contain CoC's at levels which may cause harm to human health.



What work still needs to be done?

- Comprehensive identification of mercury mill sites to preserve history and refine site boundary.
- Continued soil sampling to allow refinement of site boundary to include only areas with contaminated mine wastes.
- Continued removal of contamination, if necessary, at sites where contamination is identified that exceeds accepted standards and puts human health at risk.
- On-going monitoring and sampling of soil disturbances at new developments and existing residences in areas of probable contamination.



Into the future

- LTSRP guidance should provide continued confidence that environmental conditions are at safe and healthful levels for the most vulnerable populations; i.e. children.
- Additional removal of mercury impacted tailings, if necessary.
- As new data verifies areas are not significantly impacted by historic mine wastes and impacted sites are cleaned up or capped; federal and state oversight will be reduced appropriately with the long-term goal of reducing the physical size and extent of the site.





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NDEP's CRMS Website:

http://ndep.nv.gov/bca/carsonriver/criver_1.htm

