



Work Completed in Residential Areas of Former Mining Site

Sutter Creek, California

The U.S. Environmental Protection Agency (EPA), through this fact sheet, is announcing that the remediation work which occurred at the Central Eureka Mine site in Sutter Creek, California (with the exception of the Allen Ranch tailings impoundment) has been completed to EPA's satisfaction. These actions, implemented by EPA's Superfund Emergency Response program and by certain private parties under EPA oversight, were performed in response to elevated levels of arsenic found in mine tailings throughout residential areas of the Mesa de Oro, Gold Quartz, and Vista Ray subdivisions. This fact sheet is being sent to residents of the area and other interested parties to update the community on what has been accomplished to date.

Areas Addressed in the Cleanup

There were four main components to the Central Eureka Mine site: 1) residential yards; 2) the Mesa; 3) the old Central Eureka mine head area; and 4) a tailings pile on the Allen Ranch. The response actions implemented by EPA or under EPA oversight were designed to remove the substantial threat of exposure to arsenic-laden mine tailings to nearby residents and the surrounding community. These response actions, consisting prima-

rily of excavation/backfill and encapsulation/stabilization activities, removed or blocked human exposure pathways to the mine tailings from Mesa de Oro (the Mesa). The encapsulation and stabilization activities also prevent the erosion and down-gradient migration of mine tailings from the Mesa.

Residential Yards

Response actions in the residential yards occurred in two areas: those surrounding Mesa de Oro, and those on top of the Mesa. The response actions in the residential yards surrounding Mesa de Oro were performed by EPA and Al Kaplan and Nehemiah Development (Kaplan/Nehemiah), and the response actions in the residential lots on top of the Mesa were performed by AlliedSignal, Inc. (AlliedSignal). The response actions in all of the residential yards, whether performed by EPA, Kaplan/Nehemiah, or AlliedSignal, included the excavation and removal, or encapsulation, of soil contaminated with excessive levels of arsenic. The determination of the extent of excavation required in any given residential yard was made through visible observations and the analytical results of extensive soil sampling activities.

All areas containing visible mine tailings at the surface were excavated up to two feet in depth

(or until no tailings were present if excavating slightly deeper, e.g., another six inches to one foot, would rid the yard of tailings), as were all surface soils with arsenic concentrations in excess of 22 parts per million (ppm). All excavated soil was replaced with clean fill material.

To the extent that excavation to two feet was not possible or practicable (e.g., due to drainage concerns or potential for harm to a structure's foundation), excavation was done down to one foot. Then, a high-density polyethylene, 1/4-inch grid barrier net was placed on the tailings and one foot of clean fill material was placed on top; this occurred on the residential lots on top of the Mesa only.

In some yards, rather than excavation taking place, EPA approved the installation of concrete over the contaminated soils, as this acts as an appropriate barrier and blocks the exposure and migration pathways. To the extent that existing vegetation or landscaping had to be removed in order to implement the necessary response actions, EPA attempted to have the landscaping returned to its pre-existing condition to the extent possible, or permitted equivalent changes desired by the landowner or resident.

EPA, through its contractor, CET Environmental Services, Inc., completed remediation of approximately 29 residential yards sur-

rounding the Mesa. Kaplan/Nehemiah and their contractor, Robert J. Woolrich Construction, completed remediation of approximately 26 residential yards surrounding the Mesa. AlliedSignal completed remediation of 30 vacant lots on the Mesa in conjunction with its work on the Mesa as a whole.

In addition to the work in the residential yards, construction of a culvert through the neighborhood was completed by EPA. Engineered and designed by the City of Sutter Creek, this culvert replaced part of the creek and runs from Bryson Drive on the south end of the Mesa along Gold Strike Court toward Highway 49. The creek was converted to a culvert because the creek bank is formed by the southwest edge of the Mesa de Oro tailings pile as it winds through the Gold Quartz Terrace subdivision. The culvert prevents further erosion and off-site migration of the Mesa de Oro mine tailings.

Mesa de Oro

The remedial work conducted on the Mesa was done by AlliedSignal and their contractor, Ford Construction Company,

designed to encapsulate and stabilize the mine tailings, thereby blocking potential exposure pathways and preventing the erosion of mine tailings from the Mesa. The response actions implemented by AlliedSignal consisted of the following:

- removing vegetation and debris from the slopes and top of the Mesa;
- regrading, reconditioning, and compacting the slopes to a 2:1 slope;
- installation of a cellular confinement system (Geoweb) on the slopes;
- filling the cellular confinement system with clean, imported soil;
- constructing a concrete-lined drainage ditch around the perimeter of the Mesa at the base of the slopes and tying the ditch in with existing drainage systems;
- constructing a reinforced earth structure at the toe of the slope using a cellular confinement system, where required due to slope geometry, to accommodate a concrete-lined drainage ditch;
- excavating, regrading, and recontouring the vacant lots on top of the Mesa;
- covering the lots on top of the Mesa

with two feet of clean soil or, in cases where drainage restrictions prevented the placement of the two foot cover, putting in place a high-density polyethylene, 1/4-inch grid barrier net on the tailings and covering the barrier with one foot of clean soil; and

- revegetating the slopes and top of the Mesa.

In conjunction with the work performed by AlliedSignal, EPA constructed concrete retaining walls on certain properties in the Vista Ray subdivision where the toe of the Mesa slope was undercut while excavation activities were being conducted in the respective yards. These

walls prevent mine tailings from migrating back into the yards as well as provide

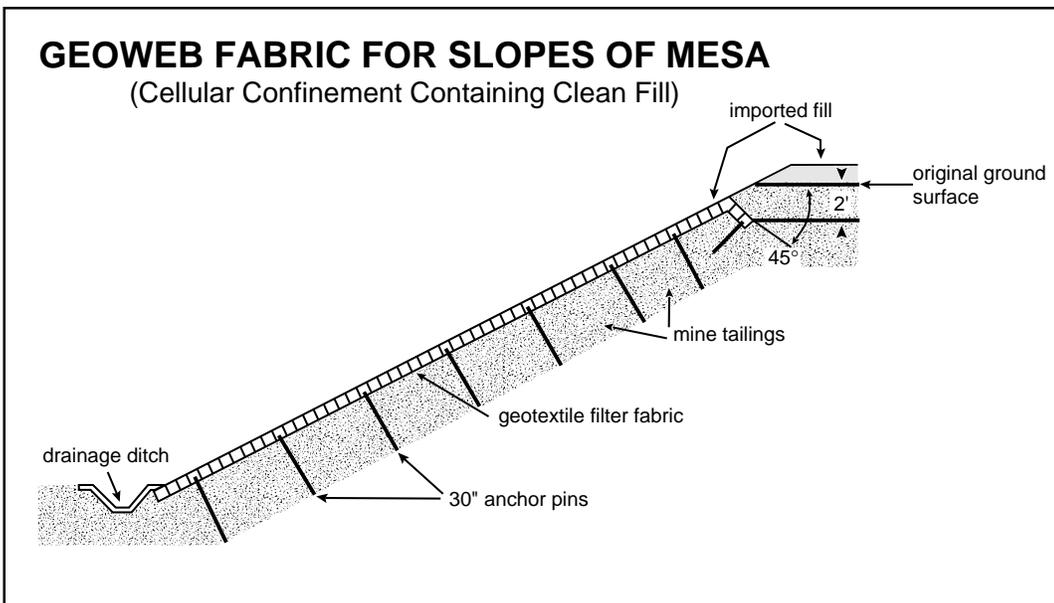


Figure 1: Geoweb fabric for slopes of the mesa

Inc., under EPA oversight. The work performed by AlliedSignal on the Mesa was

support for the perimeter concrete drainage ditch installed by AlliedSignal.

EPA, or others under EPA oversight, also performed operation and maintenance of the Mesa cover for the first season after its installation because the vegetation had not yet been established. The vegetation has since been well established and appears to be rejuvenating itself and providing the expected support to the clean fill soils placed on top of the Mesa and its slopes. Long-term operation and maintenance issues are still being negotiated by all parties.

The Mine Head

The owners of the mine head area, Kirk L. Bryson and Genevieve Fuller, were responsible for implementing response actions intended to reduce the risk of public exposure to the physical and chemical hazards present there. A sedimentation basin was constructed to help catch and contain arsenic-laden mine waste sediments carried in storm runoff from the mine head. A perimeter fence and warning signs were also installed. These measures appear to be, for the most part, effective and accomplishing their desired goal.

The Allen Ranch

Aside from the tailings at Mesa de Oro, tailings from the Central Eureka Mine are also located on an undeveloped portion of this property west of Highway 49 owned by the Allen family. Due to the absence of residential dwellings in and about this tailings pile, the response actions selected for this portion of the Central Eureka Mine site do not have the same urgency as those selected for the other three areas of the site.

All tailings material excavated from residential yards and the Mesa have been consolidated with this tailings pile. The Allen heirs have also agreed to consolidate other extraneous piles of mine tailings on their property with the main tailings pile, and most of this work has been completed. Negotiations continue between EPA, the Allen heirs, and AlliedSignal regarding final design and construction of the encapsulation and containment of this impoundment.

AlliedSignal will implement this work under EPA oversight. It is expected that this work will be implemented in 1999.

Future Plans

EPA will continue to oversee all work being done by the potentially responsible parties (PRPs) on an ongoing basis. The only work remaining to be performed by a PRP is the work to be performed by AlliedSignal on the Allen Ranch.

EPA has monitored the integrity of the clean cap in the residential yards and on the Mesa for the past two winters and, at this time, believes it to be stable and effective and the vegetation cover to be well established. Long-term operation and maintenance (O&M) of the vegetation on the residential yards is the responsibility of the property owner, while the responsibility for O&M on the common areas of the Mesa is still the subject of negotiations. EPA believes that the local, county, and state governments should be the lead agencies on this issue.

Additionally, EPA is working with other federal, state and local agencies, as well as developers, to plan and share information that might help avoid these types of problems in the future.

An EPA grant to the state has been used to produce a handbook for government and private entities involved in the assessment and remediation of mining sites. A copy of this handbook, entitled *Abandoned Mine Lands Preliminary Assessment Handbook* can be obtained by contacting Dan Ziarkowski of the California Department of Toxic Substances Control (DTSC) at (916) 255-3689.

“Thank You” to the Community

EPA realizes this has been a difficult few years for the community affected by the Central Eureka Mine site. EPA very much appreciates the patience generally shown by the community members, and hopes that the completion of the work will provide a level of comfort for all of the present and future residents of Sutter Creek.

FOR MORE INFORMATION

If you have questions or concerns regarding the Central Eureka Mine site, please contact:

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