

Cerrillos South Mine Safeguard Project

Cerrillos, New Mexico

Date Submitted: March 19, 2004

Background

Project Date: May 5, 2003 - October 1, 2003, at a cost of \$ 670,688.78

The following persons and organizations played an integral part in the development and successful completion of the project:

NM Abandoned Mine Land Bureau

Mining and Minerals Division
Energy, Minerals and Natural Resources Department
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(505) 476-3400

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|-------------------------------------------------------------------|------------------------------------------|
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(505) 476-3422 |
| <input type="checkbox"/> Chief Design and Project Engineer: | John A. Kretzmann, P.E. |
| <input type="checkbox"/> Environmental Coordinator: | Homer E. Milford (retired) |
| <input type="checkbox"/> Design Engineer: | Michael W. Tompson, E.I.T. |
| <input type="checkbox"/> AML Archaeologist: | Lloyd A. Moiola |
| <input type="checkbox"/> Biologist/Reclamation Specialist: | Randall L. Armijo |
| <input type="checkbox"/> Project Manager/Reclamation Specialist: | Raymond R. Rodarte |
| <input type="checkbox"/> AML Support Administrator: | Dina W. Vigil |

Contractor

Pioneer Industries Inc.
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Narrative Description – Cerrillos South Project

Approximately 25 miles south of Santa Fe, New Mexico, a small group of conical hills rise almost a thousand feet above the surrounding plains. As one travels north along I-025 from Albuquerque to Santa Fe, the hills become visible to the east as you climb the La Bajada escarpment, which overlooks the mighty Rio Grande to the West. Cerrillos lies only a few miles north of the Madrid coal fields. To the people who inhabited these hills in the past as well as those living there today, the Cerrillos Hills were, and still are, a special place. Not only are they scenic, they are also sacred and historic.

The first Americans knew these hills and the area well. By 700-900 A.D. and probably much earlier, these early residents mined turquoise from these hills. The turquoise probably played a major role in establishing early trade routes reaching westward to the Pacific and southward to the interior of Mexico. The mining activity was augmented in early 1300's when lead was being extracted from mines here and used in the making of Rio Grande glazeware pottery. The Cerrillos Hills are thought to be the site of the oldest known mine in the United States.

The first Europeans to visit this area were those accompanying the explorer Coronado, in 1540. The Spanish Period began in 1598 with Onate's founding of New Mexico. At that time Tlascalan and other Nahuatl speaking colonists from central Mexico outnumbered the Spanish colonists, and their word, Chalchihuitl (Chow-l-chi-whittle), was the word used to identify what the Spanish called turquesa and later turquoise. Mt. Chalchihuitl was the site of the 700 A.D. mining operations. The Spanish regarded turquoise as a worthless rock, as was the feeling during the Mexican and early U.S. Periods. However, early silver ore assays during this Spanish period (1540-1598) indicated results of 10,000 oz. per ton (50% silver) to 800 oz. per ton, which not doubt, was a great inspiration to Onate's mining interests in the early 1600's.

The Cerrillos Hills area is also the first European mining area or the "Oldest Mining District in the United States". It was being prospected in 1581 and with a number of mines active almost a decade before the first English Colonist landed at Jamestown. The Los Cerrillos miners probably deserve recognition as the founders of Santa Fe. The mining camp they founded in 1600 or 1601 was probably the first post colonization community at what we now call Santa Fe.

Silver produced by the Cerrillos Mining District was probably a significant component of the 17th Century New Mexico economy. The Los Cerrillos settlements were the only communities to successfully resist the Indian Revolts of 1680 and 1696 in Northern New Mexico other than Santa Fe. Mining operations continued in the District through the Late Spanish Period (1693-1821), the Mexican Period (1821-1846), the Early U.S. Period (1846-1878) and the Late Territorial and Statehood Periods (1879-present) with diminishing returns.

The majority of the mining claims staked in the rush of 1879 claimed gold and they and their stocks were sold as gold mines though they showed little or no gold. This historical misconception was promoted in the 1880's to sell mines and stock but probably owes its general acceptance to an error by the Director of the Mint and later by the U.S. Bureau of Mines. The U.S. Government Agencies chose to lump all of southern Santa Fe County under the heading of "Cerrillos Mining District" and thus recorded all of the "Old and New Placers" Mining production (which was primarily gold) under the "Cerrillos Mining District". Consulting geologist's reports as recent as the 1980's still recommend to clients that they examine their Cerrillos property for gold as the District has a past record of gold production. The last recorded mining operation in the Cerrillos Hills came to an end in 1975.

Recognizing the special natural and historical character of the Cerrillos Hills, along with the advantages of a sustainable park-based economy, Los Cerrillos Community residents met in 1997 in an effort to do something to preserve the hills. With the bond issue of 1998 things began to come together. The passing of this Santa Fe County Open Space Bond proposal mandated funds to be used to purchase private lands within Santa Fe County for public use. Fortunately, two major parcels of the Cerrillos Hills were on the market at that time.

In early 1999, with a Santa Fe County Open Space Park becoming a realizable goal, the Cerrillos Hills Park Coalition was organized. Upon the news of the prospective park, the owners of a third parcel elected to participate, bringing the total to 1,116 acres. With the advice of the County Open Land and Trails Planning and Advisory Committee (COLTPAC), the Santa Fe Board of County Commissioners approved purchase on September 28, 1999 and the County completed acquisition of the 1,116 acres on January 28, 2000.

Integral with the plan for the Cerrillos Hills Historic Park is a joint-management agreement with the Bureau of Land Management for the adjacent 2,200+ acres north of the County parklands. It is expected that as the Park grows it will eventually comprise more than 3,000 acres of the most intriguing and historical land in New Mexico.

The Problem

The New Mexico Abandoned Mine Land Bureau (NMAMLB) has been active in mine safeguarding and reclamation efforts in the Cerrillos Mining District since the late 1980's. During 1990, the NMAMLB backfilled seventy-four (74) hazardous mine openings, many of which were shafts in excess of 200 feet deep. More than 7,000 cubic yards of back filled material was required to abate these hazards. During the same project a permanent steel gate (bat and raptor compatible access) was installed on a deep tunnel entry to preserve wildlife habitat.

In January of 1997, another NMAMLB project involved backfilling another 21 shafts, installing gates at 2 adits, fencing two large glory holes with associated dangerous highwalls, installing cable net closures at 4 other large shafts and glory holes and installing a bat compatible closure over another deep shaft.

Again, in July of 1997, another NMAMLB project was awarded in the Cerrillos Mining District. This reclamation and safeguarding effort included backfilling 19 hazardous shafts and 3 adits, installation of a bat compatible gate closure on 1 adit, and installation of a polyurethane foam (PUF) close at one deep shaft.

These first three projects were located either next to inhabited areas or were subjected to high visitation by the public, mostly without right of entry. The Cerrillos South Mine Safeguard Project was formerly located in an area of the Cerrillos Hills which was fairly inaccessible and behind locked gates. With the change of land status occurring in 1998 and the potential opening of a public recreational park and open space, the NMAMLB

was again called on for assistance. This request was not only from the Historic Park Coalition and Santa Fe County but also from the Bureau of Land Management, who had numerous abandoned mines under their responsibility in the area. With the post-mine land use now changing from livestock grazing and wildlife habitat to public recreation, the NMMLB responded to their requests. The increasing use of these lands by the recreating public dictated the need for hazard abatement and reclamation of the remaining abandoned mines within the Cerrillos Hills Historic Park.

Project Design

The Cerrillos South Mine Safeguard Project focused on safeguarding hazardous openings within the Cerrillos Hills Historic Park. Only minimal impact to the area was allowed during construction due to the existing fragile ecosystem and the large number of avoidance areas identified for preservation of cultural and biological resources. Mine features were safeguarded by methods which would maximize the preservation of the historical mining landscape within the park. Interpretive signing and closure methods which allow the observation of mine features for educational purposes were also incorporated within the project design. Seeding was limited to only areas disturbed due to anticipated limited vegetative success and to minimize surface disturbance. The reclamation and safeguarding included the following work items:

- ❑ Backfilling of mine features
- ❑ Installation of welded wire fencing
- ❑ Installation of polyurethane foam (PUF) closures
- ❑ Installation of metal picket fencing
- ❑ Installation of high tensile steel mesh
- ❑ Construction of viewing platforms
- ❑ Installation of pre-fabricated observation bridge
- ❑ Construction of Bat Cupolas
- ❑ Installation of sediment logs and straw wattles for sediment control and erosion control
- ❑ Seeding of approximately 3.5 acres of disturbance

Project Construction and Reclamation

The project consisted of safeguarding 67 shafts, 17 pits, one adit, two trenches and two highwalls, all of which were dangerous to the public at large. Thirty-five shafts, 16 pits and one adit were successfully backfilled using mine waste and other imported backfill. Welded wire fences were utilized to safeguard 1 pit and 2 shafts, open trenches and highwalls walls while 16 other shafts were safeguarded by installing polyurethane foam (PUF) plugs and cast iron grates. Three shafts were safeguarded by metal picket fences. Eight shafts were closed utilizing high-tensile steel wire mesh coverings anchored with rock anchors while steel bat cupolas were installed at three additional shafts.. The reclamation minimized certain hazards to the visiting public and added stability to the interpretative trails system managed by the Cerrillos Hills Historic Park.

Visitation to the Park is restricted to various trail systems which were constructed by volunteers and friends of the Park. Many of the existing roads to the area have been closed off to motorized vehicular traffic and the roadbeds have been narrowed to trails which will accommodate walking, jogging, bicycling, and equestrian traffic. This work has also accomplished through volunteers and friends of the park. The AML Project accomplished its three main objectives: Minimized hazards to the visiting public, added stability to the interpretative trails system managed by the park and preserved more than 1,300 years of historic mining landscape. The Cerrillos Hills Historic Park website can be found at www.cerrilloshills.org. The NMAMLB will continue to monitor this project as it does all of its completed projects, to maintain closure integrity and to address future maintenance needs.

The Development of the Cerrillos Hills Historic Park as public open space is a prime example of a successful cooperative partnering effort between the public and private sectors: the community of Cerrillos, the Cerrillos Historic Park Coalition, the Bureau of Land Management, the National Parks Service, the County of Santa Fe, the New Mexico Abandoned Mine Land Bureau, and numerous other individuals, federal and state agencies and local businesses. The Park was opened to the public May 24, 2003. If you are intrigued by the old west, love early mining history, yearn for the tranquility of quiet rural life or just enjoy the solitude and the “burn” of lengthy hiking trails and fresh air, come spend a day in this park. You will enjoy it!

**Cerrillos South Mine Safeguard Project
Cerrillos, New Mexico**

Index to Photos

A CoverphotoCerrillosHills.JPG - Cover Photo - The Cerrillos Hills as viewed from Highway 14 to Madrid, NM, looking north towards the town of Cerrillos which lies in the valley below.

B PUFclosure.JPG - Sixteen hazardous shafts were safeguarded by installing polyurethane foam plugs. This greatly reduced the amount of backfill material required to complete the closure.

C metalpicketfencing.JPG - Some shafts were backfilled to within a few feet of the surface and left to preserve the historical significance of the mine. Metal picket fencing was installed around these features to prevent a tripping or falling hazard.

D Hitensilemesh,platform.JPG - In order to preserve the historic integrity of the feature, some openings were covered with high tensile strength steel mesh which was anchored securely at the perimeter to competent rock. A viewing platform has been installed to allow visitors to approach and view the mine open safely for educational purposes.

E Viewingbridge.JPG - One significant deep shaft not backfilled but was safeguarded utilizing high tensile strength steel mesh over the opening. A prefabricated bridge was then installed to allow visitors to walk out over and view the open shaft safely for interpretive education purposes.

F Batcupolas.JPG - Steel cupolas were installed at three deep shafts where bat and raptor habitat was identified under biological surveys conducted by the Abandoned Mine Land Bureau staff. These cupolas allow bats and owls to utilize the mine feature for habitat while denying human access to the mine.