

Modern Mining Reclamation...part of Nevada's future



Nevada Commission on Mineral Resources
Division of Minerals

The Mining Industry: Mining is the process of extracting mineral resources from the earth so they can be made into essential products required by our society.

The world's ability to support its population is sustained by the many minerals provided by mining. Virtually all of mankind's material needs must be dug from the earth, grown in the soil, or taken from the sea. Our horn of plenty literally begins with a mine. Stop and think about the following minerals and their important uses:



- ▶ **Copper:** wiring for motors, telephones, televisions, computers, home appliances, functional/decorative hardware, coins.
- ▶ **Iron:** steel production, cars, trains, buildings, bridges, household/commercial products, nails/screws/bolts (fasteners).
- ▶ **Lead:** batteries, weights, X-ray shielding, noise reduction.
- ▶ **Gold:** jewelry, dentistry, electrical contacts (computers/aerospace), laboratory equipment, medical treatment, optics.
- ▶ **Silver:** photography/film, medicine, electrical appliances, automotive parts, air conditioners, refrigerator equipment, jewelry, silverware, coins.
- ▶ **Lithium:** lubricating grease, high efficiency batteries, ceramics/glass.
- ▶ **Magnesite:** lining kilns/boilers, sugar, additive in cattle feed.
- ▶ **Barite:** oil well drilling mud, bowling balls, rubber, medicines.
- ▶ **Gypsum:** main ingredient in wallboard (sheetrock) and used as a soil conditioner.
- ▶ **Sand, Gravel and other Aggregates:** roadways, cement, cinder blocks, golf course sand traps.
- ▶ **Silica sand:** window panes, fiber optics, jars and bottles.
- ▶ **Zinc:** plating, rust inhibitors, paint.



Planning a Mine: As engineers and geologists begin to plan for the construction of a mine, they must consider state and federal requirements to protect the air, water, land and wildlife in the area.

Mining is only a temporary use of the land. The land has a specific use prior to mining and it will have another specific use after mining. The anticipated future use of the land must be planned before mining.

State and federal laws require money, known as a performance bond, to be set aside by the mining company to ensure that reclamation will be completed.

The reshaping of the land for future uses is called reclamation.

Concurrent Reclamation: Many mining operations are reclaiming lands disturbed by past activities while continuing to develop the mineral resources in other parts of the mining area. This is called concurrent reclamation.



Shaping the Landscape: A key element of any mined land reclamation effort is the reshaping and contouring of the land disturbed by mining so that it “blends” with the surrounding area. Engineering and resource experts are important in this phase of the reclamation process. However, dedicated equipment operators who have developed unique skills in shaping the land are critical to successful shaping and contouring.



Ground Preparation and Planting: Revegetating disturbed areas requires good ground preparation which will minimize erosion, hold moisture and protect emerging seedlings. Seed mixtures are often recommended by state or federal agencies. Sometimes live plants or trees are planted rather than seeds.



Closing Mine Facilities: When mining and mineral processing are complete, building and equipment must be removed and the area left in a clean, safe condition. A significant part of closing a mineral processing operation is the removal of any chemicals that may later cause problems in the environment. Ore heaps that were treated with dilute chemicals must be rinsed until the water passing through the heap meets safe water standards established by the state.



Long-Term Monitoring: Monitoring of a reclaimed mining area

continues for many years after the operation has shut down. Groundwater and surface water are analyzed and the success of revegetation efforts are evaluated over time to ensure the site has met and continues to meet reclamation objectives. The performance bond is released only after government regulators are certain the site is stable and revegetation success criteria have been met.



Wildlife Habitat Improvements: As with most modern development projects, such as highways, residential areas and airports, mining also impacts wildlife habitat in the areas disturbed. Successful mined land reclamation, however, will provide future wildlife habitat. Many mining companies participate in wildlife enhancement projects away from the mine site to offset the short term loss of habitat while mining takes place.



“The mining industry in Nevada has recognized the benefits of enhancing the land for improved wildlife habitat both during and after mining.” (Doug Hunt: Habitat Bureau Chief, Nevada Department of

Conservation and Natural Resources, Division of Wildlife)



Summary: Land used for minerals production to benefit our generation is being reclaimed for future generations. Reclamation is ongoing throughout Nevada. Areas disturbed by mining activities are shaped and planted to blend with the surrounding landscape, benefitting wildlife and providing for other uses. Reclamation activities are an upfront, essential part of all



mining operations, approved by state and federal agencies. Modern mining reclamation is part of Nevada's future.



People who care...

Nevada Commission on Mineral Resources, Division of Minerals

400 W. King St., #106, Carson City, NV 89703
Phone: 775-684-7040; Fax: 775-684-7052
2030 E. Flamingo Rd., #220, Las Vegas, NV 89119
Phone: 702-486-4343; Fax: 702-486-4345

