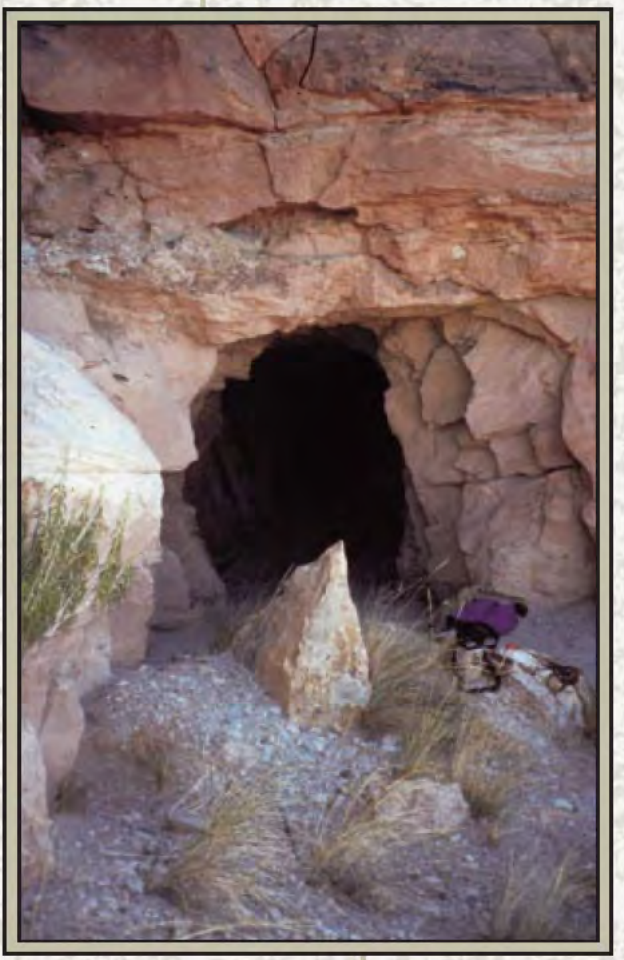
ABANDONED MINES *are*



POTENTIAL KILLERS

ABANDONED MINES ARE POTENTIAL KILLERS

WHAT YOU NEED TO KNOW

The temptation can be very strong. You've just stumbled across a relic of the past and the ghosts of early miners can be heard crying out, "Gold!" What the voices may not tell you is, "There's danger ahead."

Mining was a dangerous business in the old days. The mines were full of risks even for the miners who were well prepared for them. When the ore ran out, the old mines were abandoned and left unattended. Over the years, they have become increasingly unstable and extremely dangerous. The curious who are tempted to enter abandoned mine structures today can face risks far more serious than those faced by the original miners.

The deteriorated condition of wood at the surface hints at the poor condition of supports within the underground mine.

SIX REASONS IT COULD BE YOUR LAST ADVENTURE

1. ROTTED SUPPORT STRUCTURES: The wooden debris beneath your feet may be the only thing between you and a lower level several hundred feet below, or it may be all that was once supporting the rock above your head. These once solid beams and frameworks may have been decaying for more than a hundred years.

2. OPEN SHAFTS: These vertical openings can extend hundreds of feet to a lower level of the mine. They may be exposed or concealed by mine debris, dirt, or even a plug of rock. A fall could end in death on twisted steel or by drowning in deep water at the bottom.

3. DEADLY GASES & LACK OF OXYGEN: Chances are you won't sense or smell anything until it's too late. Abandoned mines are not ventilated. Pockets of methane, carbon dioxide, and other deadly gases can form or simply displace oxygen with no visible sign. When you breathe these gases, your muscles stop responding normally and your thinking becomes clouded. This is followed by unconsciousness and death. The same fate may await the family member or friend who attempts to rescue you.

4. BECOMING LOST & DISORIENTED: Mines can be honeycombed with miles of horizontal and vertical openings that randomly follow the original ore veins. Within a short distance of the entrance, there is no light, only total blackness. Artificial sources of light such as flashlights and lamps can unexpectedly break or fail, leaving you cannot see your hand in front of your face. You can cautiously reverse your course in absolute darkness, but you may find many side openings that you had not kept track of on the way in. A wrong turn can be fatal.

5. EXPLOSIVES & TOXIC CHEMICALS: These elements of active mining were often left behind when the operation was abandoned. Explosives such as dynamite and blasting caps become very unstable over time and can explode if disturbed. Storage containers, boxes, barrels, and drums deteriorate, allowing toxic chemicals to leak or to combine into highly dangerous mixtures.

6. HIGHWALLS & OPEN PITS: Not all mines are underground. Often, large areas are disturbed to get at minerals near the surface, leaving large open pits and/or vertical cliffs (highwalls) that are unexpected in the context of the original surface topography. Open pits can be filled with water which, in turn, can be highly acidic or laden with harmful chemicals. Highwalls can be unstable at the top and the bottom and are prone to collapse. When approached from the top, the vertical edge of a highwall may not be seen in time or may crumble, leading to a fatal fall.

A Vertical Shaft. Such shafts may open directly to vertical drops of several hundred feet.

OTHER HAZARDS ASSOCIATED WITH ABANDONED MINES

The hazards described previously include the most common dangers confronting those who enter abandoned mines. Each site poses its own unique set of additional risks that may vary over time:

- Abandoned mines can serve as dens or havens for rattlesnakes, bears, mountain lions, and bats.
- Radon is a common natural radioactive decay product that can accumulate in high concentrations in mines and is known to be a factor in some lung cancers.
- Abandoned surface structures, buildings, and equipment can collapse and cause serious injury.
- Leaked chemicals, and even the stockpiled waste rock, may contaminate soils and water with cyanide, lead, arsenic, mercury, and other highly toxic elements.
- Impounded water may be highly acidic or highly alkaline, as well as very deep and cold.

IT'S OKAY, I'VE DONE THIS BEFORE

Perhaps you have investigated a particular mine before or you have seen evidence that others have been there, so you think it is safe to enter. Think again. It is not unusual for abandoned mines that have been entered many times to suddenly and unexpectedly turn deadly.

Conditions at abandoned mines are constantly changing. Fractures and structural weaknesses caused by mining activities, manmade supports weakened by time, and the forces of nature working to close up the hole from the mine can all be threats at any time. Earthquakes, rains, winter storms, and rockslides can further destabilize old mine workings.

Gases from recent campfires can become trapped in pockets within a mine. These odorless gases may start out at knee level, but when walked through, they may rise to displace the life-giving oxygen at face level.

WHY DO SUCH CONDITIONS EXIST ON PUBLIC LANDS?

The rich history of mining in the West extends back more than 150 years. Mining played a significant role in the settlement and development of this once imposing frontier. As the ore was mined out or the operations became otherwise uneconomical, the mines were either boarded up or the miners simply walked away from them. Over the years, several hundred thousand abandoned mines may have been left scattered across the western United States.

A large number of these mines are on public lands that came under the management of the Federal Government only in recent years. The Bureau of Land Management (BLM) manages roughly 264 million acres in 12 western states, approximately one-eighth of the total land surface in the United States. BLM also manages the mineral estate underlying another 300 million acres of State, Indian, private, and other Federal lands. These old deserted mines were abandoned long before the passage of safety and environmental regulations that apply to modern mines.

Unfortunately, the location and nature of early mining activities on these lands is often poorly documented. As such old mine sites are located, BLM evaluates the potential hazards and reclaims those historic mine sites that pose safety risks to the public or present serious threats to the environment. However, this is an enormous task that will take considerable time and money.

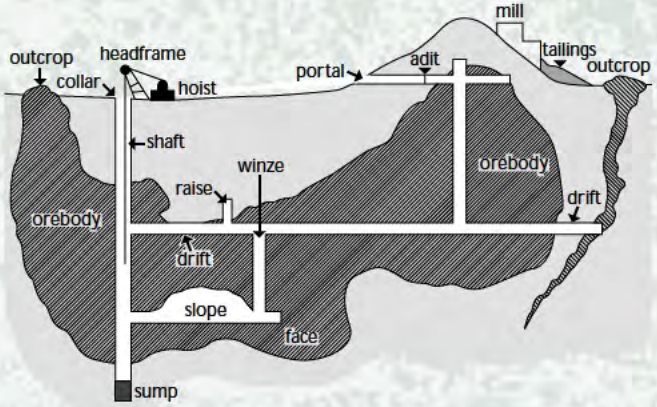
Some hazards, such as those represented here, are readily apparent or are marked by signs, but others, such as toxic gases and open shafts, are not so obvious. Also, such signs may have been removed or damaged.

These dangers are not theoretical. They are based on well-documented case histories and claim new lives every year

Meanwhile, the risks associated with abandoned mines remain and tend to increase over time. Even dangerous mines that have been located and properly abandoned are sometimes vandalized, entered, and left open, thereby exposing others to unexpected serious risks.

DEADLY HEADLINES

If you come across an abandoned mine, the best philosophy is to "Stay Out and Stay Alive", and report its location to the nearest BLM office.



Simplified example of typical structures and features of an underground mine. Abandoned mines may have many such openings. They can go in any direction and at any angle to follow the original ore vein. Often they are filled with water and collapsed mine works and debris.

"TEEN SPELUNKER FALLS INTO OLD MINE SHAFT (Salt Lake Tribune)—Rescuers from two counties and a pair of outside agencies were attempting to reach an 18-year-old spelunker who fell up to 1,000 feet into an abandoned mine shaft."

Three days later: "MINE RESCUERS WERE BLOCKED AT EVERY TURN....The 3/4 mile entrance tunnel to the mine shaft was a minefield of decaying sticks of dynamite. Debris hanging on the shaft walls was poised to collapse.....After 2 days of probing to a depth of 450 feet, (the) County Sheriff called an end to the search for...(the) adventurous teen believed buried under debris after plunging 600 to 1000 feet."

"HIKER KILLED BY TOXIC GAS IN MINE (Denver Post)—A young man died inside a long abandoned coal mine after being overcome by gas... '...There were three kids hiking up there, and two of them went a short distance inside. Only one of them made it out,' the Sheriff said." Postscript: The survivor was not able to help his buddy and was nauseated and dizzy when he staggered out for help. The third man did not enter the mine.

"TWO MEN FOUND DEAD IN MINE (BLM Internal Advisory, Nevada)—Over the weekend, two men, 35, decided to explore a closed mine in Virginia City, Nevada. They were found within 75 feet of the entrance, asphyxiated. They (died) of carbon dioxide poisoning." They had gotten around a fence in order to enter the closed mine and ignored signs that warned of bad air.

"MINER, TEEN HELPER KILLED IN COLLAPSE IN SIERRA COUNTY (Sacramento Bee)—Matthew H., a high school junior, honored his promise to help a friend move rock from the entrance of a gold mine.....Both Matthew H., 16, and Lloyd H., 67, were killed when the mine portal collapsed" (...and buried them under 10 feet of rubble).

REAL SURVIVOR STORIES

Stories with tragic endings such as these are likely to get wide news coverage, whereas only a fraction of the close calls, near misses, and minor injuries are ever reported. For each of the survivor accounts described below, there are many equally frightening experiences that are never reported:

JOSH D. was lost for 5 days in a Utah mine when he became separated from his group, which included his father. In a moment of distraction he lost sight of the others, who were carrying the light, and suddenly found himself in pitch blackness. He tried to retrace his steps in the dark by following the wall with his hand, but somewhere he took a wrong turn and became hopelessly lost. Despite the fact that there were people who were quickly aware of Josh's predicament, it still took 5 days to find and rescue him.

Even a trained professional, like BOB G., an expert on abandoned mines, can be caught by surprise. He was trapped in a mine for 6 days. "In that little black spot where it was in the shadow, someone had dug a 70-foot winze (vertical shaft) that covered the width of the drift (horizontal opening). I stepped off and fell 70 feet." Bob suffered broken ribs and other injuries. Over the next 6 days, as he lay trapped and injured at the bottom of the shaft, gangrene began to develop in an open wound on his arm. After he was rescued, his hand and wrist required extensive surgery.

LESSONS LEARNED

These survivors of abandoned mines would all agree on several things.

First, they were lucky. They made it out alive.

Second, the experience was not worth the risk. For Josh and Bob, days of isolation, hunger, thirst, and fear were only part of the danger they faced. In their desperation, their actions could have resulted in a tragic ending.

Third, warning signs and fences should be taken seriously. Just as important, the lack of a sign does not indicate a safe mine. In many cases the victims had to get over or around fences, break locks, or remove gratings or other barriers to enter the mine that took their life. All mines must be considered dangerous. But where signs and fences have been placed, they are there because a dangerous situation is known to exist. Removing or vandalizing signs and fences could result in injury or death to those who stumble across the mine in the future.

Finally, the best philosophy around abandoned mines is:

STAY OUT
AND
STAY ALIVE.

FOR MORE INFORMATION

Visit our Abandoned Mine Lands website at:
http://www.blm.gov/narsc/sites.html

or contact your nearest BLM office. For office locations and information on other BLM programs, visit our BLM web site at:
http://www.blm.gov

What should you be concerned with at this site?

U.S. Department of the Interior
Bureau of Land Management

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