

# Anvil Points Mine



July 2007

The Anvil Points Mine was opened in 1946-47 by the federal government. It was one part of the Anvil Points Research Facility, which occupied 365 acres of land. It included the underground mine, a crushing plant, a demonstration retorting plant, refinery, and housing units. The facility was owned and operated at various times by the U.S. Bureau of Mines, the Colorado School of Mines, the U.S. Naval Reserve, and the U.S. Department of Energy. The facility was decommissioned in 1984 by the Department of Energy as commercial interest in oil shale research had declined. By 1986, the housing, plants, and associated structures were demolished and removed. Today all that remains is the mine and the road infrastructure.

The Anvil Points Mine is located about 9 miles west of the city of Rifle, Colorado, high up on the steep slopes and sheer cliffs of the Roan Plateau. The mine sits at an elevation of 8,200 feet, rising over 3,000 feet above I-70 in the Colorado River valley to the south. The road traverses six sharp switchbacks to the mine, climbing at an impressive 10 to 14 percent grade for 6 miles, and is cut into shaly talus that is susceptible to sliding. In places steel cribbing has been installed to stabilize the talus slopes.

This is our journey up the road and into the heart of the mine and back down again.





About a mile north of I-70 the pavement ends. We are at the base of the Roan Plateau. The surrounding terrain is being heavily drilled for natural gas. The drill pads are being spaced at 5 acre intervals, one of the most dense spacings ever allowed in the U.S.

Elevation: 5,600 feet



RWF42-10  
COC45491  
7839733



RWF42-10  
COC45491  
7839733





**These next few photos are taken at the “Boneyard,” an area that we may use to stage the transfer of pallets from the one-ton pickups onto the large flat-bed trailer.**



**Elevation: 5,900 feet**











Mine







There were several wells currently being drilled on the side of the road.

Elevation: 5,950 feet



**DANGER**  
HIGH VOLTAGE

**DANGER**  
HARD HAT AREA

**CAUTION**  
NO OPEN FLAMES OR SPARKS PERMITTED IN THIS AREA

**CAUTION**  
AVOIDANCE OF SUSPENDED LOADS

**CAUTION**  
WATCH YOUR STEP

**HEAR YOUR SAFETY BELT**

**CAUTION**  
HEARING PROTECTION REQUIRED

**NO SMOKING**

**DANGER**  
ADVANCED PERSONNEL ONLY

**CAUTION**  
LOW HEAD ROOM

**NOT WORK HERE! EQUIPMENT BEING REPAIRED IN THIS AREA**

How many warning signs can you read?



**DANGER**

**HIGH VOLTAGE**

**THINK**

**SAFETY**

**CAUTION**

**HEARING PROTECTION REQUIRED**

**DANGER**

SAFETY GLASSES, SAFETY SHOES, HARD HATS & HEARING PROTECTION REQUIRED BEYOND THIS POINT

**DANGER**

**HARD HAT AREA**

**NO SMOKING**

**CAUTION**

100% TIE-OFF REQUIRED WHEN WORKING 6' ABOVE DECK OR RIG FLOOR

**DANGER**

TOXIC/HAZARDOUS MATERIALS USED ON THIS LOCATION

**DANGER**

**AUTHORIZED PERSONNEL ONLY**

**CAUTION**

**WATCH YOUR STEP**

**CAUTION**

**BEWARE OF SUSPENDED LOADS**

**CAUTION**

**LOW HEAD ROOM**

**CAUTION**

EYE PROTECTION REQUIRED WHEN CHIPPING, GRINDING, CUTTING, OR DRIVING WITH A HAMMER

**WEAR YOUR SAFETY BELT**

**HOT WORK PERMIT REQUIRED WHEN WORKING IN THIS AREA**











# Locked Gate

## Elevation: 6,200 feet





**The Roan Plateau contains the thickest deposit of the Green River Formation, an Eocene geologic formation that records the sedimentation in a series of intermontane lakes.**





**In this area the formation is over 3,000 feet thick!**







**The Anvil Points mine is in the Mahogany oil-shale zone of the formation. The Mahogany zone is a unit of high grade oil shale, at this location about 100 feet thick. This zone forms the cliffs at the rim of the plateau.**









**You can clearly see how close this drill rig is to the mine road.**





**This section of road was carved into shaly talus that is prone to sliding**





This section of road was carved into shaly talus that is prone to sliding.

Mine







Rifle, CO



Gas Wells!





Elevation: 6,800 feet









Elevation: 7,400 feet











Rifle, CO



Colorado River















Elevation: 7,900 feet









**In two different areas, steel cribbing has been installed to stabilize the talus slopes. Some of the steel crib beams are strongly bent, indicating downslope movement of loose talus behind the cribs. If the cribbing should fail, the mine road could be blocked and substantial repair could be required to reopen the road.**







10 feet













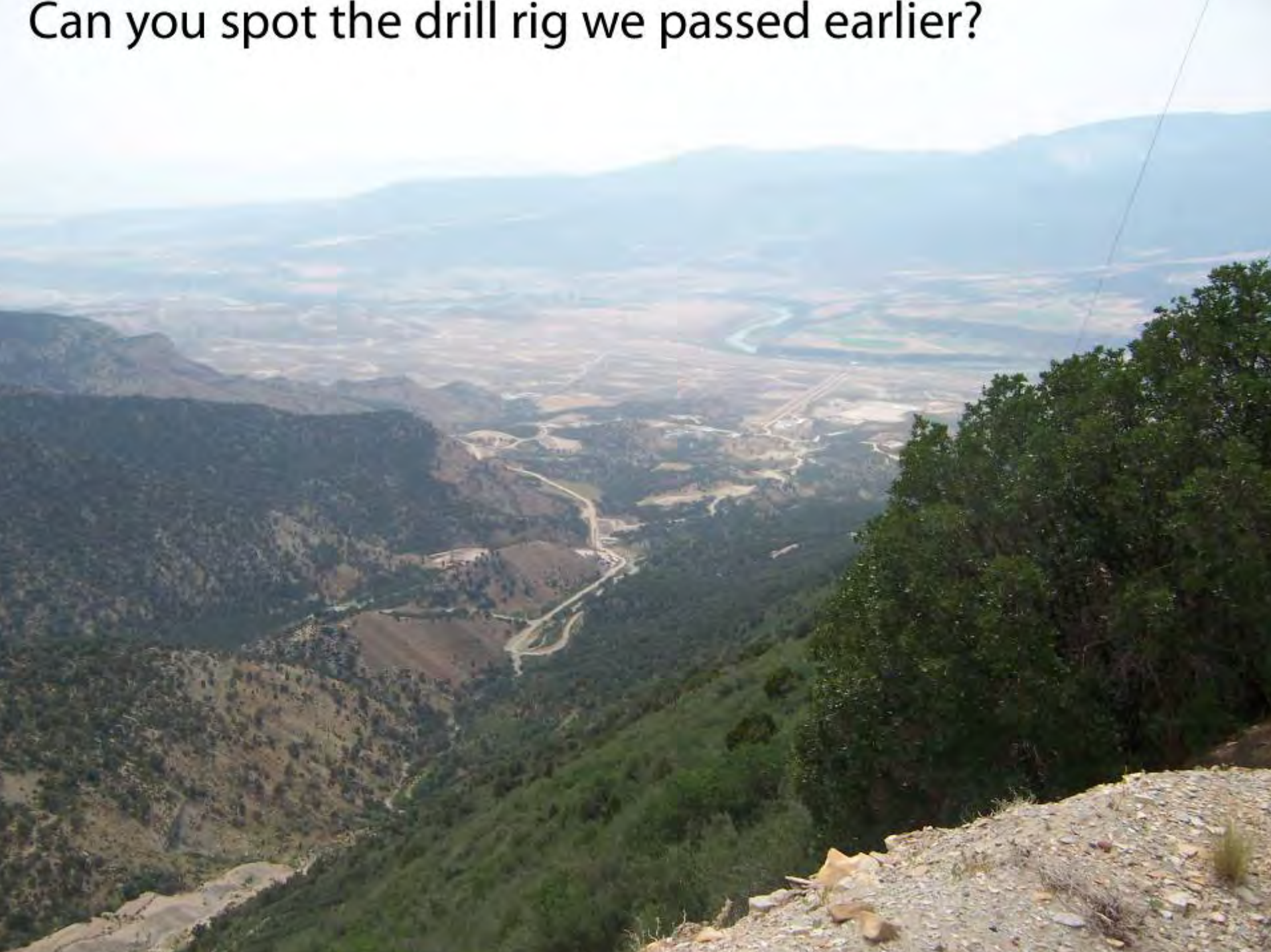


**“Anvil Points”**





Can you spot the drill rig we passed earlier?

















































# Battlement Mesa









Adit 2















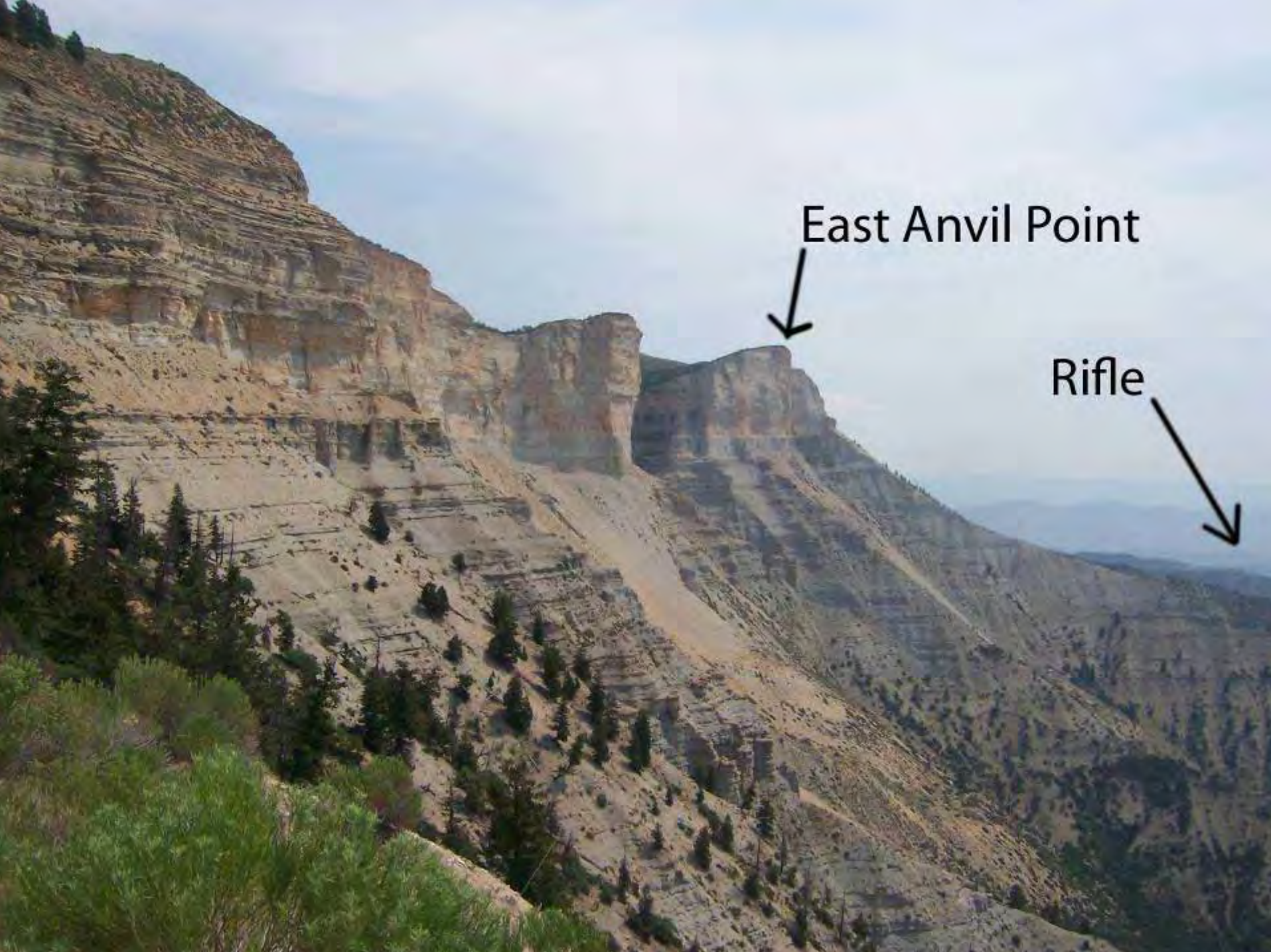




Rifle



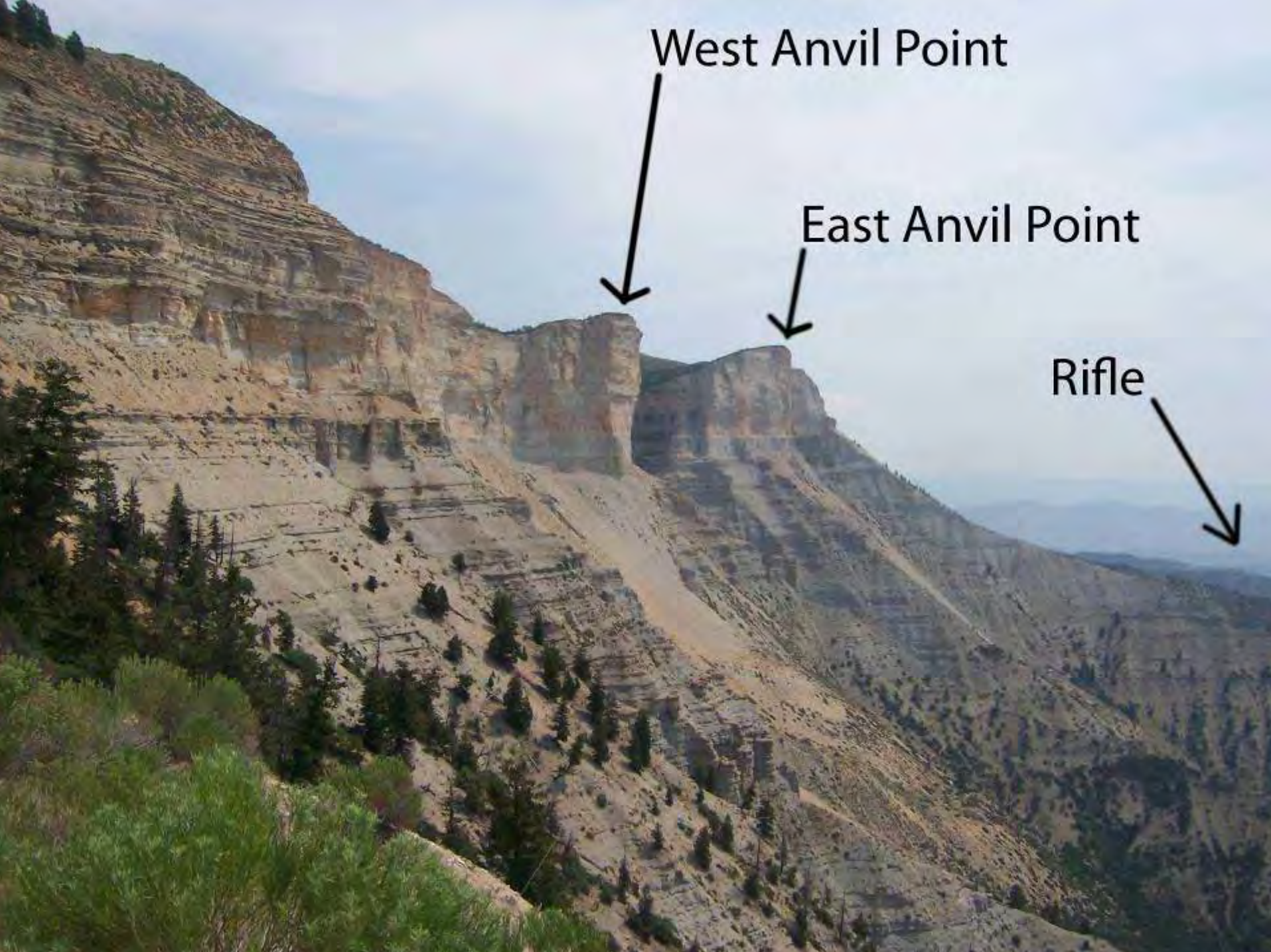




East Anvil Point

Rifle





West Anvil Point



East Anvil Point



Rifle

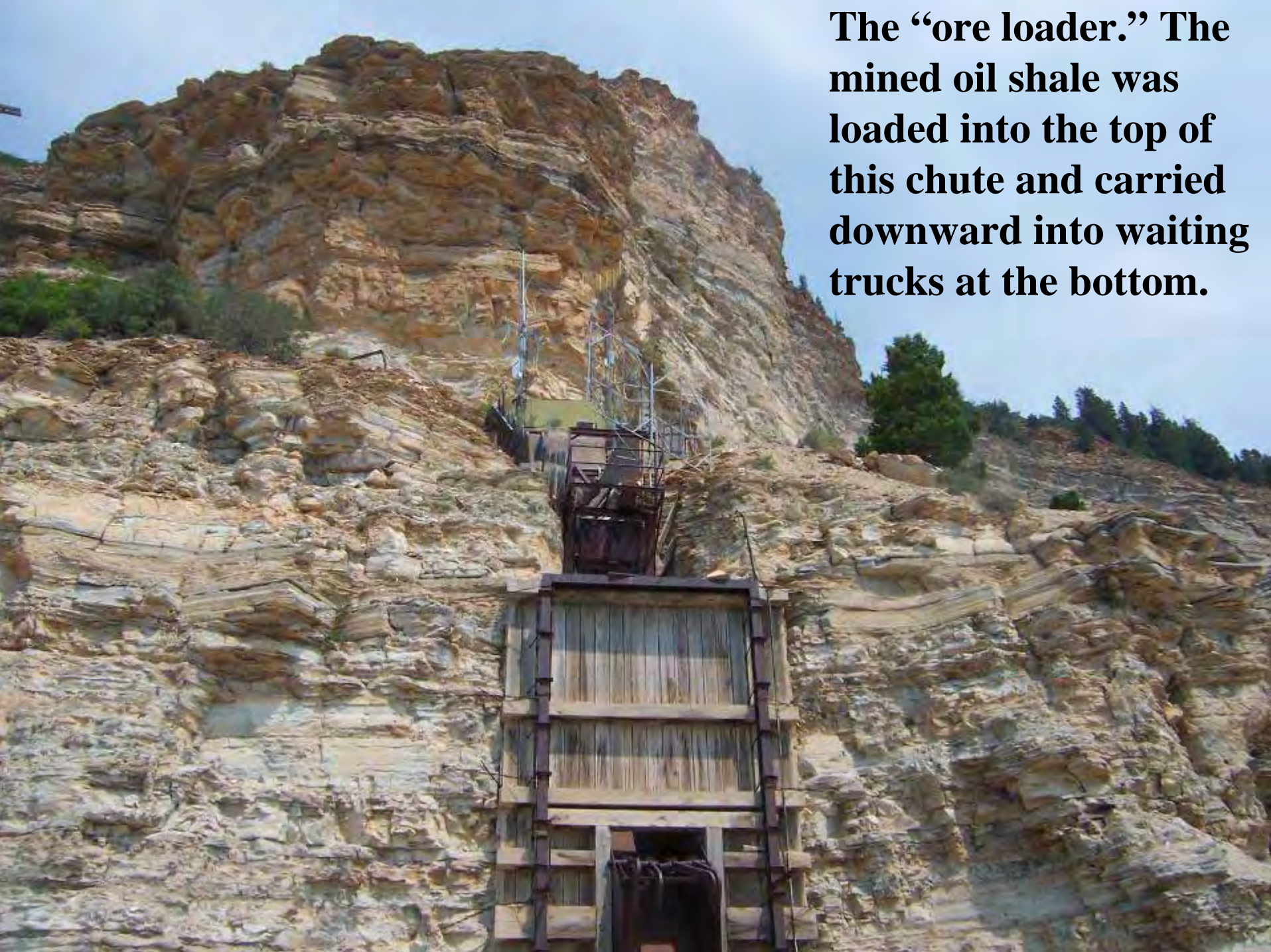








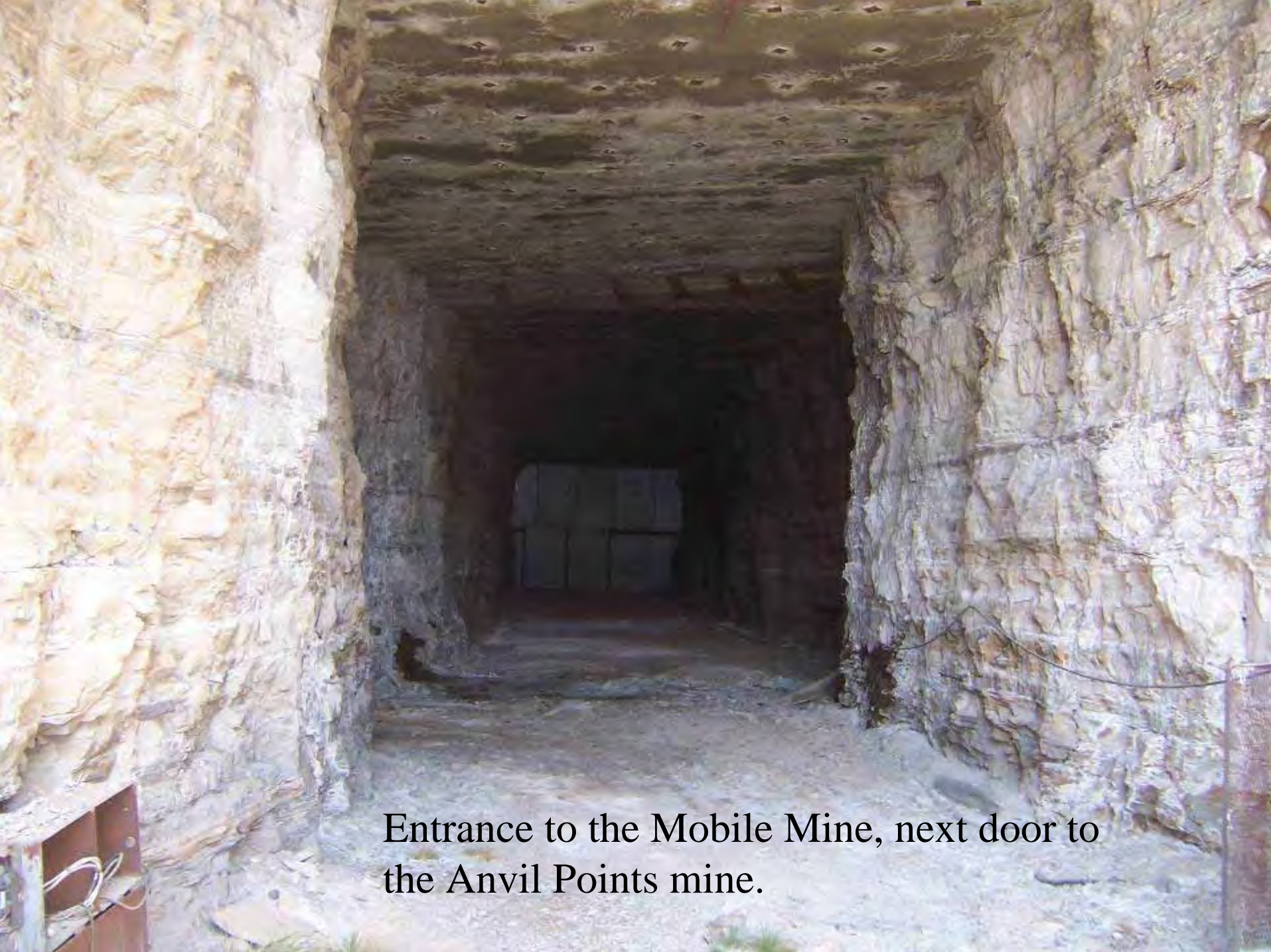
**The “ore loader.” The mined oil shale was loaded into the top of this chute and carried downward into waiting trucks at the bottom.**











Entrance to the Mobile Mine, next door to the Anvil Points mine.













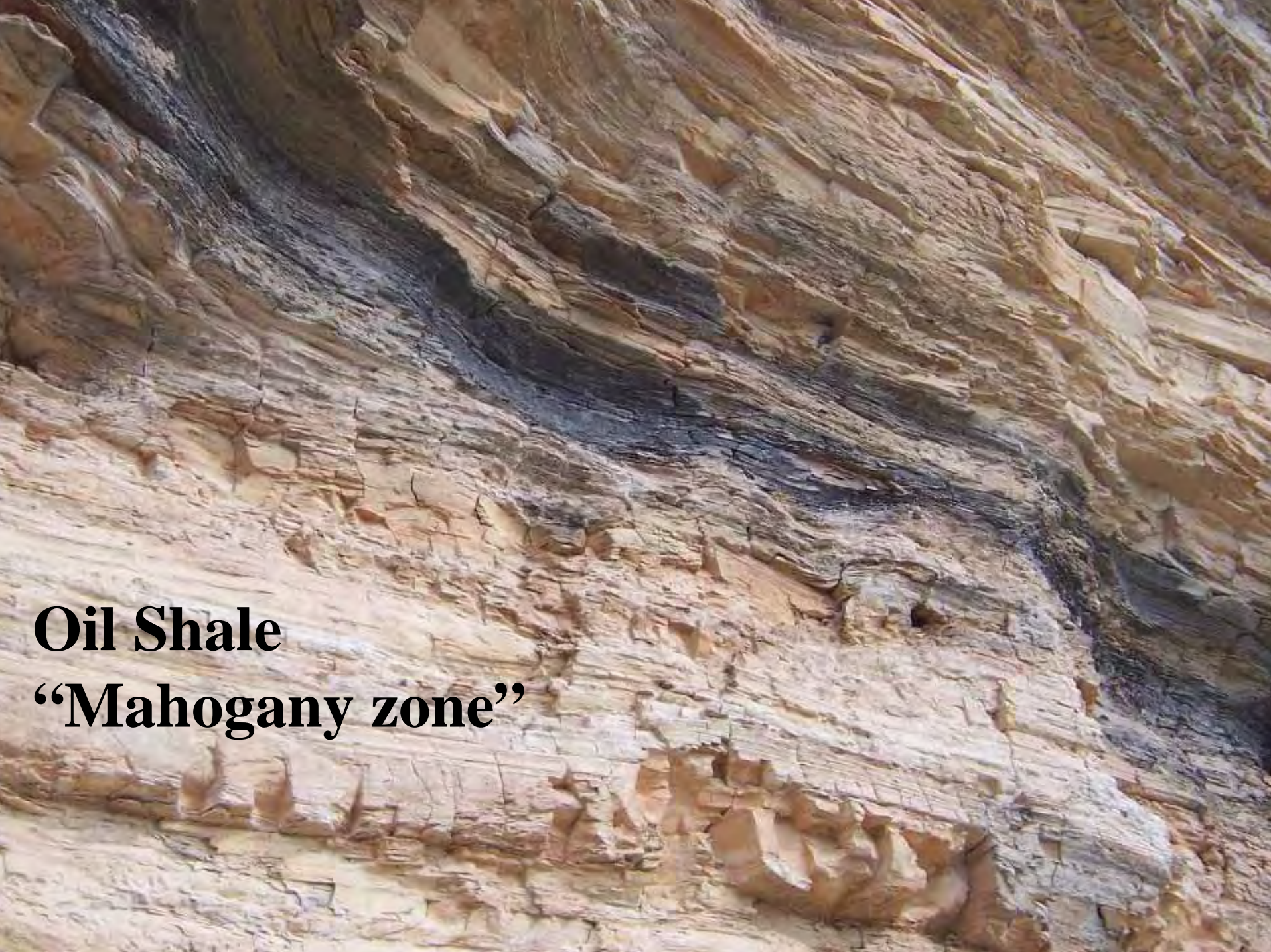












**Oil Shale**  
**“Mahogany zone”**



All of the light colored spots in this valley are natural gas well pads

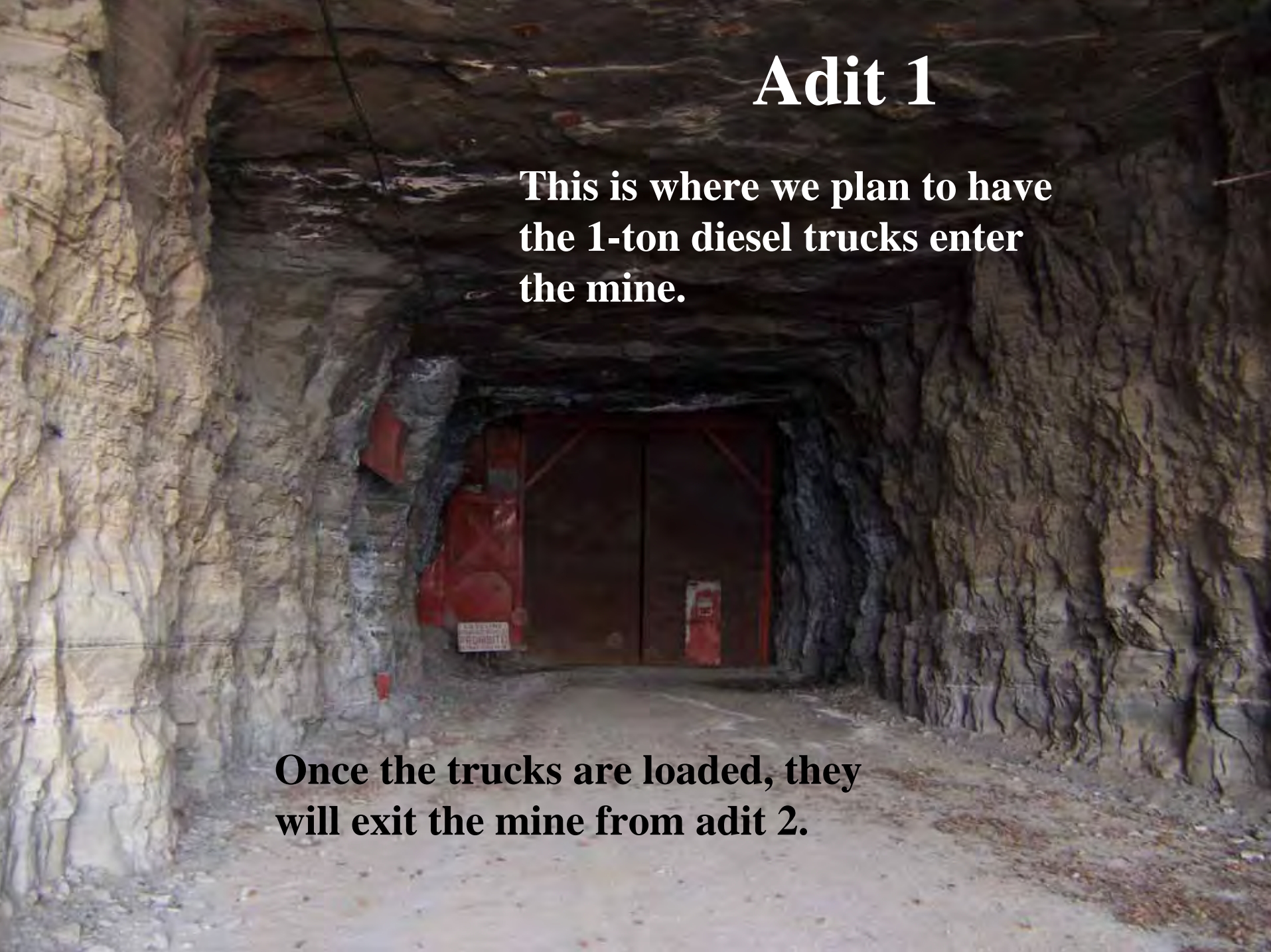




# Adit 1

**This is where we plan to have the 1-ton diesel trucks enter the mine.**

**Once the trucks are loaded, they will exit the mine from adit 2.**





ADIT 2





Elevation: 8,200 feet











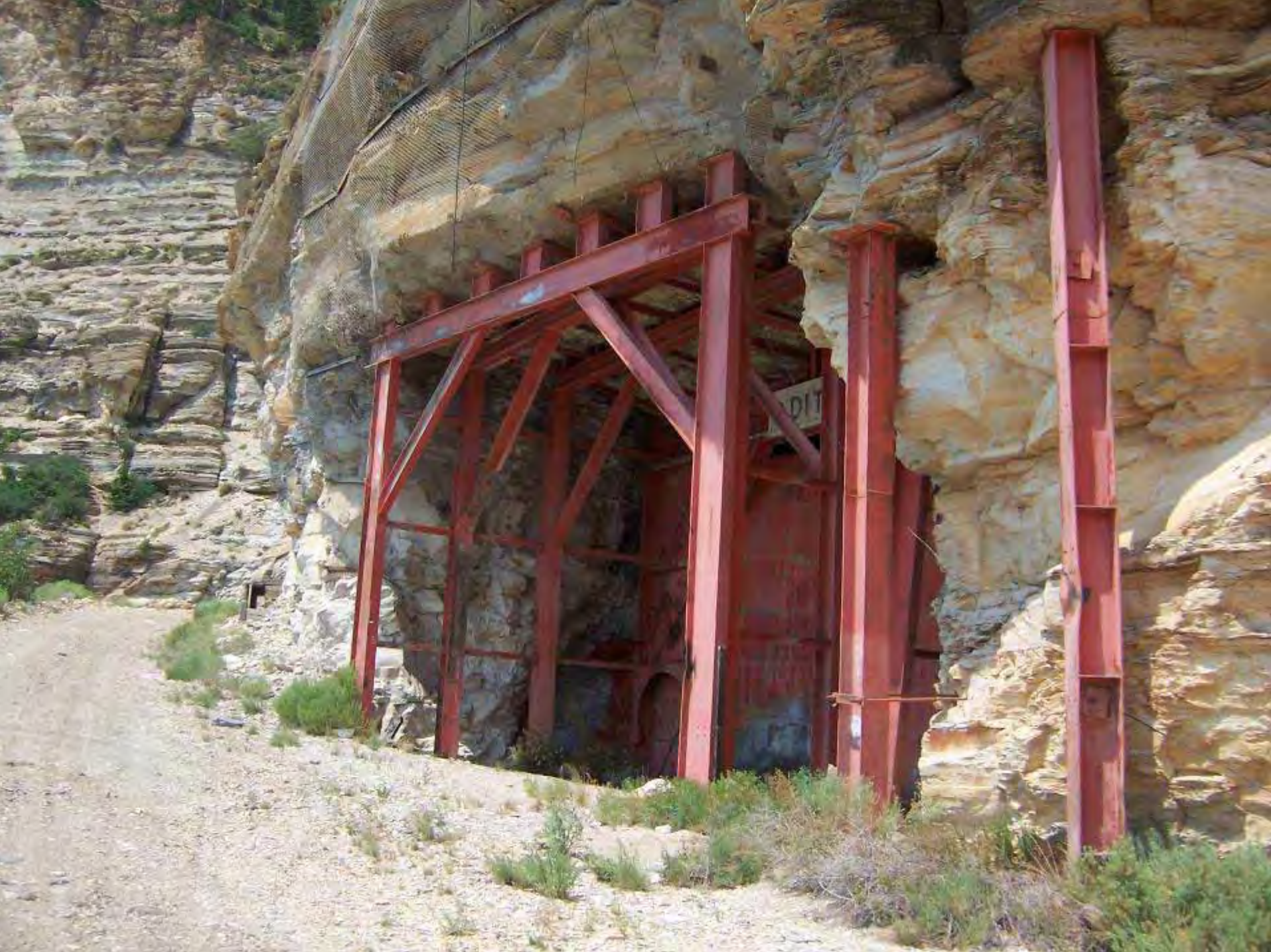
I-70





ADIT 2









**The doors in Adit 2 are broken, allowing anyone access to the inside of the mine.**





**Oil shale is mostly dark brown to black in color. But when exposed in an outcrop, it rapidly weathers and loses its color.**









HIGH VOLTAGE

NO OPEN FIRE

HIGH VOLTAGE









ADIT 3











Communication Tower





A photograph of a mine entrance cut into a rock face. The entrance is framed by dark wood and has a chain-link fence in front of it. The rock is light-colored and layered. There are some green plants at the base of the entrance. The text is overlaid on the image.

**This is the original entrance to the mine. It is located about 1,500 feet east of adits 1 & 2, directly behind the communication tower.**





























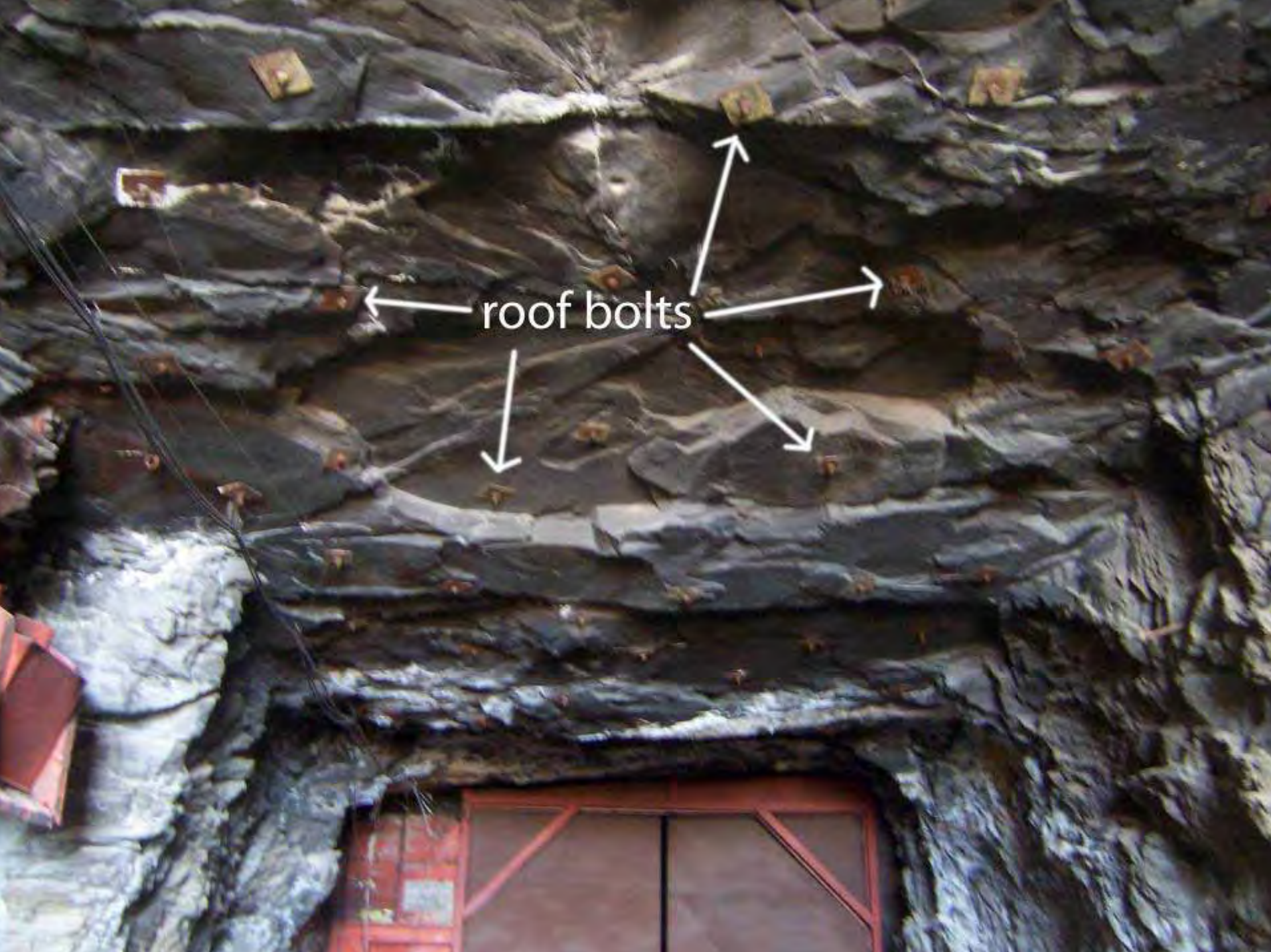












roof bolts















**Inside the mine it was cold and dark.**

**Constant 40° F**

**The only source of light was what we carried in**











The image shows the front of a vintage vehicle, likely a military or government car, with a license plate. The license plate is white with black text and a yellow and white circular emblem on the left. The text on the plate reads "U.S. GOVERNMENT" at the top and "111331" in large digits below. The vehicle's body is heavily rusted and shows signs of age. A round headlight is visible to the left of the license plate, and a large, vertical, ribbed grille is on the right. The overall appearance is that of a well-used, historical vehicle.

U.S. GOVERNMENT  
111331



FOR OFFICIAL USE ONLY  
U.S. GOVERNMENT  
**ENERGY RESEARCH  
AND  
DEVELOPMENT ADMINISTRATION**

9



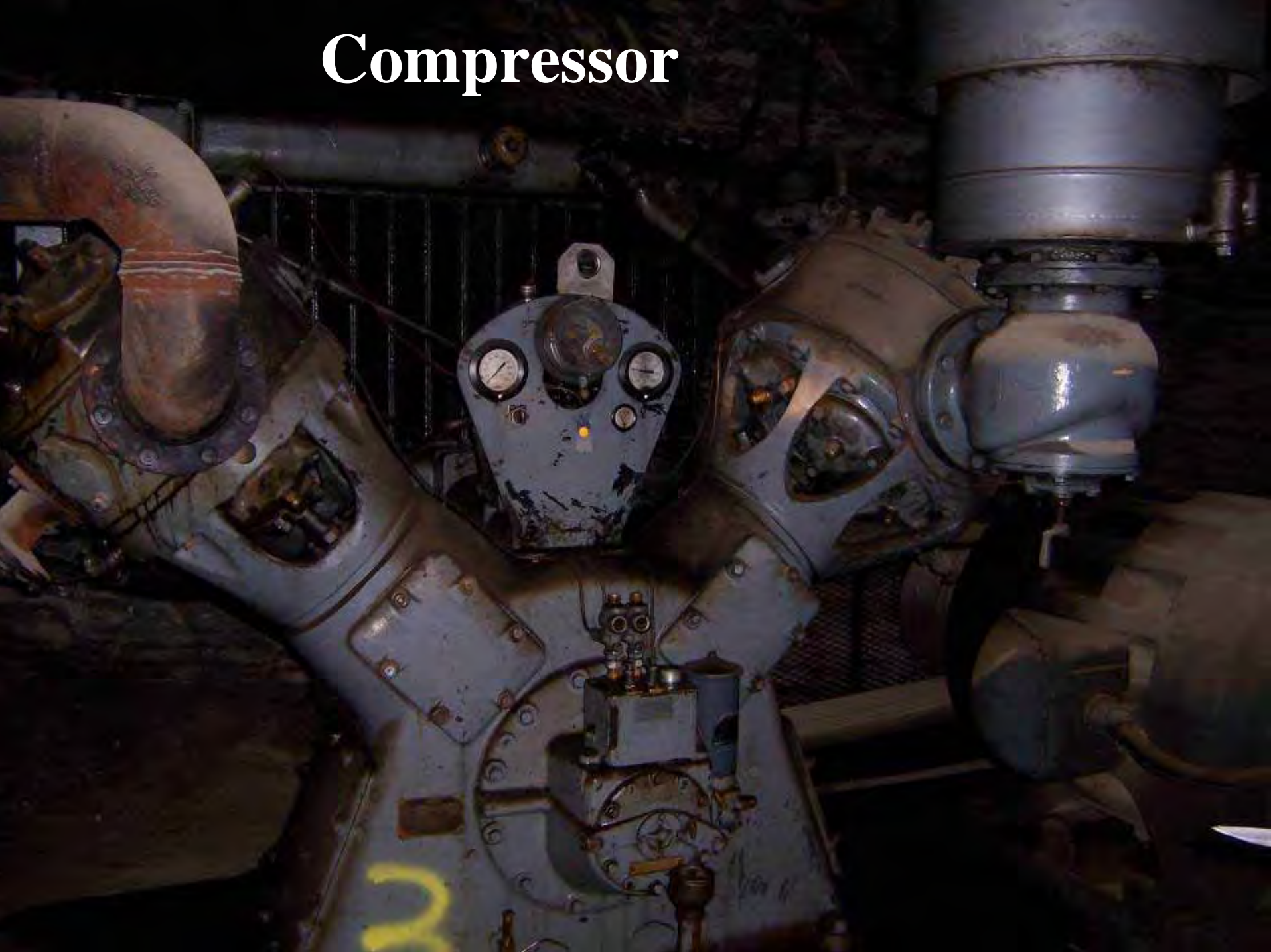








# Compressor









FOR REPAIR USE ONLY  
U.S. GOVERNMENT  
ENERGY RESEARCH  
AND  
DEVELOPMENT ADMINISTRATION

9

















**The U.S.G.S. currently has 725 pallets of drilled oil shale cores and crushed oil shale samples stored inside of the mine. In the mid 1990's it was estimated that the replacement cost (re-drilling) of the samples stored in the mine would be around \$27.7 million.**



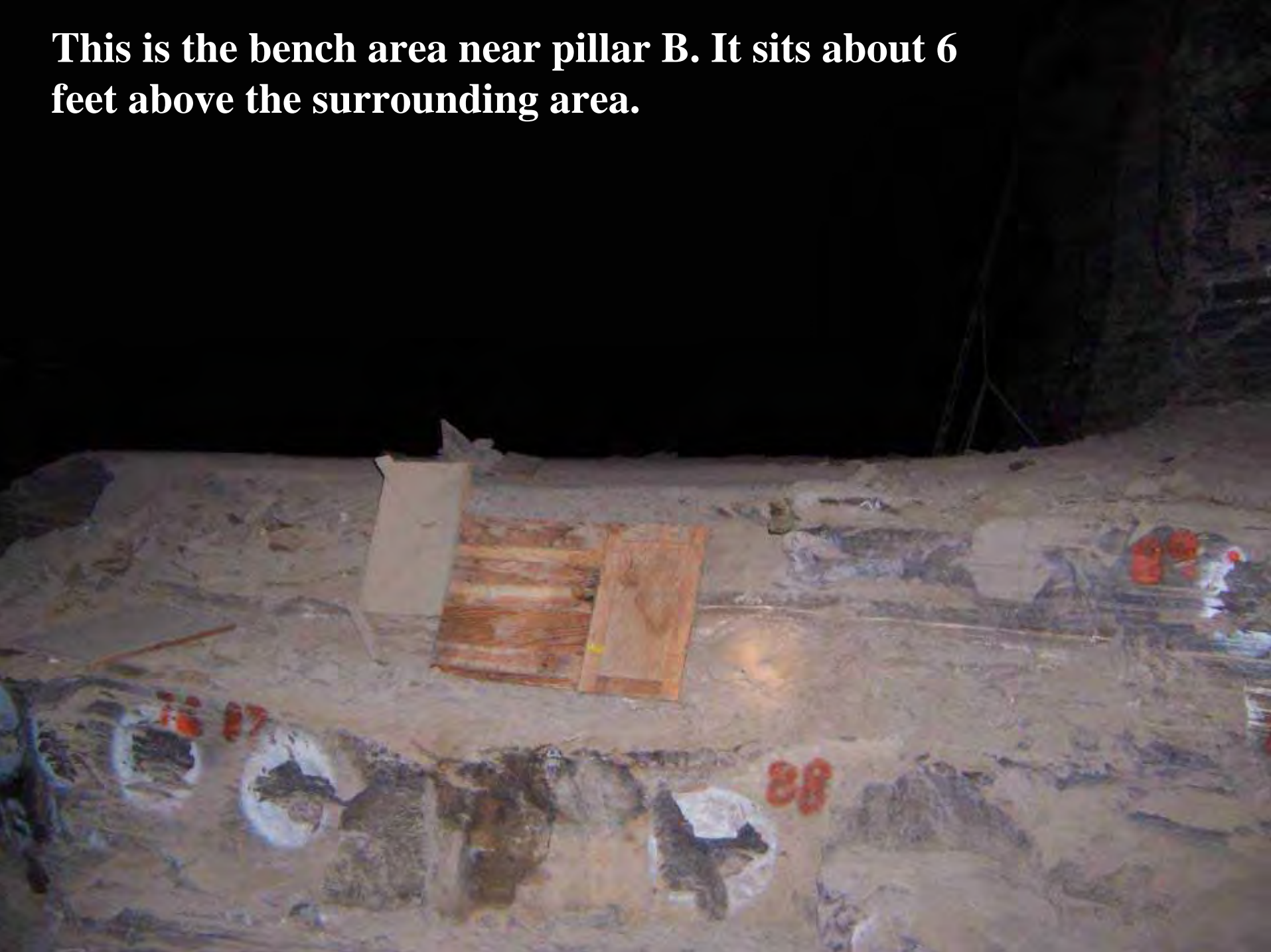


**With economic interest in oil shale beginning to rise once again, the demand for available samples to perform research on is also rising. The oil shale reserves are one of many possible solutions to America's long term energy needs. The major oil companies are all researching methods to economically extract oil from the oil shale. At the Core Research Center, we regularly receive requests for oil shale samples.**





**This is the bench area near pillar B. It sits about 6 feet above the surrounding area.**









Pillar

A









**The mine is huge. The area that the pallets are stored in is 22,750 square feet, and is only a small portion of the mine. The ceiling in the mine sits at about 40 feet above the floor.**







Handwritten label on the top pallet, partially obscured by plastic wrap. The text is illegible due to the glare and angle.

Handwritten label on the rightmost pallet, partially obscured by plastic wrap. The text is illegible due to the glare and angle.

Handwritten text on the side of the middle pallet, possibly indicating quantity or date. The text is illegible.

Handwritten text on the side of the middle pallet, possibly indicating quantity or date. The text is illegible.

Handwritten text on the side of the middle pallet, possibly indicating quantity or date. The text is illegible.



**Over the years, people have broken into the mine and vandalized some of the pallets**





I don't know what they expected to find...





**...but they must have been disappointed when all they found was some oil shale cores.**







**DANGER**  
**KEEP OUT**



**This is an exit to the  
Top of the plateau.  
It climbs up over two  
Hundred feet to the  
Upper portal.**

























The inside of the mine was a cool 40° F.  
Outside in the sunlight the temperature was  
around 95° F.























**DANGER**  
**KEEP OFF**  
**KEEP OUT**





































**The End**



Photos taken by Joshua Hicks

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