

## Navajo Nation Reclaim AML In Monument Valley

Located within the Navajo Nation, along the border of southeastern Utah and northeastern Arizona, is the magnificent Monument Valley, one of the "Seven Wonders of Navajoland," a breathtaking view of majestic sandstone masterpieces towering 400 to 1,000 feet. For hundreds of millions of years, materials slowly eroded from the early Rocky Mountains, leaving alternating layers of soft and hard rocks, slowly revealing the natural beauty of what is known today as Monument Valley.



Thousands of tourists from all continents come to view the overwhelming landscapes. The beautiful rich red valley is surrounded by miles of deeply cut mesas and buttes, shrubs, trees, windblown sand dunes, sandstone uplifts, benches, and talus slopes that make up the majestic view. The "Winter Olympics 2002 Torch Relay" was showcased in the Monument Valley, attracting more than 5,000 people on February 4, 2002. Monument Valley is used as the backdrop for numerous commercials and movies, such as *Forest Gump* and John Wayne's movies.

Nonetheless, among the majestic masterpieces, uranium deposits were discovered in the early part of the twentieth century. From 1942 to 1944, during World War II, many exploration and mining companies employed Navajos to mine the Monument Valley area for vanadium (a base product needed for the manufacture and hardening of steel). Uranium mining peaked with the realization that uranium deposits on the Navajo Nation were abundant and in demand. Uranium production increased significantly after the war, spurred on with the manufacture of atomic energy in 1948. About 767,166 tons of uranium ore were processed at the Monument Valley Uranium Processing Mill, which was operated by Vanadium Corporation of America from 1943 to 1964.

After the uranium ore was taken in the early years, companies left the mines, exposing both physically and environmentally hazardous mine features (portal, vertical shaft, highwalls) and low-level radioactive protore and waste materials that posed health, safety, and environmental haz-

ards. For more than 40 years, the wind and water carried these harmful mine wastes/dust down the washes and into the valley floor. It was not until 1978 that the Navajo Nation approved the Navajo Reclamation Code to begin the long process of reclaiming the AML sites in an effort to restore Mother Earth and to protect the health and safety of the Navajo people, livestock and wildlife.

Among the approximately 1,100 AML sites inventoried on the Navajo Nation, 82 abandoned mine sites were within the Monument Valley area. Twenty-six AML sites will be completed in April 2002. The reclamation involves a total of 126,905 bank cubic yards (bcyds) of earthwork. The Monument Valley 4 AML Project involves the excavation of about 106,055 bcyds of low level radioactive mine waste and backfilling of abandoned portals, vertical shafts, highwalls, rimstrips, pits, and a subsidence. The erosion potential was minimized by compacting earthwork and constructing ditches



The cardboard boxes that the polyurethane foam (PUF) is packed in are utilized to create a retaining wall for the PUF when activated.