

## Dine Citizens Against Ruining our Environment

A brief history of uranium mining on the Navajo Nation:

Like oil, gas and coal, uranium was mined on the Navajo Nation before the twentieth century. Initially, uranium's value was primarily limited to its use in coloring glass. After the work of the famed scientists Marie and Pierre Curie, uranium gained prominence as a source of radiation for X-ray photography and as a cancer treatment. Uranium was likewise gaining popularity in mixture with phosphorescent materials for luminous artifacts. Vanadium, an element used in the hardening of steel, and often found at sites near uranium sources, was also mined in the early part of the twentieth century from sites on the Navajo Reservation. During the early 1930's, richer uranium sources were discovered elsewhere in the world. Later that same decade, new federal mining regulations allowed tribal governments to put sites up for bid and to negotiate mining contracts, although the secretary of the interior still retained final authority for approval.

Throughout the 1930's, vanadium mines became increasingly common on the Navajo reservation as steel fabrication was stepped up for the war effort. As World War II raged on in Europe and the Pacific in the early 1940's, the development of nuclear weaponry through the top secret Manhattan Project carried the awareness of the importance of uranium □ and Navajo uranium mines □ to the highest levels of government. Various experimenters during the early war years had discovered that Uranium 235, a light isotope of Uranium (whose atomic weight is normally 238), is an extremely unstable element, and a good candidate for nuclear fission. Representatives of the Manhattan project personally visited sites in the Carrizo mountains, just north of the Lukachukai mountains, to examine the quality of deposits. While thought to be vanadium mines during the secret days of the Manhattan project, sludge from these mines was being purchased to fuel nuclear fission. This site, and many others like it on the Navajo Nation, soon became important sources of Uranium for the American war effort, both during WWII and the Cold War.

Din□ men were enlisted to support the country's war effort, not only as soldiers or the now famous "code talkers" in the South Pacific, but also as miners and millers of Uranium. Peter Eichstaedt, whose book "If You Poison Us", chronicles the days of mining on the Rez. In this statement he points out hazards of mining under the conditions that prevailed on the Navajo Nation:

"In the uranium mines, sensitive lung tissues were constantly subjected to small but steady doses of radiation. These small, steady doses have recently been found to be more likely to cause cancer than a single heavy dose of radiation. When penetrating radiation strikes genetic material, a cell is damaged. Normally, damaged cells die and are replaced by new cells; however, sometimes the injured cells survive but are incorrectly repaired. This leads to mutations and, sometimes, cancer." (p. 49).

Few of the mines had ventilation in the first ten years of operations. Workers ate underground, and drank the water that dripped from the walls. In 1949/50, an engineer for the public health service found that Navajo miners were being exposed to large amounts of potentially harmful radiation. Miners were being exposed to

"from twice to nearly ten times the allowable amount of radiation by today's standards. In the worst cases, they were exceeding allowable weekly doses in less than one day, and were reaching total annual doses in just a week." [Henry N. Doyle, memorandum, "Survey of Uranium Mines on Navajo Reservation, November 14-17, 1949, January 11-12, 1950].

To make matters worse, the poisonous effects of radiation weren't limited to the men who labored in the mines. Miners brought the radioactive dust home to their families on their clothes. Families living near the mines used discarded rocks, which also contained radioactive elements, to repair or build homes. This posed a second, serious threat to the health of Navajo people. As Eichstaedt points out: "While breathing radon daughters (unstable isotopes resulting from the decay of radon gas) was one of the grave dangers of uranium mining, a second dangerous problem was the dust from the rocks."

Mill tailings (debris resulting from the conversion of crude uranium into yellowcake) are highly radioactive, and many are still left untreated in many areas on the Navajo Nation. These contain many harmful nuclides, including radium 226 (which has a half life of 1630 years, and decays into radon gas) which is especially dangerous, and due to its solubility represents a danger of leaching into groundwater. Groundwater around a consolidated pile of mill tailings near Shiprock, NM (the largest populated community on the Navajo Nation) has been found to be radioactive, for instance, even though fairly 'extensive' measures were taken to protect the tailings from rain runoff.

One study has found that cancer rates among Navajo teenagers living near mine tailings are 17 times the national average. Elsewhere throughout the Navajo Nation, a large number of open-pit uranium mines have been left untreated. They have subsequently filled with water, and now often are used as watering holes by livestock. A DOE finding from the 1980's reports that the problem is "not widespread" and poses no "current" threat to uses. Eichstaedt, not to mention countless Navajo families, asks how this report could possibly have reached such a conclusion. Presently, it is unclear how far uranium radiation has spread in the ground water of the region. Nor is it clear when the problem will reach a threshold wherein it is considered to pose a threat to the local population. DOE, Eichstaedt reports, has been extremely "reluctant" to publicly release answers to such questions.

The effects of this widespread contamination may go beyond the borders of the Navajo Nation. After the death of John Wayne, Hollywood's most famous cowboy hero of the Wild West, there was considerable speculation that his terminal cancer may have been the result of radiation exposure during filming in Monument Valley. The Navajo Nation is visited by millions of tourists each year, many of whom have no idea of the levels of radiation that still haunt many of the beautiful areas of the Dine Bikeyah.

In the meantime, Navajo people continue to face unrelenting exposure to the Cold War's legacy. One study estimates that over 600 Navajo homes emit levels of radiation that should make them uninhabitable. Other evidence suggests that the study is out of date and that number might be much higher. Built from materials scavenged around mines and milling sites, these homes are death traps for the living. Funds are needed for education, removal and rebuilding.

The most important in all this history is simply this: Navajo people were never informed of the hazards to their health that the mines posed. Hundreds of Navajo men gave their lives for the American war effort without ever leaving home soil. At the same time, families were similarly exposed to the dangers of radiation. Now, Navajo victims of radiation poisoning are asking accountability from the US government, much the same as the people of the Marshall Islands have demanded justice for the destruction of their homelands, much the same as scores of victims of secret government radiation experiments are demanding justice for their ruined lives.

<http://web.archive.org/web/20060126085612/dinecare.indigenousnative.org/history.html>