NUCLEAR RACISM: URANIUM MINING ON THE LAGUNA AND NAVAJO RESERVATIONS

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Abstract

The world's largest open uranium mine sits on the Laguna Pueblo in Western New Mexico.[1] The Laguna Pueblo was one of the largest sources of uranium from when it opened in 1953, to when it closed in 1982. Uranium mines proved essential to the successful creation of the atomic bomb and nuclear reactors.[2] They were also key components of the health problems and the environmental effects that uranium radiation inflicted on the Laguna Pueblo and its people. This paper will discuss the uranium mines of the Laguna Pueblo and the Navajo Reservation and the relation of these locations to uranium use during the Cold War, the negative health effects of uranium mining, the social implications, and the racial issues surrounding uranium radiation compensation.

1. History

In 1938, on the eve of World War II, Nazi Germany was in the beginning stages of developing atomic weapons.[3] In order to keep pace with German advances the United States government created its own atomic weapons program. In 1942, the United States began the Manhattan Project in Los Alamos, New Mexico to develop the first atomic bomb.[3] The Project established that uranium^{235} was a main ingredient for atomic bombs and the government began to look for areas in the United States where uranium could be mined.[2]

One of the first places that the government turned to was the southwestern United States. Parts of Utah, Arizona, and New Mexico were found to be rich in uranium-ore. Many of these areas (containing uranium) were on American Indian Reservations, including the Navajo Nation and the Laguna Pueblo in western New Mexico.[4] Despite the presence of populations on these lands, the Atomic Energy Commission (AEC) began mining and processing uranium for their nuclear weapons project.

Upon completion of the Manhattan Project, the first atomic bomb was dropped on Hiroshima, Japan on August 6th, 1945.[3] It was not until one year later, on August 1st, 1946, when President Truman signed the Atomic Energy Act that officially created the Atomic Energy Commission that responsibility was taken for the Manhattan Project.[4] The Atomic Energy Act gave civilian control over national nuclear weapons, research, and development.[5] It also gave the government the right to explore, condemn and obtain all lands that contain the existence of uranium by "authorize[ing] the government to buy all the uranium it could find and [giving] it control over the extent to which uranium would be mined or not mined in the United States."[4] The government, consequently, expanded its search for lands rich in uranium and began mining sites located on the Navajo and Laguna reservations.

In 1953 Kerr-McGee Oil Industries and Anaconda Jackpile signed contracts to establish mines and uranium mills in New Mexico. Kerr-McGee opened mines at Shiprock, New Mexico on the Navajo Reservation and Anaconda Jackpile at the Laguna Reservation.[4] Both reservations gave their consent to the development of their uranium reserves in the hope that revenue from the mines would increase economic development. Kerr-McGee's uranium mines remained in business until the late 1970's and Anaconda-Jackpile mines until 1982.[6]

2. Mining Process

Over the thirty years that the two companies mined and processed ore on the reservations many Native Americans were employed by the mines. The mines proved to be the primary sources of income for many individuals on the reservations. In the early stages of the mine development, Native American workers were not paid more than $2.00 an hour for ten-hour work shifts.[4] Later in the 1960's and 1970's, Indian workers were paid $8-12/hr for underground work.[6] Workers were used not only to mine the ore, but also to dig out the pits, transport the ore, and process the uranium in the milling facilities.

The mining process extracted the ore from underground and open mines. Both open and underground mining required the use of explosives to loosen the ore from the earth; explosives were used to create shafts and "ballrooms" for the underground mines and to clear away large debris and chunks of land for the open mines. At the Jackpile site on the Laguna reservation, blasting was required three times a day for each type of mining.[6] For both the open and underground mines, explosions occurred every eight hours. Blasts were periodic throughout the day and the workers were constantly entering into recently blasted areas to collect pieces of ore. One worker recalls, "When they did the blasting, they inhaled the smoke and dust…I fainted twice and they had to drag me out."[4] The conditions around the explosions were very dangerous above

ground, but were far worse in the underground mines. Conditions inside of the mines were atrocious. Ventilation was poor and dust from the explosions was always present in the air. Those who worked underground were subjected to dimly lit tunnels:

"It was not until 1963 that he [Wilson Benally] was given one of those masks…He was also given a helmet with a lamp. Before that, he used lamps that provided light from a slow-burning powder."[4]

Many, if not all, of the workers were not informed of the health hazards from working in the mines and around the milling facilities. In the mines, few workers wore masks to protect their air passageways and ended up inhaling the dust: "The dust stayed in the air a long time…you could smell the gunpowder. When you blew your nose, it was yellow dust."[4] Many other dangers existed in the mines. There was a constant danger of debris falling from the ceilings and hitting the miners:

"When he [Dan Benally] was in the mines, the rocks collapsed on him. One of the rocks tore the skin off his side and stomach, too. They had to do a skin graft. He lost part of his eyesight."[4]

The underground workers worked some of the longest shifts, most often from seven in the morning to eight at night and were kept underground for the entire duration, except for an hour break for lunch.[6] It was necessary to keep the uranium mines open constantly to find as much ore as possible.

Driving the pieces of uranium-ore from the mines to mills was also dangerous. The combination of poorly made roads and the poor conditions of the trucks made it very likely for accidents to occur. The trucks had no starters or brakes, and the workers had to start-roll them.[4] The roads that connected the mines to the milling facilities were poorly made, and were often very rugged and bumpy. Some workers were paralyzed when the trucks flipped over and crushed drivers.[4]

Once at the mills the process was no so safer. The ore went through a refining process once it was transported to the milling facilities. The milling separated the uranium-ore from other minerals and rocks. Giant grinders and crushing belts were used to break down the ore into a finer substance.[6] The ground ore substance was bathed in sulfuric acid, which separated out the uranium. The end product of the milling process called yellowcake is uranium oxide (U^3O^8), a yellow-colored powder.[2] Yellowcake was the beginning process of enriching the uranium to the desired uranium isotope, U^{235}. In the mills, loading the ore onto the crushing belts was dangerous because workers had to manually shovel ore. Sometimes the shovels would get caught in the belts that exerted such force, that workers would be dragged into the belts themselves. Many workers lost arms as a result of this.[6] The air in the mills was toxic, with powdery uranium everywhere in the buildings. When the workers had to clean up the dust, they only had dust scrubbers and vacuums, and without masks, often inhaled much of the dust: "We worked with acids, ammonia…this was all dusty. There were fumes in there. It really stunk. There was no ventilation. This was a danger, but no one ever told us at the time."[4]

3. Health Effects

The knowledge of health effects from radiation comes from three main sources: the bombing of Hiroshima, the bombing of Nagasaki, and from uranium miners.[2] Uranium emits three types of radiation: alpha particles, beta particles, and gamma photons. The alpha particles are heavy, very short-range particles and though they cannot penetrate skin or clothing, they can be harmful if ingested through inhalation or consumption.[7] The beta particles are light, short-range particles. They can penetrate clothing and can penetrate human skin down to the germinal layer where new skin is made.[7] Beta particles are hazardous to people because high exposure can mutate the skin cells and cause skin cancers or other skin problems; they are also harmful if ingested.

The most serious type of radiation is gamma radiation. Gamma rays are a type of long distance electromagnetic radiation and are the most energetic of all the types. They can travel the longest distance and it takes very dense materials such as lead to stop or slow them.[8] They can penetrate human tissues, even through clothing and protective gear. The energy of the gamma rays creates a double dosage effect; people can ingest gamma ray emitting photons as well as absorb them through the skin and cause radiation exposure to organs.[7] Gamma rays that are derived from uranium also have a very long half-life and remain in the human body many years after a person has had radiation exposure.

All types of radiation can cause lung cancer, other types of cancers, and also damage cells and DNA-structure, which can impair the immune system.[9] The known health risks of miners include silicosis, various types of cancers, and other physical illnesses that doctors have yet to properly diagnose. Wearing protective clothing, such as safety masks, gloves, and protective boots, could have prevented some of the health risks.

Workers suffered from many respiratory complications because they were not properly equipped with protective gear. One worker recalls that, "My lungs are not good. A lot of guys got killed down there…I can't walk a long way. I used to ride wild horses, but I'm not strong enough

now."[4] Many of the respiratory complications workers developed proved to be lung cancers and silicosis.[10]

There were also miners who suffered mysterious symptoms as a result of the radiation. Some experienced odd temperature fluctuations in their legs, going from burning hot to cold chills.[6] Common symptoms among the Native American workers were pains in the legs and the face.[4] Others lost partial vision and had cysts. The mines also affected families of the workers, with many wives and children of miners suffering from unexplainable health problems. One reason for this is likely due to the excess debris from explosions, rocks and other pieces of ore from the mining process called uranium tailings.[2] These tailings were placed in larges piles around the mines, roads, and milling facilities. Some of the mines were created near houses and schools, and many unknowing children played with the rocks of radioactive ore.

Many of the workers were not properly diagnosed or treated for radiation exposure because they relied on the Indian Health Services.[4] It is suspected that the Indian hospitals were told not to treat workers directly for radiation:

"He has the pains, that pain going through his lungs and to the back. He thinks it may be from the uranium. He goes to get treatment, but they [IHS] say there is nothing wrong. But the pain is still there. They told him there is nothing but high blood pressure."[4]

This was done out of fear that the workers would leave the mines if they knew about the radiation they were being exposed to daily.

Many Indians workers would not have worked in the mines if they had known of the health effects:

"He was never told what the things would do to [his] health until recently. If they had told him of the dangers it would cause… he would not have done it. Now he regrets having worked in the mines. He's breaking out in a rash that itches. He thinks it's from the uranium. He had an X-ray two years ago, but they never told him the results so he figures he's OK."[4]

Many worked in the mines for several years and some worked for the entire time the mines were open. Nearly all of those who worked in the mines for long periods of time have experienced severe health problems or have died as a result of the mines.

4. Radiation Compensation Act

In 1990, nearly ten years after the last uranium mine closed on the Laguna reservation, the Radiation Exposure Compensation Act (RECA) was passed by Congress. The RECA provided $100,000 in compensation to uranium miners who developed cancers and other serious diseases during above-ground nuclear weapon tests and underground mining and to the families of deceased uranium miners.[11] However at the time, the RECA did not provide compensation for drivers or uranium mill workers. Even uranium miners who did file a claim met great difficulty in getting compensation and had to go through layers of red tape and bureaucracy.[4]

In order to file a claim in relation to uranium mining, an individual had to have worked in uranium mines at any time during between January 1, 1947 and December 31, 1971.[11] Eligibility was separated into four categories: non-smokers exposed to 200 or more months of radiation exposure developed lung cancer, smokers exposed to 300 or more months of radiation exposure who before 45 years of age developed lung cancer, non-smokers exposed to 200 or more months of radiation exposure who have developed a nonmalignant respiratory disease, and smokers exposed to 300 or more months of radiation exposure who before 45 years of age have developed a nonmalignant respiratory disease.[11] The Attorney General determined if miners fulfilled the eligibility requirements and properly filed a claim; if so, the claimant received $100,000 compensation within one year.

Once the RECA went into effect, the Laguna and Navajo miners began filing claims for compensation. However, there were many barriers that had to be crossed before receiving compensation. A large barrier involved the types of tests that determined miners' eligibility. Dr Louise Abel, of IHS, conducted a study in 1993 that revealed that the type of tests used for determining compensation were inadequate.[4] As a result, the number of miners who qualified for eligibility was drastically lower than the number of people who actually suffered from radiation exposure. The eligibility tests were based on diagnostic tests for black lung victims.

As a result, the number of Indian miners who qualified for compensation was much lower than that of white miners: "Of 516 miners given the seated pulmonary test, only 8.3 % or 43, had a loss of 25 % or more of their normal lung capacity. Forty-three percent of those tested had some lung impairment but not enough to qualify under the RECA."[4] Other difficulties involved in medical eligibility included proving that uranium miners had "non-malignant respiratory diseases" and as a result, most lung cancer patients who did not suffer from "non-malignant respiratory diseases" were not able to establish eligibility for compensation.[11] Of some 549 Navajo miners, only 5 were given compensation.[4]

It was not until July 2000, when the RECA was amended to include uranium ore workers (includes mill workers) and ore transporters that substantial progress on the issue was made. The 2000 RECA version included ad-

ditional "compensable illnesses," lower radiation exposure standards, and "modified medical documentation." In 2002, 'technical amendments' were made to the RECA. The most important amendment made was: "All uranium workers diagnosed with lung cancer no longer required to submit evidence of 'non-malignant respiratory diseases.'"[11] As a result of this change, more workers were able to receive compensation.

5. Discussion

The Laguna and Navajo uranium workers suffered greatly under United States government policy. Recently, the term "nuclear racism" has been coined to categorize what the Laguna and Navajo people have experienced; it is defined as: "the operation, siting, or attempt to site a nuclear facility within or near a community of color."[12] Serious social implications of the uranium mining still reside in the affected communities. During the time of the mines, alcohol and drug abuse surfaced, along with spouse and child abuse.[4] Particularly on the Laguna Pueblo, the peak production years of the mines were also peak years for suicides and dropout rates.[4] In the mid 1960's and 1970's with a sudden increase in the uranium workers' salary, the Laguna workers suddenly had more money than they ever experienced; this resulted in a cultural shift away from the traditional ways of the pueblo towards modern mainstream American culture and as consequence of this shift, a loss of native language.[6]

Currently, the Lagunas and the Navajos are working to recover from the affects of the uranium mines. In April 2005, the Navajo Nation passed the Dine Natural Resources Protection Act banning uranium mining and processing, thus preventing any mining company from creating mine establishments on the Navajo reservation.[13] A group of lawyers and health service workers are actively seeking out Laguna workers to test them for uranium radiation exposure and to make sure those workers get the compensation they deserve.[6] As recently as October 2005, a group of "Post-71" uranium miners have made accusations that the government has withheld health studies that support compensation to workers who worked in the mines after 1971.[14] Both indigenous groups are no longer silent; they are taking action to make sure their voices are being heard. As long as there is forward movement, progress will be made.

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