

Contamination Nation

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“As Navajo people, we are still living the nightmare of past uranium exploration on our lands. We ask that history not be repeated.” Anna Frazier of Dine’ CARE

Introduction

Growing up in Southeastern Kansas, I have been exposed to mining and the ecological impacts mining has created due to the leftover tailings. Areas such as Galena and West Mineral Kansas get their names from mining, and the impacts on the environment are still being felt even though subsurface mining ceased over 40 years ago. These impacts have even led to a site in northeast Oklahoma, Tar Creek, to be listed on the Environmental Protection Agencies list of Superfund sites. Mining practices throughout the world have an extremely poor history when it comes to the dispossession of indigenous people, issues of compensation, and violation of human rights. Not only are people removed from traditional homelands, but their lands are often rendered uninhabitable after the mining process has finished. This paper will focus on mining practices on reservation lands in North America, demonstrate the historical impact that mining has had on tribal groups such as the Lakota of the Great Plains and the Navajo in the American Southwest, examine important laws and cases. Although methods of extracting minerals have been made safer, there is still an impact on the native population as they are being removed from their lands and past atrocities still have not been fairly compensated.

The search for minerals can be traced back to pre-contact times. It was the explorers under the direction of European crowns to look for minerals (gold, silver, etc.) in order to fill the royal coffers. “Institutional contexts in which white contact occurred can be reduced to four: mine, ranch, mission, and military. Much of the expansion into the northern regions of New Spain was motivated by the interaction of new wealth, mostly in the form of precious metals” (Griffen 1983:339). Post-Columbus contact in the New World meant tremendous changes for the indigenous populations. Not only did the introduction of alien pathogens take a toll on the

people, but the ruthlessness of the Conquistadors fueled by their greed for riches conquered the Maya, Aztecs, and Incas in order to obtain wealth and the expansion of the crown. The Maya were elated upon the arrival of these new visitors and may have seen them as gods in their religion and often greeted the new arrivals with riches. Father Juan Diaz’ who sailed on the east coast of the Yucatan in 1518 offers this account, “they brought gold cast in bars...a beautiful mask of gold, a figurine of a man with a half mask of gold, and a crown of gold beads” (Stuart and Stuart 1983:117). To the Maya this was an offering to the gods but the Spaniards saw this as a land of wealth where they could get instantly rich and famous. Conquest led to the Spaniards mining the areas of the Maya and Aztecs using these indigenous people as slaves in the mines. The track record has not gotten much better.

A History of Mining Law and Legislation in the U.S.

Early mining laws and legislation as well as treaties/acts made with individual tribes had a significant impact on the lives of indigenous populations. The 1872 Mining Laws “restricted mining rights for claims located in wilderness areas and national forests” (Zeimer 1998:145). Indian lands were also regulated in the same manner. The Act of 1919 “which provides the authority to grant leases for mining purposes, also established that all mining claims on Indian lands will be located... in the same manner as mining claims are located under the mining laws of the U.S.” (Zeimer 1998:162). “As a result, claims located on land leased from an Indian reservation, like claims located within national forests, lack extralateral rights because the lands have been withdrawn from the public domain” (Zeimer 1998:162). Extralateral rights were those born out of the Apex rule “of mining law that a person who discovers a mineral vein on public land may mine it

whenever it leads from the surface or from the nearest point to the surface” (Lynton 1995:37).

In 1909, Congress passed the first legislation pertaining to Indian lands and mining. “It provides that all land allotted to the Indians may be leased for mining purposes by the allottee for any term of years approved by the Secretary of the Interior” (Anderson 1974:215). This legislation was changed somewhat in 1982 with the Indian Mineral Development Act 25 U.S.C. §§ 2101-2108 that:

specifically authorized individual Indians and tribes to negotiate and enter into non-lease mineral agreements... leases under the act are for a ten year term that can be extended if there is production in which case they continue for as long thereafter as minerals are produced paying quantities (Getches et al. 1998:698-699).

With the discovery of radioactive bearing ores and the processes to convert these into energy or weapons of destruction, laws and legislation were also passed to regulate this new industry and protect national interest. The first of these was the 1946 Atomic Energy Act established to regulate the industry. In 1957 the Price-Anderson Act was passed to “protect the public from nuclear accidents by mandating regulatory standards for private businesses and providing compensation for the public in the event of a nuclear accident” (Kuntz 1997:103). In 1966 the Price-Anderson Act was amended to extend the provisions of the 1957 act another ten years and also provided “for the transfer of all claims arising out of an extraordinary nuclear occurrence to a federal district court” (Kuntz 1997:104). The act was once again extended in 1975 and 1988 with a few provisions amended. With regard to Indian Country the question in Price-Anderson arises “1) whether the Price-Anderson Act provides an express prohibition to tribal court jurisdiction; and 2) whether tribal courts have concurrent jurisdiction over Price-Anderson claims” (Kuntz 1997:107). These questions were posed because of the significant numbers of Native Americans working in and around mines. Price-Anderson has recently been challenged in the U.S. Court of Appeals, Tenth Circuit case of *Kerr-McGee v. Farley* (Kerr McGee v. Farley 1997):

This case involves the scope of the tribal exhaustion rule in Price-Anderson.... Appellants filed a claim in the District Court of New Mexico for declaratory

judgement and preliminary injunction, arguing that the Navajo Tribal Court is without jurisdiction to adjudicate nuclear tort claims against Kerr McGee.

Because of the tribal exhaustion rule emanating from *National Farmers Union Ins. Co. v. Crow Tribe*, 471 U.S. 845, 853 (1985) and the result of *Oliphant v. Squamish Indian Tribe* 435 U.S. 191, 98 S.Ct. 1011, 55, where the court found that the Squamish did not have jurisdiction to try non-Indian offenders for crimes committed on the reservation gave Kerr-McGee the ability to appeal.

The early 1980s were a time of change for development policies. The Reagan administration in 1983 enacted policies with regard to governmental status of Indian tribes. These policies were reflected in provisions and amendments to the Surface Mining and Reclamation Act of 1977, Clean Water Act, the Superfund Act, the Safe Drinking Water Act, the Clean Air Act, and the Federal Insecticide, Fungicide, and Rodenticide Act. “In 1982, Congress enacted the Indian Mineral Development Act, providing tribes greater flexibility in entering into agreements for mineral development rather than relying on the Department of the Interior to handle these matters for them” (Getches et al. 1998:231). The provisions in the act are (US Geological Survey Bureau of Mines 2000):

- Any tribe, subject to the approval of the Secretary and any limitations or provisions contained in its constitution or charter, may enter into a minerals agreement with respect to mineral resources that such Indian tribe owns.
- Tribes may enter into any joint venture, operating, production sharing, service, managerial, lease or other agreement...in which such tribe owns a beneficial or restricted interest, or providing for the sale or disposition of the production or products of such mineral resources.
- Any individual Indian owning a restricted or trust mineral interest adjacent to or effected by a tribal mineral agreement may include such resources in that agreement subject to the concurrence of the parties and a finding by the Secretary of the Interior

that such participation is in the best interest of the Individual mineral owner.

- ...the United States shall not be liable for losses sustained by a tribe or individual Indian under such agreement.

For the Navajo, compensation for years of neglect, violation of human rights, suffering, and death would prove to be a long road. It was not until 1990 that Congress passed the Radiation Exposure Compensation Act (RECA). It took forty years for this act to happen; as a result many of the miners who worked in 1940s help was too late. Under the act, "miners or their beneficiaries are entitled to \$100,000.00 in compensation if they: 1) worked in the uranium mines of New Mexico, Arizona, Colorado, or Utah, between 1947 and 1971; 2) were exposed to two hundred or more WLM of radiation; and 3) contracted lung cancer or another serious disease" (Speildoch 1999:311). Between April 1992 and March 1993, the Department of Justice (the unit handling claims) processed 2,634 claims. Of these, 585 were approved, 260 were denied, and 1,787 were pending. The landmark cases of *Begay v. United States* (1984) and *Barnson v. United States* (1985) would help the Navajo in their fight for compensation. The *Begay* case resulted from the findings brought forth by New Mexico senator Pete Domenici who introduced statistics "that over 4,000 of the more than 5,200 miners had died of lung cancer" (Ball 1993:65) and the miners alleging that "the government had an ongoing duty, consistent with the Atomic Energy Act, to inform miners of the health hazards" (Ball 1993:66). The test case of *Allen v. United States* that found the United States was negligent in the death of ten of the twenty-four appellants in the case. Judge Jenkins concluded "that the AEC was not immunized and that the government had a legal duty as seen in the Atomic Energy Act of 1946, amended in 1954, to protect the health and safety of all persons coming into contact with the governmental actions" (Ball 1993:72).

The United States west of the Mississippi River is especially rich in natural resources. Coal in Wyoming and New Mexico, copper in Arizona, turquoise in many parts of the west, oil and gas are ubiquitous throughout the western states, and finally gold in the Black Hills and California are just a few examples of the riches in the U.S. "In the 4 percent Indian land base remaining, estimates for all domestic uranium range from 40-65 percent, while one-third of

the western coal reserves lie in these Indian lands" (Irvin 1983:90). "The Navajo and Laguna Pueblo tribes supplied close to 50 percent of the total amount of uranium oxide mined in the entire U.S. during the late 1970s. Uranium exploration and production leases currently cover more than 600,000 acres of the Navajo reservation" (Getches et al. 1998:698). The purchase of the Louisiana Territory afforded the opportunity for western expansion for a growing nation. Manifest Destiny and eminent domain moved (much like *terra nullius* in Australia and European Social Darwinism) native people from their traditional homelands and forced their relocation to reservations. This was fostered by Anglo-Americans desire for western expansion and the prospects for cheap land as found in the Homestead Act and later in the Dawes General Allotment Act. It is of great interest and irony that many tribes were placed in reservations thought of at the time as being inhospitable and inhabitable places but because of their resources, proved to be another painful chapter in American Indian history.

The Black Hills of North Dakota are a prime example. "The Fort Laramie Treaty of 1868 guaranteed the Lakota undisturbed and sovereign use of land. This agreement was nullified by the U.S. government after the discovery of vast gold deposits in the Black Hills" (Irvin 1983:89). The Fort Laramie Treaty had an immense impact on the Lakota as the treaty made a nomadic people confined to an area of 43,000 square miles. With the discovery of gold and the removal of the Lakota from the Black Hills the Lakota lands were further reduced to 5,000 square miles due to the Sioux Act of 1889. "Now, in the 1890s the push for a final reduction began: The government wanted each individual Oglala family to live on privately owned, 160-acre plots. This had been the essence of the Dawes Act" (Starita 1995:158). The Cold War brought about yet another cycle of mining problems to the Black Hills as the area was also rich in uranium. The following paragraphs outline some of the problems the Lakota nation has faced from uranium exploration.

"In 1962, 200 tons of radioactive mill tailings from the Edgement mill site washed into the Cheyenne River, an indirect source of Pine Ridge water" (Irvin 1983:91). This prompted the Women of All Red Nations (WARN) to research the effects and found that "gross alpha radioactivity levels in Red Shirt subsurface water tested at 15 picoCuries per liter (pCi/L). The federal safety standard is 5 pCi/L" (Irvin 1983:91). Much like what is currently

happening in Hastings, Nebraska, problems associated with this level of contamination from agricultural by-products include abortions, miscarriages, complications during pregnancy, cancer, and respiratory problems to name a few.

Companies after extracting resources were negligent in any kind of reclamation of environmental impacts. The Cheyenne River instance, where the tailings lie near the banks of the river, are also radioactive to a certain degree. These tailings are now subject to various forms of erosion and easily leach into surface and subsurface water tables, and not only people but area wildlife are affected as well. To curb the detrimental effects of uranium mining, but more specifically strip mining of coal, the Surface Mining Control and Reclamation Act of 1977 was passed. "This act provided for the reclamation of all mined land but also provided that tribes shall be considered as states under the abandoned mine reclamation program," but this treatment is "only available to tribes with eligible lands and lands from which coal is produced"(Williams 1992:272).

The Navajo have faced similar circumstances with regard to mineral rights and mining on their homelands. After their forced march and isolation to Ft. Sumner, the U.S. government after four years had finally broken down the fabric of Navajo society and allowed them to return to their tribal homelands after signing the peace treaty of 1868. The reservation in the 1920s was further broken down into six distinct units, each with an Anglo American superintendent who made executive decisions on various matters with the guidance of elders. Instances such as prospectors in search of minerals on Navajo lands had to petition to the superintendent who then took the case to the local elders because the "Metalliferous Minerals Act recognized Indian ownership of subsurface resources found on treaty reservation land" (Shepardson 1983:624). Because of the 1868 peace treaty, the Navajo had the right to the mineral resources on their lands but this was soon to come to an end because of eight extensions or amendments made on the peace treaty by the U.S. government. While tribal government was still in the formal stages of being established, the U.S. government made decisions that affected the Navajo. "Mineral rights on executive order reservations was another issue. Secretary of the Interior Albert B. Fall believed that these did not belong to the Indians. He testified in 1922 that such reservations are merely public lands temporarily withdrawn by executive order" (Shepardson 1983:625). The tribal council of course

disagreed as the royalties that would come into the tribal government would be grossly limited. This led to the creation of the Cameron Bill signed in 1927 and became the Indian Oil Act that is still in force to this day concerning oil revenue in Utah:

The Cameron Bill recognized the right of the Indians to 100 percent of the royalties on executive order reservations. A tax of 37.5 percent would go to the state in which the oil was found with the proviso that the tax money be spent in consultation with the Indians on projects for their benefit (Shepardson 1983:626).

The search for minerals on the Navajo Reservation trace its roots to the 1890s but the explosion in the search happened in the 1940s due to World War II and the discovery of the process of fission (splitting atoms and creating energy, based on Einstein's famous discovery $E=Mc^2$). The Germans were feared to be starting this type of research and "when Germany overran Czechoslovakia on 1939, it captured the richest source of uranium in Europe at Joachimsthal in Czechoslovakia. This little-known fact was generally overlooked by most of the world, which viewed with horror the political, not the scientific, implications of what was happening" (Eichstaedt 1994:30). Scientists lobbying to President Roosevelt one day before the bombing of Pearl Harbor finally resulted in the implementation of the same research on nuclear weapons that the Germans were feared to have been conducting. Roosevelt ordered this research in January 1942 and the Manhattan Project started. Even earlier though, uranium played a significant role in exploration on the Navajo Reservation. This was spurred by the search for carnotite, a yellow mineral that contains both vanadium and radium. Vanadium is used to harden steel and radium was being studied for its cancer killing properties. Processing plants were established on the Colorado Plateau and an example of the economic factors is stated here: "By the end of 1913, the company [Standard Chemical Company] had produced just two grams of radium, but by 1914 it was ready to produce a gram a month to meet an order from Germany for fourteen grams. At a price of about \$150,000 per gram, the possibility for profits looked good" (Eichstaedt 1994:12). "In order to fill the huge demands for uranium to fuel the nuclear weapons program of the 1940s through the 1970s, many Indian tribes were encouraged to mine the rich uranium which lay beneath the surface of their land. The Navajo Nation saw mining uranium ore as an act

of patriotism and as a means for economic development and jobs” (House Report 1994:2). These statements of patriotism were not made lightly by the Navajo. The Navajo and other Native Americans were very active in World War II including 629 Codetalkers who helped win the Pacific Theatre. The Navajo Tribal council passed resolutions attesting to their commitment to the war effort. One such resolution passed on April 9, 1941 in a vote of 58 for and 0 against stating, “whereas the Navajo tribe wants its mineral resources developed in a proper way to provide income to the tribe. Furthermore, many of these minerals are needed at the present time for National defense purposes” (Navajo Tribal Council 1941:335). On October 14, 1949 yet another resolution passed with a vote of 46 for and 0 against that decreed “whereas the U.S. government as well as many nations throughout the world are vigorously seeking sources of uranium-bearing ores for the development of atomic energy whether for weapons of war for peaceful and beneficial purposes” (Navajo Tribal Council 1941:336). With the exploration of lands around the Colorado Plateau and the coming of World War II, followed by the Cold War, companies soon turned their attention to uranium exploration on the Navajo Reservation.

Dispossession of Native Peoples

This section will highlight some cases of removal of Native people as late as 1999. Besides the health hazards from mining, specifically that of uranium ore, indigenous people face dispossession of their lands by mining companies and governments. In Los Angeles, California, to receive the Martin Luther King “ Spirit of the Dream Award” a group of Navajo from the Sovereign Dine’ Nation voiced their protest of coal mining on Black Mesa and “Southern California’s demand for electricity that has resulted in the removal of Dine’ from their homelands” (Norrell 1:1999). This protest of grassroots activists although not sanctioned by the Navajo Tribe was in protest of Edison Electric who uses coal extracted by the Peabody Coal Company at Black Mesa. This protest goes back many years to the Hopi-Navajo land dispute and the so called “Joint-use area” that congress in 1974 signed in a relocation act “four years after Peabody began mining the soft-bituminous, low-sulfur coal” (Smithson 1996). Not only is the land being stripped but surface and subsurface water is being contaminated. “Resisters who refused to sign 75-year accommodation agreements which would have allowed families to stay on their homesites for the limited 75 years, are

receiving federal 90-day notices concerning intent to vacate” (Norrell 1:1999). This kind of relocation creates social and economic disruption not only in the social structure of the family but the community as well. “Relocation of people as is happening at Big Mountain, Hopi (Peabody Coal) and elsewhere forces transformations of familial integrity and community organization” (Aberle 1983:650) as well as “necessitate the forced relocation of Navajos and the disruption of cooperative kin networks” (Aberle 1983:650).

One of the richest vanadium-uranium deposits happens to be in one of the most beautiful and sacred landscapes on the Navajo reservation, Monument Valley. In the late 1920s during the build up of vanadium for post and pre-war weaponry and the work of scientists on the medical factors of uranium and radium, Monument Valley became a place of great national interest. Gouldings Trading Post was established in 1924 by Harry and Mike Goulding who “operated the store for more than forty years, catering to film crews who used Monument Valley as a setting for many famous westerns, and to the miners and prospectors” (Eichstaedt 1994:26). In Peter Eichstaedt’s book *If you Poison Us*, Eichstaedt had the opportunity to interview many Navajo’s who worked during the mining era and discusses how many of the people were dispossessed by the Gouldings as well as the mining companies. Luke Yazzie was one of these individuals who discovered some of the mineral near his land. “He heard that white men were looking for a certain kind of rock, and he was curious about it. When it was described to him, Luke told them where a lot of it could be found. He brought a sample to Harry Goulding, who turned it over for testing to Denny Viles, the production manager and Vice President of VCA, who was in the area” (Eichstaedt 1994:26-27). The results were astonishing and this area soon became the richest source of uranium-vanadium in the Four Corners area. So rich in fact, a separate mine, Monument Number Two was established. As the word spread about employment opportunities at Monument Valley, many Navajos moved into the area in order to take advantage of these opportunities. Yazzie and other Navajos were also promised royalties for the minerals extracted, but they never came. Paraphrased below is an interview with Yazzie that discusses how the Navajo were exploited (Eichstaedt 1994:28):

The workers were told they would get a portion of the profits. While we were

working, Mr. Goulding got rich and moved to Phoenix. I (Yazzie) periodically returned to Goulding's trading post and asked when I would be getting my royalties when I went to Goulding's I was told 'your money is coming.' I never knew what was going on. Goulding used to feed me and stuff and act like he liked me. My father told me to never take the rocks to the White man. If you do, you'll get nothing out of it. I took it to Goulding, and I got a cigar for it.

Vanadium Corporation of America (VCA) never did pay the full royalty amount to the Navajos of Monument Valley and the company downgraded the properties of the ore. The richer the ore, the more in royalty the company would have to pay and it was even discovered that VCA was keeping two sets of books.

Another southwestern case is that of the Papago in extreme southern Arizona called the "copper belt" which yields approximately two-thirds of the copper in the United States. "The bulk of the area was part of the Papago Reservation until copper was discovered during the 1920s. The ore bearing portion (of the reservation) was subsequently removed from the Papago domain by unilateral decree of the U.S. Congress" (Churchill and LaDuke 1992:242). Evidence could not be located to support that the Papago were fairly compensated for the loss of a significant portion of their land or if they are receiving any royalties from the mining today. This will be an issue for continuing research.

Health Concerns of Mining and Economic Impact

This section will explore some of the health issues on the Navajo Reservation today as well as the difficulty Navajo miners who worked more than forty years ago are having today. As previously mentioned in the Lakota case, uranium mining has detrimental impacts on the health of the local populous, livestock, wildlife, and the miners themselves, specifically prior to federal regulations and safety standards. It is important to discuss the economic impacts mining has had on the people. Reservations typically offer little to no economic support in the form of jobs, so any type of economic activity is generally welcomed. "Since 1954 or before, the tribal budget (Navajo) has depended on energy revenues. Between 1954 and 1971 those revenues comprised from 50-94 percent of total tribal income, varying over the years but

dropping with time" (Aberle 1983:650). According to Navajo Nation President, Milton Bluehouse, in his address to the Nation on December 12, 1998, "new lease agreements with the Peabody Coal Company will bring in an additional \$35 million over the next ten years, in addition to the \$3 million bonus" (FDT Staff 1998:1). This is big money for the nation according to statistics gathered from "Navajo Nation Fax," approximately 1,637 (80.5 percent) Navajo coal miners were employed in 1984, 1,596 (80.6 percent) employed in 1985, 1,867 (77 percent) in 1986, and 1,817 (77.5 percent) in 1987. Many of these miners make very good wages, up in the \$50,000/year range. Of the workers in the coal mining industry in 1987, 95 Navajo were in management, 22 professional, 53 technicians, 71 clerical, 933 skilled, 498 semi-skilled, 13 service, and 132 unskilled. Compared with the Anglo coal miners of which there were 528 total employed, 199 were engaged in management or roughly 75 percent, and 80 or 79 percent were employed as professionals. These statistics show a severe imbalance in ratios of the professional sector and again demonstrates the subjugation of the Navajo. The mining companies come into an area, bring their own professional workers to manage the mining, and hire unskilled Navajo workers for the lower positions. The total number of Navajo working in industry (power plant, coal mining, transport, manufacturing, agriculture, and petroleum) in 1987 was 4,340, compared with a total population in 1988 of 161,941; the difference is startling. In 1979, 51,904 people or 50 percent of the population was below the poverty line. These figures do not take into account other sectors of employment such as service, crafts, private agriculture, or herding to name a few forms of subsistence. The purpose here was to demonstrate that reservations are in dire need to gain economic development and to get their people off of welfare, but these developments do have costs.

Although tribal lands do need economic support, the system was badly abused in the early years of uranium mining and even into the present time. Mining companies did not provide adequate ventilation nor safety regulations for the workers to follow. When the mines were abandoned, they were simply left. In testimony to the House of Representatives in 1990, Faith Roessel (1993:7) had this to say:

From the 1920s to the early 1970s uranium ore was mined on the Navajo reservation for the U.S. Atomic Energy Program. The primary purchaser and beneficiary of this

mining activity was the United States Government, and the development of uranium resources were entrusted to the Atomic Energy Commission. As a result of the mining, the Navajo Nation has been left with at least 1,104 known abandoned uranium mines and tons of hazardous radioactive uranium mine wastes scattered across our lands.

Kerr McGee (operated from 1954 until 1963) is one company that treated the Navajo unfairly in their quest to obtain mineral resources. Kerr McGee established a uranium mine near Red Rock, Arizona or as Laverne Husen described it “they weren’t really mines, just holes and tunnels dug outside into the cliffs” (Barry 1979:20).

Those engaged in mining activities were often the workers with no formal protection from radioactive elements and no ventilation system to allow radioactive gases to be removed from the mines. Workers were at risk from the radioactive elements and the different particles (alpha, beta, gamma) that they emit.

Alpha particles are potent but can be stopped easily by such things as a sheet of paper or even human skin. However this does not mean these little particles are harmless. Once alpha particles are taken into the human body, they lodge in tissues, bones, or organs, and steadily radiate and pelt surrounding cells. Beta particles are very similar, but thicker, denser materials are needed to stop them, and they can burn skin. Once inhaled, they can wreak havoc on the body. Gamma rays are highly penetrating rays that require about an inch of lead or a foot of concrete to be stopped (Eichstaedt 1994:48-49).

Uranium goes through a complicated 1,600 year cycle until it becomes a stable form of lead. During this process of breaking down, it forms a variety of radioactive elements known as radon daughters, the ones that cause lung cancer because they are in a gaseous form. An example of the radium breakdown can be illustrated from the following, “radium breaks down after 1,600 years into radon gas, which in turn converts or breaks down with a half life of 3.8 days into a solid particle of polonium, which breaks down in just 3 minutes to lead-214, which is radioactive and breaks down in 26.8 minutes to bismuth-214, and

so on” (Eichstaedt 1994:49). The gases were released by the miners working with a pick or more common, the blasting done to move tons of rock. The miners were forced to go into the mines right after a blast where they inhaled the dust and radioactive gases as well. One informant in Eichstaedt (1994:50) offers this account:

The working conditions were terrible. Inspectors looked at the vents. When they weren’t inspected they were left alone. Sometimes the machines didn’t work.... They told the miners to go in and get the ore shortly after the explosions when the smoke was thick and the timbers were not in place. There was always the danger of the ceiling coming down on them.

Dan Benally, another informant speaking through an interpreter, tells his story.

He was never warned how it would affect him in the future. They used to eat underground and drink the water dripping from the walls.... When they did the blasting, they inhaled the smoke and dust. He fainted twice, and they had to drag him out.... He worked with thirty-eight people in Cove, and all of them died. He was never told or warned. He was not told to wash his hands and was told to stay underground. He worked shifts from 7 A.M. to 8 P.M. with one hour off for lunch, and earned \$1.15 per hour (Eichstaedt 1994:50).

Perhaps the greatest nuclear tragedy outside the detonation of H-bombs on American soil also occurred within the lands of the Dine’. On July 16, 1979 near the small community of Church Rock, New Mexico, and exactly 34 years to the day of the first detonation of a nuclear device at the Trinity Site in southern New Mexico, and 14 weeks after the Three Mile Island incident, the unspeakable occurred. A holding dam broke releasing millions of gallons of radioactive wastes and millings into the landscape and the Rio Puerco river. United Nuclear Corporation was in the process of mining uranium near Church Rock. “Usable uranium is extracted from the sandstone in which it is found by grinding it fine and leaching it with sulfuric acid. The acid carries off the desired isotope. But the leftover sands still contain 85 percent of the ore’s original radioactivity” (Wasserman et al. 1982:179). These

leftover radioactive sands, which also contain elements such as thorium 230, radium 222, and lead 210 to name a few were to be kept away from miners and the population in general. At the time, there was no official recommended method of storage or disposal. The method was to pool the contaminated sand in water so that some of the radioactivity could be evaporated off then the dried sand would be stored underground. On that faithful day, a twenty-foot section of the dam burst releasing 1,100 tons of radioactive millings and 90 million gallons of liquid. The flood itself did not take a single life but the leftover residues would make its impact. Residues got into the water table, streams, and the landscape in general. Radioactive residues and heavy metals included cadmium and zinc. "1,700 Dine were immediately affected, their single water source contaminated. More than 1,000 sheep and other livestock, which ingested Rio Puerco and other streams water in the the aftermath died"(Churchill and LaDuke 1992:249). The spill contaminated the Rio Puerco and left behind pools of deadly water. After the incident, UNC would not tell the Navajo of the potential deadly impacts of this water. Children were seen playing in the pools and livestock were left to drink from this polluted water and developed serious intestinal problems of the bladder and liver. UNC finally conceded and told the Navajo of the problem after days of avoidance. The Center for Disease Control was called in and warned the locals not to drink water from the river, and to avoid its banks during windstorms, when radioactive particles might be more easily inhaled (Wasserman and Solomon 1982). UNC stonewalled for over a year in delivering any emergency food, water, hay, etc. They settled out of court for a minimal amount from a class action suit filed by the citizens of Church Rock.

These are just a couple of the countless cases of unfair treatment by the typically white owned and operated companies whose main concern were the profits. In order to make sure these profits kept coming, the companies not only paid low wages but had little regard for safety features such as ventilation shafts, in not only the cost of digging the shafts, but the money it took to run the fans! In the Church Rock disaster, UNC dismissed warnings from the U.S. Corps of Engineers who testified that the if the dam would have been built according to legal specifications, according to approved design, the failure would not have occurred.

The Navajo have been adversely affected by the uranium mining and recently have been the most

vociferous in their plight to have their lands reclaimed and to receive federal assistance for those affected. Many of the companies involved in mining dismiss many of the charges claiming they did not have knowledge of the affects of uranium and its associated radon daughters on the people. The Navajo complaints about the working conditions and the lack of fair pay prompted the Atomic Energy Commission and other federal agencies to start conducting investigations of the health hazards on the mining industry. Not because they were concerned about the well-being of miners but rather from pressure created by the countless Navajo laborers and their stories of unfair treatment. These actions during the 1950s started from the plight of the Navajo but were helped by Henry Doyle and Duncan Holladay, both Public Health Service employees. Duncan and Holladay took it upon themselves to conduct testing on the Navajo employees: testing blood, urine, and taking chest x-rays. After Holladay's testing, a report was submitted to the Atomic Energy Commission and it stated, "that radon and radon daughter readings were found to be too high for safe operation over an extended period and that the median level of radon concentrations in the mines of the Colorado Plateau is above the median levels reported in European mines" (Eichstaedt 1994:63). The report released in 1952 was sent to a variety of federal agencies and to agencies operating in the Four Corners area. The Atomic Energy Commission was reluctant to have the report released because, "[t]he United States was still dependent on foreign sources, which the AEC feared would be jeopardized. Most of all, the AEC was worried that if information on the dangerous conditions detailed in the report reached the miners, it might cause a general panic and a mass exodus from the mines" (Eichstaedt 1994:63). Although the report detailed what had been feared, that miners were being poisoned by the deadly gases, it came too late. The miners were already infected and little could be done, much like the Marshall Island case highlighted by Holly Barker. In this case, the inhabitants of the Marshall Islands were subject to indirect atomic activity and testing of nuclear weapons in the Pacific. Wind patterns carried the radioactive "air" into the vicinity of the Marshall Islands contaminating the natural resources (i.e. flora and fauna). It was not until 1982 that the people were told they were infected and thus were prohibited from eating fish, and drinking from the local water supply as well as tilling the soil and consuming agricultural products. The Marshall Islands and the Navajo Reservation share some startling similarities. Both were infected with radioactive materials. The Marshall Islands up

until 1986 were a trust of the United States, the Navajo and Lakota reservations are “quasi sovereign” wards of the United States. The truth about the effects of radioactive materials were withheld from the respective populations for many years. Finally, the question of fair compensation with regard for health cost and loss of culture still has not been addressed.

Statistics present on the number of Navajo that have died as a result of uranium mining include the number given by senator Domenici from New Mexico but there are other statistics as well. The 1988 Navajo Nation Fax lists 84 or 14.4 percent (which is the third highest cause for mortality) people dying from neoplasms, which are a cancer. These may be non-mining deaths or a combination of the non-mining and mining deaths. “Of the 150-odd Dine’ miners who worked underground at the Shiprock facility during the eighteen years of its operation, eighteen had died of radiation induced lung cancer by 1975 and another twenty-one were feared dying. By 1980, twenty of these twenty-one miners were dead” (Churchill and LaDuke 1992:248). Also of this 150, ninety-five contracted ailments and cancers similar to their co-workers.

Table 1: Radiation Exposure to Uranium Miners

Mortality Summary by States and Year States Where Miners Worked	
Colorado 70	Colorado/Utah 7
Utah 12	Colorado/Arizona 1
Arizona 1	Wyoming/Utah 1
Wyoming 1	New Mexico/Arizona 1
Colorado/New Mexico 1	New Mexico/Utah 1
Total 96	
Total Deaths by Year	
1945 1	1956 2
1946 0	1957 3
1947 1	1958 5
1948 0	1959 5
1949 1	1960 9

1950 1	1961 6
1951 1	1962 7
1952 0	1963 10
1953 1	1964 9
1954 1	1965 16
1955 2	1966 16
Total 97	

Table 2: Estimated Number of Miners with More than 120 WLM of Cumulative Exposure to Radon Daughters

Cumulative Working Level Months	Number of Miners in Category
Less than 120	961
120-359	920
360-839	739
840-1,799	482
1,800-3,719	246
3,720 and Over	67
Total 3,145	

In the above table, a working level month “was the amount of radiation a miner was exposed to in a month, or 168 hours (42 hours per week times four weeks). A mine that had one working level would give a miner one working level month after a month of work in the mine. A mine containing ten working levels of radiation would give a miner an exposure of ten working levels in just one month” (Eichstaedt 1994:84).

Current Issues in Mining

The Navajo Nation currently has a preliminary assessment/site inspection program (pa/si) in the works which is to “assess and evaluate hazardous substance sites on the Navajo Nation. These evaluations include, but are not limited to, the abandoned sheep-dip vat sites and the abandoned uranium mines” (www.cia-g.com:1). To be eligible for listing as a superfund or Surface Mine Control and Reclamation Act (SMCRA) site, the sites must

go through a series of "tests" established by the Environmental Protection Agency and the Navajo Nation. For eligible sites, the Navajo Abandoned Mine Claims Commission and the Navajo Superfund Program are assisted by the EPA in order to clean up these areas. Sites found ineligible for the SMCRA are sent through a tedious series of steps that entail Navajo Superfund enforcement, EPA, and decisions on EPA removal, to name a few.

The tribe also has listed two National Priorities List (NPL) sites that are a part of the Environmental Protection Agency (EPA) Superfund sites. These sites include the Prewitt Abandoned Oil Refinery NPL Site and the United Nuclear Corporation Mill NPL Site. According to information in the web document, the purpose of the NPL sites is: "1) provide remediation oversight on behalf of the Navajo Nation, 2) to provide technical review of the site related documents, and 3) to maintain a public document repository on this site for the Navajo people" (www.cia-g.com:1). In a Farmington Daily Times story dated March 22, 1998, the Navajo Nation received \$9.3 million in grant monies from the Office of Surface Mining, a federal agency, in order to support reclamation as well as the closing of up to 320 open mines. While I was still working in the Southwest, a company, Hydro Resources Inc. (HRI), was trying to obtain permits in order to gather uranium. There was much public disinterest because of the mining process that may contaminate the water. "The process called in situ leach mining (ISL), will contaminate the groundwater in the area where it occurs, contamination which HRI would be required to clean up after the mine closes" (Shaiman 1999:1). The area around Crownpoint has a long history of mining and contamination but according to Quentin Tolth, a local resident, "I think it will be good because of jobs, but it depends on safety issues. As long as it's high tech and wouldn't affect future years, I would like to see them do it" (Mass 1998:2). Of course, Hydro Resources Inc., claims that groundwater will not become contaminated and their method is paraphrased below.

The mining procedures are a lot more environmentally sound. The procedure, called in-situ or solution mining, separates the uranium from the rock by circulating water through it and rusting it. The process also takes out more water than it injects, thus assuring that the water will always flow in from the outside, theoretically eliminating leakage. Once the water becomes uranium rich, it goes through a filtration process converting it into U3O8, or

yellowcake, a substance that is 96 percent uranium and 4 percent water. The yellowcake is transported by NRC licensed drivers to be stored in another location. The used water is injected back into the rock, starting the process all over again (Mass 1998:2).

Although the process may appear to be sound, the Navajo Nation must study the technical reports provided as well as environmental impact assessments. Hydro Resources Inc., claims that 99.9 percent of the radioactive materials will be filtered out and they will establish monitoring stations at 200 foot intervals around the perimeter of the mine. This type of mining still needs to be examined in great depth.

HRI and the Navajo Nation have recently gone to court regarding issues of sovereignty and jurisdiction with regard to the mining activity. The proposed area of the mine is outside the boundary of the Navajo Nation but within the boundary of the Eastern Agency (of the Navajo Nation). The question here is the definition of Indian Country. According to Getches et al. (1998:439-440), Indian Country is defined as:

- All land within the limits of any Indian reservation under the jurisdiction of the U.S. Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation;
- All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state; and
- All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

The EPA did find that the Church Rock area was Indian Country and is subject to Navajo Nation and federal jurisdiction. Currently the jurisdiction is under federal jurisdiction while the Navajo Nation secures the required permits to regulate operations. HRI as well as the State of New Mexico are currently in the appeal process, but with the clear definition of Indian Country and the ruling in *U.S. v. Sandoval*

“were nevertheless Indian country since they were occupied by distinctly Indian communities, which were dependent tribes recognized and protected by the federal government” (Getches et al. 1998:441). Just like the Sandoval case, the Church Rock area, though not within the boundary of the Navajo reservation, has a majority population that is Dine.

Yet another example concerns the previously mentioned Kerr McGee operations in which teachers learned about the history of mining. The stories though were for the most part not told by the miners as many of them had died from lung cancer due to exposure to high levels of radon, but rather their relatives. The key issue in this article was that of Kerr McGee’s clean up efforts which happened in 1986, eighteen years after the mine had closed “a thick layer of clay was spread over the 2.5 million ton pile. The nine-foot-thick barrier was designed to prevent radioactive radon gas from escaping from the pile” (Heil 1998:1). This “covering” obviously was not accomplished as officials measured the radioactivity on the pile at 2,000 pC, approximately 1,999 pC above the normal radioactivity at Shiprock. Also mentioned was the fact that these materials were used in construction. I have heard stories about this previously, where homebuilders would go out to the chat piles and gather chat/gravel that was contaminated and use it in home construction. Now, not only would the miner suffer from his work, but successive generations would also be at risk just living in the home, a home with a highly deadly and radioactive element that has a half-life of 1,600 years!

The Navajo and Lakota, as well as many indigenous nations throughout the U.S. and the world still face problems associated with mining. For example, the Navajo are currently in a dispute with Edison over mining on the Navajo-Hopi reservations in which many local people face the possibility of being dispossessed without fair compensation and will face loss of traditional homeland and culture as well. The ancestral homelands of the Navajo (the Dinétah) are currently being tapped for the natural resources they contain (oil and gas). Burlington Resources recently petitioned the Bureau of Land Management to drill two wells within direct vicinity of Gobernador Knob; a piece of landscape sacred to the Navajo and according to legend is the Birthplace of Changing Woman. “Today, the area still serves as a place where Navajos go to perform traditional ceremonies” (Navajo Times Staff 1999:1). Representatives from the BLM and Burlington Resources acknowledge the cultural significance of

Gobernador and a decision is pending. This area is being tapped of natural resources at an alarming rate and with these lands under the jurisdiction of the Bureau of Land Management as well as many private land owners, many of which are Hispanic and have a claim on these lands that in some cases predate the 1800s. The Navajo Nation is laying claim on these traditional homelands in part to regain some of their traditional culture, but also to receive some of the royalties that are rightfully theirs. Native peoples have had a long fight with “big government” and multinational corporations that has resulted in the dispossession of their people, loss of culture, loss of members, and unfair treatment to name a few. But there is a light at the end of the tunnel. If Indigenous nations can follow the footsteps of examples such as Eddie Mabo, (Mabo v. Queensland 107 A.L.R. 1992 Australia High Court) in which an aboriginal obtained native title, they will be able to regain their lands and in essence, their futures.

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2001 Ghost Ranch Retreat

The Annual Fall Retreat will be held at Ghost Ranch, located just outside of Abiquiu, New Mexico from October 5-7. This year's retreat promises to be interesting. Masters Post-Internship Presentations by Northern Arizona University Applied Anthropology students will present Friday evening. Saturday's theme is "Northern New Mexico: Environment, Traditions, and Challenges of Change," organized by Ed Knopp. For further information, please see the High Plains Society for Applied Anthropology web site at <http://www.colorado.edu/AppAnth/HPSfAA>

Hope to see you there!