July 12, 2019

Written Statement of the Navajo Nation
Prepared for the House Committee on Natural Resources
Subcommittee on Energy and Mineral Resources
On Uranium Mining: Contamination and Criticality
and H.R. 3405, the Uranium Classification Act of 2019

Dear Congressman Alan Lowenthal, Ranking Member Gosar, and Members of the subcommittee, I appreciate the opportunity to provide written testimony on uranium mining and impacts on the Navajo Nation. Based on the negative history that we have had with uranium mining and the negative health and environmental consequences to our members as stated in this testimony, we support the removal of uranium from the final list of critical minerals pursuant to H.R. 3405.

I. History of Uranium Mining

The unique geology of the region makes the Navajo Nation rich in uranium, a radioactive ore in high demand after the development of atomic power and weapons at the close of World War II in the 1940s. According to the U.S. EPA, approximately thirty million tons of uranium ore were extracted during mining operations within the Navajo Nation from 1944 to 1986.[1] The federal government (i.e., the Atomic Energy Commission [AEC]) was the sole purchaser of uranium until 1966. The AEC continued to purchase uranium ore until 1970, although sales to the commercial industry began in 1966.

Many Navajo people worked in and near the mines, often living and raising families within close proximity to the mines and processing sites. Routine respiratory protections were not provided to miners. Navajo uranium miners suffered from high mortality rates from lung cancer, tuberculosis, and other respiratory diseases.[2]

After the Cold War ended and the federal government no longer needed uranium to produce nuclear weapons, many of the mines on Navajo lands were abandoned—not covered, or sealed, or remediated. The uranium processing sites were decommissioned by the United States government, and radioactive mill tailings were capped with clay and rock and left at the former mill sites.

Today, there are approximately 524 uranium mine sites, with only 219 sites having funds available for clean-up and remediation efforts, leaving a total of 305 sites stagnant with no efforts being made to address the environmental and health hazards to surrounding areas and

[1] Navajo Nation: Cleaning Up Abandoned Uranium Mines. (2019, April 12). Retrieved July 9, 2019, from https://www.epa.gov/navajo-nation-uranium-cleanup

[2] Roscoe, Robert J; Deddens James, A; Salvan, Albert; Schnorr, Teressa M (1995). "Mortality Among Navajo Uranium Miners". American Journal of Public Health. 85: 535–541

people.[3]

Separately from the 524 abandoned uranium mines, there are also four Uranium Mill Tailings Remediation Control Act (UMTRCA) sites within the Navajo Nation. Three of those sites are disposal cell sites located in Mexican Hat, Utah; Shiprock, NM; and Tuba City, AZ and one is a processing site located in Monument Valley, Arizona. There is also one other processing site located immediately adjacent to the Navajo Nation in Church Rock, NM. The cleanup and management of the tailings from these sites is overseen by the Department of Energy Office of Legacy Management.

The Department of Energy funds groundwater-remediation activities and long-term surveillance and maintenance at these four Navajo Nation UMTRCA sites, at an annual cost of approximately $4 million[4]. The uranium legacy on the Navajo Nation is not only costly but the remediation efforts are fragmented across numerous federal agencies including the U.S. Environmental Protection Agency (EPA), U.S. Bureau of Indian Affairs (BIA), U.S. Nuclear Regulatory Commission (NRC), the U.S Department of Energy (DOE), Indian Health Service (IHS), and the Agency for Toxic Substances and Disease Registry to name a few. This fragmentation results in constant state of evaluations and re-evaluations but never promulgates steps toward remediation.

Unfortunately, there are countless testimonial stories in Navajo communities that reveal how past uranium activity has devastated Navajo families, traditions, and our Mother Earth. Many Navajos were uranium workers, or lived near a mine or a mill, or were otherwise exposed to uranium toxicity on the reservation. Some common examples include an individual who as a child played in an abandoned mine or mill tailing pile, a sheep herder who watered his sheep in an un-reclaimed open pit mine, an elderly woman who for many years washed the dust-coated clothing of her uranium miner husband, or a family who obtained their drinking water from a stream that ran through or near a uranium mine. These stories are telling of our tragic history of uranium mining on the Navajo Nation.

II. Impacts to the Environment

In terms of both short- and long-term environmental impact, uranium mining is the most environmentally problematic of any mining activity on the Navajo Nation because the radioactivity of the ore creates a problem that cannot be chemically mitigated. Uranium mines generate wastes in the form of overburden, waste rock and low-grade ore. When exposed to air, the hazardous and radioactive substances native to the rock are oxidized and released to the environment through runoff and wind dispersion. Many mines also result in contamination of pristine aquifers by bringing them into contact with radioactive ore bodies. The toxic constituents

[3] Abandoned Uranium Mine Settlements on the Navajo Nation. (2018, April). Retrieved July 9, 2019, from https://www.epa.gov/sites/production/files/2018-05/documents/navajo_nation_settlement_fact_sheet-2018-04-18.pdf

[4] Federal Plans: Related Documents. (2018, September 20). Retrieved July 9, 2019, from https://www.epa.gov/navajo-nation-uranium-cleanup/federal-plans-related-documents#docs

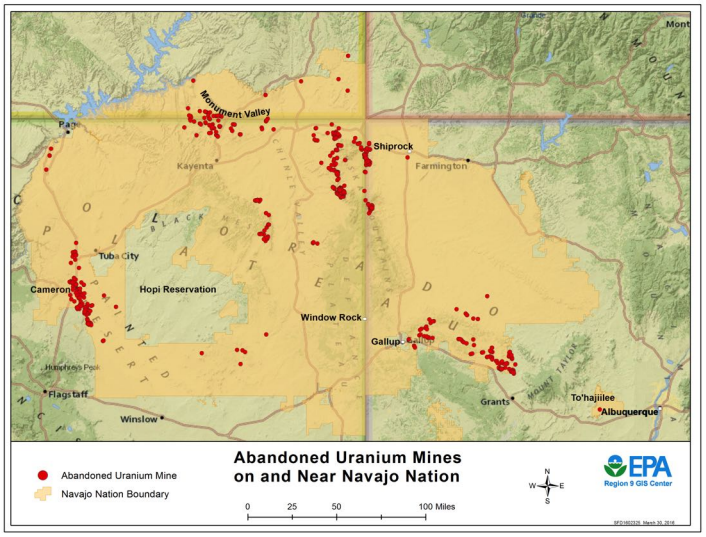
of mine waste include uranium, arsenic, cadmium, lead, molybdenum and selenium, and the radioactive constituents include uranium, thorium, radium, and lead.

Because of the horrible legacy of uranium mining and processing on Diné lands, in 2005 the Navajo Nation Council passed the Diné Natural Resources Protection Act, a law prohibiting uranium mining and processing on any site within Navajo Indian Country.[5]

Although uranium mining and milling activities no longer occur on Navajo lands, the legacy of these activities remains, including more than 523 abandoned uranium mine claims with thousands of mine features such as pits, trenches, adits, vent holes, etc., as well as four former uranium mills.

Abandoned mine tailings including radioactive ore were used to build homes and other structures. Radioactive rock was crushed and used to make concrete. In addition, there are drinking water sources with elevated levels of uranium, radium, and other metals. Furthermore, none of the former mill sites were properly lined underneath allowing the radioactive materials from mill tailings to leach into the groundwater. The fact that these mines and mills were never properly remediated still allows for dust and radiation to continue to be released into the environment.

The locations of abandoned uranium mines are shown on the map entitled "Abandoned Uranium Mines on and Near Navajo Nation."[6] Until these locations are fully remediated and clean, they will pose a danger to the animals, plants and people that come into contact with the area including surrounding communities who risk contamination that may occur through the air, water or groundwater.



As an example, the largest release in U.S. history of radioactive material into the environment occurred adjacent to the Navajo Nation at the United Nuclear Corporation (UNC) uranium processing site, a former uranium mill located near the northern end of State Highway 566, approximately 17 miles northeast of Gallup, New Mexico in the Pinedale Chapter of the Navajo Nation.[7] The United

[5] Diné Natural Resources Protection Act of 2005, 18 Navajo Nation Code § 1301 et seq.

[6] Navajo Nation: Cleaning Up Abandoned Uranium Mines. (2019, April 12). Retrieved July 9, 2019, from https://www.epa.gov/navajo-nation-uranium-cleanup.

[7] Northeast Church Rock Mine Site Update. (2018, December). Retrieved July 9, 2019, from https://www.epa.gov/sites/production/files/2018-12/documents/northeast_church_rock_mine_fact_sheet-2018-

Nuclear Corporation (UNC) operated the mill, which received ore from two nearby mines on Navajo lands, including the Northeast Church Rock Mine (NECR), one of the highest producing uranium sites on the Navajo Nation.[8] On July 16, 1979, a large spill occurred within the UNC mill, when the dam that was holding the uranium mill tailings disposal pond was breached.[9] Over 1,000 tons of radioactive mill waste and 93 million gallons of acidic, radioactive tailings solution flowed into the Puerco River and travelled 80 miles downstream.[10] This was the largest release of radioactive material in U.S. History.[11] The Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs of the House of Representatives held an oversight hearing of the dam break on October 22, 1979.[12]

As of now remediation activities for the NECR mine have involved extraction of 200,000 tons of contaminated soil from the residential area, which have been brought back to the mine waste pile[13]. The mine waste pile has been temporarily covered and stabilized until it can be removed.[14] Due to the proximity of residents to the mine site and other factors, this mine was identified as the highest priority for cleanup by the U.S. Environmental Protection Agency (USEPA) and the Navajo Nation Environmental Protection Agency (NNEPA) out of the 523 abandoned mines on the Navajo Nation.

Other issues of contamination were highlighted in an October 23, 2007 hearing before the House of Representatives Committee on Oversight and Government Reform on "The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation."[15] The testimony at that hearing indicated that when the U.S. Government decommissioned the five former uranium processing sites, none of these sites were lined leaving no barrier to keep the radioactive waste from leaching into the groundwater.[16] At the time of the hearing, none of these sites had been remediated.[17] It was also indicated that radioactive materials were found in Navajo homes, grazing animals drank from contaminated ponds, and one public highway had become

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12-10.pdf

[8] *Id*.

[9] Community Involvement Plan. (2016). Retrieved July 9, 2019, from https://www.epa.gov/sites/production/files/2017-11/documents/cip_northeast_churchrock_kerr-mcgee_quivira.pdf

[10] *Id*.

[11] *Id*.

[12] United States. Congress. House. Committee on Interior and Insular Affairs. Subcommittee on Energy and the Environment. (1980). Mill tailings dam break at Church Rock, New Mexico: oversight hearing before the Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs, House of Representatives, Ninety-sixth Congress, first session ... hearing held in Washington, D.C., October 22, 1979. Washington: U.S. Govt. Print. Off.

[13] "Northeast Church Rock Mine Site Update," *supra*.

[14] *Id*.

[15] U.S. House, Committee on Oversight and Government Reform. (2008). *Hearing: The Health and Environmental Impacts of Uranium Contamination in the Navajo Nation* [H.R. Rept. 110-97 from 110th Cong., 1st sess.]. Retrieved from https://www.govinfo.gov/content/pkg/CHRG-110hhrg45611/html/CHRG-110hhrg45611.htm.

[16] *Id*.

[17] *Id*.

contaminated.[18] One witness explained that the uranium processing involved the addition of acids and solvents to remove uranium, which leave behind mill tailings and mill tailing effluent which are radioactive and hazardous. [19]In addition, prior to the hearing, the federal agencies were not taking the matter seriously and Navajo citizens and Navajo employees, with very limited funding, had to take matters into their own hands and do their own studies and assessment to make their case.[20]

As a result of the hearing, Congress directed the U.S. EPA, the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission, and other federal agencies to address the uranium issues on Navajo through a five-year plan.[2122] After each five-year period, the agencies would report their results and adjust the plan to address outstanding risks to human health and environment.[23] Settlements and agreements were also entered into with responsible parties to assess and cleanup abandoned uranium mines (e.g. Tronox), however no private responsible party has been identified to pay for cleanup of the remaining 304 abandoned uranium mines.

It is the Navajo Nation position that the United States is the sole responsible party for cleanup of the remaining 304 abandoned uranium mines on Diné lands. We call upon the United States government to immediately step forward and take responsibility for cleanup of these mines.

III. Health Impacts

The health impacts related to uranium mining include lung cancer, respiratory disease, renal cancer, renal failure and other chronic renal diseases such as nephritis and kidney tubal tissue injury. Other health impacts include myeloma, lymphomas, and primary cancer of the thyroid, male or female breast, esophagus, stomach, pharynx, small intestine, pancreas, bile ducts, gall bladder, salivary gland, urinary bladder, brain, colon, ovary, liver, or lung. These diseases and cancers are included as part of the Radiation Exposure Compensation Act Amendments of 2019 that will be introduced by Congressman Ben Ray Lujan and Senator Crapo's bill, S. 947. There is also a growing body of evidence that connect hypertension, heart disease and autoimmune diseases to uranium exposure.[24]

On the Navajo Nation, cancer is the second overall leading cause of death based on a report prepared by an epidemiologist team of the Navajo Epidemiology Center analyzing data from

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[18] *Id*.
[19] *Id*.
[20] *Id*.
[21] U.S. Environmental Protection Agency. (n.d.). *Five-Year Plan 2014-2018: Federal Actions to Address Impacts of Uranium Contamination on the Navajo Nation*. Retrieved from https://www.epa.gov/sites/production/files/2016-06/documents/navajo_five_year_plan_2014_overview.pdf
[22] Video Highlights Cleanup of Navajo Nation Uranium Mill Sites. (n.d.). Retrieved from https://www.energy.gov/lm/articles/video-highlights-cleanup-navajo-nation-uranium-mill-sites.
[23] *Id*.
[24] Arnold, C. (2014, February 1). *Once Upon a Mine: The Legacy of Uranium on the Navajo Nation*. Retrieved July 9, 2019, from https://doi.org/10.1289/ehp.122-A44.

2006 to 2009.[25] Renal failure is considered the 13th leading cause of death. Cancer is the leading cause of death for ages 60 to 79 and the second leading cause of death for Navajos ages 80 and older.[26] The Indian Health Service estimated that cancer was the third leading cause of death accounting for 7.3 percent of all deaths in the Navajo Area Indian Health Service region from 1999 to 2001.[27]

The following information is produced by population-based cancer incidence data collected from New Mexico Tumor Registry, Arizona Cancer Registry and Utah Cancer Registry to jointly cover the geographic area of the Navajo Nation. Although the incidence and mortality of the most common cancers (prostate, breast, colorectal) remain lower than non-Hispanic white (NHW) population, the Navajos suffer from comparatively high rates of kidney, liver, stomach and gallbladder cancers.[28] Over the decades, increasing rates of lung cancer in this generally non-smoking population was attributed to occupational exposure while working in the uranium mines.[29]

Additionally, a study of 266 cases and matched controls among Navajo births over 18 years suggested that children of women who lived near abandoned uranium sites were 1.83 times more likely to have 1 of 33 selected defects.[30] Some of these defects were thought to be connected to radiation exposure (e.g., chromosomal disorders, single gene mutations) as well as distinctly nonrelated defects (e.g., deaths due to obstetrical complications).[31]

I have previously stated that "prior to uranium mining, the Navajo people were virtually cancer-free with the lowest lung cancer rate of all Native American nations. Today, cancer is the second leading cause of mortality among the Navajo people. Cancer rates doubled on the Navajo Nation from the 1970's to the 1990's."[32] The Navajo Nation and its people have suffered far too much from uranium's toxic legacy.

IV. Impacts to the Navajo Identity

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[25] Navajo Nation Mortality Report, 2006-2009 (Rep.). (n.d.). Retrieved http://www.nec.navajo-nsn.gov/Portals/0/Reports/Vital%20Statistics%20Report%202006%20to%202009%20FINAL.pdf.

[26] *Id*.

[27] *Regional Differences in Indian Health 2002-2003 Edition*. (2008). Retrieved from https://www.ihs.gov/sites/dps/themes/responsive2017/display_objects/documents/RD_entirebook.pdf

[28] Cancer Among the Navajo 2005-2013 (Rep.). (n.d.). Retrieved http://www.nec.navajo-nsn.gov/Portals/0/Reports/Cancer Among Navajo 2018 Spread.pdf.

[29] Brugge, D., & Goble, R. (2002). The History of Uranium Mining and the Navajo People. *American Journal of Public Health*, 92(9), 1410-1419. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222290/pdf/0921410.pdf

[30] Arnold, *supra* note 6.

[31] *Id*.

[32] Navajo Nation, Office of the President and Vice President. (2019, May 22). *President Nez welcomes Dr. Jill Biden and health industry leaders to the first cancer treatment center in Indian Country* [Press release]. Retrieved from http://www.opvp.navajo-nsn.gov/Portals/0/Files/PRESS RELEASES/2019/May/FOR IMMEDIATE RELEASE - President Nez welcomes Dr Jill Biden and health industry leaders to the first cancer treatment center in Indian Country.pdf

The history of uranium mining details how the federal government deliberately avoided dealing with the health disaster among the Navajo uranium miners, even though mining was considered very much a federal matter. For nearly two decades after the harmful effects of uranium mining were known, protective safeguards were not implemented. Earlier efforts at educating mine owners, state officials, and mine workers were non-existent or half-hearted, at best. Additionally, compensation for those who were sick or died came only another 20 years later, after hundreds of Navajo had died. Even when compensation was belatedly provided, it was given in a grudging fashion.

The Navajo people and land have suffered from these failures and continue to suffer today. The Navajo Nation as a people are committed to protecting Mother Earth and Father Sky, and it is imperative that we as a Nation maintain harmony and balance with all living beings within our ecosystem. Tribal ceremonial practitioners are aware of the exact locations of natural springs and other water sources that are used in religious and ceremonial observances. In certain cases, a tribal ceremonial practitioner will use different water sources for different parts of a traditional ceremony. Uranium's impact to water quality has an additional impact on wildlife, plants, and fishers in which uranium has been a disturbance to our health as a people and to our land as we depend on it. Community members are directly impacted by the environment which still sustains our livelihoods and wellbeing. It is a priority of the people to right the imbalance that uranium mining has caused our people when we haven't even fully recovered from the last impacts.

The federal government recognized the profound suffering across the Navajo Nation when the Radiation Exposure Compensation Act (RECA) was implemented in 1990. In enacting RECA, the U.S. Congress clearly recognized the burden and found that radiation released in underground mines exposed miners to large doses of radiation and other airborne hazards in the mine environment that together are presumed to have produced an increased incidence of cancer and respiratory diseases among the miners.[33] Yet, RECA falls short of real justice because it fails to compensate many deserving claims and the provisions included extremely stringent conditions for compensation. The Navajo people have been impacted on a physical, mental, and spiritual level since uranium mining has been introduced into our lands. As a Nation, we have taken great steps to heal our people but this new consideration of potentially re-opening uranium mining on or near the Navajo Nation is a direct threat to our people and our lands taking into consideration all of the past history and effects.

V. Conclusion

In order to prevent further devastation to the health and welfare of the Navajo people and our environment, the Navajo Nation firmly supports actions that will deter uranium mining. Past actions, taken by the Navajo Nation, include the enactment of the Diné Natural Resources Protection Act of 2005 and the Radioactive Materials Transportation Act of 2012. These two

[33] Brugge, D., Benally, T., & Yazzie-Lewis, E. (2006). *The Navajo People and Uranium Mining*. University of New Mexico Press.

pieces of Navajo Nation legislation prohibit the mining and transportation of radioactive material on Navajo land. Recently, the Navajo Nation also opened the first cancer treatment center on an Indian reservation to address our health needs which were, in part, attributable to past uranium mining activity.

The Navajo Nation supports H.R. 3405 and its directive to the Secretary of the Interior to remove uranium from the critical minerals list due to the unrelenting historical wrongs, current health hazards, and degradation to our environment caused by uranium mining. As a Nation, we must protect the well-being of our people and we cannot afford to eliminate the safeguards against uranium contamination particularly when so many Navajo are already living with the consequences of the last government subsidized uranium boom. The Navajo Nation thanks you for your consideration and attention to this matter. If you staff has any questions, please call Santee Lewis, Executive Director of our Navajo Nation Washington Office at (202) 682-7380. Thank you.

Sincerely,

Jonathan Nez, *President*
THE NAVAJO NATION

Myron Lizer, *Vice President*
THE NAVAJO NATION