From: Eric Jantz <ejantz@nmelc.org>
Sent: Thursday, May 27, 2021 7:27 PM
To: UNC-ChurchRockEIS Resource
Cc: Waldron, Ashley
Subject: [External_Sender] Docket ID: NRC-2019-0026, NUREG 2243; Red Water Pond Rd. Community Association comments on DEIS A
Attachments: RWPRCA DEIS Comments FINAL.pdf; Peterson Bell FINAL declaration_052721.pdf

Dear Sirs/Madams:

Please find attached the Red Water Pond Rd. Community Association's comments on the NRC's Draft Environmental Impact Statement for consolidating NE Churchrock Mine Waste at the UNC Mill, NUREG-2243, with an attached declaration by Mr. Peterson Bell.

Please do not hesitate to contact me if you have any questions.

Regards,

--
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Re: Docket ID NRC-2019-0026, Red Water Pond Road Community Association Comments on Waste Consolidation Draft Environmental Impact Statement [License No. NUREG-2243]

May 27, 2021

Dear Sirs/Madams:

Please accept the following comments on behalf of the members of the Red Water Pond Road Community Association ("Community") on the U.S. Nuclear Regulatory Commission's ("NRC") Draft Environmental Impact Statement for the Disposal of Mine Waste at the United Nuclear Corporation ("UNC") Mill Site in McKinley County, New Mexico NUREG-2243 ("DEIS").

I. INTRODUCTION

There can be no argument against the fact that Native communities in the United States have borne more than their fair share of pollution, illness and death as a result of uranium mining and milling. This did not occur by accident. The continuing contamination of Native communities from uranium development is the result of conscious regulatory and policy decisions by the Federal and state governments. In the present case, the Federal government continues with this trend, making decisions that harm the Community and dictating those decisions,rather than listening to, the people most impacted. Here, the NRC is perpetuating a series of decisions that date back to the opening of the Northeast Churchrock Mine ("NECRM") and UNC Mill in which the

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voices of impacted communities are ignored and the economic interests of polluters are paramount.

The Community is, as has been the case since the United States Environmental Protection Agency ("U.S. EPA") first proposed consolidating NECRM waste at the UNC Mill, opposed to this proposed waste consolidation plan. Instead, the Community demands that NECRM waste be removed to a site off the Navajo Nation and out of Navajo Indian Country. Alternatively, the Community demands that the Red Water Pond Road community itself be collectively relocated to a culturally appropriate location of its choosing. Consequently, the Community opposes General Electric's ("GE") proposed amendment to the UNC Mill license to allow NECRM waste to be moved there. The Community also demands that the DEIS be withdrawn, and that the Federal government work with the Community, the Navajo Nation and, as appropriate, New Mexico government to generate a comprehensive policy to address uranium contamination not only at Red Water Pond Road, but throughout uranium impacted indigenous communities in New Mexico.

II. GENERAL COMMENTS

The Community offers the following comments concerning the DEIS's general deficiencies. The Community's specific technical comments are in Section III, below.

A. *The NRC's Discussion of Alternatives in the DEIS Fails to Satisfy NEPA's Requirements.*

Courts have repeatedly held that alternatives analysis is the heart of the National Environmental Policy Act ("NEPA"). *See, e.g.*, *Simmons v. U.S. Army Corps of Engineers*, 120 F.3d 664, 666 (7th Cir. 1997). An agency must consider all reasonable alternatives consistent with the purpose and need stated in the EIS and agency policy objectives. *Muckleshoot Indian Tribe v. USFS*, 177 F.3d 800, 813 (9th Cir. 1999). The broader the purpose, the wider the range of alternatives the agency must consider. *Simmons v. U.S. Army Corps of Engineers* at 666. Consideration of nearly identical alternatives does not satisfy NEPA's requirements. *Id.* at 668.

The current set of facts is almost identical to the 1997 case *Simmons v. U.S. Army Corps of Engineers*. In that case, an Illinois city and a municipal water district sought to dam a local creek to create a single source water supply for both the city and the water district.

Id. at 667. The city applied to the Army Corps of Engineers for the necessary permit under the Clean Water Act. *Id*. The Army Corps produced an Environmental Assessment ("EA"). When the Army Corps drafted the EA, it only considered alternatives that involved a single supply source, ignoring alternatives involving multiple supply sources. *Id*. at 668. The court held that NEPA required that the Army Corps explore all reasonable alternatives to achieve the general goal of the proposed action, i.e., increasing the amount of water available to the city and water district. *Id*. The Army Corps argued its hands were tied, because the municipality proposed the action and was going to construct the proposed dam and therefore the Army Corps was constrained by the applicant's framing of the action. *Id*. The court specifically rejected that excuse, holding that an agency cannot restrict its analysis to those alternative means by which a particular applicant can reach its goals. *Id*., *citing Van Abbema v. Fornell*, 807 F.2d 633, 638 (7th Cir. 1986). The court further stated that the Army Corps has a duty under NEPA to exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of a project. *Id*., *citing Citizens Against Burlington, Inc. v. Busey* 938 F.2d 190, 209 (D.C. Cir. 1991)(Buckley, J. dissenting).

Similarly, here, the DEIS fails entirely to consider a range of or indeed <u>any</u> reasonable alternatives to moving mine waste from the NECRM to the UNC mill. While the DEIS lists four alternatives, in reality, three of those alternatives are effectively identical. The NRC has proposed the following "alternatives": 1) no action (DEIS at 2-1; Alternative 2); 2) transport of NECRM waste to the UNC mill by truck (DEIS at 2-1; Alternative 1); 3) transport of NECRM waste to the UNC mill by conveyor belt (DEIS at 2-1; Alternative 1A); 4) waste consolidation at UNC mill using fill material from two alternative sources (DEIS at 2-1; Alternative 1B).

Despite the NRC's obligation to consider reasonable alternatives, the NRC has either rejected alternatives proposed during the scoping process outright or failed to consider other, obvious, reasonable alternatives. *See, e.g*., U.S. NRC, *Summary Report for the Environmental Impact Statement for the Disposal of Mine Waste at the United Nuclear Corporation Mill Site in McKinley County, New Mexico* at B-18 (Dec. 20190 (rejecting culturally appropriate community relocation). For example, the NRC could have – but did not – consider alternatives such as: 1) relocating the Community to a culturally appropriate location; 2) moving the waste to a Department of Energy monitored site; 3) moving the waste to another GE owned uranium property out of Navajo Indian Country; or 4) working with uranium impacted communities, tribal governments, state

and federal regulators to identify a site for a central repository for uranium development waste.

The NRC's failure to consider these reasonable alternatives is particularly disappointing in light of the project's stated purpose and need. The DEIS states the project's purpose and need is: "to facilitate the expeditious and safe disposal of the NECR mine waste from Navajo Nation land to protect human health and the environment from actual or threatened releases of this material." DEIS at 1-6. Given the purpose and need statement's broad scope, i.e., safe disposal of NECRM waste off Navajo Nation land to protect human health and the environment, the DEIS should have included a far broader range of alternatives than simply the proposed action and the no action alternative. *Simmons v. U.S. Army Corps of Engineers* at 666; *see also*, 40 C.F.R. § 1502.14(c) (Council on Environmental Quality regulations requiring agencies to consider reasonable alternatives outside their jurisdiction).

In sum, the NRC has failed to satisfy NEPA's requirement to consider all reasonable alternatives. Instead, the NRC tailored its alternatives analysis to GE's goal, failing to exercise any skepticism of GE's (and the U.S. EPA's) self-serving proposal.

B. *The NRC's discussion of Mitigation Measures in the DEIS fails to satisfy NEPA requirements.*

The NRC's mitigation analysis also fails to satisfy NEPA's requirements. The omission of a reasonably complete discussion of possible mitigation measures undermines the action-forcing function of NEPA and, without such a discussion, neither the agency, nor other interested groups and individuals can properly evaluate the severity of adverse environmental effects. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). An agency must discuss mitigation measures in sufficient detail to ensure that environmental consequences have been fairly evaluated. *Center for Biological Diversity v. United States Bureau of Land Management*, 746 F.Supp.2d 1055, 1093 (N.D.Cal. 2009) (citations omitted); *San Juan Citizens Alliance v. Norton*, 586 F.Supp.2d 1270, 1291 (D.N.M. 2008). The agency may not merely list potential mitigation measures. *Id.*

NRC's discussion of mitigation measures in this DEIS is nothing more than a list of potential measures GE could take to address the adverse environmental impacts of moving the mine waste to the tailings pile. *See,* Tables 6.3-1, 6.3-2, 6.4-1. NRC has simply listed proposed mitigation measures for different identified impact types

without providing sufficient detail that would ensure the consequences of GE's's proposed action are fairly evaluated. The line between an EIS that contains an adequate discussion of mitigation measures and one that contains a mere listing is not well-defined, but the essential test is reasonableness. *San Juan Citizens Alliance v. Stiles*, 654 F.3d 1038, 1054 (10th Cir. 2011). Detailed, quantitative assessments of possible mitigation measures are generally necessary when a federal agency prepares an EIS to assess the impacts of a relatively contained, site-specific proposal. *Id; compare, N. Alaska Environmental Center v. Kempthorne,* 437 F.3d 969 (9th Cir. 2006).

Conversely, when courts have upheld mere lists of mitigation measures, the circumstances were very different than they are here. For example, in *Kempthorn*, the Ninth Circuit upheld an EIS analyzing oil and gas leases in northern Alaska that listed general mitigation measures because the leasing plan did not approve any construction projects and did not involve on-the-ground disturbances. The license amendment requested by GE, in contrast, is a site-specific proposal, has actual, on-the-ground disturbances in the area that are being evaluated, and it is not a multi-step project. Hence, merely listing mitigation measures is inappropriate in this case.

In the context of an EIS, an agency is required to discuss the extent to which adverse effects can be avoided by mitigation measures. *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998) (holding, in relevant part, that, without analytical data to support proposed mitigation measures, the proposed measures amounted to nothing more than a "mere listing" of good management practices) (overruled in part on other grounds). Without analytical data to support proposed mitigation measures, the court was not persuaded that they amount to anything more than a "mere listing" of good management practices. NRC should have provided additional detail regarding the proposed mitigation measures in order to provide the public with an opportunity to understand and evaluate whether the measures could effectively mitigate the impacts of this proposal.

Additionally, an essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures would be effective. *S. Fork Band Council of W. Shoshone of Nevada v. U.S. Dep't of Interior,* 588 F.3d 727 (9th Cir. 2009). The mitigation measures provided by NRC mention nothing in regards to how, or whether, any given mitigation measure will effectively address the identified adverse impacts. NRC must discuss how effective any proposed mitigation measure would be if adopted. *See Neighbors of Cuddy Mt. v. United States Forest Serv.*, 137 F.3d 1372, 1381 (9th

Cir. 1998) (reasoning that an agency's failure to explain where, how and when mitigation measures would be used and how the measures would be effective does not constitute the detail as to mitigation measures that would be undertaken and their effectiveness).

Further, the DEIS inappropriately relies on future plans of mitigation measures. NRC lists multiple mitigation measures that rely on the development of future plans, such as an EPA-approved Release Contingency and Prevention Plan, a Spill Prevention Control and Countermeasures Plan, and an EPA-approved Revegetation Plan. DEIS at 6-3 – 6-4, Table 6-3.1. Without knowing what these plans entail, any interested individual or group cannot evaluate the adverse effects of the proposed plan. The omission of a reasonably complete discussion of possible mitigation measures undermines the action-forcing function of NEPA and, without such a discussion, neither the agency nor the other interested groups and individuals can properly evaluate the severity of the adverse effects. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

Lastly, the NRC has failed to adequately address environmental justice considerations in the DEIS with respect to mitigation measures. When an agency determines there are disproportionately high adverse impacts to minority and low income populations from a proposed project, as NRC has done here, the agency should consider various mitigation methods, including avoiding an impact by not taking a certain action or compensating for an impact by replacing or providing substitute resources or environments. *See, e.g.*, Federal Interagency Working Group on Environmental Justice and NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews*, March 2016. Accessible here: https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf (last viewed May 2021) Here, NRC has identified impacts to low-income and minority populations as a result of GE's proposed action, but has failed to consider in any meaningful way mitigation measure such as not moving the mine waste to the mill tailings pile or in providing a culturally appropriate relocation alternative, such as moving the Community to Standing Black Tree Mesa. Mitigation measures should reflect the needs and preferences of affected Indian tribes to the extent practicable. *See, e.g.*, Council on Environmental Quality, *Environmental Justice: Guidance Under the National Environmental Policy Act*, 1997. Accessible here: https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf (last viewed May 2021). Instead of following this guidance, however, NRC has continued to ignore the needs of the Community and Navajo Nation President Nez, who called, most recently, for all UNC

mine and mill waste to be removed from Navajo Nation entirely. Letter from Navajo Nation President Jonathan Nez to John Tappert, US NRC at 2-3 (April 12, 2021).

C. *The NRC's Preferred Alternative Breaches the United States' Trust Obligation to the Navajo Nation.*

Like all agencies of the Federal Government, the NRC has a trust obligation to Indian Tribes, including the Navajo Nation. *Cobell v. Norton*, 240 F.3d 1081, 1086 (D.C. Cir. 2001). And like all agencies of the Federal Government, the NRC's trust obligations to the Navajo Nation have several sources. Generally, trust obligations arise from statutes, regulations and treaties. *United States v. Mitchell*, 463 U.S. 206, 224 (1983); *see also*, U.S. NRC, Office of Material Safety and Safeguards, *Tribal Protocol Manual* at 17-19 (Oct. 2017). However, the Federal Government's trust obligations are also largely defined by traditional equitable terms. *Cobell v. Norton* at 1099. Whether examining law or equity in this case, the NRC's decisions reflected in the DEIS breach its fiduciary obligations to the Navajo Nation and its members.

The NRC, as reflected in the DEIS, has breached its trust obligations to the Navajo Nation in several ways. First, as demonstrated above, the DEIS's failure to consider reasonable alternatives and mitigation measures violates NEPA. However, in the current context, the failure to meet NEPA's requirements also represents a breach of the NRC's trust obligations. When, as here, a federal agency is obligated to act as a fiduciary, it must not merely meet the minimum requirements of administrative law, but must also pass scrutiny under the more stringent standards demanded of a fiduciary. *Cobell v. Norton* at 1099, *quoting Jicarilla Apache Tribe v. Supron Energy Corp*., 728 F.2d 1555, 1563 (10th Cir. 1984). The DEIS's abject failure to consider reasonable alternatives to the proposed action and reasonable mitigation measures falls far short of the NRC's fiduciary duty to protect Navajo Nation lands and environment.

The second way in which the NRC breaches its trust obligation to the Navajo Nation is by breaching the terms of the Treaty of 1868 between the United States and the Navajo Nation ("Treaty of 1868"). The Treaty of 1868 defined certain obligations on the part of the United States. Included among those are the obligations to ensure the health, safety, welfare and wellbeing of the Navajo people (Art. 1, Art. 8); the encouragement of certain kinds of land management, i.e., agriculture (Art. 5, Art. 7); and the continued occupation and management of reservation lands by a representative of the United States (Art. 4, Art. 8). Interpreted in the light most favorable to the Navajo Nation

(*Choctaw Nation v. Oklahoma*, 397 U.S. 620, 631(1970)), the Treaty of 1868 clearly imposes both resource protection and land management obligations on the United States. Moving waste adjacent to reservation to an existing radioactive waste hazard breaches the United States' obligation to protect Navajo Nation resources, especially land, air, and water.

III. SPECIFIC COMMENTS

The foregoing general concerns notwithstanding, the DEIS also fails to adequately address several technical shortcomings.

A. *The NRC does not Adequately Address Potential Ponding and Pooling on the Consolidated Waste Pile.*

The preferred alternative proposes placing mine waste consisting of soil, waste rock, mine debris and vegetation on top of the existing mill tailings radon barrier and covering the consolidated waste with an evapotranspiration cover consisting of approximately three feet of cover soil and one foot of rock/cover soil mixture. Safety Evaluation Report at 62, Fig. 3; DEIS at 4-13. The DEIS cursorily states that the mine waste cover design, which includes a slope of 2 – 5 percent, will avoid ponding. DEIS at 4-13. However, even after compaction, the mine waste is heterogeneous, risking interstices, air pockets and other irregularities that could lead to settling, which in turn could lead to ponding and subsequent water infiltration and erosion. Indeed, even at sites where covered waste is homogeneous, such as the Bluewater uranium mill site, ponding is a persistent problem that has required active measures to mitigate. U.S. Department of Energy, *2020 UMTRCA Title II Sites Annual Report, Bluewater, New Mexico Disposal Site* at 1-6 - 1-7 (Dec. 2020). The DEIS does not disclose or discuss any further mitigation measures to address ponding on the waste pile cover, e.g., active pumping systems, or increasing the waste cover's slope.

Moreover, the DEIS does not include any discussion of the impacts if ponding or pooling occurs on the consolidated waste pile. For example, ponding or pooling could create a hydraulic head, pushing ponded water through the waste into groundwater.

B. *The NRC Inadequately Evaluates Waste Cover Integrity*

While the DEIS evaluates whether the waste cover will withstand erosion from a severe precipitation event (DEIS at 5-36 – 5-37), the NRC fails to evaluate the waste cover's integrity in response to frost penetration, root infiltration and burrowing animals. Further, the DEIS fails to evaluate the waste cover's long-term (200+ years) integrity. Instead, the NRC relies on the Dwyer Engineering Cover System Design Report (ML19315A009)("Dwyer Report") to conclude the proposed evapotranspiration cover will maintain integrity for more than two hundred years. DEIS at 5-36 - 5-37. The Dwyer Report, in turn, relies on data generated from the Alternative Landfill Cover Design ("ALCD") project conducted by Sandia National Laboratory. Dwyer Report at 40. However, the ALCD project did not consider the long-term integrity of cover designs.

The NRC's failure to rigorously consider long-term cover integrity is particularly concerning because recent research reveals that conventional mill tailings covers, similar to the proposed mine waste cover, are failing to maintain integrity after just thirty years. *See, e.g.*, Waugh, Jody, *Got It Covered? Performance and Renovation of Disposal Cell Covers at DOE Legacy Waste Sites*, Powerpoint presentation (April 21, 2009). Indeed, the Department of Energy Legacy Management uranium mill site at Mexican Hat, Utah, which has an evapotranspiration cover similar to the cover proposed for the consolidated waste pile, has shown evidence of erosion since 2016. U.S. Department of Energy, *Mexican Hat, Utah Disposal Site Factsheet* at 3-4.

At a minimum, the DEIS should evaluate an alternative waste cover that includes a water storage layer that inhibits frost infiltration, an animal intrusion layer, a geotextile filter and geomembrane liner. *See*, Waugh, W.J, Richardson, G.N., *Ecology, Design, and Long-Term Performance of Waste Site Covers: Applications at a Uranium Mill Tailings Site* at 4, Fig. 1, RustGeotech/DOE-GJPO (1995).

The above concerns notwithstanding, ultimately, the NRC has not meaningfully considered the engineering implications of covering mine waste on top of a tailings pile. Mine waste has physical characteristics much different from mill tailings, e.g., density, heterogeneity of materials, that may make consideration of covers designed for mill tailings, such as the evapotranspiration cover the NRC proposes, completely inappropriate. Neither the DEIS nor the Dwyer report appear to rely on any experiential research regarding covers for mine waste consolidated with mill tailings.

C. *The NRC Fails to Adequately Evaluate Flooding Risks.*

The DEIS inadequately evaluates the risk of flooding to the consolidated waste pile and disposal cell. While the DEIS's discussion of flooding refers to the Safety Evaluation Report (DEIS at 2-6), the analysis presented in the SER does not allay the Community's concerns.

First, the analysis in the SER does not appear to take the impacts of the climate crisis into account in a meaningful way. Based on Community experience, intense storm events and their attendant flooding are only becoming more frequent.

The attached Declaration of Mr. Peterson Bell ("Bell Declaration", Community Attachment 1), a life-long resident of the Red Water Pond Road Community, demonstrates the violence of local flooding that the NRC does not appear to appreciate. For example, Mr. Bell recounts a flood event in the 1990s where flood waters carried a pickup truck-sized boulder approximately 1 mile from its original location. Bell Declaration at ¶ 8. Moreover, Mr. Bell's Declaration indicates that the DEIS does not mention or account for runoff from the many tributaries that feed into the Pipeline Arroyo. *Id*. at ¶¶ 6-7. Indeed, the DEIS indicates that there are no significant water features in the project area other than the Pipeline Arroyo. DEIS at 3-23. However, as Mr. Bell points out, there are several significant arroyos that run through the Red Water Pond Road community that feed into the Pipeline Arroyo and are substantial flooding risks in their own right. Bell Declaration at ¶¶ 6-12; photograph at p. 3.

Ultimately, the NRC's analysis does not meaningfully address how climate change will impact flooding in a semi-arid environment. According to research by the United States Geological Survey ("USGS"), decreased precipitation and increased storm intensity affect dryland drainage basins, such as those in the Community, in surprising ways. For example, in a community in Arizona, flood control levees engineered to contain 100 year floods were overtopped in 1993, 1995 and 2004 by floods well below the 100 year flood level. United States Geological Survey, *A Dryland River Transformed - The Little Colorado - 1936-2010*, Factsheet 2011-3099 at 1-2 (Nov. 2011) ("USGS Factsheet").

Second, the NRC fails to look at erosional effects from flooding in the Pipeline Arroyo. While the DEIS cursorily evaluates "a range of flood events," it fails to review the erosional effects of flash floods, particularly in the Pipeline Arroyo. The DEIS notes that the mitigation measures implemented within the Pipeline Arroyo could be

overwhelmed in the event of a heavy storm, but fails to contain a clear and comprehensive summary of the erosional effects of flash floods in the Pipeline Arroyo. DEIS at 4-21. The statement that the Arroyo stabilization was designed to account for a range of flood events, including estimated peak rainfall intensity for several flood event durations and frequencies and a reference to the stabilization plans in the SER is insufficient to allow for public evaluation of the impacts of flash-flood events from the proposed project. DEIS at 2-15.

Flash flood events, particularly those that happen in under an hour, were not accounted for in the modeling relied on in the Application or analyzed in this DEIS, a severe oversight when undertaking a project in an area prone to short, high-intensity rainfall events. Moreover, Community residents have witnessed several violent flooding events in the past several years, including a flood that destroyed the rip-rap at the bridge over the Pipeline Arroyo at Pipeline Road, as documented in the before and after photos, below.

Fig. 1, before flooding.

Fig. 2, after flooding

Moreover, sheet flows collect at various land features and dammed areas and flow into the Pipeline Arroyo. Bell Declaration at ¶¶ 9-12; photograph at p. 3.

Third, the NRC does not take into account the effects of channel migration in its flooding analysis. According to the USGS, flood models cannot accurately simulate changes in channel form, which in turn affect hydrological behavior. USGS Fact Sheet at 4. Channels in the semi-arid regions are particularly sensitive to changes in precipitation and runoff, meaning changes in climate affect channel characteristics. *Id*.

Fourth, the use of climate data from a site in Gallup, 15 miles away from the tailings impoundment, is not reflective of the actual weather conditions that can be expected in the area that will impact the Pipeline Arroyo drainage system. This canyon is prone to intense, short-term precipitation events leading to floods that have been common in the Pipeline Arroyo for over 20 years. The DEIS should have reviewed local, accurate climate data to determine the effects of flash flooding in this area on the Arroyo. This is especially important because the trend toward a hotter and drier climate on the Navajo Nation could result in even more intense flood events, increasing the power of these storms to erode the area. The DEIS should consider the impacts of the intensity of runoff in this streambed amid more arid conditions that are a result of climate change.

Additionally, due to the already progressive erosion and undermining of the jetty causing the southeastward migration of the Arroyo towards the tailings embankment, and the fact that previous riprap installations have been dislodged and washed away by previous flood events (*see*, Fig. 1-2, above), stabilization via construction of a riprap chute is not enough. By NRC's own admission, this erosion could lead to stability issues with the disposal site (SER at 28) and the stabilization of the arroyo should, at a minimum, be done using Gabions (riprap enclosed in wire mesh) and anchored to the bottom of the wash to further strengthen erosion resistance.

Fifth, the DEIS fails to evaluate the long-term adequacy of the disposal cell. The DEIS does not contain an adequate discussion of the long-term adequacy of the existing mill tailings impoundment as a long-term disposal cell for both mill tailings and mine waste. NRC staff merely rely on EPA's conclusions regarding the long-term effectiveness and permanence of the remedy and conclude that the site is adequate because it will be subject to the use of previously NRC-approved designs, compliance with applicable requirements and provisions for long-term surveillance. DEIS at 4-4. Rather than discussing the long-term efficacy of the disposal cell, or examining the long-term integrity of the proposal, NRC simply states that staff expect to continue working toward mill site reclamation and expect the site to ultimately be transferred to a custodial agency that would monitor the adequacy of the site long-term. DEIS at 5-47.

The DEIS should evaluate the adequacy of the site itself, as it is, rather than assuming any long-term monitoring will be sufficient to identify and address potential impacts resulting from the modified tailings impoundment. Particularly related to long-term impacts to surface water, the DEIS merely states that these impacts "will be addressed" rather than evaluating the adequacy of the pile. DEIS at 4-21. In fact, NRC seems to not have yet determined whether the proposed amendments to the licence will adversely affect the capability of the existing tailings impoundment to conform to the long-term performance objective in 10 CFR Part 40, Appendix A, which must happen before any final EIS can be issued. This shortcoming could be particularly important, because as the DEIS indicates, the disposal cell area may be subject to flooding, including partial or complete immersion of the cell area. DEIS at 4-21, Fig. 4.5-1.

D. *The NRC Inadequately Evaluates Environmental Justice Impacts.*

The most fundamental aspect of evaluating the environmental justice impacts of the proposed action is evaluating the health impacts on the Community, which is inarguably an environmental justice community. However, the NRC's evaluation of health impacts, particularly the disproportionately large cumulative impacts on the Community, is inadequate. The DEIS's summary of public health issues (principally, § 3.12.5.2 at 3-83) relevant to the NECRM waste consolidation plan is superficial and incomplete with respect to regional health data and recent population-based health studies conducted in the Eastern Agency of the Navajo Nation. The DEIS also fails to describe completely and in detail the cumulative and chronic effects of exposure to historic mine and mill waste releases in the Church Rock Mining District.

First, the DEIS relied on a New Mexico Environmental Improvement Division ("NMEID") report published in 1983 ("NMEID Report") to conclude that the 1979 Church Rock Tailing Spill had "no effect on the health of local residents" (DEIS at 3-78). The NMEID Report focused mainly on water quality impacts of the tailings spill and more than 20 years of mine water discharges to the Puerco River, comparing environmental contaminant levels with various regulatory limits. The NMEID Report was not a rigorous, epidemiological and toxicological "health study." As discussed below, several recent population studies have documented increased risks of chronic disease among Eastern Agency residents exposed to uranium wastes, but to this day, there has never been a comprehensive study of relevant health endpoints in any of the Navajo communities of the Puerco River Valley, from the Red Water Pond Road area downstream to Chambers, Arizona.

Furthermore, while mine-water discharges are mentioned in the DEIS, no data are provided to indicate the long-term impacts of those discharges, which reached a peak of 5,200 gallons per minute (gpm) between 1977 and 1982. Total radioactivity released to the Puerco River system from mine discharges was 5.6 times greater than that of the one-time UNC Mill tailings spill. McQuillan D, Shuey C, Robinson P. *Let's Not Wait for Catastrophic Spills to Happen: Holistic, Long-Term, Multi-Jurisdictional Monitoring in Legacy Mining Areas*, Proceedings of the 2nd Animas River Conference, New Mexico Water Resource Research Institute (June 21, 2017); available at: https://animas.nmwrri.nmsu.edu/wp-content/uploads/2017Presentations/ D1_08_Dennis_McQuillan.pdf; Wirt L., *Radioactivity in the Environment — A Case Study of the Puerco and Little Colorado River Basins, Arizona and New Mexico*, Tucson: U.S. Geological Survey, Water-Resources Investigations Report 94-4192. (1994).

Mine water chemistry was characterized by high concentrations of uranium, radium and suspended solids in excess of limits imposed by NPDES permits for the Northeast Church Rock Mine, Kerr-McGee/Quivira Church Rock I Mine, and the Old Church Rock Mine. Shuey C., *Contaminant Loading on the Puerco River—A Historical Review,* Puerco River Symposium, Navajo Nation Environmental Protection Administration, Ft. Defiance, Ariz., Oct. 14. Albuquerque: Southwest Research and Information Center (1992); Robinson WP, *Uranium Production and its Effects on Navajo Communities Along the Rio Puerco in Western New Mexico,* Chapter 11 in Proceedings of the Michigan Conference on Race and the Incidence of Environmental Hazards (Eds.: B. Bryant, P. Mohai). Ann Arbor: University of Michigan School of Natural Resources (December, 1990); Shuey C., *The Puerco River: Where Did the Water Go*? 11 The Workbook 1, (January/March, 1986); available at: http://sric.org/workbook/features/V11_1.php.

Recent concern has arisen that a front of elevated uranium concentrations in the alluvial aquifer in the Sanders, Arizona reach of the Puerco River may be related to steady infiltration of uranium released from past mining discharges. McQuillan D, Shuey C, Robinson P. *Let's Not Wait for Catastrophic Spills to Happen: Holistic, Long-Term, Multi-Jurisdictional Monitoring in Legacy Mining Areas.*

Second, statewide health statistics cited in the DEIS do not identify public health characteristics for the immediate area surrounding NECRM or for the larger area of McKinley County. A 2015 report by McKinley Place Matters, citing federal census data and State of New Mexico and Navajo Nation reports, noted that McKinley County residents have higher rates of stomach, kidney, renal and pelvic cancer than the overall populations of both New Mexico and the U.S., and that Native Americans in the area have higher rates of kidney, pelvic and stomach cancers than White or Hispanic populations. McKinley Place Matters, *Looking Within: A Health Impact Assessment of Uranium Mining. Gallup, NM* (April, 2015); available at: https://mckinleycommunityplacematters.files.wordpress.com/2014/02/looking-within_hia_final.pdf.

Generally, cancer incidence data by community, chapter or zip code are not available from the New Mexico Tumor Registry or the Navajo Nation Epidemiology Center because of confidentiality restrictions. Hence, no cancer data are available for people who live in the Red Water Pond Road and Pipeline Road communities northwest and north of the UNC mill tailings impoundment. Some members of RWPRCA have self-reported their cancers. United States House of Representatives, Committee on Oversight and Government Reform, *The Health and Environmental Impacts of Uranium*

Contamination in the Navajo Nation at 78, Washington, DC: United States Congress, Report No. 110-97 (Oct. 23, 2007); *see, also*, https://webharvest.gov/congress110th/20081217030819/http://oversight.house.gov/story.asp?ID=1560. Community members are not aware of any contact by NRC staff during preparation of the DEIS to ascertain more specific information about cancers in the community.

Third, a series of peer-reviewed studies by the DiNEH Project (Diné Network for Environmental Health Project, Navajo Uranium Assessment and Kidney Healthy Study) documented increased risks of chronic metabolic diseases in people living in the Eastern Agency. The DiNEH Project, coordinated by the University of New Mexico ("UNM") Community Environmental Health Program and conducted by staff of Southwest Research and Information Center ("SRIC"), in collaboration with the Eastern Navajo Health Board and funding from the National Institute of Environmental Health Sciences ("NIEHS"), was carried out in 20 chapters of the Eastern Agency. Eleven of the chapters had uranium mining or milling, nine did not. Residents of the Community and other communities surrounding the Church Rock Mining District were participants in these studies. Like other participants in cross-sectional epidemiological and toxicological studies, their identities are confidential but their health statuses are aggregated in findings from these studies.

Between 2004 and 2011, the DiNEH Project conducted a water, land use and health survey among 1,304 residents of the Eastern Agency using Navajo-fluent and trained interviewers. In 2010-2011, the study hosted 14 community "collection events" at chapter houses, community centers and clinics at which 267 participants volunteered to provide blood and urine samples for analyses of metals and biomarkers of organ damage. Investigators ascertained exposure by calculating the distance from participants' homes to 100 uranium waste sites (98 mines and 2 mill tailings facilities) and analyzing participants' survey responses to 13 questions addressing how they may have been exposed in the past. Exposures range from working in mines, mills or on reclamation projects and living in mining camps to playing on waste piles, herding livestock on or near mine sites, and washing clothing of uranium workers. Nearly 200 participants were residents of Church Rock (69), Coyote Canyon (65) and Pinedale chapters (64) – three of the four chapters that span the Church Rock Mining District. Figure 3 shows that participants living in Church Rock Chapter generally reported more environmental exposures than all DiNEH participants, due largely to the fact that 20 abandoned uranium waste sites (19 mines and 1 mill) are located in the Church Rock area.

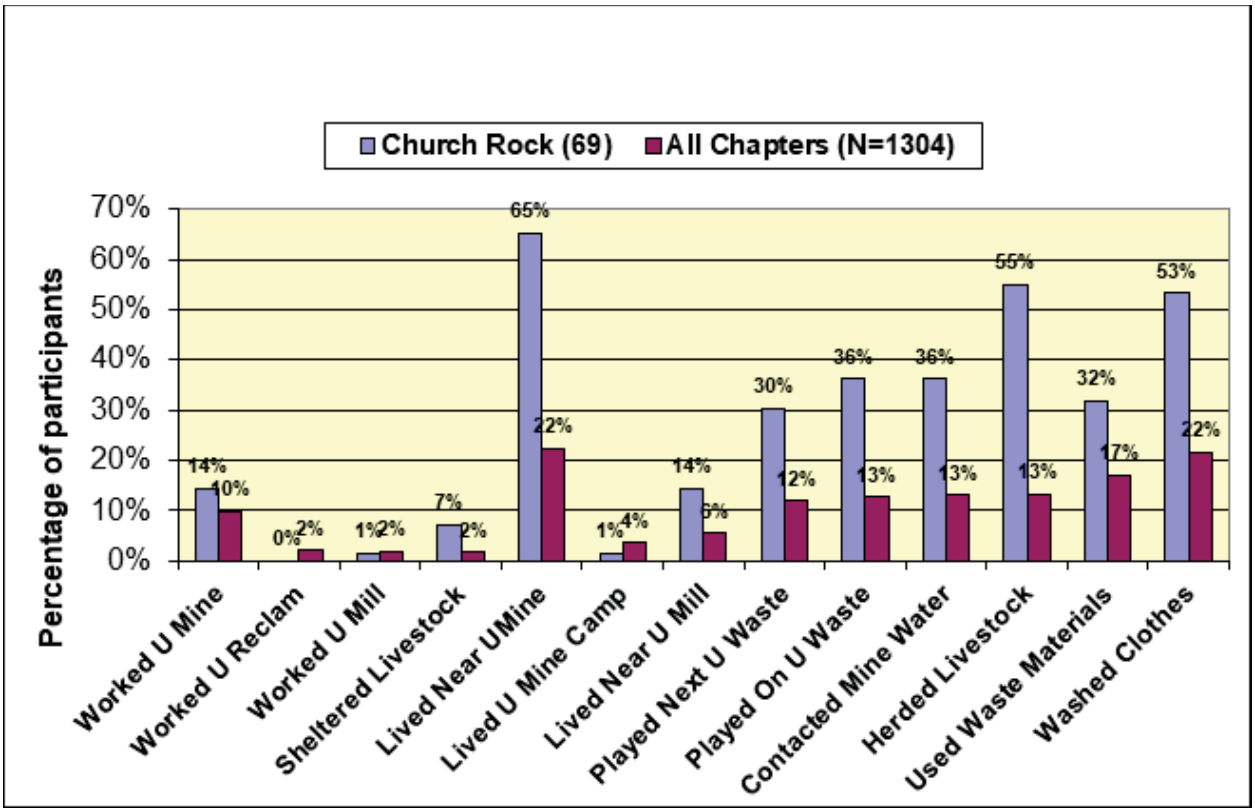

Figure 3. Self-reported environmental exposures among Churchrock participants compared with All Chapters

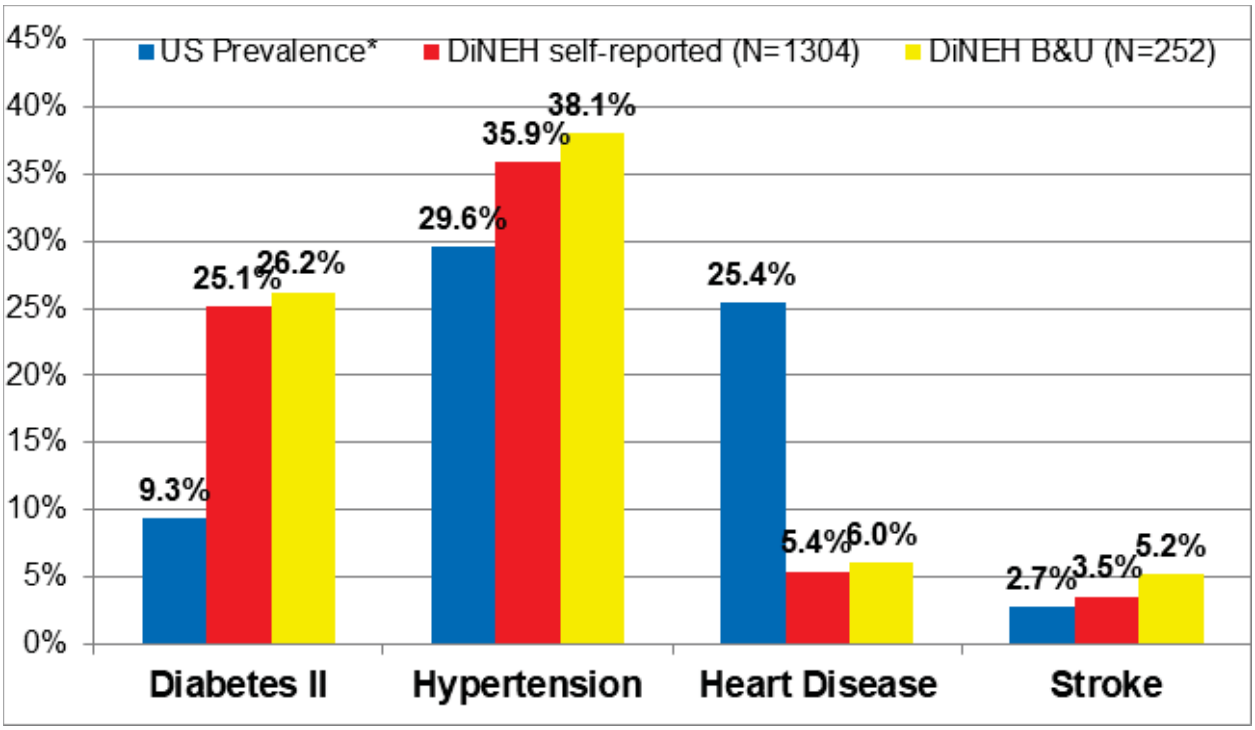

Figure 4. Comparison of Prevalence rates for selected chronic diseases among DiNEH Project Participants, 2012 (from, Shuey, et al., 2019)

Self-reported and clinically established diseases among DiNEH participants compared with U.S. prevalence rates for key chronic diseases are shown in Figure 4. Prevalence of high blood pressure, diabetes and stroke was greater than U.S. rates; heart disease was one-fourth of the U.S. prevalence rate. UNM researchers applied advanced analytical methods to the survey, geospatial and biological data. Among the salient findings were:

· Proximity to waste sites coupled with self-reported lifetime exposures were significant predictors of kidney disease during the active mining era from 1950 to 1986. Hund L, Bedrick EJ, Miller C, Huerta G, Nez T, Ramone S, Shuey C, Cajero M, Lewis JL, *A Bayesian framework for estimating disease risk due to exposure to uranium mine and mill waste on the Navajo Nation*, J. R. Statist. Soc. A (Jan., 2015), (http://onlinelibrary.wiley.com/doi/10.1111/rssa.12099/abstract);

· Proximity to waste sites and self-reported exposures during the Environmental Legacy era (1986 and on) were significantly associated with increased risks of hypertension and autoimmune disease and with a combination of chronic diseases that includes diabetes. Hund et al., 2015; Erdei E, Shuey C, Pacheco B, Cajero M, Lewis J,

Rubin RL, *Elevated autoimmunity in residents living near abandoned uranium mine sites on the Navajo Nation*, 99 Journal of Autoimmunity 15-23 (2019) (Environmental exposures were not significant predictors of diabetes by itself).

· Biomarkers of autoimmunity were associated with proximity, with legacy era exposures and uranium in drinking water at average concentrations of about 8 parts per billion (ppb), or roughly a fourth of the current USEPA drinking water standard for uranium of 30 micrograms per liter (ug/l, which is equivalent to 1 ppb). Erdei et al, 2019.

· Residential proximity to mines and arsenic in drinking water sources were associated with biomarkers of cardiovascular disease, suggesting a link between the high prevalence of hypertension and diabetes in the study population. Harmon ME, Lewis J, Miller C, Hoover J, Ali AS, Shuey C, Cajero M, Lucas S, Pacheco B, Erdei E, Ramone S, Nez T, Campen MJ, Gonzales M., *Arsenic association with circulating oxidized low-density lipoprotein in a Native American community*, Journal of Toxicology and Environmental Health, Part A, DOI: 10.1080/15287394.2018.1443860 (2018); Harmon ME, Lewis J, Miller C, Hoover J, Ali AS, Shuey C, Cajero M, Lucas S, Pacheco B, Erdei E, Ramone S, Nez T, Gonzales M, Campen MJ, *Residential Proximity to Abandoned Uranium Mines and Serum Inflammatory Potential in Chronically Exposed Navajo Communities. J Exposure Sci Environ Epidemiol* (Jan. 25, 2017), available at https://www.ncbi.nlm.nih.gov/pubmed/28120833.

Finally, the DEIS (at 3-84) mentions the Navajo Birth Cohort Study, but provides no summary of findings to date. The study, implemented by UNM in collaboration with SRIC, the Navajo Nation Department of Health and the Navajo Area Indian Health Service with original funding from the Centers for Disease Control and Prevention and most recently by the National Institutes of Health, has shown, among many things, that babies born on the Navajo Nation more than 25 years after the last uranium mines closed have elevated concentrations of uranium in urine at birth and increasing uranium levels in their first year of life. Statement of Dr. Loretta Christensen, chief medical officer, Navajo Area Indian Health Service, before the U.S. Senate Committee on Indian Affairs (Oct. 7, 2019). Rather than simply mention the study as if it has no import to the proposed license amendment, NRC staff should have taken the time to learn more about the methods and coverage of the study and its important findings for the effects of environmental exposures on child development and maternal health.

When viewed through the continuum of contaminants present in the environment at and around mine sites with ongoing pathways of exposure – air (metal-laden dust particles), soil (metals and radionuclides), and water (metals and radionuclides) – these findings paint a picture of widespread chronic exposures to Navajo people living in the chapters with previous uranium mining, including in the Church Rock Mining District. The DEIS does not disclose these findings, leaving the impression that there is little or no evidence of public health impacts of uranium development in the area since 1950.

In the case of the Church Rock Mining District, these exposures began with construction of the NECRM in 1968, the Kerr-McGee/Quivira Mine in 1972, and the UNC mill and tailings disposal facility in 1974-75. As the Community has reported, its occupancy of the valley between NECRM and the Quivira Mine dates back at least 100 years – long before the Government-backed uranium industry descended on the area. Thus, residents of the area have lived through the entire era of uranium development, exposed to mine wastes located literally up the hill or down the road from their residences. Bell, P, Nez B, Hood E, Keyanna T, Bell-Jefferson J, Henio G, Benally A, *Living with Uranium Wastes for 50 Years and Four Generations — A Navajo Community's Perspective.* Poster presentation at 10th International Conference on Metals Toxicity and Carcinogencity, Albuquerque, NM (Oct. 26-28, 2018); available at: http://sric.org/uranium/docs/ Bell_Nez_Hood_RWPRCA_poster_v6_102418.pdf. The NRC's failure to consider these ongoing impacts on the health of the Community and other nearby communities in the DEIS renders its environmental justice analysis inadequate under NEPA.

IV. CONCLUSION

The NRC has obligations under both NEPA and its trust obligations to the Navajo Nation to consider all reasonable alternatives and mitigation measures. In its DEIS evaluating GE's license amendment to consolidate mine waste from the NECRM onto the tailings pile at the UNC Mill, the NRC failed to meet either obligation. Consequently, the Community demands that the NRC deny GE's proposed license amendment and meaningfully evaluate all reasonable alternatives to waste consolidation at the UNC Mill, including moving the waste out of Navajo Indian Country or, alternatively, collectively relocating the Community to a culturally appropriate location of their choosing.

DATED: May 27, 2021

Eric Jantz
Maslyn Locke

Staff Attorneys
New Mexico Environmental Law Center

BEFORE THE U.S. NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Draft Environmental Impact Statement	)	Source Material License No. SUA–1475
for the Disposal of Mine Waste at the	)	Docket ID NRC-2019-0026
United Nuclear Corporation Mill Site in	)	
McKinley County, New Mexico	)	

DECLARATION OF PETERSON BELL

I, Peterson Bell, on this 26th day of May 2021, do hereby state pursuant to 28 U.S.C. §1746, that:

1. I live at 31A Red Water Pond Road, McKinley County, New Mexico. I am a member of Coyote Canyon Chapter of the Navajo Nation, and a member of the Red Water Pond Road Community Association ("RWPRCA").
2. I am of sound mind to give this Declaration in support of RWPRCA's comments on the Nuclear Regulatory Commission's Draft Environmental Impact Statement ("DEIS") for disposal of wastes from the United Nuclear Corporation ("UNC") Northeast Church Rock Mine ("NECRM") on top of the UNC uranium mill tailings impoundment.
3. The purpose of this Declaration is to document my personal experiences from flash floods in the RWPR Community and downstream toward the UNC mill tailings impoundment.
4. I live approximately one-quarter mile north of the NECRM and less than 100 feet from an arroyo that drains into the Pipeline Arroyo near the Quivira Church Rock I Mine site to the east. My home is about 1.5 miles from the UNC uranium mill tailings impoundment where the NECRM wastes would be deposited.
5. I have lived here all of my life. I worked in the Kerr-McGee/Quivira mine as a young man, and until recently, was the last sheep herder in my community. As a Navajo person, I am very familiar with the land, vegetation, wildlife and places of cultural importance. I have observed environmental conditions in my community for more than 60 years. I am familiar with the drainage patterns in our area and have observed changes in the landscape and weather conditions over many decades.
6. First, I want to say that the maps I have seen in the DEIS do not seem to show all of the drainages that feed the Pipeline Arroyo from the south, southwest, west and north in my community. I'm referring to Fig. 3.5-2 of the DEIS. The blue stream shown on the map is what I call the Pipeline Arroyo, but it's also called the "Unnamed Arroyo" is some reports. I observe that three different parts of this drainage are not shown on the map. They are (1) runoff from the hills located south of my home and

west of the NECRM site that flows into the "mine water arroyo" next to the Bus Stop on Red Water Pond Road; (2) runoff from the steep canyon west of our community; and (3) runoff from the Standing Black Tree Mesa area that flows southward into the Pipeline Arroyo from the north.

7. I have personally observed runoff in each of these tributaries to the Pipeline Arroyo. In March 2020, I took pictures of water in the arroyo next to my house. The arroyo at this point was at least 15 feet deep, and it was full of water, nearly overtopping the bank.
8. Second, in the mid-1990s, I recall seeing a large boulder, as big or bigger than an F150 pickup truck, moved downstream from about the location of the Quivira Church Rock Mine IE (we called this the East Shaft) near Chestnut Road to a location on the east side of the drainage area in Section 36, immediately north of the North Cell of the UNC tailings impoundment. I remember the boulder ended up near a tank that is placed at the base of what UNC calls the Dilco Hills. This would be a trip of at least 1 mile, maybe more.
9. This low-lying area of Section 36 just north of the UNC tailings impoundment in Section 2 always seems to have standing water after heavy storms. This is the area with all the white pipes sticking out of the ground. My understanding is that these are wells used by UNC to monitor and pump the underlying groundwater.
10. I am submitting a picture of what this area looked like after a storm in September 2012. (See page 3 below.) This view is looking east from Pipeline Road toward the Dilco Hills in Section 36; the North Cell in Section 2 is on the right side of this photo. I have observed runoff events like this one many times over the past several decades, including when the mill was still operating.
11. I am reporting my observations because I don't think that the NRC people have ever seen the force of these runoff events in and around our community. When it rains in the summer, the storms are short but can be very powerful. The arroyos fill up quickly. All of my family members who live in the Red Water Pond Road Community have seen these floods. I think the NRC people would appreciate the power of these flash floods if they could see what I have observed over the past 60 plus years.
12. I provide this information because I am concerned that flood waters in Pipeline Arroyo will disrupt the dam holding the mill tailings. If that dam fails, we will have another Church Rock Uranium Tailings Spill like there was in 1979. With the mine wastes put on top of the tailings, even more contaminated wastes could be released to our downstream neighbors.
13. Third, I have observed the effects of water and wind erosion on the waste dump at the Quivira Church Rock Mine, which is located just east of the place where Red Water Pond Road crosses the Pipeline Arroyo and heads west. For years, I have seen the Rio Algom people repairing the erosion control

structures on the side of the mine waste dump. It seems they do this every year or every other year. Storm water runs off the mine waste pile, creating deep gullies in the waste pile. Wind blows the dust from the waste around our area.

14. I also see livestock roaming around the Quivira Mine. The fences always seem to be down, allowing the animals to reach the site. There is a grass stand on the waste dump that probably attracts the livestock. We don't know if this exposure to the livestock harms them or harms those of us who consume the meat.

I declare under penalty of perjury that the foregoing is true and correct to the best of my information and belief.

Peterson Bell

Peterson Bell