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March 25, 2011

The Honorable Ken Salazar
Secretary of the Interior
1849 C Street NW
Washington, DC 20240

Re: Critical issues not adequately addressed by the Northern Arizona Proposed
Withdrawal Draft Environmental Impact Statement (DEIS), BLM/AZ/PL-11/002

Dear Secretary Salazar,

The Sustainable Economic Development Initiative of Northern Arizona (SEDI) is a broad based 501 (c)3 non-profit organization whose mission is to advance sustainable economic development in northern Arizona by providing enabling, facilitating, and collaborative support to businesses, educational and government entities, and other organizations that are working to increase social equity, economic prosperity, and ecological health in the region. Based on this mission, SEDI offers the following advisory comments on the adequacy of the proposed DEIS.

According to SEDI's analysis which follows, it is critically important to the economic development, social equity, and ecological health of the Colorado Plateau that the withdrawal of 1,017,776 acres from mineral exploration and mining be extended for at least 20 years (Alternative B).

The Draft Environmental Impact Statement on the proposed withdrawal understates the negative impacts of not withdrawing this land (Alternatives A, C and D). The negative impacts of mineral exploration and mining are understated because of 1) factors that are not considered in the DEIS, and 2) factors whose negative impacts are understated in the DEIS.

The most significant factors not considered in the DEIS are the economic, safety and environmental impacts of the transport of uranium ore from the 30 mines proposed if no lands are withdrawn (DEIS Alternative A). SEDI's analysis indicates that the DEIS calculation of 300,165 round trips from mines in the north, east, and south parcels to the White Mesa Mill would require ore hauling trucks to travel a total of 184,435,893 miles over the life of the mines. According to US Department of Transportation accident data, these trips would be expected to result in 367 accidents, causing 151 injuries and 4 deaths. (See the attached spreadsheet for this analysis of US Department of Transportation data)

There are several important negative impacts of these accidents not considered in the DEIS, including:

- The economic impact on Grand Canyon tourism: The procedures for dealing with accidents involving even low concentration uranium ore are complex and time consuming, and could involve multi-day road closures or significant traffic delays.¹ According to the accident procedures of Denison's trucking subcontractor, such accidents could involve cargo spills, injuries, fires, fuel spills, downed power lines, traffic hazards, and potential pollution of streams or rivers. Uranium ore hauls from the east and south parcels, totaling 91,780 trips, utilize the only road access routes to the Grand Canyon. Any accident on these Grand Canyon access routes would significantly impact the approximately 5 million annual visitors and \$687 million in annual regional economic activity created by the Grand Canyon.²
- The economic and social safety impacts of accidents, injuries and deaths: Beyond the economic impact from access route closures and delays, 367 accidents, causing 151 injuries and 4 deaths would have significant direct and indirect economic and social safety impacts on the region. Although these impacts are difficult to quantify because of the unknown severity of each accidents and injury, and the unknown lost income for the wide range of potential accident victims and their families, these impacts would be significant.
- Other impacts on public safety: The 300,165 uranium ore trips planned would travel through 20 Northern Arizona and Southern Utah cities and towns with a combined population of over 120,000 people. Any accidents in or near these cities or towns would have more significant social and economic impacts than accidents on the open road.

These accident estimates do not include the impact of high winds or tornados which are common on the route from the south parcel through Flagstaff. For example, four tornados in October 2010 derailed 28 railroad cars, turned over tractor-trailer rigs on the freeway, damaged 30 houses, and destroyed the RVs on a sales lot in Bellemont (on the route between Williams and Flagstaff).

Some of the negative factors resulting from not withdrawing this land from mineral exploration and mining which are not adequately covered in the DEIS include:

- Fugitive uranium dust from haul trucks and accidents: Much more fugitive uranium dust and other air pollutants would impact the populations of 20 Northern Arizona and Southern Utah cities and towns than is counted in the DEIS. In its estimate of 42,345,000 pounds of fugitive dust and other air pollutants from uranium ore mined in the impact area, the DEIS does not include uranium ore dust escaping from haul trucks traveling over 184.4 million miles on trips between mines and the White Mesa Mill, or any spills that might be caused by the 367 accidents that are expected during the 300,165 trips between mine and mill. (See the attached spreadsheet for this analysis of US Department of Transportation data)

¹ See Hammon Trucking, "Traffic Accident or Cargo Spill Response Procedure for shipments from Denison Mines (USA) Corp.'s Arizona Strip Mines to the White Mesa Mill", January, 2010; and Denison Mines (USA) Corp., "Transportation Policy", July 5, 2007.

² Northern Arizona University, "Grand Canyon National Park Northern Arizona Tourism Study", April 2005.

- System effect impacts: The DEIS focuses on quantifying the impacts of mineral exploration and mining in many specific characteristics of the area, e.g., air quality, soil, water, vegetation, fish and wildlife, visual and cultural resources, etc. These components are also part of a larger system which is greater than the sum of its parts, and includes the overall economic vitality, social well-being, and environmental health of the region. The DEIS, however, does not adequately account for the negative impact of these systems effects (particularly on a full cost, life cycle accounting basis) if the land is not withdrawn (Alternatives A, C or D). For example, air pollution estimates do not include the air pollution generated from other parts of the system of exploration and mining on these parcels, or pollution that occurs outside the immediate area, such as the air pollution from:
 - generating the energy required for pumps to surface 316 million gallons of ground water,
 - refining and transporting the fuel for all the vehicles and other machinery used in mining and transportation, and
 - generating the electricity used in mining and related operations
 While these air pollution impacts might be considered indirect or not local, these negative impacts are not included in the indirect impacts mentioned in the DEIS.

Examples of other system effects not considered in the DEIS include:

- Significant weather changes over the next 20 years, including extreme storm events increasing in severity and frequency that might breach containment ponds; and the probable increase in drought conditions in the Southwest that would change stream, spring, and well levels and the relative concentrations of mining pollution and uranium leaks into water tables and potentially the Colorado River.
- Black Swan effects – refers to the disproportionate role of very high-impact, hard to predict, and rare events in history and science.³ A recent example is the impact of the 9.0 earthquake and tsunami on several nuclear reactors in Japan. Apparently, to save money both the design and operation of these nuclear reactors were based on more probable disturbances. Last year's BP oil spill in the Gulf provides another example of cost-cutting shortcuts when a full scale blow-out was deemed to be improbable. When an improbable event could be catastrophic, with long-term impacts, however, decision-making based only on probabilities is inadequate. In the case of chemical water pollution by mining wastes or uranium, for example, the DEIS claims the overall cumulative risk for perched aquifer springs is moderate for the north parcel and negligible for the east and south parcels.⁴ Other DEIS comments, however, do not support this conclusion. For example:

³ Taleb, Nassim Nicholas, 2007: The Black Swan, Random House, New York.

⁴ DEIS, p 4 – 84

- ✓ the DEIS acknowledges the estimated pollution impact probability to north parcel springs as 13.2% under Alternative A,⁵ at the same time noting that “incomplete and unavailable information adds to the uncertainty of analyses.”⁶
- ✓ the DEIS also notes that “there is currently no conclusive evidence from well and spring sampling data that breccia pipe uranium mining operations in the North Parcel have impacted the chemical quality of groundwater in the regional R-aquifer,” but acknowledges that “the travel time for some impacts to wells and springs may be longer than the time that has passed since uranium mining began in the North Parcel.”⁷
- ✓ the DEIS comes close to acknowledging the potential impact of current level drought conditions when it notes that “impacts to R-aquifer springs range from negligible to major because, whereas the introduction of mine drainage would have a negligible impact (concentrations of uranium and arsenic remain at ambient levels) where spring flow is large (East and South parcels), there might be a major impact (exceedances of drinking water quality standards) where spring flow is small (South Rim springs north of South Parcel).”⁸ Increasing drought conditions would likely make increase the impact because of reduced flows in all springs.

These comments do not support the precision implied in an impact probability of 13.2%, or a conclusion that impact effects are “negligible”.

Even a characterization of the potential impact of uranium contamination of the Colorado River as 13.2% or as “negligible” creates an unacceptable risk given the significant consequences of an event characterized as “improbable”.

One way of dealing with the possibility of black swan events is use a Failure Mode and Effects Analysis (FMEA) customized to the uranium ore mining and transportation process on a full life cycle basis, i.e., covering the full life cycle of uranium ore’s pollution potency. This approach provides a way to incorporate low probability but high impact outcomes into the decision making process. We were not able to identify any consideration of this important analytical approach in the DEIS.

The DEIS has identified many significant negative impacts of not withdrawing the land in these three parcels from further minerals exploration or mining for the next 20 years, i.e., not adopting Alternative B. Even without considering the additional negative effects identified by SEDI or the inadequacies of the existing DEIS analysis, it seems clear that the economic benefits of Alternative A are not sufficient to warrant the long-term and significant economic costs, as well as the social health, safety, and environmental impacts that would be incurred. When the additional negative impacts identified by SEDI are included, it is SEDI’s conclusion that the DEIS estimates of the negative impacts of Alternative A are significantly understated, which means

⁵ DEIS, p 4 – 70

⁶ DEIS, p 4 – 65

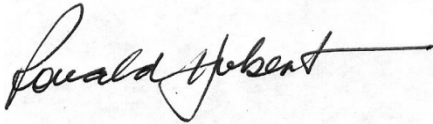
⁷ DEIS, p 4 – 60

⁸ DEIS, p 4 – 80

that the case is even stronger for extending the moratorium on minerals exploration and mining for at least 20 years (Alternative B).

If you have any questions on our analyses or conclusions, please feel free to contact me for additional details.

Best regards,

A handwritten signature in black ink that reads "Ronald Hubert". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Ronald Hubert, MBA, MS (Environmental Science and Policy)
President and Chairman of the Board
Sustainable Economic Development Initiative of Northern Arizona

Enclosure: Transportation Impacts of Grand Canyon Uranium Mining, Alternative A

cc: Mr. Scott Florence, District Manager, BLM Arizona Strip District Office