Thomas Klostermann
Hove 9a
5151 Kürten

BUREAU OF LAND MANAGEMENT
ARIZONA STRIP FIELD OFFICE
MAY 03 2011

Secretary Ken Salazar
U.S. Department of the Interior
Bureau of Land Management
Arizona Strip District
345 East Riverside Drive
St. George, UT 84790
USA

No uranium mining at the Grand Canyon!

Dear Secretary Salazar,

I support protecting the Grand Canyon's entire 1 million-acre watershed from uranium mining as outlined in Alternative B in the Draft Northern Arizona Proposed Withdrawal Environmental Impact Statement and Revisions to the Wthdrawal Application, Arizona.

The Grand Canyon National Park is an international treasure. The diversity of habitats resulting from its great depth, its diverse topography, and its isolated seeps, springs and caves make it one of the most biologically diverse national parks in the United States.

The Grand Canyon is also the home of the Havasupai Nation. Indigenous Nations have been suffering from uranium mining for years. We can't sacrifice their lives. President Obama has signed the UN Declaration on the Rights of Indigenous Peoples in December 2011. Now, it is time to implement it.

Yours

Thomas Klostermann

www.aktionsgruppe.de

David F Hullum/ASFO/AZ/BLM/DOI
05/02/2011 01:10 PM

To Trudy C Law/ASFO/AZ/BLM/DOI@BLM
cc
bcc
Subject Fw: Grand Canyon surrounding lands mineral rights

David Hullum
Recreation Technician
Vermilion Cliffs National Monument
Arizona Strip Field Office
Bureau of Land Management
345 East Riverside Drive
St. George, UT 84790
(435) 688 - 3331
----- Forwarded by David F Hullum/ASFO/AZ/BLM/DOI on 05/02/2011 01:10 PM -----

Steve Newcomb <steve_newcomb@comcast.net>
05/02/2011 10:39 AM

To ASFOWEB_AZ@blm.gov
cc
Subject Grand Canyon surrounding lands mineral rights

BUREAU OF LAND MANAGEMENT
Arizona Strip District
345 East Riverside Drive
St. George, UT 84790-6714

Dear Mr. Scott Florence,

The Grand Canyon is my favorite place to backpack in the world. It is probably one of the only places in the world where there is both ready access and a visual space that is devoid of human development. It provides profound humility to anyone willing to spend 2 or more nights walking among its walls, preferably with as few other people as possible. Best way I can describe it is one enters a new state of mind when they are removed from the daily chores of life and realize how much time it took for all the layers of the Grand Canyon to form. One has to hike into it to understand how big it is, to see a canyon wall from the rim 5 miles away and the same wall standing right next to it.

The biggest challenge to hiking in the Grand Canyon is finding water and mining activities are the biggest human threat to existing water supplies. And this isn't scientific speculation - the watershed of Horn Creek has been poisoned by the operation of the Orphan Uranium Mine at the rim just west of the village. A new uranium mine was approved for Kanab Canyon on the northwest side of the park in recent years and this one mine, operating perhaps for 20 years or so, could effectively close down that part of the park to hiking by making the main source of water, Kanab Creek, radiated if their plans for protecting the water table fail.

If that happened the public would be trading twenty years of profits for one mining company for thousands of years of lost use of tens of thousands of acres of one of the most uniquely beautiful wilderness places on earth. Since

corporations are now individuals, it would be a stupid failure of leadership to let one individual benefit at the potential cost of millions of others, present and in the future. There are many proven sources of uranium in America as well as throughout the world - the land surrounding the park does not need to be mined to provide this resource.

I support protecting one million acres of public lands surrounding Grand Canyon National Park from mining for 20 years, as presented in Alternative B of the Draft Environmental Impact Statement.

Sincerely,

Steve Newcomb
7590 N Desert Tree Dr
Tucson, AZ 85704

Brown
1125 W. Emerald Drive
St. George, UT 84770

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Northern Arizona Proposed
Withdrawal Project
Attn: Scott Florence, District Manager
345 East Riverside Drive
St. George, UT 84790-6714

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May 2, 2011

BUREAU OF LAND MANAGEMENT
ARIZONA STRIP FIELD OFFICE

MAY 0 4 2011

Northern Arizona Proposed Withdrawal Project
ATTN: Scott Florence, District Manager
345 East Riverside Drive
St. George, Utah 84790–6714

RE: Comments on Proposed Northern Arizona Mineral Withdrawal Draft Environmental Impact Statement (DEIS)

Dear District Manager Florence:

I am submitting this letter with my comments on the above-referenced matter.

I vigorously support and urge Interior Secretary Salazar to adopt Alternative B in this DEIS, to withdraw the full current segregation areas from new mining claims for the full 20-year period. I also believe that BLM should conduct validity exams on all existing mining claims within these segregation areas to ensure that those claims are legally valid in terms of having commercially valuable deposits.

I am well-aware of the sad past history of uranium mining problems in this region, and how many companies walked away while leaving many contaminated sites for others to worry about. I know that mining companies now say that that sad history could not be repeated again, but I do not trust them to keep their promises. I put more faith in the proverb that "those who do not learn from history are doomed to repeat it."

For example, we are told that modern environmental inspection and compliance processes, and perhaps also bonding requirements, will prevent any past contamination problems from reoccurring. However, many of these same environmental inspection and compliance processes are now under attack politically and/or their budgets are being drastically cut. Indeed, the Arizona Department of Environmental Quality (ADEQ), which has delegated authority from EPA to administer permits and conduct inspections under the Clean Air Act, Clean Water Act, and perhaps other federal environmental and public health laws, recently announced that due to budget cuts it is closing its Flagstaff office, and only retaining one public affairs position in northern Arizona.

Much of the public concern about potential uranium mining contamination relates to the toxic radioactive or heavy metal releases into air or water. It's easy to connect the dots to see that while greater environmental oversight is being promised by government and industry officials, the harsh reality is that the capacity or ability of government to serve as an objective, effective, or even minimally reliable "watch dog" is rapidly diminishing. How often will ADEQ inspectors from Phoenix drive up to the Arizona Strip to inspect uranium mines for any potential radioactive and/or heavy metal discharges? Since the Arizona 1 mine re-opened, how many such ADEQ inspections have already occurred? Does BLM conduct any such inspections, and, if so, how many have occurred in recent years, how many inspectors does BLM have, and what are the relevant qualifications of any BLM inspectors? My point is that those who were harmed by past broken promises should not accept new promises unless there are ironclad legal commitments, and adequate funds and staff, to guarantee that those promises can and will be fulfilled.

Even on bonding requirements, I doubt that sufficient bonds would be posted in the event of a low-probability but high severity event, like the inadvertent contamination of an aquifer. Indeed, some contamination may be irreversible from a practical standpoint, and no amount of money could reverse the damage. At the point that it is discovered that some precious Grand Canyon seeps and springs are poisoned, it would likely be too late to stop further contamination, and many native species dependent on those seeps and springs could be lost with no practical way to save them or compensate for their loss. Groundwater contamination can go undetected for a long time because infiltration rates vary and groundwater movement may be very slow through more impervious strata. And the above-ground mine retention ponds may be subject to being breached and washed out during severe storms. One such past event is already documented in the USGS reports. With climate change, there are projections of even more violent or unpredictable storm events that could make these retention ponds more vulnerable. And even if the retention ponds are not breached, I worry that small thirsty animals, birds, and bats may be able to access them to drink, and thereby suffer acute or chronic adverse effects. While these ponds may be fenced to keep out larger animals like deer or pronghorn, could birds, bats, small rodents, and amphibians like toads and Tiger salamanders access them?

Aside from the uranium and heavy metal contamination issues, I am also concerned about how increasing mining claims could result in increasing numbers of uranium mines, and how those mines and the associated roads and utility lines could begin to "industrialize" one of the most remote and beautiful areas in the Southwest – the Arizona Strip. These increased developments would cumulatively increase habitat fragmentation and potential road kills from greater ore truck traffic. I realize that it may be more difficult to quantify these types of impacts, either because there is not comprehensive data on how the relevant native species may respond to this level of change, or the impacts are more subjective in terms of determining when remoteness is replaced by a number of more intensive land uses. In this context, I've heard pro-industry statements about how small the footprint of each new mine may be, perhaps in the neighborhood of 20 or so acres. But this unfairly discounts the reality that the impacts from each mine would go far beyond that simple footprint, through possible new roads and utility lines, through increases in ore truck traffic, and through an intensive industrial land use that is a high contrast from other more passive existing land uses, like livestock grazing, people sightseeing or hiking, and hunters scouting trophy animals. What is the tipping point in each remote area on the Arizona Strip in terms of when it would go from remote and wild to no longer remote and wild? Is one or two active mines acceptable, but more than that risks passing this tipping point? How far apart would active mines need to be to not risk changing the overall character of an area? I realize that these are tough questions, but the primary value of the Arizona Strip to most visitors is its wild and remote character. To me, the potential for increased uranium mines is the primary threat to maintaining the Arizona Strip's wild and remote character. It would be truly tragic to wake up one day and realize that we somehow passed this tipping point, and the Arizona Strip or at least a big part of it are no longer wild and remote.

If the uranium that might be mined in the segregation areas was truly needed for a compelling national purpose, then I might support a different DEIS alternative, but it is not. It appears that the current and likely future uranium mining is being conducted by Canadian and perhaps other foreign corporations, and the processed uranium is being sold on the international market and is primarily going overseas to Korea, China, and India. Under the hopelessly archaic Mining Law of 1872, the United States receives no royalty payments for the extraction of billions of dollars worth of public owned minerals. And nuclear power in the United States is about as "socialized" as anything could be, because the industry won't move

forward without massive public loan guarantees, ridiculously low liability caps, and other subsidies. If it is so safe and reliable, why does industry demand huge loan guarantees and liability caps that shift the risks to the public at large? The industry gets the profits, and the public gets the risks. This is not a fair situation, but the industry has disproportionate political clout.

I realize that Interior Secretary Salazar has little or no power over whether the Mining Law of 1872 is reformed, how U.S. policy unfairly subsidizes the nuclear industry, or where Arizona uranium ore ends up in the world. But he does have the power at the end of this current NEPA process to exercise his lawful authority to withdraw all of these currently segregated lands from new mining claims for the next twenty years. I fervently hope and request that he do so. By doing so, he would be stemming the current tidal wave of recent new mining claims, and perhaps helping to keep the Arizona Strip "where the West stays wild." I believe that everyone who has visited the Arizona Strip and genuinely loves its wild and remote character would want this outcome.

Thank you for considering my comments.

Sincerely,

Donna Brown

Donna Brown

1125 W. Emerald Drive

St. George UT 84770

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BUREAU OF LAND MANAGEMENT
ARIZONA STRIP FIELD OFFICE
MAY 0 4 2011

Northern Arizona Proposed Withdrawal Project
Attn: Scott Florence, District Manager
Bureau of Land Management Arizona Strip District Office
34 East Riverside Drive
St. George, Utah 84790-6714

Dear District Manager Florence:

Today this letter is written to the BLM Arizona Strip District Office to provide Public Comment on the Northern Arizona Proposed Withdrawal Draft Environmental Impact Statement - reference 2300 (AZ9100) AZA-035138.

My name is Donald Begalke, of Phoenix, Arizona, and I have been a Public Commentor on federal projects requiring environmental impact statements for over two decades. Some of the federal projects have had bases with the BLM Arizona Strip District Office. Among projects, commenting on grazing leases in the Arizona Strip for 4 or 5 years beginning in the latter part of the 1990s was the longest effort of any public-service-projects' comments for the different federal agencies.

As a Pennsylvanian youngster my consciousness of being a U.S. Citizen was limited, but growth and education changed this person. As a 1961 high-school graduate a gift to visit and stay with my oldest brother for two months in California helped ignite change(s). During a June 1961 TWA flight from Pittsburgh to Los Angeles the captain announced we were in airspace where viewing the Grand Canyon would be possible for 5-to-10 minutes. Being seated at a window was fine with me, but the aggregate bustle of passengers toward all windows was shocking and scary. With additional pilot directions we were sharing viewing opportunities, and conversations abounded. This listener grasped onto abundant statements, especially how proud folks were regarding the Grand Canyon being inside the U.S. and how collectively citizens should do all to preserve forever our "national treasure".

Following teaching years in Ohio, relocation to San Diego during 1969 for new employment occurred. Vacation's first occurrence was filled with activities at and around the Grand Canyon. Uncountable diverse revisits established this writer's efforts to preserve forever our national "Grand Canyon" and the areas around our "treasure".

This public-comment opportunity continues that goal because additional education(s) have provided details why the Grand Canyon is in declines because of negative impacts.

During July 2009 my activities were centered on family in Pennsylvania, directly related to our nation's "economic depression". Unaware of this particular BLM project, there was no mailed notice to me in my held mail for the scoping process. Unfortunately, an additional 16 months passed until a friend informed me of the project's upcoming Phoenix meeting March 1, 2011 on this Draft. Attending the meeting I did receive, and

happily so this Draft's 2 volumes – Thank you, BLM!! - I was a listener at the public meeting. Subsequently, reading and assessing have determined the following comments.

First scoping results are greatly insufficient in this Draft! From 83,525 scoping comments, only light generalities are in this Draft. Of all prior draft EISs, varied federal projects over years, scoping statements have always been included in drafts. However, the very voluminous scoping submissions inform that comments require alternate presentation in order for the reader to acquire assessment bases, and subsequently to present his/her comments on this Draft.

Let's review! On Page ES-2 in the paragraph on "Public Issues and Management Concerns Identified During Scoping", the sentence "All comments received for this scoping effort were assigned, based on content, to one of nine preliminary concerns' categories." What were the 9 categories? Why are those 9 categories not immediately printed in this Draft? Why does this Draft lack accountability on the preliminary concerns' categories?

Subsequently in the same paragraph, "Individual comments were then assigned to one of 25 resource categories on the basis of the overall theme of the comment" informs. The resource categories are immediately printed beginning with "Air Quality" on Page ES-2, continuing to ES-3 and ES-4 through "Wildlife", each with a general definition (?). What is not included with the printing of the resource classifications are the scoping impacts of each category! The reader receives no scoping impact for any of the "25" as he/she is headed toward the Draft's sections on "Affected Environment" and "Environmental Consequences".

How many of the scoping statements were assigned to "Air Quality"? To "Alternatives"? To "Cultural and American Indian Resources"? To "Aquatic Wildlife"? To "Cumulative Impacts"? To "Economic Conditions and Values"? To "Environmental Justice"? To "Healthy and Safety"? To "Lands"? To "Laws and Policies"? To "Minerals"? To "Miscellaneous"? To "Natural Environment"? To "Noise"? To "Persons and Groups Affected"? To "Recreation?" To "Social Conditions and Values"? To "Species of Concern"? To "Soils and Geology"? To "Transportation"? To "Vegetation"? To "Visual Resources"? To "Water Resources"? And to "Wildlife"? The assignments' total numbers for all 25 resource categories would accountably be 83,525, but the specific numbers are flagrantly missing - ?. For best assessments of the categories, having each broken down into subcatagories would show project accountability, and I request BLM do the breakdowns for the Final EIS.

However, realities inform that thousands of scoping commentors have been unjustly wronged by this Draft's "Individual comments were then assigned to one of 25 resource categories on the basis of the overall theme of the comment". Some verbal scoping presentations would have multi themes, and are missing - ? Businesses may have presented scoping comments on lands, minerals, transportation and health/safety issues; yet no discussions are included for those four (possible) business categories. If an organization's scoping letter included statements about archaeological resources, vegetations and water; are their three concerns identified in 3 categories? Thus, for each example, the true assignments' accountabilities would respectively be in "multi categories", four categories and three categories. To report less or to not report "all" distorts the validity of the scoping process.

I respectfully request the BLM Arizona Strip District Office to numerically provide the correct scoping-comments' numbers per resource category by the singular theme and by presentations/letters having multiple themes. As a result the reader/assessor will have an understanding of the true-concerns' totals, which collectively will number in the hundreds of thousands of single-themed scoping comments greater than 83,525. I thank the BLM staff for their Draft efforts; I will thank them more for including balanced-project accountabilities.

Also, since scoping comments were submitted by U.S. Citizens/Businesses/Organizations, and also by

peoples/businesses/organizations from countries around our Earth, should not this Draft include resource-category numbers by the U.S. submissions and by other-countries' submissions, and by individual, family, business and organization totals, too? Possibly cross-countings would also help the reader assess the scoping process for this project. For the Final EIS, I requests BLM's improvements on this Draft.

In this Draft's "Affected Environment" section (Pages ES-8, -9, -10, -11, -12), why are only 15 subsection categories explained compared to 25 resource categories? Is "consistency" a difficulty in this project? What details were not completed? Resource categories not explained as "Affected Environment" subsections are: Alternatives, Cumulative Impacts, Environmental Justice, Health and Safety, Lands, Laws and Policies, Miscellaneous, Natural Environment, Natural Resources, Persons and Groups Affected, and Transportation. The list of resource categories in the previous sentence requires explanations for the Affected Environment to be completely presented. Yet, "Wilderness" is a subsection of Affected Environment, but not a subsection of the resource categories. Numerous inconsistencies exist in this Draft, but available presentations are are good!!

The same inquiries apply to the "Environmental Consequences" (Pages ES-13, -14, -15, -16, -17). The omitted resource categories need to be presented in Environmental Consequences. Wilderness is presented in the E.C.s, but not in resource categories. Confusions abound for the reader of this Draft and for full presentations. Again, inconsistencies exist, perhaps combinations explain differences, but again included presentations are good!!.

This Draft's Chapter 2 is much appreciated because it demonstrates the extents of considerations by the BLM Staff working on this project. Additionally, I believe this BLM Staff is very knowledgeable on the U.S. Public's pride of the Grand Canyon and Americans' desires for fully protecting our "national treasure" and the watershed..

In Section 2.3.4 "permanent withdrawal at this time", what the U.S. Public requires as "best protections" for the Grand Canyon itself and the watershed (full complement of areas adjacent to/surrounding the Grand Canyon), is not presented, but "withdrawals made by the Secretary under the authority of FLPMA are renewable ....". Thus, the above three paragraphs in this Comment are reminders that "automatic renewalship" be included as parts of "Alternate B", "Alternate C" and "Alternate D" respectively on Pages 2-2 and 2-3 in this Draft. I respectfully request that the BLM Staff amend each of "B", "C" and "D", using the appropriate language, for "automatic renewalship" of this project being in the Fnal EIS and being in subsequent withdrawal projects of the future..

Chapters 3 and 4 of this Draft are an excellent read for educational reasons. Additionally, check out Volume 2 of this Draft. In both volumes, explanations, maps and tables increase the reader's assessments of the greater Grand Canyon country area, whether all is considered positive or negative toward selecting a draft alternative or not.

The U.S. Public, in general, has minimal knowledges of the 1872 Mining Law and its negatively-severe impacts on their public lands. As such the Grand Canyon and all the immediate lands adjacent to and around the Grand Canyon require updated protections because of mining and other land uses, public visitations, and recreational experiences et al. Some protective actions and other temporary fixes have helped the Grand Canyon over decades. How are the almost-daily minings' visits and associated visits, permanent impacts on the greater Grand Canyon country area, be counted? Should not 2,000,000 (?) negative mining impacts be explained for Final EIS?

Since an estimated 5,000,000+ folks visit the Grand Canyon itself annually, The Public's expectations of the total area are of "pristine bases" - for their viewings, the geologies, the soils, the waters, the plantlife, the birdlife, the fishlife and the wildlife. Thus uranium and other mining must be minimized or deleted from this country area to meet peoples' expectations. If every person of our Nation would assess Figure 3.14-2 (Draft P.3-219 Vol. I), the Transportation Map of the three parcels, and expand their observances to all other parcels of the Grand Canyon

area, recognitions would abound that this is not a "rural country area", but an urban area - not an expectation of The Public. What would people view regarding mapped roads for "... thousands of new mining claims to be located in the area." [re Draft Vol. I, P.1-3, Sect. "1.2 Background" L.3-4]? Why is that transportation map not included in this Draft? Because it would cause a "horrible, but real, vision" of the adverse dangers to the greater Grand Canyon country area? I respectively request the BLM to insert another transportation road map in this Draft regarding the additional "thousands of new mining claims" which caused this proposed withdrawal project.

Further, BLM should insert another map or maps in this Draft demonstrating all the additional locations of the "thousands of new mining claims to be located in the area" along with the existing uranium mining claims. This Draft requires more future realities, with the dangerous new uranium mining claims, for assessing this project.

When Grand Canyon viewing in the greater area, The Public would generally also view birdlife. Bird species of the greater Grand Canyon country area are: Acorn Woodpecker, Allen's Hummingbird, American Avocet, American Bittern, American Coot, American Crow, American Dipper, American Goldfinch, American Kestrel, American Peregrine Falcon, American Pipit, American Redstart, American Robin, American Tree Sparrow, American White Pelican, American Wigeon, Anna's Hummingbird, Ash-throated Flycatcher, Bald Eagle, Band-tailed Pigeon, Bank Swallow, Barn Owl, Barrow's Goldeneye, Bay-breasted Warbler, Bell's Vireo, Belted Kingfisher, Bendire's Thrasher, Bewick's Wren, Black Phoebe, Black Rosy-Finch, Black Tern, Black-billed Magpie, Black-chinned Hummingbird, Black-chinned Sparrow, Black-crowned Night Heron, Black-headed Grosbeak, Black-necked Stilt,Black-throated Blue Warbler, Black-throated Green Warbler, Black-throated Gray Warbler, Black-throated Sparrow, Blue Grouse, Blue-gray Gnatcatcher, Blue-winged Teal, Bohenian Waxwing, Bonapart's Gull, Brewer's Sparrow, Bridled Titmouse, Broad-tailed Hummingbird, Broad-winged Hawk, Bronzed Cowbird, Brown Creeper, Brown Pelican, Brown Thrasher, Brown-crested Flycatcher, Brown-headed Cowbird, Bufflehead, Bullock's Oriole, Burrowing Owl, Bushtit, Cactus Wren, California Condor, California Gull, Calliope Hummingbird, Canada Goose, Canvasback, Canyon Towhee, Canyon Wren, Cassin's Finch, Cassin's Kngbird, Cattle Egret, Cedar Waxwing, Chestnut-sided Warbler, Chipping Sparrow, Chukar, Cinnamon Teal, Clark's Nutcatcher, Cliff Swallow, Common Black-Hawk, Common Goldeneye, Common Ground-Dove, Common Loon, Common Merganser, Common Moorhen, Common Nighthawk, Common Poorwill, Common Raven, Common Tern, Common Yellowthroat, Cooper's Hawk, Cordilleran Flycatcher, Costa's Hummingbird, Crissal Thrasher, Dark-eyed Junco, Dickcissel, Double-crested Cormorant, Downy Woodpecker, Dunlin, Dusky Flycatcher, Eared Grebe, Eastern Kingbird, Eastern Meadowlark, Eurasian Wigeon, European Starling, Evening Grosbeak, Ferruginous Hawk, Flammulated Owl, Forester's Tern, Fox Sparrow, Gadwall, Gambel's Quail, Gila Woodpecker, Golden Eagle, Golden-crowned Kinglet, Golden-crowned Sparrow, Grace's Warbler, Grasshopper Sparrow, Gray Catbird, Gray Flycatcher, Gray Vireo, Gray-headed Junco, Great Blue Heron, Great Egret, Great Horned Owl, Greater Roadrunner, Greater Sage Grouse, Greater Yellowlegs, Great-tailed Grackle, Green Heron, Green-tailed Towhee, Green-winged Teal, Groove-billed Ani, Hairy Woodpecker, Hammond's Flycatcher, Harris' Sparrow, Hepatic Tanager, Hermit Thrush, Hermit Warbler, Herring Gull, Hooded Merganser, Hooded Oriole, Horned Grebe, Horned Lark, House Finch, House Sparrow, House Wren, Inca Dove, Indigo Bunting, Juniper Titmouse, Kentucky Warbler, Killdeer, Ladder-backed Woodpecker, Lark Bunting, Lark Sparrow, Lazuli Bunting, Least Sandpiper. LeConte's Thrasher, Lesser Goldfinch, Lesser Nighthawk, Lesser Scaup, Lesser Yellowlegs, Lewis' Woodpecker, Lincoln's Sparrow, Loggerhead Shrike, Long-billed Curlew, Long-billed Dowitcher, Long-eared Owl, Long-tailed Duck, Lucy's Warbler, MacGillivray's Warbler, Magnificent Frigatebird, Magnifcent Hummingbird, Magnolia Warbler, Mallared, Marbled Godwit, Marsh Wren, Merlin, Mexican Spotted Owl, Mountain Bluebird, Mountain Chickadee, Montain Quail, Mourning Dove, Nashville Warbler, Northern Flicker, Northern Goshawk, Northern Harrier, Northern Mockingbird, Northern Pintail, Northern Pygmy Owl, Northern Rough-winged Swallow, Northern Saw-whet Owl, Northern Shoveler, Northern Shrike, Northern Waterthrush, Olive-sided Flycatcher, Orange-crowned Warbler, Osprey, Ovenbird, Pacific Loon, Painted Bunting, Painted

Redstart, Palm Warbler, Pectoral Sandpiper, Phainopepla, Philadelphia Vireo, Pied-billed Grebe, Pileated Woodpecker, Pine Grosbeak, Pine Siskin, Pinyon Jay, Plumeous Vireo, Prairie Falcon, Purple Finch, Purple Martin, Pygmy Nuthatch, Red Crossbill, Red-breasted Merganser, Red-breasted Nuthatch, Red-breasted Sapsucker, Red-eyed Vireo, Red-faced Warbler, Redhead, Red-naped Sapsucker, Red-necked Phalarope, Red-shouldered Hawk, Red-tailed Hawk, Red-winged Blackbird, Ring-billed Gull, Ring-necked Duck, Rock Dove, Rock Wren, Rose-breasted Grosbeak, Rough-legged Hawk, Ruby-crowned Kinglet, Ruddy Duck, Rufous Hummingbird, Rufous-backed Robin, Rufous-crowned Sparrow, Rusty Blackbird, Sabine's Gull, Sage Sparrow, Sage Thrasher, Sandhill Crane, Savannah Sparrow, Say's Phoebe, Scarlet Tanager, Scott's Oriole, Semipalmated Plover, Semipalmated Sandpiper, Sharp-shinned Hawk, Short-eared Owl, Snow Goose, Snowy Egret, Snowy Plover, Solitary Sandpiper, Song Sparrow, Southwestern Willow Flycatcher, Spotted Towhee, Spotted Owl, Spotted Sandpiper, Steller's Jay, Summer Tanager, Surf Scoter, Swainson's Hawk, Swamp Sparrow, Tennessee Warbler, Three-toed Woodpecker, Townsend's Solitaire, Townsend's Warbler, Tree Swallow, Tundra Swan, Turkey Vulture, Varied Thrush, Vaux's Swift, Verdin, Vermillion Flycatcher, Vesper Sparrow, Violet-green Swallow, Virginia Rail, Virginia's Warbler, Warbling Vireo, Western Bluebird, Western Grebe, Western Kingbird, Western Meadowlark, Western Sandpiper, Western Screech-Owl, Western Scrub Jay, Western Tanager, Western Wood-Peewee, Whippoorwill, White-breasted Nuthatch, White-crowned Sparrow, White-faced Ibis, White-throated Sparrow, White-throated Swift, White-winged Scoter, Wild Turkey, Willet, Williamson's Sapsucker, Wilson's Phalarope, Wilson's Snipe, Wilson's Warbler, Winter Wren, Wood Duck, Wood Stork, Worm-eating Warbler, Yellow Warbler, Yellow-billed Cuckoo, Yellow-breasted Chat, Yellow-headed Blackbird, Yellow-rumped Warbler, Yellow-throated Warbler, Yuma Clapper Rail and Zone-tailed Hawk. (Source: AGFD, Grand Canyon area).

The point of the above paragraph, based on bird lives, is that the greater Grand Canyon country area abounds in populations. Of the birdlife some populations are permanent, some seasonal and some are migratory (stops.) The area abounds in provisions for each population – health and safety concerns included. Thousands and thousands, for thousands of new mineral explorations, of new-roads' miles and of new-drilling sites' acres will damage or destroy habitats. What would be the losses in total tree-numbers, in shrubs (removed), in scraped-away grasses etc? This Draft fails to present the details on such habitats' losses, and I respectively request those details to be included in this project's Final EIS.

Other than plugging drill holes and surface maintenances, more on reclamations of habitats where mineral explorations fail must be included in assessments also. The exploring companies, failing to find minerals, must submit bonds to federal agencies for reclamations, and repairing acres and acres of lost habitats from unneeded roads and at failed-exploration sites. Soils, trees, vegetations et al must be restored on/within Public Lands, paid for by the bonds. The economics must be discussed in the final presentation of this proposed withdrawal.

Recreationists, too, are affected by unreclaimed mineral-explorations' failures. What are the safety standards by the agencies to protect human healths in the parceled areas under withdrawal discussion? Not in this Draft?

Note: Birding is a constant activity by scientists, groups like the Audubon Society, and individuals. The human trips for birding in the greater Grand Canyon country area are very, very dominantly unannounced, and thusly totals of humans are unknown in counts to this greater area. Rough estimates could be "low millions" annually.

Discussion of other affected lives would include amphibians, fish, mammals, bats, rodents, lizards, snakes and turtles. Whether a special specie or not, there are no reports in this Draft on the changes in populations over two years or five years or ... caused by negative impacts of uranium-explorational efforts and at/around uranium-mining operations. Affected amphibians, affected fish, affected mammals and affected turtles in the three Parcels of this withdrawal project are not specifically assessed in this Draft. Have their populations increased with

uranium-mining operations, decreased because of mineral-exploratory efforts, remained constant in some areas and not in others, and how healthy are individuals of the respective populations mentioned in this paragraph? How can we have a complete environmental-impact statement without the studied reports on amphibians, fish, mammals and turtles? Respectively, BLM is requested to include such reports in the Final EIS.

For bats, rodents, snakes and lizards, reports may be the loss of lives and/or the movements of populations, or .... However, such reports also should be in the Final EIS.

Regarding water issues, I have now developed a disliking of the abbreviation "mgal" - "millions of gallons" of water for uranium mines in the greater Grand Canyon country area. Water is a critical resource for human survival, home for amphibians and fish, very much needed by plantlife, wildlife, birdlife, turtles and other populations, and used for mining operations in very, very large volumes annually. In uranium-mining operations, can used water be recycled to continue mining operations? Do "uranium dust" and micro-particles satisfy uranium's affects on all lives within the greater Grand Canyon country area, and affects on human water consumptions plus agricultural uses both downstream Colorado River uses, fed by drainages, seeps and tributaries from the uranium-mines' areas in the Grand Canyon country area? Since this withdrawal proposal was announced in July 2009, did the BLM study all such contributing waters using safe dyes, thus including such reports in this Draft? Since thousands of new uranium mining claims were filed, what would the total "mgal" be for all those mines, and how would such a very, very great volume of waters used for mines' operations change the greater Grand Canyon country area and all types of lives residing there, and considerations for businesses plus other operations in the greater area must be included? The answers should have been in this Draft, but are not, and should be in the Final EIS for this withdrawal project.

Time did not pass much when reading "3.16 Economic Conditions" (Draft Vol. I, beginning on P.3-250) that an "alarm" went off. On Page 3-252 is "Table 3.16.1 Arizona Employment by Industry", inclusive of "State government". After 23 years of Arizona State Government work (Job Service, Trade Act Services and Unemployment Insurance Services), I retired December 1, 2000. On reading the "State government" line for jobs during Years 1990, 2000, 2007 and 2008, I recognized the numbers reported were very highly over "true job positions for those years". Thus, I drove to the Arizona Department of Administration for correct numbers on our state-government jobs. I received a copy of the "2010 State of Arizona Workforce Report", issued September 2010, and have enclosed copies of three pages: the Director's cover letter to the Governor (Page 7 of my Comment), the "Overview" AWR Page ii (Page 8 of my Comment), and AWR Page iii "2010 Employee Headcount – ADOA Personnel System" (Page 9 of my Comment). Important to understand is that AWR Page ii shows the ADOA headcount on Line 1, and that the remaining counts are for Executive Branch offices, Judicial Branch offices, Legislative Branch offices plus offices and departments not in the ADOA Personnel System. The total job headcount for 2010 Arizona State Government jobs was 35,041 on June 30, 2010 – for the purposes of my Comment on this proposed withdrawal, this page gives us an understanding of where the numbers for the "Total" come from, and is of the same format used for prior years. Since Years 1990 and 2000 were older than 10 years, the ombudsman of ADOA had to telephone me later in April 2011 to provide numbers. For the other Arizona offices and departments, I telephoned them for numbers and received some help, but varied responses included "will get back to you" (some have) to ... to "it is unlikely we will have the time to help you because of our staff".

Therefore, "Table 3.16.1" numbers for Arizona State government should be changed from:
Year 1990 - 61,595 jobs; Year 2000 - 81,026 jobs; Year 2007 – 87,997 jobs; Year 2008 – 88,039 jobs to
Year 1990 - 34,151 jobs; Year 2000 - 42,517 jobs; Year 2007 – 41,749 jobs; Year 2008 – 40,743 jobs. Using

[Note: Pages 7-9 of this Comment are the photocopies of the AWR pages, this paragraph continues on Page 10]

JANICE K. BREWER
Governor

DAVID RABER
Interim Director

ARIZONA DEPARTMENT OF ADMINISTRATION

OFFICE OF THE DIRECTOR
100 North Fifteenth Avenue, Suite 401
Phoenix, Arizona 85007

(602) 542-1500

September 2010

The Honorable Janice K. Brewer
Governor, State of Arizona
The Honorable Robert Burns
President, Arizona State Senate
The Honorable Kirk Adams
Speaker, Arizona House of Representatives
1700 West Washington
Phoenix, Arizona 85007

Dear Governor Brewer, President Burns and Speaker Adams:

It is my pleasure to share with you the 2010 annual report on state personnel and the operation of the state personnel system. This year's Workforce Report includes over 30 charts and tables of information regarding the status of the State's workforce.

During this past fiscal year state government endured another year of unprecedented challenges as the state and the nation experienced an economic recession which directly impacted the state budget. The state implemented a hiring freeze in February 2008 and agency budgets were significantly reduced. Many agencies experienced layoffs and reductions in force during fiscal years 2009 and 2010. The impacts of these actions are clearly illustrated in many of the charts and tables contained herein:

- There were 30,832 active employees at the end of FY2010 (page iii). This is the lowest staffing level in the past 10 years and represents a decrease of 17.4% since 2007.
- The average salary of a covered employee ($37,684) remained essentially unchanged for the third consecutive year (page 2)
- Total costs for overtime have decreased by over $44.6 million (73% reduction) from 2007 levels (page 3)
- The separation rate of covered employees (page 10) decreased from 17.3% in 2007 to the current rate of 15.5% and is below the public sector benchmarks

We hope the information provided in this report will assist you when making decisions regarding Arizona State government and its employees.

Sincerely,

David Raber
Interim Director

Overview

Arizona Revised Statutes (ARS) §41-763.01 requires the Director of the Arizona Department of Administration (ADOA) to provide an annual report to the Governor and the Legislature on the status of the state's human resources and the operation of the state human resources system. The statute requires that the report include information on the following:

- All state employees including the executive, legislative and judicial branch agencies.
- The number of employees affected by and reasons for turnover within state service.
- Information concerning employee compensation during the preceding year
- Overtime pay requirements of all state agencies.
- Other information as determined by the Director.

Figure A – Fiscal Year 2010 Active Employee Headcount

Agency	Active Employees
ADOA Human Resources Personnel System	30,832
Arizona Schools for the Deaf And Blind	388
Auditor General's Office	175
Court Of Appeals Div I (Phoenix)	99
Court Of Appeals Div II (Tucson)	38
Gaming, Dept of	100
Government Information Technology Agency	19
Governor's Office	127
Governor's Office of Equal Opportunity	5
House Of Representatives	198
Joint Legislative Budget Committee	22
Law Enforcement Merit System Council	1
Legislative Council	39
Public Safety, Dept of	1,989
Retirement System	213
Secretary of State/ Library, Archives & Public Records	137
Senate	120
Supreme Court	516
Tourism, Office of	23
TOTAL	**35,041**

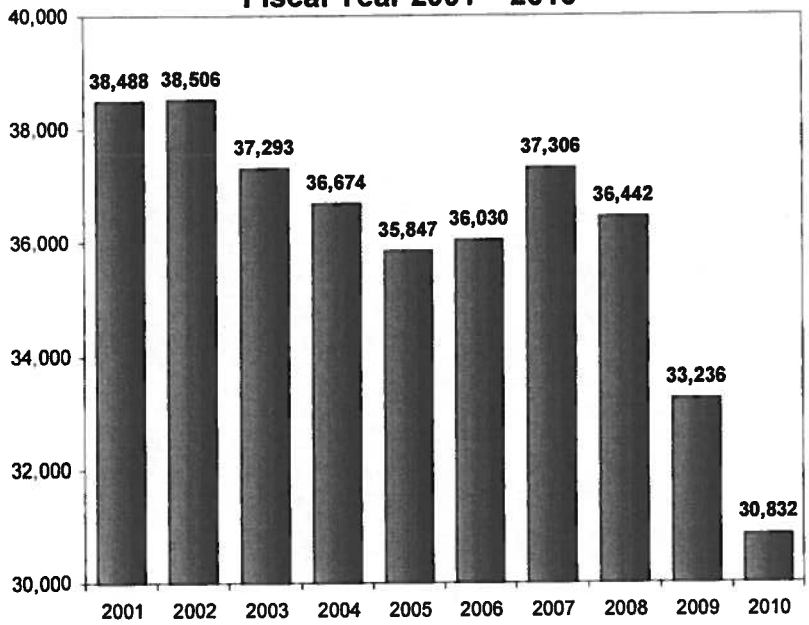
Source: The state's Human Resources Information Solution. Data includes covered and uncovered, regular, active employees at fiscal year end (June 30).

In Arizona State government the majority of agencies are subject to the jurisdiction of the ADOA Human Resources System. However, there are 18 agencies that are not included in this personnel system. Agencies that are not within the ADOA Human Resources System have the authority to develop their own employment, compensation, attendance/leave, and employee relations policies and procedures. Figure A identifies the agencies (excluding the universities) within Arizona State Government and the number of active employees at the end of the fiscal year.

The largest of the human resources systems within Arizona State Government is the ADOA Human Resources System, also known as the Arizona State Service. The ADOA Human Resources System and the Law Enforcement Merit System Council (the Department of Public Safety's personnel system) are the State's only merit systems established by statute. Merit system employees may only be separated from service for cause. Non-merit employees of all systems serve at the pleasure of the appointing authorities and can be separated without the right of appeal. They are considered "at will" employees.

The total number of employees in the ADOA Human Resources System decreased significantly in 2010, dropping to the lowest staffing levels in the past ten years. The decrease in the number of active employees in the past year was 7.2%. The change from 2008 was 15.4%, and the change from 2007, when the state entered a hiring freeze, was 17.4%. This reduction in the size of the workforce has been unprecedented and includes a total reduction of 20% compared with the staffing levels of 2002. Figure B illustrates the unprecedented and significant decrease in staffing levels in state government.

Figure B – Employee Headcount – ADOA Personnel System
Fiscal Year 2001 – 2010



The remainder of this report addresses the ADOA Human Resources System. This report is intended to focus attention on the majority of the state's workforce which is comprised of regular, permanent, full-time employees. Therefore employees that were in positions identified as limited, seasonal, or working part-time of less than 0.25 full time equivalent have been excluded.

Section One – Compensation
This section provides information concerning the compensation of state employees.

Section Two – Mobility
This section illustrates mobility patterns of employees, including turnover rates of different categories of employees and future projections of retirement eligibility.

Section Three – Equal Employment
Comparative data is presented to illustrate the ethnic, gender, and occupational diversity of the state's workforce.

Section Four – Workforce Characteristics
The majority of the information presented in this section illustrates agency level detail with five years of historical information.

The HRIS system captures information from approximately 100 different agencies, boards, and commissions that are included within the ADOA Human Resources System. Many of these organizations are quite small in size. For many of the tables contained herein, organizations with less than 50 active employees have been consolidated into one line item noted as "small agencies".

a mathematical fraction, I am positive all the corrected Arizona State-government job numbers are 99% accurate. I was so disturbed by the Arizona State government jobs numbers in Table 3.16.1 that I followed District Manager Florence's direction to telephone 602-417-9446 to speak with Mr. Chris Horyza, BLM's Az. St Office, because several questions required answering regarding this Economics Conditions section and Table 3.16.1. Mr. Horyza was understanding, listened and then asked for an email, which was sent him the following morning of 2 emails sent him. As of this morning with no reply received in over one month yet from Mr. Horyza, my comment requires printing and mailing to meet the comment deadline for this proposed withdrawal project.

One statement Mr. Horyza made, regarding my concerns on the "Source: BEA (2009h)" (below Table 3.16.1), was that "BLM used a consultant for this section". That Horyza sentence caused "more alarms". I am not here as a corrector of BEA and/or BLM problems, but am very suspicious of other numbers in Tables 3.16.1, 3-16-2, 3.16.5 and other tables, too, involving the BEA and the consultant. If you will, please, return to my Comment Page 6 to the 3rd and 2nd lines from the bottom. Table 3.16.1's 1990 jobs number is distorted 80.36% high in this Draft, for 2000 jobs number distorted 90.57% high, 2007 jobs number distorted 110.77% high and 2008 jobs numbers distorted 115.08% high. Those are very serious distortions. Such very serious distortions cause more distortions in the computed percentages in this Economic Conditions section. I respectively request the BLM's corrections in Table 3.16.1 and the subsequent computed percentages for the Final EIS plus redoing other tables and calculations remaining in the Economic Conditions section of this Draft.

On Page 3-250 of the Economic Conditions section, providing "the latest information" is a stated goal (see 2nd to last line in the paragraph "Industry Employment". Years 2007 and 2008 are used in the tables, and are not the "latest information". I had been informed this Draft went to printing during Fall 2010. Yet Year 2009 data was not used nor was the available latest data for Year 2010 used appropriately where could have been. We must remember that two recessions in the U.S. have occurred during the last seven years, and in my opinion Arizona is still in the latter, deeper recession. Were not the numbers et al of this Economic Conditions section, reviewed and assessed, before this Draft was sent for printing? For Arizona the section contains too many suspect numbers, and that seems true, too, for Utah numbers, read the following paragraph aimed at that state's data.

Please, read (on Page 3-253) "Table 3.16.2 Utah Employment Industry". Utah's "State-government line" under the 2008 column has the total of 88,039 jobs. That same number of Utah jobs appears in the corresponding box for 2008 Arizona State-government jobs on Page 3-252. The same high-distortion problem affects Utah State government jobs' numbers for 1990, 2000, 2007and 2008 too. Why did not BLM directly contact the Utah State human resource office for the jobs numbers for this Draft like they could have contacted The Public Information Office, State of Arizona, Department of Administration, 100 North 15th Avenue, 4th Floor, Phoenix, Az. 85007?

Regarding (Page 3-255) "Table 3.16.4 Mining Sectors: Industry Employment, Using IMPLAN (2008)", a typo has occurred on the 4th Line under" Total". Should this Table 3.16.4 also identify Uranium Mining and Support Activities for Uranium Mining with appropriate numbers across respective lines? Would not road maintenances and transmission-lines' inspections and repairs be some of the activities supporting uranium mining? Please, correct for the Final EIS, and complete also where appropriate for the Final EIS

My comments on the two volumes of this Northern Arizona Proposed Withdrawal Draft Environmental Impact Statement are intended that the best Final EIS can be presented to the Secretary of Interior and Americans. As time has availed since the Public meeting in Phoenix the overwhelming majority of sections in the volumes have been accepted by me, and the BLM's efforts on this project are supported by me plus another opinion would be that the agency would receive the same support from The Public. Where criticisms, requests and statements for completions and corrections are made for the final volumes of this project, please, diligently consider their

importances why changes to this project's EIS help the BLM's goals, and for The Public's support for the presentation of the best Final EIS.

As read repeatedly in the volumes, "the underlying purpose of and need for action is to protect the natural, cultural and social resources in the Grand Canyon watershed from the possible adverse effects of locatable mineral exploration and development that could occur in the area", the U.S. must reach that goal with this project.

As "Alternatives are the heart of the EIS", Alternate B, amended in the Final EIS with "automatic renewalship", is my recommended action for this Northern Arizona Proposed Withdrawal project for protecting the Grand Canyon and the natural, cultural and social resources of its watershed. Alternate B adds the most acreage to the protect the resources of the Grand Canyon watershed, and compliments best the numerous parcels adjacent to and around the greater Grand Canyon country area to ensure best protections we can achieve from this project.

Uranium mining will not be closed down by Alternate B, but will continue with an increase of 233.33% in operations' capacities. With other uranium mining operations across the U.S., the industry will remain vibrant.

Arizona has a very, very sad history in human lives lost from uranium mine operations and in permanent destructions of properties. Alternate B provides the best opportunities to reverse that history.

Additionally, human lives and business concerns, receiving waters along the Colorado River downstream from the Grand Canyon watershed, would benefit from the protections increased by Alternate B as will all populations and businesses plus all-activities' visitors to the greater Grand Canyon country area.

Again, with "automatic renewal" in Alternate B, you have my alternate recommendation for the Final EIS on this project. If without the amendment, Alternate B as present in this Draft is the choice of action.

Thank you for this opportunity to present my Public Comment on the Northern Arizona Proposed Withdrawal project [reference 2300 (AZ9100) AZA-035138].

Sincerely yours,

Donald Begalke

Notes: lakeharq08@yahoo.com is an email address (I do not have my own PC) for news updates on the project; please, keep me on the BLM mailing list for any updates or other projects.

copies: file; others

Kaibab Band of Paiute Indians
Tribal Affairs Building
HC 65 Box 2
Pipe Spring, AZ 86022

BUREAU OF LAND MANAGEMENT
ARIZONA STRIP FIELD OFFICE
MAY 0 3 2011

BUREAU OF LAND MANAGEMENT
NORTHERN ARIZONA PROPOSED WITHDRAWAL EIS
345 EAST RIVERSIDE DRIVE
ST. GEORGE, UT 84790

BUREAU OF LAND MANAGEMENT
ARIZONA STRIP FIELD OFFICE

MAY 0 3 2011

Public Comment Form

Please complete the following:

Name KAIBAB PAIUTE TRIBE

Address HC 65 Box 2
PIPE SPRING, AZ 86022

E-mail Address MSAVALA @ kaibabpaiute-nsn.gov

☐ Withhold my name and address from public review

☐ I want to be added to a mailing list to receive information via **e-mail** during the FEIS preparation

☐ I want to be added to a mailing list to receive information via **regular mail** during the FEIS preparation

Please provide substantive comments, factual information, and other constructive input to help improve the DEIS. Attach additional pages if necessary.

Submit Additional pages - Alternatives

Kaibab Band of Paiute Indians

PROPOSED ALTERNATIVE
KAIBAB BAND OF PAIUTE INDIANS
ARIZONA STRIP TRIBE

The Kaibab Paiute Tribe proposes another alternative to the proposed action of alternates of A, B C & D as submitted in the Northern Arizona Proposed Withdrawal Draft.

The Kaibab Paiute Tribe submits for review and comments the following synopsis for BLM and the cooperating agencies.

The Kaibab Tribe proposes to withdraw new mining claims because of concerns that increased uranium mining could have negative impacts on the land, water, people and wildlife, therefore the entire environment.

We, submit from the Office of the Assistant Secretary-Indian Affairs, dated July 1, 2010, News Release, whereby Interior Secretary Salazar's Policy of a Land-into-Trust of Restoration of Tribal Lands as Key to the Interior Strategy for Empowering Indian Tribes.

The Tribe submits Traditional Southern Paiute Territory Band Division map as supplied by The University of Arizona. We, also submit a map showing the surrounding area adjacent to the Kaibab Paiute Indian Reservation (within 100 miles of reservation) showing National Monuments, National Parks, Wilderness Areas, National Forests and State Parks. The Land is being taken from the general public systematically into Federal Trust.

The Kaibab Paiute Tribe requests the Land which was once the Southern Paiute Territory for a thousand years to come back into the Tribe's possession, for tribal self-determination purposes, providing housing, health care and education, which will in turn provide supporting agricultural, energy options and economic development and foremost halt any further new mining development on the Tribes' Mother Earth.

Therefore, the North Parcel and East Parcel as presented on the BLM Fact Sheet be transferred to the Bureau of Indian Affairs for eventual transition into Trust Status for the Kaibab Tribe.

Your consideration and time is appreciated.

Sincerely,

Dated May 3, 2011

Manuel M. Savala
Chairperson
P: 928 643 8301
F: 928 643 8329
Email: msavala@kaibabpaiute-nsn.gov

cc: doi

OFFICE OF THE SECRETARY
U.S. Department of the Interior

News Release

Office of the Assistant Secretary-Indian Affairs

Date: July 1, 2010
Contact: Nedra Darling
202-219-4152

Salazar Policy on Land-into-Trust Sees Restoration of Tribal Lands as Key to Interior Strategy for Empowering Indian Tribes

Majority of Non-Gaming Trust Applications are Vital to Building Tribal Self-Determination Through Self-Sufficiency

WASHINGTON – Secretary Ken Salazar has laid out his vision that restoration of tribal lands is key to Interior's strategy of empowering tribes and that there must be an improved land-into-trust process for non-gaming applications, Assistant Secretary-Indian Affairs Larry Echo Hawk said today.

"We want to continue the rebuilding of strong relationships with tribal governments that began at the Tribal Nations Conference hosted by President Obama last November," Echo Hawk said. "Tribal self-determination through self-sufficiency rests on the restoration and protection of tribal homelands, and that is key to the Department's strategy of empowerment for Indian tribes. To achieve that, we must have, and we will have, a land-into-trust process that is transparent, orderly, lawful and timely."

The Secretary's views are outlined in a memorandum to the Assistant Secretary dated June 18, 2010.

The Secretary of the Interior's authority to take land into trust is the primary means to help restore and protect homelands of the nation's federally recognized tribes. From the allotment period of 1887 to 1934 and the Termination Era of the 1950s and 1960s, the U.S. Government removed over 90 million acres of tribal lands. To date, nine million acres of tribal lands have been reacquired and taken into trust, mostly within the bounds of existing reservations.

The vast majority of land-into-trust applications processed by the Department are for tribal self-determination purposes such as providing housing, health care and education for tribal members

-Continued-

and for supporting agricultural, energy and non-gaming economic development. Of the more than 1,900 trust land applications currently pending before the Bureau of Indian Affairs, over 95 percent are for non-gaming purposes.

In accordance with the Secretary's memorandum, the Assistant Secretary will ensure that pending non-gaming land-into-trust applications fully satisfy the requirements set forth in applicable federal law, including but not limited to the Indian Reorganization Act of 1934, the land-into-trust application regulations (25 C.F.R. Part 151), and any applicable case precedent. Once these applications have been evaluated under all applicable legal standards, the Assistant Secretary will then move forward "diligently and expeditiously" with decisions on such applications.

The memorandum may be viewed at:
http://www.indianaffairs.gov/WhoWeAre/BIA/OTS/RealEstate/index.htm.

-DOI-

National Park Service
U.S. Department of the Interior

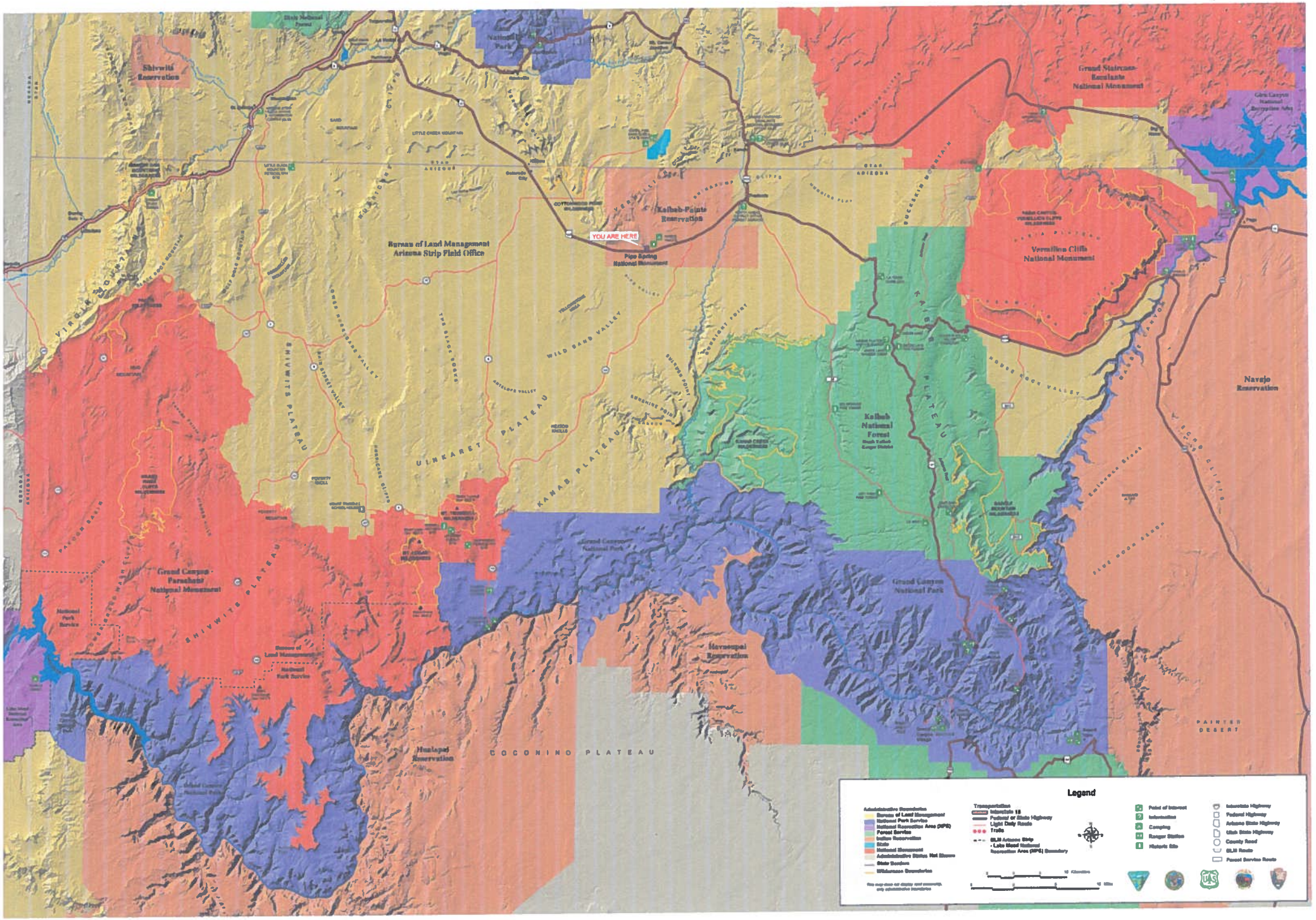
Pipe Spring National Monument

Pipe Spring

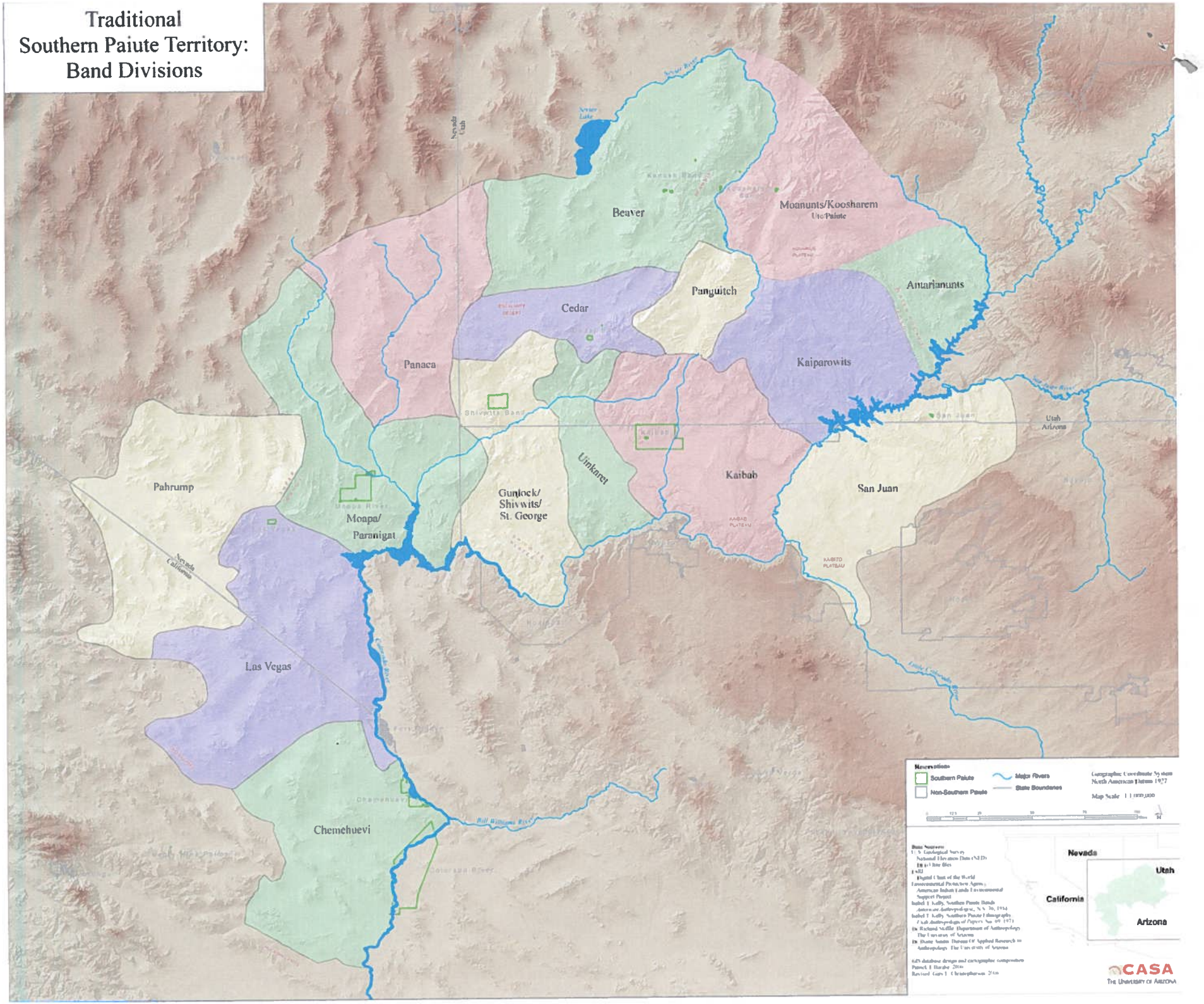
Winsor Castle at Pipe Spring National Monument.

Pipe Spring National Monument, a little known gem of the National Park System, is rich with American Indian, early explorers and Mormon pioneer history. The water of Pipe spring has made it possible for plant, animals, and people to live in this dry, desert region. Ancestral Puebloans and Kaibab Paiute Indians gathered grass seeds, hunted animals, and raised corps near the springs for at least 1,000 years. In the 1860s Mormon pioneers brought cattle to the area. By 1872 a fort (Winsor Castle) was built over the main spring and a large cattle ranching operation was established. This isolated outpost served as a way station for people traveling across the Arizona Strip. It also served as a refuge for polygamist wives during the 1880s and 1890s. Although their way of life was greatly impacted, the Kaibab Paiute Indians continued to live in the area and by 1907 the Kaibab Indian Reservation was established, surrounding the privately owned Pipe Spring ranch. In 1923 the Pipe Spring ranch was purchased and set aside as a national monument.

Today the Pipe Spring National Monument-Kaibab Band of Paiute Indians Visitor Center and Museum explains the human history of the area over time. Daily tours of Winsor Castle, summer "living history" demonstration, and a half-mile trail offer a glimpse of American Indian and pioneer life in the Old West.


Shivwits Reservation
Bureau of Land Management
Arizona Strip Field Office
YOU ARE HERE
Pipe Spring
National Monument
Kaibab-Paiute
Reservation
Grand Staircase-
Escalante
National Monument
Vermilion Cliffs
National Monument
Navajo
Reservation
Kaibab
National
Forest
Grand Canyon-
Parashant
National Monument
Grand Canyon
National Park
Havasupai
Reservation
Hualapai
Reservation
COCONINO PLATEAU
PAINTED
DESERT
Legend

Traditional Southern Paiute Territory: Band Divisions



ACERT
American Clean Energy Resources Trust

Pamela Hill
Executive Director

East 300 South, Suite 3, Kanab, Utah 84741
P. O. Box 806, Fredonia, Arizona 86022-0806
Tel: 435.644.5801 ■ Mobile: 303.335.6426 ■ Fax: 435.644.5803

May 3, 2011

BUREAU OF LAND MANAGEMENT
ARIZONA STRIP FIELD OFFICE
MAY 04 2011

Sent via Federal Express

Northern Arizona Proposed Withdrawal Project
ATTN: Mr. Scott Florence, District Manager
Bureau of Land Management Arizona Strip District Office
345 East Riverside Drive
St. George, UT 84790-6714

Dear Mr. Florence:

On behalf of the American Clean Energy Resources Trust, I am submitting the following comments on the Northern Arizona Proposed Withdrawal Draft Environmental Impact Statement and registering our support for Alternative A – No Action. After review of this behemoth document I have concluded that the legal flaws and significant impacts of the proposed withdrawal give the affected companies, communities and local governments little choice but to consider legal action should BLM fail to correct the DEIS and reissue it.

1. Failure to Identify the Preferred Alternative

The DEIS violates NEPA by not disclosing the preferred alternative or the 'proposed action.' While BLM proposes to withdraw all of the 993,549 acres of public land and National Forest System land from mining, the DEIS does not actually define the 'proposed action' as the preferred alternative. NEPA does not allow the federal agency to sit on the fence and leave the public guessing as to what is in fact the proposed action and what those impacts are likely to be.

As the Supreme Court has stated on several occasions:

> Section 101 of NEPA declares a broad national commitment to protecting and promoting environmental quality. 83 Stat. 852, 42 U. S. C. § 4331. To ensure that this commitment is "infused into the ongoing programs and actions of the Federal Government, the act also establishes some important `action-forcing' procedures." 115 Cong. Rec. 40416 (remarks of Sen. Jackson). See also S. Rep. No. 91-296, p. 19 (1969); *Andrus v. Sierra Club*, 442 U. S. 347, 350 (1979); *Kleppe v. Sierra Club*, 427 U. S. 390, 409, and n. 18 (1976).

Robertson v. Methow Valley Citizens Council, 390 U.S. 332, 348 (1990).

The Council on Environmental Quality (CEQ) regulations that implement NEPA require that the preferred alternative, if different from the proposed action, be disclosed in the draft document.

40 C.F.R. §1502.14(e). The BLM NEPA policy echoes this requirement. H-1790-1, 9.2.6.1 (2008). Similarly, the DOI regulations require each bureau to clearly disclose the proposed action, which in this case, is the proposed withdrawal of all of the federal lands. Thus, there is no rational basis to not disclose the proposed action as the preferred alternative.

The suggestion that BLM has not made up its mind is clearly disingenuous in light of the previous segregation of almost one million acres of federal land in 2009. The high political profile of the proposed action does not support the claims by the Departments that there is no preferred alternative.

2. FLPMA Withdrawal Unsupported Due to Lack of Threat to Natural Resources

The notice of segregation stated that the withdrawal was necessary to preserve the Grand Canyon watershed. 74 Fed. Reg. 35887 (July 17, 2009). The scientific documentation by agencies within the Department of the Interior demonstrate that uranium mining does not threaten the watershed of the Grand Canyon and a withdrawal is not necessary to protect public land resources. To the extent that special interest groups argue to the contrary, there is a bona fide scientific controversy that must be thoroughly explored. 40 C.F.R. §1508.27(b)(4). Previous geologic reports establish that the uranium mining will occur well above the water table for the Colorado River system as it runs through the Grand Canyon. More recent analysis also demonstrates that mining activities will not threaten the Grand Canyon watershed.

In addition, mining activities will have minimal to no effects on the watershed, due to the small size of the mining sites, the lack of water where the mining occurs, and existing water quality rules that govern these activities.

Because the DEIS cannot credibly document adverse impacts on the Grand Canyon watershed, it fails to meet the essential criteria for a withdrawal. While the Secretary has discretion as to when he closes land to mining, FLPMA requires that he document the threat. Since no such threat has been credibly documented, the proposed withdrawal does not meet the essential criteria for a withdrawal.

Specific comments about the Northern Arizona Proposed Withdrawal Draft Environmental Impact Statement follow this letter.

Respectfully submitted,

Pamela C. Hill

Pamela C. Hill
Executive Director

Enclosures – Eight (8)

:

AMERICAN CLEAN ENERGY RESOURCES TRUST (ACERT)

COMMENTS ON THE

NORTHERN ARIZONA PROPOSED WITHDRAWAL

DRAFT ENVIRONMENTAL IMPACT STATEMENT

May 3, 2011

READER LETTER

Statement: The BLM prepared this document in collaboration with 15 federal, state, local, and tribal cooperators in an effort to provide an objective analysis of the Proposed Action and Alternatives based on the best available science. This DEIS has been prepared on behalf of the Secretary of Interior to inform his decision whether or not to withdraw lands in the vicinity of the Grand Canyon from the Mining Law of 1872. This DEIS was developed in accordance with the National Environmental Policy Act of 1969 (NEPA), the Federal Land Policy and Management Act of 1976, implementing regulations, the BLM's NEPA Handbook (H-1790-1), and other applicable laws and policy.

Comment: You will note in this comment letter that the best available science that SWCA has provided is not adequate or accurate. There are significant errors in this report and significant omissions that demonstrate that there is no need for a withdrawal of lands in northern Arizona.

Statement: The planning area consists of approximately 1,010,776 acres of federal mineral estate, which includes about 626,354 acres of public lands managed by the Arizona Strip Field Office, 360,349 acres of National Forest System lands managed by the Kaibab National Forest, 4,284 acres administered by the Arizona State Land Department, and 19,789 acres of private land.

Comment: These numbers are consistent with Table 6 in the Executive Summary; however, they are inconsistent with the numbers in the text prior to Table 6. Please correct the text or the table, whichever contains the incorrect numbers.

EXECUTIVE SUMMARY

INTRODUCTION

Page ES-1

Statement: Currently, approximately 1,010,776 acres of federal mineral estate are segregated from entry under the Mining Law and are divided into three parcels. The three proposed withdrawal parcels border Grand Canyon National Park. They are all rich in natural and cultural resources and are intricately connected to the watershed of the Grand Canyon. The North Parcel comprises approximately 554,124 acres, the South Parcel approximately 134,454 acres, and the East Parcel approximately 322,198. Approximately 27,775 acres of non-federal surface are located within the three segregated parcels.

Comment: (1) An approximate number of acres seem inadequate for a thorough and long lasting withdrawal proposal such as this DEIS encompasses. (2) Upon review of the table on ES-6 it appears that your statement above has an error about the number of acres in the South and in the East. The table indicates that the South parcel has 322,198 acres and the East parcel has 134,454 acres. Which numbers are correct? The above text indicates that non-federal surface acreage is 27,775, yet the table clearly indicates that the surface ownership of non-federal lands is 19,789. Which number is correct? Please correct the incorrect information so the reader has consistent numbers to evaluate.

Table from ES-6
Comparison of Key Alternative Components

Proposed Withdrawal Parcel	**Alternative A No Action Area Open under the Mining Law**	**Alternative B Proposed Action 20 Years ~1 Million Acres Withdrawn**	**Alternative C Partial Withdrawal 20 Years ~700,000 Acres Withdrawn**	**Alternative D Partial Withdrawal 20 Years ~300,000 Acres Withdrawn**
North	None	*Surface Ownership* BLM 523,922 FS* 7,919 State 4,204 Private 18,079	*Surface Ownership* BLM 334,724 FS 7,919 State 4,204 Private 9,249	*Surface Ownership* BLM 101,797 FS 7,919 State 801 Private 681
East	None	*Surface Ownership* BLM 102,432 FS 31,273 State 0 Private 749	*Surface Ownership* BLM 65,125 FS 24,359 State 0 Private 749	*Surface Ownership* BLM 31,444 FS 24,359 State 0 Private 429
South	None	*Surface Ownership* BLM 0 FS 321,157 State 80 Private 961	*Surface Ownership* BLM 0 FS 205,616 State 80 Private 961	*Surface Ownership* BLM 0 FS 132,764 State 80 Private 407
Total Acres of Federal Locatable Mineral Estate to Be Withdrawn:	None	*Surface Ownership* BLM 626,354 FS 360,349 State 4,284	*Surface Ownership* BLM 399,849 FS 237,894 State 4,284	*Surface Ownership* BLM 133,241 FS 165,042 State 881

Private 19,789	Private 10,959	Private 1,517
Total: 1,010,776	**Total: 652,986**	**Total: 300,681**

Page ES-2

Statement: Neither the current segregation order nor the proposed withdrawal apply to non-federal mineral estate or to leasable or salable minerals (e.g., oil and gas leasing, sand and gravel permits), which are not subject to appropriation under the Mining Law.

Comment: It appears to be inconsistent and discriminatory to allow other mining and drilling on the lands in the withdrawal area. Those processes would also impact the soil, view, air, wildlife, birds, plants, water, traffic and every other issue raised in this DEIS.

PURPOSE AND NEED

Page ES-1 to 2

Statement: The need for the preparation of the EIS has been established by three factors: the Secretary's proposed withdrawal, the lasting impacts of some of the historic hardrock mining activities in the Grand Canyon watershed, and the concern that these historical impacts and the recent increase in the number and extent of mining claims in the area could have adverse effects on resources within the human environment.

Comment: This statement is deceitful. First, the Secretary's proposed withdrawal is purely politically motivated and brought about by pressures from special interest groups. Second, to address the "lasting impacts of historic hardrock mining activities in the Grand Canyon" area can only be a veiled reference to the Orphan Mine which began as a claim filed in 1893 – before the Grand Canyon was made a National Park – and started copper production shortly after the turn of the century. Uranium was eventually discovered in the ore and mined there from 1953 to 1969 – long before current mining laws, permitting, rules, regulations and mining practices were in force. All mining in the area dating from the 1980s to the present day have followed the myriad of stringent federal and state laws, rules and regulations beyond the letter of the law, all the way to its very spirit.

Energy Fuels Nuclear (a company which mined uranium on the Arizona Strip throughout the 1980s) volunteered to completely reclaim the Orphan Mine at no charge to the government — eliminating and removing any and all radioactive contaminates and permanently sealing all shafts, adits and other access to the mine. This offer was rejected by the National Park service! To continue to use the Orphan Mine as the poster child for bad mining practices is inappropriate and misleading.

If this is a reference to old mines on the Navajo Reservation, you are referring to basically ancient times in mining history. Those mines were active at a time when the Atomic Energy Commission (AEC) (one of your fellow agencies) was actively encouraging uranium mining. The AEC was not concerned with possible health issues, nor were prospectors or miners at that time. If the AEC had knowledge of the mining hazards, they did not share the knowledge that

miners were at serious risk of illness. The resulting abandoned mines were under the supervision of one of your agencies so to blame industry is truly unbelievable!

Third, to equate any number of mining claims with an actual operating mine, and then, to further, equate any future mine with the impacts caused by historic mines such as the Orphan is simply disingenuous and demonstrates the bias that is rife throughout the DEIS.

Fourth, the preparers of this document did not research the number of claims that were active during the strong mining activity in the 1980s. For your information:

Northern Arizona Uranium Mining District
Number of Active Claims within Area Now under Segregation*

Year	Active Claims	Year	Active Claims	Year	Active Claims
1977	252	1988	23,929	2000	300
1978	373	1989	21,312	2001	311
1979	2,557	1990	20,086	2002	215
1980	4,044	1991	18,804	2003	112
1981	13,365	1992	913	2004	463
1982	16,550	1993	472	2005	1,620
1983	18,518	1994	530	2006	5,315
1984	20,065	1995	517	2007	8,449
1985	20,702	1996	474	2008	8,550
1986	23,425	1997	498	2009	8,168
1987	23,807	1998	501	2010	5,207
		1999	468	2011	3,301

* According to the BLM LR2000 Database

As you can see, there were far more claims in the 80s with active exploration and mining. The immense weakness of this report is that there are extremely limited references to the exemplary mining activities that took place in this area during the 80s and early 90s.

PUBLIC ISSUES AND MANAGEMENT CONCERNS IDENTIFIED DURING SCOPING

Page ES-2

Statement: By the end of the scoping period, the BLM had received 83,525 comment submittals. All comments received for this scoping effort were assigned, based on content, to one of nine preliminary concerns categories. Individual comments were then assigned to one of 25 resource categories on the basis of the overall theme of the comment. Comments were received concerning the proposed withdrawal as well as concerning exploration and development activity.

Comment: It is curious to note that the total number of transmittals from the scoping process was used in this executive summary when, in fact, the Scoping Report states that 1,805 of these comments were identified as duplicate submittals. "Of the 81,720 non-duplicate submittals

received, 93.55% (76,452) were identified as form letters, 5.72% (4,671 submittals) as form letters with additional comments, .03% (28) submittals as public comment forms and the remainder as original content submitted via email (0.52% or 428), letter (0.17% or 139) or fax (<0.01% or 2)." When questioned about the validity of the email submittals, the BLM could not confirm that each submission was a unique, identifiable individual submission. Yet the comments were tallied (as you would in a vote) and used as the basis for this DEIS. The highly questionable number of comment submittals (782) coming from Tucson, Arizona, home of Center for Biological Diversity Board Member and Congressman Raul Grijalva, creates further doubt about the validity of the comment submittals received.

Review of the categories created by the scoping comments suggests that particular comment exercise was, in fact, a vote. The uranium resources in northern Arizona are far too important to the region and the nation to allow a "beauty contest" vote to determine the issues or the outcome.

LANDS

ES-3

Statement: The proposed withdrawal area includes 986,703 acres of federal locatable minerals underlying public (BLM) land and National Forest System lands and 24,073 acres of federal locatable minerals underlying non-federal surface.

Comment: In this section it is stated **without estimation** that "the proposed withdrawal area includes 986,703 acres of federal locatable minerals underlying public (BLM) land and National Forest System lands and 24,073 acres of federal locatable minerals underlying non-federal surface." Yet later in the DEIS the number changes from a definite number of acres to an "estimated" number of acres. It seems that the acreage should be absolute number to even begin to develop an EIS.

PERSONS OR GROUPS AFFECTED

ES-4

Statement: Groups affected by the proposed withdrawal include the BLM, U.S. Forest Service (Forest Service), National Park Service (NPS), and U.S. Environmental Protection Agency (EPA); state, local, and tribal governments; business and industrial organizations; and environmental groups such as the Center for Biological Diversity. Persons affected include local citizens, including tribal members, the touring and recreating public users, and citizens both national and international.

Comment: You have chosen an interesting example in the Center for Biological Diversity (CBD) as an environmental group. The instigator for this withdrawal is Raul Grijalva, CBD Board Member and Arizona Congressman. By listing the organization's name, it gives the perception of collusion rather than a good example of a concerned "environmental" group. And, when you

review the CBD website, it would appear they are more of a law firm than an organization concerned with the environment. This is another example of a biased report.

You have also mentioned international citizens as people affected by the possibility of mining in northern Arizona. Are you suggesting that the occasional international visitor to the Grand Canyon is going to be adversely affected by mining in any of the areas proposed as withdrawal areas? International visitors to this country consider this nation to be one of the most wasteful in the world. And if queried about this issue would most likely comment that it is a tremendous waste of our domestic resources.

GEOLOGY AND MINERAL RESOURCES

Page ES-9

Statement: The uranium deposits within the northern Arizona breccia pipes are of higher grade than approximately 85% of the world's known uranium deposits. The lands within the proposed withdrawal area are considered to have a high potential for uranium with a high level of certainty.

Comment: Unless the current administration is just blowing smoke about reducing greenhouse gas emissions, advancing energy independence, and creating badly needed jobs, the fact that **northern Arizona breccia pipes are of higher grade than approximately 85% of the world's known uranium deposits** speaks volumes.

Statement: The lands within the proposed withdrawal area are considered to have a high potential for uranium with a high level of certainty.

Comment: Since this is a known fact, why would one of President Obama's appointees withdraw a massive area that would provide the highest grade of ore with the least amount of land disturbance at approximately 20 acres per mine instead of the thousands of acres needed for some mines?

RECREATION

Page ES-10

Statement: Recreation activities occurring throughout the proposed withdrawal area involve a broad spectrum of pursuits, ranging from dispersed and casual recreation to organized, BLM-permitted and Forest Service–permitted group uses. The Arizona Strip is known for its large-scale undeveloped areas and remoteness. Typical recreation in the region includes off-highway vehicle driving, scenic driving, hunting, hiking, wildlife viewing, horseback riding, camping, backpacking, mountain biking, geocaching, picnicking, night-sky viewing, and photography. The area's proximity to the globally recognized Grand Canyon enables large numbers of U.S. residents and foreign visitors to access the public lands conveniently.

Comment: This comment seems to be specific to the north parcel. One has to ask if any one of the preparers of this report has traveled from Highway 389 south on the dirt road to the north boundary of the Grand Canyon. This road is only for the hearty vehicle with heavy duty tires.

This is not a bike path nor is it a hiking trail. Many of these roads were put in for mining purposes. They were not reclaimed at the request of the BLM so they would have access to the area. The road to the boundary is neither scenic nor campground material. This is an arid land with sage brush spaced generously due to the lack of water in the area. There are no homes along those roads and only a few cattle here and there. There are some trees but nothing glamorous like a shade tree – mostly taller juniper trees. As for the endangered species of plants on the Strip – the natural process of lack of moisture is a far greater threat than any small mining operation could be. As for all of the other activities listed, you must have confused the withdrawal area with the monuments and wilderness areas in northern Arizona.

SOCIAL CONDITIONS

Page ES-10

Statement: Other than a handful of towns and cities in each county, the study area is relatively remote and sparsely populated. Population centers in Coconino and Mohave counties are generally located south of the proposed withdrawal area.

Comment: Compared to Flagstaff, Arizona, Kanab, Utah and Fredonia, Arizona may appear "sparsely populated". However, both communities are gateway communities for travelers going south from St. George, Utah or Page, Arizona. These communities lost a significant number of residents due to the mining shut down in the early 90s.

WATER RESOURCES

Page ES-12

Statement: Resource condition indicators for water resources <u>likely to be affected</u> as a result of mineral exploration and development activities in the proposed withdrawal parcels include the quantity and quality of water discharge at springs that issue from perched groundwater zones <u>that may be affected</u> by operations at nearby mine sites, quantity and quality of water discharge at springs that issue from the regional R-aquifer system <u>that may be depleted</u> by operations at mine sites, and the quantity and chemical quality of receiving surface waters.

Comment: While numerous studies, some cited in Chapter 3, indicate that there is little evidence of higher values of uranium in the water caused by uranium mining and exploration, the study persists with the subjective, biased assumption that any activity will have a negative impact on the study areas. The following statements from the DEIS point to the low probability of water contamination from uranium mining and exploration:

Page 3-57

- ✓ breccia pipe uranium mine sites in the study area are generally characterized by well-cemented, very low permeability breccias and adjacent formation rocks, which do not permit the flow of groundwater through the tightly locked mineral deposits. This condition inhibits dissolution of mineral deposits associated with these economically viable breccia pipes into groundwater. Some ring fracture zones and the cemented breccia itself at these sites have locally contained some connate water (water trapped during formation of the geological feature), which drained away quickly when intercepted by mine openings; at many places,

the ring fracture zones had been completely healed by carbonate or other mineralization and did not yield water

- ✓ conditions are not favorable for downward migration of leached minerals and constituents (such as uranium and arsenic) from the ore deposits to the R-aquifer

- ✓ AAC R12-15-817 for exploration wells and AAC R12-15-816 for water wells require proper abandonment to prevent cross-contamination of different aquifers.

Page 3-58

- ✓ none of the studies conducted for water quality at these wells, one of which included periodic sampling data for up to 9 years after completion of mining activities (Hermit well), concluded that uranium mining activities have affected the R-aquifer. Based on their 2009 water quality sampling study, which included sampling of the Pinenut and Canyon mine wells, Bills et al. (2010) concluded that relations between the occurrence of dissolved uranium and 13 other trace elements and mining activities were few and inconclusive.

Page 3-58-59

- ✓ movement of perched water away from the mine openings is not anticipated to occur during mine operations.

Page 3-69

- ✓ These perched reservoirs are commonly small, thin, and discontinuous, and generally depend on annual recharge to sustain yield to wells and springs (Bills et al. 2010; Montgomery et al. 2000). The perched aquifers overlie and have no direct hydraulic connection to the deep R-aquifer; therefore, any downward movement of perched groundwater is by gravity drainage

Page 3-75 (north parcel)

- ✓ Therefore, exploration and development activities in the North Parcel can not affect the springs that are supported by recharge and groundwater movement in the Kaibab Plateau.

Page 3-77

- ✓ The cause of the decrease was not identified and could be the result of a complex set of circumstances, including decreasing precipitation trends and pumping from the aquifer at Tusayan since 1989. This decrease is not attributed to uranium mining operations because there have been no uranium mining or groundwater withdrawals from the R-aquifer for mining in the South Parcel or adjacent areas during the period of the Rihs et al. (2004) study, and only minor use of the Canyon Mine well since it was drilled.

Page 3-79

- ✓ A principal conclusion of the 2010 USGS report was that "observation of groundwater-chemistry relations between concentration and mining condition (no exploration or development activity, active mines on interim management, or reclaimed mine areas) were limited and inconclusive" (Bills et al. 2010:194).

Page 3-85

- ✓ Dissolved uranium concentrations exceeding the regional average of about 7 µg/L detected in groundwater or springs near existing and/or former mines do not necessarily indicate that the water is impacted from exploration and development activities.

CHAPTER ONE

1.2 BACKGROUND

Page 1-3: *Reasons for the EIS*

Comment: The public needs to know that the withdrawal came about because of pressure from the radical anti-industry groups such as the Grand Canyon Trust, Center for Biological Diversity, and Sierra Club, and that the BLM and Forest Service did not on their own decide that a withdrawal should be considered. The public also needs to know how many tax dollars have been and will be spent on the withdrawal, the EIS, and associated activities. The public also needs to know that no matter how much "science" is involved in the EIS the decision on the withdrawal will be political rather than objective.

Page 1-4

Statement: The 2-year segregation does not prohibit continuation of already approved mineral exploration and development activity, nor does it prohibit the approval of new mining on existing mining claims, provided that those claims were valid as of July 21, 2009, and have remained valid. As of June 2010, there were approximately 5,300 mining claims located within the three segregation parcels.

Comment: According to the BLM Database, in 2010 there were 5,207 claims in the three segregation parcels. For your information, each claim requires an annual $140 renewal rental fee (they are likely to be renewals as no claims would be staked under the segregation). Those claim fees provided the BLM with $728,980 in income in 2010 while the claimants were not able to utilize the land. Let's just say if the number of claims remained the same for 20 years and the annual renewal rate remained the same, the loss to the BLM and thus the federal government would be $14,579,600. If the land is withdrawn, it can be assumed that those claims will be released and that loss will become a reality.

If there is no withdrawal and additional claims could be filed and we could assume (assuming is consistent with this DEIS) that the number increases to the same number of active claims in 1988 which was 23,929, the annual income to the BLM would be $3,350,060. That would be a great addition to the BLM coffers. And, if that number of claims remained consistent throughout the next 20 years, the income would be $67,001,200. Imagine losing that income to satisfy a political maneuver. It is irresponsible and lacks fiduciary accountability.

Page 1-4: *Impacts of past mining activities*

Comment: The EIS says that past mining activities have left lasting impacts. There were no requirements for reclamation when these historic projects were terminated; if there had been these projects would be unnoticeable today. Under present regulations, mining sites must be

fully reclaimed and a bond covering the full cost of reclamation must be posted. The bond is not returned until the appropriate government agency has approved the reclamation. If the party posting the bond does not perform the reclamation, the bond is forfeited and a contractor is hired to do the reclamation.

The EIS should mention that at the time these historic mining activities were carried out there were no requirements for reclamation. It should also mention that today reclamation is required by law, and that a bond must be posted.

1.4.2 COOPERATING AGENCIES

Page 1-9 Kane County, Utah

Statement: Because of its proximity to the proposed withdrawal area and its historic dependence on the Arizona Strip as a significant source of income and employment for its residents, Kane County is participating as a cooperating agency in the EIS process. Kane County had an estimated population of 6,577 in 2008 (U.S. Census Bureau [Census Bureau] 2008a). Like Coconino County, Kane County's economy is primarily tourism based. Lake Powell, Zion National Park, and other recreation sites attract tens of thousands of visitors each year. As a result, the leisure/hospitality services sector is the leading employment sector. The mining industry is also a significant employer in Kane County. Mining wages and salaries per job have consistently been the largest in the study area and have experienced steady growth from 1980 through 2000. However, it should be noted that the number of mining jobs in Kane County has been low since at least 1980 (BLM 2008c).

Comment: Upon review of your reference (BLM 2008c), we could find no evidence of your above statement regarding mining jobs in Kane County. Please provide the exact reference for our review.

1.4.3 AUTHORITIES – INCLUDING FEDERAL LAWS, STATUTES, REGULATIONS, EXECUTIVE ORDERS, AND PRESIDENTIAL PROCLAMATIONS & TABLE 1.4-1

Pages 1-10 through 1-18

Statement: A number of legal authorities apply to the processing of the proposed withdrawal application and preparation of the associated EIS. These include laws, policies, and orders that established the basic tenets of the Mining Law, set the requirements for consultation between federal agencies and tribal governments, formulated the policies on the use of federal lands, promulgated the regulations for mining on federal lands, and set overall management objectives in agency legislation.

Comment: It is almost inconceivable that the architects of this DEIS would omit Public Law 98-406 (the Arizona Strip Wilderness Act) from the list of legal authorities. When passed and signed into law in 1984, the Arizona Strip Wilderness Act was thought to have once and for all addressed any and all questions of wilderness and conservation in northern Arizona.

The Arizona Wilderness Act specifically recognized the uranium potential of over one half million acres of Bureau of Land Management (BLM) and U.S. Forest Service lands in northern Arizona by releasing them from wilderness classification so they could be explored and mined. With overwhelmingly strong bipartisan support from all factions across the entire political spectrum of the time, Congress spoke and clearly defined the disposition of public lands in northern Arizona. Most believed that the years of controversy and debate, as well as the uncertainty and constant reevaluation, were over. However, it would appear that (with this DEIS) the wheel is again being reinvented.

The omission of Public Law 98-406 (Arizona Strip Wilderness Act) is clearly prejudicial against the uranium mining industry.

CHAPTER TWO

2.4.2 ALTERNATIVE A: NO ACTION ALTERNATIVE

Pages 2-11 thru 2-13, Tables 2.4-2, 3, 4; Page 2-15, Tables 2.4-5, 6

Statement: With Alternative A there are projected to be 30 mines over a 20-year period (Tables 2.4-2, 3, 4). With Alternative B there would be still be 11 mines (Tables 2.4-5, 6).

Comment: How can it make sense to withdraw 1+ million acres of land from mining for preventing 19 mines, when each of those mines must undergo rigorous scrutiny with a separate EIS?

If there could even be 30 mines in the next twenty years, at 20 acres per mine, we are talking about roughly 600 acres out of 1.1 million acres. It seems that the staggering number of acres in the proposed withdrawal is a major overkill.

2.4.4 ALTERNATIVE C: LOCATABLE MINERAL OPERATING REQUIREMENTS

Pages 2-17, 2-18 and 2-19: Figures 2.4.2, 2.4.3, 2.4.4

Comment: The difference between Alternative C and D is the area where Cultural Resources are the only resource identified as being impacted by the proposed mining. In the evaluation of the alternatives, it is concluded that there is no impact if avoidance is used to mitigate any such impact. It is further possible to mitigate impact on the sub-set of archeological resource within the Cultural Resources category by excavation and data collection. Other sub-sets of the Cultural Resources category are not located in the DEIS because of Native American sensitivities but from the descriptions appear to be restricted to areas within Alternative D. It is apparent then that many of the 400,000 acres to be withdrawn if Alternative C is selected over Alternative D is based only on the impacts on archeological resources that can be completely mitigated through commonly applied techniques. A withdrawal on that basis alone is ludicrous.

2.6 PREFERRED ALTERNATIVE IDENTIFICATION: Table 2.8-1, Geology and Mineral Resources (4.3)

Page 2-33

Statement: The DEIS states that even under Alternative A "underground geological impacts and associated effects on groundwater are not able to be determined without site-specific studies."

Comment: Mining regulations require that there will be site-specific studies required for each exploration site and potential mine. There is no justification to withdraw the entire 1+ million acres at the very outset based on this parameter.

Page 2-33, Table 2.8-1

Statement: Under Alternative A, the mines would produce 33,155 tons of URANIUM (U_3O_8), over a 20-year period. Under Alternative B, this would be reduced to 4,147 tons.

Comment: This is a reduction of 29,008 tons. What is the rationale to deprive the local economy of the benefits of 87.5% of the mineral?

It is recognized that these values are computed on a different basis. However, the net result shows that 11 mines would produce only 4,147 tons of U_3O_8 and the other 19 would produce 29,008 tons. By presenting the material in this manner, there is a bias towards emphasizing that the production when there is withdrawal (Alternative B) is considerably less than when mining is allowed (under Alternative A). Should an EIS present the data in such a manner and claim to be objective?

Page 2.33, Table 2.8-1: Perched Aquifer Wells

Comment:

North Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 11.

With Alternative B, impacts could vary from no mines located where they may affect wells to 1.

East Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 5.

With Alternative B, no mines are located where they may affect wells.

South Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 4.

With Alternative B, impacts could vary from no mines located where they may affect wells to 1.

Comment: Does a comparison of these numbers of wells justify the removal of 1+ million acres of land from mining, since each site would be subject to rigorous scrutiny with a separate EIS?

Page 2-34, Table 2.8-1: Deep Aquifer Springs, Quantity

Comment:

North Parcel: Under Alternative A, the volume of water withdrawn from the mine-related R-aquifer wells would be between 0% and 5%, over a 20-year period. This is based on 21 mines using 21 gpm which is 4.5% of the 470 gpm discharge from the Kanab and Showerbath springs. This amount of water from the springs is uncertain. Since the reach of these springs is diffuse, the reach is probably considerably larger. So the potential impact is likely negligible.

Under Alternative B, the volume of water withdrawn from the mine-related R-aquifer wells would be between 0% and 5%, over a 20-year period. In this case, 10 mines would use 10gpm. Again, the impact is negligible

East Parcel: Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This is an overestimate since the water flow into the Colorado River from the South Canyon walls is about 3,700 gpm, but there is flow from the other side and into the river from the R-aquifer directly. So the decrease is 0.1% or negligible.

Under Alternative B, the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be 0%, over a 20-year period.

South Parcel: *Havasu and Blue Springs*

Under Alternative A, the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This is a high estimate since the 7 projected mines will draw 7 gpm over the 20-year period. The Havasu Springs have a flow of 29,000 gpm and the Blue Springs complex flow is 46,000 gpm. Hence, the impact is negligible for either of the springs.

Havasu Springs only

In Table 2.8-1, under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This range is unrealistically large, since the backup discussion indicates that the one mine that might impact the Havasu Springs would result in a decrease of 0.01% and would not even be measureable.

South Rim Springs

In Table 2.8-1, under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% to more than 10%, over a 20-year period.

If the mines were located in the basins of the Hermit Springs or the Garden Springs, the flow from each is around 300 gpm, so the decrease in discharge would be less than 2%, which is negligible

Other Springs

Under Alternative B, the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be 0%, over a 20-year period.

The summary table presents exaggerated ranges for the impacts under Alternative A. This is liable to mislead a number of readers.

In all cases, the impacts are negligible; this should be clarified.

2.8 IMPACT SUMMARY COMPARISON: Table 2.8-1

Page 2-34

Comment: Under Alternative A at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 11 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 11µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B, at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 5 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 9µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

1. The assumptions do not seem realistic. Unless the mine was located next to Kanab or Showerbath springs, there would be considerable dilution due to distance and flow path, geochemical character of the groundwater, residence time of the solution in the aquifer, and other factors. The R-aquifer is very large, so dilution would be significant.
2. It should be noted that the impacts under both alternatives range from none to moderate.
3. Each mine would have to undergo rigorous scrutiny for a site-specific EIS.

Page 2-34, Table 2.8-1: Deep Aquifer Springs, Quality (North Parcel)

Comment: Under Alternative A, at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 11 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 11µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B, at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 5 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 9µg/L

for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

1. The assumptions do not seem realistic. Unless the mine was located next to Kanab or Showerbath springs, there would be considerable dilution due to distance and flow path, geochemical character of the groundwater, residence time of the solution in the aquifer, and other factors. The R-aquifer is very large, so dilution would be significant.
2. It should be noted that the impacts under both alternatives range from none to moderate.
3. Each mine would have to undergo rigorous scrutiny for a site-specific EIS.

Page 2-34, Table 2.8-1: Deep Aquifer Springs, Quality (East And South Parcels)

Comment: East Parcel: Under Alternative A, zero to two mines might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that one mine "contributes 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (west side Fence Fault complex in Marble Canyon)." This would raise the projected concentrations from 1.7µg/L to 1.8µg/L for uranium and remain at 10µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B, there would be no impact, since there would not be any mines in this parcel.

South Parcel: Under Alternative A, for Havasu and Blue springs, zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic would not exceed ambient levels. These results are obtained on the assumption that four mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished." The ambient levels for uranium are 6µg/L for Havasu Springs and 7µg/L for Blue Springs. The levels for arsenic are 10µg/L for Havasu and 5µg/L for Blue Springs. These remain unchanged because of the contributions from the mines because of the large flows in these springs.

Under Alternative A, for South Rim springs, zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic may exceed the EPA drinking water standards. For uranium the range might be 4 to 70µg/L and for arsenic it might be 10 to 30µg/L. The EPA MCLs for uranium are 30µg/L and for arsenic 10µg/L. Thus the impact ranges from none to major. For the Hermit Springs the range is between 3 to 4µg/L for uranium and for Garden Springs it is 3 to 5µg/L. The lower values are the ambient levels. For arsenic the ambient level for the Hermit Springs are 10µg/L, which is not impacted.

Under Alternative B, for Havasu Springs only, from zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic may exceed the ambient levels. No mines would impact the other springs.

1. It should be noted that some of the springs are already at the EPA MCL for arsenic.

2. The assumption that the waters will reach the springs undiminished is not realistic. The R-aquifer is very large.
3. Each mine would be subject to strict scrutiny under a separate EIS, so either the mine would not be permitted, or adequate corrective steps would be incorporated.

Page 2-35, Table 2.8-1: – Deep Aquifer Wells, Quantity

Comment:

North Parcel: Under Alternative A, there would be no decrease in the levels of the non-mine R-aquifer water wells.

Under Alternative B, there would be no decrease in the levels of the non-mine R-aquifer water wells.

East Parcel: Under Alternative A, there would be no decrease in the levels of the non-mine R-aquifer water wells.

Alternative B, there would be no decrease in the levels of the non-mine R-aquifer water wells.

South Parcel: Under Alternative A, decrease in the levels of the non-mine R-aquifer water wells might range from 0 to 10 feet.

Alternative B, decrease in the levels of the non-mine R-aquifer water wells might range from 0 to 10 feet.

As noted in the DEIS the amount of water withdrawn by the mine wells is small, typically 5 gpm over 4years. No wells will be affected in the North and East Parcels. In the South Parcel the effects on the wells for Tusayan and Valle would be negligible. So this does not present any reason for the extensive land withdrawal for mining.

Page 2-36, Table 2.8-1: Surface Water, Quality 1

Comment: There is little impact to the quality of the surface water, except when the mine is located within the groundwater drainage area of a perched aquifer spring, especially if the spring is small. This applies to Alternatives A and B; only B will have no mines in the East parcel and only the Canyon mine in the South Portal.

It appears that the analysis does not consider any dilution from the perched aquifer to the impacted mine water. It should be borne in mind that the mines use only 5 gpm of water, not all of which necessarily runs off and impacts the aquifer. Some of the water is used to allay the dust in the mine during drilling and comes out of the mine with the ore when it is brought to the surface. This ore is not dried out before shipping to the mill site, but some of the water evaporates into the atmosphere.

Page 2-36, Table 2.8-1: Surface Water, Quality 2

Comment: The probability of a flood breaching a properly designed, constructed, and maintained berm over 20 years is about 4% (footnote page 4-80). So the primary mechanism of

contaminant dispersal outside the mine perimeters is fugitive dust. Wind-deposited constituents could impact perennial streams or impounded surface waters by direct deposition.

The dispersion of dust from the stored ore could be readily reduced by placing the ore in a covered area. The waste rock does not contain enough uranium to be a major problem (otherwise it would not be waste). Both types of rock are to be placed on concrete pads, as required by APP.

Pages 2-36 and 2-37, Table 2.8-1

Comment: Mining of locatable minerals causes soil disturbance resulting in soil erosion and contamination. However, damage to all three parcels scheduled to be withdrawn is also caused by many other activities: fuels management, noxious weed control, wildfires, droughts, cattle grazing, recreational activities (developing roads, trails, campgrounds), installation of water and power lines, development of private lands, drilling for oil, gas, or water, fluid mineral leasing, mining on leased or sold lands (sand and gravel, copper, stone quarrying) and past uranium mining activities. This is applicable to all Alternatives, including B.

The activities unrelated to mining of uranium listed above cause damage to the soil greater by an order of magnitude than any uranium mining would cause. Many of these other activities are not regulated or controlled as well as uranium mining. So impact to soil resources because of mining should not even be an issue. However, the summary presented in Table 2.8-1 does not reflect this and gives the reader the impression that mining can be the cause of considerable damage. This is very misleading.

Page 2-38, Table 2.8-1 Vegetation Resources

Comment: The discussion on vegetation resources mentions that these include structure, productivity, vigor, abundance, and diversity. However, there is considerable uncertainty about these parameters since the specific sites are not known:

1. This uncertainty is not reflected in the Summary Table 2.8-1, which could result in certain readers being misled.
2. The discussion does not point out that activities un-related to uranium mining, such as fuels management, noxious weed control, wildfires, droughts, cattle grazing, recreational activities (developing roads, trails, campgrounds), installation of water and power lines, development of private lands, drilling for oil, gas, or water, fluid mineral leasing, mining on leased or sold lands (sand and gravel, copper, stone quarrying) may actually have a much greater impact. The land is not being withdrawn from these activities.

No mention is made to plants that require special attention. These are dealt with under Section 4.8, Special Status Species. Some reference to this would be appropriate in Section 4.6., Vegetation Resources.

Page 2-38 and 2-39, Table 2.8-1: Fish and Aquatic Resources

Comment: It is noted that BLM rules for permitting uranium mining specify that "No net loss will occur in the quality and quantity of suitable habitat for endemic fish, amphibians, and aquatic

invertebrate species." The requirements of the Forest Service are similar, and the Kaibab LRMP/ROD "evaluates assessment areas during mining project design and plan."

"Typical compliance procedures include equipment and waste fluids are confined at all times and are disposed of at approved off-site disposal facilities." "Radioactive drill cuttings are encapsulated in sealable metal containers."

Under Alternative A the reduction of in flow is approximately 1% to 2% over the 20-year period. Thus, it is noted that "the impacts would not likely alter the overall fish and wildlife distribution in the study area or result in changes to overall fish and wildlife population viability."

1. It is clear from the above that this factor does not present an adequate reason to withdraw 1+ million acres of land from mining as suggested in Alternative B, or even the lesser amounts presented in options C and D.
2. It is not sufficiently made clear that even though some ephemeral springs and streams may be affected by the mining, depending on location, the detrimental effects of long droughts, drilling of water wells for local consumption, and other non-mining related activities would be considerably greater.

Pages 2-38 and 2-39, Table 2.8-1: General Wildlife Species

Comment: It is concluded that even for Alternative A the amount of land that might impact wildlife is only 1.5% of that slated for withdrawal. So the resulting "impacts would not alter wildlife distribution in the study area or result in changes to overall wildlife population viability."

1. It is clear from the above that this factor does not present an adequate reason to withdraw 1+ million acres of land from mining as suggested in Alternative B, or even the lesser amounts presented in options C and D.
2. Some discussion about the relative impacts from trails, recreational roads with vehicular traffic, campgrounds, and persons with weapons (bullet holes in the signs are evidence) should be presented. This would put the impacts from mining in perspective.

Pages 2-38 and 2-39, Table 2.8-1: Migratory Birds

Comment: It is concluded that even for Alternative A the amount of land that might impact wildlife is only 1.5% of that slated for withdrawal. Discussions of soil contamination, vegetation resources, fish and aquatic resources, and general wildlife species all indicate that there would not be significant detrimental effects because of uranium mining. Therefore, it may be concluded that the impact on migratory birds will also be minor. As reported, "the types of impacts would be similar."

1. It is clear from the above that this factor does not present an adequate reason to withdraw 1+ million acres of land from mining as suggested in Alternative B, or even the lesser amounts presented in options C and D.
2. Some discussion about the relative impacts from trails, recreational roads with vehicular traffic, campgrounds, and persons with weapons (bullet holes in the signs are evidence) is merited. This would put the impacts from mining in perspective.

2.8 IMPACT SUMMARY COMPARISON: Table 2.8-1: Special Status Species (Threatened, Endangered, And Candidate Species) – Amphibian Species And Aquatic-Dependent Invertebrate

Page 2-39, Table 2.8-1

Comment: Statement: Under Alternative A the following could be impacted: relict leopard frog, northern leopard frog, lowland leopard frog, and Kanab ambersnail.

1. Those species that exist near the Colorado River, Little Colorado River, or Virgin River would not be impacted for the same reasons as given for the fish.
2. Those that are present in small seeps or ephemeral springs will not be impacted any more than with long droughts, drilling of water wells for public use, or other such activities.

2.8 IMPACT SUMMARY COMPARISON: Table 2.8-1: Special Status Species (Threatened, Endangered, and Candidate Species) - Fish

Page 2-39, Table 2.8-1

Comment: Under Alternative A the humpback chubb and the razorback sucker are mentioned as fish that could be impacted in the Colorado River.

The Little Colorado spinedace occurs in the Little Colorado River, which has a hydrologic connection in the South Parcel.

In the Virgin River, the Virgin River chubb, virgin spinedace, and woodfin could be impacted.

1. It has been pointed out earlier that the flow in the River is so large, average minimum of 1.6 million gpm (see page 4-79), that even a spill of 30 tons of high-grade uranium ore into the River will cause an impact that is "below the level of natural variation" (page 4-80). .So the fish in the Colorado River would not be impacted.
2. The Canyon mine well is located more than 5 miles south of the ground water divide. "The remaining mines could be assumed to be located several miles south of the groundwater divide in the Havasu Springs (flow about 29,000 gpm) groundwater basin and/or north of the groundwater divide in the groundwater basin that drains to the large Blue Springs (flow about 46,000 gpm) system along the Little Colorado River" (page 4-73). Since these six mines would generate an average of 6 gpm, the impact would be negligible and not measureable. Hence, the impact on the fish would also be negligible.
3. The DEIS states (page 4-72): "Considering the lowest of the reported aggregate spring flow rates (9,000 gpm) and even assuming that all 21 mines anticipated under Alternative A for the North Parcel would be located within the Virgin River groundwater basin (total mine pumping of 21 gpm over a 20-year period of this analysis), the maximum calculated decrease in the discharge would be 0.5%, which is negligible and not measurable." This implies that the fish in the Virgin River will not be impacted.

2.8 IMPACT SUMMARY COMPARISON: Table 2.8-1: Special Status Species (Threatened, Endangered, and Candidate Species) - Birds

Page 2-39, Table 2.8-1

Comment: Statement: Under Alternative A the birds of prey that require special attention are the bald eagle, California condor, Mexican spotted owl, and American peregrine falcon (page 4-144). Near Kanab Creek the southwestern willow flycatcher might be found and near the Virgin River the Yuma clapper rail is found. Under Alternative B , the same birds would be affected in the same manner. It should be remembered that whereas Alternative A would have 30 mines over a 20-year period, Alternative B would still have 11 (a difference of 19).

The monitoring rules that Denison Mines must follow at their operations on the Arizona Strip include: "The Operator will report local sightings of falcon or eagle to the BLM. Upon such a sighting, no employee will harass, harm or injure the species." In fact, if these are sighted the BLM or organizations that deal with such birds need to be notified and they would take the appropriate steps to have the bird leave the area. Similar clauses will no doubt be included in any permits granted for future mines. Note that each new mine would have to have its own site-specific EIS.

The DEIS outlines the precautions to be taken for California condors and the Mexican spotted owl (pages 4-148 and 4-149). Similar precautions would be implemented for other birds that require special attention.

Page 2-39, Table 2.8-1: Threatened, Endangered and Candidate Species – Plants

Comment: Under Alternative A the plants that are threatened are the Brady pincushion, sentry milkvetch, Fickeisen plains cactus, and Paradine (Kaibab) plains cactus (page 4-144). Under Alternative B the same plants would fall in the same category. It should be remembered that whereas Alternative A would have 30 mines over a 20-year period, Alternative B would still have 11 (a difference of 19).

At the Carlota Mine in Arizona the mine had the hedgehog cactus that needed protection. The mine operator carefully removed each plant from its original location and replanted it in a special nursery area. After the mining is completed and the area is reclaimed, the plants will be re-planted back in the ground. The same process was used successfully by Energy Fuels in the 1980s, and the same scheme can be readily followed at the uranium mines, since the area occupied by each mine is considerably smaller – only 20 acres each.

CHAPTER THREE

3.2.3 EMISSIONS SOURCES

Pages 3-22 thru 3-24

Statement:

Table 3.2-4. PSD Sources Located within and near the Proposed Withdrawal Air Quality Study Area

Facility Name	Facility Type	Location in Arizona	Emissions (tpy)	Permitting Authority
El Paso Natural Gas Company – Seligman Compressor Station	Natural Gas Compressor Station	Seligman	CO – 19 NO_x – 165 PM_{10} – 4 $PM_{2.5}$ – 4 SO_2 – <1 VOCs – 4 Pb – <1	ADEQ
El Paso Natural Gas Company – Williams Compressor Station	Natural Gas Compressor Station	Williams	CO – 230 NO_x – 1,303 PM_{10} – 16 $PM_{2.5}$ – 16 SO_2 – 1 VOCs – 55 Pb – <1	ADEQ
Salt River Project – Navajo Generating Station	Electric Utility	Page	CO – 2,010 NO_x – 33,221 PM_{10} – 3,943 $PM_{2.5}$ – 2,817 SO_2 – 3,944 VOCs – 241 Pb – 0.07 CO2 – 20.1 million	Navajo Nation Environmental Protection Agency
Chemical Lime Company – Nelson Lime Plant	Lime Plant	Peach Springs	CO – 639 NO_x – 599 PM_{10} – 480 SO_2 – 1,955 VOCs – 17 Pb – 0.0002	ADEQ
Transwestern Pipeline Company – Flagstaff Compressor Station	Natural Gas Compressor Station	Flagstaff	CO – 11 NO_x – 127 PM_{10} – 2 $PM_{2.5}$ – 2 SO_2 – 1 VOCs – 2 Pb – <1	ADEQ

Sources: ADEQ (2010c); EPA (2010k); Navajo Nation Environmental Protection Agency (2010); Western Regional Air Partnership (2010).
Note: Emissions include criteria pollutants (CO, NO_x, PM_{10}, $PM_{2.5}$, SO_2, VOCs, and Pb). Emissions data presented are for calendar year 2005 except for the Nelson Lime Plant, which are for calendar year 2008.

Table 3.2-5. 2005 Summary of Emissions by Source (in tpy) for Coconino and Mohave Counties and Arizona Statewide Source

	CO	NOx	PM10	PM2.5	SOx	VOCs	Pb
Coconino County							
On-Road Vehicles	39,250	6,475	182	134	140	3,066	–
Electricity Generation	2,010	33,221	3,943	2,817	3,944	241	0
Non-road Equipment	12,989	3,509	204	192	269	2,933	2
Fossil Fuel Combustion	514	2,652	57	30	114	105	0

Industrial Processes	25	–	836	218	–	104	–
Fires	14,818	282	1,570	1,330	168	3,497	–
Waste Disposal	2,045	74	318	306	5	259	–
Residential Wood Combustion	348	4	48	48	1	75	–
Miscellaneous	7	0	2,045	207	–	735	0
Solvent Use	–	–	–	–	–	692	–
Road Dust	–	–	6698	594	–	–	–
Fertilizer and Livestock	–	–	–	–	–	–	–
Subtotal	*72,006*	*46,217*	*15,901*	*5,876*	*4,641*	*11,707*	*2*
Mohave County							
On-Road Vehicles	43,423	7,386	208	151	160	3,862	–
Electricity Generation	7	22	1	1	3	1	–
Non-road Equipment	23,633	4,339	284	270	356	6,413	1
Fossil Fuel Combustion	174	788	66	28	149	44	0
Industrial Processes	28	32	839	214	0	28	0
Fires	14,280	313	1,551	1,314	171	3,384	–
Waste Disposal	4,437	144	550	539	4	427	–
Residential Wood Combustion	278	4	39	39	1	60	–
Miscellaneous	10	0	3,857	412	–	920	0
Solvent Use	–	–	10	9	–	1,086	–
Road Dust	–	–	2,711	231	–	–	–
Fertilizer and Livestock	–	–	–	–	–	–	–
Subtotal	*86,270*	*13,028*	*10,116*	*3,208*	*844*	*16,225*	*1*

Table 3.2-5. 2005 Summary of Emissions by Source (in tpy) for Coconino and Mohave Counties and Arizona Statewide (Continued)

Source	CO	NOx	PM10	PM2.5	SOx	VOCs	Pb
Arizona							
On-Road Vehicles	761,670	132,317	3,866	2,711	2,909	73,626	–
Electricity Generation	7,340	80,370	8,968	7,131	52,765	596	1
Non-road Equipment	458,730	64,553	5,062	4,789	6,344	50,563	33
Fossil Fuel Combustion	4,243	13,921	1,116	528	4,061	663	2
Industrial Processes	8,071	7,051	20,328	8,184	22,107	3,595	12
Fires	74,115	1,749	8,166	6,920	907	17,611	–
Waste Disposal	24,918	981	4,068	3,757	115	4,585	–
Residential Wood Combustion	15,231	183	2,097	2,066	28	3,200	–
Miscellaneous	348	33	70,344	8,635	3	19,736	0
Solvent Use	–	8	18	16	–	49,800	0
Road Dust	–	–	111,387	9,085	–	–	–

Fertilizer and Livestock	–	–	3,079	308	–	–	–
Subtotal	*1,354,666*	*301,166*	*238,499*	*54,130*	*89,239*	*223,975*	*48*
Coconino and Mohave County Percentage of Statewide Total	**11.7%**	**19.7%**	**10.9%**	**16.8%**	**6.1%**	**12.5%**	**6.3%**

Comment: Tables 3.2-4, 3.2-5 and 3.2-5 summarize emission sources in and near the withdrawal area. A new cement plant at Drake, AZ, a few miles south of Ash Fork is complete or nearly complete. The area is part of the Coconino Plateau. The cement plant and its associated limestone mine should be included in the list of emissions sources, as its emissions will be significant, and it will help put emissions from uranium mining in perspective. Its emissions will be many times that of all the anticipated uranium mines combined.

3.3.1 GEOLOGICAL SETTING

Page3-30, Paragraph 2

Statement: The Colorado Plateau is known generally for unique geological features, including the widespread prevalence and color of exposed sedimentary units, the occurrence of isolated volcanic mountain complexes, and erosional features such as mesas, cliffs, escarpments, and incised stream canyons. While not within any of the parcels, the Grand Canyon dominates the geological setting and forms the partial geographic boundary of each parcel; the side tributary canyons to the Grand Canyon form the surface drainage network within the parcels.

Comment: The second sentence states that; "the Grand Canyon.... forms the partial geographic boundary of each parcel."

This is false. The Grand Canyon only forms part of the boundary of the East parcel. The Grand Canyon as a geographic feature nowhere is part of the proposed withdrawal boundary for the North or South parcels.

3.3.1 GEOLOGIC SETTING: Locatable Minerals

Pages 3-32 to 3-35

Table 3.3-1, Page 3-32

Comment: The amount of U_3O_8 in the Arizona Strip area as estimated by the US Geological Survey is 163,380 tons, (326.76 million pounds) (see Table 3.3-1, page 3-35 and Appendix B, Table B-4, page B-25). Yet when making statements as regards the total amount of U_3O_8 in the country the DEIS uses the 2003 values from the EIA of 123 million pounds in Arizona, Colorado, and Utah combined (see Table 3.16-20, page 3-275). This leads to the conclusion that the amount of resource in Arizona is not significant with regard to the entire country.

This discrepancy needs correction and resolution, because it is often quoted in the media (and in economic analyses) without the background mentioned above.

3.3.2 RESOURCE CONDITION INDICATORS: POTENTIAL FOR SUBSIDENCE AND ALTERATION OF GEOLOGY OR TOPOGRAPHY: Hack Canyon Mines

Page3-35

Statement: The original Hack Canyon mine was similarly discovered as a mineral exposure at the base of the canyon wall in Hack Canyon and was mined from the floor of the canyon; descriptions of mine techniques are provided by Chenoweth (1988). Approximately 1,400 tons of dry ore were removed from the Hack Canyon mine. Mining was conducted entirely underground through several vertical shafts, horizontal tunnels, and stopes, to a depth of approximately 100 feet. Mining ceased in 1964.

In the 1970s and 1980s, three additional breccia pipes were discovered in the vicinity (Hack 1, Hack 2, and Hack 3 and known collectively as the Hack Canyon Complex). All three breccia pipes were mined from approximately 1981 through 1987 (USGS 2010b), resulting in the removal of approximately 742,000 tons of dry ore (Hack 1 – 134,000 tons, Hack 2 – 479,000 tons, Hack 3 – 111,000 tons) (personal communication, Spiering 2010). Reclamation of all three of these pipes, as well as the historic Hack Canyon workings, was completed in 1988. No evidence of subsidence resulting from the mining has been identified.

Comment: The EIS says the original Hack Canyon Mine was mined from the floor of the canyon, and later Hack 1, Hack 2, and Hack 3 were discovered. The truth is that the Hack 1 orebody was discovered by drilling on the site of the original Hack Canyon copper mine, and the two are in the same breccia pipe. There are only 3 breccia pipes in the Hack Canyon Complex. Considerable effort was expended in searching for additional pipes in the area of the 3 mines, without success.

3.4.4 URANIUM MINING LEGACY

Pages 3-57 to 3-60

Comment: There is a good discussion of the mining legacy in the Arizona Strip in Section 3.4.4.

1. It should be noted that Figure 3.4-5 shows 207 breccia pipes that are exposed and lie mostly within the Grand Canyon itself. These are being continually eroded and if any of these are mineralized they are contributing dissolved uranium, arsenic, and other metals to the Colorado River. These have nothing to do with new uranium mining.
2. The discussion in the DEIS restricts itself to the mining legacy within the study area. This shows little detriment to the environment or tourism. However, when the tribes and many environmental groups talk about the legacy of uranium mining they refer to the mines that were operated during and immediately after World War II. This is what led to the Diné Natural Resources Protection Act (DNRPA) of 2005. Therefore, some mention of this in the DEIS appears appropriate

3.4.7 WATER QUALITY

Pages 3-77

Statement: Natural processes and human activities (including improperly abandoned mines and improperly disposed mine waste or waste rock) can cause concentrations of dissolved trace elements and radionuclides to be elevated in groundwater and surface water.

Comment: Not since the '50's, have there been "improperly abandoned mines and improperly disposed mine waste or waste rock". With the plethora of agencies and regulations controlling every aspect of exploration, mining and reclamation, along with penalties for non-compliance, abandoned mines/waste are not an issue.

3.4.7 WATER QUALITY

Pages 3-80

Statement: Results for water quality analyses were compiled from the sources noted above for a total of 687 sampling locations in the water resources study area and for 6-mile buffers around each of the parcels.

Comment: One million acres is not enough of a "buffer zone" without adding another 6 miles around each parcel?? What is the reason for that?

3.4.7 WATER QUALITY: NORTH PARCEL

Pages 3-82 through 3-84: Figures 3.4-16a, 3.4 – 16b, 3.4 – 16c

Comment: These maps do not include the location of breccia pipes that outcrop within the Grand Canyon National Park that may be near the location of samples which have been chemically analyzed. But they do include the location of the mines. This gives the reader the impression that all of the elevated values are caused by the mining and not by proximity to mineralized breccias pipes that nature has exposed in the surrounding canyons. Of particular interest is the sample location in Tuckup Canyon. This sample site is adjacent to a known pipe that has elevated radioactivity at outcrop.

3.4.7 WATER QUALITY: LEGACY IMPACTS TO WATER FROM URANIUM MINING

Pages 3-85

Statement: **Dissolved uranium concentrations exceeding the regional average of about 7 µg/L detected in groundwater or springs near existing and/or former mines do not necessarily indicate that the water is impacted from exploration and development activities. In hydrologic systems poorly connected to the regional groundwater circulation system in the R-aquifer, it is unlikely that discharge to springs is substantially mixed with groundwater from distant sources. The isotopic composition of uranium in water from such systems may be used to evaluate whether high uranium concentrations result from the natural dissolution of uranium-bearing rocks or from anthropogenic activities at uranium mines (Appendix G). Samples exhibiting high 234U activity relative**

to 238U activity are indicative of ambient groundwater because of the preferential mobility of 234U in natural waters. Conversely, samples having 234U activity approximately equal to 238U activity represent conditions of aggressive water-to-rock interaction symptomatic of water impacted by mine leachate. Isotopic and dissolved uranium data compiled for the study area and Colorado River indicate that only samples collected from Horn Creek springs, which originate from the R-aquifer about ½ mile or less north of the Orphan Lode Mine, have high concentrations of dissolved uranium (>30 µg/L) and an 234U/238U activity ratio near one. Apparently, surface water and/or perched groundwater seepage into the abandoned, unreclaimed mine workings of the Orphan Lode Mine have interacted with mine waste and/or disturbed ore deposits to generate elevated concentrations of uranium in water that has moved vertically downward from the mine openings into the R-aquifer. Additional monitoring data are necessary to rule out the possibility that groundwater in locations other than Horn Creek springs may also be impacted from uranium mining because potential mixing of impacted water with native groundwater may mask the isotopic signature.

Comment: Why the emphasis on Orphan Mine - it pre-dates current modern mining practices and is outside the study area (and according to some knowledgeable resources, the water quality study is of questionable value). It may be more accurate to define the "legacy" as minimum impact to water resources with reclaimed sites indistinguishable from their surroundings – the "legacy" of the exploration and mining of the 70's, 80's and 90's.

3.4.7 WATER QUALITY: LEGACY IMPACTS TO WATER FROM URANIUM MINING

Page 3-85: *Orphan Mine and Horn Spring*

Comment:The EIS says that Horn Spring contains elevated uranium levels because of mining at the Orphan Mine. There is no data to conclusively prove this. It is possible that the elevated uranium levels of Horn Spring are because of mining at the Orphan mine, however there are other equally likely reasons. The elevated uranium could be because of the natural uranium mineralization, either at the Orphan Mine or in other undisturbed mineralized pipes in the area. The high U-234/U-238 ratio could be because of solution by acid produced through natural oxidation of pyrite associated with uranium mineralization independent of mining. Unless solutions migrated along faults or fractures, not nearly enough time has elapsed since mining at the Orphan Mine for solutions to have percolated through the Hermit and Supai beds to the Redwall karst and subsequently to Horn Spring.

If the Orphan Mine is proven to be the source of elevated uranium levels in Horn Spring, and if some government agency comes up with a reason to shut off the source of the elevated uranium, reclamation should be the Park Service's responsibility. The Park Service acquired title to the mine in 1963, and mining ceased in 1969. In the 41 years since then the mine has set unreclaimed except for some relatively minor cosmetic reclamation above the canyon rim within the last 2-3 years. In the 1980's Energy Fuels offered to reclaim the mine using their expertise, engineers, miners, and equipment at no charge as a public service. The Park Service refused the offer. It needs to be mentioned in the EIS that the Park Service is the owner of the Orphan Mine, and has been even for the last several years of mining, so that the public knows that it is the Park Service and not a private mining company which has let the Orphan Mine go

unreclaimed for 41 years. Energy Fuels' offer to reclaim the mine, and the Park Service's refusal also needs to be mentioned in the EIS.

3.5.4 CURRENT RESOURCE CONDITIONS: EFFECTS FROM HISTORIC (1980S) MINING: PIGEON MINE

Page 3-103

Statement re: *Source of Anomalous Uranium and Arsenic*

Comment: The EIS attributes anomalous U and As at the reclaimed Pigeon Mine as being left over from mining. Anomalous U and As values in the vicinity of the reclaimed Pigeon mine could be from material left on site after reclamation. However experience has shown that any rock high in iron oxide at this stratigraphic horizon always contains very anomalous As, sometimes as high as 3600 ppm, even in areas away from breccia pipes. Such rocks also occasionally contain anomalous uranium. The anomalous U and As could be left over from mining but it could also be naturally occurring in the outcrop.

3.5.4 CURRENT RESOURCE CONDITIONS: EFFECTS FROM HISTORIC MINING: HACK CANYON MINE COMPLEX

Pages 3-105, 3-106

Statement re: *Hack Canyon Mine*

Comment: The original Hack Canyon Mine was for copper, not uranium (Pat Hillard's personal communication with Blondie Jensen and Jense McCormick, operators of the Hack Canyon mine, both deceased). Supplies were hauled in and the copper ore hauled out by pack horse. Parts of the trail can still be seen along the north side of upper Hack Canyon. Later a road was constructed down to the bottom of the canyon. Uranium was discovered by Western Nuclear by drilling on the same pipe as the Hack Canyon copper mine. Trace amounts of uranium had been encountered in the early copper mining operation.

3.5.4 CURRENT RESOURCE CONDITIONS: EFFECTS OF HISTORIC MINING: HACK CANYON MINE COMPLEX

Pages 106 thru 3-108

Statements re: *Variability in soil and bedrock chemistry*.

Comment: Some pipes have a plug of bimodal sandstone in their throat which is equivalent to uppermost Kaibab beds. This sandstone was deposited before Moenkopi deposition began, and is younger than the pipe breccia. There may be cases where this sandstone is older than the pipe breccia, however in these cases it is usually not recognizable because of downdropping and mixing with clasts of other rock types. The sandstone plug usually contains local areas of iron oxide with anomalous arsenic and other metals. There is occasionally slightly anomalous

uranium in this sandstone, however it is difficult to detect the anomaly in the field instrumentally because of significant variability in local background radioactivity. In areas of Kaibab Formation outcrop in northern Arizona soil-covered areas have significantly higher background radioactivity than outcrop areas. Within a 200 foot distance the background radioactivity can change by a factor of 1.7, depending on the amount of soil. It has also been observed that Moenkopi outcrop is approximately 1.75 times more radioactive than typical Kaibab outcrop.

Therefore some of the anomalous uranium and arsenic are due to natural causes, and some could have been introduced by mining. Without pre-mining data it is difficult to determine in many cases. The relevant point here is that some variations in background radioactivity are natural and are due to variations in the amount of soil or rock type.

3.8.1 THREATENED, ENDANGERED, AND CANDIDATE SPECIES: RELICT LEOPARD FROG

Page 3-153

Statement: The species does not occur within the proposed withdrawal area. In Arizona, extant populations apparently are restricted to two general areas: Surprise Canyon in lower Grand Canyon National Park and Sycamore Spring, both in Mohave County (USFWS 2009a). However, according to USFWS (Brian Wooldridge, personal communication December 2009), the frogs in Surprise Canyon originally thought to be this species are actually lowland leopard frogs (*Rana yavapaiensis*). Relict leopard frog was introduced to Sycamore Spring in 2003. It also is present in Nevada at springs near the Overton Arm of Lake Mead and springs in Black Canyon below Hoover Dam (USFWS 2009a). No relict leopard frogs are known from BLM lands on the Arizona Strip (BLM 2007). A historic population was found at a privately owned spring adjacent to the Virgin River at Littlefield, Arizona, but that population has since been extirpated (BLM 2007). Adult frogs inhabit permanent streams, springs, and spring-fed wetlands below approximately 2,000 feet amsl (USFWS 2009a). Relict leopard frog presumably feed on a wide variety of invertebrates (USFWS 2009a).

Comment: The key portion of this statement is that "**the species does not occur within the proposed withdrawal area**." Why then would you add to the length of an already supersized DEIS with unrelated information? This is just one example. It would take too much time and space to respond to all the extraneous information you have included in these sections. Those "special" so-called environmental groups know the reason for the long list. The uranium industry knows the reason for that list as well. For the uninitiated concerned citizen who would read this document, the volume of nonsensical information stuffed into this section makes no sense at all and illustrates to the reader the vast amount of wasted time to include and the vast amount of money used to publish unneeded information.

CHIRICAHUA LEOPARD FROG, NORTHERN MEXICO GARTERSNAKE

Page 3-154

Comment: The key portion of this statement is that "**this species does not occur within the proposed withdrawal area**." Why then would you add to the length of an already supersized DEIS with unrelated information? The above are two more examples of unrelated information. It would take too much time and space to respond to all the extraneous information you have included in these sections. Those "special" so-called environmental groups know the reason for the long list. The uranium industry knows the reason for that list as well. For the uninitiated concerned citizen who would read this document, the volume of nonsensical information stuffed into this section makes no sense at all and illustrates to the reader the vast amount of wasted time to include and the vast amount of money used to publish unneeded information.

3.8.2 BUREAU OF LAND MANAGEMENT SENSITIVE SPECIES: PLANTS

Pages 3-160 - 163

Statement: The species does not occur within the proposed withdrawal area.

Comment: To include all of the extraneous information about all of those plants that are **NOT IN THE WITHDRAWAL area** is irresponsible and completely misleading to the reader. Of the 14 plants listed, eleven are cited as **not found inside the withdrawal area. Two are cited as being in House Rock Valley** which basically is Grand Canyon Trust land and all can assume with great certainty that they were included at the request of that Trust.

Those "special" so-called environmental groups know the reason for the long list. The uranium industry knows the reason for that list as well. For the uninitiated concerned citizen who would read this document, the volume of nonsensical information stuffed into this section makes no sense at all and illustrates to the reader the vast amount of wasted time and the great sum of taxpayer money used to publish unneeded information.

3.11.2 IDENTIFICATION OF PREHISTORIC AND HISTORIC CULTURAL RESOURCES - TYPES OF PREHISTORIC AND HISTORIC SITES

Page 3-204

Statement: Because Class III (on-the-ground, intensive) surveys are required prior to authorizing specific surface-disturbing activity, the number of known significant sites is likely to increase over time.

Comment: Yes, as a result of the extensive mine permitting process (which includes an archeological survey as part of any required EIS), numerous artifact sites have already been identified, studied and items recovered. This is one direct result and benefit of mining activities in the area. Without such mining activities, intensive on-the-ground surveys are highly unlikely to occur. Archeological surveys are not high on anyone's budget.

3.11.2 IDENTIFICATION OF PREHISTORIC AND HISTORIC CULTURAL RESOURCES - TYPES OF PREHISTORIC AND HISTORIC SITES

Page 3-204

Statement: Approximately one-third of the sites cannot be reliably assigned to a specific cultural tradition or time period. They consist largely of prehistoric or American Indian artifact scatters that lack pottery or other datable items. These sites resulted from temporary use of dispersed locations for traveling, short-term shelter, and collecting natural resources for food, medicine, and production of tools and other items.

Comment: While prehistoric or Native American artifact "scatters" resulting from "temporary use" (which lack pottery or other such datable items) can provide some information about the scope of historical human use of the land, such sites neither offer much specific information nor provide any major breakthroughs in interpreting the archeological or historical record. That archeological "scatters" remain where a prehistoric native once stopped at a location to chip a flint arrowhead, build a fire or butcher a carcass only underscores the fact that the vast majority of the land in question was only used temporarily while transiting the area and for short-term occupation.

3.12.1 TRADITIONAL CULTURAL VALUES AND PRACTICES

Page 3-206

Statement: American Indians in the Southwest have an intimate relationship with the landscape, especially that of the Grand Canyon area (Fairley 2004; Hirst 2006; Stoffle et al. 2005).

Comment: While the phrase "Grand Canyon area" is constantly employed and referenced in this section of the DEIS, the boundaries of the "Grand Canyon area" area are never definitively defined. This DEIS implies that the "Grand Canyon area" includes all areas of the proposed withdrawal. What is the criteria used for this piece of semantic hocus-pocus? The "Grand Canyon area" might, in fact be severely limited in scope to the immediate canyon itself or, conversely, might include a far larger area extending as far west as Las Vegas, east to the Four Corners area, north to Moab and south to Flagstaff. Which is it?

3.12.1 TRADITIONAL CULTURAL VALUES AND PRACTICES

Page 3-206

Statement: There are currently no NRHP-listed TCPs associated with American Indian cultures within the proposed withdrawal parcels.

Comment: No matter what additional caveats may be added to this statement, the fact remains that there are currently no NRHP-listed TCPs in the proposed withdrawal areas. Again, extraneous information included at great cost.

3.12.1 TRADITIONAL CULTURAL VALUES AND PRACTICES - SOUTHERN PAIUTE, HAVASUPAI TRIBE, HUALAPAI TRIBE, NAVAJO NATION, HOPI TRIBE AND PUEBLO OF ZUNI (SECTIONS)

Pages 3-206 through 209

Statement: All sections pertaining to the Southern Paiute, Havasupai Tribe, Hualapai Tribe, Navajo Nation, Hopi Tribe and Pueblo of Zuni origin legends, stories, myths and "traditional" lands.

Comment: While relating the various tribes' creation myths and stories, sacred deities and association with the lands they have inhabited through history is interesting, it fails to mention the historical movement of these people due to climatic change, warfare, disease and other factors.

To include the Hopi who "currently do not live near the Grand Canyon [as] the origin place of their people ... they see themselves as stewards of the earth, including the Grand Canyon and the proposed withdrawal area" is, at best, disingenuous and misleading. Should Mexico have a say about what happens in those areas of the United States that were once a part of Mexico but which were lost through war?

Constant mention in this section of the DEIS that, in essence, "the Grand Canyon and the surrounding areas is entirely sacred" to various tribes and tribal members may be true, however, Executive Order 13007 of 1996 severely limits the meaning of "sacred site" to a "specific, discrete, narrowly delineated location on Federal land" that a practitioner has identified to an agency as having "established religious significance."

Where such sites have been identified, Executive Order 13007 says that in managing federal lands, each executive branch agency with statutory or administrative responsibility for such management shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, do the following: 1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and 2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.

The establishment and consequent expansion of the Grand Canyon National Park well protects the Grand Canyon and its sanctity.

3.12.2 AMERICAN INDIAN USE AREAS

Pages 3-209

Statement: Most American Indians prefer that archaeological sites not be disturbed and that access to them be limited in order to prevent vandalism.

Comment: Vandalism of archaeological sites was supposedly one of numerous matters placed beyond the scope of the EIS per section 1.5.3 (Issues Eliminated from Detailed Analysis) which specifically states: "**The following issues have been eliminated from detailed analysis**

because they are beyond the scope of the EIS: ... Illegal activities such as poaching, vandalism, and unauthorized collection of cultural artifacts, or unauthorized OHV travel; *these are law enforcement issues* (emphasis added). To address anything specifically placed beyond the scope of the EIS is hypocritical, disingenuous, two-faced and makes the validity and fairness of the entire report more than questionable. Is something that is supposedly "beyond the scope" only used when it conveniently suits predetermined conclusions? This seems to be the criteria used in this instance and in many other places within this DEIS.

3.12.2 AMERICAN INDIAN USE AREAS & 3.12.3 RESOURCE CONDITION INDICATORS

Pages 3-209 through 213

Statement(s): Numerous and varied statements and phrases referring to American Indian: **"traditional cultural landscape**(s)," **traditional use areas," "water connection places," "places used for traditional hunting and gathering," "traditional seasonal movement**(s)," **"indivisible Traditional Cultural Property," "temporary camps,"** areas used **"to gather plant resources and to hunt animals," "economic/subsistence resource areas," "travel corridors," "seasonal camps,"** et cetera, et cetera, et cetera, ad nauseam.

"When dealing with cultural landscapes and places, the analysis of possible impacts is dependent on the emotional and intellectual response of the concerned groups and individuals. It is, in essence, their reaction and opinions alone that determine whether there is an impact and the relative significance of that impact."

Comment: The idea implied here that any 21st century activity whatsoever occurring anywhere within the "American Indian Use Areas" in northern Arizona (as described in these sections of the DEIS) will somehow degrade the spiritual or emotional experience or response of various tribes and/or tribal members and/or may be offensive to the feelings of tribes and/or tribal members about their religion, culture or heritage and may somehow decrease the spiritual fulfillment obtained from the practice of their religion or cultural heritage is blatantly absurd, ridiculous and asinine. Any spiritual or cultural experience, any emotional response to a "cultural landscape" is, at best, highly individual and highly subjective.

First, with the sole exception of well-defined sites containing substantially important historical archeological resources such as pictographs, rock paintings and the ruins of dwellings, the overwhelmingly vast majority of the area in question was used sporadically, seasonally, temporarily and for transit purposes. Period.

Second, if "sacred sites" do exist in the area, Executive Order 13007 of 1996 clearly limits the meaning of "sacred site" to a "specific, discrete, narrowly delineated location on Federal land" that a practitioner has identified to an agency as having "established religious significance."

Third, any government action (such as allowing continued mining in northern Arizona) that (to practitioners of a religion or members of a culture) decreases the spirituality, the fervor, or the satisfaction with which a believer practices his religion and/or culture is not what Congress has labeled a "substantial burden" on the free exercise of religion. In allowing mining, the government would not be coercing the tribes or tribal members to act contrary to their religious

beliefs under the threat of sanctions, or conditioned a governmental benefit upon conduct that would violate their religious beliefs; therefore, there would be no "substantial burden" on the exercise of their religion or, by extension, their cultural heritage.

Were it otherwise, any action the federal government was to take, including action on its own land, would be subject to the personalized oversight of millions and millions of citizens. Each citizen would hold an individual veto to prohibit the government action solely because it offends his religious beliefs, sensibilities, tastes, or fails to satisfy his religious or cultural desires. Further, giving any one religious sect or cultural entity a veto over the use of public lands would deprive others of the right to use and benefit from what is, by definition, land that belongs to everyone.

3.12.2 AMERICAN INDIAN USE AREAS – TRAILS

Page 3-211

Statement: Although not specifically mentioned in the literature, access routes to culturally significant places south of the parcel must also be considered ... Modern access is via roads; however, the existence of trails to this area must be assumed. During consultation, the Hopi Tribe indicated that several places north of the Grand Canyon, including Mt. Trumbull, have traditional cultural importance. The Hopi travel through the North and East parcels to reach places of ritual importance north of the Grand Canyon.

Comment: To assume that in the existence of trails to various culturally significant places anywhere and to imply that such trails somehow need protection is blatantly absurd. As noted in this section, "modern access is via roads..." In the 21st century, to envision any tribal member slogging on foot for miles along a trail in the middle of summer (or any other time of year) to visit a "culturally significant" or "sacred" tribal locale is both unreal and ludicrous. While tribal members may profess a strong connection to ancient religious beliefs, customs, locales and "landscapes," they would most likely visit any such places using a modern vehicle driving on an access road. This fact alone would cause many to question their level of commitment to "ancient ways."

3.12.3 RESOURCE CONDITION INDICATORS

Page 3-213

Statement(s): Resource condition indicators for cultural landscapes and places are not easily definable or quantifiable. The importance of landscapes and places can be understood through a group or individual's "sense of place." Sense of place refers to how people experience and understand a location; the experience and understanding are a product of one's cultural history and values, such that different groups can experience the same place in different ways (Allen et al. 2009; Farnum et al. 2005). Sense of place is tied to group and individual emotions and backgrounds, making it difficult to define and even harder to quantify. When dealing with cultural landscapes and places, the analysis of possible impacts is dependent on the emotional and intellectual response of the concerned groups and individuals. It is, in essence, their reaction and opinions alone that determine whether there is an impact and the relative significance of that impact.

Comment: So, cultural landscapes and places that are neither easily definable nor quantifiable, are more tied to individuals emotions and opinions, are difficult to define and even harder to quantify and the impact and the relative significance of such impact is solely dependent upon individual reaction and opinion? An individual veto to prohibit any government action on its own land solely because it offends one individual's religious beliefs, sensibilities, tastes, or fails to satisfy his religious or cultural desires is not what is intended by any known federal law.

Again, Executive Order 13007 of 1996 clearly limits the meaning of "sacred site" to a "specific, discrete, narrowly delineated location on Federal land" that a practitioner has identified to an agency as having "established religious significance."

Any government action (such as allowing continued mining in northern Arizona) that somehow decreases the spirituality, the fervor, or the satisfaction with which a believer practices his religion and/or culture is not what Congress has labeled a "substantial burden" on the free exercise of religion. For example, in allowing mining, the government would not be coercing the tribes or tribal members to act contrary to their religious beliefs under the threat of sanctions, or conditioned a governmental benefit upon conduct that would violate their religious beliefs; therefore, there would be no "substantial burden" on the exercise of their religion or, by extension, their cultural heritage.

Were it otherwise, any action the federal government was to take, including action on its own land, would be subject to the personalized oversight of millions and millions of citizens. Each citizen would hold an individual veto to prohibit the government action solely because it offends his religious beliefs, sensibilities, tastes, or fails to satisfy his religious or cultural desires. Further, giving any one religious sect or cultural entity (or any individual member of such) a veto over the use of public lands would deprive others of the right to use and benefit from what is, by definition, land that belongs to everyone.

3.15.1 SOCIAL CONDITIONS: OVERVIEW

Page 3-233

Statement: Communities profiled in this section were methodically selected for analysis based on two criteria: 1) they are located within 50 linear miles of the boundary of the proposed withdrawal parcels; and ...

Comment: What is "methodical" about drawing a 50-mile boundary around the proposed withdrawal parcels? The word "arbitrarily" should replace the word "methodically". If, as you claim in an earlier paragraph, "the study area is relatively remote and sparsely populated", you should be aware that 50 miles is a short distance to travel to work, shop or trade. You included San Juan County, Utah, among the five counties most likely to be affected by the proposed withdrawal although it is outside the 50-mile radius, but you failed to include Garfield County, Utah, *because* it is outside your capricious restriction.

Statement: Blanding, Utah, is discussed specifically because it is the major uranium processing center in the region (White Mesa Uranium Mill).

Comment: You violate your 50-mile rule and include San Juan County as an affected county because it contains Denison Mines' uranium mill and, yet you fail to mention (here or anywhere in the DEIS) Uranium One's Shootaring Canyon Uranium Mill near Ticaboo in Garfield County, Utah. While the mill presently lies idle because Secretary Salazar's segregation order of July, 2009, effectively stopped all exploration and consequent discoveries, Uranium One officials have repeatedly stated their desire to reopen the mill when they and the rest of the uranium mining industry are allowed to resume exploration and mining within the segregated area. The DEIS's denial of the existence of Shootaring Canyon Uranium Mill is inexcusable, as is Garfield County's exclusion from affected county status. These glaring omissions only further demonstrate the carelessness shown throughout this study.

3.15.1 SOCIAL CONDITIONS: AREA COMMUNITIES

Page3-236

Statement: Many area communities that have access to federal lands (such as BLM, Forest Service, and NPS lands) have strong ties to these lands; residents can form a strong sense of identity based on the cultural and geographic nature of the area. Communities like St. George, Colorado City, Fredonia, Page, and Williams exist in relative isolation, whereas communities like Flagstaff have more of a tourism focus and are close to, and benefit more directly from, each area's unique resources.

Comment: The EIS says St George, Fredonia, Page exist in isolation and do not have as much a tourism base as Flagstaff and that Flagstaff benefits from local resources much more than other towns in the withdrawal area. This is not true. Because it is at the junction of routes I-40 and I-17 Flagstaff receives considerable tourist traffic from people who are not intending to visit local attractions, but merely need a place to stay while passing through, or are in some way connected with Northern Arizona University.

St George is very much a tourist town due to its mild climate, scenery, and proximity to natural attractions such as Zion, Bryce Canyon, the Grand Canyon-Parashant National Monument, the Grand Canyon, the Grand Wash Cliffs Wilderness, the Beaver Dam Mountains Wilderness, the Mount Logan Wilderness, the Mount Trumbull Wilderness, and the Paiute Wilderness. In addition it has many very good golf courses. Many people move to St George for their retirement.

Page Arizona, attracts many tourists because of Lake Powell and the Glen Canyon National Recreation Area.

The Kanab-Fredonia area attracts many tourists because of its proximity to Zion, Bryce Canyon, the North Rim, the Grand Canyon, the Grand Staircase-Escalante National Monument, and Best Friends Animal Shelter. To say that Flagstaff benefits more from local resources than other towns in the area of the proposed withdrawal is illogical, incorrect and needs to be corrected.

3.15.1 HEATH RISKS

Pages 3-242 thru 3-246

Comment: This section is misleading. This section very well may have been written by one of the radical environmental groups, as it appears to try to distort facts to show something which they don't show. Examples of this are: (1) Kidney disease: Any metal is toxic if ingested into the human body in great enough quantities in certain chemical states. The amount of uranium taken into the body by a person working in a uranium mine is not nearly enough to cause kidney problems. (2) Lung toxicity: The extremely small amount of uranium mineral dust which might enter the lungs is not nearly enough to have sufficient radioactivity from uranium or its daughter products to be even remotely likely to cause cancer.

Respiratory problems can result from inhaling solid particles of a great variety of substances into the lungs and this is not restricted to uranium mines, but can be a hazard in many occupations. Construction workers, heavy equipment operators, coal miners, and farmers are also exposed to this hazard, often to a much greater extent than uranium miners.

Uranium mines have a high volume of air ventilating them, and are tested for airborne particulates and radon on a continuing basis. . Respirators and dust masks are available to the miners at all times. Limits for radon and dust are set by federal agencies with heavy penalties for violations

This section needs to be revised to reflect actual conditions in uranium mines and not the contrived and non-existent situations described in the EIS.

3.15.1 SOCIAL CONDITIONS: HEALTH RISKS

Pages 3-242, 3-243 *depleted uranium*

One of the Statements: The discussion of potential health risks associated with uranium mining that follows is based primarily on a 1999 report on the chemistry and toxicological effects of natural and depleted uranium (Craft et al. 2004), a report from the Agency for Toxic Substances and Disease Registry (1999), and from Technical Fact Sheets on Radionuclides (Argonne National Laboratory 2005; EPA 2000, 2010m)

Comment: This section repeatedly mentions depleted uranium and some of its risks. The chemical properties of depleted uranium are essentially the same as those of any other combination of the isotopes of uranium, including natural uranium. There is not even a remote chance that depleted uranium would be encountered in mining, as it is an artificially created substance. Continually mentioning it in the discussion is misleading, distracting, and makes the document appear unprofessional. Depleted uranium as it normally exists is in a chemical state not encountered with natural uranium minerals. References to depleted uranium should be deleted.

3.15.1 SOCIAL CONDITIONS: HUMAN SAFETY RISKS: TRANSPORTATION CONFLICTS

Page 3-246

Statement: Entire section

Comment: It is extremely unlikely that any company would want to haul ore through Flagstaff or any of the communities on I-40, use I-40, Route 191(except from Mexican Water to Blanding), Route 64 from Tusayan toward Cameron(it is certain the Park Service would not permit it), or to haul ore through Tusayan. Even with 5 mines working, resulting in 30 truck trips per day, and considering the least used Route 191, this would cause an increase of 3% in traffic, which would not be noticeable. Also, many of the trips would be at night when there would be almost no other traffic. Putting the factual effects of ore hauling into perspective should be included in the data, such as percent increase in traffic on the various roads as a result of ore hauling.

During the period of mining (1980 – 1991), Energy Fuels mined over 1.47 million tons of ore on the Arizona Strip. At 25 tons of ore per truck, there were 58,800 truckloads transported to the mill in Blanding, Utah, a 300-mile one way trip. These trucks traveled a total of **17,640,000** miles with only **five** ore spills. There were no injuries and all of the spills were cleaned up immediately, surveyed radiometrically and resulted in no harm to the environment. This nearly flawless record proves that uranium ore transportation has been and will be accomplished safely.

3.15.1 SOCIAL CONDITIONS: OVERVIEW: MINORITY AND/OR LOW-INCOME POPULATIONS IN THE STUDY AREA: MINORITY COMMUNITIES

Page 3-247

Statement: Based on the criteria presented above, there are 10 communities in the study area in which the minority population exceeds 50%, based on 2000 Census data: Bitter Springs, the Havasupai Indian Reservation, Hopi Tribe, and Tuba City, and the Navajo Nation in Coconino County; the Kaibab Reservation (Kaibab Band of Paiutes), Kaibab Census Designated Place (CDP), and Hualapai Tribe in Mohave County, and Navajo Mountain in San Juan County (see Table 3.15-2). Kayenta in Navajo County is also considered a minority community using criteria listed above.

Comment: While these communities may in fact be considered minority communities using the stated criteria, inclusion in this report is inappropriate as many are not in the so-called "study area" or withdrawal area. It has been noted that the definition of "study area" changes throughout this report depending on how much the writers want to increase the perception of a threat of uranium mining in the area. Please remove the Hopi Tribe (they are in the middle of the Navajo Reservation and not even close to the withdrawal area), Tuba City, the Navajo Nation, Hualapai Tribe in Mohave County, Navajo Mountain and Kayenta. This section must be corrected. And, as stated earlier in this document, there are many, many errors in this section and if stated, it would take page after page to list them all. Please review this entire section on social conditions and correct all of the glaring errors, inconsistencies and inappropriate inclusions.

3.16.1 EXISTING CONDITIONS: TOURISM SECTORS EMPLOYMENT, MINING SECTOR EMPLOYMENT

Page 3-254 through 257

Statement: Entire Section

Comment: The poverty level for a family of four is $22,350 per year. The average wage in Kane County is $26,836 per year. The withdrawal of any of the Northern parcel condemns single earner families in this part of rural Utah and northern Mohave County to an existence at about 1.2% of poverty for the foreseeable future. Is this the anti-rural-poverty platform of the Obama Administration?

3.16.1 EXISTING CONDITIONS: TOURISM SECTORS EMPLOYMENT, MINING SECTOR EMPLOYMENT: TABLE 3.16.3

Page 3-255

Statement: copied from page 3-262 of the DEIS: The largest employers for Kane County are Best Friends Animal Sanctuary, Aramark (Lake Powell Resorts), Kane County School District, Kane County Hospital, the federal government, Kane County, Honey IGA Supercenter, State of Utah, Thunderbird Restaurant/Motel, Parry Lodge, Zions First National Bank, Glazier's Food Town, Zion Mountain Resort, Quality Inn, Abundant Life Academy, Best Western Red Hills, and Ponderosa Resort (Utah Department of Workforce Services 2009).

Comment: The table indicates that Kane County has very limited tourism related employment using the Tourism Impact Ratios. It is inaccurate to use the Tourist Impact Ratios on Kane County as the majority of the largest employers in Kane County are hotels and motels, restaurants and related businesses which are clearly tourist related.

3.16.1 EXISTING CONDITIONS: TOURISM SECTORS EMPLOYMENT, MINING SECTOR EMPLOYMENT: TABLE 3.16.4

Page 3-255

Comment: Please correct the typos on the fourth line, Mining **cooper** – should be **copper and the total should be 294.2 not 29402.** These kinds of errors demonstrate the complete lack of credibility in this report.

3.16.1 EXISTING CONDITIONS: INDUSTRY WAGES: ARIZONA: TOURISM AND MINING SECTOR WAGES

Page 3-256, 3-257

Statement: Although the tourism-related sectors (i.e., sales and related occupations, food preparation and serving related occupations) provide more industry employment

than the mining sector in the study area, wages for employees in these sectors are typically low ... actual tourist-related employment totaled 10,296 in 2008 ... using the TI ratios, approximately 4.8% of total employment in the study area is attributable to tourism ... According to the Bureau of Labor, the 2009 mean annual wage for an Arizona employee in the food services sector was $21,230 ... Within the mining sector, which qualifies under the 'construction and extraction' industry, mean annual wages for various mining jobs ranged from $44,510 to $72,060.

Comment: This section is very poorly written as is much of the entire DEIS. This section is both confusing and misleading in that it compares apples to oranges and then uses bananas as the example of a fruit salad that includes coconut but, sometimes, apples and/or oranges as well as an occasional grape and/or kumquat.

With a tourism-related sector mean annual wage of little more than $21,000 versus the mining sector with mean annual wages ranging from $44,660 to $72,000 (more than two to three times the tourism-related sector), it should be clear to any but the daft where the living wage jobs exist within the entire area. This statement speaks volumes.

If you're talking about the tourism-related sector, use numbers for that entire sector, not merely a part of it like food services. Also, it is disingenuous to avoid including the federal poverty numbers for comparison. For example, families and children are defined as poor if family income is below the federal poverty threshold. The federal poverty threshold for a family of four with two children was a yearly family income of $22,050 in 2010, $22,050 in 2009, and $21,200 in 2008.

3.16.1 EXISTING CONDITIONS: Energy Resources

Table 3.16-20, Page 3-275

Comment: The amount of U_3O_8 in the Arizona Strip area as estimated by the US Geological Survey is 163,380 tons, (326.76 million pounds) (see Table 3.3-1, page 3-35 and Appendix B, Table B-4, page B-25). Yet when making statements as regards the total amount of U_3O_8 in the country the DEIS uses the 2003 values from the EIA of 123 million pounds in Arizona, Colorado, and Utah combined (see Table 3.16-20, page 3-275). This leads to the conclusion that the amount of resource in Arizona is not significant with regard to the entire country.

This discrepancy needs correction and resolution, because it is often quoted in the media (and in economic analyses) without the background mentioned above. The reader of this document would think that the resources in Arizona are not significant.

CHAPTER FOUR

4.2.3 IMPACT ASSESSMENT METHODOLOGY AND ASSUMPTIONS PERTAINING TO ALL ALTERNATIVES: SURFACE DISTURBANCE EMISSIONS

Page 4-9

Statement: <u>It was assumed</u> that the entire surface of the 1.1-acre exploration site and 20-acre mine site would be disturbed and that the access roads would be 14 feet wide.

Comment: Far less than 100% of the exploration drilling area would be disturbed. Since no grading is involved, shrubs and grasses would be eliminated only by being crushed or broken by the vehicles driving on them and the root systems would remain intact. Depending on the type of plant and time of year many of the plants would begin to regenerate from the roots as soon as activity in the area ceases. An area of perhaps 50 square feet might be occasionally disturbed to bury excess cuttings which will not fit back in the drill hole.

It has been determined by many measurements in the field that cross-country access routes to exploration sites are defined by two tracks where the wheels of vehicles traversed, with an essentially undisturbed strip between. The outside width is a little over 8 feet wide, with a 2 to 2 ½ foot wide undisturbed strip between the tire tracks.

Thus, instead of the assumption, you now have facts based on experience.

4.2.3 IMPACT ASSESSMENT METHODOLOGY AND ASSUMPTIONS PERTAINING TO ALL ALTERNATIVES: VEHICLES/EQUIPMENT TAILPIPE EMISSIONS

Pages 4-10 thru 4-4-13

Statement: During exploration, development, and mining operations, both on- and off-highway vehicles/equipment would generate gaseous exhaust emissions. Use of ultra-low-sulfur diesel fuel for vehicles and generators was also applied in the inventory. Table 4.2-4 summarizes the on-road equipment and vehicle roster for each of the various mine stages.

Comment: This section goes into detail listing vehicles and equipment used, and the amount of emissions from them, however it does not put the emissions in perspective. The public would be able to see the significance of the emissions if they were compared to emissions from vehicles traveling I-40, Routes 64 and 180 to the South Rim, Route 89 from Flagstaff to Page, Route 389 from Fredonia to St George, I-15, I-17, Phoenix city traffic, Flagstaff city traffic, and St George city traffic, especially in summer when these roads are crowded with tourist traffic. It would be especially helpful if emissions from the Navajo Generating Station were listed. Although some of this information is given in tables 3.2.4 and 3.2.5 it is separated in the report so far from the mining emissions section (4.2.3) that the average member of the public will not make the comparison. A comparison of all sources of emissions in northern Arizona and southern Utah

would show that emissions generated by mining and ore hauling are negligible. The sources of emissions other than mining in northern Arizona should be listed in section 4.2.3 so that the public can readily make the comparison. A spread sheet listing all sources of emissions including mining in northern Arizona would be appropriate.

If the EIS is trying to avoid showing that mining emissions are negligible, then the above does not apply.

Page 4-10

Table 4.2.3 Dust emissions from exploration drilling

The EIS gives an estimate for amount of dust emitted in exploration drilling. Normally exploration drilling is done with water/foam injection so that no dust is emitted from drilling of the hole. This **fact** needs to be brought out in the EIS and corrected in the table. The soap used to produce the foam is biodegradable and non-toxic, and approved for use in drilling domestic and municipal water wells.

4.2.5 IMPACTS OF ALTERNATIVE A: NO ACTION: AIR QUALITY AND CLIMATE

Pages 4-25 to 4-36;

Page 2-33, Table 2.8-1

Comment: Under Alternative A the amount of emissions produced by 30 mines over a 20-year period are: NO_x = 4,156 tons, SO_2=10 tons, CO=2,922 tons, PM_{10}=17,645 tons, $PM_{2.5}$=2,532 tons, VOCs=431 tons, and CO_2=399,100 tons. This is from the exploration stage through reclamation of each mine.

1. Although these figures are correct they do not present a pragmatic picture to the reader. It is best to give the figures on a per mine, per year basis. Thus the figure would be: NO_x =23.1 tons/mine/yr, SO_2=0.055 tons/mine/yr, CO=16.2 tons/mine/yr, PM_{10}=98.0 tons/mine/yr, $PM_{2.5}$=14.1 tons/mine/yr, VOCs=2.4 tons/mine/yr, and CO_2=2,217.2 tons/mine/yr.
2. These figures indicate that the emissions are not excessive and not liable to cause major atmospheric pollution.
3. It might also be instructive to compare this with the emissions caused by the motor vehicles actually entering the Grand Canyon National Park on a daily basis.
4. There is generally some construction within the Park boundaries and in the population areas surrounding. How do the emission figures for the mining compare with that construction?

4.3.4 IMPACTS OF ALTERNATIVE A: NO ACTION: MINERAL RESOURCES

Pages 4-38, and 4-40

Statement: Under Alternative A, the mines would produce 33,155 tons of URANIUM (U_3O_8),, over a 20-year period. Under Alternative B, this would be reduced to 4,147 tons.

Comment: This is a reduction of 29,008 tons. What is the rationale to deprive the local economy of the benefits of 87.5% of the mineral?

It is recognized that these values are computed on a different basis. However, the net result shows that 11 mines would produce only 4,147 tons of U_3O_8 and the other 19 would produce 29,008 tons. By presenting the material in this manner, there is a bias towards emphasizing that the production when there is withdrawal (Alternative B) is considerably less than when mining is allowed (under Alternative A). Should an EIS present the data in such a manner and claim to be objective?

4.3.4 IMPACTS OF ALTERNATIVE A: NO ACTION (NO WITHDRAWAL) DIRECT AND INDIRECT IMPACTS

Page 4-38

Statement: No estimates have been made of the magnitude of low-grade uranium ore that might remain in a reclaimed mine.

Comment: The EIS says that no estimates have been made of the amount of low grade ore left in a reclaimed mine. There is relatively little uranium-bearing rock in the northern Arizona breccia pipes which is below economically mineable grade. Most of the rock in the pipes either has a uranium content high enough to justify mining and shipping to the mill or it contains only geochemical background amount of uranium. This should be stated in the document.

Pages 4-39

Comment: The DEIS says these alternatives would shift uranium mines from federal land to State and private land.

This is not true and needs to be corrected in the DEIS. The private enterprise companies have already diligently pursued finding uranium on State land, with some limited success. There is no guarantee that the State of Arizona will allow mining of uranium on deposits discovered on State land. In the past Energy Fuels spent considerable money discovering and defining a commercial uranium deposit on leased State land. When they applied for a mining lease (WHAT DEPOSIT) they were denied, apparently because of the extreme left politics of Governor Bruce Babbitt. If the State of Arizona in the future should succumb to pressure from the Federal government and radical anti-development groups, or if a Democrat were to be elected governor, this could be repeated.

There is very little State land north of the Grand Canyon, therefore few if any mines can be expected there.

There is almost no private land in areas of good potential for uranium deposits north of the Grand Canyon, therefore no mines can be expected on private land there.

Of the private land south of the Grand Canyon, the Boquillas Ranch belongs to the Navajos and their tribal policy is to NOT allow uranium mining on tribal lands. The Babbitt family can,

likewise, be counted on to refuse to lease mineral rights for uranium exploration and mining on their land.

Therefore the statement that denying uranium mining rights on BLM and Forest Service land will shift the uranium mines to State and private land is not true. The uranium companies have already put a maximum effort into finding uranium deposits on State and private ground as well as Federal land. This statement needs to be corrected in the EIS.

In addition, just because the land belongs to the state or to private individuals that does not mean that the presence of uranium exists there.

Page 4-39

Statement: Only locatable minerals are to be withdrawn according to the July 21, 2009 notice although there is "moderate potential" for oil and gas in the North Parcel "based on oil shows in several wells."

Comment: This would imply that exploration for oil and gas may continue, (with the associated roads, traffic, power lines, etc.) and its impacts on air, water, wildlife, cultural resources, and so forth would be acceptable. Why would exploring for locatable minerals become intolerable? This would appear to be a discriminatory action against uranium mining companies.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: PERCHED AQUIFER SPRINGS AND WELLS QUANTITY AND QUALITY

Page 4-68

Comment:

North Parcel: With Alternative A the probability of impact is 13.2% (moderate). The range of values generally indicates more than an 80% probability that any spring would not be impacted.

With Alternative B the probability of impact is 5.4% (moderate). The range of values generally indicates more than an 80% probability that any spring would not be impacted.

East Parcel: With Alternative A the probability of impact is 1.3% (negligible). The range of values generally indicates more than a 95% probability that any spring would not be impacted.

With Alternative B the probability of impact is 0%. Since there would be no new mines there will be no impact.

South Parcel: With Alternative A the probability of impact is 0.2% (negligible). The range of values generally indicates more than a 95% probability that any spring would not be impacted.

With Alternative B the probability of impact is 0.2%. Only the Canyon Mine will be developed.

As explained in the text all the probabilities are overestimated (Section 4.4.1, page 52). This tends to bias the data in favor of Alternative B compared to Alternative A. Even with this

predisposition, does a comparison of these probabilities justify the removal of 1+ million acres of land from mining, based on this factor?

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: PERCHED AQUIFER WELLS

Pages 4-68 to 4-71

Comment:

North Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 11.

With Alternative B, impacts could vary from no mines located where they may affect wells to 1.

East Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 5.

With Alternative B, no mines are located where they may affect wells.

South Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 4.

With Alternative B, impacts could vary from no mines located where they may affect wells to 1.

Does a comparison of these numbers of wells justify the removal of 1+ million acres of land from mining, since each site would be subject to rigorous scrutiny with a separate EIS?

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: DEEP AQUIFER SPRINGS, QUANTITY

Pages 4-71 to 4-74

Comment:

North Parcel: Under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells would be between 0% and 5%, over a 20-year period. This is based on 21 mines using 21 gpm which is 4.5% of the 470 gpm discharge from the Kanab and Showerbath springs. This amount of water from the springs is uncertain. Since the reach of these springs is diffuse, the reach is probably considerably larger. So the potential impact is likely negligible.

Under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells would be between 0% and 5%, over a 20-year period. In this case 10 mines would use 10gpm. Again, the impact is negligible.

East Parcel: Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This is an overestimate since the water flow into the Colorado River from the South Canyon walls is about 3,700 gpm, but there is flow from the other side and into the river from the R-aquifer directly. So the decrease is 0.1% or negligible.

Under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be 0%, over a 20-year period.

South Parcel: *Havasu and Blue Springs*

Under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This is a high estimate since the 7 projected mines will draw 7 gpm over the 20-year period. The Havasu Springs have a flow of 29,000 gpm and the Blue Springs complex flow is 46,000 gpm. Hence the impact is negligible for either of the springs.

Havasu Springs only

In Table 2.8-1, under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This range is unrealistically large, since the backup discussion indicates that the one mine that might impact the Havasu Springs would result in a decrease of 0.01% and would not even be measureable.

South Rim Springs

In Table 2.8-1, under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% to more than 10%, over a 20-year period.

If the mines were located in the basins of the Hermit Springs or the Garden Springs, the flow from each is around 300 gpm, so the decrease in discharge would be less than 2%, which is negligible

Other Springs

Under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be 0%, over a 20-year period.

The summary table presents exaggerated ranges for the impacts under Alternative A. This is liable to mislead a number of readers.

In all cases the impacts are negligible; this should be clarified.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: DEEP AQUIFER WELLS, QUANTITY

Page 4-74

Comment:

North Parcel: Under Alternative A, there would be no decrease in the levels of the non-mine R-aquifer water wells.

Under Alternative B, there would be no decrease in the levels of the non-mine R-aquifer water wells.

East Parcel: Under Alternative A, there would be no decrease in the levels of the non-mine R-aquifer water wells.

Alternative B, there would be no decrease in the levels of the non-mine R-aquifer water wells.

South Parcel: Under Alternative A, decrease in the levels of the non-mine R-aquifer water wells might range from 0 to 10 feet.

Alternative B, decrease in the levels of the non-mine R-aquifer water wells might range from 0 to 10 feet.

As noted in the DEIS the amount of water withdrawn by the mine wells is small, typically 5 gpm over 4 years. No wells will be affected in the North and East Parcels. In the South Parcel the effects on the wells for Tusayan and Valle would be negligible. So this does not present any reason for the extensive land withdrawal for mining.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION, R-AQUIFER SPRINGS QUALITY: NORTH PARCEL

Page 4-75

Comment: North Parcel: The following assumptions were made for this assessment:

1. Zero to half of the 21 mines (11 mines) predicted for the North Parcel are assumed to contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg/L of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs).
2. The average ambient concentration of dissolved uranium in the aggregate discharge (470 gpm) from these springs is 4.9 µg/L, and the concentration of dissolved arsenic is about 2 µg/L (see Table 4.4-5).

Under Alternative A at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 11 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 11µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

1. The assumptions do not seem realistic. Unless the mine was located next to Kanab or Showerbath springs, there would be considerable dilution due to distance and flow path, geochemical character of the groundwater, residence time of the solution in the aquifer, and other factors. The R-aquifer is very large, so dilution would be significant.

2. It should be noted that the impacts under both alternatives range from none to moderate.
3. Each mine would have to undergo rigorous scrutiny for a site-specific EIS.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: DEEP AQUIFER SPRINGS, QUALITY (NORTH PARCEL)

Page 4-75

Comment: Under Alternative A at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 11 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 11µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 5 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 9µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

1. The assumptions do not seem realistic. Unless the mine was located next to Kanab or Showerbath springs, there would be considerable dilution due to distance and flow path, geochemical character of the groundwater, residence time of the solution in the aquifer, and other factors. The R-aquifer is very large, so dilution would be significant.
2. It should be noted that the impacts under both alternatives range from none to moderate.
3. Each mine would have to undergo rigorous scrutiny for an site-specific EIS.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: DEEP AQUIFER SPRINGS, QUALITY (EAST AND SOUTH PARCELS)

Pages 4-75 to 4-78

Comment:

East Parcel: Under Alternative A, zero to two mines might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that one mine "contributes 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (west side Fence Fault complex in Marble Canyon)." This would raise the projected

concentrations from 1.7µg/L to 1.8µg/L for uranium and remain at 10µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B there would be no impact, since there would not be any mines in this parcel.

South Parcel: Under Alternative A, for Havasu and Blue springs, zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic would not exceed ambient levels. These results are obtained on the assumption that four mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished." The ambient levels for uranium are 6µg/L for Havasu Springs and 7µg/L for Blue Springs. The levels for arsenic are 10µg/L for Havasu and 5µg/L for Blue Springs. These remain unchanged because of the contributions from the mines because of the large flows in these springs.

Under Alternative A, for South Rim springs, zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic may exceed the EPA drinking water standards. For uranium the range might be 4 to 70µg/L and for arsenic it might be 10 to 30µg/L. The EPA MCLs for uranium are 30µg/L and for arsenic 10µg/L. Thus the impact ranges from none to major. For the Hermit Springs the range is between 3 to 4µg/L for uranium and for Garden Springs it is 3 to 5µg/L. The lower values are the ambient levels. For arsenic the ambient level for the Hermit Springs are 10µg/L, which is not impacted.

Under Alternative B, for Havasu Springs only, from zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic may exceed the ambient levels. No mines would impact the other springs.:

1. It should be noted that some of the springs are already at the EPA MCL for arsenic
2. The assumption that the waters will reach the springs undiminished is not realistic. The R-aquifer is very large.
3. Each mine would be subject to strict scrutiny under a separate EIS, so either the mine would not be permitted, or adequate corrective steps would be incorporated.

4.4.4 IMPACTS ON ALTERNATIVE A: NO ACTION: SURFACE WATER, QUANTITY

Page 4-79

Comment:

North Parcel: Under Alternative A

Perennial Streams: The decrease in water would vary from negligible if the R-aquifer is the major source to large if these are fed by perched aquifers, which have a probability of 13.2%.

Ephemeral Streams: The changes will generally be undetectable, unless the mine in steep topography.

Under Alternative B

Perennial Streams: The decrease in water would vary from negligible if the R-aquifer is the major source to large if these are fed by perched aquifers, which have a probability of 5.4%

Ephemeral Streams: The changes will generally be undetectable, unless the mine in steep topography.

East Parcel: Under Alternative A

Perennial Streams: If these are fed by perched aquifers, there is a probability of 1.3% of being impacted.

Under Alternative B

There will be no impact.

South Parcel: Under Alternative A

Perennial Streams: The decrease in water would be negligible if Havasu or Blue Springs support the stream flow. The impact would vary from 0% to 10% for the smaller South Rim Springs; the probability for which is 0.2%.

Ephemeral Streams: The changes will generally be undetectable, unless the mine in steep topography.

Under Alternative B

Perennial Streams: The decrease in water would be negligible if Havasu, Blue Springs, South Rim springs, or perched water aquifers support the stream flow. Only the Canyon Mine will be developed.

Ephemeral Streams: The changes will be undetectable.:

1. Impacts to the Colorado River would be undetectable, because of its large flow (minimum of 1.6 million gpm). Even if all 30 mines operate the change would be 0.002% which is not measurable.
2. There is no basis to withdraw 1+ million acres for surface water reduction reasons.

4.4.4 IMPACTS ON ALTERNATIVE A: NO ACTION: SURFACE WATER, QUALITY 1

Pages 4-80 to 4-82

Comment: There is little impact to the quality of the surface water, except when the mine is located within the groundwater drainage area of a perched aquifer spring, especially if the spring is small. This applies to Alternatives A and B; only B will have no mines in the East parcel and only the Canyon mine in the South Portal.

It appears that the analysis does not consider any dilution from the perched aquifer to the impacted mine water. It should be borne in mind that the mines use only 5 gpm of water, not all

of which necessarily runs off and impacts the aquifer. Some of the water is used to allay the dust in the mine during drilling and comes out of the mine with the ore when it is brought to the surface. This ore is not dried out before shipping to the mill site, but some of the water evaporates into the atmosphere.

4.4.4 IMPACTS ON ALTERNATIVE A: NO ACTION: SURFACE WATER, QUALITY 2

Pages 4-80 to 4-82

Comment:

The probability of a flood breaching a properly designed, constructed, and maintained berm over 20 years is about 4% (footnote page 4-80). So the primary mechanism of contaminant dispersal outside the mine perimeters is fugitive dust. Wind-deposited constituents could impact perennial streams or impounded surface waters by direct deposition.

The dispersion of dust from the stored ore could be readily reduced by placing the ore in a covered area. The waste rock does not contain enough uranium to be a major problem (otherwise it would not be waste). Both types of rock are to be placed on concrete pads, as required by APP.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: CUMULATIVE IMPACTS: PERCHED AQUIFER SPRINGS

Page 4-83

Statement: Only one (Pigeon Mine) of the five old uranium mines considered for cumulative impacts on the North Parcel lies within the calculated groundwater drainage area of a perched aquifer spring (Pigeon Spring). No data are available to assess current or past impacts to the spring. A water sample collected by the USGS prior to mining in 1982 showed that the total natural uranium concentration in water from Pigeon spring was 44.0 µg/L (Hopkins et al. 1984b; see Appendix F, this EIS), which exceeds the EPA drinking water standard (30 µg/L).

Comment: In several sections of the EIS anomalous uranium or other metals in springs are attributed to nearby mines, apparently only because the mine and spring are in proximity, and there is no other evidence that the mine has affected the spring. Saying that the mine is definitely the cause of anomalous metals in the spring merely because of their proximity is a fallacy of logic. A sample taken from Pigeon Spring, near the Pigeon Mine before mining took place contained anomalously high uranium concentrations. This shows that anomalous uranium can be present independent of mining.

4.4.4 IMPACTS OF ALTERNATIVE A: NO ACTION: CUMULATIVE IMPACTS: GROUNDWATER: R-AQUIFER SPRINGS: SOUTH PARCEL

Page 4-85

Statement: Two R-aquifer springs are mapped immediately to the southeast (Miner's or Page Spring) and northwest (O'Neil Spring) from the Grandview Mine (Alter et al. 2009). No data are available from O'Neil Spring; however, data collected between 1981 and 2001 at Miner's Spring indicate that the average uranium concentration is 3.6 µg/L, and the average arsenic concentration is 18.8 µg/L (see Appendix F). The uranium concentration is consistent with ambient levels for all small South Rim R-aquifer springs reported in Table 4.4-5; however, the arsenic concentration is about 9 µg/L above the average concentration for small R-aquifer springs on the South Rim. Thus, it is possible, but cannot be confirmed as a result of a lack of pre-mining data, that the Grandview Mine has impacted Miner's Spring with respect to arsenic. Since ambient levels of arsenic in Miner's Spring may currently be above drinking water standards for arsenic (10 µg/L), another mine impacting Miner's Spring would not result in a change to the potential impact category for this alternative, which already shows a potential major impact. Impact to uranium levels from mining would not be cumulative because the Grandview Mine has not impacted uranium levels. For the purpose of this analysis, it is assumed that conditions for O'Neil spring are similar to those for Miner's Spring.

Comment: Miner's Spring, below the Grandview Mine is said to have anomalous amounts of arsenic. It is possible that the arsenic is there because of the mine, however it is more likely that the arsenic is there from natural causes, i.e. it went into solution in the groundwater independent of the mine. At any rate to say that the mine caused the anomalous arsenic merely because of the proximity of the mine without any other evidence is a fallacy of logic. An example of anomalous metals independent of a mine is Pigeon Spring where a pre-Pigeon Mine water sample showed anomalous uranium unrelated to mining.

4.4.5 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: PERCHED AQUIFER SPRINGS AND WELLS QUANTITY AND QUALITY

Page 4-87

Comment:

North Parcel: With Alternative A the probability of impact is 13.2% (moderate). The range of values generally indicates more than an 80% probability that any spring would not be impacted.

With Alternative B the probability of impact is 5.4% (moderate). The range of values generally indicates more than an 80% probability that any spring would not be impacted.

East Parcel: With Alternative A the probability of impact is 1.3% (negligible). The range of values generally indicates more than a 95% probability that any spring would not be impacted.

With Alternative B the probability of impact is 0%. Since there would be no new mines there will be no impact.

South Parcel: With Alternative A the probability of impact is 0.2% (negligible). The range of values generally indicates more than a 95% probability that any spring would not be impacted.

With Alternative B the probability of impact is 0.2%. Only the Canyon Mine will be developed.

As explained in the text all the probabilities are overestimated (Section 4.4.1, page 52). This tends to bias the data in favor of Alternative B compared to Alternative A. Even with this predisposition, does a comparison of these probabilities justify the removal of 1+ million acres of land from mining, based on this factor?

4.4.5 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: PERCHED AQUIFER WELLS

Page 4-87

Comment:

North Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 11.

With Alternative B, impacts could vary from no mines located where they may affect wells to 1.

East Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 5.

With Alternative B, no mines are located where they may affect wells.

South Parcel: With Alternative A, impacts could vary from no mines located where they may affect wells to as many as 4.

With Alternative B, impacts could vary from no mines located where they may affect wells to 1.

Does a comparison of these numbers of wells justify the removal of 1+ million acres of land from mining, since each site would be subject to rigorous scrutiny with a separate EIS?

4.4.5 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: DEEP AQUIFER SPRINGS, QUANTITY

Pages 4-87 to 4-88

Comment:

North Parcel: Under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells would be between 0% and 5%, over a 20-year period. This is based on 21 mines using 21 gpm which is 4.5% of the 470 gpm discharge from the Kanab and Showerbath springs. This amount of water from the springs is uncertain. Since the reach of these springs is diffuse, the reach is probably considerably larger. So the potential impact is likely negligible.

Under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells would be between 0% and 5%, over a 20-year period. In this case 10 mines would use 10gpm. Again, the impact is negligible.

East Parcel: Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This is an overestimate since the water flow into the Colorado River from the South Canyon walls is about 3,700 gpm, but there is flow from the other side and into the river from the R-aquifer directly. So the decrease is 0.1% or negligible.

Under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be 0%, over a 20-year period.

South Parcel: *Havasu and Blue Springs*

Under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This is a high estimate since the 7 projected mines will draw 7 gpm over the 20-year period. The Havasu Springs have a flow of 29,000 gpm and the Blue Springs complex flow is 46,000 gpm. Hence the impact is negligible for either of the springs.

Havasu Springs only

In Table 2.8-1, under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% and 5%, over a 20-year period. This range is unrealistically large, since the backup discussion indicates that the one mine that might impact the Havasu Springs would result in a decrease of 0.01% and would not even be measureable.

South Rim Springs

In Table 2.8-1, under Alternative A the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be between 0% to more than 10%, over a 20-year period.

If the mines were located in the basins of the Hermit Springs or the Garden Springs, the flow from each is around 300 gpm, so the decrease in discharge would be less than 2%, which is negligible

Other Springs

Under Alternative B the volume of water withdrawn from the mine-related R-aquifer wells downgradient from the mine would be 0%, over a 20-year period.

The summary table presents exaggerated ranges for the impacts under Alternative A. This is liable to mislead a number of readers.

In all cases the impacts are negligible; this should be clarified.

4.4.5 IMPACTS ON ALTERNATIVE B: PROPOSED ACTION: DEEP AQUIFER WELLS, QUANTITY

Page 4-88

Comment:

North Parcel: Under Alternative A, there would be no decrease in the levels of the non-mine R-aquifer water wells.

Under Alternative B, there would be no decrease in the levels of the non-mine R-aquifer water wells.

East Parcel: Under Alternative A, there would be no decrease in the levels of the non-mine R-aquifer water wells.

Alternative B, there would be no decrease in the levels of the non-mine R-aquifer water wells.

South Parcel: Under Alternative A, decrease in the levels of the non-mine R-aquifer water wells might range from 0 to 10 feet.

Alternative B, decrease in the levels of the non-mine R-aquifer water wells might range from 0 to 10 feet.

As noted in the DEIS the amount of water withdrawn by the mine wells is small, typically 5 gpm over 4years. No wells will be affected in the North and East Parcels. In the South Parcel the effects on the wells for Tusayan and Valle would be negligible. So this does not present any reason for the extensive land withdrawal for mining.

4.4.5 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: R-AQUIFER SPRINGS, QUALITY (NORTH PARCEL)

Pages 4-88 to 4-89

Comment: Under Alternative B at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 5 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 9µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

1. The assumptions do not seem realistic. Unless the mine was located next to Kanab or Showerbath springs, there would be considerable dilution due to distance and flow path, geochemical character of the groundwater, residence time of the solution in the aquifer, and other factors. The R-aquifer is very large, so dilution would be significant.
2. It should be noted that the impacts under both alternatives range from none to moderate.
3. Each mine would have to undergo rigorous scrutiny for a site-specific EIS.

4.4.5 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION; DEEP AQUIFER SPRINGS, QUALITY (NORTH PARCEL)

Pages 4-88 to 4-89

Comment:

Under Alternative A at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 11 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 11µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B at least one mine might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that 5 mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (Kanab and Showerbath springs)." This would raise the projected concentrations from 4.9µg/L to 9µg/L for uranium and 2µg/L to 3µg/L for arsenic. The lower figures in each range are the ambient concentrations.:

1. The assumptions do not seem realistic. Unless the mine was located next to Kanab or Showerbath springs, there would be considerable dilution due to distance and flow path, geochemical character of the groundwater, residence time of the solution in the aquifer, and other factors. The R-aquifer is very large, so dilution would be significant.
2. It should be noted that the impacts under both alternatives range from none to moderate.
3. Each mine would have to undergo rigorous scrutiny for an site-specific EIS.

4.4.5 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: DEEP AQUIFER SPRINGS, QUALITY (EAST AND SOUTH PARCELS)

Pages 4-88 to 4-89

Comment:

East Parcel: Under Alternative A, zero to two mines might contribute impacted water to the R-aquifer; uranium and arsenic might exceed ambient levels but not drinking water standards. These results are obtained on the assumption that one mine "contributes 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished (west side Fence Fault complex in Marble Canyon)." This would raise the projected concentrations from 1.7µg/L to 1.8µg/L for uranium and remain at 10µg/L for arsenic. The lower figures in each range are the ambient concentrations.

Under Alternative B there would be no impact, since there would not be any mines in this parcel.

South Parcel: Under Alternative A, for Havasu and Blue springs, zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic would not exceed ambient levels. These results are obtained on the assumption that four mines "contribute 1 gpm of water containing 400 µg/L of dissolved uranium and 90 µg of dissolved arsenic into the R-aquifer, and this contribution of impacted water would reach the nearest R-aquifer springs undiminished." The ambient levels for uranium are 6µg/L for Havasu Springs and 7µg/L for Blue Springs. The levels for arsenic are 10µg/L for Havasu and 5µg/L for Blue Springs. These remain unchanged because of the contributions from the mines because of the large flows in these springs.

Under Alternative A, for South Rim springs, zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic may exceed the EPA drinking water standards. For uranium the range might be 4 to 70µg/L and for arsenic it might be 10 to 30µg/L. The EPA MCLs for uranium are 30µg/L and for arsenic 10µg/L. Thus the impact ranges from none to major. For the Hermit Springs the range is between 3 to 4µg/L for uranium and for Garden Springs it is 3 to 5µg/L. The lower values are the ambient levels. For arsenic the ambient level for the Hermit Springs are 10µg/L, which is not impacted.

Under Alternative B, for Havasu Springs only, from zero to one mine might contribute impacted water to the R-aquifer; uranium and arsenic may exceed the ambient levels. No mines would impact the other springs.

1. It should be noted that some of the springs are already at the EPA MCL for arsenic.
2. The assumption that the waters will reach the springs undiminished is not realistic. The R-aquifer is very large.
3. Each mine would be subject to strict scrutiny under a separate EIS, so either the mine would not be permitted, or adequate corrective steps would be incorporated.

4.4.5 IMPACTS ON ALTERNATIVE B: PROPOSED ACTION: SURFACE WATER, QUALITY

Page 4-89

Comment: There is little impact to the quality of the surface water, except when the mine is located within the groundwater drainage area of a perched aquifer spring, especially if the spring is small. This applies to Alternatives A and B; only B will have no mines in the East parcel and only the Canyon mine in the South Portal.

It appears that the analysis does not consider any dilution from the perched aquifer to the impacted mine water. It should be borne in mind that the mines use only 5 gpm of water, not all of which necessarily runs off and impacts the aquifer. Some of the water is used to allay the dust in the mine during drilling and comes out of the mine with the ore when it is brought to the surface. This ore is not dried out before shipping to the mill site, but some of the water evaporates into the atmosphere.

4.4.5 IMPACTS ON ALTERNATIVE B: PROPOSED ACTION: SURFACE WATER, QUALITY

Page 4-89

Comment: The probability of a flood breaching a properly designed, constructed, and maintained berm over 20 years is about 4% (footnote page 4-80). So the primary mechanism of contaminant dispersal outside the mine perimeters is fugitive dust. Wind-deposited constituents could impact perennial streams or impounded surface waters by direct deposition.

The dispersion of dust from the stored ore could be readily reduced by placing the ore in a covered area. The waste rock does not contain enough uranium to be a major problem (otherwise it would not be waste). Both types of rock are to be placed on concrete pads, as required by APP.

4.4.5 IMPACTS ON ALTERNATIVE B: PROPOSED ACTION: SURFACE WATER, QUANTITY

Page 4-89

Comment:

North Parcel: Under Alternative A

Perennial Streams: The decrease in water would vary from negligible if the R-aquifer is the major source to large if these are fed by perched aquifers, which have a probability of 13.2%.

Ephemeral Streams: The changes will generally be undetectable, unless the mine in steep topography.

Under Alternative B

Perennial Streams: The decrease in water would vary from negligible if the R-aquifer is the major source to large if these are fed by perched aquifers, which have a probability of 5.4%

Ephemeral Streams: The changes will generally be undetectable, unless the mine in steep topography.

East Parcel: Under Alternative A

Perennial Streams: If these are fed by perched aquifers, there is a probability of 1.3% of being impacted.

Under Alternative B

There will be no impact.

South Parcel: Under Alternative A

Perennial Streams: The decrease in water would be negligible if Havasu or Blue Springs support the stream flow. The impact would vary from 0% to 10% for the smaller South Rim Springs; the probability for which is 0.2%.

Ephemeral Streams: The changes will generally be undetectable, unless the mine in steep topography.

Under Alternative B

Perennial Streams: The decrease in water would be negligible if Havasu, Blue Springs, South Rim springs, or perched water aquifers support the stream flow. Only the Canyon Mine will be developed.

Ephemeral Streams: The changes will be undetectable.

1. Impacts to the Colorado River would be undetectable, because of its large flow (minimum of 1.6 million gpm). Even if all 30 mines operate the change would be 0.002% which is not measurable.
2. There is no basis to withdraw 1+ million acres for surface water reduction reasons.

4.5.3 IMPACTS OF ALTERNATIVE A: NO ACTION: SOIL RESOURCES

Pages 4-101 to 4-108

Comment: Mining of locatable minerals causes soil disturbance resulting in soil erosion and contamination. However, damage to all three parcels scheduled to be withdrawn is also caused by many other activities: fuels management, noxious weed control, wildfires, droughts, cattle grazing, recreational activities (developing roads, trails, campgrounds), installation of water and power lines, development of private lands, drilling for oil, gas, or water, fluid mineral leasing, mining on leased or sold lands (sand and gravel, copper, stone quarrying) and past uranium mining activities. This is applicable to all Alternatives, including B.

The activities unrelated to mining of uranium listed above cause damage to the soil greater by an order of magnitude than any uranium mining would cause. Many of these other activities are not regulated or controlled as well as uranium mining. So impact to soil resources because of mining should not even be an issue. However, the summary presented in Table 2.8-1 does not reflect this and gives the reader the impression that mining can be the cause of considerable damage. This is very misleading.

4.5.3 IMPACTS OF ALTERNATIVE A: NO ACTION: CUMULATIVE IMPACTS

Pages 4-106, 4-107, end of third paragraph

Statement: Although the individual impact from these activities may be relatively small, the cumulative impact would be expected to be large. Anticipated population growth in the region, primarily in southern Utah, might accelerate disturbance by way of increased development on private property (primarily in the North Parcel) and increased development and use of recreation areas (such as trails and campgrounds).

Comment: The EIS says that development on private property within the north withdrawal area might contribute considerably to cumulative impacts. There is little private ground inside the north withdrawal area, and what is there does not have high potential for uranium, and is not

well suited for anything other than cattle grazing, therefore there would be minimal effects from development on private land.

4.5.4 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: SOIL RESOURCES

Pages 4-108 to 4-109

Comment: Mining of locatable minerals causes soil disturbance resulting in soil erosion and contamination. However, damage to all three parcels scheduled to be withdrawn is also caused by many other activities: fuels management, noxious weed control, wildfires, droughts, cattle grazing, recreational activities (developing roads, trails, campgrounds), installation of water and power lines, development of private lands, drilling for oil, gas, or water, fluid mineral leasing, mining on leased or sold lands (sand and gravel, copper, stone quarrying) and past uranium mining activities. This is applicable to all Alternatives, including B.

The activities unrelated to mining of uranium listed above cause damage to the soil greater by an order of magnitude than any uranium mining would cause. Many of these other activities are not regulated or controlled as well as uranium mining. So impact to soil resources because of mining should not even be an issue. However, the summary presented in Table 2.8-1 does not reflect this and gives the reader the impression that mining can be the cause of considerable damage. This is very misleading.

4.6.3 IMPACTS OF ALTERNATIVE A: NO ACTION: VEGETATION RESOURCES

Pages 4-115 to 4-116

Comment; The discussion on vegetation resources mentions that these include structure, productivity, vigor, abundance, and diversity. However, there is considerable uncertainty about these parameters since the specific sites are not known.

1. This uncertainty is not reflected in the Summary Table 2.8-1, which could result in certain readers being misled.
2. The discussion does not point out that activities un-related to uranium mining, such as fuels management, noxious weed control, wildfires, droughts, cattle grazing, recreational activities (developing roads, trails, campgrounds), installation of water and power lines, development of private lands, drilling for oil, gas, or water, fluid mineral leasing, mining on leased or sold lands (sand and gravel, copper, stone quarrying) may actually have a much greater impact. The land is not being withdrawn from these activities.
3. No mention is made to plants that require special attention. These are dealt with under Section 4.8, Special Status Species. Some reference to this would be appropriate in Section 4.6.,Vegetation Resources.

4.6.4 IMPACTS OF ALTERNATIVE B: PROPOSED ACTION: VEGETATION RESOURCES

Pages 4-116 to 4-117

Comment: The discussion on vegetation resources mentions that these include structure, productivity, vigor, abundance, and diversity. However, there is considerable uncertainty about these parameters since the specific sites are not known.

1. This uncertainty is not reflected in the Summary Table 2.8-1, which could result in certain readers being misled.
2. The discussion does not point out that activities un-related to uranium mining, such as fuels management, noxious weed control, wildfires, droughts, cattle grazing, recreational activities (developing roads, trails, campgrounds), installation of water and power lines, development of private lands, drilling for oil, gas, or water, fluid mineral leasing, mining on leased or sold lands (sand and gravel, copper, stone quarrying) may actually have a much greater impact. The land is not being withdrawn from these activities.
3. No mention is made to plants that require special attention. These are dealt with under Section 4.8, Special Status Species. Some reference to this would be appropriate in Section 4.6., Vegetation Resources.

4.7.3 FISH AND AQUATIC RESOURCES: IMPACTS OF ALTERNATIVE A AND ALTERNATIVE B

Pages 4-126 to 4-128

Comment: It is noted that BLM rules for permitting uranium mining specify that "No net loss will occur in the quality and quantity of suitable habitat for endemic fish, amphibians, and aquatic invertebrate species." The requirements of the Forest Service are similar, and the Kaibab LRMP/ROD "evaluates assessment areas during mining project design and plan."

"Typical compliance procedures include equipment and waste fluids are confined at all times and are disposed of at approved off-site disposal facilities." "Radioactive drill cuttings are encapsulated in sealable metal containers."

Under Alternative A the reduction of in flow is approximately 1% to 2% over the 20-year period. Thus it is noted that "the impacts would not likely alter the overall fish and wildlife distribution in the study area or result in changes to overall fish and wildlife population viability."

1. It is clear from the above that this factor does not present an adequate reason to withdraw 1+ million acres of land from mining as suggested in Alternative B, or even the lesser amounts presented in options C and D.
2. It is not sufficiently made clear that even though some ephemeral springs and streams may be affected by the mining, depending on location, the detrimental effects of long droughts, drilling of water wells for local consumption, and other non-mining related activities would be considerably greater.

4.7.4 GENERAL WILDLIFE SPECIES: DIRECT AND INDIRECT IMPACTS

Pages 4-129 to 4-136

Comment: It is concluded that even for Alternative A the amount of land that might impact wildlife is only 1.5% of that slated for withdrawal. So the resulting "impacts would not alter wildlife distribution in the study area or result in changes to overall wildlife population viability."

1. It is clear from the above that this factor does not present an adequate reason to withdraw 1+ million acres of land from mining as suggested in Alternative B, or even the lesser amounts presented in options C and D.

2. Some discussion about the relative impacts from trails, recreational roads with vehicular traffic, campgrounds, and persons with weapons (bullet holes in the signs are evidence) should be presented. This would put the impacts from mining in perspective.

4.7.5 MIGRATORY BIRDS: IMPACTS FOR ALTERNATIVE A: NO ACTION

Pages 4-136 to 4-138

Comment: It is concluded that even for Alternative A the amount of land that might impact wildlife is only 1.5% of that slated for withdrawal. Discussions of soil contamination, vegetation resources, fish and aquatic resources, and general wildlife species all indicate that there would not be significant detrimental effects because of uranium mining. Therefore, it may be concluded that the impact on migratory birds will also be minor. As reported "the types of impacts would be similar."

1. It is clear from the above that this factor does not present an adequate reason to withdraw 1+ million acres of land from mining as suggested in Alternative B, or even the lesser amounts presented in options C and D.
2. Some discussion about the relative impacts from trails, recreational roads with vehicular traffic, campgrounds, and persons with weapons (bullet holes in the signs are evidence) is merited. This would put the impacts from mining in perspective.

4.8.3 THREATENED, ENDANGERED AND CANDIDATE SPECIES- PLANTS: DIRECT AND INDIRECT IMPACTS

Pages 4-143 to 4-148

Under Alternative A the plants that are threatened are the Brady pincushion, sentry milkvetch, Fickeisen plains cactus, and Paradine (Kaibab) plains cactus (page 4-144). Under Alternative B the same plants would fall in the same category. It should be remembered that whereas Alternative A would have 30 mines over a 20-year period, Alternative B would still have 11 (a difference of 19).

Comment:

At the Carlota Mine in Arizona the mine had the hedgehog cactus that needed protection. The mine operator carefully removed each plant from its original location and replanted it in a special nursery area. After the mining is completed and the area is reclaimed, the plants will be re-planted back in the ground. The same process was used successfully by Energy Fuels in the 1980s, and the same scheme can be readily followed at the uranium mines, since the area occupied by each mine is considerably smaller – only 20 acres each.

4.8.3 THREATENED, ENDANGERED AND CANDIDATE SPECIES: SPECIAL STATUS SPECIES (THREATENED, ENDANGERED, AND CANDIDATE SPECIES) – AMPHIBIAN SPECIES AND AQUATIC-DEPENDENT INVERTEBRATE

Pages 4-143 to 4-148

Comment: Under Alternative A the following could be impacted: relict leopard frog, northern leopard frog, lowland leopard frog, and Kanab ambersnail.

1. Those species that exist near the Colorado River, Little Colorado River, or Virgin River would not be impacted for the same reasons as given for the fish.
2. Those that are present in small seeps or ephemeral springs will not be impacted any more than with long droughts, drilling of water wells for public use, or other such activities.

4.8.3 THREATENED, ENDANGERED AND CANDIDATE SPECIES: SPECIAL STATUS SPECIES (THREATENED, ENDANGERED, AND CANDIDATE SPECIES) - FISH

Pages 4-143 to 4-148

Comment: Under Alternative A the humpback chubb and the razorback sucker are mentioned as fish that could be impacted in the Colorado River.

The Little Colorado spinedace occurs in the Little Colorado River, which has a hydrologic connection in the South Parcel.

In the Virgin River, the Virgin River chubb, virgin spinedace, and woodfin could be impacted.

Comment:

1. It has been pointed out earlier that the flow in the River is so large, average minimum of 1.6 million gpm (see page 4-79), that even a spill of 30 tons of high-grade uranium ore into the River will cause an impact that is "below the level of natural variation" (page 4-80). So the fish in the Colorado River would not be impacted.
2. The Canyon Mine well is located more than 5 miles south of the ground water divide. "The remaining mines could be assumed to be located several miles south of the groundwater divide in the Havasu Springs (flow about 29,000 gpm) groundwater basin and/or north of the groundwater divide in the groundwater basin that drains to the large Blue Springs (flow about 46,000 gpm) system along the Little Colorado River" (page 4-73). Since these six mines would generate an average of 6 gpm, the impact would be negligible and not measureable. Hence the impact on the fish would also be negligible.
3. The DEIS states (page 4-72): "Considering the lowest of the reported aggregate spring flow rates (9,000 gpm) and even assuming that all 21 mines anticipated under Alternative A for the North Parcel would be located within the Virgin River groundwater basin (total mine pumping of 21 gpm over a 20-year period of this analysis), the maximum calculated decrease in the discharge would be 0.5%, which is negligible and not measurable." This implies that the fish in the Virgin River will not be impacted.

SECTION 4.8.3 THREATENED, ENDANGERED AND CANDIDATE SPECIES: SPECIAL STATUS SPECIES (THREATENED, ENDANGERED, AND CANDIDATE SPECIES) - BIRDS

Pages 4-143 to 4-148

Comment: Under Alternative A the birds of prey that require special attention are the bald eagle, California condor, Mexican spotted owl, and American peregrine falcon (page 4-144). Near Kanab Creek the southwestern willow flycatcher might be found and near the Virgin River the Yuma clapper rail is found. Under Alternative B the same birds would be affected in the same manner. It should be remembered that whereas Alternative A would have 30 mines over a 20-year period, Alternative B would still have 11 (a difference of 19).

The monitoring rules that Denison needs to follow at their operations on the Arizona Strip include "The Operator will report local sightings of falcon or eagle to the BLM. Upon such a sighting, no employee will harass, harm or injure the species." In fact, if these are sighted the BLM or organizations that deal with such birds need to be notified and they would take the appropriate steps to have the bird leave the area. Similar clauses will no doubt be included in any permits granted for future mines. Note that each new mine would have to have its own site-specific EIS.

The DEIS outlines the precautions to be taken for California condors and the Mexican spotted owl (pages 4-148 and 4-149). Similar precautions would be implemented for other birds that require special attention.

4.9 .2 IMPACTS OF ALTERNATIVE A: NO ACTION: VISUAL RESOURCES

Pages 4-163 to 4-189

Page 2-40, Table 2.8-1

Statement: Entire Section

Comment: Under Alternative A there will be visual impact of a headframe which stands 40 feet high, during mine development and production. Otherwise the area occupied by each mine is only 20 acres, which is small compared to the overall withdrawal area of over 1+ million acres. The headframe would be standing for about four years for each mine. There may be as many as six mines in operation at any one time over the three parcels.

1. The discussion deals with the visibility of a mine headframe or exploration rig from various viewpoints. It should be noted that the mine locations will change every four or five years. Further, the discussion does not mention the number of persons that would use that viewpoint during that period. So the probability of having one's view obstructed by a mine is very small.
2. It would only be if the mine was located at a high point that the mine would be visible from one of the viewpoints in the Grand Canyon National Park, where the number of visitors is large. Since each new mine would be subject to rigorous scrutiny under a site-specific EIS, this would probably not be permitted unless strict mitigation procedures were included in the mine plan of operations.

4.10 SOUNDSCAPES

Pages 4-190 to 4-201

Page 2-40, Table 2.8-1

Statement: Entire Section

Comment: The DEIS states that the ambient noise level in non-tourist areas of the Grand Canyon National Park ranges from 18.3 to 22.8 dBA, with a log mean sound level of 20.8 dBA. Hence the ambient noise level for the DEIS is taken to be 20.8 dBA. The noise from mining activities in the areas around the boundary of the Park is attenuated by wind, and the reflection, refraction, scattering and absorption effects of barriers, vegetation, trees, hills, and other obstructions. It is admitted that "without knowledge of the specific location of each noise source, these variables cannot be considered."

1. Table 4.10-4 indicates that all mining equipment will attenuate to 20.8 dBA at a distance varying from 1 – 2 miles, except for semi-trailer trucks for which the distance is just below 2.5 miles. This is based on the assumption that there is no obstruction between the equipment and the receptor and there is no wind. This implies that no mine should be located closer to 2.5 miles from the boundary of the Park. In reality the height, placement of the noise sources, obstructions, spectrum of the noise, its duration, density and nature of vegetation surrounding the source, temperature, wind gradient, relative humidity, cloud cover, and other factors would attenuate the noise level. The probability of a mine being located closer than 2.5 miles to the Park boundary is remote. In any event each new mine would be required to have its own site-specific EIS and NEPA process.
2. The mines would operate within the hours of 7 am and 10 pm. So the disturbance would not meddle with sleeping hours. During the day there are tourist flights, construction, and a number of other noisy activities. Do these adhere to the 20.8 dBA noise level in the non-tourist parts of the Park?

4.11 CULTURAL RESOURCES

Pages 4-201 to 4-208

Page 2-41, Table 2.8-1

Statement: Entire Section

Comment: Cultural resources are directly impacted primarily by either physical disturbance or "from effects on one or more aspects of integrity (location, design, setting, materials, workmanship, feeling, and association), which would disturb the character of the setting." Indirect impacts result from "loss of opportunities for interpretive development or educational uses." Since cultural resources are location specific and the mine locations are unknown at this time the DEIS "assumes that all future mining-related activities have the potential to affect any of the resources."

1. Under Alternative A there are 2,655 "known" sites within the land slated for withdrawal, including those that are ineligible and unevaluated for inclusion in the National Register of Historic Places (NRHP). Only 12 of these are actually listed (Table 4.11-3, page 4-204).
2. Each new "mine development would be subjected to intensive archeological surveys to identify and evaluate cultural resources that could be affected. Impacts to cultural resources would be considered and addressed through the NEPA and Section 106 processes, with efforts made to identify, avoid, mitigate, or otherwise resolve any adverse effects" (page 4-202). Further, "no cumulative impacts to cultural resources are anticipated under Alternative A" (page 4-205).
3. In view of the above what would be the justification of removing 1+ million acres from mining as suggested in Alternative B, or even the smaller amounts of land under Alternatives C and D? It should be borne in mind that there will also be impacts on cultural resources due to a number of other construction projects, cattle grazing, non-locatable mineral mining, fire management procedures, natural wildfires, and the like.

4.12 AMERICAN INDIAN RESOURCES

Pages 4-208 to 4-215

Pages 2-41and 2-42, Table 2.8-1

Comment: According to the DEIS "American Indian resources consist of many types of places and landscapes, including tribal homelands, places of traditional importance, traditional use areas, cultural landscapes, trails, springs and waterways, and sacred sites." These facilitate to sustain the culture, that is, "cultural heritage, respect for ancestors, spirituality, education, economics, and social relationships."

Potential impacts are evaluated based on "documented ethnographic resources." However, these reports are not comprehensive "because many tribes feel that they should not share sacred and tribal knowledge with outsiders." This implies that "any mining activity has the potential to affect yet-unidentified resources."

1. "Many American Indians view exploratory drilling and mining as wounding the earth." No specific tribes are mentioned, except the Hopi. Yet many Hopi were working at the Black Mesa coal mine while it was operating, and presumably some are still working at the Kayenta mine (along with the Navajo) . How do they square this with their beliefs?
2. Almost all the tribes (including the Hopi) around the withdrawal area have agricultural activities within their homelands and elsewhere. For this they must plow the land. Is this not wounding the earth? Are the water wells that they drill for tribal consumption and agricultural irrigation not considered to wound the earth?
3. The Hualapai have built the Skywalk over the Grand Canyon, and plan to build a high-end resort, golf course, campgrounds and other facilities as tourist attractions. The Navajo are planning a casino and a coal-burning power plant, although the Navajo Cultural Landscape encompasses the entire Coconino Plateau. How do all of these construction projects integrate into the cultural landscapes around their homelands?
4. "Draft versions of all relevant documents such as archeological and ethnographic studies and draft EAs and EISs are provided for review by tribal members." Evidently this DEIS has also been reviewed by them earlier and the tribes have the further opportunity to comment during this period.

5. It is worthy of emphasizing that each new mine would be the subject of its own site-specific EIS and the NEPA process.

This discussion could be extended, but some of these issues need to be resolved or explained satisfactorily.

4.13 WILDERNESS

Pages 4-215 to 4-220

Page 2-42, Table 2.8-1

Statement: Entire Section

Comment: There are three wilderness areas adjacent to the withdrawal parcels, and one area of land managed to maintain wilderness characteristics. The Kanab Creek Wilderness is next to the North Parcel, and the "managed land" adjoins this. The Paria Canyon-Vermilion Cliffs and Saddle Mountain Wilderness areas are adjacent to the East Parcel. No wilderness areas adjoin the South Parcel.

Characteristics that determine a wilderness are that the land should be untrammeled, natural, undeveloped, and provide solitude or a primitive and unconfined type of recreation. The definitions of these characteristics are given in the Wilderness Act of 1964 [PL 88-577; 16 USC 1131-1136].

1. The DEIS states that the mining activities being considered in the document "would not result in any direct impacts to designated and proposed wilderness areas."
2. With the analysis provided in the Soundscapes section of the DEIS (Section 4.10), it is evident that there will not be any noise impacts if the mine location is greater than 2.5 miles from the boundary of the wilderness (assuming there is no wind or obstruction). Unless there is a high ground in the wilderness there will, probably not be any visual impact, especially if there is surrounding vegetation.
3. There have been, and continue to be, impacts to the wilderness due to livestock grazing, recreation, OHV use, vegetation and wildlife restoration, trail and road construction, tourism in adjacent parks and monuments, drought and wildfires, and other activities. Why is a temporary (about 5 years) impact from uranium mining so intolerable? Does this justify the removal of 1+ million acres of land from mining under Alternative B, or even the smaller amounts under Alternatives C and D?
4. It should not be forgotten that each new mine would be the subject of its own site-specific EIS and the NEPA process.

4.14 RECREATION RESOURCES

Pages 4-220 to 4-231

Page 2-43, Table 2.8-1

Statement: Entire Section

Comment: The attributes that govern recreation settings include "remoteness, degree of human modification to the natural environment, evidence of other users, restrictions and controls on

surface disturbing activities, and level of motorized vehicle use." The discussion emphasizes the 5 million people that visit the Grand Canyon, mostly at the South Rim. The areas visited by most visitors at the top of the Rim do not meet many of the attributes listed. These areas are not remote and motor vehicles can drive close to the edge. There are lodges, restaurants, and a number of other facilities along that portion of the Rim.

The number of visitors for other activities in the Arizona Strip for 2009 is (Table 3.14-3):

Visitor Use Activity	No. of Participants	Visitor Days	Avg No. of Visitors Visitors per Day
Interpretation, education, and nature study	92,439	4,900	18.9
Driving for pleasure	48,343	24,172	2.0
Camping and picnicking	24,778	13,937	1.8
Non-motorized travel	7,480	3,398	2.2
Specialized non-motor sports, events and activities	5,288	1,271	4.2
Hunting	2,421	8,062	0.3
OHV travel	1,813	806	2.2
Winter/non-motorized activities	2	1	2.0
Total	**182,564**	**56,547**	**3.2**

It is evident that the most common activity is interpretation, education, and nature study, with 19 visitors per day. Driving for pleasure is the next common activity. The average number of visitors per day is 3.2. If interpretation, education, and nature study were excluded the average would decrease to 1.7 visitors per day.

1. It is clear from the above that the number of visitors on the Arizona Strip on a daily basis is small. With 6 mines at any one time spread over 1+ million acres in three separate parcels, under Alternative A, the probability of their encountering a mining or exploration site is slight.
2. The main causes of disturbance to recreation seem to be sounds and visual obstructions. As indicated by the analysis for "soundscapes" (Section 4.10 of the DEIS) the sounds will not be audible beyond 2.5 miles of the activities (with no wind or obstruction). Visual obstruction to the view will also not be likely to occur at that distance, especially if there are trees.
3. Motorized vehicles while driving for pleasure or for OHV travel will themselves create both noise and visual obstruction. Besides they will pass any mining activity in a short

time period. It is not clear whether the campers and picnickers arrive in motorized vehicles or not.

4. Hunters will themselves create noise and not want to come close to activities where game may not be present. They have over 3.2 million acres open for hunting, whereas only 68 acres per year would be occupied by mine-related activities.
5. During the period 1956 through1969, while the Orphan Lode was being mined, the number of visitors to the Park steadily increased from 1 million to 2.2 million, according to data from the National Park Service. It was evident that uranium was being mined since the headframe was clearly visible at the rim of the Grand Canyon and no attempt was made to conceal the mineral being extracted. Again when the uranium mines were operational, 1980 through 1991, the number of visitors to the Grand Canyon National Park grew from 2.3 million to 3.9 million. So tourism to the Park was not impacted during each of those periods.
6. It should also be borne in mind that each new mine would be the subject of its own site-specific EIS and the NEPA process and strict scrutiny.

4.15 SOCIAL CONDITIONS

Pages 4-231 to 4-245

Pages 2-43 and 2-44, Table 2.8-1

Comment: Under Alternative A the following impacts may be expected according to the DEIS:

Demographics

Each mine will employ 75 employees. This might lead to an influx of 57 individuals along with their families. Mining jobs pay higher than tourism or other service-sector jobs. So this might lead to 219.9 (say 220) indirect jobs. These persons should improve the economy of the area, but are not enough to strain the resources of the local governments or schools.

Stakeholder Values

There are two major groups of stakeholders – those that favor mining because of the economic benefits, and those that oppose mining because they favor solitude and isolation, cultural and spiritual principles, or concern of detrimental impact to tourism. The latter group also includes tribes that recollect poor mining practices in the past. Increase in daily traffic is also a matter of concern, although this would only increase by 0.012% on roads such as US 191 or US 160.

Public Health and Safety

All mines have to comply with stringent MSHA safety and health standards which cover all major aspects of mine operations.

"Scientists have not detected harmful radiation effects from low-levels of natural uranium, although some may be possible." "No human cancer has been documented as a result of exposure to natural or depleted uranium." It has been reported that persons eating food or drinking water with 1 to 2 pCi of uranium may develop cancer in 70 years, but "people who have been exposed to larger amounts have not been found to develop cancer." Studies have shown

that there are "no differences in cancer-related deaths between the populations living near mine waste, compared to a control population."

"Studies of factors affecting the health of uranium miners and mill workers have not demonstrated unusual rates of kidney disease." "There were no measurable renal injuries among uranium mines and mill workers tested."

In several studies related to respiratory diseases 'the investigators concluded that, although uranium mining clearly elevates the risk for respiratory disease, uranium contributes minimally, if at all, to this risk." This risk is increased with cigarette smoking. "Excess cancers were found among those underground miners whose radon daughter exposure exceeded 120 working level months." "No significant difference in cancer (of the lungs) was found between workers who are occupationally exposed to uranium and control populations." "A review of 11 uranium miner studies attributed the increased incidence of lung cancer to radon and its progeny and not to uranium."

"No impacts to Human Safety under Alternative A are expected."

In the improbable event of a spill from a haul truck "exposure to uranium would be unlikely to affect the health of individuals within the vicinity." During the 1980 through 1991 period there was one spill for every 3.2 million haul-miles.

Environmental Justice

None of the nine environmental justice communities within the withdrawal-affected area would experience risks disproportionately larger than those to non-environmental justice communities.

1. All mines must comply with MSHA standards which include a ventilation plan and monitoring of radon levels.
2. It is evident from the above that the health hazards associated with uranium mining are exaggerated. There is little harm to either the miners or the nearby communities.
3. Uranium is being mined in Canada, Australia, other US states (Wyoming, Colorado, Texas), and various locations in the world and there is sufficient experience to do so safely. There have been no reports of health or safety problems in any of these places.
4. The above discussion shows that withdrawal of 1+ million acres of land under Alternative B, or even the lesser amounts under Alternatives C and D, is not justified.
5. The DEIS assumes that since there will be increased traffic on the roads the number of accidents will increase. Actually with the better technology now available, accidents will likely decrease. The rate of accidents on US highways has gone down over the last decade in spite of the increase in traffic.

4.16 ECONOMIC CONDITIONS

Pages 4-245 to 4-269

Pages 2-44 and 2-45, Table 2.8-1

Statement: Entire Section

Comment: Under Alternative A the following impacts may be expected according to the DEIS:

Economic Activity

The DEIS estimates that a maximum of 57 persons and their families would migrate into the area. However, there will also be an increase in business from material suppliers, construction, administrative personnel, and professional service providers. Each mine would provide jobs for 75 individuals. The total direct employment over the 20-year period would be 2,250 employees, and the indirect and induced employment is expected to create an additional 4,398 jobs. The overall increase in employment in the area will be 0.05%.

The "overall regional tourist activity and associated employment are unlikely to be affected." The average wages for tourism (predominantly food services) is $21,230 and for various mining jobs ranging from $44,510 to $72,060 (pages 3-256 and 3-257). Thus the mining sector wages are 2 to 3.5 times higher.

The direct impacts of all the uranium mines over the 20-year period for value added and output provides a total of $5.46 billion, that is, an annual average impact of $273 million. The "total value added and output for all phases of mining activity over 20 years would be $68.9 million" "or an annual average impact of $3.41 million."

The DEIS notes that "mining activities associated with Alternative A are not anticipated to alter regional output, as the over all influx of visitation to tourist areas within the study area is unlikely to change." The total mining sector output will increase by an estimated 102% per year.

Employment, Personal Income, and Unemployment

Under Alternative A direct "labor income would increase an estimated $613.7 million over 20 years, or an annual average of $30.69 million." Indirect and induced employment would produce "the addition of 4,398 jobs (which) would result in an estimated $349.16 million in added labor income, or an annual average of $11.64 million." "Regardless of the alternative, no impacts to the mill are anticipated."

"Communities in both southern Utah and northern Arizona that are included in the study area have economies tied to the lands proposed for withdrawal." They have high unemployment, so "the additional employment opportunities could serve to benefit the overall study area by decreasing unemployment."

Taxes and Revenues

State taxes for all 30 mines would be $68.1 million, an annual average of $3.4 million. Federal tax revenues are estimated at $239.25 million for all 30 mines, an annual average of $11.96 million.

Indirect business taxes would be $229.5 million for state and local governments and $26.39 million for federal taxes. State taxes would be redistributed to local counties, which in turn would reallocate them to local communities.

Recreation Economics

The total estimated benefit of recreation sites in the study area is $450 million; this is not expected to change with mining. Hunting contributes $1.53 million from the four units that cover 3.2 million acres. An average of 68 acres per year would be affected by mining-related activities; this should not impact the hunting.

The DEIS analysis concludes that "no measurable reduction in air quality is expected." If the mine was located beyond 2.5 miles from the boundary of the Grand Canyon National Park, no impacts for sound and visual impacts would likely occur.

Energy Resources

The US used 114 million pounds of uranium for power production in 2008; this would increase to 170 million pounds in 2030. Under Alternative A the mines would produce 72.9 million pound of uranium, with an estimated value of $2.9 billion at $40 per pound. This would be available on the open market.

Road Condition and Maintenance

A total of 22.4 miles of new roads would be constructed under Alternative A, of which 18.8 miles would be on BLM lands. This is an increase of 0.28% of the BLM road system. Another 3.6 miles of roads would be constructed on Forest Service lands, an increase of 0.49%. Mining companies would be responsible for the construction, maintenance, and reclamation of unpaved roads used for hauling ore. So the DEIS concludes that "there would be no direct or indirect impacts to road condition and maintenance."

1. The local area would benefit from getting 2,250 mining employees and 4,398 indirect jobs under Alternative A. With the high employment in the region, this would be a great boost. Should this benefit be denied to the local communities?
2. The pay scale for mining personnel is much better than those in tourism by a factor of 2 to 3.5. This would raise the overall standard of living in the area; a benefit that should not be denied as suggested by the other Alternatives.
3. The value added and output of the mining would bring a much needed $3.41 million annually. This should not be denied.
4. Direct labor income would increase by $30.69 million annually, while the indirect jobs would entail $11.64 million per year. These amounts would primarily be spent locally.
5. State taxes would increase by 3.4 million annually and federal taxes would get $11.96 million every year. The dire straits that the states are in because of the recession deserve the revenues. The federal budget could also stand the benefit.
6. Tourism and other recreational activities, including hunting and fishing would not be adversely impacted.
7. Whereas the uranium mined will be sold on the open market, this will bring in foreign exchange if sold abroad. However, should a shortage of uranium supplies for the local power production arise, there could be laws restricting its use to the United States (witness what is happening in the rare earths industry). Actually the market will itself make it beneficial to sell the product in the US because it would not entail transportation costs and, therefore, would be cheaper.

8. Although not discussed in the DEIS the argument is often brought up that foreign companies would be developing and mining the uranium. It should be clarified that most of these mining companies have offices in the US, and all the labor and many of the management are US citizens. In fact, often the majority of the stockholders are also US citizens.
9. There is also a policy matter about foreign companies operating in the US. The US is a big promoter of free trade and open markets. It is considered commendable that US corporations are working in other countries. Then why is it objectionable to have foreign companies operate in the US? Should there be this double standard?

Pages 4-245 to 4-269; Section 3.16, Pages 3-250 to 3-279

Pages 2-44 and 2-45, Table 2.8-1

Comment: There are detailed discussions of Economic Conditions in Sections 3.16 and 4.16 of the DEIS. These do not need to be repeated here.

There is no specific mention of the costs of transporting the ore from the mines to the mill in Blanding, UT. This will create significant revenue for the local economy, especially in northern Arizona where most of the haulers will probably be based. It is not clear that the IMPLAN model takes this into account. It is deserving of mention in the DEIS.

4.16.2 IMPACTS OF ALTERNATIVE A: NO ACTION: TOURISM SECTORS EMPLOYMENT

PAGES 4-247-248

Statement: Under Alternative A, tourists and recreationist activity could be displaced as mineral activity increases in specific areas; however, overall regional tourist activity and associated employment are unlikely to be affected.

Comment: No matter what caveats may be added to any discussions about area tourism, and no matter the doom and gloom scenarios written by local mining opponents, the plain and simple fact remains that the overwhelmingly vast majority of tourists visiting northern Arizona (no matter their ultimate destination) are completely unaware of any current mining activity in the area.

4.16.2 IMPACTS OF ALTERNATIVE A: NO ACTION: MINING SECTOR EMPLOYMENT

Pages 4-248, 4-249

Statement: Total direct employment over the 20-year period under Alternative A would be 2,250 employees, or an annual average of 112. Indirect and induced employment is expected to result in an additional 4,398 jobs in the five-county study area under Alternative A. The direct and indirect increases in employment opportunities would assist in offsetting the relatively high unemployment rates in northern Arizona and southern Utah. Under Alternative A, direct employment from the mines would result in an annual average increase of 12.43% in employment over 2008 mining employment. The addition of mining employment opportunities to overall employment in the study area would represent a 0.05% increase over 2008 employment in the five-county area. Impacts

resulting from Alternative A on mining sector employment is discussed below under Employment, Personal Income, and Unemployment.

Comment: Numbers for jobs as stated in the EIS are apparently the number of jobs multiplied by years. This is confusing, and tends to conceal the fact that the number of jobs is significantly under estimated. The discussion does not specify the average annual wage used to derive the numbers. Back calculations suggest that the wages used in the calculations are significantly below mining sector wages, and the wages presently being paid at the Arizona 1 Mine. This section is confusing, either intentionally or ill-prepared. It does not show how the numbers were arrived at, and does not show the basic starting assumptions. This section needs to be clarified and rewritten by stating how many individuals would be employed, and what the pay range per individual would be.

The current miners at Arizona 1 make $60,000-$70,000 per year, and supervisory personnel earn more. Exploration employees for all companies earn a comparable wage. It can be assumed that all companies mining uranium on the Arizona Strip would be competitive. Wages in some peripheral jobs would be similar, while other peripheral jobs would pay less.

Though this report does not include an itemization of the number of employees needed for a mining operation, the following will help you to correct that understatement of numbers. A minimum of 200 direct employees, including miners and other mine personnel, exploration personnel, office staff, and permitting and PR people would be required to develop, operate, and reclaim the 6 mines which would all be in some phase of their cycle at any one time. An additional 600 to 800 people would be employed in mining support jobs. These jobs would continue throughout the projected 40 year mining period.

Tax revenue and other benefits of the above number of jobs and wages need to be recalculated to correspond to the actual number of people employed.

4.16.2 IMPACTS OF ALTERNATIVE A: NO ACTION: EMPLOYMENT, PERSONAL INCOME, AND UNEMPLOYMENT

Page 4-250 *White Mesa Mill*

Statement: Indirect impacts are unlikely to affect the White Mesa uranium mill in Blanding, Utah. According to the Denison website, the mill employs 152 people and is licensed to process an average of 2,000 tons of ore per day and produce approximately 8.0 million pounds of U3O8 per year (Denison 2010b). Of those 152 employees, 130 specifically work with uranium ore while the remainder work in vanadium production (personal communication, Harold Roberts, July 15, 2010). Currently, the mill is operating at 50% capacity. Regardless of the amount of uranium ore to be processed, approximately 130 people are needed to operate the mill, so regardless of the alternative, no impacts to the mill are anticipated.

Comment: The EIS says the White Mesa Mill is operating at 50% capacity, and that additional ore from the northern Arizona would have no effect on the number of people employed. This is absolutely not true. When the mill runs out of ore it is shut down and all but about 20 of the 152

employees are laid off until enough ore can be stockpiled to start up again. Thus going from 50% capacity to 100% capacity would increase annual employment at the mill by 87%. It is important that this error in the EIS be corrected.

Of further interest is the fact that 60% of the employees at the White Mesa Mill are members of the Navajo Tribe, and all 6 of the shift bosses are Navajos (personal communication with Harold Roberts, CEO of Dennison Mines). Thus, the northern Arizona uranium industry is providing a significant number of high-paying jobs for a minority group with chronic high unemployment. If the uranium industry were allowed to proceed, many more minority group individuals would be employed. This should be brought out in the EIS.

4.16.2 IMPACTS OF ALTERNATIVE A: NO ACTION: EMPLOYMENT, PERSONAL INCOME, AND UNEMPLOYMENT

Page 4-250 **Shootaring Canyon Uranium Mill**

Statement: none

Comment: No mention is made of the Shootaring Canyon Mill owned by Uranium One, located southeast of Hanksville, Utah . If uranium were being produced in northern Arizona under Alternative A, a significant amount of ore would definitely be processed in this mill, resulting in approximately 100 direct jobs and 300-400 peripheral jobs.

4.16.2 IMPACTS OF ALTERNATIVE A: NO ACTION: EMPLOYMENT, PERSONAL INCOME, AND UNEMPLOYMENT

Page 4-250 **Pinon Ridge Mill**

Statement: none

Comment: The Pinon Ridge Uranium Mill near Naturita, CO is presently in the permitting phase, with some of the key permits already approved. It is likely that the mill will be completed within the next several years. If so, it is very likely that some ore from northern Arizona would be shipped there, and the amount of ore shipped will obviously influence employment at that mill. This should be also reflected in the EIS.

4.16.2 IMPACTS OF ALTERNATIVE A: NO ACTION: ENERGY RESOURCES

Pages 4-252, 4-253

Statement:

In 2008, the worldwide market demand for uranium for the purposes of power generation was 114 million pounds, with annual demand expected to increase to 170 million pounds by 2030 (American Clean Energies Trust 2009). Under Alternative A, assuming that 2010 demand is the same for 2008, approximately 63.98% of uranium from the proposed withdrawal area could be used to meet this demand in 2010, and 42.91% in 2030.

Comment:

While you can use the 2008 figure for uranium demand, there are a myriad of websites that can give a current projection of the demands for uranium for power generation. One such site www.uraniumproducersamerica.com states:

"The 20% of America's electricity that is currently supplied by nuclear power requires about 57 million pounds of uranium each year; yet America's uranium industry produced only 2.6 million pounds U3O8 in 2005 [4.2 million pounds in 2010].

For more than 20 years demand (i.e., consumption) has exceeded primary supply. This trend is expected to continue for at least the next decade, making it imperative to find new sources of primary supply.

For more than 20 years demand (i.e., consumption) has exceeded primary supply. This trend is expected to continue for at least the next decade, making it imperative to find new sources of primary supply.

Over the next 10 years there is still a significant difference between known supply and demand for uranium – a gap. This supply shortfall amounts to almost 400 million pounds or 23% of western demand over this period.

New production is expected to fill a significant portion of this gap (perhaps as much as 16% of total western demand), however this is by no means guaranteed. New production will be subject to many regulatory, technical and political issues, all of which will require time and money to resolve before this production will be available to the market.

Even assuming the currently-known "best case scenario" for anticipated production, the market is still "short" 100 million pounds over the next decade. This potential shortage is the primary reason why the UPA has urged the Secretary of Energy not to sell any more DOE uranium, but instead hold these inventories as an emergency reserve for national energy security."

(http://www.uraniumproducersamerica.com/supply.html)

Using your assumption of a 2010 need of 114 million pounds of uranium, it appears that you have incorrectly stated that "approximately 63.98% **of uranium** from the proposed withdrawal area could be used to meet this demand...." The accurate statement should read that "the uranium from the withdrawal area could meet 63.98% of this demand." The same applies to the 2030 demand. 42.91% of the uranium in the withdrawal area would not be used to meet the demand. The uranium from the withdrawal area could meet 42.91% of the demand in 2030.

Lastly, the name of your resource is incorrect. The correct name that you could have easily copied from the website is American Clean Energy Resources Trust.

Pages 4-252, 4-253

Statement:

The current price of uranium per pound is roughly $40. Provided that demands for uranium remain constant, mining under Alternative A would likely produce approximately 33,155 tons, or 72.9 million pounds, of uranium totaling $2.9 billion in estimated value (using the 2008 value of $40 per pound). The forecast of future trends in national and world energy markets is subject to speculation and is subsequently unpredictable.

Comment:

The publication date of this DEIS was February 18, 2011. Your statement that the "current price of uranium per pound is roughly $40" is incorrect. It is not difficult to get the current price for uranium. The following chart will give you better numbers. Please correct this lack of current research done by your preparers.

You have used an assumption that 33,155 "TONS" of uranium would be produced under Alternative A. In your conversion to pounds it appears that you have used not Imperial Tons (2000) lbs which would have made it 66,310,000 pounds, but metric tonnes which created the number of "72.9 million pounds". If you state TONS, then use the correct measure. If you are going to use TONNES, please indicate such in your report. Thus, using the standard measure of 2000 pounds X 33,155 tons to equal 66,310,000, your estimated value would not be "$2.9 billion" as you claim, but rather $2,652,400,000.00.

CHAPTER 5 – CONSULTATION AND COORDINATION

5.1 PUBLIC INVOLVEMENT

Page 5-1, 5-2

Statement: Members of the public were afforded several methods for providing comments during the scoping period. These included multiple comment stations with comment forms at the scoping meeting and the opportunity to send emails or letters to BLM personnel. A total of 83,525 individuals submitted comments.

Comment: Again it bears repeating, the DEIS continues to use the number 83,525 individuals submitted comments. (1) In reality and in print below there were actually 81,720 comments submitted. (2) Your statement that 83,525 individuals submitted comments does not match Table 6 below (from the Scoping Report). This comment is written to once again illustrate the discrepancy in the numbers you use in this report. It also highlights the misuse of certain wording that would mislead the reader. (3) There is no verification that 81,720 **UNIQUE** senders wrote letters and/or sent emails to the BLM.

Information below has been copied from Scoping Report

4.1 Submittals Received
A total of 83,525 submittals was collected during public scoping, 1,805 of which were identified as duplicate submittals. Of the 81,720 non-duplicate submittals received, 93.55% (76,452 submittals) were identified as form letters, 5.72% (4,671 submittals) as form letters with additional comments, 0.03% (28 submittals) as public comment forms, and the remainder as original content submitted via email (0.52%, or 428), letter (0.17%, or 139), or fax (<0.01%, or 2). Table 5 shows the total number of submittals received by submittal type. Appendix E provides a table showing the text from each of the 15 form letters identified in the submittals received.

Table 5. Distribution of Submittals by Submittal Type

Submittal Type	Submittals Received	% of Total
Email	428	0.51%
Fax	2	<0.01%
Form Letter 1	19,075	22.84%
Form Letter 1+	2,995	3.59%
Form Letter 2	20,570	24.63%
Form Letter 2+	304	0.36%
Form Letter 3	16	0.02%
Form Letter 3+	3	<0.01%
Form Letter 4	32,117	38.45%
Form Letter 4+	1,109	1.33%
Form Letter 5	2,091	2.50%
Form Letter 5+	98	0.12%
Form Letter 6	6	0.01%
Form Letter 6+	4	<0.01%
Form Letter 7	1,658	1.99%
Form Letter 7+	108	0.13%
Form Letter 8	567	0.68%
Form Letter 8+	31	0.04%
Form Letter 9	196	0.23%
Form Letter 9+	19	0.02%

Form Letter 10	30	0.04%
Form Letter 11	31	0.04%
Form Letter 12	6	0.01%
Form Letter 13	27	0.03%
Form Letter 14	32	0.04%
Form Letter 15	30	0.04%
Letter	139	0.17%
Public Comment Form	28	0.03%
Duplicate	1,805	2.16%
Total Submittals Received	**83,525**	**100.00%**

The majority of the non-duplicate submittals received were from individuals (99.92%, or 81,652 submittals). Organizations, businesses, governments, and tribal entities, combined, represented the remaining 0.08% (68 submittals). Table 6 shows the distribution of submittals by commenter type.

Table 6. Distribution of Non-duplicate Submittals by Commenter Type

Commenter Type	Submittals Received	% of Total
Business	19	0.02%
Government	15	0.02%
Individual	81,652	99.92%
Organization	28	0.03%
Tribal	6	0.01%
Total non-duplicate submittals	**81,720**	**100.00%**

Table 11. General Distribution of Comments Identified in the Submittals Received during Public Scoping

Comment Source	Comments Identified	% of All Comments	Submittals Received*
Unique submittals (email, fax, or letter)	6,570	59.51%	569
Individual comments added to form letters	3,963	35.90%	4,671
Public comment forms	232	2.10%	28
Original content of form letters	275	2.49%	76,452
Total comments identified in all non-duplicate submittals	11,040	100.00%	81,720
Duplicate comments†		2,345	
Total Individual Substantive Comments Identified		**8,695**	

* Non-duplicate submittals. † There were several instances in which a submittal included text that was also found in another submittal (e.g., a unique letter that included an excerpt from one of the identified form letters). Any substantive comments identified in the duplicated text were recorded and coded for each submittal, but only one instance of the comment was counted for determining the total number of individual comments identified.

5.1.1 NEWSLETTERS

Page 5-2

Statement: The second newsletter, to be published in September 2010, will announce the public availability of the Draft EIS and include information on the alternative development process, maps illustrating the alternatives, and a narrative discussion of each alternative.

Comment: The Draft Environmental Impact Statement was presented to the public on February 18, 2011. To include a statement that gives a "future" date of September 2010, demonstrates

the lack of quality review that this give to report. Either change the date for publication of the second newsletter or remove this statement all together.

5.2 CONSULTATION WITH TRIBAL GOVERNMENTS

Page 5-2, 5-3

Statement: In August 2009, BLM and the Forest Service initiated consultation via letter with the following tribal governments: Chemehuevi Tribe, Colorado River Indian Tribes, Havasupai Tribe, Hopi Tribe, Hualapai Tribe, Kaibab Band of Paiute Indians, Las Vegas Paiute Tribe, Moapa Band of Paiute Indians, Pahrump Band of Paiutes, Paiute Indian Tribe of Utah, Pueblo of Zuni, San Juan Southern Paiute Tribe, Navajo Nation, White Mountain Apache Tribe, Yavapai-Apache Nation, and Yavapai-Prescott Indian Tribe. The Havasupai Tribe, Hopi Tribe, and Hualapai Tribe, Kaibab Band of Paiute Indians, Paiute Indian Tribe of Utah, Pueblo of Zuni, and Navajo Nation all requested active consultation. The BLM and Forest Service have had one or more project-related meetings with each of these tribes. A summary of the dates of and tribal entity(ies) attending these meetings is provided in Table 5.2-1. Tribes are being provided with a copy of this Draft EIS, and consultation and partnering will continue throughout implementation of the selected action alternative, if approved.

Comment: It is interesting to note the number of tribes invited to consultation. It would appear that an assumption has been made about the number of tribes historically accessing the areas within the proposed withdrawal. It should be noted that in ancient times, the tribal members traveled by foot or by horse thus did not cover many miles in their travels.

Noticeably absent is mention of any kind of consultation with the uranium industry. It would seem more than appropriate to consult with them on a regular basis to improve communication, verify information or misinformation and to obtain factual information about the previous mining experiences of the 1980s.

5.4 COOPERATING AGENCY TEAM

Page 5-7

Statement: In addition to the specialists identified in Table 5.3-1, who were actively engaged in developing the Draft EIS, numerous specialists from the cooperating agencies contributed their expertise by reviewing and submitting comments on the EIS as it evolved. These agencies and individuals are identified in Table 5.4-1.

Table 5.4-1. Cooperating Agency Reviewers U.S. Forest Service

Mike Williams	**Angela Parker**	**Charlotte Minor**	**Jackie Banks**
Roy Jemison		**Anna Jaramillo**	
National Park Service			
Martha Hahn	**Jan Balsom**	**RV Ward**	**Linda Jalbert**
Kirstin Heins	**Steve Rice**	**Shannon Reed**	**Lori Makarick**
Jane Rodgers	**Kerry Moss**	**Chris Turk**	**Deanna Greco**
John Notar	**Jerry Mitchell**	**Cal McCusker**	**Tim Bowden**

Comment: This section lists Martha Hahn of the Park Service as a participant in the study. At the meeting in Fredonia in mid-March she emphasized that she was the "point" Park Service employee for the study. Public information shows that she has been a vice president and a director of the Grand Canyon Trust, and that she was forced to resign as State Director of the BLM for the state of Idaho because of her excessively radical approach. It would be impossible for someone with this demonstrated anti-industry philosophy to be objective and impartial in matters related to mining. Because of this bias, Park Service input into this document needs to be considered biased and minimized. At the very least, any contribution or influence she has had on the content of this study should be identified as suspect, if not removed from the study.

CHAPTER SIX – LITERATURE CITED

Statement: All pages

Comment: The preparers of this report know exactly which page numbers their references came from. It would be helpful to the reader to have immediate access to the reference instead of reading an entire document to get to the referenced material. At least one reference does not produce the statements referred to in the DEIS. Please correct this and add page numbers to the Literature Cited.

Page 6-8

Statement:

Arizona Geological Survey (AZGS). 2002. Geologic Map of Arizona. GIS Database, v. 3.0. Edited by S.M. Richard. Arizona Geological Survey, DI-8. CD-ROM.
———. 2010. Mission statement. Available at: <http://www.azgs.az.gov/about.shtml>. Accessed February 19, 2010.
American Clean Energies Trust. 2009. Economic Impact of Uranium Mining on Coconino and Mohave Counties, Arizona. Available at: <http://acertgroup.com/Economic_Impact.pdf>. Accessed June 1, 2010.
Arizona Oil and Gas Commission. 2005. Oil and gas wells in the State of Arizona, DI-33. 1 CD ROM, digital well location map.

Comment:

In the standard English alphabet Am comes before Ar. It is convenient how this reference was placed in the middle of all of the Arizona references. In addition, since you were on the ACERT website you could have taken the time to get the correct name of our organization which is **American Clean Energy Resources Trust.** Unfortunately, this basic error in alphabetical listing does not bode well for those preparers trying to present this statement as a legitimate report with the "best available science."

CHAPTER 8 – INDEX

Pages 8-1 through 8-9

Comment: A much more comprehensive index is needed. Because the document is very long and difficult to follow it is difficult and time-consuming to locate a specific section of the text. Portions of specific topics are discussed in several different sections of the EIS, and the entirety of a subject is generally not discussed in any one section. The public will not be able to locate all references to a desired topic without a comprehensive index.

APPENDIX B

LOCATABLE MINERAL RESOURCES – REASONABLY FORESEEABLE DEVELOPMENT SCENARIOS

Statement: Entire Chapter

Comment: The following comment is just a small portion of Mr. Gene Spiering's comments. Mr. Spiering is an expert on breccia pipe uranium mining in northern Arizona. He is also Vice President of Quaterra Resources and member of ACERT. His entire comment letter is attached to our comments for your reference.

> "Unlike any other known uranium districts in the world, a cross section through the center of the district is visible in the walls of the Grand Canyon. Nearly all the known mineralized pipes and all of the economically viable uranium deposits in the region have been found in a N-S trending mineralized "corridor" that is approximately 45 miles wide by 110 miles long. The hundreds of pipes mapped outside of this corridor are barren. All of the proposed withdrawal area is within this corridor because the area was selected by drawing a line around the focus of the claim staking activity. Most of the remaining corridor has already been withdrawn from mineral entry. Any proposed withdrawal but alternative "A" (no action) will destroy the potential development of the district for 20 years and probably forever."

B.8.1 ALTERNATIVE A: NO ACTION: UNDISCOVERED URANIUM RESOURCES

Pages B-24 thru B-27

Comment: The EIS says that there is slightly over 49 million pounds of economically mineable uranium in the proposed withdrawal area. This is based on the assumption that there is a 327 million pound endowment in the withdrawal area, and 15% of the endowment is mineable. This is totally inaccurate and greatly understates the amount of mineable uranium in the proposed withdrawal area. This is one of the most serious errors in the EIS, as it greatly understates the impact of the proposed withdrawal and affects the calculations in many other sections.

One of the major flaws in the EIS estimate is that it assumes that mineralized pipes are distributed uniformly over the entire area of breccia pipe occurrences. This is far from the actual situation. In reality all pipes which have sufficient reserves to be mined, or justify serious consideration as a mine, are located in a north-south belt approximately 45 miles wide and 100 miles long. The belt is a little wider than this at the south end and a little narrower at the north end. The belt covers the entire North and South withdrawal areas. To date no pipes with uranium mineralization sufficient to be considered as a mine have been found outside this belt, even though many pipes outside the belt have been drilled and evaluated. A possible exception is one pipe drilled in House Rock Valley. Figure 1 below shows that 77% of the 44 pipes drilled in the North and South withdrawal areas have been found to contain uranium in concentrations

sufficient to be considered for a mine. Of this number 16 (36%) are confirmed orebodies, and another 18 (41%) are mineralized but need more drilling to establish whether or not they are economically mineable, thus 77% are definite or possible economically mineable orebodies.

Figure 1
NORTHERN ARIZONA BRECCIA PIPES

NORTH WITHDRAWAL AREA

Pipe Name	Pipe Status
A01	mineralized pipe, more work required[1]
A20	mineralized pipe, more work required
Arizona 1	orebody[2]
Clearwater	mineralized pipe, more work required
DB	orebody
EZ1	orebody
EZ2	orebody
Findlay Tank North	orebody
Findlay Tank South	orebody
Gump	mineralized pipe, more work required
Hack 1	orebody, mined out
Hack 2	orebody, mined out
Hack 3	orebody, mined out
Hermit	orebody, mined out
John	mineralized pipe, more work required
June	undetermined[3]
Kanab North	orebody, mostly mined out
Little Robinson	mineralized pipe, more work required
Lisa	mineralized pipe, more work required
Lost Calf	mineralized pipe, more work required
Ollie	mineralized pipe, more work required
Peace	mineralized pipe, more work required
Pigeon	orebody, mined out
Pinenut	orebody
Rim	orebody
Smuggler	undetermined
Sunshine	undetermined
UPR	undetermined
Weap	undetermined
What	orebody

SOUTH WITHDRAWAL AREA

Airport	mineralized pipe, more work required
Auto	mineralized pipe, more work required
Bank	undetermined
Bank East	undetermined
Black Box	mineralized pipe, more work required
Butte Northeast	mineralized pipe, more work required
Canyon	orebody
New Year	mineralized pipe, more work required
Otto 4	mineralized pipe, more work required
Peterson Flat	undetermined
Sayer	undetermined
Shale	mineralized pipe, more work required
Tap 2	undetermined
Tap East	mineralized pipe, more work required

[1]mineralized pipe, more work required - pipe which has uranium concentrations sufficient for an orebody but amount and average grade have yet to be determined; I.e. possible orebody

[2]orebody -pipe which drilling has shown to contain an economically mineable uranium deposit

[3]undetermined - no uranium concentrations sufficient for an orebody encountered to date, however an orebody might be discovered with more drilling.

A major portion of the mineralized belt is already withdrawn by the Grand Canyon National Park, the Grand Canyon National Game Preserve, the Havasupai Indian Reservation and the Hualapai Indian Reservation. In addition the Boquillas Ranch, a major piece of private land south of the Grand Canyon, is owned by the Navajo Tribe, and their policy is to not allow uranium mining. Likewise the Babbitt family owns considerable land south of the Grand Canyon and their policy is to not lease mineral rights for uranium. Therefore if the withdrawal is allowed to proceed there will be very little favorable land available for uranium mining; all that will be left is a small amount of state and private land on the south end of the mineral belt. This land will probably produce a few mines but not many.

Based on mapping in the Grand Canyon (Wenrich and Sutphin, 1988) it can be seen that approximately 33 pipes per 100 square miles occur at the Redwall and lower Supai horizons where these formations outcrop in the Grand Canyon. It can be assumed that the density of pipes is the same under the flat country north and south of the Grand Canyon as it is in the Canyon. Not all pipes penetrate to the upper Kaibab Formation or lower Moenkopi which are the dominant formations in the flat country on either side of the Grand Canyon. Some pipes have ceased to collapse before reaching this horizon and do not outcrop. By plotting the number of pipes which outcrop at the various stratigraphic horizons from the Redwall to the Chinle formations it can be shown that there are approximately 12 pipes per 100 square miles at the lower Toroweap horizon. It is thought that a pipe must penetrate at least to the lower Toroweap

Formation to be mineralized because the Coconino Sandstone may act as the conduit for mineralizing solutions and the Toroweap furnishes reductant.

Using the numbers given in the EIS the North and South proposed withdrawal areas comprise an area of 1369 square miles. With 12 pipes per 100 square miles this area is estimated to contain 164 breccia pipes. If 50% of the pipes contain orebodies there would be 82 orebodies in the North and South withdrawal areas, containing 246 million pounds of uranium, assuming 3 million pounds per orebody, which has been the average to date. If 60% of the pipes contain orebodies there would be 98 orebodies containing 294 million pounds of uranium. These numbers are 5-6 times the amount of uranium estimated in the EIS.

It is important that the EIS be corrected to reflect the above numbers. Numbers in other sections the EIS need to be recalculated to reflect the above numbers with respect to direct and peripheral jobs created, tax revenue generated, income generated, and other benefits at the local, state and federal levels.

B.8.1 ALTERNATIVE A: NO ACTION: UNDISCOVERED URANIUM RESOURCES

Page B-25, Table B-4

Comment: The amount of U_3O_8 in the Arizona Strip area as estimated by the US Geological Survey is 163,380 tons, (326.76 million pounds) (see Table 3.3-1, page 3-35 and Appendix B, Table B-4, page B-25). Yet when making statements as regards the total amount of U_3O_8 in the country the DEIS uses the 2003 values from the EIA of 123 million pounds in Arizona, Colorado, and Utah combined (see Table 3.16-20, page 3-275). This leads to the conclusion that the amount of resource in Arizona is not significant with regard to the entire country.

This is a serious discrepancy and needs correction and resolution, because it is often quoted in the media (and in economic analyses) without the background mentioned above.

APPENDIX H

APPENDIX H - CULTURE HISTORY OF THE PROPOSED WITHDRAWAL AREA

Statement: All Pages

Comment: In this unnecessary fifty-plus page exposé, the writer failed to mention that the entire area north of the Grand Canyon was completely abandoned by Native Americans several times and, once for at least 100 years due to severe drought. It was and remains a desert.

Appendix H -- CULTURE HISTORY OF THE PROPOSED WITHDRAWAL AREA (54 PAGES)

—AND—

Class I Cultural Resources Overview for the Northern Arizona Proposed Withdrawal on the Bureau of Land Management Arizona Strip District and the Kaibab National Forest, Arizona (221 pages) — released AFTER the DEIS

All Statements, Information, Conclusions, History, et cetera

Comment: In total, these two separate documents babble on ad nauseam for a total of over 250 pages, predominantly about the pre-Columbian history of various tribal units who, on occasion, used the area.

Never once in all these pages is it ever mentioned that the entire area has (during the course of human history in the Americas) been completely abandoned for various lengths of time by all people. Northern Arizona was primarily a desert in the past and it remains one.

These pages fail to even hint (much less specifically mention) that the major reason occupation of the northern Arizona area changed from one tribal group to another is because of belligerence, hostilities and open warfare stemming from the fierce competition for the extremely limited resources the area was seasonally able to provide.

Nowhere in all of this prose was it ever pointedly stated that the Native Americans who wandered northern Arizona were hunter-gatherers almost constantly on the move and only stopping at any single location for as long as it took them to obtain what they specifically came for and exhaust other local resources.

ADDENDUM – ADDED AFTER DEIS AND POSTED ON BLM WEBSITE

Class I Cultural Resources Overview for the Northern Arizona Proposed Withdrawal on the Bureau of Land Management Arizona Strip District and the Kaibab National Forest, Arizona (221 pages) — released AFTER the DEIS

Page 135: Kanab Creek Ghost Dance Site

Statement: The Kaibab Paiute have identified one panel of white figures as being associated with the Ghost Dance ceremony, which was performed in the late nineteenth century (Stoffle et al. 2000). The Ghost Dance was a significant revitalization movement that began among the Paiute in Nevada but quickly spread throughout the tribes in Northern Arizona, Utah, and into the Great Plains (Kehoe 1989).

Comment: A "revitalization movement?" What fails to be explained is that the Ghost Dance's precursor (the Circle Dance) had other historical significance which was changed and then promoted by the prophet Jack Wilson's teachings which prophesied a peaceful end to white American expansion while preaching goals of clean living, honest life and cross-cultural cooperation.

As the ritual spread from its original source (and its original significance changed), other Native American tribes synthesized selective aspects of the ritual with their own beliefs including the development of Ghost Shirts which warriors could wear to spiritually repel the white man's bullets. The Ghost Dance and the subsequent Ghost Shirts culminated in disastrous consequences for the Lakota Sioux in the Wounded Knee Massacre of 1890 and other smaller and lesser know encounters prior to that time. It doesn't seem like something to rejoice in, preserve and exult except for those who would celebrate other such similar human tragedies.

USGS, SCIENTIFIC INVESTIGATIONS REPORT 2010-5025

Pages 116 through 119

Comment:

This portion of the report deals with the investigation of the effects of 1980's uranium mining in Hack Canyon. The report fails to point out that the ore body within the Hack 1 breccia pipe (arrow 1 on figure 22, page 117) was breeched by erosion of the unnamed tributary to Hack Canyon (labeled "T" on Figure 22) prior to any mining activity.

The highest elevation of uranium ore grade mineralization in known breccias pipes is near the lower contact of the Coconino Sandstone. Erosion has placed the "T" tributary's current base well below this horizon and deeply into the Hermit Shale at the mine site, indicating that a significant portion of these upper levels of mineralization were within the eroded portion of the pipe. Also, the Hack 1 Mine's highest stope was halted within 40 feet of the stream gravels when plant roots were encountered. This stope was backfilled during reclamation of the mine site.

An estimate of the amount of material removed from the ore body by erosion prior to mining is not possible, but it is safe to assume that it was in the range of a few thousand tons.

The USGS implies in Scientific Investigation Report 2010-5025 that all of the mineralized breccias found in the Hack drainage below tributary "T" is ore and mine waste from the August 19, 1984 flood event that removed an estimated 10 to 12 tons of material from a mine stockpile at the Hack 1 Mine. Such an assumption is erroneous since it would be impossible to tell the difference between the breccias eroded from the breccias pipe before mining from actual ore and mine waste. Given the difference between the volume of the erosion (a few thousand tons) and the August 19, 1984 flood event (10 to 12 tons), it is more likely that the material found by the USGS is from the erosion and not the result of the mining activity as they assert.

GENERAL COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Comment: The BLM prepared this document in collaboration with 15 federal, state, local, and tribal cooperators in an effort to provide an objective analysis of the Proposed Action and Alternatives based on the best available science. This DEIS has been prepared on behalf of the Secretary of Interior to inform his decision whether or not to withdraw lands in the vicinity of the Grand Canyon from the Mining Law of 1872. This DEIS was developed in accordance with the National Environmental Policy Act of 1969 (NEPA), the Federal Land Policy and Management Act of 1976, implementing regulations, the BLM's NEPA Handbook (H-1790-1), and other applicable laws and policy.

The BLM may be the agency that has to claim this DEIS, however, the BLM is far more intelligent and has better science than contained in this report. Thus, it would be more appropriate to state that SWCA has used their best available science. That science is severely lacking in facts. There are far too many assumptions without basis to be considered a factual report on any issue in northern Arizona.

Comment: It is obvious from reading the EIS that many of the investigators have maintained their professional integrity and have conducted a true professional scientific investigation, while others have gone over to the side of the anti-industry radicals, even though many have professional backgrounds. Some of the indicators of an investigator letting his anti-industry bias influence his findings are:

- Deliberate errors in logic, i.e. the conclusion not being supported by the information. Some examples of this are:
- Introducing irrelevant issues. An example of this is where the investigator infers that miners would be exposed to toxic levels of depleted uranium. Depleted uranium is never encountered in uranium mining and miners do not ingest enough natural uranium to be toxic.
- Introducing irrelevant issues. An example of this is inferring that modern uranium mining is the same as it was in the infancy of uranium mining when it was a U.S. government project. Present-day standards for ventilation, dust control, radiation exposure monitoring, reclamation, mine safety, and water control did not exist in the early uranium mines. Many early miners smoked while working, which increases the chances of lung cancer 100-fold, while at present-day mines mere possession of smoking materials is grounds for immediate dismissal.
- Contriving impossible or extremely unlikely situations and presenting them as the norm. An example of this is where the investigator describes a situation where animals graze on vegetation which contains wind-borne dust of uranium minerals and are contaminated, then people eat the animals and are also contaminated.

OTHER DOCUMENTATION IN SUPPORT OFALTERNATIVE A

The Arizona Geological Survey has recently completed a study (Open file report OFR-11-04) of the worst case scenario of uranium ore entering the Colorado River. The report titled "Breccia Pipe Uranium Mining in the Grand Canyon Region and Implications for Uranium Levels in Colorado River Water" by Jon Spencer and Karen Wenrich is attached for inclusion in the final EIS, and consideration during the final review of the DEIS. A copy of an early release of this document is attached.

GENERAL COMMENT: ENERGY FUELS NUCLEAR

There is no mention at all of the stellar record of uranium mining by Energy Fuels Nuclear (EFN). The successful and safe mining activities in 1970s, 1980s and the early 1990s illustrates that uranium mining can be done in an environmentally conscientious manner. EFN's impressive history is uranium mining's proud legacy on the Arizona Strip.

The economic benefit of Energy Fuels mining activities is demonstrated in the table below. Again, nothing was mentioned about EFN's past economic significance to the local communities, region, state and country. This should definitely have been a part of your economic analysis.

ECONOMIC IMPACT OF URANIUM MINING OPERATIONS ON THE ARIZONA STRIP

The Arizona Strip historically represents some of the highest grade mineralization and most profitable per pound uranium production in the United States. During the period of 1980 to 1990, Energy Fuels Nuclear Inc. (Energy Fuels), a private Denver, Colorado-based company, produced in excess of 19 million pounds of uranium, averaging 0.65% U3O8 from seven mines in the northern district. With the operation and exploration offices located near the Arizona/Utah line, the Energy Fuels operations employed approximately 200 people who lived with their families in the communities of Kanab, Utah and Fredonia, Arizona. The Energy Fuels staff included 75 people working on the mining operations and 25 people in management and exploration. Table 1 calculates an approximate direct impact total of $412 million that Energy Fuels operations had on Kanab and Fredonia economies during the 1990s. The table also gives an estimate what this impact would be in Consumer Price Index (CPI) inflation adjusted dollars for a similar investment in 2008 dollars.

Table 1
Estimate of EFNI's Direct Economic Impact on the Kanab/Fredonia Area
Producing 19 million lbs of U3O8 (uranium yellowcake)

	1989 actual	1990 actual	1977-1990 actual	Estimated Average/Yr. $ million	Estimated Total (1977-1990) $ million	Est. 2008 CPI Inflation adj. $ million
WAGES (1989)*	$5,051,715			$7.58	$75.78	$123.61
TAXES (FICA, FED. INCOME, STATE)*	$1,105,009			$1.66	$16.58	$27.04
EMPLOYEE BENEFITS*	$1,539,181			$2.31	$23.09	$37.66
SEVERANCE TAXES				$0.20	$2.00	$3.26
PROPERTY TAXES				$0.20	$2.00	$3.26
EXPLORATION ACQUISITION			$31,847,682	$2.45	$24.50	$39.96
EXPLORATION ACTIVITIES			$51,884,407	$3.99	$39.91	$65.11
OPERATIONS *		$15,200,000		$22.80	$228.00	$371.94
Totals				**$41.18**	**$411.85**	**$671.86**

* Payroll and operations budgets were approximately 2 times the 1989 and 1990 levels for 5 years out of the 10 years that mining was in operation.

The table does not show the indirect impact of the jobs created by the numerous services provided by the local communities. An early estimate uses a multiplier of 4 times the direct impact, but the impact of possible future operations is beyond the scope of this report.
Prior to the price decline of the 1990's, the breccia pipe uranium mines were some of last hard rock uranium producers in the US. The total amount of mineable uranium discovered to date in breccia pipes in northern Arizona is estimated to be in the range of 40 million pounds. The US Geological Survey estimates the lands proposed to be withdrawn from mineral entry in the

Arizona Strip district contain a total uranium endowment of 375 million lbs. U3O8. Table 2 uses a calculated average of the Energy Fuels economic impact per million lbs of U3O8 production to calculate a total potential economic impact of $13.3 billion that will be destroyed through passage of the proposed legislation.

Table 2
Estimate of Direct Economic Impact per Million lbs U3O8 Production

	1990 $ million	Est. 2008 CPI Inflation adj. $ million
Impact/million lbs U3O8 produced	$21.68	$35.36
Impact of 375 million lbs. production	$8,128.58	$13,260.32

ATTACHMENTS TO THE ACERT COMMENT LETTER

ATTACHMENT ONE - Arizona Geological Survey: OPEN-FILE REPORT OFR-11-04 V1.0 by Jon E. Spencer and Karen Wenrich (Consulting Geologist, April 2011

ATTACHMENT TWO – Arizona State Legislative Resolution SCM 1007, April 10, 2011

ATTACHMENT THREE – Arizona Senate Letter to Secretary Salazar, April 2011

ATTACHMENT FOUR - Governor Brewer Letter to Secretary Salazar, October 2009

ATTACHMENT FIVE – Arizona State Land Department Letter to Secretary Salazar, September 2009

ATTACHMENT SIX – Mr. Gene Spiering Comment Letter to the Bureau of Land Management re: Proposed Withdrawal

ATTACHMENT SEVEN - Utah Governor Herbert Letter to Secretary Salazar, February 16, 2011

ATTACHMENT EIGHT – Office of the Utah Governor Letter to Scott Florence, BLM, May 4, 2011

OPEN-FILE REPORT OFR-11-04 V1.0

Arizona Geological Survey
www.azgs.az.gov

BRECCIA-PIPE URANIUM MINING IN THE GRAND CANYON REGION AND IMPLICATIONS FOR URANIUM LEVELS IN COLORADO RIVER WATER

Jon E. Spencer and Karen Wenrich (Consulting Geologist)

April 2011

ARIZONA GEOLOGICAL SURVEY

Breccia-pipe uranium mining in the Grand Canyon region and implications for uranium levels in Colorado River water

April, 2011

Arizona Geological Survey, Open-File Report OFR-11-04, version 1.0, 13 p.

Jon E. Spencer
Arizona Geological Survey
416 W. Congress St., #100
Tucson, AZ 85701
jon.spencer@azgs.az.gov

Karen Wenrich
Consulting Geologist
63 South Devinney St.
Golden, CO 80401
crystalunlimited@aol.com

Abstract

The Grand Canyon region contains over 1300 known or suspected breccia pipes, which are vertical, pipe-shaped bodies of highly fractured rock that collapsed into voids created by dissolution of underlying rock. Some breccia pipes were mineralized with uranium oxide as well as sulfides of copper, zinc, silver, and other metals. Renewed exploration during and following a steep rise in uranium prices during 2004-2007 led some to concerns about contamination of the Colorado River related to uranium mining and ore transport. Total breccia-pipe uranium production as of Dec. 31, 2010 has been more than 10,700 metric tons (23.5 million pounds) from nine underground mines, eight of which are north of Grand Canyon near Kanab Creek. Colorado River water in the Grand Canyon region currently contains about 4 µg/l (micrograms per liter) of uranium (equivalent to 4 ppb [parts per billion by mass]), with approximately 15 cubic kilometers annual discharge. Thus, approximately 60 metric tons of dissolved uranium are naturally carried by the Colorado River through the Grand Canyon in an average year. We consider a hypothetical, worst-case accident in which a truck hauling thirty metric tons (66,000 pounds) of one-percent uranium ore is overturned by a flash flood in Kanab Creek and its entire ore load is washed into the Colorado River where it is pulverized and dissolved during a one-year period to become part of the dissolved uranium content of the river (such a scenario is extremely unlikely if not impossible). This addition of 300 kilograms (660 pounds) of uranium over one year would increase uranium in river water from 4.00 ppb to 4.02 ppb. Given that the EPA maximum contaminant level for uranium in drinking water is 30 ppb, this increase would be trivial. Furthermore, it would be undetectable against much larger natural variation in river-water uranium content.

Breccia-pipe uranium deposits

Paleozoic strata of the southwestern Colorado Plateau are spectacularly exposed in the walls of the Grand Canyon. This approximately 1 km-thick sedimentary sequence rests on Proterozoic schist, granite, and tilted sedimentary rocks visible in the bottom of the eastern Grand Canyon. The Mississippian Redwall Limestone, one of the cliff-forming Paleozoic sedimentary rock units exposed in the Canyon, is located several hundred meters (up to several thousand feet) below the Canyon rim. After the Redwall Limestone was deposited (between about 359 and 318 million years ago), it was slightly elevated above sea level, leading to dissolution of the limestone and formation of a rubble zone called a dissolution breccia (McKee and Gutschick, 1969; Beus, 1989; Troutman, 2004). Some of these breccias remained highly porous and permeable while overlying strata were deposited, and are now an excellent source of potable groundwater in some areas, and contain significant dissolved solids in others.

A breccia pipe is a vertical, pipe-like mass of broken rock (breccia), typically a few tens of meters across and hundreds of meters in vertical extent (Fig. 1). Breccia pipes formed within Paleozoic and Triassic strata over a broad area around the Grand Canyon. They were created when groundwater, flowing through Redwall Limestone dissolution breccias and along fracture zones, dissolved more limestone, causing collapse of overlying rocks and possibly creating sink holes. Some pipes extend many hundreds of meters upward into the Chinle Group (formerly Chinle Formation; Heckert and Lucas, 2003), indicating that some pipes are at least as young as this Upper Triassic rock unit (Brown and Billingsley, 2010). Some pipes are blind and never broke through to the surface. Breccia pipes are abundant in the Grand Canyon region, with approximately 1300 pipes or suspected pipes identified (Fig. 2; Sutphin and Wenrich, 1989; Brown and Billingsley, 2010).

Cover Illustration. The high plateaus above Kanab Creek are barren of most vegetation except sagebrush. Within these plateaus lie thousands of breccia pipes. Some of them contain the highest grade uranium in the U.S. and some are dissected by the canyons and tributaries of northern Arizona, exposing them to oxidation and weathering. The Kanab North breccia pipe, which contains high-grade ore and is incised along the west wall of Kanab Creek, is shown in the center of this aerial view over Kanab Creek (see insert). Note the small area of red Moenkopi Sandstone within the amphitheater eroded into the breccia pipe. Much of the ore from this dissected breccia pipe has been mined (2.7 million pounds of U_3O_8) through the shaft below the headframe in photo. This block of sandstone was downdropped 700 feet into the pipe during breccia-pipe collapse over 200 million years ago. Photos by K. Wenrich.

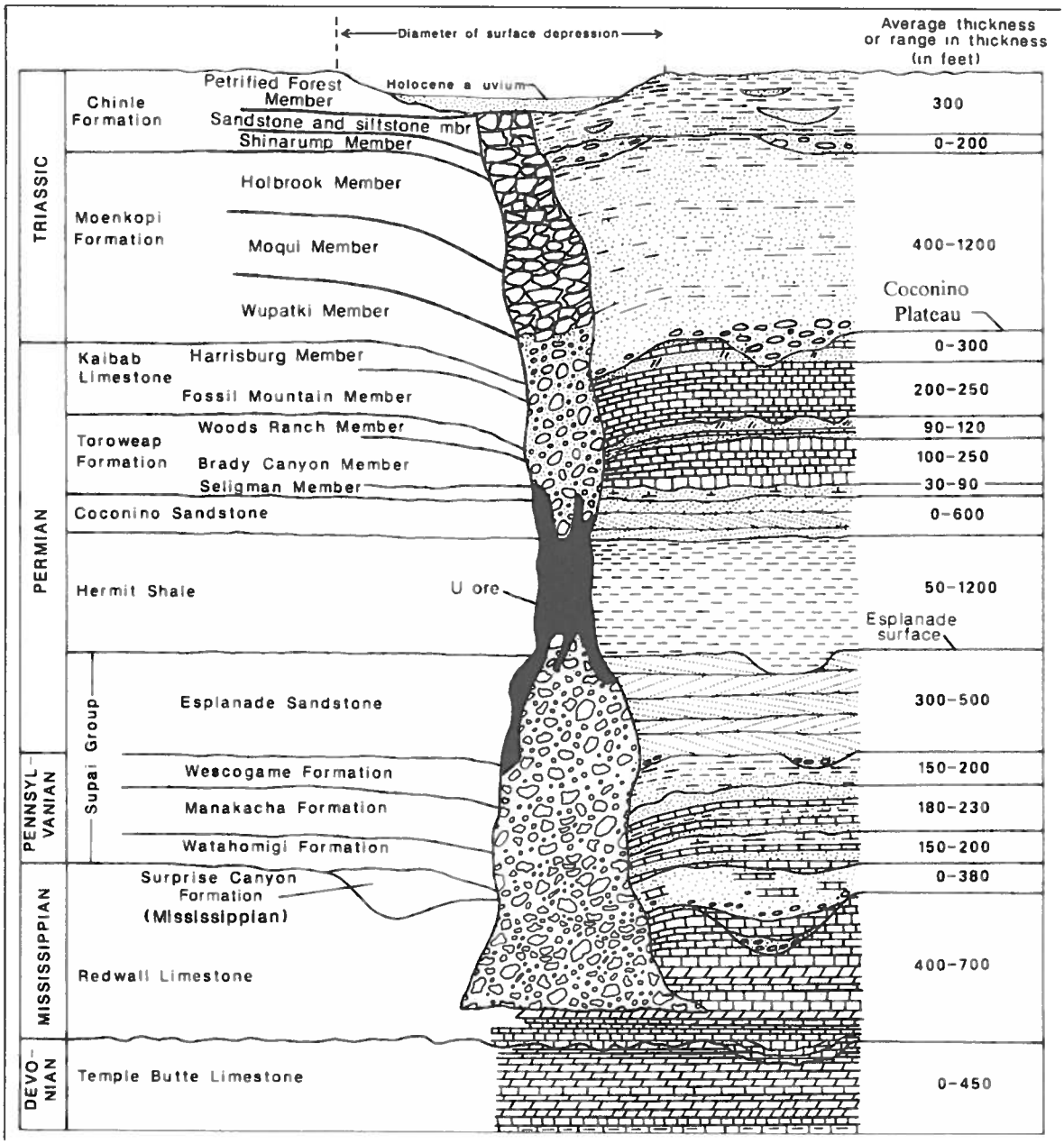
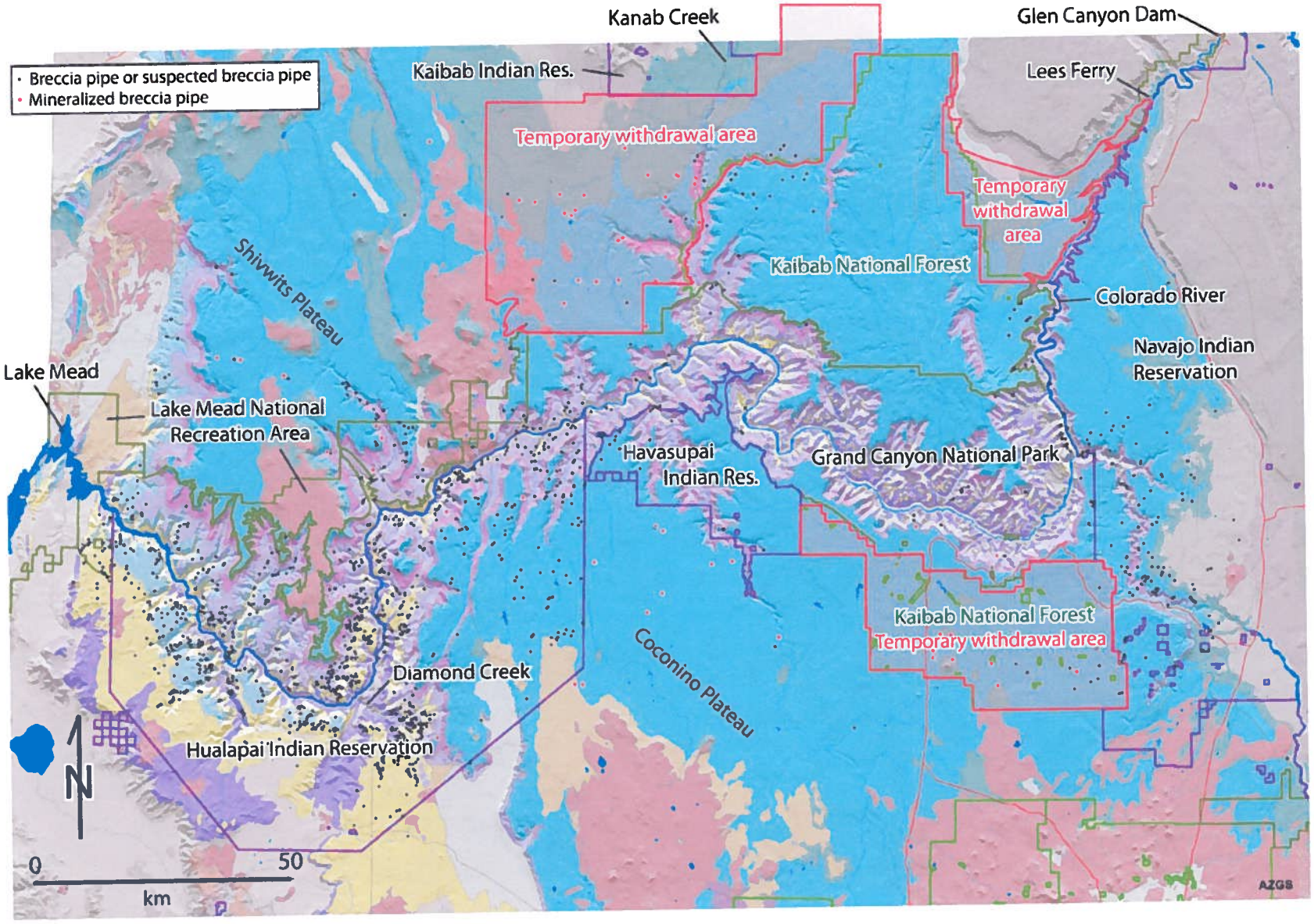


Figure 1. Simplified cross section of a breccia pipe and host uranium mineralization (modified from Finch et al., 1990).

Figure 2 (next page). Geologic map of the Grand Canyon area in northwestern Arizona showing the many areas that are off-limits to uranium mining (all labeled areas except parts of the Shivwits and Coconino Plateaus), including the three 2009 temporary withdrawal areas. Blue represents the Kaibab Limestone that forms most of the rim of the Grand Canyon and surrounding plateaus. Red represents late Cenozoic volcanic rocks. Thin red lines represent highways.


Breccia pipe or suspected breccia pipe
Mineralized breccia pipe
Kanab Creek
Glen Canyon Dam
Kaibab Indian Res.
Lees Ferry
Temporary withdrawal area
Temporary withdrawal area
Kaibab National Forest
Shivwits Plateau
Colorado River
Navajo Indian Reservation
Lake Mead
Lake Mead National Recreation Area
Havasupai Indian Res.
Grand Canyon National Park
Kaibab National Forest Temporary withdrawal area
Coconino Plateau
Diamond Creek
Hualapai Indian Reservation
N
0
50
km
AZGS

Warm to hot brines migrated through the Redwall solution breccia and up the breccia pipes at about the time, or shortly after, the pipes formed, and may have contributed to some late-stage pipe dissolution and collapse. Abundant sulfide minerals were precipitated from these brines, including pyrite (FeS), chalcopyrite ($CuFeS_2$), galena (PbS), and sphalerite (ZnS), and a great variety of other minerals, including Ni-Co sulfides. Fluid-inclusion analysis of some of the precipitated minerals indicates that mineralizing solutions were brines with salinities commonly >18 wt% NaCl equivalent and homogenization temperatures of, generally, 80° to 173°C (Wenrich and Sutphin, 1989).

Uranium, in the form of uraninite (UO_2), is abundant in some breccia pipes. Because uranium is soluble and hence mobilized by oxidizing aqueous solutions, such as most shallow groundwater, and is immobile in reducing aqueous solutions, such as those associated with sulfide mineral precipitation, it is generally believed that breccia-pipe uraninite was derived from different solutions than were the sulfide minerals. This inference is supported by the observation that uranium minerals were precipitated after most sulfide minerals. Most likely, oxidizing aqueous solutions carrying dissolved uranium flowed laterally through the Esplanade Sandstone Member of the Supai Group, entered the breccia pipes, and mixed with ascending, reducing brines (Wenrich and Titley, 2008). Mixing of solutions caused chemical reduction of the uranium and immediate precipitation of uraninite, typically in the pipe breccia adjacent to the Hermit Shale or Coconino Sandstone (Fig. 1). Alternatively, oxidizing, uranium-bearing solutions reacted with previously precipitated sulfide minerals, similarly causing prompt uraninite precipitation (oxidation/reduction front in figure 19 of Wenrich and Titley, 2008). Uranium-lead isotopic analysis of uraninite indicates uraninite precipitation at 200-260 Ma (Ludwig and Simmons, 1992).

Breccia-pipe uranium exploration and mining

As noted above, the Grand Canyon region contains at least 1300 known or suspected breccia pipes (Sutphin and Wenrich, 1989; Wenrich and Titley, 2008). Exploration for mineralized breccia pipes over the flat to gently sloping plateaus around the Grand Canyon is directed at finding a set of features, as follows: (1) a circular depression a hundred meters to 1.5km across, (2) inward-dipping beds that may indicate collapse into an underlying pipe, (3) brecciated rock, (4) sulfide minerals or altered sulfide minerals, and (5) radioactivity anomalies. In most cases, it is necessary to drill into the underlying rock to determine if a breccia pipe is mineralized, and necessary to drill hundreds of meters to determine if the breccia pipe contains uraninite ore. Electromagnetic techniques that identify electrically conductive minerals deep below the surface have been successfully used in the search for uranium ore.

By 1989, over 71 breccia pipes had been drilled and were found to contain ore-grade mineralized rock (Sutphin and Wenrich, 1989). As of 2010, nine of these breccia pipes had yielded approximately 10,653 metric tons (23.5 million pounds) of uranium. Eight of these breccia pipes produced approximately 10,522 metric tons (23.2 million pounds) of uranium between 1980 and 1994 (Wenrich and Titley, 2008). The ninth has produced an additional 132 metric tons (0.29 million lbs.) of uranium over a 13-month period between Dec. 1, 2009 until Dec. 31, 2010 (Harold Roberts, Denison Mines (USA), written communication, 2011). These small, deep uranium deposits are mined by way of conventional underground mining rather than

by open-pit methods. Generally, two shafts are used, with a second shaft to provide ventilation and an alternative escape route in case of emergency. Remediation and mine closure are done by filling the shafts with waste rock and re-grading and re-vegetating the land. This can be, and has been, done with essentially no long-term environmental consequences.

Dissolved uranium in the Colorado River

Concerns about adverse environmental consequences of uranium mining led to temporary withdrawal from mineral entry of approximately one million acres of public land in the Grand Canyon region encompassing three different sub-areas ("Temporary withdrawal area" on Figure 2). This was done in spite of the fact that there had been no environmental accidents or significant events during the 1980-1995 period of breccia-pipe mining, nor during the following 15 years of mining inactivity. This temporary withdrawal was placed into effect on July 21, 2009, by the U.S. Secretary of the Interior, Ken Salazar, for period of time "up to two years". During this time the U.S. Bureau of Land Management (BLM) was instructed to prepare an Environmental Impact Statement (EIS) evaluating the consequences of various alternatives for a 20-year withdrawal period. BLM retained SWCA Environmental Consultants (SWCA) to prepare the EIS under BLM's direction. The Arizona Geological Survey is one of the many Cooperating Agencies in the EIS development process.

One concern about adverse environmental consequences of uranium mining was expressed by then Governor of Arizona Janet Napolitano in a letter, dated March 6, 2008, to U.S. Secretary of the Interior Dirk Kempthorne (Appendix 1). That letter stated that "the dramatic rise in prices for uranium over the last three years has created a 'boom' that has the potential to seriously harm the Grand Canyon National Park and the water quality of the lower Colorado River." Concern about contamination to the Colorado River was reiterated by environmental groups such as the Sierra Club: "Mining would have … threatened to contaminate the Colorado River, the source of drinking water for tens of millions of people." (http://sierraclub.typepad.com/scrapbook/2008/10/club-allies-sto.html, accessed Dec. 10, 2010 under the heading "Club, Allies Stop Uranium Mining Next to Grand Canyon").

An evaluation of potential contamination of the Colorado River due to uranium mining requires consideration of the natural uranium concentration in river water. Two hundred and seventy uranium analyses of river water from three sites along the Colorado River between Glen Canyon Dam and Lake Mead, summarized by Bills et al. (2010, Figure 15 and Appendix 4), indicate average dissolved uranium concentration of generally between three and eight parts per billion (ppb), with significant variability (Fig. 3; Table 1). One hundred measurements during a nine-year period (1963-1972) from a site below Page, Arizona, show decreasing dissolved uranium concentrations after the first ~1.5 years, possibly because of increasingly significant effects of water impoundment by Glen Canyon dam directly upstream (Fig. 3). Dissolved uranium concentration during this initial measurement period varied from six to twelve ppb, but then dropped below approximately eight ppb. The average concentration for the entire nine year measurement period was 6.46 ppb uranium (U) (n=100), while the average concentration following the first 18 months of the measurement period was 5.57 ppb U (n=73) (Table 1). Measurements at Lees Ferry during 1996 to 1998 averaged 3.24 ppb U (n=19), while measurements near Peach Spring (1997-2007), near the head of Lake Mead, averaged 3.57 ppb U (n=78). On the basis of these data sets, we consider modern Colorado River water to have a dissolved uranium concentration of 4±1 ppb uranium.

Table 1. Uranium concentration in Colorado River water, Grand Canyon area*

site	time period of survey	n	average U (ppb)	standard deviation	source
Page	5-1963 to 5-1972	100	6.46	2.24	USEPA (1973)
Page	7-1965 to 4-1972	73	5.57	1.49	USEPA (1973)
Lees Ferry	1-1996 to 8-1998	19	3.24	0.38	USGS (2009)
Near mouth of Diamond Creek	11-1996 to 8-2007	78	3.57	0.46	USGS (2009)

*table derived from Bills et al., 2010, Appendix 4

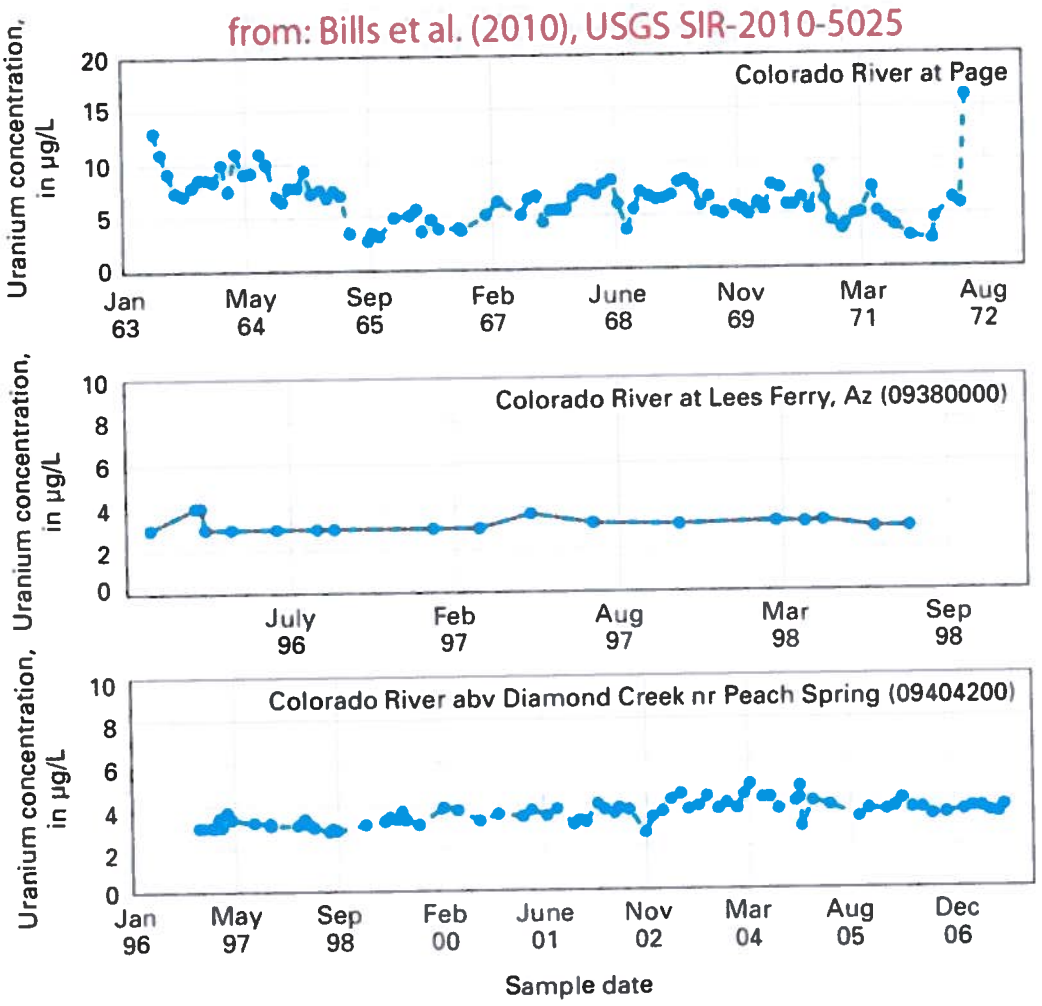


Figure 3. Dissolved uranium concentration in Colorado River water from measurements at three sites in the Grand Canyon area (modified from Bills et al., 2010, Figure 15). Sample locations are shown in Figure 2 (Page locality is just below Glen Canyon dam).

The 4±1 ppb uranium level considered to be representative of Colorado River water is below the 5.57 ppb average for a long set of measurements made during the period 1965-1972 (Table 1; Fig. 3). We consider this acceptable partly because analytical methods improved considerably by the time later measurements yielded generally lower levels, and consider it likely that earlier measurements were less accurate. This is indicated by much greater variability of earlier measurements, with a standard deviation of the older data set that is considerably higher than for later data sets (Table 1).

The 4±1 ppb uranium level estimated for the modern Colorado River probably underestimates natural Colorado River water conditions, as indicated by higher levels recorded below Glen Canyon dam immediately after initial water impoundment. We speculate that Colorado River uranium levels were naturally higher before river water was impounded and suspended sediment removed by settling to the reservoir floor. While 4±1 ppb uranium in Colorado River water may be an underestimate of pre-reservoir, natural water conditions, it is more relevant to evaluating potential contamination from future mining.

Colorado River water flux in the Grand Canyon region averages 13 to 16 cubic kilometers per year (km^3/yr), depending on the measurement site and set of years over which measurements were made (Table 2, note that 1.29E+07 = 1.27×10^7). A cubic kilometer of water, corresponding to a cube of water 1000 m along each side, contains a billion cubic meters, each of which has a mass of one metric ton (a tonne). Thus, if one cubic kilometer of water contains one ppb of uranium, it contains one tonne of uranium (one tonne = 1000 kg = 2205 lbs). As outlined above, uranium concentration of Colorado River water is estimated at 4±1 ppb. Thus, 13 to 16 km^3/yr of river water carrying 4±1 ppb dissolved uranium correspond to a uranium flux of 39 to 80 tonnes (86,000 to 176,400 lbs.) carried by the Colorado River each year. We represent this as 60±20 tonnes/year uranium.

Table 2. Colorado River water volume, Grand Canyon area

Source	ac-ft / yr	gal / ac-ft	m^3/gal	m^3/yr	km^3/yr
Smith et al., 1997, p. 49*	1.29E+07	325851	0.003785	1.59E+10	15.95
Irelan, 1971, p. E9**	1.21E+07	325851	0.003785	1.50E+10	14.96
Anning, 2002, Table 3***	1.08E+07	325851	0.003785	1.33E+10	13.26

*Discharge at Lees Ferry (1912-1962) before Lake Powell began filling in March, 1963
**Discharge at Grand Canyon 1926-1962
***Discharge at Davis Dam, 1995-1999

A worst-case uranium-ore spill

We now consider a maximum credible uranium-ore spill into the Colorado River that assumes a sequence of worst-case events. We consider this scenario as bordering on impossible, but consider it nevertheless in order to address concerns about contamination of a vast and enormously valuable water resource. Any real uranium spill is likely to be much smaller than the scenario outlined here.

Uranium ore is hauled in trucks with loads up to 30 tons (about 27.2 tonnes), usually in a 20 ton trailer with a second trailer containing 10 tons (Kris Hefton, Vane Minerals LLC, personal communication, 2010). We represent this as 30 tonnes of ore, recognizing that this is slightly larger than a likely real full load. Most breccia-pipe uranium ore varies from 0.4 to 0.8% uranium oxide, but we represent this as 1.0% uranium for analytical simplicity (again, recognizing that this is a modest overestimate). Consider a hypothetical truck hauling 30 tonnes of uranium ore at 1% uranium grade (300 kg U). If this ore truck was overturned by a flash flood while crossing Kanab Creek, and its entire load of uranium ore was washed 60 km down Kanab Creek, completely pulverized in the riverbed, and dissolved into Colorado River water over a one-year period, then 0.3 tonnes of uranium would be added to the river over this time period. Against a natural background of 60±20 tonnes/year of uranium dissolved in the Colorado River, this amounts to an approximately 0.5% increase in river-water uranium concentration, or a change from 4.00 ppb to 4.02 ppb (an increase of 0.02 ppb, or 20 parts per trillion). This change would be trivial, especially when considered in light of the EPA Maximum Contaminant Level for drinking water of 30 ppb uranium.

Standard deviation of uranium measurements at Lees Ferry and near Peach Spring is 0.38 and 0.46 ppb, respectively (Table 1). Thus, in our worst-case uranium-spill scenario, uranium concentration in the Colorado River would be increased by about one twentieth of one standard deviation of uranium measurements in these two data sets. If deviation primarily represents natural variation, which seems likely, then uranium added to the Colorado River in this hypothetical situation would be undetectable against much larger natural variation.

Our deliberately exaggerated, worst-case scenario for a uranium-ore spill into the Colorado River can be applied to even more unlikely environmental situations. Consider the entire 132 tonnes of uranium production from the Arizona 1 mine that occurred during 13 months in 2009-2010. Then consider that, for some reason, the ore containing this uranium was not trucked to a distant uranium mill, but was stockpiled on site in a location vulnerable to flash flooding. At a grade of 1% uranium, this stockpile would consist of 13,200 tonnes of uranium ore. If a flash flood washed the entire 13,200 tonnes of uranium ore into the Colorado River, and all of the ore was pulverized and its 132 tonnes of uranium dissolved in the Colorado River over one year, then the annual uranium flux in the Colorado River would increase from approximately 60 tonnes to 192 tonnes. Uranium concentration in river water would increase from 4.0 to 12.8 ppb for one year, which is still far below the 30 ppb EPA Maximum Contaminant Level. Thus, even in this implausible scenario, with approximately 20% of the entire ore body washed into the Colorado River and completely dissolved in river water, the water would still be considered safe to drink by the EPA under current regulations. In reality, any such flash-flood mobilization of uranium ore would result in mixing of ore with stream-bed sediment, in the Colorado River as well as in tributaries, and a much more gradual addition of uranium to river water.

Conclusion

Uranium, present in typical crustal rock at about 3 ppm (Spencer, 2002), is one of the many chemical elements in Earth's crust that are gradually washed away by weathering and erosion and dissolved in very small concentrations in river water and groundwater. The seemingly large amount of naturally occurring uranium in the Colorado River (tens of tonnes per year) reflects the large water flux in the river, not unusually high uranium concentration. Colorado River water is consumed by millions of people in Arizona, California, and Nevada. Uranium concentration in

river water, at about 4 ppb, has been consistently well below the EPA Maximum Contaminant Level (MCL) of 30 ppb for drinking water. Under the conditions modeled here for a uranium ore-truck accident, designed to represent an extremely unlikely, worst-case, mining-related uranium spill into the Colorado River, an increase of 0.02 ppb uranium would be trivial in comparison to the EPA drinking water MCL of 30 ppb uranium. Furthermore, such an increase of uranium in river water would be undetectable against natural variation as revealed by variability in past uranium measurements of river water.

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APPENDIX A: Letter from Arizona Governor Janet Napolitano regarding uranium mining

STATE OF ARIZONA

JANET NAPOLITANO
GOVERNOR

OFFICE OF THE GOVERNOR
1700 WEST WASHINGTON STREET, PHOENIX, AZ 85007

MAIN PHONE: 602-542-4331
FACSIMILE: 602-542-7601

March 6, 2008

The Honorable Dirk Kempthorne
Secretary of the Interior
Department of the Interior
1849 C Street, N.W.
Washington DC 20240

Dear Mr. Secretary:

I am writing to you on behalf of the citizens of the State of Arizona to express concerns regarding the impact of uranium development on the Grand Canyon National Park. As you know, the Grand Canyon is not only an Arizona treasure, it is a National one and we must fully understand environmental impacts before moving forward with uranium mining or millsite activities. Therefore, I request that you exercise your emergency withdrawal authority under the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. Section 1714 to stop new claimstaking and conduct an overall environmental impact analysis of uranium development around the Grand Canyon. It is imperative that we fully understand impacts to the land and water in the Canyon region before moving forward with mining and millsite activities. Should the analysis determine a negative impact to the Canyon, you should exercise your authority to withdraw the lands from mineral entry for twenty years. The attached map shows the areas of concern.

As you may be aware, the dramatic rise in prices for uranium over the last three years has created a "boom" that has the potential to seriously harm the Grand Canyon National Park and the water quality of the lower Colorado River. According to a report by The Environmental Working Group, 2,215 new mining claims have been filed within 10 miles of Grand Canyon National Park since 2003, and that 805 of those claims are within 5 miles of the Grand Canyon National Park. As those claims are further developed, the industrial development in the vicinity of the Park and along its watersheds would have significant negative economic, cultural, and environmental repercussions for the residents of Northern Arizona and for the citizens of the State of Arizona.

On Tuesday, February 5, 2008 the Board of Supervisors for Coconino County passed a resolution opposing uranium development in the vicinity of the Grand Canyon National Park and its watershed. The resolution reflects the sentiment of citizens in the local communities around the Grand Canyon and calls for the withdrawal of mineral entry that I am now requesting.

These efforts have resulted in stories and editorials in the New York Times and other newspapers. These reflect the high level of public concern, both here in Arizona, and nationally, about the prospect of uranium mines opening on the rim of the Grand Canyon. This is not just an Arizona concern; this has national implications.

There are places where uranium might be appropriately mined, but I think that almost every American can agree that the Grand Canyon is not one of those places. As President Theodore Roosevelt, who created what is now Grand Canyon National Park, said:

> *In the Grand Canyon, Arizona has a natural wonder which, so far as I know, is in kind absolutely unparalleled throughout the rest of the world...*
>
> *Leave it as it is. You can not improve on it. The ages have been at work on it, and man can only mar it. What you can do is to keep it for your children, your children's children, and for all who come after you...*

In 1906, President Roosevelt put his words into action and removed the land from mineral entry that is now largely encompassed by the North Kaibab Ranger District of the Kaibab National Forest. Since that time, additional lands in the region, including those that fall within the boundaries of the Grand Canyon Parashant and Vermillion Cliffs National Monuments were protected from new mineral entry. The Navajo Nation has prohibited uranium development on their tribal lands bordering the Grand Canyon and other tribes are considering doing the same. Indeed, the Navajo Nation just passed Tribal Superfund legislation to specifically help address the large number of abandoned and unreclaimed uranium sites on their land.

The withdrawal from mineral entry of the three areas that I have indicated will complete the process of protecting the Grand Canyon from the adverse affects of mineral development that President Roosevelt began more than a century ago. On behalf of the citizens of the state of Arizona, I, therefore, petition and request that you remove those federal lands identified on the attached map. Should you need additional information, please contact Lori Faeth, Sr. Policy Advisor for Natural Resources, Agriculture and Environment at 602-542-1334, lfaeth@az.gov.

I thank you for your consideration of this very important issue.

Yours very truly,

Janet Napolitano
Governor

cc: Congressman Rick Renzi
Congressman Raul Grijalva
Congressman Nick Rahall
Senator John McCain
Senator John Kyl
Senator Jeff Bingaman
The Honorable Ed Schafer Secretary U.S. Department of Agriculture
Chairwoman Ono Segundo, The Kaibab Paiute Tribe
Chairman Don Watahomigie, The Havasupai Tribe
Chairman Ben Nuvamsa, The Hopi Tribe
Chairman Charles Vaughn Sr., The Hualapai Tribe
President Joe Shirley Jr., The Navajo Nation

REFERENCE TITLE: state lands; mining; exploration

State of Arizona
Senate
Fiftieth Legislature
First Regular Session
2011

SCM 1007

Introduced by
Senator Melvin

A CONCURRENT MEMORIAL

URGING THE SECRETARY OF THE UNITED STATES DEPARTMENT OF THE INTERIOR TO REFRAIN FROM WITHDRAWING CERTAIN ARIZONA LANDS FROM NEW MINING CLAIMS AND EXPLORATION.

(TEXT OF BILL BEGINS ON NEXT PAGE)

Passed both House and Senate fiftieth legislature 2011

Sent to Secretary of State week of April 10, 2011 for Proper distribution

SCM 1007

To the Congress of the United States of America, the Secretary of the United States Department of the Interior, the Secretary of the United States Department of Energy, the Director of the Bureau of Land Management and the Chief of the United States Forest Service:

Your memorialist respectfully represents:

Whereas, currently, Arizona lands are significantly encumbered and controlled by a variety of federally managed public lands and other government designations, including 12.2 million acres of Bureau of Land Management surface lands and an additional 17.5 million acres of subsurface, 11.4 million acres of United States Forest Service lands, 7.9 million acres of military installations and 24.7 million acres of Indian tribal lands; and

Whereas, the Secretary of the Department of the Interior withdrew some 1.1 million acres of land from new mining claims and exploration; and

Whereas, the people of Arizona rely on access to these public lands for a various economic, infrastructure and recreational purposes, including mining, oil and gas development, grazing, outdoor recreation, employment and jobs; and

Whereas, Arizona's economy relies on these important industries to fuel its economy and tax base; and

Whereas, energy price increases have a disproportionately negative impact on Arizona's poor individuals and families; and

Whereas, Arizona schools, as well as state and local governments, are among the benefactors of access to Arizona public lands; and

Whereas, the Arizona Strip is estimated by the United States Geological Survey to contain 375 million pounds of uranium oxide with the energy equivalent of 13 billion barrels of oil, an amount about equal to the total known recoverable oil from Prudhoe Bay, the largest oil field in North America; and

Whereas, the area is currently mining flagstone, sand and gravel, is known to have vanadium and may have copper and other minerals; and

Whereas, the world's shortage of uranium continues to escalate and our country continues to import more than three-fourths of the uranium we use from foreign sources; and

Whereas, uranium production will significantly reduce the United States' energy vulnerability; and

Whereas, in the 1980s, uranium mining operations existed that have now been so well reclaimed that it is difficult to discern where these mines existed; and

Whereas, there are no known detrimental effects of mining uranium in the area to the waters of the Grand Canyon or to the health and safety of the miners or surrounding communities; and

Whereas, these lands that have been withdrawn from new mining claims and exploration will cost Arizona hundreds of millions of dollars in lost revenues that help fund local communities and schools; and

Whereas, the area on the Arizona Strip and the Colorado Plateau contains the largest uranium reserve known in the United States, and the Brescia pipes containing the uranium are the highest quality and the easiest to mine with no harmful degradation to the environment or the Colorado River water; and

Whereas, locking away much of Arizona's valuable mineral resources from environmentally sound development not only hurts Arizona economically, but also weakens America by halting the production of more energy in Arizona and the nation.

Wherefore your memorialist, the Senate of the State of Arizona, the House of Representatives concurring, prays:

1. That the Secretary of the Department of the Interior refrain from withdrawing Arizona lands from new mining claims and exploration.

2. That the Bureau of Land Management and the United States Forest Service not limit the public's access to public lands under their jurisdiction for mining, grazing, recreation or other uses.

3. That the Secretary of the Department of the Interior not take these lands from state jurisdiction, preventing Arizona from pursuing its plans for these resources.

4. That the Secretary of State of the State of Arizona transmit copies of this Memorial to the President of the United States Senate, the Speaker of the United States House of Representatives, the Secretary of the United States Department of the Interior, the Secretary of the United States Department of Energy, the Director of the Bureau of Land Management, the Chief of the United States Forest Service and each Member of Congress from the State of Arizona.

SYLVIA ALLEN
STATE SENATOR - DISTRICT 5
PRESIDENT PRO TEMPORE

FIFTIETH LEGISLATURE

1700 WEST WASHINGTON
PHOENIX, ARIZONA 85007-2844

TOLL FREE: 1-800-352-8404
CAPITOL PHONE: (602) 926-5219
CAPITOL FAX: (602) 417-3223
TOLL FREE FAX: 1-800-201-7343

EMAIL: sallen@azleg.gov

Arizona State Senate

COMMITTEES:

BORDER SECURITY, FEDERALISM, & STATE SOVEREIGNTY, Chairman

APPROPRIATIONS

EDUCATION

RULES

WATER, LAND USE, & RURAL DEVELOPMENT

April 13, 2011

Honorable Kenneth L. Salazar
Secretary
U.S. Department of the Interior
1849 C Street, N.W.
Washington, D.C. 20240

Re: Proposed Withdrawal of 1.1 million acres on the Arizona Strip of the Colorado Plateau

Dear Secretary Salazar:

You are in receipt of Governor Jan Brewer's letter of October 9, 2009, requesting that you refrain from withdrawing these Arizona and Federal lands from multiple use, including mining.

This withdrawal concerns us. We are charged with the responsibility for the operation of our great state. Arizona has plans for both these state lands and our federal lands, that include mining the uranium located within the withdrawal area. Our plan for the orderly and responsible development of our resource will provide jobs for our people and revenue for our schools and communities, which are, as you are aware, of grave concern to us and the people of Arizona.

We would like to point out that your recent Environmental Impact Statement (EIS) found evidence that uranium mining was not a concern with regard to polluting the waters of the Colorado River.

This resource, as Governor Brewer pointed out, and as determined by the USGS, is 42 percent of the available uranium in the United States, as well as the richest and easiest to mine with little or no degradation to our environment.

Our country needs the energy this resource will provide. Mining our uranium is an integral part of the solution to attaining energy independence from foreign nations, including Russia, which has provided and continues to provide a large amount of uranium that we rely on to generate our electricity and fuel our naval ships.

We urge you to refrain from taking these lands from our state and ask you to coordinate with us and help us pursue our plan for the orderly development of this much needed resource.

Sincerely,

Senator Sylvia Allen

Senator Nancy Barto

Senator Scott Bundgaard

Senator Adam Driggs

Senator Linda Gray

Senator Lori Klein

Senator Al Melvin

Senator John Nelson

Senator Steve Pierce

Senator Don Shooter

Senator Steve Yarbrough

Senator Frank Antenori

Senator Andy Biggs

Senator Rich Crandall

Senator Ron Gould

Senator Gail Griffin

Senator John McComish

Senator Rick Murphy

Senator Russell Pearce

Senator Michele Reagan

Senator Steve Smith

cc: Scott Florence, District Manager
Bureau of Land Management

Enclosure: Governor Jan Brewer letter of October 9, 2009

STATE OF ARIZONA

JANICE K. BREWER
GOVERNOR

EXECUTIVE OFFICE

October 30, 2009

Honorable Kenneth L. Salazar
Secretary
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

RE: Notice of Proposed Withdrawal

Dear Secretary Salazar:

On behalf of the State of Arizona, I am pleased to take this opportunity to provide comments on the proposed withdrawal of 993,549 acres of Bureau of Land Management and U.S. Forest System lands in northern Arizona. The stated purpose of the Department of the Interior's proposed withdrawal of these lands is "to protect the Grand Canyon watershed from adverse effects of locatable hardrock mineral exploration and mining." This withdrawal is unnecessary to protect the Grand Canyon region and Colorado River, and in many ways would have an adverse impact on the State of Arizona. As a steward of Arizona's tremendous natural resources, economic well being, and the public trust, I object to this proposal, and request that the Department take action to remove the proposed burdensome restrictions on federal and state lands in the Northern Arizona Uranium District.

Uranium mining exploration and production operations already exist on the Colorado Plateau and in the Grand Canyon region. Various federal and state laws heavily regulate these mining operations. Additionally, only a small fraction of the land is impacted by these activities.

Existing Federal law requires mining operations to comply with the National Environmental Policy Act, Clean Air Act, Clean Water Act, Federal Land Policy and Management Act, Endangered Species Act, National Historic Preservation Act and various rules, regulations and policies established by the U.S. Forest Service and Bureau of Land Management. These regulations require all mining activities on federal lands minimize, prevent or mitigate adverse environmental impacts, and a plan of operations subject to the NEPA process, for any operation likely to cause a significant disturbance.

Moreover, the Arizona Department of Environmental Quality (ADEQ) enforces federal and state laws protecting public health and the environment. ADEQ ensures air and water quality permits

1700 WEST WASHINGTON STREET, PHOENIX, ARIZONA 85007
602-542-4331 • FAX 602-542-7602

are obtained prior to starting mining operations to ensure clean air and clean water in the Grand Canyon region and in the Colorado River. Together, these various safeguards protect the air, water, cultural resources, wilderness, and wildlife habitat in areas affected by mining operations.

In the Colorado Plateau region of northern Arizona that includes the proposed withdrawal area, ore extraction and production at existing uranium mines has minimal environmental impact on the surrounding land, water, and wildlife because of modern environmental laws. The uranium deposits in these breccia pipes are typically dry and located several hundred feet above the underlying aquifer. Mining of uranium ore in Arizona requires an Aquifer Protection Permit (APP) to ensure there are no adverse effects on the underlying aquifer. Further, since *in situ* mining of uranium is not planned or envisioned for northern Arizona deposits, the risk of contamination of underground water sources is significantly reduced. Finally, clean closure, which is required under the APP, involves returning the land to background radiation levels consistent with those naturally occurring in the area.

As you are aware, exploratory uranium activities do not involve extraction or transporting of uranium ore for processing. Exploratory activities create minimal impact to the land. Mining explorations frequently use existing roads, utilize a small drill pad, achieve zero discharge, drill small boreholes, return drillings to the borehole and reclaim the disturbed areas. Due to the limited activity and drilling material "containment", exploratory activities generate no discharge to waters of the United States or the state under the Clean Water Act because the operations typically contain all drill materials onsite. While not specifically regulated by Arizona's state APP Program, returning drill cuttings including drill fluids after exploration is consistent with ADEQ's general APP requirements. Even in full-scale uranium mining, due to the use of underground mining methods and the utilization of waste rock as backfill, the surface footprint is small, ranging from ten to twenty acres.

Most environmental concerns raised by the legacy of uranium mining in Arizona and the southwest United States are the result of activities that occurred prior to the existence of modern environmental laws and generally resulted from detonation, disposal, ore-processing (milling) and weapons manufacturing sites; activities not associated with modern uranium extraction. Even so, as is the case with the recently permitted Arizona uranium activities, further mitigation measures could be undertaken to address concerns raised during any permitted activities. ADEQ recently issued two permits with enforceable permit conditions including mine permeability testing and monitoring to ensure fluids are not conveyed out of the mine, ground water monitoring, mine water monitoring and financial assurances for clean closure.

Proposed uranium mining activities in northern Arizona are located completely outside of Grand Canyon National Park. Since most sites are far away from the National Park boundary, there is no expected impact on the quality of Park visitors' experiences. Wildlife would also be unaffected by mining operations. At existing uranium mines in northern Arizona, the mine site

is completely fenced off so that no ground animal or human can enter the property without the knowledge of the workers or guards. Each mine only operates for less than 10 years, which time frame includes reclamation activities to restore the area for wildlife to inhabit.

As expressed in Arizona State Land Commissioner Maria Baier's September 24, 2009 letter to you, the state is also very concerned about Arizona State Trust land encompassed in the proposed closure area. Significant portions of the 85,673 acres of non-federal lands within the closure area are Arizona State Trust lands. Potential loss of mining royalties to the 13 public beneficiaries, the largest of which is K-12 education, from even a single breccia pipe on trust lands could range from $1.5 to $18.5 million.

In terms of the economic impacts of uranium mining activities on federal land in northern Arizona, we estimate that the industry will generate more than $10 billion to the local economy over the life of these mines. This will include hundreds of high-paying jobs in a rural economy that desperately needs employment opportunities. We envision that local residents from nearby areas where unemployment rates remain far above the state and national averages will fill many of these jobs.

Finally, I must urge the Department to consider national security and energy independence as an additional basis to vacate its proposed withdrawal of lands for uranium mining. Arizona and the United States have a tremendous national security resource in northern Arizona. Although various types of uranium deposits occur within Arizona, breccia pipes in the Grand Canyon region contain the highest-grade uranium ore in the United States and some of the highest in the world. The United States imports over 90% of the needed uranium for nuclear-powered electrical energy production. A secure domestic supply of uranium is a crucial element for continued use of this energy source. According to the United States Geological Survey, the Arizona Strip holds 42% of the nation's estimated undiscovered uranium. Generally, nuclear energy is cheaper than coal and natural gas, and cleaner in that it doesn't contribute global warming gases to the atmosphere. To remove this source of energy forces our nation to rely more heavily on foreign nations to meet growing energy needs. Without this nuclear energy, we would be forced to look toward other sources of power that have a much higher carbon footprint and a detrimental impact on climate change.

In conclusion, I urge you to consider the overwhelming evidence that responsible uranium mining can be both safe for public health and the environment and compatible with the Grand Canyon region and its watershed. This is an opportunity to provide access to one of the richest deposits of high-grade ore in the world while creating the smallest possible mining impact. Canceling the proposed withdrawal and allowing the market to provide this commodity will promote the economy both in Arizona and nationally; will fuel carbon-neutral nuclear power; and support energy independence in an environmentally safe and protective manner. The withdrawal proposal is overly broad and unnecessary because of the protections offered by state

and federal laws that will ensure mining operations will be protective of the Grand Canyon region and the Colorado River.

Sincerely,

Janice K. Brewer
Governor

JB:MA:njw

cc: Scott Florence, District Manager
Bureau of Land Management

Janice K. Brewer
Governor

Maria Baier
State Land
Commissioner

ARIZONA STATE LAND DEPARTMENT

September 24, 2009

Honorable Kenneth L. Salazar
Secretary
U. S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Re: Proposed Withdrawal of Federal Lands Around the Grand Canyon from Location and Entry under the 1872 Mining Law

Dear Secretary Salazar:

The Arizona State Land Department (Department) objects to the above referenced proposal to withdraw approximately one million acres of federal lands around the Grand Canyon from location and entry under the 1872 Mining Law. The withdrawal is specifically designed to prevent the exploration for and development of the uranium resources present in this area of northern Arizona known as the Arizona Strip. A significant portion of the 85,673 acres of non-federal lands within the closure area are Arizona State Trust lands. As you may be aware State Trust lands are held in trust for 13 public beneficiaries. The vast majority of revenue derived from these State Trust lands supports K-12 education. Closure of federal lands would severely limit, if not prevent, the Department's ability to generate any income from the mineral resources, including uranium, present on these beneficiary lands.

The Department currently has 35 exploration permits (the state's equivalent to a federal mining claim) issued within the area proposed for the closure, with about another dozen pending. Over the last several months a few of the companies have allowed about two dozen of their exploration permits to expire due, at least in part, to the uncertainty over the impending closure. Estimates from former uranium mining operations in the area indicate that the royalty income to our beneficiaries from an individual mine in one breccia pipe could range from $1.5 to $18.5 million, the potential loss of income to our beneficiaries is significant.

The Department is equally concerned with biological impacts of mining in proximity to the Grand Canyon National Park and the Department has withdrawn State Trust land from location and entry in and around Cataract Canyon on the South Rim of the Grand Canyon; however a large portion not impacting Cataract Canyon is still available. A pragmatic approach based on science and economic impact should be employed on the subject federal lands. The withdrawal of nearly 1 million acres does not stand up to this test. The Department respectfully requests that the Interior Department revisit the number

of acres, length of withdrawal and economic impacts to the State prior to final approval. Thank you for your attention to our concerns.

Respectfully,

Maria Baier
Arizona State Land Commissioner

Cc:
Honorable John McCain, Member of Congress
Honorable Jon Kyl, Member of Congress
Honorable Ann Kirkpatrick, Member of Congress
Honorable Trent Franks, Member of Congress
Honorable John Shadegg, Member of Congress
Honorable Ed Pastor, Member of Congress
Honorable Harry Mitchell, Member of Congress
Honorable Jeff Flake, Member of Congress
Honorable Raul Grijalva, Member of Congress
Honorable Gabrielle Giffords, Member of Congress
Honorable Jan Brewer, Governor of Arizona
Honorable Tom Horne, Superintendent of Public Instruction

MB:jd;ba

Quaterra Resources Inc.

May 3, 2011

Mr. Scott Florence
District Manager
Arizona Strip District Office
U. S. Bureau of Land Management
345 East Riverside Drive
St. George, Utah 84790-6714

Subject: Comments on the Draft Environmental Impact Statement for the Northern Arizona Proposed Withdrawal

Dear Mr. Florence:

QUATERRA RESOURCES INC. (Quaterra) focuses on making significant mineral discoveries in North America because our company believes in the importance of maintaining a viable and environmentally responsible domestic minerals industry that will benefit the economic health and long range energy security of the United States.

The Company uses in-house expertise and its pipeline of consultants, prospectors and industry contacts to identify, acquire and evaluate prospects with the greatest potential to host large and/or high-grade base, precious metal or uranium deposits. Quaterra is actively exploring prospects in Nevada (copper), Mexico (gold-silver), Texas and Montana (molybdenum) and Arizona (uranium).

Since commencing uranium exploration in 2005, the Company has invested more than $12 million in the Arizona Strip; a figure that represents approximately 30% of the Company's total exploration expenditures in North America. This local investment, along with the ongoing investment of several other resource companies, has been placed at significant risk by the proposed withdrawal of over 1 million acres of federal land.

When combined with prior withdrawals and other prohibitions in the area, an astonishing 6,818 square miles or approximately 4.36 million acres of land with extraordinary mineral potential will be lost to development. To put this in perspective, lands removed from mineral entry will be greater than the combined areas of the District of Columbia, Rhode Island and Delaware and accounts for nearly 6% of the entire state of Arizona.
Any search for clean and abundant energy with a minimal carbon footprint would inevitably lead to the vast uranium resources of the Arizona Strip. The unique mineralization of the area continues to attract the interest of the United States Geologic Survey (USGS) and resource companies because it hosts some of the largest and highest grade uranium deposits in the US. And, when compared to other uranium deposits in the country, the USGS (Otton, et.al. 2010) describes the study area as "having the potential of becoming the second most important uranium-producing region in the United States".

The uranium resource endowment of the Arizona Strip should not be in question. Two USGS studies have estimated an endowment in excess of 320 million lbs. yet the DEIS has used a highly inaccurate comment made over 22 years ago in a single publication with no supporting data to reduce this endowment to a mere 45 million lbs. Even the (August 2010) BLM Mineral Report on the mineral potential of the proposed withdrawal area classifies the uranium potential as "(H/D)"; the highest classification possible for both potential and level of certainty and goes on to conclude, "Failure to develop uranium resources on the subject lands .... has far reaching economic implications, which are beyond the scope of this report."

Unlike any other known uranium districts in the world, a cross section through the center of the district is visible in the walls of the Grand Canyon. Nearly all the known mineralized pipes and all of the economically viable uranium deposits in the region have been found in a N-S trending mineralized "corridor" that is approximately 45 miles wide by 110 miles long. The hundreds of pipes mapped outside of this corridor are barren. All of the proposed withdrawal area is within this corridor because the area was selected by drawing a line around the focus of the claim staking activity. Most of the remaining corridor has already been withdrawn from mineral entry. Any proposed withdrawal but alternative "A" (no action) will destroy the potential development of the district for 20 years and probably forever.

The position of the mineralized corridor and the total number of mineralized pipes in the subject area can be estimated by examining the outcropping pipes in the Grand Canyon. The attached comments use data from all known deposits in the proposed withdrawal area and an examination of breccia pipes in the Grand Canyon to develop a third and independent estimate of the uranium endowment of the subject area. The estimate is surprisingly close to previous estimates by the USGS.

Perhaps the most erroneous assumption in the DEIS is that resources of the district are not capable of sustaining mining for 20 years. At an average production of 1.5 million lbs of uranium per year per mine, an average of 3 million lbs produced per mine, and even using a gradual ramp-up of production, six continuously operating mines could produce 160.5 million lbs in 20 years; only one half the total estimated endowment of the subject lands.

The uranium mineralization of Arizona Strip district represents the most profitable per pound hard rock production in the US while having one of the smallest surface disturbances and environmental impacts of any uranium production in the world. The implementation of any alternative (other than "A" no action) will destroy forever a district that has the energy equivalent of all the recoverable oil in Prudhoe Bay - North America's largest oil field. This district is truly a "crown jewel" of the country and a withdrawal of its resources should not be taken lightly in a nation with widespread unemployment while suffering a dependency on costly foreign energy during difficult economic times.

Many of Quaterra's geological team that contributed to the following comments were part of the former exploration arm of Energy Fuels Nuclear, Inc. Together they have more than 50 years of experience in uranium exploration in the Arizona Strip district. The exploration, development and resource data presented in these comments are a result of that experience.

LEGAL DESCRIPTION OF THE WITHDRAWAL

Section 204 of the Federal Land Policy Act of 1976 requires "a legal description of the entire land area that falls within the exterior boundaries of the affected area..." While the DEIS states in several sections that the lands were identified by "legal description" in the *Federal Register* notice of July 21, 2009, this notice simply listed the townships that were included in the proposed withdrawal, which does not constitute a legal description. Had legal descriptions been provided, a comparison of active claim boundaries with the proposed withdrawal area could have been properly conducted.

Another related issue is the presence of "split estates" or land parcels within the withdrawal area that have separate surface and mineral ownership. Unfortunately, all maps in the DEIS that show ownership or control of the lands within the proposed withdrawal area are based on surface ownership rather than mineral ownership. Having at least one map in the DEIS that shows mineral ownership would make it easier to identify the split-estate sections where mineral control may not be subject to the withdrawal. Obviously, the presence of extensive split estate parcels would substantially change the key assumptions listed in the DEIS, specifically those relating to the Reasonably Foreseeable Development (RFD) scenarios discussed in Appendix B.

RIGHTS OF WAY

There is a significant unaddressed issue of rights-of-way across federal lands in the withdrawal area. Federal land access to either State Trust or private lands for mineral exploration projects, or for any roads or utility easements required for new mine development, previously required a right-of-way agreement with either the Bureau of Land Management (BLM) or the U. S. Forest Service (USFS).

If a withdrawal is authorized, the DEIS does not address the inability of a permittee on state or private lands to obtain a right-of-way across the federal lands that are closed to mineral location or entry. This issue also relates to private, state and public lands that are outside the withdrawal boundary but are essentially unavailable for mineral entry because these isolated parcels of lands are essentially landlocked by previously withdrawn federal lands.

Clearly, this is a significant omission in the DEIS because these right-of-way limitations would serve to effectively increase the withdrawal area without an appropriate evaluation of impacts as required in the NEPA process.

FLAWED URANIUM RESOURCE ESTIMATES

A significant basis for nearly every assumption and comparative analysis in the DEIS is the size of the endowment area, the number of mineralized breccia pipes and the average uranium resource of a mineralized breccia pipe. Lacking a basic understanding of the principles of breccia pipe formation, subsequent mineralization and the mechanics of breccia pipe exploration and eventual development, the DEIS constructs a seriously flawed RFD that significantly understates the massive mineral potential of the area.

There are literally thousands of breccia pipes in northern Arizona. The USGS Open File Report (OFR-89-550) shows the mapped locations of 1,296 pipes in northern Arizona.

The assumption made on page B23, Appendix B, that only "15% of the mineralized pipes could be economical to mine" is seriously flawed and the justification that "further discussions with industry experts...did not lead to a refinement of this assumption" reflects a serious lack of understanding of the economic mineral potential of the subject area.

The discussion of this assumption under Undiscovered Uranium Reserves (page B26 paragraph 2) of the DEIS sites a paper by Weinrich and Sutphin (1988) as suggesting that less than 10% of the mineralized pipes might be economically feasible. The only comment in the 1988 reference related to this conclusion is:

"Although thousands of pipes may exist, only a small fraction of these, probably less than 8 percent, were mineralized, and an even smaller percentage of these, perhaps less than 10 percent, contain economic concentrations of minerals."

Yet the Weinrich and Sutphin study continues by stating:

"The potential for additional economic mineralized breccia pipes is enormous and is greatest beneath the flat plateaus where erosion and oxidation of the ore have been minimized."

The latter comment is referring to areas not in the Grand Canyon and is specifically referring to the subject area of the DEIS. The former comment published over 22 years ago with no supporting data has been used to erroneously determine both the total potential economic resource of the proposed withdrawal area and virtually every resulting impact.

As a result of this single publication and speculation about what grades might be economically mined, the DEIS study reduces to a mere 45 million lbs. U3O8 (uranium) a potential resource endowment of 326 million lbs. as estimated by the USGS (Otton, et.al. 2010). Because more than 90% of all known mineralized pipes lie in a N-S trending mineralized corridor 45 miles wide by 110 miles long, the impact of the proposed withdrawal will seriously affect the potential development (for 20 years and probably forever) of the only uranium mineralized area in a region that the USGS has described as

"having potential of becoming the second most important uranium-producing region in the United States" and having the energy "equivalent to 13.3 billion barrels of oil" (Singh, 2008, ADMMR No. 49) equivalent to Prudhoe Bay, North Americas largest oil field.

The only way to estimate the potential uranium resource of the Northern Arizona Proposed Withdrawal Area (NAPWA), is to look at the results of exploration drilling in the subject area. By the end of 2009, a total of 45 breccia pipes have been confirmed in the NAPWA by deep holes drilled from the surface to explore the favorable Hermit shale horizon for uranium mineralization. The approximate location of each of these pipes is shown in Figure 1.

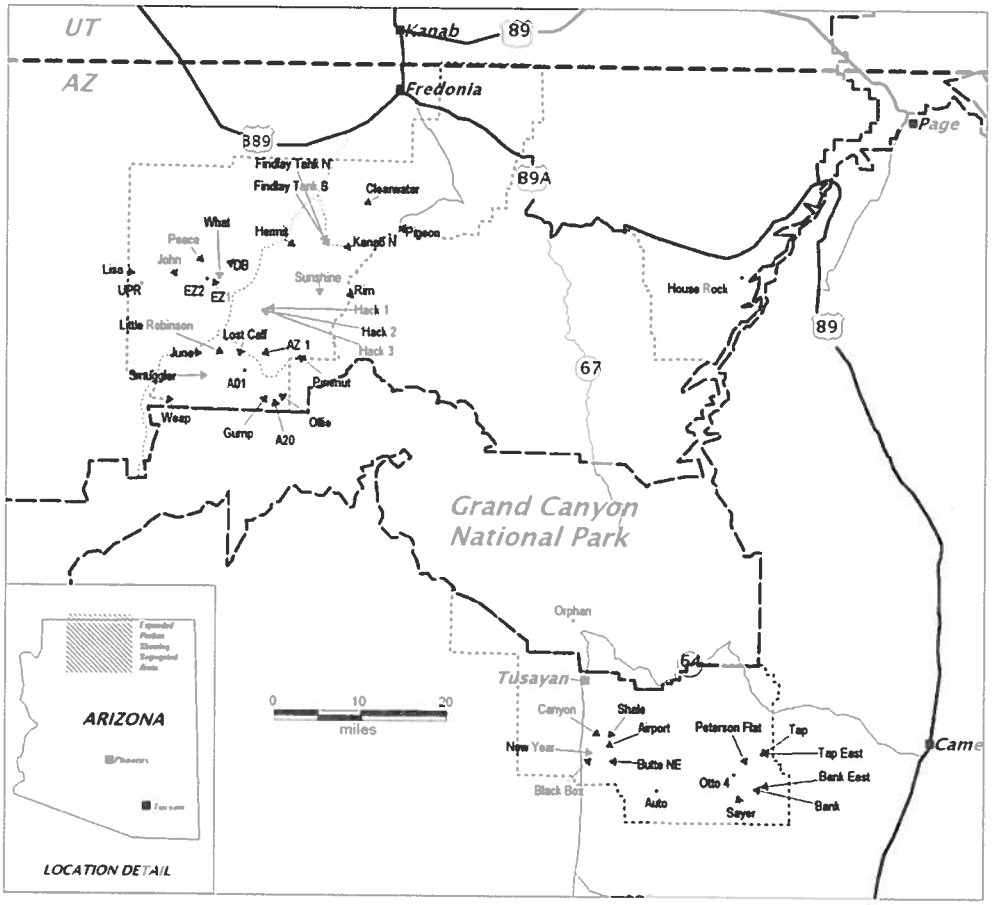

Figure 1: Map of the NAPWA showing the location of breccia pipes confirmed by exploration drilling.

The total number includes 16 uranium deposits defined as occurrences with estimated resources thought to exceed 100,000 lbs. of U3O8, 19 mineralized pipes where uranium mineralization has been identified by drilling, but no estimate has been made or drill hole data are insufficient to define a total in excess of 100,000 lbs., and 10 pipes with an undetermined status where drilling has encountered breccia below the lower Toroweap horizon but the amount of drilling to date has not been sufficient to delineate uranium mineralization (Table 1).

January 15, 2010								Resource Estimate (4)			Production		
Pipe Name (1)	Sec	Tnshp	Rng	Deep Holes(2)	Surface Resource Drilling	Underground Drilling	Status(3)	Total Tons(4)	Grade % eU3O8	Pounds eU3O8	Total Tons(5)	Grade % eU3O8	Pounds eU3O8
SOUTH KAIBAB NATIONAL FOREST													
Airport	28	29N	3E	1	Partially Tested	None	Mineralized Pipe	No known estimates					
Auto	21	28N	4E	2	Partially Tested	None	Mineralized Pipe	No known estimates					
Bank	20	28N	6E	2	Partially Tested	None	Undetermined	No known estimates					
Bank East	21	28N	6E	1	Partially Tested	None	Undetermined	No known estimates					
Black Box	6	28N	3E	20	Partially Tested	None	Mineralized Pipe	No known estimates					
Butte NE	4	28N	3E	3	Partially Tested	None	Mineralized Pipe	No known estimates					
Canyon	20	29N	3E	19	Resource Est. (Denison)	None	Uranium Deposit	70,500	1.08	1,523,000			
New Year	31	29N	3E	22	Partially Tested	None	Mineralized Pipe	No known estimates					
Otto 4	12	28N	5E	16	Partially Tested	None	Mineralized Pipe	No known estimates					
Peterson Flat	6	28N	6E	2	Partially Tested	None	Undetermined	No known estimates					
Sayer	25	28N	5E	1	Partially Tested	None	Undetermined	No known estimates					
Shale	21	29N	3E	2	Partially Tested	None	Mineralized Pipe	No known estimates					
Tap 2	33	29N	6E	1	Partially Tested	None	Undetermined	No known estimates					
Tap East	33	29N	6E	4	Partially Tested	None	Mineralized Pipe	No known estimates					
ARIZONA STRIP													
A01	32	36N	5W	16	Partially Tested	None	Mineralized Pipe	No known estimates					
A20	13	35N	5W	4	Partially Tested	None	Mineralized Pipe	No known estimates					
Arizona 1	22	36N	5W	22	Resource Est. (Denison)	U/G Defined	Uranium Deposit	70,300	0.68	956,000			
Clearwater	22	39N	3W	16	Partially Tested	None	Mineralized Pipe	No known estimates					
DB	25	38N	6W	19	Prelim. Estimate (EFN)	None	Uranium Deposit	103,649	0.44	905,321			
EZ1	11	37N	6W	34	Resource Est. (Denison)	None	Uranium Deposit	110,500	0.51	1,127,000			
EZ2	3	37N	6W	47	Resource Est. (Denison)	None	Uranium Deposit	113,700	0.43	978,000			
Findlay Tank NW	13	38N	4W	19	Prelim. Estimate (U1)	None	Uranium Deposit	14,351	0.40	114,234			
Findlay Tank SE	13	34N	4W	27	Prelim. Estimate (U1)	None	Uranium Deposit	211,000	0.23	954,000			
Gump	14	35N	5W	6	Partially Tested	None	Mineralized Pipe	No known estimates					
Hack 1	26	37N	5W	99			Uranium Deposit	Mined Out			133,822	0.530	1,419,623
Hack 2	27	37N	5W	35			Uranium Deposit	Mined Out			497,099	0.704	7,000,273
Hack 3	27	37N	5W	3			Uranium Deposit	Mined Out			111,263	0.504	1,121,748
Hermit	17	38N	4W	33			Uranium Deposit	Mined Out			36,339	0.760	552,449
John	1	37N	7W	17	Partially Tested	None	Mineralized Pipe	No known estimates					
June	21	36N	6W	3	Partially Tested	None	Undetermined	No known estimates					
Kanab North	17	38N	3W	15	Prelim. Estimate (EFN)	U/G Defined	Uranium Deposit	36,122	0.30	216,011	260,818	0.531	2,767,570
L. Robinson	24	36N	6W	9	Partially Tested	None	Mineralized Pipe	No known estimates					
Lisa	6	37N	7W	14	Partially Tested	None	Mineralized Pipe	No known estimates					
Lost Calf	20	36N	5W	6	Partially Tested	None	Mineralized Pipe	No known estimates					
Ollie	18	35N	4W	7	Partially Tested	None	Mineralized Pipe	No known estimates					
Peace	28	38N	6W	16	Partially Tested	None	Mineralized Pipe	No known estimates					
Pigeon	5	38N	2W	29			Uranium Deposit	Mined Out			406,794	0.643	5,651,862
Pinenut	21	36N	4W	18	Resource Est. (Denison)	U/G Defined	Uranium Deposit	99,200	0.44	873,000	25,807	1.020	526,350
Rim	17	37N	3W	13	Prelim. Estimate (EFN)	None	Uranium Deposit	27,891	0.35	195,850			
Smuggler	3	35N	6W	3	Partially Tested	None	Undetermined	No known estimates					
Sunshine	14	37N	4W	5	Partially Tested	None	Undetermined	No known estimates					
UPR	8	37N	7W	3	Partially Tested	None	Undetermined	No known estimates					
Weap	14	35N	7W	1	Partially Tested	None	Undetermined	No known estimates					
What	2	39N	3W	18	Prelim. Estimate (EFN)	None	Uranium Deposit	89,626	0.25	448,713			
HOUSE ROCK VALLEY													
House Rock	36	38N	5E	2	Partially Tested	None	Mineralized Pipe	No known estimates					
TOTALS	(45 Pipes)			655				946,839	0.44	8,291,129	1,471,942	0.632	19,039,875

(1) A breccia pipe is considered "drill confirmed" when one or more holes have identified breccia or mineralization in or below the lower Toroweap horizon.

(2) Deep holes are considered all drill holes exceeding 600 feet (183 m) in depth on each pipe with exception of Hack 1 where mineralization could be defined by holes deeper than 100 feet (30.5 m).

(3) Considered a "Uranium Deposit" if a resource estimate exceeds 100,000 lbs. U3O8, "Mineralized Pipe" if drilling has encountered anomalous uranium mineralization but no estimate has been made and/or has not been sufficiently drilled to define in excess of 100,000 lbs. U3O8, "Undetermined" if deep drilling has not yet encountered anomalous uranium mineralization.

(4) U3O8 resource estimates in excess of 100,000 lbs only

Table 1: Inventory of drill confirmed breccia pipes in the NAPWA showing exploration status, resource estimates, and production.

The number of potentially economic uranium deposits that have already been defined in the NAPWA represents 35% of the total number of breccia pipes discovered to date; not less than 1 % (10% of less than 8%) as suggested by Weinrich and Sutphin (1988) and much more than 15% as used by the DEIS study on page B-23 under 'Known Mineralized Breccia Pipes with No Estimate of Uranium Resources."

To underscore the 35% figure, one must bear in mind that the total production from developed deposits in the NAPWA has historically been more than 2.5 times the amount estimated from surface drilling alone (Table 2).

	Surface Drilling Estimate			Production+Remaining Resource			
Pipe	Thousand Tons	Grade % U3O8	Pounds U3O8	Thousand Tons	Grade % U3O8	Pounds U3O8	Ratio (lbs)
Hack 1	132.4	0.37	0.98	133.8	0.53	1.42	1.45
Hack 2	125.4	0.57	1.43	497.1	0.70	7.00	4.90
Hack 3	21.3	0.40	0.17	111.3	0.50	1.12	6.60
Kanab North	83.3	0.45	0.75	296.9	0.50	2.98	3.98
Pigeon	119.4	1.06	2.62	406.8	0.64	5.65	2.16
Pinenut	115.3	0.47	1.09	125.0	0.56	1.40	1.28
Hermit	40.5	0.98	0.80	36.3	0.76	0.55	0.69
Total	**637.5**	**0.61**	**7.84**	**1,607.3**	**0.61**	**20.1**	**2.57**

Table 2: Energy Fuels historic estimates based on surface drilling data compared to actual mine production and remaining resources.

Much of the mineralization in breccia pipes is hosted in near vertical ring fractures and ore shoots that cannot be investigated by holes drilled from the surface. The final determination of a deposit's resource and mineable reserves must include an extensive program of underground drilling. Additional drilling on the remaining partially tested pipes could raise the 35% figure to well in excess of 50% or 22 potentially economic uranium deposits in the NAPWA.

Yet these estimates represent only a fraction of the total mineral potential of the proposed withdrawal area. All but two (Hack 2 and A01) of the 45 known breccia pipes have reached the surface. Hack 2 and A01 are considered "blind" pipes, because the pipe structures have stopped formation before reaching the surface. Containing 7 million lbs in a single breccia pipe, the blind Hack 2 breccia pipe is also the largest uranium deposit yet found in the district in part because it has not undergone secondary collapse. A realistic estimate of the total mineral potential of the NAPWA must include undiscovered blind pipes as well as those that are manifest at the surface.

An estimate of the total mineral potential must also take into account where the pipes occur and to what stratigraphic level they penetrate. Nearly all the known mineralized pipes and all of the economically viable uranium deposits in the region have been found in a N-S trending mineralized "corridor" that is approximately 45 miles wide by 110 miles long. All of the proposed withdrawal area is in this corridor because the area was selected by drawing a line around the focus of the claim staking activity. Most of the remaining corridor has already been withdrawn from mineral entry. More than 3 dozen pipes drilled outside of the corridor by Energy Fuels Nuclear had large and well developed pipe structures, but no significant mineralization. A withdrawal of the NAPWA would not just impair 12% of the most favourable endowment (Otton and VanGosen, 2010) but would essentially destroy the productive potential of uranium the Northern Arizona uranium district.

For a breccia pipe to be mineralized, it must have penetrated the Coconino Sandstone and preferably the lower Toroweap Formation. Sandstone breccia from the Coconino acts as the principal host for uranium mineralization in the pipes and is believed to be the conduit for uranium mineralization. The Brady Canyon member of the Toroweap is considered an important source for reductants necessary for precipitation of uranium in the pipes (Krewedl and Carisey, 1986).

The Northern Arizona uranium district is unique in the fact that a cross section through the center of the district is visible in the walls of the Grand Canyon. Both the position of the mineralized corridor and the total number of mineralized pipes within it can be estimated by examining these outcrops.

The USGS Open File Report (OFR-89-550) shows the mapped locations of 1,296 pipes in northern Arizona. A total of 379 of these mapped pipes are within the Grand Canyon National Park; many containing high grade uranium mineralization eroding naturally into the Colorado River. A surface scintilometer examination in 1979 of just a few of the naturally occurring pipes in the Park identified four pipes that peaked the instrument with more than 130 times normal background radiation. (One of these pipes, never touched by mining activities, is located in the park above and just NE of the Park Services' Phantom Ranch headquarters.)

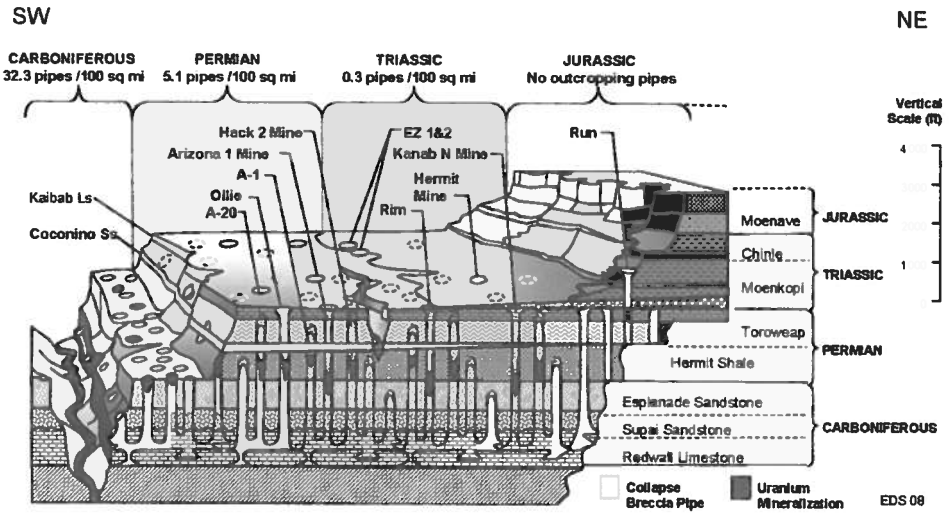

Figure 2: Diagrammatic Cross Section of the Northern Arizona Strip Uranium District Showing the approximate frequency and relative distribution of solution collapse breccia pipes within various stratigraphic units.

A study of the relative pipe densities at different stratigraphic levels provides an estimate of the total number of mineralized pipes to be expected in the NAPWA. More than 90% of all the pipes mapped by the USGS are within the deeper canyons where they are exposed by erosion of the younger strata. Approximately 32 pipes per 100 square miles

outcrop in Carboniferous or older strata. This same pipe density or frequency is probable at depth throughout the NAPWA, but the number of known pipes decreases dramatically below the cover of successive layers of younger sediments until fewer than 2 pipes are evident over a surface area of 500 square miles in the upper Triassic sequence (Figure 2). Clearly, the upper level of stoping by collapse varies and many blind pipes occur at depth with no surface evidence of a pipe throat. If these structures penetrate the Coconino Sandstone, an ore body may exist with no pipe feature at the surface.

A log-log plot of the relative pipe densities versus the cumulative sedimentary cover is shown in (Figure 3). At the critical lower Toroweap level (thought necessary for a pipe to contain mineralization), the estimated pipe density is approximately 12 pipes per 100 square miles. When this density is multiplied times the 1,689 square mile NAPWA area, a total of approximately 220 pipes might be expected to contain mineralization. If we use the 50% estimate for the number of mineralized pipes that are economically viable from the results of past drilling, then a total of 110 economically viable uranium deposits can be expected within the NAPWA. If a greater percentage of blind pipes contain economically viable deposits because they have not undergone post-mineral collapse, this total number could be significantly higher.

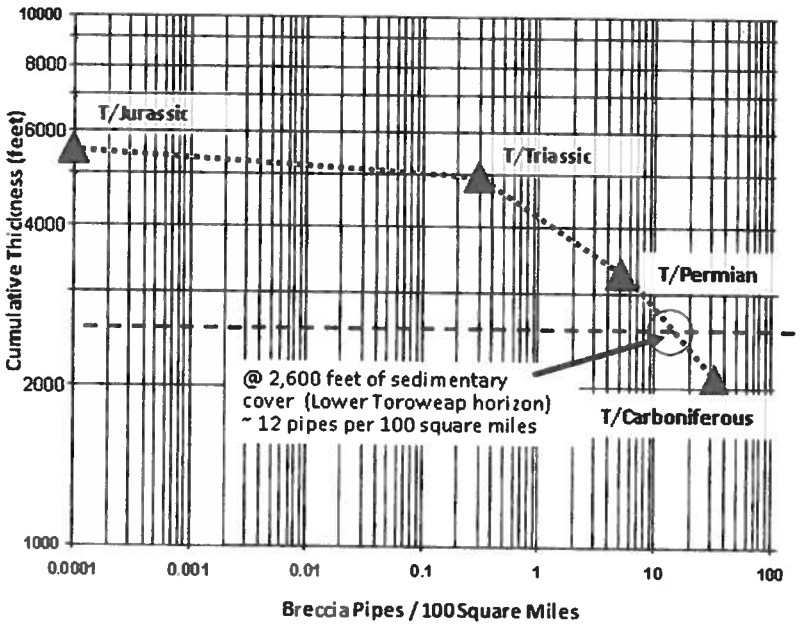

Figure 3: Log- Log plot of breccia pipe density vs. cumulative thickness of sedimentary cover

An average of 3 million pounds of uranium (produced and remaining) has been defined per developed (those that have been drilled from the surface and underground) deposit in the NAPWA (Table 3). If we use this average number times the estimated 110 potentially economically viable uranium deposits in the subject area, the total uranium potential of the NAPWA is approximately 330 million lbs; an estimate that is almost identical to the 326 million pounds) U3O8 estimated for the withdrawal area by the US Geological

Survey (Otton and VanGosen, 2010) after a refinement of the potential resource endowment estimated by the USGS in Circular 1051 (Finch and others, 1990).

URANIUM RESOURCES OF DEVELOPED PIPES IN THE N. AZ PROPOSED WITHDRAWAL AREA			
	Production+Remaining Resource		
Pipe	Thousand Tons	Grade % U3O8	Million Pounds
Hack 1	133.8	0.53	1.42
Hack 2	497.1	0.70	7.00
Hack 3	111.3	0.50	1.12
Kanab North	296.9	0.50	2.98
Pigeon	406.8	0.64	5.65
Pinenut	125.0	0.56	1.40
Hermit	36.3	0.76	0.55
Arizona 1	70.3	0.68	0.96
Total	**1,677.6**	**0.63**	**21.1**
Av. per breccia pipe	**239.7**	**0.63**	**3.01**

Table 3: Produced and remaining uranium resources of all developed breccia pipes in the NAPWA.

The US Geological Survey's estimate is less empirical and more statistical, but recent exploration in the subject area provides additional indirect evidence of the area's resource endowment. An airborne geophysical survey conducted by Quaterra Resources Inc. in 2007 that covered 422 square miles of the proposed withdrawal area identified all known pipes in the surveyed area and more than 200 anomalies with a similar geophysical signature. The initial drilling results of 7 of the anomalies achieved a 70% success record. If only 20% of the geophysical anomalies are proved to be economically viable deposits and the remaining un-surveyed portion of the NAPWA has a similar potential, approximately 160 deposits potentially representing 480 million lbs. of U3O8 may lie within the subject area.

Regardless of what the actual uranium endowment of the area is, any reasonable estimate will substantiate the assessment of the (August 2010) BLM Mineral Report on the mineral potential of the proposed withdrawal area that concludes:

"Failure to develop uranium resources on the subject lands that have the potential of becoming part of the second most important uranium-producing region in the United States has far reaching economic implications, which are beyond the scope of this report."

The BLM Mineral Report classifies the uranium potential of the area as "(H/D)"; the highest classification possible for both potential and level of certainty.

ERRORS IN THE PRODUCTION TIME FRAME AND ECONOMIC IMPACT

There are several errors in the assumptions made in the production time frame (p.B-29) Appendix B of the RFD section of the DEIS that appear intentional to reduce the economic importance of the resources in question. The most important of these are "the number of mines (30) that could be sustained by all known and undiscovered resources."

The resource potential of the proposed Northern Arizona Withdrawal Area (NAPWA) has been estimated by several studies (discussed above) to exceed 300 million lbs. The assumption that this resource is not capable of sustaining mining for 20 years is erroneous. The uranium mineralization of the proposed withdrawal area represents the highest grade and most profitable per pound production in the US while having one of the smallest surface disturbances and environmental impacts on any uranium district in the world.

At an average production of 1.5 million lbs of uranium per year per mine, an average of 3 million lbs produced per mine, and even using a gradual ramp-up of production, six continuously operating mines could produce 160.5 million lbs in 20 years (Table 4). Yet this represents only half of the total endowment of the NAPWA.

Because of the errors in the time frame, the economic impact of the proposed withdrawal has been seriously underestimated. An independent report prepared by Tetra Tech in September 2009 " ECONOMIC IMPACT OF URANIUM MINING ON COCONINO AND MOHAVE COUNTIES , ARIZONA" uses a six mine - 42 year scenario to model to the economic impact of producing the entire uranium endowment of the NAPWA. The report concluded that the uranium mining operations would provide a significant long-term benefit to the area, state, and region: a direct total sales impact of $18.9 billion over the 42-year duration of the project, with indirect impacts of $10,508 million, for a total impact of $29,4 billion, resulting in an average annual impact of $700 million.

During the 40 years of operation, the companies expect to employ a total of 390 workers annually; this total includes miners, geologists, engineers, managers, and other professional and support staff. These workers are projected to generate an additional 688 jobs in the region of influence for a total increase of 1,078 jobs during the years of full operation. Annual wages of $25 million would generate annual indirect impacts of $15 million, for a total of $40 million annually. A portion of these benefits would occur in neighboring Kane and San Juan Counties, Utah, where some workers would likely reside.

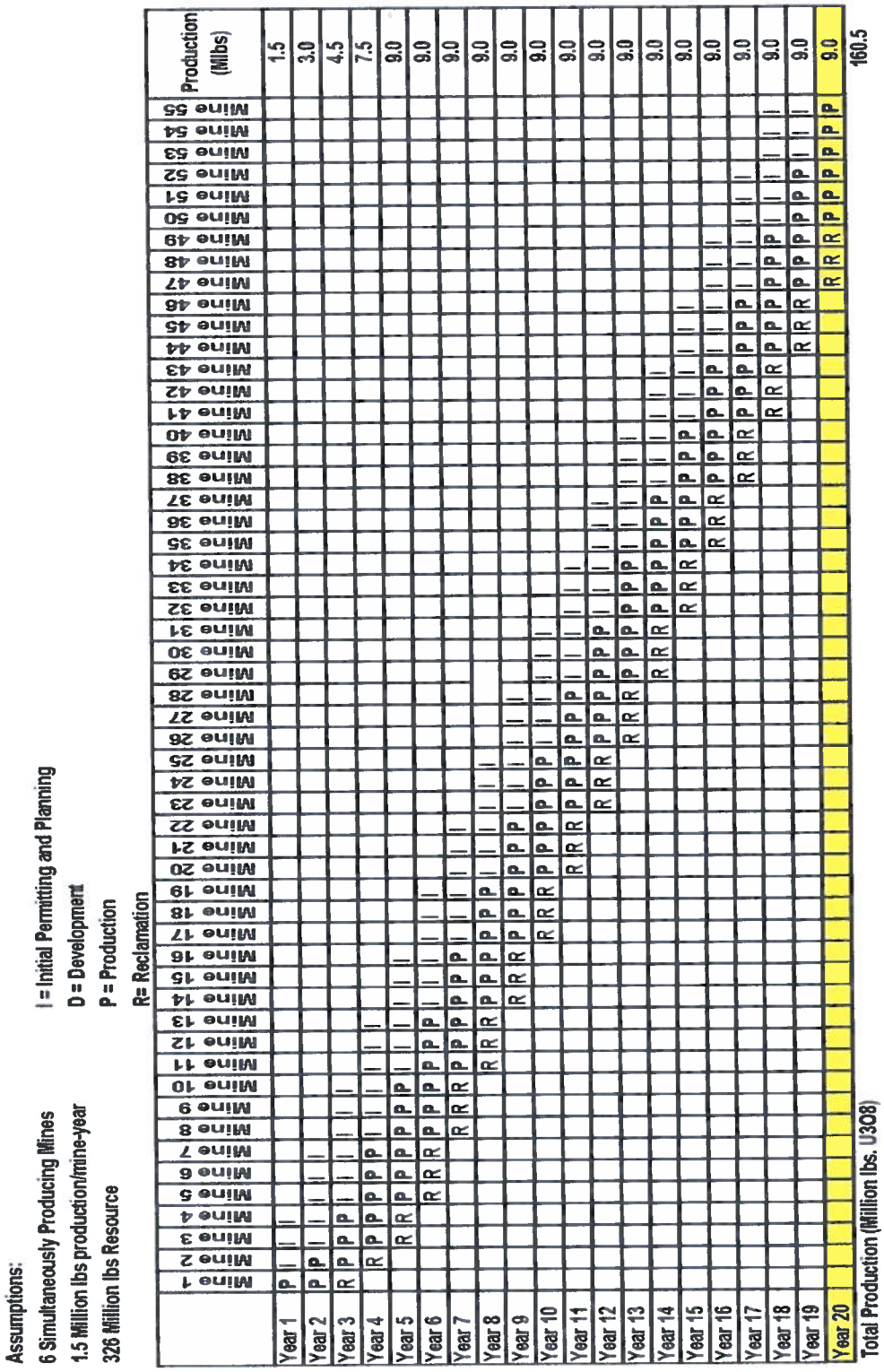

Table 4: Estimated loss of uranium production of 6 continuously operating mines over a 20 year in the NAPWA .

Ore mined from the NAUD would be taken to the White Mesa Mill, in Blanding, Utah, for processing, and would ensure the continued operation of the mill, along with the substantial benefits it provides to San Juan County and its residents, and would improve the economic opportunities for suppliers in Blanding, the surrounding areas, and the region.

Trucking firms contracted by the mining companies to ship ore from mines to processors typically hire personnel and build service shops locally. Over the 42-year operating period, transporting the ore would generate about $1.6 billion in revenues for trucking firms, long-term stable employment for their workers, and a steady stream of revenue for their suppliers.

Other beneficiaries include national mining equipment companies; suppliers for items such as tires; oil companies providing fuel; and a host of other firms that employ workers across the United States, in areas far removed geographically but not economically from Arizona.

Federal, state, and local governments would receive a variety of tax revenues over the 42 year life of the proposed project, including corporate income taxes, severance taxes, payments to county governments, and income taxes from workers. The mining companies project payments of $2 billion in federal and state corporate income taxes and $168 million in state severance taxes over the life of the project. Local governments would receive $9.5 million in claims payments and fees. All of these payments would represent sizable benefits to the governments involved.

Local property tax bases would increase as workers moved into the area and purchased homes. Existing residents would see their incomes increase with better jobs, and could purchase larger homes or improve existing ones. Local and state sales taxes would increase from purchases by the mine operators and their suppliers, by workers and their families, and by other local residents who see their incomes rise as an indirect impact of the mining operations.

ADEQUACY OF EXISTING REGULATORY FRAMEWORK

In several sections, the DEIS notes that Alternative A would rely on the existing entitlement requirements and environmental programs to protect the resources in the Grand Canyon watershed. By implication, these statements suggest the basic need for the withdrawal is to compensate for an inadequate existing federal, state and local regulatory framework that for some unknown reason cannot protect the valuable environmental, cultural or biologic resources in the area.

However, the data presented in Section 3 clearly indicate that the existing entitlement process along with state and federal environmental regulations surrounding mine exploration and development are more than adequate to protect valuable environmental, cultural or biologic resources.

For instance, in Section 3.2.2, the DEIS requires 7 pages to briefly outline the various state and federal programs regulating air quality. Similarly, Section 4.4.3 identifies that:

> *"In accordance with current regulations, impacts to water resources resulting from mine operations are reduced and controlled by way of implementation of appropriate design features and standard operating procedures. Active mine sites are routinely audited for compliance with their approved plans of operation and other permits."*

Coupled with the myriad of engineering and permitting practices discussed on pages 4-66 and 4-67, and the vast number of state and federal agencies who regulate the complex network of permits and entitlements, it's difficult to envision some inherent inadequacies of the existing regulatory framework that would promote the wholesale degradation of the environment.

Notwithstanding the operational permits required for development, the National Environmental Policy Act (NEPA) establishes a complex framework for considering the application for development of a mineral resource on Federal lands and for identifying and mitigating any significant physical, biologic, cultural, environmental, historic, tribal and socioeconomic impacts.

This NEPA process is intentionally focused on the eliminating or mitigating the direct and indirect impacts of a particular proposed action while the existing environmental regulations are intended to prevent the "release or potential release" of any regulated compound or constituent to affected media like air, water or soils.

Consequently, stated "concerns" over potential environmental impacts to the watershed are not supported by the DEIS. Based on data collected from previous mining operations and cited literature, Section 4 of the DEIS concludes that an average mine will be closely regulated and have the following impacts:

- Exploration activities will temporarily disturb (subject to reclamation) 1.1 acres
- Mining activities would create a land disturbance (subject to reclamation) of approximately 20 acres
- Total mine life is approximately 7 years
- Water use during mine life estimated at 5 gallons/minute

Assuming the no action alternative discussed in 4.2.5, the DEIS estimates that the total combined land disturbance over the 20-year study period would not exceed 945 acres, 107 acres and 312 acres in the north, east and south parcels, respectively. This equates to a yearly disturbance (and subsequent reclamation) of approximately 47.25 acres, 5.35

acres and 15.6 acres in the north, east and south parcels, respectively. But, to protect this modest and transitory disturbance, it somehow becomes necessary to remove over 1,000,000 acres from mineral entry.

Yet, according to the DEIS, the typical breccia pipe would extract over 275,000 tons of ore and yield 3 million pounds of uranium compound. Due to the high ore grades and narrow breccia pipe configuration, mining in the proposed withdrawal area creates the smallest surface disturbances and related environmental impacts of any uranium district in the world.

POSSIBILITY FOR PERMANENT WITHDRAWAL FOR FUTURE MINING

Section 204 of the Federal Land Policy and Management Act allows for withdrawals to be renewable as long as the underlying reason for the withdrawal is still valid. Because the DEIS fails to demonstrate that future mineral development would have no more than a transient impact to the environment, the DEIS has essentially lowered the impact threshold to such a point that any future reversal of the withdrawal could never be contemplated.

Nearly all the known mineralized pipes and all of the economically viable uranium deposits in the region have been located in an N-S trending mineralized "corridor" that is approximately 45 miles wide by 110 miles long. The majority of this corridor was previously withdrawn or is currently segregated for withdrawal by the proposed action. simply by encompassing the highest density of claim staking activity.

Because more than 90% of all known mineralized pipes lie in this mineralized corridor, the impact of the proposed withdrawal will permanently affect the development of the highest grade uranium resource in the U.S.

VALID EXISTING RIGHTS

In Appendix B, the DEIS discusses uncertainty factors associated with the development of the RFD. One of the most significant factors affecting the development of mineral resources is the determination of Valid Existing Rights (VER). Unfortunately, the document fails to recognize the extreme difficulty in proving a VER and also fails to note that in order to demonstrate a VER, a potential mineral resource would need to be located and essentially proven before the initial land segregation beginning July 21, 2009. This would effectively preclude any additional development projects except for those few mines where development activities have already been approved by the BLM or FS.

Although no work could be done on any claims during the 2-year segregation or after the withdrawal unless validity had already been established or could be established in the future, the RFD goes to great length to discuss and analyze potential development projects stemming from undiscovered mineral deposits in the area. Unfortunately, these

projects could NEVER be realized simply because this type of development is specifically prevented by the segregation and withdrawal process. This essentially eliminates 70% of the Reasonably Foreseeable Future Activity discussed in the RFD.

Additionally, the prescriptive and time-consuming hurdle of proving a VER could preclude additional mining from those projects without proven mineral reserves. Although it is impossible to predict the outcome of individual VER determinations, it is realistic to assume (contrary to the DEIS RFD assumptions) that not every potential mine site with proven reserves will pass the stringent determination process. In practice, it becomes much harder to develop claims within an area that has been proposed for withdrawal, for two reasons.

First, as a precondition of approving a plan of operations within the area, the BLM or FS must determine the validity of the claims, by requiring the preparation of a mineral examination report to: (i) verify the deposits are locatable minerals rather than common variety (salable) minerals; and (ii) verify the claims are based on a bona fide discovery of potentially marketable minerals, under the "prudent man" and "marketability" tests, which essentially require tangible evidence in the record of prospecting or geological indications or sample results that justify the staked sidelines and end-lines of the claim and indicate future mineral development within the claim may be warranted. Refer to 43 C.F.R. § 3809.100 and 43 C.F.R. §§ 3830.11, 3830.12 (stating factors for determining minerals are locatable); 65 Fed. Reg. 69998, 70026-27 (explaining the "prudent" man and "marketability" tests and their part in a mineral examination report).

Second, if the area proposed for withdrawal includes an ACEC, then the BLM will not approve the plan of operations if it is not satisfied that the plan includes mitigation measures necessary not only to prevent unnecessary and undue degradation of the environment but also to preserve sufficiently the resource that the ACEC was established to protect. See 43 C.F.R. §§ 3809.11(c)(3), 3809.21.

Thus, even if the claims within an area of proposed withdrawal are determined to be valid, the BLM or FS can potentially hang up the claimant in an interminable do-loop of notices of deficiency, one after the other, concerning the sufficiency of the mitigation measures proposed in the plan of operations relative to the mitigation measures specified in the RMP or FEIS for the ACEC, until the claimant gives up hope of the possibility of submitting a plan of operations that will satisfy the BLM.

Consequently, Quaterra contends that by not estimating the difficulty of establishing a VER and authoring an approvable plan of operations, the RFD significantly over-estimates the amount of potential future development in the withdrawal area. This substantially mischaracterizes the magnitude of the uranium resources lost to the withdrawal. However, an uninformed reader could assume from reviewing the RFD that uranium resources available for mining after the withdrawal would essentially match or exceed the industry's limited ability to exploit these resources.

NATURALLY-OCCURING URANIUM RELEASES

In Subsection B.4.1, the DEIS notes that the first breccia pipes were originally discovered as a result of their exposures in the walls of the canyons. While there are literally hundreds of exposed pipes along the canyon, the DEIS goes to great lengths to avoid a discussion of how many exposed pipes are naturally releasing uranium into the Colorado River watershed.

Many mineralized pipes exposed within the canyon have become (or are gradually becoming) barren due to the slow erosion, oxidation and leaching of the mineralized rock. In fact, the Arizona Geological Survey (AGS) did a recent study of this, which found that the amount of uranium naturally eroding into the watershed from these exposed breccia pipes far exceeds any past releases of uranium from historic mining releases as well as all anticipated releases of uranium from future mining activity.

However, some data collected near legacy mining operations (page 3-85) do suggest that some localized groundwater impacts have occurred. But, these historic mining operations had clearly operated and closed prior to the promulgation of rigid state and federal regulations protecting surface and groundwater quality. By contrast, the principal conclusion of the 2010 USGS report on groundwater quality (Section 3.4.7) was that:

> *"Observation of groundwater-chemistry relation between concentration and mining condition were limited and inconclusive"*

If this is the case, any withdrawal based on the preposition that the cessation or prevention of uranium mining activity will somehow preclude the introduction of uranium into the Grand Canyon watershed is seriously flawed.

POTENTIAL FOR IMPACTS TO THE WATERSHED

The stated concern for justifying the withdrawal is the potential for impacts to the Grand Canyon watershed. As such the DEIS goes to great length to discuss the existing and potential impacts from mining to both surface and groundwater quality and quantity. Unfortunately, the DEIS appears to bias the results of the analysis by favoring unrealistic or unsubstantiated assumptions when quantifying the Environmental Consequences in Section 4.

Regional R-aquifer

The DEIS characterizes the R-aquifer as potentially the most prolific aquifer in the region. Generally, more than 2,000 feet below land surface, the R-aquifer occurs in gently folded limestone and dolomite units. Because of the relative depth and uncertainty of encountering productive zones within the R-aquifer, the DEIS reports that:

> *"Records indicate that no non-commercial or non-industrial entities have installed R-aquifer wells...even though the R-aquifer is recognized as the most reliable source of groundwater"*

The DEIS clearly states on pages 4-48 and 4-48 as well as Section 3.4 (reference Figure 3.4-14) that for many potential mines located in the North Parcel, there could be little to no impact to the R-aquifer. Specifically:

> *"R-aquifer groundwater along the western, northwestern and northeastern margins of the North Parcel is likely to move to the north toward areas in south and central Utah. The R-aquifer dips deeply northward from near the Grand Canyon to thousands of feet in depth (see Figure 3.4-4) and does not directly feed springs along the Virgin River..." and "Only oil and gas wells are known to penetrate to these depths in Utah, where the R-aquifer is not considered a viable drinking water supply."*

Similar areas in the East and South Parcels are noted in the DEIS on pages 4-48 and 4-49 where fault zones, geologic structure and regional flow prohibit possible mining impacts to the R-aquifer and in some cases local seeps and springs from impacting the Withdrawal area.

With regards to groundwater impacts occurring from recent (modern) and future anticipated mining, the DEIS describes in 3.4.4 on pages 3-57 and 3-58 that several regulatory and independent consultant reports indicated that:

> *"Modern (post 1980) breccia pipe uranium mine sites <u>in the study area</u> (emphasis added) are generally characterized by well-cemented, very low permeability breccias and adjacent formation rocks, which do not permit the flow of groundwater through the tightly-locked mineral deposits. This condition inhibits dissolution of mineral deposits associated with these economically viable breccia pipes into groundwater. "*
>
> *"In each case, these ore deposits are on the order of 1,000 feet or more above the R-aquifer system and are underlain by the poorly permeable breccias and siltstones/mudstones of the Hermit Formation and Supai Group. Therefore (emphasis added), <u>conditions are not favorable for downward migration of leached minerals and constituents (such as uranium and arsenic) from the ore deposits to the R-aquifer</u>."*

On page 4-60, the DEIS also concludes:

> *"It is also important to recognize that, based on the information described in Section 3.4, there is currently no conclusive evidence from well and spring sampling data that (modern) breccia pipe uranium operations in the north Parcel have impacted the chemical quality of groundwater in the regional R-aquifer."*

And, also on page 4-60:

> *"...the low permeability conditions associated with ore deposits in the breccia pipes and adjacent rock strata between the base of mine openings and the R-aquifer are thought to retard the downward movement of any perched groundwater drainage into the mines and, therefore, are not favorable for downward migration of dissolved minerals from the mine openings."*

With regards to potential impacts to the quantity of water in the regional R-aquifer based on the average mine withdrawal rate of 5 gpm, the DEIS states on page 4-59 that:

> *"...drawdown was projected for a well pumping 5 gpm continuously for 5 years. Results indicate that the 5-foot water level drawdown contour could extend about 270 feet from the mine well in relatively unfractured aquifer areas and much less than 1 foot from the well in major fault zones."*

Further, regarding impacts to surrounding wells or water resources, the DEIS reports on page 4-59 that:

> *"Based on the location of existing wells and the projected construction of new (mine) wells, it is not likely that mines would be located sufficiently near a non-mine R-aquifer water supply well to cause more than negligible water level drawdown impact to the non-mine well."*

In other words, assuming that all mine wells would be located within their respective 20-acre mine site, the R-aquifer is so productive that the maximum impact of mine well pumping could never impact any non-mine wells because the actual drawdown from these mine wells would be entirely located within the mine footprint.

Perched Aquifer

There are several consolidated and unconsolidated perched aquifer systems discussed in the DEIS. These systems are individually discussed on pages 3-42 and 3-44 but are uniformly defined as:

> *"...temporary perched aquifer zones may occur...such perched groundwater zones are thin and discontinuous and are generally ephemeral; the stored water is gradually lost via evapotranspiration and slow downward seepage..."*

Yet, despite these earlier descriptions, the DEIS fabricates a perched groundwater flow model that simulates long-term continuous 1-gpm drainage from half of the mines projected in the RFD even though the DEIS clearly concludes:

> *"A long term continuous groundwater discharge of 1 gpm from the perched aquifer system penetrated by mine openings would exceed the conditions*

> *historically encountered in the existing and reclaimed breccia pipe mines on the North parcel (see Section 3.4). Further, most of the perched aquifer springs that have been measured or estimated on the North, East and South parcels discharge 1 gpm or less."*

The significance of this model assumption doesn't become apparent until the DEIS discusses the potential for perched water to become impacted by future mining operations on page 3-59 and goes on the state:

> *"At the breccia pipe uranium mines in the study area, perched water zones, if present (typically above the Hermit Shale basal confining unit) are small, thin and discontinuous. Water yield to mine openings from these perched zones typically decreases over the first few months to 2 years on mining, from several gallons per minute to no measurable flow."*

The DEIS goes on to conclude on pages 3-59 and 3-60:

> *"Therefore, movement of perched water away from the mine openings is not anticipated to occur during mine operations."*

Based on these facts, the apparent risk to either groundwater flow or quality to the regional R-aquifer or seeps and springs fed by the R-aquifer would appear to be negligible. However, the DEIS reaches deep into the realm of the hypothetical on page 4-60 by assuming that half of all potential mines in the study area would encounter perched water systems capable of continuous discharge.

In the most flagrant mischaracterization found in Chapter 4, the DEIS estimates that the potential drainage from 50% of the mines considered in the RFD would contain dissolved uranium concentrations of up to 440 ug/L (See Appendix F) when these discharges reach the R-aquifer. They continue with this assumption even though the DEIS notes that the 400 ug/L value is:

> *"The highest concentration detected in water samples obtained directly below the (Historic) Orphan Lode Mine (Liebe 2003). Even though the near-rim and unreclaimed conditions at the Orphan Lode Mine are not considered to be comparable to conditions at existing or historic breccia pipe mines"*

Additionally:

> *"None of the studies conducted for water quality at the R-aquifer mine wells on the North Parcel, one of which included periodic sampling for up to 9 years after the completion of mining (Hermit Mine well), concluded that uranium mining activities have affected the R-aquifer."*

Regardless of the fact that the DEIS itself acknowledges the shortcomings of the data, the DEIS continues to rely on the mine drainage data collected from the legacy Orphan Lode Mine operation prior to reclamation. As previously stated for uranium, Section 4 of the DEIS (page 4-61) also goes on to assume that the maximum arsenic value (90 ug/L) detected at the un-reclaimed Orphan Lode Mine would somehow be representative of modern breccia piped mining conducted outside the canyon. These values represent arsenic and uranium concentrations that are approximately 10 times the maximum EPA values for drinking water).

Remarkably, the DEIS also assumes:

"The potential mine drainage is not affected by attenuation or dilution..." during its migration through thousands of feet of sedimentary rock or miles of aquifer and *"...is only modified by instantaneous mixing with the volume of water discharging at the R-aquifer spring system for the basin analyzed".*

In a profound understatement of facts, on page 4-61 the DEIS concludes:

> *"This assumption would tend to provide resultant concentrations that are conservatively high; however, sufficient data are not available to characterize flow paths and dilution rates in the R-aquifer from future mines."*

In Arizona, Aquifer Protection Permitting (APP) routinely requires the applicant to estimate the concentration and flow of any potential discharges to be permitted. The applicants are not required to use the maximum concentration values of any potential contaminant of concern unless that concentration value is representative of the actual (measured or estimated) discharge condition. Further, the impact of water quality from these discharges can be accurately measured with existing hydraulic and geochemical models that can accurately measure the water-rock and water-water interactions that occur as a discharge moves through the vadose zone, encounters and mixes with groundwater and moves laterally through the aquifer to a downgradient point of compliance or discharge.

Considering that the stated reason for conducting the DEIS was to scientifically evaluate concerns of potential impacts to the Grand Canyon watershed from future uranium mining, it seems irresponsible to use arbitrarily selected discharge volumes, constituent concentrations and downstream impacts that are derived from data that is clearly not representative of modern mining conditions and could easily be more accurately modeled if the process employed scientifically-based and defensible groundwater and geochemical models.

CLAIMS

In Section B.5 the DEIS reports that approximately 5,300 claims are located within the three withdrawal parcels. Unfortunately, the DEIS does not discuss the statistical probability of developing a mine from any of these claims. Empirically, only 1% to 2% of exploration projects proceed to development and then only 1% to 2% of development projects actually advance to mining. Consequently, the number of claims filed is usually 50 to 100 times larger than the number mines that would ever be developed.

Although many statements from environmental groups supporting the withdrawal cite the total number mining claims in the area as the actual number of potential mines, this is far from the reality. However, the DEIS does nothing to dissuade a reader from this assumption and, as previously discussed, does little to accurately estimate how long (and how difficult) it would take to establish a VER for all of these 5,300 mining claims.

LOSS OF OTHER LOCATABLE MINERALS

In Subsection B.7.1 the DEIS notes that the value of other commodities or metals that could be recovered from the mining of the breccia pipes would not be sufficient to drive mine development. But on pages 3-31 and 3-32 the DEIS states that a variety of precious metals including copper, gold, silver and vanadium have been found within exposed breccia pipes. The DEIS further concludes that the "presence of uranium minerals within breccia pipes has been of the most interest..." to the mining industry. Regrettably, the DEIS interprets this industry focus to mean that there are no other economically-viable minerals which may be an incorrect assumption.

Of particular interest is rare earth elements which were not specifically listed as one of the other metals considered. However, an investigation conducted by the AGS on breccia pipe exploration projects reported high concentrations of rare earth elements. Considering the world-wide interest in and demand for the rare earth elements, and the current historic commodity prices for copper gold, silver and vanadium, mineralized breccia pipes could represent a potentially valuable source for other minerals that have been completely omitted from the DEIS.

URANIUM COMMODITY PRICING AND RESOURCE AVAILABILITY

In Subsection B.7.2 the DEIS assumes that the price of uranium will remain stable at around $40 per pound for the full 20 year withdrawal. The limited range of price history shown on Figure B-4, might convince anyone not familiar with commodity price fluctuations or uranium market conditions that this is a realistic assumption.

If the price history were traced back to approximately the same time-frame as that used for production history shown on Figure B-3, the earlier price fluctuations of uranium

would be evident, especially the sharp rise in the 1970's, the dramatic fall in 1979-1980 after the Three Mile Island incident and the less dramatic fall after the Fukushima disaster.

A review of the price history shown on Figure B-4 would not reveal that the price of uranium was kept artificially low from the mid 1990's to the early 2000's by the reprocessing of uranium recovered from decommissioned nuclear weapons in the arsenals of the former Soviet Union.

However, as shown on Figure B-3, yearly reactor requirements for uranium have exceeded the annual production of uranium since approximately 1990. And as global stockpiles of uranium are gradually depleted, the price of uranium will inevitably rise.

Since the DEIS was written, the price of uranium has already increased dramatically from the $40/lb. level. The spot price for uranium hit $72/lb. in January 2011 and subsequently settled to $61/lb. in early April. Regardless, the pace of worldwide uranium consumption suggest futures prices will remain well above the $40/lb. level assumed in the DEIS. This further discredits the RFD as commodity pricing will influence both mining activity and increase revenues associated with the alternatives analysis. It also dramatically undervalues the endowment, which incorrectly minimizes the financial impact of the withdrawal.

CONCLUSIONS

A careful review of the DEIS reveals nothing in the recent history of breccia pipe development and nothing in the Reasonably Foreseeable Developments, that would appear to justify any substantial withdrawal. Beginning with the development of the Hack Complex mine in 1981, there has been no known or suspected incident or environmental impairment during this 30 year period that would appear to justify the level of concern that could possibly warrant this massive withdrawal.

In fact, the data specifically cited in the DEIS clearly indicates that any incidental releases of uranium from current or future mining would be orders of magnitude below the uranium that has and will be naturally-released from the erosion of mineralized breccia pipes exposed in the canyon.

Further, considering that the stated purpose for conducting the DEIS was to scientifically evaluate concerns of potential impacts to the Grand Canyon watershed from future uranium mining, it seems irresponsible that the DEIS purposefully biases the Environmental Consequences in Chapter 4 by using indefensible water discharge volumes and constituent concentrations to predict future impacts. Even the DEIS states that these impacts are not accurately determined and are contrived from data that is clearly not representative of modern mining conditions. Remarkably, these conditions could easily and more accurately be estimated if the process employed scientifically-

based and defensible groundwater and geochemical models that are routinely used in mine permitting projects.

Of critical importance to a scientifically-based analysis, it is particularly troubling that the DEIS artificially and arbitrarily reduces the size of this massive endowment, overestimates the amount of resources that could reasonably be extracted after proving Valid Existing Rights, and underestimates the loss of royalties, jobs, taxes and investments resulting from the withdrawal. Consequently, the RFD essentially describes the withdrawal as having no appreciable impact to the mining industry because, remarkably, even with the withdrawal the industry would barely be capable of mining the grossly underestimated uranium resource that would be subject to Valid Existing Rights.

Despite the fact that the RFD alternately relies and then subsequently discounts the USGS estimates of uranium endowment, this estimate is based solely on exposed breccia pipes or pipes with visible collapse features and does not consider the recent advances in detecting mineralized breccia pipes without surface collapse expressions. Consequently, Quaterra feels strongly that the DEIS has massively underestimated the number of mineralized breccia pipes available for development and consequently have not adequately constructed an analysis that correctly identifies and addresses the massive financial implications of closing the withdrawal area to development.

What is particularly frustrating to the mining industry, this withdrawal places another obstacle in front of our President's goal of energy independence and is absolutely contrary to public policy. With the increased focus on excess CO_2 emissions from of our traditional energy sources and the current administration's stated agenda of reducing our reliance on fossil fuels, the complete withdrawal of high grade uranium deposits does nothing to reduce America's CO2 footprint and further increases our dependence on foreign-produced and less dependable energy sources.

I cannot say this in stronger terms; a withdrawal of the NAPWA would not slightly impair the modest uranium production potential of northern Arizona as noted in the DEIS, but would essentially destroy the entire productive potential of the highest grade and most favorable endowment of uranium mineralization in the United States.

On behalf of Quaterra Resources, I urge you to choose the no action alternative.

Sincerely,

Eugene D. Spiering
VP Exploration and Director

Cc:

STATE OF UTAH

GARY R. HERBERT
GOVERNOR

OFFICE OF THE GOVERNOR
SALT LAKE CITY, UTAH
84114-2220

GREG BELL
LIEUTENANT GOVERNOR

February 16, 2010

Honorable Kenneth L. Salazar, Secretary
U.S. Department of the Interior
1849 C. Street N.W.
Washington, D.C. 20240

Dear Secretary Salazar:

On behalf of the State of Utah, I would like to take this opportunity to provide comment on the proposed extended withdrawal of 993,549-acres of Bureau of Land Management and U.S. Forest Service lands in northern Arizona from hardrock mineral exploration and mining. The immediate effect of this withdrawal will unnecessarily stifle the responsible development of uranium resources required to achieve the balance of energy sources for the Nation envisioned by the President's recognition of nuclear power as part of that balance.

It is imperative that we exercise good stewardship of the lands, protect our water sources and protect national treasures such as the Grand Canyon National Park. However, the need for energy security, the need to utilize energy production which releases less carbon and the need to stimulate robust local economies are also state and federal priorities. The Department of the Interior's stated purpose for withdrawal of these lands "to protect the Grand Canyon watershed from adverse effects of locatable hardrock mineral exploration and mining" is appropriate; however, we believe these goals can and will be met with existing state and federal laws, regulatory oversight and prudent land management.

As you know, according to the United States Geological Survey, it is estimated that geologic formations in Northern Arizona contain nearly 42% of the nation's undiscovered uranium. The regulatory tools are available to protect the land and environmental resources, while allowing the Nation's need for uranium to be satisfied. Wholesale withdrawal of these lands for an extended period of time is an overreaction to the nature of uranium mining in the area.

Additionally, I respectfully ask that you consider the economic benefits that responsible mining can provide to the area, including residents of Utah. The industry can

provide stable, good paying jobs for many years. The proposed plan for the development of the mines envisions phased development throughout many years, thereby keeping the threat of the boom and bust cycle to a minimum. Mining will properly diversify the local economies, building stability in partnership with tourism. Other businesses such as trucking, materials production and the nearby uranium mills will also benefit.

I appreciate your time in re-considering the adverse impacts this withdrawal of land and mineral resources will have on the State of Utah. Please do not hesitate to contact Mike Mower, State Planning Coordinator, at (801) 538-1924 or me if you have questions or concerns about this very important matter.

Sincerely,

Gary R. Herbert
Governor

cc: Michael Mower
John Harja
Diane Nielson
Amanda Smith

State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Office of the Governor
PUBLIC LANDS POLICY COORDINATION

JOHN HARJA
Director

May 4, 2011

Scott Florence
District Manager
Bureau of Land Management, Arizona Strip District Office
345 Riverside Drive
St. George, UT 84790-6714

Subject: Northern Arizona Proposed Mining Withdrawal
BLM Identification Number: 2300 (AZ9100) AZA-035138

Dear Mr. Florence:

The State of Utah has reviewed the proposed withdrawal of lands in Northern Arizona from the operation of federal mining laws. The proposal is generated by interest from the uranium mining industry to develop deep underground brecchia-pipe uranium deposits. The areas proposed for withdrawal are adjacent to Utah, and will have an effect on the economy of this part of southern Utah. The state has long supported access by rural Utah to the development of natural resources necessary for reasonable economic benefits associated with development of public land, while supporting environmental protections for important conservation objectives.

The State of Utah does not find justification within the Draft Environmental Impact Statement for the proposed action. Instead, the analysis in the DEIS demonstrates that the proposed withdrawal will not increase protection to conservation resources, but will instead have negative long-term economic effects on rural communities in Northern Arizona and Southern Utah. Therefore, because the proposed action will not significantly or appreciably increase protection for conservation resources, and will, in fact, cause unacceptable impacts to local economic drivers, the state urges the Department of the Interior to reject the proposed withdrawal.

The Federal Land Policy and Management Act, (43 U.S.C. § 1701-1787) sets out the requirements for the Secretary with regard to withdrawals. FLPMA (43 U.S.C 1714 (c)(4)) requires the Secretary to provide "an analysis of the manner in which existing and potential resource uses are incompatible with or in conflict with the proposed use, together with a statement of the provisions to be made for continuation or termination of existing uses, including an economic analysis of such continuation or termination." The underlying purpose of this exercise, and the analysis in the DEIS, is to analyze the merits of proceeding with the reasonably foreseeable locatable mineral exploration and development in and around the area proposed for segregation versus prohibiting mineral exploration in favor of the other natural, cultural and social resources in the area.

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The analysis in the DEIS demonstrates that mineral extraction is not detrimental to use of the other resources valued in the region. Specifically, for example, on page 4-22 the analysis demonstrates there will not be impacts to air quality because "VISCREEN modeling efforts concluded the 'typical' mining project would comply with the criteria established by the EPA for maximum visual impacts inside Grand Canyon National Park." Further more, on page 4-251, the analysis concludes there will be no impacts to recreation economics, stating "[t]hese minor impacts are not expected to result in any measurable changes in the annual economic benefits of recreation." Similarly, concerning cultural resources, "Since avoidance is the primary mitigation measure for any project, it can be assumed that the total number of cultural resources that would need to be mitigated further through data recovery or other means for these projects is minimal and would not significantly change the historic or prehistoric character of the parcels; therefore no cumulative impacts to cultural resources are anticipated under Alternative A," the no action (no withdrawal) alternative (page 4-204 and 205). Finally, on page 217 the analysis states that the no action alternative "...would not result in any direct impacts to designated and proposed wilderness areas." The DEIS contains many other examples indicating the lack of demonstrable impacts due to the reasonably foreseeable mineral activity in the area.

In contrast, there will be negative effects from the proposed action to economic conditions other than recreation in this part of rural Utah. The economic data in Section 4.16 of the DEIS demonstrates the significant loss of high paying mining jobs due to the proposed withdrawal, In addition, Tables 4.16-3 and 4.16-9 in the DEIS reveal the proposed withdrawal would have a direct economic loss of over $2 billion, and the Tables 4.16-8 and 4.16-14 reveal the proposed withdrawal would reduce state and local business taxes through indirect means by approximately $135 million over 20 years.

Employment and tax revenue from good-paying mining jobs is important to the viability of the counties in the area, and the analysis in the DEIS supports this. As the DEIS so well states, "Alternative A [no action]could result in a beneficial, moderate, long-term impact to residents and local government as revenue generated through taxes would be redistributed to counties, which in turn would decide how to best allocate and redistribute revenue to local communities." (p. 4-250)

Because the analysis in the DEIS does not indicate an incompatibility or conflict between conservation resources and mineral extraction, the State of Utah requests the Secretary not authorize the withdrawal of the proposed areas from location and entry under the Mining Law of 1872.

The State of Utah appreciates the opportunity to review this proposal, and looks forward to further discussions concerning the proposed withdrawal and the analysis of its effects. Please direct any written questions regarding this correspondence to the Public Lands Policy Coordination Office at the address below, or call me at 801-537-9802.

Sincerely,

John Harja
Director