Northern Arizona Proposed Withdrawal Draft Environmental Impact Statement

Comments By Gregory Yount

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Analysis for Choosing the "No Action" Alternative A

This Draft EIS, as currently written, is a deeply flawed document upon which to make a withdrawal decision. The errors are so numerous, and in many cases the methodology so deficient, that the requirements of NEPA are not met. Based on my other comments previously submitted, I believe that a supplemental Draft EIS should be written and published for public comment. This supplemental Draft EIS should address the errors and deficiencies apparent in this current document.

The current version of the Northern Arizona Proposed Withdrawal Draft EIS is a biased document. The bias, in most cases, is by omission. Many of the analyses that were called for, were simply not done. Other issues that would provide a counterpoint for negative aspects of uranium exploration and mining were not provided.

This DEIS should be rewritten to provide a balanced, and rational scientific basis for the issues involved and to remove the pervasive biases in this document.

In my view, the basic philosophy of this current Draft EIS is to substitute the "judgment" of a global EIS over the "judgments" of site and project specific Environmental Impact Statements. This concept creates *cumulatively and speculatively higher impact ratings* assigned to issues due to the uncertainties provided by non-site specific analysis.

Recall, that even if the no action alternative is chosen, each proposed mining "Plan of Operation" is still required to have its own site specific Environmental Impact Statement, giving the project a full measure of scientific and public scrutiny. The site specific EIS must also address most, if not all, of the issues in this current EIS.

A global approach *can* determine if there are issues that are of such glaring and devastating impact that the endeavor being scrutinized should be modified or prohibited. This Draft EIS, as flawed as it is, does not identify any such devastating impact to the Grand Canyon area from uranium mining and exploration.

In fact, this Draft EIS supports the contention that a site specific EIS is the level at which to determine whether a mining "Plan of Operations" for an individual mining project should be approved!

Impacts determined under this Draft EIS should properly be divided into two groups for analysis. One group of impacts is from exploration and the other is from actual development and mining operations. While the impacts from each of these

separate activities are analyzed, they are grouped together since they occur and overlap each other over the 20 year time scale considered by the EIS. This actually provides a ***biased*** view of the overall impacts due to exploration and actual mining operations.

For example, this Draft EIS projects under Alternative A, the no action alternative, that 728 additional exploration projects would occur to discover the remaining ore deposits predicted by Appendix B. The exploration projects disturb about 1.1 acre each and last for about one month for a total of 801 acres disturbed. The overall level of disturbance is very small.

Mining operations were projected to disturb about 22 acres each for a duration of about 4 years. A total of 563 acres would be disturbed by mining operations in total. Due to the greater length of time used by mining operations, the actual *time-use of land* for exploration is only 2.5% of the *time-use of land* for mining operations.

This leads to the conclusion that uranium exploration and specific mining projects are actually two very separate activities and should not be strictly "combined" to measure impacts. *The level of impact due to uranium exploration has been determined by this Draft EIS to be minor in most cases and moderate in some few others.*

Excerpts from each of the Environmental Impact sections of this DEIS illustrates this point and are shown in Attachment 1 of this document. I have added comments to these excerpts where I felt needed.

A happy result of this Northern Arizona Proposed Withdrawal is the unintended (I am sure) consequence that uranium exploration has been found to have little impact on the Grand Canyon and no significant cumulative impacts as well. This result should encourage the Forest Service to terminate its policy to perform EIS level investigations for uranium exploration activities and return to the use of Environmental Assessments and Categorical Exclusions. ***This Global EIS can be cited as sufficient reason to do so.***

Since, as a present fact, uranium exploration has no significant impacts on the Grand Canyon area, there is absolutely no reason to perform a withdrawal based on <u>exploration activities</u>. ***Therefore, it comes down to the impacts from development, mining, and reclamation of breccia pipes themselves that should determine whether any kind of withdrawal should occur.***

As I stated previously, this "Global" or overarching EIS has not identified any devastating impact that would justify withdrawing any of the Parcels subject to withdrawal. Quite the contrary, nearly all analyses of impact contain a caveat that the analysis contains greater uncertainties due to the "overarching" level of analysis and that project specific studies under an individual project EIS would provide better and more certain analysis.

Examples of such qualified statements from Chapter 4 are submitted for review below:

Air Quality

A valid analysis of potential air quality impacts associated with any of the alternatives cannot be made without descriptions of each of the individual proposed exploration and mine sites, including precise location (topography), atmospheric conditions, roster of equipment, number of mine shafts, ore production rates, etc. *Without knowledge of the specific location of each air pollutant source, these variables cannot be considered.*

This EIS is framed as an overarching review for a very large area included in the three proposed withdrawal parcels encompassing numerous proposed exploration and mine sites. ***If a future mine is proposed, an independent EIS for that specific mine would be performed at a level of detail appropriate for that site.***

Water Resources

Incomplete and unavailable information adds to uncertainty of analyses. *This uncertainty cannot be readily quantified; however, where possible and appropriate, uncertainties have been addressed by the use of best available information and conservative assumptions when projecting potential impacts. For example, incomplete or unavailable data for monitoring for perched aquifers were addressed by assuming that any uranium mine within a conservatively estimated groundwater drainage area for a perched aquifer spring could cause a major impact to the spring. Therefore, reasonable assessments were made to provide the decision-maker with an adequate basis for weighing the relative potential for impacts to water resources from each alternative.* ***It should be emphasized that detailed, site-specific environmental analysis would be required for any new mines in the proposed withdrawal area and that the data necessary to assess the potential impacts on a case by case basis would be obtained and evaluated at that time.*** *In addition, the ADEQ may require new Aquifer Protection Program (APP) permits for reactivation of existing mines operating under interim management plans; these permits can include measures for monitoring and environmental mitigation (for example, see ADEQ 2009d).*

Soil Resources

The most significant limitation to this impact analysis is that the locations of new mines expected to be developed, as described in the RFD scenarios, are not known. *Some impacts and potential risks are site-specific; thus, generalization of potential impacts was required through adoption of the following assumptions: .....*

Vegetation Resources

Impacts are quantified where possible; however, some potential impacts to vegetation resulting from future mining activity ***are largely uncertain****.* ***In the absence of quantitative data****, the best available science and professional judgment were used. Impacts are sometimes described using ranges of potential impacts or in qualitative terms, if appropriate.*

Duration of impacts is quantified where possible; however, ***some potential impacts to vegetation as a result of future mining activity are largely uncertain.*** *Impacts are described using ranges of the length of time the resource will be affected.*

The exact acres of vegetation lost by type cannot be estimated ***because no specific exploration or mine locations have been proposed at this time.*** *Mining-related disturbance would have localized impacts on vegetation community structure and species richness, as well as overall vegetation productivity on an ecosystem level.* ***The magnitude of these impacts cannot be fully understood until specific mine locations are known.***

Fish and Wildlife

In particular, the Kaibab LRMP/ROD discusses avoidance or mitigation of impacts on wildlife habitats, including breeding, calving, and fawning areas; ***requires site-specific survey****; and evaluates assessment areas*

during mining project design and plan (Forest Service 1988).

In addition to a more detailed understanding of how chemical and radiation hazards impact wildlife, ***more precise information on the locations of exploration sites, mine sites, and roads would be useful*** *to better understand the magnitude, extent, and duration of impacts to wildlife and fish species.*

General Wildlife Species, Migratory Birds, Special Status Species, Threatened, Endangered, and Candidate Species, BLM Sensitive Species, FS Sensitive Species, National Park Service Species of Concern, AZ Game and Fish Species of Greatest Conservation Need

The acres of habitat lost by vegetation type cannot be fully estimated at this time ***because exact locations of exploration and development operations are not known*** *(see Section 4.6 for more discussion on vegetation impacts).* ***Since the location of mines is not known, the exact locations of roads and power lines cannot be determined either.***

As discussed in more detail in Chapter 2, the existing regulatory framework requires that ***all plans of operation be subject to subsequent site-specific NEPA analyses*** *in compliance with laws, regulations, and policies and in conformance with applicable RMPs or forest plans. Both the BLM and Forest Service require a detailed plan of operation for proposed mine development projects.* ***Based on site-specific analysis****, mitigation and conservation measures are developed to avoid or minimize anticipated impacts and avoid unnecessary and undue degradation.* ***Site-specific analysis*** *of effects to threatened, endangered and proposed species is required for compliance with ESA regulations and agency management policies.* ***Potential adverse effects would be avoided or minimized.***

A more detailed, quantitative analysis of the possible effects of chemical and radiation hazards to springs and waterways in the Park, ***and more precise information on the locations of exploration sites, mine sites, and roads would be useful for making a more reasoned choice among alternatives.***

The location of the mine facility *and the influence of the mine on the quantity and quality of groundwater and surface flows at seeps, springs, and other bodies of water could influence the magnitude of these impacts on these bird species.*

Although the exact location of mining under this alternative is not known*, implementation of Alternative A can be assumed to have potential impacts on the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent.*

The location of the mine facility *and influence of the mine on the quantity and quality of groundwater and surface flows at seeps and springs and other surface waters could influence the magnitude of impacts on these mammal species.*

Site-specific studies *and conservation measures would need to be implemented during construction and mining operations to reduce or eliminate impacts to these species.*

Although the exact location of mining under this alternative is not known*, implementation of Alternative A can be assumed to have potential impacts to the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent.*

Site-specific conservation measures *to avoid sensitive resources in the plan of operations at the project level, such as location of roads, power lines, and associated mine structures, could help reduce the potential for*

adverse impacts to NPS Species of Concern.

***Although the exact location of mining under this alternative is not known**, implementation of Alternative A can be assumed to have potential impacts the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent.*

***Site-specific conservation measures** to avoid sensitive resources in the plan of operations at the project level, such as location of roads, power lines, and associated mine structures, could help reduce the potential for adverse impacts to NPS Species of Concern.*

Visual Resources

***Visual impacts depend on location** and density of specific exploration and development operations **and thus become project specific**. Mines located in less visually sensitive areas and out of viewsheds of area visitors would have smaller impacts than mines placed in more prominent locations.*

It does not include specific breccia pipe locations or any speculation of potential mining locations.

*The degree of impact will vary, **depending on the location of mining operations**. Some mines may have a major impact if located in sensitive viewsheds. Other mines located in less sensitive viewsheds may have a minor impact. Uranium mines are located at uranium-bearing breccia pipes; **this analysis does not identify the locations of potential mine locations.***

Soundscapes

*A valid analysis of attenuation potential of any obstruction **cannot be made without an exact description of factors characterizing the noise source, and receiver.** Conditions such as the height, the placement of source (relative to any obstruction), the spectrum of the source and its duration (steady or transient), the size and density of vegetation, and the atmospheric conditions (temperature, wind gradient, relative humidity, and cloud cover). **Without knowledge of the specific location of each noise source, these variables cannot be considered.***

*While there is a large body of peer-reviewed literature available regarding the effects of noise on wildlife, **this EIS is framed as an overarching review for a very large area included in the three parcels**, and no substantive evaluation of noise effects on wildlife can be generically applied. If a future mine were proposed, **an independent EIS for that specific location would be performed at a level of detail appropriate for that site** in a manner that ensures land use conditions that would be protective of the environment for that location.*

Cultural Resources

*The nature and magnitude of the impacts would **depend on the specific location** and scope of the proposed exploration or development activities.*

*Because cultural resources are location specific **and the actual locations of the possible mining activities are unknown at this time,** this analysis assumes that all future mining-related activities have the potential to affect any of the resources, except where noted. .....Conversely, it is possible that a given mining project would not adversely affect cultural resources if no resources will be disturbed.*

*Under all the alternatives, areas proposed for mine development would be **subjected to intensive archaeological 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.*

American Indian Resources

In order to determine potential impacts, locations of traditional cultural importance, including sacred

*places, were compared against **possible** mine site locations.*

*The RFD scenarios estimate the likely number of mines for each parcel; **however, they cannot precisely predict the locations of the mines.** For the purposes of this analysis, it will be **assumed** that the majority of development would occur in the North Parcel, substantially less in the South Parcel, and little if any in the East Parcel; however, given the limited data, **it is extremely difficult to predict within an individual parcel where any mines might eventually be developed. Because the actual locations of the possible mines are unknown,** this analysis assumes that each mine has the potential to affect any of the resources, except where noted.*

Thus, the overwhelming conclusion to be made is that site specific study and analysis in support of a "project" Environmental Impact Statement will yield the best information to make a decision on whether a Specific Project is to be approved or not, i.e., specific site withdrawal if a project is so deficient that a Plan of Operations could not be approved!

This Draft EIS needs substantial revisions to correct a multitude of errors, omissions, and lack of scientific rigor to fulfill the basic requirements of NEPA. However, even as written, this draft EIS does not present any compelling reason to withdraw ***any*** of the lands proposed for withdrawal and that are currently segregated.

This "Overarching" or "Global" analysis EIS has identified issues and some areas that could receive additional scrutiny for a specific mining project EIS, but should not be used to withdraw any lands from mineral entry.

Obviously, I support the "No Action" Alternative A.

The "No Action Alternative" could be vastly improved by analyzing exploration activities and proposed mining activities separately in each section requiring detailed analysis. Within the "No action" Alternative A analysis for each section, a specific and detailed listing should be written for the types of analyses that would be performed as required by NEPA and State and Federal regulations prior to approving a Plan of Operations using the example of a hypothetical breccia pipe mine.

While this information is available in this DEIS it is scattered around and makes little impact on the reader regarding the totality of analysis and public scrutiny a proposed breccia pipe mine will have.

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Attachment 1
Excerpts of Uranium Exploration Impacts from the DEIS

Air Quality
From Page 4-16:

The potential impacts resulting from exploration activities would occur over a limited geographic area, as each exploration site is relatively small in area (1.1 acres), and would be intermittent and temporary in duration. *Under normal atmospheric conditions, fugitive dust tends to settle out within a few kilometers. Emissions from exploration-related activities would be reduced with the implementation of routine, commonly accepted operating procedures to curb dust (e.g., limiting vehicle speeds, maintaining stabilized soil surfaces, active watering during drilling activities).*

From **Table 4.2-17.** Summary of the Maximum Total Emission Associated with Alternative A (in Tons) we see that for exploration activities:

NOx is 521 tons or 12.5% of the 20 year total for all activity
SO$_2$ is less than 1 ton over 20 years
CO is 418 tons or 14.3% of the 20 year total for all activity
PM$_{10}$ is 1,520 tons or 8.6% of the 20 year total for all activity
PM$_{2.5}$ is 167 tons or 6.6% of the 20 year total for all activity
VOCs is 39 tons or 9% of the 20 year total for all activity and
CO$_2$ is 45,515 tons or 11.4% of the 20 year total for all activity

As can be seen from the above, the contributions to air pollution from Uranium exploration is a small fraction of the projected air pollution from all sources considered in Table 4.2-17. ***These percentages and a separate analysis of uranium exploration vs. mining operations could be included in revisions of this EIS to make it clear that uranium exploration activities pose no threat to the Grand Canyon.***

On page 4-27, the analysis continues with:

"Under Alternative A, exploration and development of a proposed mine site would be expected to result in temporary increases in ambient concentrations of air pollutants in the immediate vicinity of the site."

The Draft EIS concludes that even the total combined air pollution contributions

from all aspects of Uranium exploration, development, mine operation, and reclamation will have local and temporary and rather minor effects on ambient air quality.

Thus the contribution by exploration activities, would be nearly negligible and primarily a local and short duration impact.

4.3 GEOLOGY AND MINERAL RESOURCES

No environmental effects are discuss in this section in regards to Uranium exploration.

4.4 WATER RESOURCES

From page 4-57 the DEIS states the following for perched groundwater for perched aquifer springs and wells in regard to exploration drilling and R-Aquifer water supply wells for mines:

"For the purposes of this EIS, it must be assumed that the state and federal regulations have been and are being met. ***Therefore, because the regulations are protective of groundwater, deep drilling operations that occurred after the regulations were adopted on March 5, 1984 (ADWR 2008), are considered to represent no impact or a negligible impact to the quantity and quality of perched groundwater available to perched aquifer springs or wells."***

From page 4-70 the DEIS states in regards to deep mineral exploration wells:

"As described in Section 4.4.1, deep mineral exploration boreholes and R-aquifer water supply wells for the mines might provide potential conduits for movement of perched aquifer groundwater and mineralized groundwater drainage to the R-aquifer. *AAC Title 12, Chapter 15, Article 8 requires proper construction and abandonment of wells to prevent cross-contamination of different aquifers. For the purposes of this EIS, it must be assumed that state and federal regulations have been and are being met.* ***Therefore, because the regulations are protective of groundwater, deep drilling operations that occurred after the regulations were adopted on March 5, 1984 (ADWR 2008), are considered to represent no impact or a negligible impact to the quantity and quality of perched groundwater available to perched aquifer springs or wells.*** *Duration of the negligible impact would likely range from temporary to short term (see Table 4.4-2). Based on the factors described in Section 4.4.1, pre-1984, pre-regulation wells represent a negligible impact to the quantity and quality of perched groundwater available to perched aquifer springs or wells. Duration of this negligible impact would likely range from temporary to long term (defined in Table 4.4-2). "*

From page 4-83 regarding cumulative impacts from Uranium exploration on groundwater:

"Because of the regulations regarding drilling and abandonment for the oil and gas industry [AAC, Title 12, Chapter 7, Oil and Gas Conservation Commission], potential impact from future oil or gas wells would not be expected to contribute to cumulative impacts for the same reasons that ***exploration wells would not be expected to present a cumulative impact (as described in Section 4.4.1). "***

I must assume that for the same reasons given above, the deep exploration wells to

be drilled would have none to negligible impact on R-Aquifer springs and wells. While this is implied in the DEIS, I found no direct reference to this fact. I may have missed it though.

Therefore, the impact on water resources is none to negligible from Uranium exploration activities.

4.5 SOIL RESOURCES

From page 4-101:

"In Alternative A, mineral exploration and development would proceed under existing law, regulation, and policy. The overall impact on soil resources would be expected to range from minor to moderate in all three proposed withdrawal parcels (see Table 4.5-3)."

From Page 4-102:

*"The anticipated area of disturbance in each proposed withdrawal parcel would be less than 0.2% of the respective total parcel areas, or 945 acres out of about 554,000 acres for the North Parcel, 107 acres out of about 134,000 acres for the East Parcel, and 312 acres out of about 332,000 acres for the South Parcel. Even if the entire anticipated disturbance occurred in one sub-basin or area, which is not likely based on locations of past uranium mines, the **impact** to overall soil productivity and watershed function would be **small** because the level of disturbance represents **a very small fraction** of the respective parcel areas. In addition, the magnitude of the direct impact would be somewhat **less** than the total anticipated disturbed area because not all the disturbance would occur at once: some areas would be reclaimed prior to disturbance related to other sites. Thus, **disturbance impacts** would be **minor** because of the **small amount** of relative **disturbance** and would generally be of **short duration**, about 5 years, which is the average lifespan of a mine from development through reclamation activities. "*

From Page 4-103:

*"The extent of disturbances for power lines is limited to that required for pole placement, and **the extent of a typical drill site is only about 1.1 acres**, according to the RFD scenarios (temporary roads not typically required). In addition, **drill sites are required to be reclaimed following completion of the exploration project."***

From Page 4-104:

*"Although increased **erosion impacts** would be **expected** to be **generally minor** under Alternative A, **moderate impacts** might occur if specific roads, **exploration sites**, or mine sites are **located in these steeper areas."***

*"Contamination of soils from exploration drilling is anticipated to be **minimal**, based on results of sampling in the vicinity of the Kanab South Pipe exploration site (Otton et al. 2010)."*

From Page 4-107:

*"Transport of materials away from reclaimed mine and **exploration sites**, including the Pigeon*

and Hermit mines, ***would not be expected to contribute to cumulative contamination-related impacts*** *because the reclaimed soils at these sites have been stabilized and re-vegetated."*

From the above excerpts, the impacts to soils from Uranium exploration would be minor in most all cases and moderate for exploration sites that are in steeply sloping topography.

4.6 VEGETATION RESOURCES

From Page 4-116:

"Indirect impacts may also include exposure of vegetation to uranium or other radionuclides via contaminated water, soil, or dust, which may result in the effects described above, including chlorosis, early leaf abscission, and reduction in root growth, reproductive capacity, or survival. ***The increase of uranium is expected to be minor and almost non-detectable from existing and naturally occurring levels (see Section 4.4, Water Resources)."***

"Direct impacts from mining activity to specific vegetation communities cannot be fully calculated at this time because exact locations of mines are not known. ***In general, these impacts are estimated to be minor to moderate****, depending on the location of the impacts, and are considered a long-term impact, given the fact that impacts would be scattered spatially (30 mining projects;* ***728 exploration projects****), comparatively small in scale (approximately 20 acres per mine site and* approximately 1.1 acres per exploration site*) or linear in nature (22.4 miles of access roads, removing approximately 38 acres of vegetation).* ***Although measurable, the decrease in vegetative cover would be considered a minor to moderate impact, given the relatively small areas that would be affected."***

Thus, the impact from Uranium exploration on vegetative resources is minor to moderate depending on location.

4.7 FISH AND WILDLIFE

4.7.3 Fish and Aquatic Resources

This section does not directly or indirectly address impacts from exploration activities upon fish and aquatic resources. However, the impacts cited were due to the possible contamination of waters from mining activities.

Since Uranium exploration activities were determined to have no or negligible impact on water resources from section 4.4.1, it can be deduced that uranium exploration will have no or negligible impact on fish and aquatic resources.

4.7.4 General Wildlife Species

From Page 4-133:

"Impacts to overall quality and quantity of unfragmented habitat would be measurable but not apparent. Individuals may experience reduced viability or mortality; however, these impacts would not alter wildlife distribution in the study area or result in changes to overall wildlife population viability. These impacts are considered moderate*, given the amount of acres impacted (1.5%), and long term, as impacts would be scattered spatially and temporally (30 mining projects over 20 years; 728 exploration projects over 20 years). New access roads would be reclaimed when the mine is closed. Access roads would be shared when multiple mines are located in the general vicinity, which would further reduce the physical footprint of new roads but would extend the duration of select roads for as much as 20 years, while others may be open and closed within a 3- to 5-year time frame."*

It can be deduced that the contribution to the moderate impact designation from Uranium exploration is relatively small due to the fact that exploration requires much fewer trips into the habitat areas and is expected to require no new roads. The haul trips for actual Uranium mining is projected to be 300,165. Exploration trips would be a very small percentage of this and would thus contribute a much smaller effect than would mining, in addition, exploration affects a smaller land area for a very short time period.

Thus, the overall contribution to impacts from Uranium exploration should be considered a small part of the moderate impacts stated in the DEIS above.

4.7.5 Migratory Birds

From Page 4-137:

*"As a result of implementation of Alternative A, project-related impacts could occur to aquatic, riparian, and/or terrestrial habitat components. Physical and chemical alterations to plants and animals, alterations to water quantity or quality at area seeps and springs and other water bodies, and/or impacts to overall quality and quantity of unfragmented habitat could occur and be **measurable but not apparent.** Therefore, **impacts to migratory birds could be considered minor to moderate in magnitude and long term in duration."***

Since exploration activities were not considered separately, they can be deduced from the content of this section. Most of the impacts considered were from mine development and operation. Effects on water quantity and quality were considered, but from section 4.4.1 exploration's contribution is considered none or negligible. As commented upon above, the contributing effects on migratory bird impacts due to land use and exploration trips would be a small percentage of that for mine development, operation, and reclamation.

Thus, the overall contribution to impacts from Uranium exploration should be considered a small part of the minor to moderate impacts stated in the DEIS above.

4.8.3 Threatened, Endangered, and Candidate Species

From page 4-145:

"Although the exact location of mining under this alternative is not known, implementation of Alternative A can be assumed to have potential impacts on the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent. Individuals may experience reduced viability or mortality; however, these impacts would not alter species distribution in the study area or result in changes to overall species population viability. ***These impacts are considered moderate, given the amount of acres impacted (1.5%), the amount of water used (316 mgal), and the potential for additional uranium threats and bioaccumulation in Kanab Creek, which many of these species inhabit. The impacts are considered long term, as 728 exploration projects and 30 mining projects are anticipated over 20 years."***

From Page 4-147;

"Given the relatively small area of surface impact and the ESA requirements concerning impacts to listed species and critical habitat, ***all of the alternatives would result in minor and less than significant cumulative impacts to threatened, endangered, and candidate species when added to other past, present, and reasonably foreseeable activities in the proposed withdrawal area.*** *Project-specific species surveys will be required prior to future mining within the proposed withdrawal area."*

4.8.4 Bureau of Land Management Sensitive Species

From Page 4-150

"Although the exact location of mining under this alternative is not known, implementation of Alternative A can be assumed to have potential impacts the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent. Individuals may experience reduced viability or mortality; however, these impacts would not alter species distribution in the study area or result in changes to overall species population viability. ***These impacts are considered moderate, given the amount of acres impacted (1.5%), the amount of water used (316 mgal), and the potential for additional uranium threats and bioaccumulation in Kanab Creek, which many of these species inhabit. The impacts are considered long term, as 728 exploration projects and 30 mining projects are anticipated over 20 years."***

From page 4-152:

"When combined with the impacts of these other activities, all of the alternatives could contribute to minor short-term and long-term direct habitat impacts, a decrease in habitat productivity, and an increase in the potential for mortality of BLM sensitive species. ***However, given the relatively limited surface impacts, it is anticipated none of the alternatives would result in significant cumulative impacts to BLM Sensitive species when added to other past, present, and reasonably foreseeable activities in the proposed withdrawal area."***

4.8.5 Forest Service Sensitive Species

From page 4-155:

"A can be assumed to have potential impacts to the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent. Individuals may experience reduced viability or mortality; however, these impacts would not alter species distribution in the study area or result in changes to overall species population viability. ***These impacts are considered moderate, given the amount of acres impacted (1.5%), the amount of water used (316 mgal), and the potential for additional uranium threats and bioaccumulation in Kanab Creek, which many of these species inhabit. The impacts are considered long term, as 728 exploration projects and 30 mining projects are anticipated over 20 years."***

From Page 4-157:

"The analysis area for Forest Service Sensitive species consists of the proposed withdrawal area (North, East, and South parcels), the Park, and North Kaibab Ranger District. When combined with the impacts of these other activities, all of the alternatives could contribute to direct habitat impacts, a decrease in habitat productivity, an increase in disturbance, and an increase in the potential for mortality of Forest Service Sensitive species.

Given the relatively limited surface impacts, it is anticipated that none of the alternatives would result in significant cumulative impacts to Forest Service Sensitive species when added to other past, present, and reasonably foreseeable activities in the proposed withdrawal area."

4.8.6 National Park Service Species of Concern

From Page 4-158:

"Although the exact location of mining under this alternative is not known, implementation of Alternative A can be assumed to have potential impacts the overall quality and quantity of unfragmented terrestrial and riparian habitat within the proposed withdrawal area that could be measurable but not apparent. Individuals may experience reduced viability or mortality; however, these impacts would not alter species distribution in the study area or result in changes to overall species population viability. ***These impacts are considered moderate, given the amount of acres impacted (1.5%), the amount of water used (316 mgal), and the potential for additional uranium threats and bioaccumulation in Kanab Creek, which many of these species inhabit. The impacts are considered long term, as 728 exploration projects and 30 mining projects are anticipated over 20 years."***

From Page 4-160:

"The analysis area for NPS species of concern consists of the withdrawal area and the Park. When combined with the impacts of these other activities, all of the alternatives could contribute to potential sedimentation and contamination of drainages/waterways and springs and potential reduction in water quantity at springs in the Park.

Given the absence of direct impacts to NPS lands within the proposed withdrawal area, the limited potential for contamination and water quantity reduction, and the limited amount of foraging habitat removed, it is anticipated none of the alternatives would result in significant cumulative impacts to NPS species of concern when added to other past, present, and reasonably foreseeable activities in the proposed withdrawal area."

4.8.7 Arizona Game and Fish Department Species of Greatest Conservation Need

From Page 4-161:

"Impacts discussions in Section 4.7 and the previous discussion in this section document potential threats and impacts related to implementation of the various alternatives. The 183 species included by AGFD on the SGCN list in Arizona would mirror previous species impact discussions and alternative ranking statements. No further analysis for these AGFD species is needed."

For sections 4.8.3 through 4.8.7, the overall impacts from Uranium exploration should be considered a small part of the moderate impacts stated in the DEIS sections above due to the small percentage of time-use of the affected land compared to mine development, operation, and reclamation.

4.9 VISUAL RESOURCES

From Page 4-164

"The degree of impact would vary among the different stages of mining activities (mineral exploration, active mining, and mine reclamation). For example, mineral exploration generally would have a smaller visual impact than a full mining operation because of the smaller footprint size and shorter time frame. There would be more exploration projects than mines, and the total impact of all exploration projects could lead to greater visual impacts."

Typical visual impacts that would occur from mineral exploration include vegetation disturbance of approximately 1.1 acres with a drill rig on-site for approximately 1 month. Road construction would be minimal, with use of existing roads and overland travel, and sites would be restored upon completion of the drilling project. ***Exploration projects out of sight of Key Observation Points and within less restrictive visual designations (VRM Classes III and IV, VQO Modification, and SMS Moderate and Low) would have a minor short-term impact. Exploration activities in the direct sight of Key Observation Points and within sensitive visual designations (VRM Class II, VQO Preservation, and SMS High) would have a moderate to major short-term impact.*** *Major impacts could occur to persons in the direct vicinity of an exploration project during the short-term time frame if the persons are only in the area during the time at which exploration activities are occurring.*

4.10 SOUNDSCAPES

"Under Alternative A, exploration and development of a proposed mine site would cause temporary increases in ambient noise levels in the immediate vicinity of the exploration and development sites."

4.11 CULTURAL RESOURCES

From Page 4-202

"The implementation of mitigation measures according to current mining regulations would reduce adverse impacts to cultural resources. ***The primary mitigation measure would be avoidance.*** *Under all the alternatives, areas proposed for mine development would be subjected to intensive archaeological surveys to identify and evaluate cultural resources that could be affected."*

From Page 4-203

"Exploration drilling involves drilling several holes to confirm the presence of a breccia pipe, its boundaries, and presence of mineralization. In some cases, a shaft may be sunk to intercept the ore. ***Exploration sites are routinely moved to avoid sensitive resources, including cultural resources."***

From Page 4-204 & 205:

*"****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; t****herefore, no cumulative impacts to cultural resources are anticipated under Alternative A."***

4.12 AMERICAN INDIAN RESOURCES

From Page 4-208

For American Indian resources, adverse impacts are varied and sometimes difficult to measure. In many cases, American Indian perception of adverse impacts is as important as any physical and measurable impact. Possible adverse impacts could include the following:

• direct damage, disturbance or destruction of places or landscapes, resulting from exploration, construction, operation, transportation, and reclamation activities;

• any "wounding" of the earth through drilling or mining;

• disturbance of graves, human remains, or other materials protected under the Native American Graves Protection and Repatriation Act;

• visual, audible, or atmospheric elements that adversely affect the integrity and values of resources;

• impediments to traditional practices or land uses;

• restricted access to traditional use areas or sacred sites;

• disruption in feeling or association of places or landscapes from visual or auditory impacts;

• loss of springs or declines in quantity or quality of important water sources;

• social impacts such as distress or anxiety caused by effects on cultural values and sense of place, or fears of loss, illness, or resource contamination.

Some of these impacts can be mitigated, while others cannot.

My comments from Chapter 4 apply here. The impacts for the most part are

totally subjective. Indian tribes claiming impacts should justify these impacts in light of the commercial mining operations that they may profit from. Both the Hopi and Navajo profit from commercial mining operations on their reservations.

The Hopi just recently sign commercial contracts granting exploration rights to Passport Potash to explore on Hopi owned land in the Holbrook basin. This exploration would require drilling into the earth and ultimately mining.

American Indian Tribes claiming that mineral exploration and mining will damage the (Public) land values to them, should justify this in light of their willingness to do so when they will benefit from it financially.

4.13 WILDERNESS

From page 4-217:

"Potential impacts to designated and proposed wilderness depend on placement and density of specific exploration and mining operations and thus become project specific. Mining activities that occur closer to designated or proposed wilderness would have a greater potential impact than those occurring farther away. Portions of the proposed withdrawal area are adjacent to wilderness boundaries; therefore, it is possible that mine exploration, development, and reclamation/closure activities could indirectly impact the wilderness characteristics of designated and proposed wilderness areas that are in the immediate vicinity of the proposed withdrawal parcels.

Mining activities that are far from designated or proposed wilderness would have a minor short-term impact to wilderness characteristics. Mining activities in close proximity to designated or proposed wilderness boundaries would have a moderate short-term impact to the wilderness characteristics of naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation."

The Arizona wilderness act of 1984 permits multiple use activities right up to the boundaries of wilderness areas and prohibits the creation of buffer zones to keep these activities away from the wilderness area.

Arizona Wilderness Act of 1984 at section (d) says:

(d) The Congress does not intend that designation of wilderness areas in the State of Arizona lead to the creation of protective perimeters or buffer zones around each wilderness area. The fact that nonwilderness activities or uses can be seen or heard from areas within a wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.

For exploration purposes then, there is no impact to the wilderness as defined by an Act of Congress.

4.14 RECREATION RESOURCES

From Page 4-222:

*"Alternative A's potential to **impact recreation visitor use** on the public lands within the proposed withdrawal area would likely be **minor**."*

From Page 4-226:

"Although all these other activities have occurred or will occur, no cumulative impacts to recreation resources are anticipated beyond those already described above as direct and indirect impacts. Recreation impacts, when viewed incrementally with the past, present, and reasonably foreseeable future cumulative actions in the proposed withdrawal area, would mostly result in indirect impacts.

Based on the impacts described, Alternative A, if implemented, would result in an overall moderate impact to visitor use, recreation opportunity, and recreation settings and experiences."