Chapter 5

CONSULTATION AND COORDINATION

This EIS has been prepared with input from and coordination with interested tribal governments, agencies, organizations, and individuals. The CEQ regulations [40 CFR 1500–1508] require an early scoping process to determine the issues related to the Proposed Action and alternatives that the EIS should address. The purpose of the scoping process is to identify important issues, concerns, and potential impacts that require analysis in the EIS and to eliminate insignificant issues and alternatives from detailed analysis. Public involvement is a vital component of NEPA for vesting the public in the decision-making process and allowing for full environmental disclosure.

5.1 PUBLIC INVOLVEMENT – SCOPING

The purpose of scoping is to provide an opportunity for members of the public to learn about the proposed withdrawal and to share any concerns or comments they may have. Input from the public scoping process is used to help the BLM identify issues and concerns to be considered in the EIS, as well as to identify potential alternatives. In addition, the scoping process helps to identify any issues that are not considered relevant and that can therefore be eliminated from detailed analysis in the EIS. The list of stakeholders and other interested parties is also updated and generally expanded during the scoping process.

The BLM hosted two scoping meetings in Fredonia and Flagstaff, Arizona, on September 30 and October 15, 2009, to provide the public with an opportunity to learn about the project and provide comments. The meeting in Fredonia was held at the Fredonia Elementary School on East Hortt, and the meeting in Flagstaff was held at the High Country Conference Center on Butler Avenue. An open house format was used to encourage two-way dialogue and to encourage discussions about issues to be addressed in the Northern Arizona Proposed Withdrawal EIS, concerns about the process, and development of the range of alternatives to be analyzed in the Draft EIS. Meeting attendees signed in upon entering, at which time they were provided with handouts and informed about the meeting format and how to comment at the meeting. The handouts and displays provided information about the NEPA process, project background, tentative project schedule, preliminary issues to be analyzed in the EIS, location maps, and how to provide comments. A 30-day scoping comment period was provided in order for the public to submit written comments related to potential issues.

The scoping meetings were advertised 15 days prior to their scheduled dates in the *Federal Register*, the *Southern Utah News,* and the *Arizona Daily Sun,* in an email to the BLM stakeholder mailing list, and on the BLM website at <http://www.blm.gov/az>. The BLM has maintained a link on the website for the Northern Arizona Proposed Withdrawal EIS to provide information to the public regarding the NEPA process, EIS schedule, public scoping, and other information pertinent to the project.

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 comment submittals were received, with 1,805 of those identified as duplicate submittals.

5.1.1 Newsletters

The BLM has arranged to produce and publish several newsletters on the website <http://www.blm.gov/az> at important milestones during the course of the project. The first newsletter,

published in March 2010, announced the publication of the scoping report and USGS report; it also provided a brief summary of the scoping report and project schedule and a technical discussion of what breccia pipes are and how they are mined. The second newsletter, published in February 2011, announced the public availability of the Draft EIS and included information on the alternative development process, maps illustrating the alternatives, and a narrative discussion of each alternative. Other newsletters will coincide with release of the Final EIS and with release of the ROD.

5.1.2 Mailing List

A mailing list identifying individuals (as points of contact) in organizations, agencies, and interest groups was used to provide information about the public meetings, scoping period deadlines, and other key milestones. The BLM mailing list was used as the foundation but was periodically revised, updated, and expanded throughout the scoping period and was further updated throughout the entire NEPA process. Individuals who signed in at either of the public meetings or submitted comments during the scoping period were automatically added to the mailing list unless they stated that they did not want to be added or did not want to receive additional information as the project progressed.

The first direct mailing related to the EIS process occurred on September 10, 2009, included 265 recipients (71 federal, state, and local government entities; 18 non-government organizations; 14 businesses; 25 tribal entities; and 137 media organizations). The mailing provided information about the Proposed Action, announced scoping meetings and locations, and provided information about how to submit comments. A second mailing was sent prior to announcing publication of the Draft EIS. This mailing included a summary of the Draft EIS and the alternatives that were analyzed, along with information about the comment period, how to review the EIS and how to comment, and the dates, times, and locations of all public review meetings. A third mailing at a future date will announce availability of the Final EIS, and a fourth mailing will announce availability of the ROD.

5.2 COOPERATING AGENCY CONSULTATION

The Council on Environmental Quality (CEQ) regulations [40 CFR 1508.5] define a cooperating agency as any federal agency (other than the lead agency) and any state or local agency or Indian tribe with jurisdictional authority or special expertise with respect to any environmental impact involved in a proposal. Because of the size of the proposed withdrawal area and the resources potentially affected by the proposed withdrawal or alternatives, 16 agencies (federal, state, tribal, and county) with jurisdictional authority and/or applicable special expertise cooperated in the development of this EIS.

The cooperating agencies that assisted in preparation of the EIS are listed and described in Section 1.4.2 and below in Table 5.2.1. They assisted with EIS preparation in a number of ways, including conducting or providing studies and inventories, reviewing baseline condition reports, identifying issues, assisting with the formulation of alternatives, and reviewing Preliminary Draft EIS text and other EIS materials. Not all of the cooperating agencies participated in all aspects of the EIS preparation. As lead agency, BLM is responsible for the content of the EIS.

The BLM held five meetings with the cooperating agencies. The meeting dates, locations, and general purpose are listed in Table 5.2.2.

Table 5.2-1. Cooperating Agencies

Cooperating Agency	
U.S. Forest Service; Kaibab National Forest	Hualapai Tribe
National Park Service; Grand Canyon National Park	Kaibab Band of Paiute Indians

Table 5.2-1. Cooperating Agencies (Continued)

Cooperating Agency	
U.S. Fish and Wildlife Service	Coconino County, Arizona
U.S. Geological Survey	Mohave County, Arizona
Arizona Game and Fish Department	Garfield County, Utah
Arizona Geological Survey	Kane County, Utah
Arizona Department of Mines and Mineral Resources	San Juan County, Utah
Arizona State Land Department	Washington County, Utah

Table 5.2-2. Cooperating Agency Meeting Dates and Description

Date	Location	General Purpose
December 1, 2009	Flagstaff, AZ	Provide orientation of the process and discuss roles and responsibilities of various agencies.
January 20, 2010	Kanab, UT	Review and discuss preliminary and draft alternatives.
February 23, 2010	Flagstaff, AZ	Review and discuss preliminary and draft alternatives.
May 5, 2010	Kanab, UT	Review and discuss preliminary and draft alternatives.
August 18, 2011	Kanab, UT	Review draft comment response to cooperating agency comments on the DEIS and the revised economic analysis.

5.3 COORDINATION WITH LOCAL GOVERNMENTS

The BLM coordinated with local governments by attending meetings conducted by local government organizations and by maintaining open channels of communications between the Arizona Strip District Manager and elected county officials. Although in itself not a Cooperating Agency, the AZ/UT Coalition of Coordinating Counties is made up entirely of county governments, including Washington, Kane, San Juan and Garfield Counties in Utah, and Mohave County in Arizona. This coalition has held three meetings or hearings with the BLM, Forest Service, industry representatives and others in attendance to discuss the withdrawal and to coordinate comments on the EIS and to the Secretary of Interior. Those meeting/hearing dates were: March 21, 2011 meeting in St. George, Utah; April 18, 2011 meeting in Fredonia, Arizona; and September 7, 2011 hearing in St. George, Utah.

5.4 CONSULTATION WITH TRIBAL GOVERNMENTS

Federal agencies are required to consult with American Indian tribes as part of the Advisory Council on Historic Preservation Regulations, Protection of Historic Properties [36 CFR 800], implementing Section 106 of the NHPA. Accordingly, NHPA outlines when federal agencies must consult with tribes and the issues and other factors this consultation must address. In addition, pursuant to EO 13175, executive departments and agencies are charged with engaging in regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications and are responsible for strengthening the government-to-government relationship between the United States and Indian tribes.

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 5.3-1. Tribes were provided with a copy of the DEIS and will be provided with a copy of this Final EIS, and consultation and partnering will continue throughout implementation of the selected action alternative, as required.

Table 5.4-1. Tribal Meeting Summary

Date	Attendees
November 2, 2009	Southern Paiute Tribal Chair Association*
November 2, 2009	Paiute Indian Tribe of Utah Tribal Council
November 3, 2009	Kaibab Band of Paiute Indians Tribal Council and Staff
November 19, 2009	Hopi Cultural Resources Advisory Task Team/Hopi Cultural Preservation Office
November 23, 2009	Hualapai Tribal Council
December 4, 2009	Navajo Historic Preservation Department
December 17, 2009	Paiute Indian Tribe of Utah Tribal Council
February 9, 2010	Pueblo of Zuni Tribal Council and Staff
February 10, 2010	Hualapai Tribal Council
March 1, 2010	Paiute Indian Tribe of Utah Tribal Council
March 2, 2010	Shivwits Band of Paiute Indians Tribal Council
March 8, 2010	Hualapai Cultural Resources Staff
March 12, 2010	Navajo Historic Preservation Department
March 16, 2010	Kaibab Paiute Tribal Council and Staff
March 26, 2010	Hopi Cultural Preservation Department
April 6, 2010	Havasupai Tribal Council
May 18, 2010	Pueblo of Zuni Tribal Council and Staff
June 1, 2010	Paiute Indian Tribe of Utah Tribal Council
June 9, 2010	Kaibab Band of Paiute Indians Tribal Council and Staff
June 15, 2010	Hualapai Cultural Resource Staff
June 23, 2010	Hopi Cultural Preservation Office
June 23, 2010	Navajo Historic Preservation Department
July 8, 2010	Havasupai Tribal Council
September 14–15, 2010	Intertribal Meeting (Havasupai, Hualapai, and Hopi tribal members)*
February 23, 2011	Hopi Cultural Preservation Office
February 24, 2011	Navajo Historic Preservation Department
February 25, 2011	Paiute Indian Tribe of Utah Tribal Council
February 28, 2011	Hualapai Cultural Resources Department
March 1, 2011	Kaibab Paiute Tribal Council
March 1, 2011	Kaibab Paiute public meeting*
March 4, 2011	Havasupai Tribal Council
March 16, 2011	Pueblo of Zuni Historic Preservation Office
March 24, 2011	Hualapai Tribal Council
March 24, 2011	Hualapai Tribal Council public meeting*
March 31, 2011	Havasupai Tribe public meeting*
April 25, 2011	Western Navajo Nation public meeting*
July 27, 2011	Kaibab Paiute Tribal Council and staff

Table 5.4-1. Tribal Meeting Summary (Continued)

Date	Attendees
August 2, 2011	Pueblo of Zuni Tribal Council
August 2, 2011	Navajo Historic Preservation Department
August 3, 2011	Hopi Cultural Preservation Office
August 17, 2011	Hualapai Tribal Council and Cultural Resources Department
September 12, 2011	Havasupai Tribal Council
September 17, 2011	Paiute Indian Tribe of Utah Tribal Council

* Does not represent official government-to-government consultation.

5.5 ENDANGERED SPECIES ACT AND NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE

5.5.1 Endangered Species Act Compliance

Section 7 of the ESA requires federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction of their designated critical habitat. It may also require consultation with the USFWS in making this determination.

The BLM requested informal consultation with the USFWS under Section 7(a) (2) of the ESA on August 8, 2011, requesting concurrence on the determination that the Northern Arizona Proposed Withdrawal may affect, but is not likely to adversely affect, the endangered Brady pincushion cactus *(Pediocactus bradyi*), the endangered California condor (*Gymnogyps californianus*), the endangered humpback

chub (*Gila cypha*) and its critical habitat, the endangered Kanab ambersnail (*Oxyloma haydeni kanabensis*), the threatened Mexican spotted owl (*Strix occidentalis lucida*) and its critical habitat, the endangered razorback sucker (*Xyrauchen texanus*) and its critical habitat, the endangered sentry milk-vetch (*Astragalus cremnophylax* var. *cremnophylax*), the threatened Siler pincushion cactus (*Pediocactus sileri*), the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and its critical habitat, the endangered Virgin River chub (*Gila seminuda*) and its critical habitat, the endangered woundfin (*Plagopterus argentissimus*) and its critical habitat, and the endangered Yuma clapper rail (*Rallus longirostrus yumanensis*).

The USFWS issued a concurrence letter to the BLM on August 29, 2011, agreeing with the determination that the withdrawal may affect, but is not likely to adversely affect, the stated species. The general rationale for concurrence as stated in the letter is:

> "The proposed action will remove potential effects to these species and their critical habitat associated with the location of new mining claims for 20 years and threats associated with development of most of the existing claims within the withdrawal area."

The concurrence letter also includes species-specific concurrence rationale.

5.5.2 National Historic Preservation Act Consultation

Section 106 of the NHPA requires that federal agencies consider the effects of their actions on historic properties (including archaeological sites) that are listed, or are determined eligible for listing, on the National Register of Historic Places. In doing so, the lead agency must consult with Indian tribes, interested members of the public, and the appropriate State Historic Preservation Officer (SHPO).

The ultimate goal of consultation is to identify and resolve any adverse effects of an undertaking on eligible historic properties.

The BLM initiated consultation with SHPO by letter dated March 12, 2010. Additional correspondence was provided on February 25, 2011, with several documents containing detailed information, including the DEIS, a Class I cultural resources overview, and a summary report on ethnographic resources of the region.

A letter was issued to SHPO on June 16, 2011, requesting concurrence that the Northern Arizona Proposed Withdrawal does not have the potential to cause adverse effects on historic properties. The letter was signed with concurrence by SHPO on July 5, 2011. (BLM 2011b).

5.6 DRAFT ENVIRONMENTAL IMPACT STATEMENT PUBLIC COMMENT

The Draft EIS was published by the BLM on February 18, 2011, and provided to the public for public review and comment. The Draft EIS was distributed in both paper and electronic formats and was available for downloading from the BLM project website, at BLM and Forest Service offices, and at regional public libraries. The BLM invited public and agency comment on the DEIS for a period of 45 days. Four public meetings were held March 7 through March 10, 2011, in Phoenix, Flagstaff, and Fredonia, Arizona, and Salt Lake City, Utah, to present the DEIS to the public, answer questions about the document, and receive public comments. Upon receiving multiple requests to extend the 45-day comment period, the BLM extended the comment period to 75 days, ending on May 4, 2011.

All comments received by BLM were read, categorized, and coded for substantive comments. The Dear Reader letter in the DEIS requested that comments to the DEIS be substantive in nature and that the comments do one or more of the following:

- question, with reasonable basis, the accuracy of information in the DEIS.
- question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis.
- present valid new information relevant to the analysis.
- present reasonable alternatives other than those analyzed in the DEIS.
- cause changes or revisions in one or more of the alternatives.

BLM received a total of 296,461 comment submittals on the DEIS. All comment submittals were recorded into an electronic database. Comments were received from federal, state, and local agencies, advocacy groups (environmental and industry), mining industry, business owners, individuals, and others. Table 5.6-1 illustrates the general number of comment submittal types received by BLM. Comments were submitted both electronically and in hard copy at meetings or by mail. Twenty four different form letters, which accounted for 295,295 of the submittals (99.6%), were received from a variety of organizations and their members. Form letters included identical text and additional text deemed non-substantive comment. Form letters that contained supplementary text deemed substantive comment were identified as “form-plus” submittals and totaled 7. Unique submittals were submitted by individuals and organizations and contained unique content.

Form letters were received from several organizations with most submitted by email and some coming in hard-copy. Each form letter was identified, tallied, and coded into the database one time. The form letters did not contain substantive comments, as defined above. The form letters were coded into a miscellaneous category that identified alternative preference, if applicable. The total number of form letters by organization is listed in Table 5.6-2.

Table 5.6-1. Total Comment Submittals by Type

Category	Electronic	Hardcopy	Total
Total submittals	295,411	1,050	**296,461**
Form letters*	294,467	828	**295,295**
Form-plus**	5	2	**7**
Unique	939	220	**1,159**

*Includes 10,004 Form Letters containing extra comment information deemed non-substantive
**Form letters that included one or more substantive comment

Table 5.6-2. Total Number Form Letters by Submittal and Organization

Form Letter Number / Sender or Description	Miscellaneous Code	Total
Form 1 – Unknown Sender	Alternative B - Proposed Action	**63**
Form 2 Sierra Club	Alternative B - Proposed Action	**404**
Form 3 - Change.org	Alternative B - Proposed Action	**33,230**
Form 4 - Environment Arizona	Alternative B - Proposed Action	**555**
Form 5 – Unknown Sender	Alternative B - Proposed Action	**7**
Form 6 - Pew Environment Group	Alternative B - Proposed Action	**18,667**
Form 7 - Care2	Alternative B - Proposed Action	**24,887**
Form 8 - Wilderness Society	Alternative B - Proposed Action	**5,530**
Form 9 - Kanab Postcard	Alternative B - Proposed Action	**96**
Form 10 - Sierra Club Postcard	Alternative B - Proposed Action	**84**
Form 11 - Just Say No Postcard	Alternative B - Proposed Action	**373**
Form 12 - Same as Form 1	Alternative B - Proposed Action	**150**
Form 13- Aktion Gruppe- German origin	Alternative B - Proposed Action	**62**
Form 14 - AVAAZ	Alternative B - Proposed Action	**55,505**
Letter Generator 15 - North West Mining Association	Alternative A - No Action	**196**
Form 16 – Unknown Sender	Alternative B - Proposed Action	**137**
Form 17 - Defenders of Wildlife	Alternative B - Proposed Action	**1,515**
Form 18 - Change.org	Alternative B - Proposed Action	**50,281**
Form 19 – Unknown Sender	Alternative B - Proposed Action	**11,935**
Form 20 - League of Conservation Voters	Alternative B - Proposed Action	**12,992**
Form 21 - National Parks Conservation Association	Alternative B - Proposed Action	**14,036**
Form 22 – Unknown Sender	Alternative A - No Action	**246**
Form 23 - Credo Action	Alternative B - Proposed Action	**64,325**
Form 24- No Mines Postcard	Alternative B - Proposed Action	**19**

Each submittal was read and all substantive comments were recorded into the electronic database. Table 5.6-3 contains the categories and numbers of substantive comments received on the DEIS. Comments were categorized into DEIS resource topics and general NEPA topics. The miscellaneous category tracks the alternative preference of all submittals. It is important to note that each form letter was counted one time in the miscellaneous category.

Table 5.6-3. Total Substantive Comments by Category

Substantive Comment Subject	Subtotal	Total
Air Quality		56
Alternative		23
Cultural and American Indian Resources		65
Economics		125
Fish and Wildlife		40
Geology and Minerals		34
Miscellaneous (Alternative Preference)		1,103
Alternative A	67	
Alternative B	1035	
Alternative C	1	
Alternative D	0	
Mitigation/Monitoring		70
NEPA		186
Proposed Action	15	
Document Layout	10	
Review Timeline	12	
Purposed and Need	2	
General Impact Analysis	128	
General Cumulative Impacts	11	
Procedural NEPA Violation	8	
Reasonably Foreseeable Development		96
Recreation		6
Social Conditions		57
Soils		17
Soundscapes		8
Special Status Species		41
Vegetation		28
Visual Resources		11
Water Resources		135
Wilderness		18
Total		**2,119**

All substantive comments were analyzed for potential content changes to the DEIS. Each comment received a response that outlines any change that was made for the FEIS or the rationale for no change. All substantive comments are listed below in Table 5.6-4.

Table 5.6-4. Response to Comments

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Air Quality and Climate				
Robert Grossman	54251	1	Air pollution-will you require the mine specific EIS's to contain the details of emissions controls over excavation, placing of ore into trucks, control of emissions from travelling trucks, and unloading at the off-site mill? Who will monitor the foregoing?	Please refer to Chapter 4.2.4 - Compliance with Environmental Regulations and Permitting. The jurisdiction of the agency issuing the air permit for the mine and processing facility must enforce those permit conditions related to compliance (e.g., mitigation measures, emission limitations, and control strategies, etc.). It would be the responsibility of the mine to comply with the conditions of their individual air quality permit. Furthermore, the owner/operator of each mine would be required to conduct air monitoring and recordkeeping to document compliance with those requirements. In addition, the responsible regulatory agency will ensure compliance with the air quality permit by conducting unannounced inspections of the mines.
Kaibab Band of Paiute Indians	246166	3	All alternatives studied in the Draft EIS indicate that we need a comprehensive and refined modeling analysis of the potential collective impacts (quantitative and qualitative) beyond visibility issues, of fugitive emissions resulting from all of the mines' activities, plus its transports along the unpaved routes leading to and including Mount Trumbull Road and highways through our region.	Section 4.2 will be revised to include a discussion of past, present, and future impacts from mining activities. This revision will also include a discussion of the potential cumulative impacts from existing air quality and future mining activities. However, a site-specific impact analysis would be required for all proposed future mining activity. That analysis would include refined dispersion modeling based on data for the specific mine.
Sustainable Economic Development Initiative	54353	7	Some of the negative factors resulting from not withdrawing this land from mineral exploration and mining which are not adequately covered in the DEIS include fugitive uranium dust from haul trucks and accidents. Much more fugitive uranium dust and other air pollutants would impact the populations of 20 Northern Arizona and Southern Utah cities and towns than is counted in the DEIS. In its estimate of 42,345,000 pounds of fugitive dust and other air pollutants from uranium ore mined in the impact area, the DEIS does not include uranium ore dust escaping from haul trucks traveling over 184.4 million miles on trips between mines and White Mesa Mill, or any spills that might be caused by the 367 accidents that are expected during the 300,165 trips between mine and mill. **(See the attached spreadsheet for this analysis of US Department of Transportation data) (Refer to table on page xx)**	Chapter 4.2.4, Table 4.2-15. Total Emissions in Tons (20-year time frame) (page 4-25); lists 17,645.08 tons of PM10 or 35,290,160 pounds of PM10 over a twenty-year time frame would be released under Alternative A. Those values represent PM10 emissions associated with the entire mining process (e.g., exploration, development, mine operations, etc.). With respect to the criteria pollutants generated by the haul trucks, these emissions are associated with the re-entrainment of existing particulates (i.e., dust on roadways, tire/brake wear, and tail-pipe emissions). The haul trucks are designed such that the material being transported is covered in such a way that the ore being hauled is controlled/mitigated and not allowed to escape the vehicle as a fugitive source. While the possibility exists for ore haul truck accidents, there are no data available to estimate emissions from accidental releases. Language has been added to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Section 3.2.2. Legal and Regulatory Requirements, to identify the applicability of 49 CFR Part 171, 172, and 177 to the transport of uranium ore from the mine location to the processing facility. Those regulations were promulgated by the U.S. Department of Transportation and provide the regulatory basis and requirements for such transport.
Sustainable Economic Development Initiative	54353	8	Some of the negative factors resulting from not withdrawing this land from mineral exploration and mining which are not adequately covered in the DEIS include system effect impacts. The DEIS focuses on quantifying the impacts of mineral exploration and mining in many specific characteristics of the area, e.g., air quality, soil, waterm vegetation, fish and wildlife, visual and cultural resources, etc. These components are also part of a larger system which is greater than the sum of its parts, and includes the overall economic vitality, social well-being, and environmental health of the region. The DEIS, however, does not adequately account for the negative impact of these systems effects (particularly on a full cost, life cycle accounting basis) if the land is not withdrawn (Alternatives A, C, or D). For example, air pollution estimates do not include the air pollution generated from other parts of the system of exploration and mining on these parcels, or pollution that occurs outside the immediate area, such as the air pollution from: generating the energy required for pumps to surface 316 million gallons of ground water, refining and transporting the fuel for all the vehicles and other machinery used in mining and transportation, and generating the electricity used in mining and related operations. While these air pollution impacts might be considered indirect or not local, these negative impacts are not included in the indirect mentioned in the DEIS.	The EIS calculates direct operational emissions (e.g., exploration, mine development, mine operation, etc.) in Section 4.2.3. The refining of the ore was not considered as part of the scope of this EIS since it is already analyzed as a part of the uranium mill permitting process. Arizona 1 was used as the analogous mine and the water pumps are presumed to be electrically powered. The emissions from the electrical generation required for pumping 316 million gallons of ground water to the surface were not considered because it would be speculative to assume it was generated by any particular fuel or was derived from any particular source.
Sustainable Economic Development Initiative	54353	9	Examples of other effects not considered in the DEIS include significant weather changes over the next 20 years, including extreme storm events increasing in severity and frequency that might breach containment ponds; and the probable increase in drought conditions in the Southwest that would change stream, spring, and well levels and the relative concentrations of mining pollution and uranium leaks into water tables and potentially the Colorado River.	Please refer to Chapter 4.2.3 - Climate and Greenhouse Gas Emissions (page 4-16). The current available science does not allow for the calculation or prediction of changes in climates at a regional scale that might allow a statistical estimate of such events. NEPA requires analysis of impacts from or to events that are reasonably foreseeable. Since extreme storm events as you describe are unusual and unpredictable. They are not considered reasonably foreseeable
Herbert Alexander	54361	1	At a recent meeting of the Kanab City Council, the higher cost of health insurance for city employees, six of whom are suffering from the effects related to air born radiation, was discussed. Because we are considered "Down Winder's" from the effects of being down wind of previous nuclear testing in Nevada, insurance carriers charge us a higher premium. Has this problem been taken into consideration by your team? If so, what conclusions did you come to, and why?	The higher cost of insurance charged to “down winders” has not been considered in the EIS because an increase or other impact on insurance premiums is not reasonably foreseeable since neither extraction and hauling of uranium ore, nor withdrawal of the area from the mining law is expected to have any effect on the cost of insurance premiums.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Herbert Alexander	54361	3	As there will be many trucks loaded with radioactive material and driving through radioactive dust at the loading point traveling through the heart of Kanab, what studies did you do about contamination of trucks before they leave the mine and the processing plant. Also, as trucks will be stopped at the red light in town and will be in close contact with buildings and pedestrians, are there systems in place to minitor radiation there and other places in the city and on public roads. As has been noted repeatedly on the news since the Japan crisis, no amount of radiation is safe.	The transportation of uranium ore is regulated under 49 CFR 171, 172, and 177 and compliance with those regulations would be a requirement of any mining operation. Monitoring for gamma radiation along the haul route from the mine through Fredonia and Kanab has been underway since ore hauling from the Arizona 1 mine has resumed. To date that monitoring has not shown any detectible radiation emission from the haul trucks along the monitored route. Gamma radiation monitoring would be recommended for future mines in the region to assure that hauling of ore remains safe.
Anonymous	104132	1	Please be advise that there has not been enough research and examination documented that can prove that uranium mining will not affect not only the air but also the groundwaters and aquifers that flow throughout the area within Grand Canyon.	Please refer to Sections 4.2.5 through 4.2.8 of Chapter 4 in the EIS for the discussion on impacts to Air Quality from each of the alternatives. Each mine is required to obtain an ADEQ-issued air quality permit and must adhere to federal, state, and local regulations for the protection of ambient air quality.
Rich Csenge	221984	1	The prevailing wind direction is Southwest. Typically, the strongest and most consistent winds are southwesterly. The EIS states that an average springtime wind speed at the Kanab Airport is 9.5 mph. Of course, it is not the average wind speed that will carry contamination from mines to inhabited locales; it is the high velocity windstorms which are occurring more frequently now with climate change, that are important in this assessment. Southwesterly winds of 30 to 50 miles per hour, occasionally 70 mph, are not uncommon in Kanab.	The Arizona Department of Environmental Quality issues Air Quality Permits to a mine based on their ability to comply with state Air Quality regulations and standards. It is the responsibility of each mine owner/operator to maintain compliance with their air permit, which would have conditions to limit fugitive dust emissions. If winds of 70 mph are reasonably foreseeable at a mine site, it would be factored into compliance requirements for the Air Quality Permit issued by ADEQ.
American Clean Energy Resources Trust (ACERT)	225256	23	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.	The Drake Cement Plant has been added as a source to Table 3.2.4. We concur the cement plant is a major federal source of air pollutants and those emissions have been considered in the Air Quality Cumulative Impacts analysis in Section 4.2.
American Clean Energy Resources Trust (ACERT)	225256	61	Page 4-9 Statement: *It was assumed 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.	Section B.4.3 of Appendix B (RFD) describes the expected disturbance associated with exploration. The description in that section states that “Overall, the surface disturbance associated with a typical exploration project amounts to less than 2 acres” and would include all disturbance you have described in your comment. The assumption of 1.1 acres of disturbance for an exploration project is provided for

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 1/2 foot wide undisturbed strip between the tire tracks. Thus, instead of the assumption, you now have facts based on experience.	analysis purposes in the RFD in Section B.8.1.
American Clean Energy Resources Trust (ACERT)	225256	62	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 ultralow- 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 1-40, Routes 64 and 180 to the South Rim, Route 89 from Flagstaff to Page, Route 389 from Fredonia to St George, 1-15, 1-17, 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.	The purpose of the EIS is to analyze and compare the impacts of the proposed action and its reasonable alternatives, not to compare the impacts of this action to other, unrelated, unanalyzed actions. Section 4.2 of the EIS is an estimate of the Air Quality impacts to a level of detail sufficient to compare differences between alternatives.
American Clean Energy Resources Trust (ACERT)	225256	63	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.	While the commenter notes normal exploration drilling is done with water/foam injection, there exist other drilling techniques that do not. Exploratory drilling can be accomplished with techniques such as sonic, air rotary and auger drilling which have the potential to emit fugitive dust. Therefore, not all exploratory drilling techniques provide 100% fugitive dust emission reduction. There was no change made to the EIS. To address the different characteristics of various drilling techniques would require site-specific analysis of a particular drilling proposal.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
	225256	64	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: NOx = 4,156 tons, S02=10 tons, CO=2,922 tons, PM10=17,645 tons, PM25=2,532 tons, VOCs=431 tons, and CO2=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: NOx =23.1 tons/mine/yr, S02=0.055 tons/mine/yr, CO=16.2 tons/mine/yr, PM10=98.0 tons/mine/yr, PM2.5=14.1 tons/mine/yr, VOCs=2.4 tons/mine/yr, and CO2=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?	The annual data per mine in average tons per year have been added to Table 2.8.1. Please refer to Chapter 4.2.3, Table 4.2-7 for the typical mine projected facility-wide annual emissions in tons per year. While the comparisons suggested may be interesting and provide context for some readers, the purpose of the EIS is not to draw comparisons, but to estimate the impacts of the proposed action and alternatives.
Energy Fuels Resources	225260	18	Section 4.2.3. Page 4-10 Fugitive dust estimates for exploratory drilling is high based on the fact that most of the drill holes lose circulation within the first 100' of the hole and it is necessary to use water and foam to maintain the condition and competence of the hole during drilling operations, thereby eliminating any dust being generated from the drilling operation.	The emission factor used to predict fugitive dust emissions from exploratory drilling was not derived from hole depth. The emission factor assumes fugitive dust emissions on a pound per hole basis. The emission factor predicts a mass of 1.3 pounds per hole drilled and is a fraction of the total dust emissions associated with the mine from development to closure.
Energy Fuels Resources	225260	19	Section 4.2.4. Page 4-24: In the last paragraph, it states that *"It is possible that emissions from proposed mine operation activities could impact the Park. However, this is relative to the location of the actual proposed mine within the parcel and must be determined for each source location.* While this may be theoretically true, the regulations do not allow for this to occur. It is recommended that language from page ES-13 of the executive summary be added here to clarify that *Current governing laws and regulations would require any future exploration and development activities to demonstrate that the proposed activity would not impact Class I areas ..*	The FEIS has been revised as suggested in Section 4.2.4.
Energy Fuels Resources	225260	20	At the same time, the DEIS fails to calculate the GHG reductions that is represented by the uranium energy resource. A calculation can determine the GHG reduction from the energy content of the uranium and then by subtracting the amount generated would be the net benefit. For example, the amount of uranium in the withdrawal areas would produce enough fuel to equivalently run the Navajo Generating Station (NGS) for over 77 years. The NGS produces 20.1 million tons of C02 per year. The total offset of C02 by using uranium as a fuel is 1.56 billion tons of C02. The production of C02 by uranium exploration and mining in the withdrawal area was calculated at 399,100 tons, therefore; a net savings of nearly 1.56 billion tons of C02 is generated by using uranium from the withdrawal area as	The EIS does not include an analysis of GHG “offsets” (i.e., uranium as a replacement for other energy sources) for several reasons. First, there is no guarantee that uranium mined from the proposed withdrawal area would be allocated exclusively to energy production. Some percentage may go to defense uses, medical applications, or other uses. In addition, with notable exceptions such as Iran and North Korea, processed uranium may be legally sold on the open market and shipped anywhere in the world. Finally, there is no assurance uranium would be

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			nuclear fuel.	used to replace—rather than simply augment—other energy sources such as coal, natural gas, hydroelectric, solar, or wind power. The analysis the commenter requests is beyond the scope of the EIS because the proposed action is a withdrawal of certain lands from location of hardrock mining claims that might result in the production of uranium, not the approval of any particular plan of operations or even consideration of the sitting and/or development of a nuclear reactor that might use uranium to produce electricity.
Uranium Watch	225262	6	The DEIS does not assess the impacts of the emissions of radon and radon progeny from the site.	Please refer to Chapter 4.2.4 - Hazardous Air Pollutant Impact Assessment (pages 4-19 through 4-20). The mine specific air quality permit would prohibit the emissions of radon from the underground uranium mine in excess of those amounts that would cause humans to receive an effective dose equivalent to 10 millirem per year. The mine would be required to demonstrate compliance with this 10mrem/yr limit using the EPA's COMPLY-R mathematical model (or equivalent).
Uranium Watch	225262	15	Section 2.8, Comparison of Alternatives; Table 2.8-1, Summary of Potential Environmental Impacts by Alternative; Air Quality and Climate. Page 2-33. This section does not provide any assessment of the emission of radioactive and non-radioactive pollutants from the uranium mines. There is no assessment of the emission of radon and radon progeny from radon vents and mine portals, whether or not the specific mining operation falls under the requirement of 40 C.F.R. Part 61, Subpart B National Emission Standards for Radon Emissions from Underground Uranium Mines. There is no assessment of the emission of radon gas and radioactive particulates from ore storage areas, waste rock dumps, evaporation ponds, mine-water cleanup operations, and other mine facilities. There is no assessment of the release of silica and non-radioactive hazardous emissions from uranium mining operations; for example, silica particles, arsenic, diesel fumes. The EIS must characterize the potential radiological and non-radiological emissions from existing, potential, and historic uranium mining activities in the area of the proposed withdrawal. The impacts of these emissions on the environment must be assessed.	A separate column for radon emissions (10 mrem/yr) has been added to Table 2.8-1. Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Additionally, particulate emissions were calculated on a "generic" particle basis according to their particle size (i.e., PM10 and PM2.5). Individual site-specific conditions could be used to determine the specific make-up of the class of particle sizes for the site, specific to the individual mine.
Uranium Watch	225262	18	Section 3.1.7 Resource Condition Indicators Table 3.1-1; 3.2 Air Quality; Quantity of criteria and hazardous air pollutants; Description of Relevant Issues. Page 3-4. This section must state that the effective does equivalent is 10 millirems per year. The draft EIS left out per year after 10 millirems. This section also gives the impression that all of the potential	The EIS has been revised in Section 3.2 to include "per year" after 10 mrem. Table 3.1-1 has been revised to include the applicability threshold for 40 CFR Part 61 Subpart B. The text has been revised to read, "Radon-222 emissions from the underground mining

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			uranium mining operations would fall under the federal standard in 40 C.F.R. § 61.22. This is not the case. The 10 millirem per year standard only applies to mines that have mined or plan on mining 100,00 tons of ore over the life of the mine. See 40 C.F.R. Part 61, Subpart B. This section fails to discuss the fact that there are no emission standards for uranium or other radioactive particulates at uranium mines; no standard for the emission of radon from sources on the surface, such as waste rock piles, evaporation ponds, and ore storage areas; and no standards for emission of silica and other hazardous materials that are present at uranium mining operations	activities associated with the Arizona 1 Mine are limited by federal regulations [40 CFR 61.22] (for mines exceeding 10,000 tons per year of ore production) and...". The applicability of 40 CFR Part 61 Subpart B defines which individual processes are subject to the emission limitations established in the regulation. A mine whose production is less than 10,000 tons of ore per year or 100,000 tons of ore over its lifetime is not subject to 40 CFR Part 61 Subpart B.
Uranium Watch	225262	20	Section 3.2.2 Legal and Regulatory Requirements; National Emission Standards for Hazardous Air Pollutant. Page 3-20. This section references 40 CFR Part 61, Subpart T as a regulation that is potentially applicable to uranium mining and processing activities. Subpart T has been rescinded with respect its application to active uranium processing facilities. The EIS should include the legal and regulatory requirements for uranium processing facilities, including the Atomic Energy Act and Nuclear Regulatory Commission and State of Utah regulations applicable to the White Mesa Uranium Mill.	The processing of the uranium ore at the White Mesa Mill was not evaluated in this EIS because it is out of scope for this analysis and was analyzed as a part of the mill permitting and authorization process.
Uranium Watch	225262	21	Section 3.2.2 Legal and Regulatory Requirements; State Laws and Regulations. Page 3-20. This section states that *the ADEQ has been delegated authority to administer and enforce the Clean Air Act (CAA) federal, and state regulations and standards in Coconino and Mohave counties*. This statement is misleading. The ADEQ has not been granted authority to administer and enforce the radionuclide National Emission Standards for Hazardous Air Pollutants (NESHAP). Specifically, 40 C.F.R. Part 61, Subpart B is administered and enforced by the Environmental Protection Agency (EPA), Region 9. Arizona does have the authority to establish and enforce its own NESHAP standards.	Text in document Section 3.2.2 has been revised to say: "ADEQ has been delegated the authority to administer and enforce the CAA, federal, and state regulations and standards in Coconino and Mohave counties, Arizona (location of the proposed withdrawal parcels); with the exception of those regulations at 40 CFR Part 61 Subpart B. Those regulations are administered by Region 9 of the EPA."
Uranium Watch	225262	22	Section 3.2.4 Current Value Resource Condition Indicators; Table 3.2-8 Air Quality Resource Condition Indicators. Page 3-29. Again, the does standard for some (but not all) underground uranium mines is 10 millirems per year for the exposure to the nearest receptor (residence, place of work, school, agricultural enterprise). See 40 C.F.R. Part 61 Subpart B. The discussion of regulatory requirements fails to include the requirement for Subpart B regulated uranium mines must submit an application to and receive approval from the EPA and submit annual Subpart B compliance reports to the EPA.	The language in Section 3.2.4 has been revised to include that a regulated uranium mine under 40 CFR part 61 subpart B must submit an application and annual Subpart B compliance reports to the EPA.
Uranium Watch	225262	29	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Introduction (Section 4.2.1) lists the emissions from construction and operational sources. However, it fails to list the emission of uranium and other radioactive particulates from the mining operation. This would include radioactive particulates from ore handling and loading operations, ore	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			storage areas, waste rock piles, contaminated soils, water treatment facilities and other sources of radioactive particulate emissions at the mines. The consideration of fugitive dust emissions fails to address this important aspect of uranium mine emissions.	environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Chapter 3 has been revised to include a discussion of the background levels of radon and radioactivity.
Uranium Watch	225262	30	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Introduction fails to list the emissions of silica, arsenic, and other non-radioactive particulates from the mining operation that are a hazard to public health and the environment	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Addition text has been added to Section 4.2 explaining why airborne silica and arsenic are not discussed in the EIS.
Uranium Watch	225262	31	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Introduction fails to list the radioactive and non-radioactive constituents of the uranium ore and waste rock that have the potential to adversely impact the human health and the environment	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. Each individual mine proposal would be required to prepare its own environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines would be analyzed in more detail in that document.
Uranium Watch	225262	32	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Introduction fails to list the emission of radon from the above ground uranium mining operation, including any mine-water treatment facility. The Introduction fails to list all potential radioactive and hazardous emissions and consider the fact that these emissions may not be monitored or regulated in any way; for example, the emission of radon and radioactive particulates from the surface mining operation are not monitored or regulated	Impacts of radon emissions are estimated in Chapter 4 Section 4.2.4 (Hazardous Air Pollutant Impact Assessment) to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document.
Uranium Watch	225262	33	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The DEIS discussion of Impacts Common to All Alternatives (Section 4.2.4, page 4-16) manages to totally ignore the radioactive and hazardous constituents of any fugitive dust from the mining operation. The EIS must identify all hazardous radioactive and non-radioactive constituents of fugitive dust from the uranium mining operations and assess their impact on the environment. This would include an evaluation of potential exposure pathways and impacts to the public, workers, ground and surface water,	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			soils, vegetation, and native and domestic animals—over the short and long term.	document. Additional text has been added to Section 4.2.4 explaining what would be included in a site-specific evaluation.
Uranium Watch	225262	39	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The discussion of Mine Closure and Reclamation Impacts on Air Quality (Section 4.2.4, page 4-18) should have provided an evaluation of the time it would take for reestablishment of pre-mining vegetative cover and stabilization of disturbed soil surfaces. The EIS should have discussed the clean-up standard for hazardous radioactive and non-radioactive contaminants at the site that would affect the air quality after reclamation is complete. This would include contaminants from ore pads, waste rock, evaporation ponds, exploration drilling, vent hole sites, contaminated soils, and any other on-site or off-site area that has been impacted by the mining operation.	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Additional text has been added to Section 4.2.4 explaining what would be included in a site-specific evaluation.
Uranium Watch	225262	40	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. This section should have discussed the impacts of hazardous radioactive and nonradioactive contaminants at the site that would affect the air quality during temporary cessation of mining activity.	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Additional text has been added to Section 4.2.4 explaining what would be included in a site-specific evaluation.
Uranium Watch	225262	41	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Hazardous Pollutant Impact Assessment discussion (Section 4.2.4, page 4-19) fails to assess the different exposure pathways and identify the pathways of the relevant pollutants.	The text in Chapter 3 has been revised to include a discussion on the relevant exposure pathways of radon. Section 4.2 will provide a reference with respect to the discussion in Chapter 3. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Additional text has been added to Section 4.2.4 explaining what would be included in a site-specific evaluation.
Uranium Watch	225262	42	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Hazardous Pollutant Impact Assessment discussion (Section 4.2.4, page 4-19) states *that Hazardous Air Pollutants (HAPS) can cause various adverse health effects and are not regulated under NAAQS.* It goes on to state: *High concentrations at the mine site boundary could indicate the need for further analysis and/or mitigation strategies.* Here, the EIS should discuss	Text in Chapter 4 Section 4.2.4 has been revised as follows: "HAPs can cause various adverse health effects. They are not regulated under the NAAQS. However, emission standards for HAPs have been established in regulations contained at 40 CFR 61 and 63. These regulations were established to ensure that

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the type of monitoring that would occur at the site boundary that would be able to identify whether there were unacceptable levels of HAPS moving off site. Unfortunately, there does not appear to be any requirement to monitor HAPS at the mine site boundaries. Therefore, it is disingenuous for the EIS to imply that such monitoring and regulation of HAPS would take place at the uranium mine sites.	HAP emissions do not exceed concentrations determined to be detrimental to human health and the environment." Specific monitoring and mitigation measures to regulate HAPS would be identified and designed in site-specific environmental documentation when a mine is proposed.
Uranium Watch	225262	44	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Hazardous Pollutant Impact Assessment discussion (Section 4.2.4, page 4-20) states: *when radon-222 decays, it releases alpha particles, which have been linked to negative human health effects.* This discussion of the progeny from the decay of radon- 222 and the human health effects is totally inadequate. The EIS should identify the highly radioactive particles that result from the decay of radon-222, how those particles can lodge in the lungs, and the potential "negative human health effects" caused by the inhalation of radon-222 and its decay products, including cancer.	The text in Chapter 3 has been revised to include a discussion on the relevant exposure pathways of radon. Section 4.2 will provide a reference with respect to the discussion in Chapter 3.
Uranium Watch	225262	45	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Hazardous Pollutant Impact Assessment discussion (Section 4.2.4) should have included a full discussion of the various sources of radon gas, uranium, and uranium decay products at the mine sites and how those radioactive elements can impact the human body and the environment.	The text in Chapter 3 has been revised to include a discussion on the relevant exposure pathways of radon. Section 4.2 will provide a reference with respect to the discussion in Chapter 3.
Uranium Watch	225262	46	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. Section 4.2 does not compare the potential for radon emissions from the underground uranium mine operations for the various withdrawal alternatives. The EIS should have discussed the emission of radon from the underground workings at the mine sites and the impact of those radon emissions. The EIS should have estimated and compared the number of curies of radon that would be released into the atmosphere from the underground mines under each alternative.	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Additional text has been added to Section 4.2.4 explaining what would be included in a site-specific evaluation.
Uranium Watch	225262	47	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. Section 4.2 fails to assess the impacts to workers from the exposure to radon, diesel fumes, and other pollutants in the underground mines. The DEIS should include an assessment of the exposure of workers to radon from the mines and the potential for over exposures to these hazardous materials.	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. Additional text has been added to Section 4.2.4 explaining what would be included in a site-specific evaluation.
Uranium Watch	225262	48	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The reference to	Based upon the theoretical 300-tpd mine described in

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the emission standard for hazardous air pollutants from underground uranium mines (40 C.F.R. Part 61, Subpart B) is irrelevant, because the current and expected breccia pipe mines are not subject to that standard, because the amount of ore mined will be less than 100,000 tons of ore.	the RFD, the total annual production would be 109,500 tons of ore per year. This production rate exceeds the 10,000 ton per year threshold established by 40 CFR Part 61 Subpart B. Consequently, for the purposes of this analysis, we have treated the requirements of 40 CFR Part 61 Subpart B as applying in every case although, as the commenter points out, these standards may not ultimately apply when the surface-managing agency reviews mining plans of operations on a case-by-case basis.
Uranium Watch	225262	49	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The Summaries of the Maximum Total Emissions for the various alternatives totally ignores the emission of radionuclides and non-radioactive hazardous pollutants from the mines. The EIS must address the emissions of radionuclides and non-radioactive hazardous pollutants, such as silica and arsenic for each alternative.	Table 4.2-7 has been revised to include radon emission limitation prescribed in 40 CFR 61, subpart B. Each individual mine's site-specific environmental documentation would conduct impact analysis for its individual pollutants and operations. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document.
Uranium Watch	225262	50	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The discussion of Cumulative Impacts (page 4-36) should have discussed the cumulative impacts from the emission of uranium, radon, and other radionuclides from uranium mining activities in the withdrawal area. The assessment of cumulative impacts should include an evaluation of the current emissions of radionuclides from current and historic uranium mining activity in the withdrawal area	Section 4.2 has been revised to include a discussion of past and present impacts from mining activities. This revision will also include a discussion of the potential cumulative impacts from future mining. Moreover, Chapter 3 has been revised to include a discussion of the background levels of radon and radioactivity.
Arizona Mining Association	225266	9	Section 4.2.5- Climate Impacts While the DEIS considers incremental Greenhouse Gas (GHG) emissions from breccia pipe projects, the DEIS fails to calculate the GHG reductions that is represented by the uranium energy source .. As noted in Energy Fuels Resources Corporation's comments, using the Navajo Generating station as an example, the total potential offset by using uranium as a fuel results in 1.56 billion tons of CO2. Any reasonable search for clean and abundant energy with a minimal carbon footprint would inevitably lead to the vast uranium resources in northern Arizona.	The EIS does not include an analysis of GHG “offsets” (i.e., uranium as a replacement for other energy sources) for several reasons. First, there is no guarantee that uranium mined from the proposed withdrawal area would be allocated exclusively to energy production. Some percentage may go to defense uses, medical applications, or other uses. In addition, with notable exceptions such as Iran and North Korea, processed uranium may be legally sold on the open market and shipped anywhere in the world. Finally, there is no assurance uranium would be used to replace—rather than simply augment—other energy sources such as coal, natural gas, hydroelectric, solar, or wind power.
Grand Canyon	225279	9	The DEIS fails to attempt to analyze the amount and effects of fine	Impacts of emissions are estimated in Chapter 4

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity			particulate (PM 2.5) uranium dust originating from mining facilitates. Fine particulate uranium dust emits alpha particles and can enter the blood stream through inhalation, causing health effects to humans and, presumably, other species. The DEIS seems to try to justify this failure by quoting ADEQ's refusal to analyze those effects in its permitting of the Arizona 1 uranium mine north of Grand Canyon.	Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. The variability in ore concentrations and specific site conditions precludes any analysis of greater detail than that already conducted.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	32	The DEIS discloses that Alternatives A, B, C and D will cause 2532, 956, 1472 and 2214 tons respectively of fine particulate matter dust emissions (PM 2.5) over the twenty-year withdrawal period. Fine particulate uranium dust can emit alpha radiation and when inhaled can enter the blood stream and cause harmful health effects. DEIS' Hazardous Air Pollutant Impact Assessment neglects to analyze the potential impacts of fine particulate uranium dust originating from mining facilities and operations. Instead of analyzing those effects, the DEIS quotes ADEQ's Technical Review and Evaluation of Application for Air Quality Permit No. 46700 for Denison's Arizona 1 Mine: Radiation exposure from dust associated with the mining operation is dependent on the concentrations of dust in the air and the activity of the compounds in the dust. Since these values are variable, it is not feasible to estimate the radiation impact from the dust. DEIS 4-20. The DEIS needs to estimate the radiation and exposure effects that would result from all phases of uranium mining. The ADEQ's refusal to analyze those effects does not license the BLM to do the same.	Impacts of emissions are estimated in Chapter 4 Section 4.2 to the level of detail possible for an EIS that is not for a specific mine. In considering approval of a uranium mine plan of operation, the BLM and Forest Service would require site-specific environmental documentation and the impacts from radioactive and non-radioactive pollutants from the uranium mines could be analyzed in more detail in that document. The variability in ore concentrations and specific site conditions precludes any analysis of greater detail than that already conducted.
Ted Jensen	225282	3	Missing from background history are the Nevada nuclear downwinder radiation impacts on the area. The Northern Segregation area is within a heavy radiation fallout area. This radiation is still there including in the trees. Controlled burns on the Kaibab and even on the Grand Canyon Park release this radiation and is carried to Colorado River.	We recognize that there were historical issues with radioactive fallout within the withdrawal parcels by the applicable regulatory authority. The nuclear testing conducted at the Nevada Test Site in the 1940s and 1950s dispersed radioactive material into the atmosphere. This radioactive material was then dispersed over a wide range downwind of the test site as it was deposited as radioactive fallout. This radioactive fallout accounts for much of the background radiation in the area. This background history has been added to Chapter 3 of the EIS. All estimated impacts of emissions from uranium mining are expressed as changes from the background radiation, so are already measured as cumulative with the fallout from the Nevada Test Site.
Ted Jensen	225282	8	If scale logic is used in one area, then they should be applied in others. For example, why is there no air quality magnitude scales used in the Impacts upon Air Quality (ES-13).	The use of "scale logic" is intended to provide context, magnitude, intensity, and duration for impacts that are more qualitative in nature. With respect to impacts on

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				air quality, the use of scale logic is not appropriate because it can be disclosed quantitatively. Air quality standards are established such that emissions and/or projects that emit air pollutants must stay below regulatory thresholds. Exceedance of a regulatory threshold would constitute an adverse impact and an enforceable action. Therefore, you are either above or below the standard.
Quaterra Alaska Inc.	225288	9	P 4-15 Table 4.2-7 Emissions from standby generator. It appears questionable that a generator which is used only for electric power outages would generate 48 tons per year of CO2.	CO2 emissions from the standby generator were calculated based on 500 hours per year of operations and standard methodology obtained from the U.S. EPA's AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors methodology obtained from Table 3.3-1 -Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines dated October 1996.
Lela Rhodes	226422	4	According to Arizona tourist information, in 2009 4.3 million people visited the Grand Canyon National Park. They also state that 74% of those visitors traveled by car. That means that the exhaust from 3,182,000 vehicles in 2009 was dispersed into the environment. Your DEIS touts tourism as the mecca for the area, but you make no mention of this very hazardous environmental activity.	Emission inventory estimates for Coconino and Mohave Counties are provided in Table 3.2-5. 2005 Summary of Emissions by Source (in tons per year) for Coconino and Mohave Counties and Arizona Statewide. This table provides ton per year emissions from on-road gasoline and diesel vehicles.
VANE Minerals	242650	12	A key issue in the DEIS can be found in Section 4.2.5 (Page 4-25), Assumptions for Impact Analysis. This key issue is the mention of reclamation. This implies "temporary" when describing impacts and is the most significant fact in determining whether uranium exploration and mining pose potential harm and proves that a 20- year withdrawal is unjustified and that the segregation was unjustified for that matter.	As described in Appendix B, an important phase in the mine life-cycle is reclamation. Section B.4.5 describes typical uranium mine reclamation practices. While reclamation is required and mining companies are bonded to assure it does, the majority of affects from mining occur while the mine is in active production. Further, mine reclamation may achieve site stabilization from air and water erosion risk in a couple of years, but may take several generations to return to pre-mining conditions.
Groundwater Awareness League, Inc	242658	3	The BLM Report covers the issues with "on-site" mining. There are issues with mining. Unique problems can occur with the mining process. The release of radon is often associated with uranium mining	Emissions of radon from onsite mining activities are regulated under 40 CFR Part 61 Subpart B, which establishes radon emission limits from such activities. EIS Section 4.2 addresses the emissions of radon associated with uranium mining within the proposed withdrawal area.
The NAU Project, LLC	242913	21	Page 1-21 Table 1.5-1 Air Quality and Climate: The detailed analysis of the cumulative impact on air quality was not done. The Cumulative Impacts section in Chapter 4 states: There are other uses and activities for the lands within the proposed withdrawal area besides uranium **Table 1.5-1 states: Air Quality and Climate Release of particulates The release of particulates (dust) from exploration drilling operations, mining, and ore*	The text in Table 1.5-1 has been revised to say "Increase in regional haze emissions from all exploration and development activity and equipment could contribute to the regional haze affecting air quality in the study area, as well as affect overall scenic quality." The cumulative effects of the mining

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			hauling traffic and other vehicles on unpaved roads could have an effect on the regional air quality. This could occur in combination with pre-existing emissions from coal plants, cities, traffic, and other sources of regional air pollution to create a cumulative regional effect on air quality. Increase in regional haze Emissions from all exploration and development activity and equipment could contribute to the regional haze affecting air quality in the defined prevention of significant deterioration area, as well as affect overall scenic quality. Table 1.5-1 cites cumulative impacts when added to coal plants, cities, traffic, and other sources of regional air pollution and Chapter 4 cites recreational activities, OHVs, livestock grazing, etc. Then states that there is not sufficient data to analyze and quantify these sources of potential emissions! While I am sure that getting data for the above activities cited in Chapter 4 is difficult, the detailed analysis specifically called for did not mention any of these. The items to be analyzed in detail were coal plants, cities, traffic, and other sources of regional air pollution. This is an example of BIAS by OMMITION! The cumulative impact analysis is actually quite easy to do and all the relevant data is easy to access. My analysis indicates that the additional pollution at all levels for uranium exploration and mining is negligible compared to the current levels being produced by all sources in the Air Quality Study Area. As the DEIS points out, there will be local affects, and these effects will have to be mitigated or satisfy State and Federal air quality standard in order to receive the permits required to operate a mine. I have provided an outline and methodology of the required detailed analysis for cumulative effects on Air Quality in my comments for Chapter 4. The Cumulative effect analysis needs to be done as required by NEPA.	process are dependent upon the number of simultaneous, active processes. Any future mining activities must comply with those regulations promulgated under the CAA including PSD. Future mining locations would be required to demonstrate compliance with clean air standards promulgated under the CAA. All of the cumulative sources in an air shed plus any future sources cannot exceed the air quality standards.
The NAU Project, LLC	242913	25	Section 1.5.3 Issues Eliminated from Detailed Analysis: The extent to which uranium energy production offsets the use of carbon-based fuels that contribute to the release of greenhouse gases (GHGs), which have been linked to global climate change. This issue was incorrectly eliminated from detailed analysis. The proper analysis would be the amount by which the uranium in the withdrawal area offsets the use of carbon-based fuels that contribute to the release of greenhouse gases (GHGs), which have been linked to global climate change. In other words, the general amount that nuclear power reduces green house gases is not germane to the EIS, but the GHG reduction due to the uranium in the withdrawal area is. After all, the GHGs produced by uranium exploration and mining was minutely calculated and statements in this DEIS specifically commented on them, thus implying while the effect might be unknown, the fact that all these GHGs were being produced was important. Including the GHGs produced by uranium exploration and mining while excluding the GHG offsets is sneaky!	The EIS does not include an analysis of GHG “offsets” (i.e., uranium as a replacement for other energy sources) for several reasons. First, there is no guarantee that uranium mined from the proposed withdrawal area would be allocated exclusively to energy production. Some percentage may go to defense uses, medical applications, or other uses. In addition, with notable exceptions such as Iran and North Korea, processed uranium may be legally sold on the open market and shipped anywhere in the world. Finally, there is no assurance uranium would be used to replace—rather than simply augment—other energy sources such as coal, natural gas, hydroelectric, solar, or wind power.
The NAU Project, LLC	242913	30	Table 3.2-4 seems to be incomplete. The Kayenta Coal Mine should be included. PM10 value is 1,396 tpy. Include any other relevant pollutants	The Kayenta Coal Mine has been added to Table 3.2-4. Additionally, CO2 emission values for other activities

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			from this source. Grand Canyon Railway operation?? Burning lots of diesel fuel and kicken up dust on their runs to and from the Grand Canyon. Figure out what this operation pollutes each year. Table 3.2-5 has no CO2 values. Chapter 4 calculates CO2 emissions for mining activities and there is no basis to compare with existing sources of CO2 in the Air Quality Study Area. This deficit should be corrected.	in the area have been added as available. Emission inventory estimates for Coconino and Mohave Counties are provided in Table 3.2-5. 2005 Summary of Emissions by Source (in tpy) for Coconino and Mohave Counties and Arizona Statewide. These tables provide tpy emissions from non-road equipment and include emissions from trains. GHG emissions from mining were included in the analysis in order to compare the mass emissions of GHG between the proposed action and the alternatives.
The NAU Project, LLC	242913	31	Table 3.2-5 It is unclear whether these figures include the transient traffic that exists on I-40. This major interstate cuts across both Mohave and Coconino counties and supports traffic 24/7 with both diesel and gasoline vehicles contributing air contaminates.	Emission inventory estimates for Coconino and Mohave Counties are provided in Table 3.2-5. 2005 Summary of Emissions by Source (in tpy) for Coconino and Mohave Counties and Arizona Statewide. These tables provide tpy emissions from on-road gasoline and diesel fueled vehicles and include emissions from these vehicles traveling on Interstate 40.
The NAU Project, LLC	242913	43	Section 4.2 Air Quality and Climate General comment regarding the effects of uranium mining on Climate. It seems strange to me that the authors felt compelled to indicate that it was possible, but unknown, how the mining of uranium would affect global warming. In section 1.5.3 Eliminated from detailed analysis: *The amount by which the use or non-use for energy production of uranium found in the proposed withdrawal area could change global temperatures.*and *The extent to which uranium energy production offsets the use of carbon-based fuels that contribute to the release of greenhouse gases (GHGs), which have been linked to global climate change.* Yet, the amount of green house gases generated by uranium mining was calculated and a statement was made that they could contribute to global climate change: From page 4-7 *Uranium mining activities in the proposed withdrawal will likely cause localized increases in air pollutant emissions, with the exception of GHG emissions, which are considered by scientists to contribute to global climate change and which could have global impacts.* So it seems to be OK to say that mining uranium in the withdrawal areas will contribute to GHGs and thus could have global climate change impacts, but it is NOT OK to consider the GHG reductions that is represented by the uranium energy resource. This conflict must be resolved, as is, this is a BIAS in the writing of the EIS. A simple calculation can determine the GHG reduction from the energy content of the uranium and then subtracting the amount generated would be the net benefit. The amount of uranium in the withdrawal areas would produce enough fuel to equivalently run the Navajo Generating Station (NGS) for 77.7years. The NGS produces 20.1 million tons of CO2 per year. The total offset of CO2 by using uranium as a fuel is 1.56177 Billion tons of CO2. The production of CO2 by uranium exploration and mining in	The EIS does not include an analysis of GHG “offsets” (i.e., uranium as a replacement for other energy sources) for several reasons. First, there is no guarantee that uranium mined from the proposed withdrawal area would be allocated exclusively to energy production. Some percentage may go to defense uses, medical applications, or other uses. In addition, with notable exceptions such as Iran and North Korea, processed uranium may be legally sold on the open market and shipped anywhere in the world. Finally, there is no assurance uranium would be used to replace—rather than simply augment—other energy sources such as coal, natural gas, hydroelectric, solar, or wind power. GHG emissions from mining were included in the analysis in order to compare the mass emissions of GHG between the proposed action and the alternatives.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the withdrawal area was calculated at 399,100 tons. A net savings of 1.56137 Billion tons of CO2 by using uranium from the withdrawal area as nuclear fuel! The net offset of CO2 for the uranium in the withdrawal areas should be calculated and included in the EIS since the CO2 contribution from uranium exploration and mining was calculated.	
The NAU Project, LLC	242913	44	Page 4-5 It is also important to note the possibility exists of the mines' being idle for 20 years. Appendix B states that the RFD assumes the price for U3O8 remains constant at $40/lb and therefore assumes no mines being idle. This sentence should be eliminated.	The sentence has been removed.
The NAU Project, LLC	242913	45 & 46	Page 4-25 Summary of Impacts (Air Quality and Climate) This section is inadequate and that is putting is politely. No context or explanation is given for why any of the emissions listed in the amounts calculated are detrimental (or not) to the regions air quality. Table 4.2-17 tallies the maximum total emissions in tons from all phases of mine operations associated with Alternative A. Under Alternative A, over a 20-year period approximately 3,413 tons NOX, 9 tons SO2, 2,352 tons CO, 15,346 tons PM10, 2,254 tons PM2.5, 371 tons VOCs, and 333,203 tons CO2 would be emitted to the atmosphere during the mine operation activities. So what do these numbers mean? How do they compare to what is already happening in the Air Quality Study area? What percentage increase are the values over what is already being produced? These concepts should be covered in the Cumulative Impacts Section. They are not, the cumulative impacts' section says: There are other uses and activities for the lands within the proposed withdrawal area besides uranium mining (i.e., recreational activities, OHVs, livestock grazing, etc.) However, sufficient data are not currently available to quantify these other potential emission. Really? The author(s) of this section spent a huge amount of time modeling everything to do with the impacts of mining on air quality impacts, but has insufficient data to model the existing air quality? Really? From Table 1.5-1 for air quality: "cumulative impacts" for uranium exploration and minings contributions when added to coal plants, cities, traffic, and other sources of regional air pollution and Chapter 4 cites recreational activities, OHVs, livestock grazing, etc. for the same cumulative impact analysis. Chapter 4 goes on to state that there is not sufficient data to analyze and quantify these sources of potential emissions! While I am sure that getting data for recreational activities, OHVs, livestock grazing cited in Chapter 4 is difficult, the detailed analysis specifically called for did not mention any of these. The items to be analyzed in detail were coal plants, cities, traffic, and other sources of regional air pollution. The lack of data for analysis for cumulative air quality impacts is bull, plain and simple, and represents a significant source of BIAS in the development of this EIS. A back of the napkin analysis shows that the contribution to the total emissions is negligible compared to what already exist. A simple model for the existing emissions for the Study Area	As a matter of law, air pollution emissions are not necessarily detrimental to the region's air quality, unless they exceed regulatory standards. Emissions from mining were included in the analysis in order to compare the mass emissions of air pollutants between the proposed action and the alternatives. The existing background data for the air quality study area is included in Table 3.2-6. Those data represent the available measure background for the area. The measured background data would include existing stationary sources and other air pollutant generating activities. Table 3.2-4 provides emissions data for the PSD sources located in the air quality study area. Table 3.2-5 provides county-wide emissions data for those counties in the air quality study area. When conducting impact modeling with respect to air quality, background concentrations are evaluated in that process. Background emissions are measured concentrations data that includes emissions from all current sources contributing to air quality in the study area including stationary sources, mobile sources, and other use emissions such as cities, power plants, recreational vehicles, livestock grazing, travel on interstate highways, etc. Impacts from these sources in addition to future mines and/or future emission sources would represent the cumulative impact. Section 4.2 has been revised to include a discussion of past and present impacts from mining activities. This revision will also include a discussion of the potential cumulative impacts from future mining. Moreover, Chapter 3 has been revised to include a discussion of the background levels of air pollutant data, including

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			is all that is needed. A simple model is easy to construct and analyze as most of the work and research has been already done for determining the uranium mining air emissions. An outline for this model is presented below. A Proposed Simplified Air Emissions Model For the Air Quality Study Area The Study area is as specified by Figure 3.2-1	GHG. A model for each individual current or existing condition will not be helpful toward understanding the potential impacts of the proposed withdrawal on air quality conditions. None of the proposed mines evaluated in this FEIS would have potential emissions in quantities large enough to trigger a PSD review, as defined in Section 3.2.2. Therefore, it was assumed that each mine would be considered a minor source relative to the PSD permitting process and would only require a State of Arizona Class II Non-Title V air quality permit.
The NAU Project, LLC	242913	45 & 46	Continued... The PSD sources are listed in Table 3.2.-4. I believe the Kayenta Coal Mine has been left off this list. If so, add it to the list. Use Table 3.2-5 2005 Summary of Emissions by Source (in tpy) for Coconino and Mohave Counties. Create the same kind of table for Kane and Washington Counties in Utah. Modify each county's emissions by the percentage of people residing in the Air Quality Study Area. This gives a reasonable estimate for the contribution of emissions for each county to the study area. Determine if the county data includes items such as traffic on I40 and Hwy 64 to the Grand Canyon and other more heavily traveled roads. If the data does not include traffic on I40, visitor traffic to the Grand Canyon, hunters, hikers, site seers, etc, within the study area then a bit more work needs to be done. This would be things like: > Determine the number diesel/gasoline vehicles of all types that use I40. Determine length of I40 passing through the study area and calculate fuel used and emissions produced. >Do the same for visitors to the South rim of the Grand Canyon. The number of cars and buses to the Grand Canyon is known and the data must be available somewhere. >Figure the fuel used by the Grand Canyon Rail Road and calculate emissions. Continue to do these types of analysis for any type of emission not covered in the county summaries. This is done to determine if any additional CO, NOx, PM10, PM2.5, SOx, and VOCs need to be added to the totals for the adjusted county summaries. If the county summaries had it all correct in the first place, then the percentage adjusted summaries for all four counties are good to go. The county summaries do not include CO2 emissions, which is a GHG, and was calculated for all aspects of uranium exploration and mining. However, although it would be nice to have the CO2 contributions of all the counties and all the visitors to the Grand Canyon air quality study area, it is quite unnecessary. The Navajo Generating Station provides an overwhelming amount of CO2 to the air quality study area all by itself. From Table 3.2.4 the Navajo Generating Station emits 20.1 million tons per year of CO2. In a 20 year span, this would be 401 million tons of CO2.	The Kayenta Coal Mine as well as any additional PSD sources in the study area has been added to Table 3.2-4. Because the Grand Canyon Railway is not a PSD source its inclusion in Table 3.2-4 would not be appropriate. Emission inventories (Coconino and Mohave Counties, Arizona, and Washington and Kane Counties, Utah) presented in Table 3.2-5 represent air pollutant emissions across all available sources. The emission inventories include, on-road vehicles, non-road equipment, electricity generation, fossil fuel combustion, industrial process, fires, waste disposal, residential wood combustion, solvent use, road dust, fertilizer and livestock and miscellaneous sources. The non-road equipment in this inventory includes gasoline and diesel non-road equipment, such as planes, trains, and ships. According to the 2005 NEI methodology, class I (national), class II (regional), commuter, passenger and yard locomotives are included in the “trains” category. Criteria pollutants were estimated by using locomotive fuel use data obtained from the Department of Energy (DOE) Energy Information Administration (EIA) and available emission factors. Therefore, it is assumed the Grand Canyon Railway and buses to and from the Grand Canyon National Park were included in this inventory. Section 4.2 has been revised to include a discussion of past and present impacts from mining activities. This revision will also include a discussion of the potential

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			The uranium exploration and mining 20 year CO2 emissions were calculated to be 399,100 tons. This is a fractional increase of: 399,100 tons CO2 from U/ 401,000,000 tons CO2 Coal pwr plant = .00099 or 0.1% Given the fact that you could add in the CO2 contributions for all the cities and vehicles in the air quality study area, the additional contribution from Uranium operations is much smaller still. Lets call that negligible. Edit the GHG chatter with a statement that the contribution by Uranium operations is nothing compared to the existing sources in the study area or drop and delete the GHG stuff altogether. Provide a cumulative impact summary that shows the percentage increase for each calculated emission due to uranium operations as compared to current conditions for each alternative.	cumulative impacts from future mining. Moreover, Chapter 3 has been revised to include a discussion of the background levels of air pollutant data, including GHG. When conducting impact modeling with respect to air quality, background concentrations are evaluated in that process. Background emissions are measured concentrations data that includes emissions from all current sources contributing to air quality in the study area including stationary sources, mobile sources, and other use emissions such as cities, power plants, recreational vehicles, livestock grazing, travel on interstate highways, etc.
The NAU Project, LLC	242913	80	Hazardous Air Pollutant Impact Assessment page 4-19 HAPs can cause various adverse health effects. They are not regulated under the NAAQS, but high concentrations at the mine site boundary could indicate the need for further analysis and/or mitigation strategies. NEPA requires YOU to do this!	Text in the EIS in Section 4.2.4 has been revised as follows: "HAPs can cause various adverse health effects. They are not regulated under the NAAQS. However, emission standards for HAPs have been established in regulations contained at 40 CFR 61 and 63. These regulations were established to ensure that HAP emissions do not exceed concentrations determined to be detrimental to human health and the environment." Specific monitoring and mitigation measures to regulate HAPS would be identified and designed in site-specific environmental documentation when a mine is proposed.
Don Lipmanson	96015	1	I know from the posted warning signs that groundwater at Salt Creek cannot be consumed on account of radioactivity from former mining. Likewise, uranium mining in national forests nearby Grand Canyon NP could seriously threaten air safety in the region.	The air quality impact analysis is addressed in the EIS Chapter 4, Section 4.2.
Hualapai Tribe-Office of the Chairman	225270	4	Chapter 3.2.2., Page 3-20. The DEIS should refer to the role of Indian tribal governments in regulating air quality on tribal lands under the Clean Air Act.	Where applicable, each individual mine would be required to seek legal authority to operate; this would include seeking such authority from tribal governments. Under the Clean Air Act, Title V – Permits, some tribal lands have been delegated authority to regulate air quality. In the area of northern Arizona and southern Utah, The Navajo Nation is the only tribal government granted this authority. Other tribal nations in the withdrawal area can participate in permitting activities, but have not been granted the authority regulate air quality. Text has been revised accordingly.
Hualapai Tribe-	225270	28	General Impact Analysis (Flawed Analysis, Missing Info) Appendix B.	The haul trucks are designed such that the material

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Office of the Chairman			Reasonably Foreseeable Development under Alternative B, Table B-19. The Hualapai are greatly concerned about the transportation of uranium ore discussed under the DEIS. The U.S. Department of Transportation's exemption level for uranium is 2.7 x 10-10 Ci/g (see CFR Title 49 Part 173.436) and therefore, uranium ore is regulated as a Class 7 radioactive material under the hazardous material regulations. Under Title 49 Part 173.403, uranium ores and concentrates of uranium ore are classified as Low Specific Activity (LSA), Group - 1 material. Due to low specific activity, ore shipments are generally exempt from most packaging, marking, labeling, and plaque-carding requirements of other Class 7 radioactive materials. In addition to uranium ore, LSA-1 material may also include other low-toxicity alpha emitters that may be shipped from mine to mill such as contaminated soils and rubble. Table B-19 shows that under Alternative B, there would be approximately 276,116 ore tonnage for existing mines within the withdrawal parcels. This equates to 11,045 haul trips for existing mines. New mine hauling trips are estimated at 77,840 trips. The DEIS should include analysis of the level of low-toxicity alpha emitters for all ore tonnage being transported over a twenty year period. Because uranium ore is a Class 7 radioactive material exempt from most of the packaging, marking, labeling and plaque-carding requirements, shipments of uranium ore may be transported without being properly packaged, creating higher levels of radioactive materials and low-toxicity alpha-emitters to be dispersed in dust and wind.	being transported is covered and therefore, emissions from the ore being hauled are controlled/mitigated and not allowed to escape the vehicle as a fugitive source. It is the regulatory agency's responsibility to protect human health and the environment. The site-specific mine plan will include mitigation and control measures for the transportation of uranium ores from the mine site to the processing facility. Language has been added to Section 3.2.2. Legal and Regulatory Requirements, to identify the applicability of 49 CFR Part 171, 172, and 177 to the transport of uranium ore from the mine location to the processing facility. Those regulations were promulgated by the U.S. Department of Transportation and provide the regulatory basis and requirements for such transport. The uranium ore haul trucks in accordance with permit conditions and regulations are covered/sealed within a metal container. According to the Washington State Department of Health, Office of Radiation Protection's - General Radiation Fact Sheets entitled "What is Ionizing Radiation?" (Available at http://www.doh.wa.gov/ehp/rp/factsheets/fsdefault.htm) , uranium ore contains alpha emitters. These alpha particles consist of two neutrons and two protons ejected from the nucleus of an atom. The alpha particle is identical to the nucleus of a helium atom. Examples of alpha emitters are radium, radon, thorium, and uranium. Because alpha particles are charged and relatively heavy, they interact intensely with atoms in materials they encounter, giving up their energy over a very short range. In air, their travel distances are limited to approximately an inch. Alpha particles are easily shielded against and can be stopped by a single sheet of paper. Since alpha particles cannot penetrate the dead layer of the skin, they do not present a hazard from exposure external to the body. Given this lower radioactivity of the uranium ore, the enclosed metal containers in which the ore is transported provides adequate shielding from the ionizing radiation.
U.S. Fish and Wildlife Service	242660	2	For the impact analysis in Chapter 4, the DEIS relies on the assumption that state and Federal regulations have been and are being met in order to minimize environmental impacts to various resources (e.g., air quality on page 4-17, water quality and quantity on page 4-57, Compliance with Environmental Regulations and Pennitting on pages 4-66 to 67). However,	It is outside the scope of this analysis to assume that mining under subsequently issued permits will not be conducted in accordance with applicable law. Furthermore, NEPA does not require the agency to analyze contingencies or worst-case scenarios.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			a recent media report (Arizona Daily Sun, March 11,2011, "Three uranium mines advance") states that Arizona Department of Environmental Quality (ADEQ) did not inspect the currently-operating Arizona 1 mine until it had been open for nine months, and that four "major" violations were not addressed. In addition to testing this assumption, longer-tenn and comprehensive monitoring would also serve to evaluate the potential effects that may result from variations in regulatory compliance.	
Coconino County Board of Supervisors	225238	13	Uranium mining in the withdrawal area requires thousands of haul trips to the mill in Blanding, Utah. There does not appear to be any numerical analysis of the total amount of fugitive dust created through each haul trip, though this certainly could have been done. While it is probably true, as stated on page 4-18 of the DEIS, that "these impacts would be localized and temporary," the cumulative impacts of thousands of trucks could result in very discernible dust clouds, particularly during dry months. It should be noted that the amount of dust created by vehicles increases logarithmically with speed, and there is little or no way to regulate the speed of haul trucks on the unpaved haul routes.	Through a separate, site-specific environmental impact analysis and air quality permitting process, each individual mine would be required to provide appropriate mitigation and control measures to ensure compliance with established emission limitations. The haul trucks are designed such that the material being transported is covered and sealed, therefore, emissions from the ore being hauled are controlled/mitigated and not allowed to escape the vehicle as a fugitive source. Language has been added to Section 3.2.2. Legal and Regulatory Requirements, to identify the applicability of 49 CFR Part 171, 172, and 177 to the transport of uranium ore from the mine location to the processing facility. Those regulations were promulgated by the U.S. Department of Transportation and provide the regulatory basis and requirements for such transport.
Alternatives				
Rita Kester	21356	2	I was hoping that one of the alternatives would be permanent protection but B is a good beginning.	For withdrawals of this size, the Federal Land Policy and Management Act (FLPMA) limits the authority of the Secretary of Interior to withdrawals of 20 years or less subject to valid existing rights. The alternative for a permanent mining withdrawal is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.
	104132	2	Instead of stopping uranium mining for the next 20 years, put uranium mining to a halt "permanently."	For withdrawals of this size, the Federal Land Policy and Management Act limits the authority of the Secretary of Interior to withdrawals of 20 years or less subject to valid existing rights. The alternative for a permanent mining withdrawal is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.
Denison Mines Corp	104145	11	However, as an alternative to a withdrawal and to address concerns that have been raised about watershed protection, the BLM and Forest Service could promulgate surface management or other regulations specific to this	The alternative for promulgation of surface management regulations specific to the withdrawal area is discussed in Section 2.3 Alternatives

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			area to provide the desired level of protection. In order to determine to what extent changes to regulations specific to this area may be required, an independent study of the watershed impacts from uranium mining near the Grand Canyon could be completed. The National Research Council of the National Academy of Sciences would be an appropriate entity to complete such a study.	Considered But Eliminated From Detailed Analysis. Study related to such rule making could be conducted regardless of the Secretary's decision on withdrawal.
Gregor Knauer	105023	2	Alternative B is inadequate. The "valid existing rights" of the 4 to 11 mines that are not subject to this withdrawal should be taken back too. Furthermore, 20 years is not long enough! No more uranium mining anywhere anytime.	For withdrawals of this size, the Federal Land Policy and Management Act limits the authority of the Secretary of Interior to withdrawals of 20 years or less subject to valid existing rights. The Mining Law of 1872 confers a property right to claimants determined to hold valid claims. Only Congress has the authority to make a withdrawal without recognizing valid existing rights. The alternative for a permanent mining withdrawal is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.
Manuel Savala	213919	1	I'm going to propose for the Kaibab Tribal Government another alternative. I already approached BLM ten years ago to give me the Arizona Strip. But I was --well, I went all the way to Phoenix and back. And the final outcome was they told me to go to my Congressman. I wrote my Congressman. I never got anywhere. So, but this time around, since I'm chairman, I'm going to push for another alternative. And I feel that if I got the Arizona Strip we can exert more pressure, maybe not stop the mining, but more additional exploration anyway. But it would benefit the Tribe economically, culturally. Like the Secretary of the Interior said, he wanted to get Indian Tribal Lands under trust. So I want to see if they really want to do that.	The purpose of this EIS it to analyze the impacts of withdrawal of lands from location of new mining claims under the Mining Law of 1872, subject to valid existing rights. Transfer of lands to the Kaibab Paiute Tribe is beyond the scope of this EIS.
DIR Exploration, Inc.	225241	2	The geological data we have brought to your attention in this draft EIS commentary indicate that little or no uranium mining industry or other economic harm would result from the withdrawal of the East (Houserock Valley) Parcel. DIR recommends that the US Department of Interior drop its proposal to withdraw the North and South Parcels of the proposed mining lands withdrawal.	Withdrawal of the East Parcel (Houserock Valley) is covered and analyzed in the current range of alternatives as is the option of not withdrawing the North and South Parcels.
Kanab Utah	225250	8	We are also concerned that the DEIS choose to not consider alternatives that reduced the review period to 5 or 10 years. The justification for doing so was that there would be no changes so there was no need for more frequent review. If you fulfill your responsibility to consider the objectives and plans of other Federal agencies, you will recognize the extremely volatile nature of Utah's energy policy and the impact of international affairs on America's energy supplies. Energy prices impact America's economy which impacts our overall tax base including the funding for agencies such as the Bureau of Land Management and the U.S. Forest Service. Funding limitations have a direct impact on your ability to adequately meet your land management responsibilities. It would be wise	The alternative for a mining withdrawal of less than 20 years is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			to consider shorter term review periods that allow more rapid response to national needs.	
Donald Begalke	225254	4	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 Final EIS and being in subsequent withdrawal projects of the future.	The authority of the Secretary of Interior for withdrawing public lands is in Section 204 of the Federal Land Policy and Management Act. There is no legal authority for "automatic" renewal so the option is beyond the scope of this EIS. Withdrawn lands would be analyzed for renewal prior to withdrawal expiration.
National Parks Conservation Association	225257	3	The methodology for determining which areas have higher concentrations of resources that might be impacted is faulty because so much remains to be yet discovered about this vast and largely untraveled area. There has been no complete mapping of the cultural sites, plants, and animals in this watershed. Within Grand Canyon National Park, perhaps, the most-studied area in the western United States, it is widely known within the scientific community that our understanding of the diverse resources it contains is not complete. For instance, last year five new species were discovered in the park - not only new to the park, but new to science as well. Outside the park, where research is less likely to have taken place, the data is even less testable.	Development of alternatives and analysis in the EIS used the best data available including professional scientists from involved Federal agencies (BLM, Forest Service, USFWS, USGS, NPS) and published resources as illustrated in the Literature Cited section of the EIS.
National Parks Conservation Association	225257	4	Was there a reason that an additional alternative expanding the withdrawal area - perhaps to include public lands adjacent to other national parks along the Colorado River - was not included in this effort? It would seem that removing those lands from future uranium mining might also serve the purpose and need expressed in this Environmental Impact Statement, and should be considered (perhaps in a separate process now that this effort will soon reach its natural conclusion).	The withdrawal boundary put forward by the Secretary of Interior is discussed in Sections 1.2 and 1.3. Expanding the boundaries of the withdrawal is beyond the purpose and need for this EIS and is not a reasonable alternative to the proposed action.
Ted Jensen	225282	1	Add an additional alternative to honor existing claims but not allow any further claims. Existing alternatives state they will honor valid existing rights but when you read the fine print, this basically kills all claims given valid claims must have been proven. The alternatives provided do not address the cost to reimburse those negatively impacted with closure action.	The law governing valid existing rights in the mineral withdrawal process is in Section 701 of FLPMA and establishes that withdrawals are subject to “valid existing rights.” (A brief discussion of validity can be found in Appendix B, B.8.2) There is no legal authority to reimburse claimants without valid existing rights. Both of these options are outside the scope of the EIS.
Janet Remington	226495	2	From the wording in your draft EIS it is not clear whether all feasible alternatives have been included. For the Grand Canyon and adjoining lands, there should have been an unequivocal no-uranium-mining alternative with no exceptions and a no-mining of any sort alternative for that area.	For withdrawals of this size, the Federal Land Policy and Management Act limits the authority of the Secretary of the Interior to withdrawals of 20 years or less subject to valid existing rights. The Mining Law of 1872 confers a property right to claimants determined

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				to hold valid claims. Only Congress has the authority to make a withdrawal without recognizing valid existing rights. The alternative for a permanent mining withdrawal is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.
Cody Perry	227663	2	My only suggestion to the proposal would be to make this management decision, instead of 20 years, a decision for all time.	For withdrawals of this size, the FLPMA limits the authority of the Secretary of Interior to withdrawals of 20 years or less subject to valid existing rights. The alternative for a permanent mining withdrawal is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.
Jannette Huskon	242715	1	We would like to see the Interior Secretary withdrawal for good. If he withdraws it 20 years or longer, she doesn't want to see it.	For withdrawals of this size, the FLPMA limits the authority of the Secretary of Interior to withdrawals of 20 years or less subject to valid existing rights. The alternative for a permanent mining withdrawal is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis.
The NAU Project, LLC	242913	26	Page 2-16 and Figure 2.4-4 The Alternative C for the South Parcel is too restrictive. The area in the Southwest corner of the parcel has the same "values" as the area that is open East of Highway 64 and Red Butte. The area West of Hwy 64 that is only marked "Cultural" should be open for mineral entry under Alternative C. That this area is closer to Havasu Spring should have no bearing as the Water Resource section of this DEIS calculated no or negligible impacts at Havasu Springs from mining development. The Alternative C map should look like: Alternative C is too restrictive for the South Parcel. Both of the areas in the above figure that are now indicated as open are equivalent. There is no reason to remove the West parcel as was done in the current Alternative C. The Alternative C should be changed to reflect the above map or a valid reason not to should be provided. ***see submittal #242913 for detailed figure info**	The area provided in the map by the commenter as recommended for exclusion from Alternative C is currently excluded under both Alternatives A and D and therefore is already included and analyzed in the range of alternatives.
Arizona Geological Survey	225263	3	We propose that at least one additional alternative be included in the EIS that would allow mineral exploration to continue across the area under the existing rigorous standards already in place. Concurrently, additional scientific, technical, and engineering studies would be carried out addressing the topics that are not adequately understood. Exploration companies would have the opportunity to develop the proposed new mining approaches suggested above, through limited prototypes and testbeds, in cooperation with the land management agencies. A full-scale mining operation that went through the permitting process would be as an instrumented, open, proof-of-concept model. Ground and surface waters proximal to the operation would be monitored before, during, and after the prospect is developed. Since the ore deposits are small, a complete mine life cycle could be completed in 3- 5 years, allowing a timely evaluation of	The commenter's suggestion for a new alternative is covered in the FEIS as the No Action Alternative. The "proof of concept model" suggested by the commenter could be implemented for mining operations regardless of the Secretary's decisions on withdrawal. .

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			new techniques. At that time, re-evaluation of impacts could be reassessed and more informed decisions could be made about the long term viability and co-existence of carefully managed and monitored development in this unique and uniquely resource-rich region.	
Coconino County Board of Supervisors	225238	2	At one of the cooperating agency meetings early in the process County staff asked whether one of the considered alternatives could be full withdrawal in one or two of the three areas and partial withdrawal in another area, and that option was rejected. The County presumes that this is due to the methodology used to create the partial withdrawal scenarios, which was dependent on overlays of a number of resources. We acknowledge that the position of Mohave County is different than ours, but also recognize that mining on the west side of Kanab Creek, which is the County boundary, could have impacts on water quality or springs in Kanab Creek or to the Creek itself. Coconino County has supported full withdrawal of the areas within the County, however, there is a possibility that some of the northwest portion of the North Area several miles west of Kanab Creek where there are relatively fewer resources could be left out of the withdrawal area in order to accommodate some level of future mining in addition to just the completion of valid existing claims.	Excluding portions of the northwest area of the North Parcel, as recommended by the commenter, is included in the range of alternatives under Alternatives C and D.
Havasupai Tribal Council	54408	1	If the purpose of the "action" Alternatives B, C, and D is to withdraw geographic areas that encompass particularly sensitive resources, including cultural resources, from the adverse impacts of uranium mining, why has the Traditional Cultural Property ("TCP") of Red Butte not been included in all of the action alternatives? In particular, why was Red Butte included in Alternatives B and C, but not Alternative D? Given the fact that the BLM has a legal obligation under the National Historic Preservation Act and the National Environmental Policy Act to protect TCPs from adverse impact, how would Alternative D provide sufficient protection to Red Butte from the detrimental effects of uranium exploration and mining?	The National Historic Preservation Act (NHPA) requires that TCPs are considered in the decision making for federal actions, but does not necessarily mandate protection from adverse impacts. The EIS complies with the NHPA, but also complies with NEPA by including a full range of alternatives. Concerning Red Butte, the range was analyzed by including it within the withdrawal area in Alternatives B and C, but not within Alternative D. This allows for analysis of impacts of both withdrawal inclusion and exclusion.
Havasupai Tribal Council	54408	3 and 4	The various maps of Alternatives B, C, and D contained within the Draft EIS ("DEIS") illustrate the resources present in each parcel including the hydrologic, cultural, vegetation and wildlife, and visual and recreational resources. Please explain the methodology used to draw the boundaries of the exact locations of these resources. For example, endangered and threaten animal species located within the proposed withdrawal area, like the California condor, Mexican spotted owl, and Black-footed ferret, are mobile and subject to movement from area to are. Similarly, hydrologic resources, such as groundwater, may be expansive and exact locations may be difficult to pinpoint. Given these considerations regarding the difficulty of delineating the exact location of critical resources, how are the boundaries drawn in the DEIS's maps, which classify the resources found in particular areas, accurate? The DEIS discusses the variety of social, cultural and natural resources present in the proposed withdrawal areas. How does the DEIS balance the priority of protection for those various	The alternative development process and methodology is explained in detail in Section 2.2 of the EIS. The factors mentioned in the comment were considered in the development of alternatives and the best available data, along with the input of knowledgeable resource specialists was used to draw the boundaries. NEPA requires analysis of a full range of alternatives and the range presented in the EIS considered resource sensitivity as a factor for developing the range.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			types of resources? For instance, what methodology is used to determine that an area with only cultural resources is less deserving of protection than an area with recreational and hydrologic resources?	
Kaibab Band of Paiute Indians	225255	1	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.	The purpose of this EIS it to analyze the impacts of withdrawal of lands from location of new mining claims under the Mining Law of 1872, subject to valid existing rights. Transfer of lands to the Kaibab Paiute Tribe is beyond the scope of this EIS.
Hopi Tribe	213932	3	we are disappointed that the Bureau of Land Management did not consider our recommendation that an area larger than the Proposed Action be included as an alternative in this DEIS	The withdrawal boundary put forward by the Secretary of Interior is discussed in Sections 1.2 and 1.3. Expanding the boundaries of the withdrawal is beyond the purpose and need for this EIS and it not a reasonable alternative to the proposed action.
Cultural Resources and American Indian Resources				
American Rock Art Research Association	22360	2	This area is rich in cultural resources, including rock art, and has not been yet undergone a complete archaeological survey.	Your concerns have been addressed in the EIS under Section 4.11.2, Compliance with Environmental Regulations and Permitting. All future exploratory projects are required to comply with existing federal laws and regulations implementing the National Historic Preservation Act (NHPA). In compliance with Section 106 of the NHPA, all new exploratory drill projects or new mining projects will undergo a historic property inventory (archaeological survey) in order to ascertain if there are any historic properties (archaeological sites) that are eligible for the National Register of Historic Places (NRHP) that may be within the area of potential effect. If there are any NRHP-eligible properties that will be disturbed by the proposed project then avoidance or mitigation to reduce any adverse effects will be required.
Glendora Homer	54359	1	The aboriginal cultural resources of the Kaibab Paiute Tribe would be greatly affected. Within the proposed north parcel withdrawal area is the 1. Kanre'uipi (Kanab Creek) ecoscape, 2. Wa'akarerempa (yellow water) known as yellowstone springs, 3. Tinkanivac (cave water) known as antelope or moonshine spring, 4. aboriginal trails from cave water spring (Tinkanivac) to the Colorado River, 5. trails along Kanab Creek (Kanre'uipi) to the Toroweep cultural site, 6. traditional subsistence trails for hunting and gathering, 7. important cultural sites within the Kanab Creek, 8.	Thank you for your description of areas important to the Kaibab Paiute Tribe. Analysis of the impacts to these resources has been addressed in the EIS under Section 4.12, American Indian Resources.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			important mineral deposit, 9. culturally important spiritual trail within Kanab Creek to the Colorado River.	
Lawrence McTigue	94040	2	(Page ES-8) Cultural Resources (National Register of Historic Places) 1,981 sites have not yet been evaluated with respect to NRHP eligibility status. Comment: If nearly 2,000 sites (still) have not been evaluated yet, then that (in and of itself), is sufficient reason (not) to allow any mining, to take place, until all those sites (have) been evaluated.	Your concerns have been addressed in the EIS under Section 4.11.2, Compliance with Environmental Regulations and Permitting. All future exploratory projects are required to comply with existing federal laws and regulations implementing NHPA. In compliance with Section 106 of the NHPA, all new exploratory drill projects or new mining projects will undergo a historic property inventory to identify and evaluate any historic properties (archaeological sites) that may be eligible for the NRHP and may be affected. If the survey and evaluation determines that NRHP-eligible historic or archaeological sites will be affected by the proposed project then avoidance or mitigation to reduce any adverse effects will be required.
American Clean Energy Resources Trust (ACERT)	225256	40	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.	Thank you for your comment. Thank you for your comment.
American Clean Energy Resources Trust (ACERT)	225256	41	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.	The NHPA sets forth legal procedures intended to initiate expert evaluation of any site that may be eligible for listing on the NRHP including temporary use sites. The long history of use of the proposed withdrawal area by American Indians is detailed in the EIS under Appendix I, Cultural History of the Proposed Withdrawal Area. While many sites throughout the proposed withdrawal area are temporary use sites, there are also hundreds of long-term habitation sites including pueblos and other villages, as well as farming sites. Please see pages I-6 through I-19 for descriptions of several American Indian groups with permanent or semi-permanent occupation sites in proposed withdrawal area.
American Clean	225256	42	Page 3-206 Statement: *American Indians in the Southwest have an*	Clarification of the term "Grand Canyon area" has been

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Energy Resources Trust (ACERT)			*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 Comers area, north to Moab and south to Flagstaff. Which is it?	added to Section 3.12.1 of the FEIS. The term "Grand Canyon area" encompasses the Grand Canyon, the proposed withdrawal area, and the immediately surrounding lands.
American Clean Energy Resources Trust (ACERT)	225256	43	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.	The types of American Indian resources that are considered as part of this analysis are given in Section 3.12.1, Traditional Cultural Values and Practices. In compliance of Section 106 of the NRHP, the BLM must consider the effects of its actions on places of traditional cultural importance, including TCPs, that may be or have been determined eligible for the NRHP, not only those that are listed. Red Butte has been determined eligible as a TCP by the Forest Service. This information has been added to the FEIS in Section 3.12.2, American Indian Use Areas.
American Clean Energy Resources Trust (ACERT)	225256	44	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."	The Hopi are one of several tribes with historic and current ties to the proposed withdrawal area. Many tribal members continue to visit the proposed withdrawal area to visit culturally important places. A brief account of Hopi history can be found in Appendix I under Section I.5.4, Hopi. EO13007 is only one of several legal requirements that the BLM may, if applicable, consider when evaluating a proposed action. These laws, regulations, and policies require the BLM to consider the effects of proposed actions on properties of traditional religious and cultural importance to an Indian tribe which may be determined to be eligible for inclusion on the National Register, and to consult with any Indian tribe that attaches religious and cultural significance to such properties. These properties may include, but are not limited to sacred sites.
American Clean Energy Resources Trust	225256	45	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	As stated in Section 1.5.3, Issues Eliminated from Detailed Analysis of the EIS, potential vandalism was not considered in the analysis of the alternatives. It is

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
(ACERT)			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 DEIS. 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 DEIS 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	possible that in some cases the proximity of an archaeological site to development could increase the potential for vandalism; however, such vulnerability would depend upon several factors including the site's size and visibility. Such potential indirect effects would be analyzed as part of Section 106 compliance for specific mining proposals. Further, this statement is made in the context of American Indian preference rather than EIS analysis.
American Clean Energy Resources Trust (ACERT)	225256	46	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	EO13007 is only one of several legal requirements that the BLM may, if applicable, consider when evaluating a proposed action. These laws, regulations, and policies require the BLM to consider the effects of proposed actions on properties of traditional religious and cultural importance to an Indian tribe which may be determined to be eligible for inclusion on the National Register, and to consult with any Indian tribe that attaches religious and cultural significance to such properties. These properties may include, but are not limited to sacred sites.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 anyone 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.	
American Clean Energy Resources Trust (ACERT)	225256	47	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, "modem 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 modem vehicle driving on an access road. This fact alone would cause many to question their level of commitment to "ancient ways."	The FEIS documents the information available to BLM through Tribal consultation or otherwise, and analyzed for purposes of the EIS. Clarification of this issue has been added to Section 3.12.2 American Indian Use Areas of the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	48	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 at 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*	EO13007 is only one of several legal requirements that the BLM may, if applicable, consider when evaluating a proposed action. These laws, regulations, and policies require the BLM to consider the effects of proposed actions on properties of traditional religious and cultural importance to an Indian tribe which may be determined to be eligible for inclusion on the National Register, and to consult with any Indian tribe that attaches religious and cultural significance to such properties. These properties may include, but are not

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 detennine 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, narrowlv 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 anyone 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.	limited to sacred sites.
American Clean Energy Resources Trust (ACERT)	225256	103	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	Section 4.11 of the EIS analyzes the predicted impacts to the resources by alternative so that the Secretary of the Interior can make an informed decision. The potential impacts from other types of projects on the proposed withdrawal are discussed in Section 4.11.4, Alternative A: No Action, Cumulative Impacts.

Table 5.6-4. Response to Comments (Continued)

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			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, nonlocatable mineral mining, fire management procedures, natural wildfires, and the like.	
American Clean Energy Resources Trust (ACERT)	225256	104	Pages 4-208 to 4-215 Pages 2-41 and 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 highend 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? 5. It is worthy of emphasizing that each new mine would be the subject of its own sitespecific EIS and the NEPA process. This discussion could be extended, but some of these issues need to be resolved or explained satisfactorily	The purpose of the EIS is to analyze the effects of the proposed action and alternatives. Analysis of actions outside the proposed withdrawal boundaries are out of scope of the EIS.
American Clean	225256	104	4. "Draft versions of all relevant documents such as archeological and	BLM is required to conduct government to government

Table 5.6-4. Response to Comments (Continued)

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Energy Resources Trust (ACERT)			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.	consultation with Indian tribes as part of NEPA and Section 106 compliance. This consultation must be initiated early in the process. It is necessary to share substantive information as part of this consultation. In addition, tribes that elected to participate as formal cooperating agencies, like all of the other cooperating agencies, were provided the opportunity to review preliminary draft versions of the EIS.
American Clean Energy Resources Trust (ACERT)	225256	130	APPENDIX H - CULTURE HISTORY OF THE PROPOSED WITHDRAWAL AREA Statement: All Pages Comment: In this unnecessary fifty-pius page expose, 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.	The FEIS Appendix I, Section I.1, Prehistoric and Historic Cultural Chronology, has been revised to provide further explanation about the history of occupation by American Indians Tribes and their ancestors in the withdrawal area. These lifeways are also described in Appendix I of the FEIS under Section I.4.1 Virgin Anasazi, Section I.4.2 Kayenta Tradition, and Section I.5.2, Southern Paiute.
American Clean Energy Resources Trust (ACERT)	225256	131	*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.	The FEIS, Appendix I, Section I.1, Prehistoric and Historic Cultural Chronology, has been revised to provide further explanation about the history of occupation by American Indians Tribes and their ancestors in the withdrawal area. These lifeways are also described in Appendix I of the FEIS under Section I.4.1 Virgin Anasazi, Section I.4.2 Kayenta Tradition, and Section I.5.2, Southern Paiute.
American Clean Energy Resources Trust (ACERT)	225256	132	*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 perfonned in the late nineteenth century (Stoffle et al. 2000). The Ghost Dance was a significant*	Not a substantive comment. No response required.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
Energy Fuels Resources	225260	7	I disagree with the assessment that "major direct impacts" would occur to cultural resources if avoidance is not possible. This assessment is incorrect, the statement "if avoidance is not possible" is flawed because current federal laws would not allow destruction of cultural resources. In addition, there is no mention of "major direct impacts" in Section 4.11 of the DEIS, which provides details of the cultural resource analysis. Furthermore, as discussed in Sections 4.11.1 and 4.11.2 of the document, existing mining regulations address cultural resource disturbance through avoidance and mitigation.	Current federal laws do allow for the destruction of a resource. Under Section 106 of the NHPA, adverse impacts to historic properties (archaeological sites and historic structures) can be reduced through mitigation by data recovery, which itself often destroys the site; however, in some cases mitigation of all adverse effects is not possible due to the nature of a project or the resources.
Energy Fuels Resources	225260	8	I disagree that a "major long-term direct impact" would occur to American Indian resources under any of the proposed alternatives. Section 4.11 discusses risk to impacting American Indian resources in a qualitative manner and also discusses mitigation measures; however, the section does not predict major long-term impacts for any of the alternatives. Therefore, the executive summary needs to be corrected.	Impacts to American Indian resources are discussed in Section 4.12 of the EIS. Some types of American Indian resources, such as traditional cultural places, can be extremely, culturally sensitive and disturbance to these areas could have the potential to cause harm to modern day tribal cultures; therefore, disturbance to these places is permanent and irreversible and considered a major long-term direct impact.
Uranium Watch	225262	78	Section 4.11 Cultural Resources. Pages 4-201 to 4-208. This section fails to identify and assess the impacts to cultural resources of the processing of uranium ore from the withdrawal area at the White Mesa Uranium Mill. The expansion in the number of potential uranium mines in the area will result in the processing of additional ore at the Mill. This will require the construction of new tailings impoundments at the Mill. The construction of new tailings cells will, as in the past, result in the destruction of large and unique cultural resources—ancient pit houses and burial sites. The destruction of these pit houses is a direct result of the expansion of uranium mining on federal lands in Utah and Arizona. The DEIS must	An archeological report was developed as part of the environmental report required by the State of Utah for licensing of the White Mesa Mill. Since the mill is expected to remain within the existing permitted capacity under all of the alternatives analyzed in this EIS, operations at the mill are not considered a connected action to the proposed withdrawal, so are beyond the scope of this EIS. Any proposed expansion of the Mill onto federal lands would require a survey, evaluation, and resolution of any adverse effects in

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			consider the impacts to the significant cultural resources on White Mesa in the assessment of the impacts to cultural resources from the various alternatives. Information regarding past impacts to the cultural resources can be found on the Uranium Watch website10, the Utah Division of Radiation Control website11, and the Grand Junction Office of the U.S. Department of Energy12.	compliance with Section 106 of the NRHP and environmental documentation in compliance with NEPA.
Uranium Watch	225262	79	Section 4.11 Cultural Resources. Pages 4-201 to 4-208. Further, the operation of the Mill has the potential to impact cultural resources on land that is part of the Mill that was obtained from the BLM. The BLM's Monticello, Utah, Office retained responsibility for the preservation of the cultural resources on that land.	An archeological report was developed as part of the environmental report required by the State of Utah for licensing of the White Mesa Mill. Since the mill is expected to remain within the existing permitted capacity under all of the alternatives analyzed in this EIS, operations at the mill are not considered a connected action to the proposed withdrawal, so are beyond the scope of this EIS. Any proposed expansion of the Mill onto federal lands would require a survey, evaluation, and resolution of any adverse effects in compliance with Section 106 of the NRHP and environmental documentation in compliance with NEPA.
Uranium Watch	225262	81	Section 4.12 American Indian Resources. Page 4-208 to 4-215 The DEIS must evaluate the impacts to resources of the Westwater Navajo community in the vicinity of the White Mesa Mill and nearby Blanding, Utah.	An archeological report was developed as part of the environmental report required by the State of Utah for licensing of the White Mesa Mill. Since the mill is expected to remain within the existing permitted capacity under all of the alternatives analyzed in this EIS, operations at the mill are not considered a connected action to the proposed withdrawal, so are beyond the scope of this EIS. Any proposed expansion of the Mill onto federal lands would require a survey, evaluation, and resolution of any adverse effects in compliance with Section 106 of the NRHP and environmental documentation in compliance with NEPA.
Uranium Watch	225262	80	Section 4.11 Cultural Resources. Pages 4-201 to 4-208. The DEIS must evaluate the impacts to the resources of the Ute Mountain Ute Tribal community on White Mesa. White Mesa Band land is adjacent to the White Mesa Mill. The Mill impacts their land, resources, and cultural values. The people at White Mesa complain constantly of the smell of the Mill; the Mill exposes tribal members to the radioactive and non-radioactive hazardous materials; the Mill impacts the tribe's ability to make use of traditional animal and plant resources; the Mill has the potential to impact their water resources; and the Mill adversely impacts the cultural values of the tribal members.	An archeological report was developed as part of the environmental report required by the State of Utah for licensing of the White Mesa Mill. Since the mill is expected to remain within the existing permitted capacity under all of the alternatives analyzed in this EIS, operations at the mill are not considered a connected action to the proposed withdrawal, so are beyond the scope of this EIS. Any proposed expansion of the Mill onto federal lands would require a survey, evaluation, and resolution of any adverse effects in compliance with Section 106 of the NRHP and environmental documentation in compliance with

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				NEPA.
Uranium Watch	225262	82	The DEIS must evaluate the impacts of transportation of ore from the uranium mine sites in the withdrawal area to the White Mesa Mill on tribal resources in Arizona and Utah.	Within Section 4.12, American Indian Resources, the EIS analyzes the effects of transporting uranium within the proposed withdrawal area by using the scenario for new road creation under each alternative presented in the RFD (Appendix B, Locatable Mineral Resources - Reasonably Foreseeable Development Scenarios). Analysis of the impacts of ore transportation outside of the proposed withdrawal area is addressed in EIS in Section 4.16, Social Conditions, and Sections 4.2.5-4.2.8, Air Quality and Climate.
Uranium Watch	225262	94	The EIS cannot separate the impacts of uranium mining in the withdrawal area from the impacts of the processing of that ore at the Mill. For some reason the USFS did not see fit to consult with the Ute Mountain Ute Tribe. This was a grave oversight.	An environmental report required by the State of Utah for licensing of the White Mesa Mill. Since the mill is expected to remain within the existing permitted capacity under all of the alternatives analyzed in this EIS, operations at the mill are not considered a connected action to the proposed withdrawal, so are beyond the scope of this EIS. Any proposed expansion of the Mill onto federal lands would require a survey, evaluation, and resolution of any adverse effects in compliance with Section 106 of the NRHP and environmental documentation in compliance with NEPA.
National Trust for Historic Preservation	225277	2	The Draft EIS outlines several particular sites that would be vulnerable to damage if hardrock mining were permitted in the project area. While not yet formally evaluated for its significance, the Kanab Creek Ecoscape on the North Parcel contains an ancient traderoute and is considered an integral part of the Grand Canyon TCP by the Southern Paiute Consortium. (Draft EIS at 3-210). Three mines are already proposed within this Ecoscape and, presumably, more resource exploitation would occur in the event these lands were opened for future claims.	Potential impacts to American Indian resources in the Kanab Creek area are described in Section 4.12, American Indian Resources. All withdrawal alternatives (B, C, and D) incorporate this area.
Ted Jensen	225282	9	Section regarding Impacts on Culture Resources includes misleading "if" statement (page ES-13). It states if direct mitigation is not possible then the summary rating becomes very bad. This actually implies there will be no control and existing laws will be broken and mining controls will be nonexistent.	Under Section 106 of the NRHP, adverse impacts to historic properties (archaeological sites and historic resources) can be reduced through mitigation which itself often destroys the site; however, in some cases mitigation is not possible due to the nature of a project or the resources.
Ted Jensen	225282	10	On page executive summary (page ES-13) describes a disturbance to a Traditional Cultural Place will occur. What does this mean and where is this place? I looked and could not find it in the body of the report. Why is Traditional Cultural Place capitalized for emphasis or is it a formal name? If an emphasis, why?	Discussion of the definition of a TCP can be found in Section 3.12.1, Traditional Cultural Values and Practices, of the EIS. Red Butte has now been determined eligible for the NRHP as a TCP. Discussion of Red Butte as a TCP has been expanded in Section 3.12.2, American Indian Use Areas, of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Potential impacts to Red Butte are discussed in the EIS under Section 4.12.4 through 4.12.7.
Maren Mahoney	226214	2	1. The EIS failed to adequately consider the cumulative impacts on Cultural Resources under all the Alternatives if direct impact mitigation (complete avoidance) is not possible. The EIS provides that there are numerous unique, fragile, finite and nonrenewable cultural resources within all three of the proposed withdrawal parcels. It will be impossible to completely avoid all cultural resources if, say, Alternative A is chosen. Yet there is no discussion or analysis of the cumulative impact that will inevitably occur.	Section 106 of the NRHP requires mitigation of adverse impacts to cultural resources. Avoidance is the preferred method of mitigation, but others such as data recovery can also be used when avoidance is not possible. The Cumulative Impacts analysis is in EIS Sections 4.11.4 through 4.11.7. Since the locations of future mines are unknown, the cultural resources that might be affected are also unknown. Analysis of cumulative effects to cultural resources would be conducted in greater detail as part of Section 106 compliance for specific mining proposals.
VANE Minerals	242650	4	The DEIS conclusions contain contradictions and flawed reasoning. For example, on page ES-13 of the Executive Summary under the Impacts on Cultural Resources, the following statements are made: *1) Under all alternatives, there would be no direct impacts to the disturbance of historic and prehistoric sites, assuming that direct impacts on sites by individual projects are mitigated through established regulations and policies. 2) "If direct impact mitigation were not possible, Alternative A would have a major direct impact...*11 In Statement 1 above, the inclusion of the word "assuming" is unnecessary because all exploration and mining activities are regulated. Statement 2 implies "major direct impact" would happen if no mitigation measures were taken and established regulations and policies were violated in lill cases. These are frantic assumptions.	Under Section 106 of the NRHP, adverse impacts to historic properties (archaeological sites and historic resources) can be reduced through mitigation such as data recovery which itself destroys the site; however, in some cases mitigation is not possible due to the nature of a project or the resources. Some impacts, such as those that affect a particular setting, cannot be mitigated. Language has been added to the Cultural Resources section of the Executive Summary of the FEIS to clarify the potential impacts of the alternatives.
VANE Minerals	242650	5	With respect to Impacts on American Indian Resources, page ES-13, the DEIS states: *1) There are no tribal trust resources or assets within the proposed withdrawal area. 2) Alternative A will have major long-term impact on resources on all three parcels, including disturbance to a Traditional Cultural Place ...* Statement 1 above directly contradicts statement 2. Statement one states there are no resources while statement two describes major long-term impacts to resources. With all due respect, the BLM's "multiple use" mandate should not prohibit one user at the benefit of another. Using this as a basis for the withdrawal will be in direct violation of that mandate. Further to this, the DEIS clearly describes reclamation and implies short-term use and impact. Statement 2, in using "major long-term", contradicts this.	The referenced Traditional Cultural Place (TCP) is Red Butte, which is located in the South Parcel; a TCP is not a tribal trust resource or asset. A clarification of the terms "tribal trust resources or assets" has been added to the FEIS in Section 3.12.2, American Indian Use Areas. Resources and values of concern to Indian tribes may include but are not limited to trust assets. In addition, Sections 3.11, 3.12, 4.11 and 4.12 have been revised to use consistent terms that more closely track and explain legal requirements under applicable legal authorities.
The NAU Project, LLC	242913	16	Impacts on Cultural Resources The last line in this paragraph should have added to it -- if exploration and mining were to occur near them. If no operations were performed near a cultural site, it would be difficult to contend that there were auditory or visual impacts on those sites.	The language has been added to Impacts on Cultural Resources section of the Executive Summary of the FEIS.
The NAU Project, LLC	242913	17	Impacts on American Indian Resources This section should recognize that even though there would be impacts on American Indian Resources of	The discussion of the impacts to American Indian resources is based upon American Indian perception

Table 5.6-4. Response to Comments (Continued)

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			varying degree, that these impacts under the Law would not in themselves likely prevail in a site specific EIS from preventing operations in that area. On public lands, the burden placed on Native Americans is very high. Two examples in Arizona exemplify this proposition, one is Havasupai v. US Government and the 9th Circuit Court of Appeal's Snow Bowl decision. Substituting the specificity of a cite specific project EIS, with an overarching area EIS (as this one is) with the uncertainties and global assumptions that go with it, is bad policy. To make a withdrawal under these conditions and providing relief to Native peoples thereby, is in fact giving defacto title to these areas to Native peoples, when in fact their aboriginal tile was extinguished in the late1800s as was explained in the Havasupai v. U.S. Government decision. From Page ES-13: There are no tribal trust resources or assets within the proposed withdrawal area; however, all alternatives could result in long-term indirect impacts of unknown magnitude on Havasupai Springs, which is located outside the proposed withdrawal area. It is unclear what long-term "Unknown Magnitude" indirect impacts are being referred to here. The Impact definitions do not include "Unknown Magnitude" as one of the options. The impact to Havasu springs was found to be none to negligible and that is taking into account that the assumptions stated were absurd to begin with. Unless a better statement is made that supports what the unknown magnitude is, this statement should be deleted. This is another example of BIAS. Alternative A would have a major long-term direct impact on resources on all three parcels including disturbance to a Traditional Cultural Place, From Chapter 4, I am assuming that the TCP referred to in the South Parcel is Red Butte. Additional exploration directly in the vicinity of Red Butte is a legitimate concern. However, withdrawing major portions of the South parcel is not the solution. Individual EAs or even EISs are the proper level of investigation for this area.	of adverse impacts due to mining activity. The EIS acknowledges that this is a qualitative measure of impact and that it cannot easily be quantified in Section 4.12.1, Impact Assessment Methodology and Assumptions. The assessment of potential impacts of "unknown magnitude" to Havasupai Springs is based on input from the Havasupai Tribe on their concerns about mining effects to the springs. Perceived impacts to the springs may influence how the Havasupai view the spring and therefore, would impact the cultural function of the spring. Regarding potential impacts to the Red Butte TCP, individual NEPA analysis would be conducted for any new project in and around Red Butte. Red Butte and areas to its north have been determined eligible for inclusion in the NRHP as a TCP, in accordance with NHPA guidelines for assessing and designating TCPS. Identification of an historic property as a TCP eligible for inclusion on the National Register does not remove the land from other types of uses or activities. The purpose of this EIS is to inform the Secretary of the Interior about the potential impacts to all resources by the Proposed Northern Arizona Withdrawal and alternatives.
The NAU Project, LLC	242913	40	Indian Cultural Resource Internet research on the Kayenta Mine and the Navajo Generating Station was very interesting in regards to Native Indian cultural resources. There is a great debate amongst those in the area with regards to cultural resources and how the mine and generating station affect these resources. However, the Navajo Nation receives about 30 million dollars or more in royalties and over 60 million in payroll annually from the operation of these two enterprises and have vigorously defended any attempt to shut down the mine or power plant, despite the disturbance and insult that is created in regards to their cultural resources. The willingness of the Navajo and Hopi to accommodate the mine and generating station's affects on their cultural resources when they benefit economically from them should be included in the DEIS as part of the existing cumulative effects on Indian Cultural Resources. There is copious documentation on the internet of the cultural resources affected by the mine and generating station. To say that Native American religious beliefs of the Hopi and Navajo find exploration and mining abhorent, while at the	Analysis of tribal land use within reservation boundaries is out of scope of the analysis of the EIS. The EIS analysis is confined to effects of the Proposed Action and alternatives on resources and values of concern to American Indians. The strong objection specifically to uranium mining is discussed in Section 3.16, Social Conditions, of the EIS.

Table 5.6-4. Response to Comments (Continued)

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			same time profiting by the same kinds of commercial enterprises on their own lands is hypocritical. It introduces a large bias into the DEIS that must be balanced by discussing what these Native Nations actually do. In other words, actions speak louder than words. A place to start is: http://coaldiver.org/Kayenta/	
The NAU Project, LLC	242913	68	Section 4.12 American Indian Resources My general comments on this section is that by its very nature, the impacts considered here are subjective. Withdrawing such large areas of land based on subjective impacts to American Indian resources where the location of the individual mines is unknown, is in fact giving defacto title to these lands to native peoples. The environmental impact statements required for individual projects is the proper venue to address these issues as the specific mine site and specific American Indian resources in question are both known. In "Havasupai Tribe v. United States" concerning the specific mine site of the Canyon mine, the Havasupai were unable to prevail and prevent the approval of mine operations. To thus withdraw from mineral entry (vast areas) which could not be done, for most specific cases with much smaller amounts of land considered, based on the Laws of the United States is unfounded and would set dangerous legal precedent. While it is necessary and correct to determine the impacts on American Indian resources in this Overarching EIS for the Grand Canyon area it would be overreaching to base a withdrawal decision for over a million acres based solely or in part on them. Any areas of great impact identified by this EIS should be identified and address by the individual EIS that would be conducted for a specific mining location in the area affected, and any specific issues litigated in court if such be necessary.	The discussion of the impacts to American Indian resources is based upon American Indian perception of adverse impacts to their culture due to mining activity. The EIS acknowledges that this is a qualitative measure of impact and that it cannot easily be quantified in Section 4.12.1, Impact Assessment Methodology and Assumptions. The effects to American Indian resources are just a portion of the overall factors that will be considered by the Secretary of Interior when making the decision for a proposed withdrawal. Sections 3.11, 3.12, 4.11 and 4.12 have been revised to use consistent terms that more closely track and explain legal requirements under applicable legal authorities.
The NAU Project, LLC	242913	69	Page 4-210 It is important to note that many American Indians view exploratory drilling and mining as wounding the earth. Past mining activities that are visible on the surface are seen as wounds that cannot scab over or heal (Nuvamsa 2008). Any drilling into the earth, regardless of size, is considered a wound to the earth. In commenting on other projects in the withdrawal area, the Hopi have repeatedly stated that the earth is sacred and should not be dug up for commercial reasons (Forest Service 1986a). Other tribes believe that repeated wounding of the earth can kill their deities and by extension a sacred site. While I acknowledge the above statement, I believe that the counter argument should have been considered and included in this DEIS. The counter argument is this. Both the Hopi and Navajo nations receive and aggressively defend their royalty incomes and employment due to mining coal and the operation of the Navajo Generating Station on their reservations. The Hopi went so far as to expel conservation group activists from their Reservation because these groups threatened the majority of income the Hopi rely on. This income is derived from Coal Mining. A excerpt from an article by Anne Minard for the Four Corners Free Press dated March 2010 provides insight	Analysis of tribal land use within reservation boundaries is out of scope of the analysis of the EIS. The EIS analysis is confined to effects of the Proposed Action and alternatives on resources and values of concern to American Indians.

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Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			into the view points presented in the DEIS and the counterpoint I presented.	
The NAU Project, LLC	242913	70	Page 4-212 One place of concern is Havasupai Springs, which may suffer from contamination from the mining activity as well as from effects of other activities (see Section 4.4, Water Resources). Using the phrase may suffer is misleading, Havasu Springs is not endangered of being contaminated, even using the absurd assumptions in Section 4.4. This sentence should be deleted. The justification is from page 4-77: 2. The average ambient concentration of dissolved uranium is about 6 µg/L in the discharge from Havasu Springs, about 7 µg/L for Blue Springs, about 4 µg/L for a small R-aquifer spring along the South Rim, and about 3 µg/L for either Hermit or Garden springs (see Table 4.4-5). 3. The average ambient concentration of dissolved arsenic is about 10 µg/L in the discharge from Havasu Springs, about 5 µg/L for Blue Springs, about 10 µg/L for a small R-aquifer spring along the South Rim, about 10 µg/L for Hermit Springs, and about 4 µg/L for Garden Springs (see Table 4.4-5). The resulting projected total concentration of dissolved uranium is 6 µg/L for Havasu Springs and 7 µg/L for the nearest part of Blue Springs (see Table 4.4-5). The projected concentration of dissolved arsenic is 10 µg/L for Havasu Springs and 5 µg/L for the nearest part of Blue Springs. None of these concentrations exceed the ambient levels. The ambient arsenic concentration for Havasu Springs is equal to the EPA MCL for drinking water (10 µg/L) for humans. These results would represent a range from no impact to negligible impact, according to the criteria given in Table 4.4-1. Duration of this impact would likely be long term (defined in Table 4.4-2). Overall, the section on American Indian Resources is BIASED. A balanced presentation of what the actual practices of local Native Americans are with regards to mining near the affected areas is not presented.	The assessment of potential impacts to Havasupai Springs is based on input from the Havasupai Tribe on their concerns about mining effects to the springs. Perceived impacts to the springs may influence how the Havasupai view the spring and therefore, would impact the cultural function of the spring. This perceived contamination could be detrimental to Havasupai culture regardless of the actual levels of uranium. In order to comply with Section 106 of the NHPA and as set forth in the BLM Manual Handbook H-8120-1, *Guidelines for Conducting Tribal Consultation*, BLM is required to consider the Havasupai concerns about the effects to the spring. Discussion of possible effects to the spring are discussed under Cumulative Impacts in Section 4.12.2, American Indian Use Areas, of the FEIS.
Hualapai Tribe-Office of the Chairman	225270	5	Chapter 3.2.2., Page 3-20. The DEIS should reference the State of Arizona's obligation to engage in meaningful government-to-government consultation with Indian Tribes pursuant to Arizona State Executive Order 2006-14. This Executive Order applies to state decisions impacting Arizona Indian tribes such as air quality and permitting decisions. Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, requires that, prior to approving the expenditure of any federal funds on undertaking with the potential to affect historic properties, or prior to issuing any license or other authorization for such an undertaking, the federal agency must engage in the consultation process mandated by NHPA section 106, a process that has been implemented through regulations issued by the Advisory Council on Historic Preservation. 36 C.F.R. § 800. We note that the ACHP regulations authorize agreements between federal agencies and Indian tribes to specify how an agency's responsibilities under the ACHP regulations relating to tribal participation will be carried out. 36 C.F.R. § 800.2(c)(2)(ii)(E). It may prove to be	The Section 106 undertaking under consideration is the proposed withdrawal of approximately 1 million acres. Through consultation with the State Historic Preservation Officer, it has been determined that the withdrawal itself would not adversely affect historic properties. Under 36 CFR 800.14(b), a Programmatic Agreement (PA) may be developed to address the resolution of adverse effects. Since the proposed withdrawal would not have adverse effects, a PA is not needed. Such a programmatic agreement, while possibly conforming to the NHPA, is beyond the scope of this EIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			mutually advantageous for the Department of the Interior/Bureau of Land Management and our Tribe to consider entering into a Programmatic Agreement (PA) specifically for the Northern Arizona Proposed Withdrawal Project. We note that a federal or federally assisted undertaking that has the potential to affect historic properties that hold religious and cultural significance for our Tribe may also have effects on places and things that are subject to mitigation measures not specifically noted within the DEIS. Therefore, entering into a Programmatic Agreement specifically for the withdrawal project would present a venue for accountability and mutual collaboration. It is important to point out that mitigation measures are an element of PA's yet, entering into a PA arrangement was not mentioned in the DEIS. Requirements that include review of operations, monitoring, remediation, research and interagency oversight are integral to programmatic agreements giving all stakeholders an element of cooperative bilateral management. As an important note in this matter, Hualapai in particular, did not agree with, nor sign the 1997 Nationwide Programmatic Agreement which is inconsistent with NHPA Amendments requiring consultation with Indian tribes. The 1997 NPA is also inconsistent with ACHP regulations 36 C.F.R. part 800 as revised in 1999 and 2000 to implement the 1992 NHPA Amendments. Rather than perpetuate inconsistencies within the Nationwide PA, we prefer the withdrawal project initiate a PA that is specific to the Northern Arizona project.	
Hualapai Tribe-Office of the Chairman	225270	6	Executive Summary, Page ES-13, Impacts on American Indian Resources. We oppose the statement *There are no tribal trust resources or assets within the proposed withdrawal area*. Indeed, to the extent that the DEIS describes areas of Tribal cultural, archeological or sacred sites within the withdrawal area, they qualify as tribal trust resources.	According to BLM Manual Handbook H-8120-1, Guidelines for Conducting Tribal Consultation, cultural resources on BLM land are not trust assets or resources (BLM 2004:IV-1). According to the handbook, Indian trust assets or resources are "lands, natural resources, money, or other assets held by the Federal Government in trust or restricted against alienation for Indian tribes and individual Indians (Secretarial Order No. 3215, April 28, 2000)." Trust assets must be tied to property and are defined by legal agreements between the Federal Government and tribal governments. Although archaeological and places of traditional importance in the proposed withdrawal areas do not fit the legal definition of trust assets, their continued importance to tribal heritage values is considered by the BLM.
Hualapai Tribe-Office of the Chairman	225270	7	Chapter 1, Page 1-8. The section referencing the Hualapai states that the tribe holds a substantial portion of the project area to be culturally significant. This section omits important reference to the Hualapai Tribe's historic existence throughout parts of the moratorium area. It is the aboriginal existence of Hualapai in the moratorium area that establishes its cultural and natural resource dependence on the region. These resources	Section 1.4.2, Cooperating Agencies, has been revised in the FEIS to reflect the existence and history of the Hualapai Tribe in this area. Information about and analysis of the Hualapai Tribe's interests in the proposed withdrawal area and alternatives in determining if the proposed withdrawal, or one of the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			qualify for federal protection because they evidence Hualapai's existence in the region which is intimately intertwined with its cultural survival.	alternatives, is indicated to be necessary to protect the lands can be found in the FEIS in Sections 3.12 and 4.12, American Indian Resources.
Hualapai Tribe-Office of the Chairman	225270	8	Chapter 1.5.3 Introduction, Page 1-24. The federal and state governments are charged with protecting archeological and Indian cultural resources on federal lands and with investigating and prosecuting looting and/or vandalism of these resources pursuant to the Archeological Resources Protection Act, the NAGPRA and local heritage protection laws. The BLM must acknowledge its responsibility by analyzing the potential illegal looting or vandalism of these resources in the moratorium area. On the Arizona Strip, whenever land is open to increased outsider activity, such as road development, mining and exploration of resources, the looting and damage to cultural and natural resources increases. Private businesses are often unaware of or ignore federal or state historic preservation laws when on federal lands or near Indian lands. Thousands of cultural items have been removed and/or destroyed during previous exploration activity. In terms of Cultural Resources, this problem is specifically alluded to in Chapter 3 (pp 3-205 - 3-206). The EIS should acknowledge this issue, even if the effects are difficult to predict.	As stated in Section 1.5.3, Issues Eliminated from Detailed Analysis of the EIS, potential vandalism was not considered in the analysis of the alternatives. Because potential vandalism is an illegal activity it is considered a law enforcement issue.
Hualapai Tribe-Office of the Chairman	225270	9	Chapter 3.11, Page 3-8. Road construction and use for mining exploration and development usually results in exposing previously isolated areas to casual and recreational vehicle traffic. Consequently, archeological, cultural and sacred sites previously protected by isolation will be exposed and endangered. This indirect, but meaningful impact has already occurred on the Arizona Strip.	As stated in Section 1.5.3, Issues Eliminated from Detailed Analysis of the EIS, potential vandalism was not considered in the analysis of the alternatives. Because potential vandalism is an illegal activity it is considered a law enforcement issue.
Hualapai Tribe-Office of the Chairman	225270	10	Chapter 3.11, Page 3-202. The site density figures would be more easily grasped and compelling if they were presented in per/square miles. Figures such as .03 or .05 per acre are difficult to conceptualize spatially.	Section 3.11.2, Identification of Prehistoric and Historic Cultural Resources, has been revised consistent with your suggestion.
Hualapai Tribe-Office of the Chairman	225270	11	Chapter 3.11.1, Page 3-201. This section should refer to cattle grazing, homesteading, timbering, etc., not in the past tense but rather as lifestyles that continue today among the affected Indian tribes.	Section 3.11, Cultural Resources, has been revised consistent with your suggestion.
Hualapai Tribe-Office of the Chairman	225270	12	Chapter 3.12.1 & 2, Pages 3-207 & 3-212. The Kaibab National Forest and the Arizona Historic Preservation Office have determined that Red Butte is National Register Eligible. Their decision is based, in part, on information provided by the Hualapai Tribe that Red Butte qualifies for Traditional Cultural Property and for some of the reasons noted in these paragraphs.	The information on the NRHP-eligibility of Red Butte has been added to Section 3.12.2, American Indian Use Areas.
Hualapai Tribe-Office of the Chairman	225270	13	Chapter 3.12.2, Page 3-213. The trails referenced are part of an extensive network connecting the Rio Grande Pueblos with Zuni, Hopi, Havasupai, Hualapai, Mojave and other tribes to the Pacific Ocean. It is erroneous to simply state that they run from Hopi "to" Havasupai, since they extend well	The section on Trails in Section 3.12.2 will be expanded to include information concerning a large network of trails.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			beyond Hopi and Havasupai. In fact, there are sections of the trail network that were documented on early GLO maps dating back to 1900. It is generally correct that the trails cross through the northern part of the South Parcel; however, there are trail and "road" segments on the early GLO maps that are east of Red Butte in the southern area of the South Parcel, as well. More work is needed to understand the extent of these trails.	
Hualapai Tribe-Office of the Chairman	225270	14	Chapter 4.12 American Indian Resources, 4-208ff. Native American affiliated archaeological sites should be considered a Native American Resource as well, as they are evidence of tribal homelands, represent cultural heritage, are considered integral to maintaining cultural identity, are important for teaching history through the generations, and are important for teaching respect for the ancestors.	The NHPA defines those sites that are eligible for protection and the FEIS will not serve to define sites eligible for protection in any way contrary to existing law. Section 3.12 explains what the FEIS considered to be a Native American resource. Impacts to archaeological sites are considered under Section 4.11, Cultural Resources.
Hualapai Tribe-Office of the Chairman	225270	15	Appendix H, Page H-5. The term "Anasazi" is obsolete. We suggest, in this instance, referring to the "Virgin Branch of Ancestral Puebloan or Ancient Puebloan." In addition, we question the accuracy of the statement that they were "northwest and west of the proposed withdrawal area." Although this archaeological culture" was indeed centered north of the Grand Canyon, they were likely in the area encompassed within the North Parcel. We suggest that the DEIS include more detailed research into this topic.	The term “Anasazi” is still commonly used in non-academic discourse and recognized by the public. In line with academic and tribal preferences, references to the Anasazi in Appendix A, Section I.4.1 have been changed to Virgin Branch or Ancestral Puebloan, Virgin Branch. Additional information on the Ancestral Puebloan, Virgin Branch within the proposed withdrawal can be found in the cultural resources report: *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* (Seymour et al. 2010).
Hualapai Tribe-Office of the Chairman	225270	16	Appendix H, Generally. It is probably an overstatement that Euler "demonstrated" that Cerbat culture, initially (from about A.D. 7001150) restricted to the Lower Colorado River, expanded eastward and onto the Colorado Plateau after about A.D. 1150, and were not related to the Cohonina archaeological culture. This is one point of view, and is at odds with Pai traditional culture history. It would be more accurate to state that Euler "inferred" this reconstruction.	Euler’s conclusion was a hypothesis which contradicts the viewpoints of some archaeologists as well as Pai traditional history. Appendix I, Section I.4, Formative of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	17	Appendix H, Page H-14. It would be better scholarship to attribute the statement "Pai (Hualapai and Havasupai) and Paiute use of the Grand Canyon region, which began after ca. A.D. 1300" to Robert Euler or other earlier archaeologists rather than to Bungart, as the 1994 reference was based purely on surface survey information and previous research.	Appendix I, Section I.5.1, Hualapai, Havasupai, and Yavapai, of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	18	Appendix H, Page H-14. We recommend revising the following sentence: "The Hualapai speak a Yuman language called Hualapai, which is related to Havasupai (McGuire 1983)", to read: "The Hualapai, Havasupai, and Yavapai languages are a group of related Upland Yuman languages	Appendix I, Section I.5.1, Hualapai, Havasupai, and Yavapai, of the FEIS has been revised consistent with the comment.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			(Kendall 1983).(Kendall is in the same edited volume as McGuire 1983).	
Hualapai Tribe-Office of the Chairman	225270	19	Appendix H, Page H-15. Please note that Kniffen's description of the Hualapai bands was superseded by Dobyns and Euler (1976:16-18), who identified 13-14 bands, which were grouped under broader geographic divisions.	Appendix I, Section I.5.1, Hualapai, Havasupai, and Yavapai, of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	20	Appendix H, Page H-15. We request changing: "The Hualapai were driven from much of their homeland in the Hualapai War of 1866–1869", to: "The Hualapai were driven from much of their homeland as a result of conflict with the U.S. Army during 1866–1869." The former sentence implies that the Hualapai were unilateral aggressors rather than a people defending their aboriginal homelands. The Hualapai were essentially gathered from the moratorium region and confined to their present day reservation.	The term “Hualapai War of 1866-1869” can be used to encompass the conflicts between the Hualapai and the U.S. Government and is not meant to suggest the Hualapai were the aggressors in the conflicts; however, Appendix I, Section I.5.1, Hualapai, Havasupai, and Yavapai, of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	21	Appendix H, Page H-15. Closer to the moratorium areas, the Havasupai also conducted Ghost Dances, including in areas on the plateau in the vicinity of the South Parcel. The Ghost Dance was introduced by Paiutes from north of the Colorado River.	Thank you for the information regarding the Havasupai practice of the Ghost Dance. Appendix I, Section I.5.1, Hualapai, Havasupai, and Yavapai, of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	22	Appendix H, Page H-16. The sentence "Havasupai and Yavapai had been close friends" should be amended to include Hualapai. Subsequent to the split, the Hualapai and Havasupai remained close, and both Hualapai and Havasupai became adversaries of the Yavapai.	Appendix I, Section I.5.1, Hualapai, Havasupai, and Yavapai, of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	23	Appendix H, Page H-19-21. The sections on the Navajo, Hopi, and Zuni Indian tribes are too brief and general. As trustee, the BLM and NPS must be thorough in its treatment of the tribes’ historical and cultural connection to the withdrawal area and the potential impact to the future of their historic sites and cultural resources.	Appendix I Sections I.5.3, Navajo, I.5.4, Hopi, and I.5.5, Zuni, in the FEIS has been revised consistent with the comment
Hualapai Tribe-Office of the Chairman	225270	24	Chapter 3.4, Page 3-6. The Hualapai Tribe considers all springs in the moratorium area as sacred sites.	Thank you for the information on Hualapai beliefs about springs in the proposed withdrawal area. Section 3.12.2, American Indian Use Areas of the FEIS has been revised consistent with the comment.
Hualapai Tribe-Office of the Chairman	225270	25	Chapter 4.11.2. 4-203. We do not agree with the statement: *It is assumed that the majority of archaeological sites determined eligible for the NRHP would be valued for their potential to yield important information* (or would be evaluated as eligible only under Criterion D). This may be a true statement from a scientific or archaeological perspective. Importantly, Indian tribes value ancient sites using different criteria, such as Criterion A, but also under Criteria B and C. Even applying Criterion D, a site may be considered important for its information value by tribal members, but not necessarily scientific research potential.	It is expected that the proposed withdrawal area includes a range of historic properties that may be eligible under one or more of the National Register criteria. Each site’s eligibility would be evaluated in reference to all four criteria in order to determine which are applicable. Language clarifying the process for determining if a historic property is eligible for inclusion in the NRHP has been added to Section 4.11.2, Compliance with Environmental Regulations and Permitting of the FEIS.
Hualapai Tribe-Office of the	225270	27	Chapter 3, Page 3-151. Bald Eagle. The Bald Eagle is highly significant to the culture and religious customs and beliefs of the Hualapai and other	Thank you for the information regarding the role of the Bald Eagle in Hualapai culture. Section 3.12.2,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Chairman			affected Indian tribes. The DEIS should reference the significance of this bird species to the affected Indian tribes.	American Indian Use Areas of the FEIS has been revised to include the information provided.
Hualapai Tribe-Office of the Chairman	225270	29	Vegetation Species of Concern Kaibab Agave. Kaibab agave (Agave utahensis var. kaibabensis) is found in proximity to the three proposed sites, is a Grand Canyon National Park Service "species of concern" and is a species of cultural significance to Hualapai. Damage to Kaibab agave species is a threat to Hualapai cultural integrity and perseverance. The persistence of healthy agave communities ensures a continuation of harvesting practices and uses evidenced as in recorded pre-colonial and contemporary practices.	Thank you for the information regarding the role of the Kaibab agave in Hualapai culture. Section 3.12.2, American Indian Use Areas of the FEIS has been revised to include the information provided. Note that in the vegetation section of Chapter 3 of the EIS, Kaibab Agave is identified as not occurring within the proposed withdrawal area.
Navajo Nation Historic Preservation Dept	165632	2	The Bureau of Reclamation needs to understand the Navajo Nation claims cultural affiliation to prehistoric people beginning with Paleoindian to Pueblo IV of the Anaasazi prehistoric cultures. Navajo ceremonies refer to places such as Mesa Verde, Chaco Canyon, Salmon Ruins, Canyon de Chelly, and Aztec Ruins. And all four river tributaries are mentioned in songs, prayers and even sandpaintings. There is no such terms as "Ancestral Puebloan" in Navajo culture and religion.	Thank you for the information regarding Navajo culture history. Section 3.12.1, Traditional Cultural Values and Practices has been revised to include the information provided.
Economic Conditions				
Dave A.	52012	2	BLM is grossly inflating revenue projections for uranium mining and fails to reveal that most revenues go to Utah or overseas, not Arizona.	Revenues are conventionally defined as gross receipts on sales which cover salaries and wages paid, supplies, electricity, and other operating costs which are largely expended within the study area. It does not matter where the sales are realized – the costs they cover are incurred in the Study Area and are counted toward GRP. The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Robert Grossman	54251	3	There is no mention of a Cost-benefit analysis per 1502.23	NEPA does not require, and typically does not include, cost-benefit analysis. As noted in CEQ regulation 1502.23, "For purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations."
Sustainable Economic Development Initiative	54353	3	There are several important negative impacts of these accidents not considered in the DEIS, including the economic impact on the Grand Canyon tourism. The procedures for dealing with accidents involving even low concentration uranium ore are complex and time consuming, and could involve multi-day road closures or significant traffic delays. (See Hammon Trucking, "Traffic Accident or Cargo Spill Response Procedure	Further discussion of the potential frequency of haul-related accidents and spills is provided in the FEIS at Section 4.16. The comment that uranium ore hauling would significantly impact visitation to the Grand Canyon and corresponding tourism-related economic activity is unsubstantiated.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			for shipments from Denison Mines [USA] Corp.'s Arizona Strip Mines to the White Mesa Mill", January, 2010; and Denison Mines [USA] Corp., "Transportation Policy", July 5, 2007.)According to the accident procedures of Denison's trucking subcontractor, such accidents could involve cargo spills, injuries, fires, fuel spills, downed power lines, traffic hazards, and potential pollution of streams or rivers. Uranium ore hauls from the east and south parcels totaling 91,780 trips, utilize the only road access routes to the Grand Canyon access routes would significantly impact the approximately 5 million annual visitors and $687 million in annual regional economic activity created by the Grand Canyon. (Northern Arizona University, "Grand Canyon National Park Northern Arizona Tourism Study", April 2005.)	
Sustainable Economic Development Initiative	54353	4	There are several important negative impacts of these accidents not considered in the DEIS, including the economic and social safety impacts of accidents, injures, and deaths. Beyond the economic impact from access route closures and delays, 367 accidents, causing 151 injuries and 4 deaths would have significant direct and indirect economic and social safety impacts on the region. Although these impacts are difficult to quantify because of the unknown severity of each accidents and injury, and the unknown lost income for the wide range of potential accident victims and their families, these impacts would be significant.	See response to comment 54353: 3.
Sustainable Economic Development Initiative	54353	6	There are several important negative impacts of these accidents not considered in the DEIS, including other impacts on public safety. The 300,165 uranium ore trips planned would travel through 20 Northern Arizona and Southern Utah cities and towns with a combined population of over 120,000 people. Any accidents in or near these cities or towns would have more significant social and economic impacts than accidents on the open road.	See response to comment 54353: 3.
Tom Leszozynski	76950	2	Uranium mining can grow the economy near the park, with 1,100 mining claims within five miles of the Canyon.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Ashley Coughlin	78821	2	From an economic standpoint, this would have a great impact on the Grand Canyon National Park, as a major source of their revenue comes from river running fees, both private and commercial.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Denison Mines Corp	104145	6	Unnecessarily restricting access to uranium reserves that can help provide the nation with carbon-free electricity generation and making it impossible to maintain a stable domestic supply of a critical mineral, in circumstances where exploration, development and mining of such reserves has proven to result in no significant impacts to the environment, is in obvious contradiction to the intent of the MMPA. There is no reason to prohibit mining activities on federal lands when such activities can be performed in	Comment noted. The purpose of the EIS is to provide the information to allow BLM to evaluate the policy alternatives in the context of the Mining and Policy Act of 1970 and other acts and directives.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			a manner that results in no significant impacts to the environment.	
Denison Mines Corp	104145	8	If the breccia pipes are not developed, the energy lost must be replaced by some other resource. We must consider the environmental impacts of replacing this energy with coal, natural gas, solar arrays, or wind turbines. All of these other sources have their own material needs and carbon footprint. The U.S. currently gets 20% of its electrical energy production from nuclear energy. It is critical that the U.S. has a secure domestic supply of the uranium needed for nuclear generating stations. We already are importing over 90% of our needed uranium. According to USGS Report C.I051, the Arizona Strip holds 42% of the nation's estimated undiscovered uranium endowment. This is the equivalent of 13 billion barrels of oil and is carbon-free energy. To withdraw this critical resource from location and entry under the Mining Law, with no environmental benefit or necessity, is short-sighted and dangerous.	The nation's undiscovered uranium endowment has never been estimated by USGS. A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Sections 3.17 and 4.17 of the FEIS.
Denison Mines Corp	104145	9	The economic impact of the proposed withdrawal must also be considered. The economic impact from the job losses in northern Arizona and southern Utah would be significant. Since the revival of the uranium industry in 2004, tens of millions of dollars have been added to the Arizona economy. Significantly more funds would flow to the local economies as exploration, development and mining activities continue. The industry would also add hundreds of jobs at a time when those jobs are desperately needed.	The comparative economic impact of the alternatives was considered in Section 4.16 of the EIS. The FEIS contains a revised and enhanced economic analysis in Section 4.17.
Denison Mines Corp	104145	10	Another economic consideration is the cost to the government, i.e. U.S. taxpayers, of the proposed withdrawal. Federal law provides that prospectors and miners have a statutory right to locate mining claims for exploration, development and production of minerals. Mining claims in good standing provide these miners with vested property rights. Blocking such rights would likely subject the United States to substantial takings litigation. Furthermore, the land management agencies clearly do not have the funding and resources required to perform in a timely manner the mineral examinations required under a withdrawal scenario.	Existing claims determined to be valid through a validity examination would be allowed to move forward under any of the alternatives. See PL 94-579 Sec. 701 (Federal Land Policy Management Act).
Kanab Utah	225250	3	Nowhere in the EIS is there a discussion of uranium extraction and its impact on the national Energy Research and Development Roadmap-Report to Congress- April 2010. Section 4.3.2 R&D for Sustainable Fuel Cycle Options, p. 3 1. "The availability of fuel resources for each potential fuel cycle and reactor deployment scenario must be understood. Extended use of nuclear power may drive improvements in defining resource availability and on fuel resource exploration and mining. Primarily, this is work that the private sector would undertake, and how and when this would occur would depend on price and other market conditions. This is most relevant for a once-through approach, but even modified open cycles and full recycle systems may require comparable levels of natural sources of fuel for the foreseeable future."	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
Kanab Utah	225250	4	Nowhere in the EIS is there a discussion of local land use planning or	Local communities were discussed in Section 3.15 and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			economic development plans.	4.15 of the EIS and that discussion has been enhanced in the FEIS based on input from affected counties and other sources. Conformance with local land use plans is discussed in Chapter 1 of the FEIS.
Kanab Utah	225250	5	Nowhere in the EIS is there a discussion of social and economic impacts on local communities as required by federal law.	Local communities were discussed in Section 3.15 and 4.15 of the EIS and that discussion has been enhanced in the FEIS based on input from affected counties and other sources. Conformance with local land use plans is discussed in Chapter 1 of the FEIS.
Kanab Utah	225250	7	The EIS list of preparers includes 52 entities, none of whom demonstrate skills in assessing social and economic impacts on local communities. In fact, the preparers are predominantly from agencies whose missions and training would lend them to a bias against resource development to provide social and economic benefit to such communities. By refusing to include preparers with an understanding of such impacts, the recommendations are biased by definition.	BLM retained additional socioeconomic expertise to assist in preparing the FEIS. In addition, economists from USGS, BLM, NPS and other federal agencies reviewed and contributed to the revised economic analysis in the FEIS.
Donald Begalke	225254	9	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.	The costs of reclamation activities, as described in the RFD (see Appendix B), are reflected in the analysis of the economic effects of mining.
Donald Begalke	225254	16	On Page 3-252 is "Table 3.16.1 Arizona Employment by Industry", inclusive of "State government". 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 442010 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. Therefore, "Table 3.16.1" numbers	Different agencies count jobs (or employed persons) in different ways, including different treatment of part-time positions, self-employed individuals and other issues. The table discussed in this comment reflects data published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). BEA data was used to describe existing employment because it provides consistency across sectors, time periods and among different counties. BEA data also provides a more comprehensive tabulation of employment (including positions not covered by unemployment insurance) than other sources such as Bureau of Labor Statistics (BLS) data.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 - 40743 jobs. Using [Note: Pages 7-9 of this Comment are the photocopies of the AWR pages, this paragraph continues on Page 10] a mathematical fraction, I am positive all the corrected Arizona State-government job numbers are 99% accurate.	
Donald Begalke	225254	17	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.	Economic data cited in Chapter 3 has been updated for the FEIS, where available and feasible. For many data sources, 2010 information was not available at time of analysis for the EIS.
Donald Begalke	225254	18	(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 BLM not directly contact the Utah State human resource office for the jobs numbers for this Draft.	Different agencies count jobs (or employed persons) in different ways, including different treatment of part-time positions, self-employed individuals and other issues. The table discussed in this comment reflects data published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). BEA data was used to describe existing employment because it provides consistency across sectors, time periods and among different counties. BEA data also provides a more comprehensive tabulation of employment (including positions not covered by unemployment insurance) than other sources such as Bureau of Labor Statistics (BLS) data.
Donald Begalke	225254	19	(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	The table referenced in this comment has been corrected and updated for the FEIS. See Section 3.17.
American Clean Energy Resources Trust (ACERT)	225256	18	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*	The reference cited for this statement in the DEIS was incorrect. The correct reference is BLM 2005b.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 (BIM 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.	
American Clean Energy Resources Trust (ACERT)	225256	56	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?	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	57	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.	Discussions of the contribution of tourism to the economies in the study area in Section 3.17 of the FEIS have been revised and no longer rely on national tourism impact ratios.
American Clean Energy Resources Trust (ACERT)	225256	58	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.	The referenced table has been updated and corrected in Section 3.17 of the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	59	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*	The discussion of the existing contribution of tourism and mining to the study area economy has been revised in Section 3.17.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	60	Table 3.16-20, Page 3-275 Comment: The amount of U30 a 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 U30 a 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.	The USGS estimates are of mineral endowment, not reserves. The EIA estimates are of reserves as defined by the EIA (economically extractable at a given price). The USGS estimate includes undiscovered resources and known resources that have not been explored. The EIA estimate includes only known deposits that are well enough explored to determine how much uranium can be economically extracted given a set of economic assumptions as to costs and revenues. The two estimates are not comparable. A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	109 & 110	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	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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."	
American Clean Energy Resources Trust (ACERT)	225256	109 & 110	CONTINUED... 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	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	109 & 110	CONTINUED. 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?	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	111	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	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS. Milling and hauling revenues are included in the projected price of uranium and are reflected in the economic analysis.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			that the IMPLAN model takes this into account. It is deserving of mention in the DEIS.	
American Clean Energy Resources Trust (ACERT)	225256	113	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 anyone 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.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
American Clean Energy	225256	114	Page 4-250 White Mesa Mill Statement: Indirect impacts are unlikely to affect the White Mesa uranium mill in Blanding, Utah. According to the	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Resources Trust (ACERT)			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 U308 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.	and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS. The revised economic analysis includes milling activity and reflects variability in milling employment based on uranium mine output.
American Clean Energy Resources Trust (ACERT)	225256	115	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.	Please note that alternate mill locations besides the White Mesa Mill in Blanding was an issue eliminated from detailed analysis, as described in Section 1.5.3.
American Clean Energy Resources Trust (ACERT)	225256	116	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.	Please note that alternate mill locations besides the White Mesa Mill in Blanding was an issue eliminated from detailed analysis, as described in Section 1.5.3.
American Clean Energy Resources Trust (ACERT)	225256	117	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	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 U308 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 .... n 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.	
American Clean Energy Resources Trust (ACERT)	225256	118	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	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	138	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% U308 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.	Appendix B of the DEIS described historical uranium mining activity in the study area. Section 3.17 of the FEIS provides further discussion of the historic economic contribution of mining in the study area.
American Clean Energy Resources Trust (ACERT)	225256	139	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. U308. Table 2 uses a calculated average of the Energy Fuels economic impact per million lbs of U308 production to calculate a total potential economic impact of $13.3 billion that will be destroyed through passage of the proposed legislation. ***see submittal # 225256 pg 94 for**	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			detailed take information	
Energy Fuels Resources	225260	31	Section 4.16.2: The first paragraph on page 4-250 does not take into account that the mill may need to shut down as described immediately above. The statement in the second full paragraph of page 4-253 that uranium is a fungible commodity and therefore its production in the U.S. would not assist us in obtaining energy independence is misleading. With so much of the worldwide production of uranium coming from countries that are antithetical to our interests, domestic uranium production will provide our country with a secure supply should uranium imports into the U.S. be restricted in the future.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS. The revised economic analysis includes milling activity and reflects variability in milling employment based on uranium mine output.
Uranium Watch	225262	3	The EIS should include an assessment of other potential uranium resources in the United States that could be developed to satisfy any need for uranium in the United States. The EIS must not ignore the fact that there are many areas in the U.S. that can supply uranium, not just the area proposed for withdrawal.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
Uranium Watch	225262	4	The EIS should include data and information on the amount of federal funds that have been spent on the development of uranium mining in northern Arizona. This would include, but not be limited to: geological studies, uranium resource exploration, road building, reclamation and cleanup of past mining operations and impacts, reclamation and cleanup of past uranium recovery operations associated with the processing of uranium ore from public lands (including tribal lands) in northern Arizona, compensation of uranium mine and mill workers and their family under federal compensation programs, reports and studies, and projected costs for on-going and future clean up of past uranium mining and milling operations on federally administered lands in northern Arizona. The public and the federal agencies should have a clear picture of the amount of public money that has been spent in support of uranium mining and milling operation, cleanup and reclamation, compensation, and other actions associated with the development of the uranium mining and milling industry in northern Arizona since its inception.	Within the Proposed Withdrawal area, the categories of expenditures identified in this comment have been primarily funded by private companies rather than the federal government. To the extent that any of these expenditures were funded by the federal government, those historic expenditures are not relevant to the comparative evaluation of future alternatives in the EIS.
Arizona Mining Association	225266	5	Contrary to the Ninth Circuit Court of Appeals in Lords Council v. McNeil, 537 F.3d. 981 (9th Cir. En banc 2008) (finding that the law does not allow the abandonment of a balance of harms analysis just because an environmental injury is an issue), the economic impact of the proposed withdrawal has not been adequately addressed in the DEIS. In particular, the economic impact associated with not developing uranium reserves on the economies of Arizona, Utah and the nation need to be evaluated. Since the revival of the uranium industry in 2004, at least $30 million has been added to the Arizona economy and that industry was poised to add $1 billion over the next several years and over $10 billion long-term with the increased interest in nuclear energy. The industry also would add hundreds of jobs at salary levels more than 50% higher than the average	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			salary levels in the area. Instead, under the Proposed Action, there would likely be a loss of jobs in the area during a time when jobs are desperately needed. Therefore, land management agencies need to balance the environmental analysis in the NEPA process by giving equal consideration to economic and social factors and not presume that environmental harm will outweigh all other considerations.	
Western Business Roundtable	225271	3	This withdrawal is not just about lands in Arizona. It has profound implications for the nation's economic and energy security. Three facts are worth emphasizing: Nuclear power currently accounts for approximately 20 percent of the nation's electrical production (zero-emissions power, we might add). The United States currently imports 90 percent of the uranium necessary to power those plants. The U.S. Geological Survey estimates that the Arizona Strip holds 42 percent of the United States' undiscovered uranium endowment (the equivalent of 13 billion barrels of oil).	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
Pew Environment Group	225274	19	According to the industry-provided data in the DEIS, the job creation potential of new mining operations is modest at best projected at only 75 employees per mine, not per year but per each mine's lifetime. Roughly half of those employees are predicted to come from the local areas, but specialists and higher paid employees may be among those that come from outside of the area. No consideration is given in the assessment to the sensitivity of mining employment to price swings or the well-documented boom-andbust cycle of hardrock mining operations and the clear possibilities for long shut-down periods, with only skeleton crews to oversee shuttered mines.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS. Section 4.17 of the FEIS describes the potential economic ramifications of alternative uranium price scenarios.
Pew Environment Group	225274	20	The DEIS offers a broad and overly optimistic conclusion that mine operations will not affect recreation and tourism-based jobs in the region. Again, we believe that this is not a realistic assessment, since vistas may be marred by drill rigs, power lines and other industrial architecture, visibility impaired due to mine operations and truck trips, and hunting and fishing opportunities disrupted by possible declines in wildlife species and access limitations imposed on currently open public lands. Any contamination associated with mining, such as that found near the abandoned Orphan Mine or Hack Canyon, would also impact hiking and other outdoor recreation opportunities.	The basis for the assessment that total visitor use in the region would not be noticeably affected under any of the alternatives is described in Section 4.15.3, Impacts to Visitor Use.
Pew Environment Group	225274	21	According to a 2005 economic analysis prepared by the Arizona Hospitality Research and Resource Center of Northern Arizona University, the direct yearly employment associated with Grand Canyon National Park travel was more than 9,000 direct jobs per year. It should be noted that that same study found that Park visitors strongly supported protecting the Park's natural resources, identifying the following as the most important Park resources: clean water; clean air; native plants and animals, including endangered species; and natural quiet—all of which could be impacted by mine operations Arizona Hospitality Research and Resource Center,	The study team has reviewed the reference cited. Section 3.17 of the FEIS describes the economic contribution of the Grand Canyon and other NPS-managed lands in the study area.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Northern Arizona University, Grand Canyon National Park, Northern Arizona Tourism Study, April 2005, http://www.nau.edu/hrm/ahrrc/reports/Grand%20Canyon%20Comprehensive%20Final%20Report.pdf.	
Northwest Mining Association	225275	3	The BLM needs to consider the environmental impacts of not developing the uranium resource in this area. If these breccia pipes are not developed, we must obtain uranium from some other country which may not be friendly to the interests of the United States. Alternatives B, C, and D will increase the United States' reliance on foreign sources of this critical and strategic mineral while adversely impacting our balance of payments.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
Northwest Mining Association	225275	4	The U.S. currently gets 20% of our electrical energy production from nuclear energy. It is critical that we have a secure domestic supply of the uranium needed for nuclear generating stations. We already are importing over 90% of our needed uranium. According to USGS Report C.1051, the Arizona Strip holds 42% of the nation's estimated undiscovered uranium endowment. This is the equivalent of 13 billion barrels of oil. To withdraw this critical resource from location and entry under the Mining Law, with no environmental benefit or necessity, is illogical, short-sighted and dangerous.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
Northwest Mining Association	225275	7	The economic impact of the proposed withdrawal must be considered. Obviously, the economic impact from the job losses in northern Arizona and southern Utah would be significant. Since the revival of the uranium industry in 2004, at least $30 million has been added to the Arizona economy. According to an economic study recently completed, the industry was set to invest more than $1 billion over the next several years and over $10 billion during the anticipated longterm healthy uranium market due to renewed interest in nuclear energy. The industry would add hundreds of jobs at salary levels 50% higher than the current average in the area, at a time when those jobs are desperately needed.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	42	Based on an independent peer review of potential economic impacts on mining from a withdrawal, the economic benefits attributed to mining in the DEIS are baseless. The peer review report provides the following assessment: Throughout the DEIS, we note a variety of inconsistencies in the use of data and inaccuracies in modeling the economic impact of the withdrawal that cause us to seriously question the veracity of the final conclusions related to the four withdrawal alternatives. Most of our concerns fall under questioning of the methodology of the economic impact analysis and its assumptions. The analysis presented in the DEIS related to the economic impact of uranium mining in northern Arizona contains errors in inputs and assumptions as well as interpretation of the economic output and value added of mining activities. These errors demonstrate a serious misunderstanding of economic impact theory on the part of the authors. We question the assumption for the average uranium	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			ore body per mine of 3 million pounds or 1,500 tons of U3O8. This assumption is more than twice the expected output from existing mines that are currently in production or permitted and planned for production in the near future. It is a fundamental assumption that is used throughout the economic analysis. The economic impact analysis of uranium mining extends well beyond the two counties in Arizona. If the DEIS is to evaluate the impact of mining on northern Arizona, there is little need to extend the impact to the distant San Juan County, Utah where processing of the uranium ore will occur. That processing operation is wholly separate from the mining of the ore and does not impact northern Arizona. By including the uranium processing operation in Blanding, Utah in the economic impact assessment on northern Arizona, the economic impact of mining is greatly expanded in the report and could mislead lay persons on the true impact of uranium mining in northern Arizona. In addition, any profits related to the sale of yellow cake will flow out of the U.S. to the Canadian company that operates the Blanding, Utah mill and its shareholders. This fact is not addressed anywhere in the DEIS. The economic impact of mining in northern Arizona should be based on the value of the ore as it is extracted from the ground and transported to Utah. We would recommend that the DEIS address this issue which would permit the development of estimates of the economic impact of uranium mining on northern Arizona. The Final Environmental Impact Statement should include a careful response to Rick Merritt's full report. The full report is provided in Attachment 2 to our comments. It was written by Rick Merritt, President of Elliott D. Pollack & Company. Mr. Merritt is coauthor of the Arizona Statewide Economic Study that established an economic development strategy for the State of Arizona and its regions. Mr. Merritt and associates of the firm have produced a number of economic impact reports for private clients on mining in Arizona.	
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	60	The economic impact analysis of uranium mining extends well beyond the two counties in Arizona. If the DEIS is to evaluate the impact of mining on northern Arizona, here is little need to extend the impact to the distant San Juan County, Utah where processing of the uranium ore will occur. That processing operation is wholly separate from the mining of the ore and does not impact northern Arizona.	As discussed in Section 3.16, the study area for the social and economic analysis was defined to include the counties and communities most likely to be substantially affected by the alternatives, including counties and communities in southern Utah.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon	225279	61	In addition, any profits related to the sale of yellow cake will flow out of the U.s. to the Canadian company that operates the Blanding, Utah mill and its shareholders. This fact is not addressed anywhere in the DEIS.	The revised analysis of the economic impact of the alternatives provided in Section 4.17 of the FEIS provides a clearer discussion of the contribution of milling and hauling to the economic value added in uranium extraction and the distribution of uranium revenues among these stages of production. Profit is

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Chapter, Center for Biological Diversity				cost of capital, the required return on invested capital. For any profit to remain in the study area the owners of that capital would have to reinvest it within the study area. That would go for tourist industry investments as well as mining. Given that capital is fungible it does not matter where profits initially flow – if the study area has the right opportunities capital will flow in.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	62	The economic impact of mining in northern Arizona should be based on the value of the ore as it is extracted from the ground and transported to Utah. We would recommend that the DEIS address this issue which would permit the development of estimates of the economic impact of uranium mining on northern Arizona.	As discussed in Section 3.16, the study area for the social and economic analysis was defined to include the counties and communities most likely to be substantially affected by the alternatives, including counties and communities in southern Utah.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	67	We question why the economic impact analysis considers the impact of uranium mining on five counties in Arizona and Utah when all mining activities will be conducted in just two Arizona counties: Coconino and Mohave. While there certainly will be employment and spending impacts on nearby Utah communities in Washington and Kane Counties related to the North and East Parcels, the much more distant San Juan County will have few direct impacts except for the fact that the uranium ore will be processed in Blanding, Utah at Denison Mines' White Mesa Mill. However, that processing operation is wholly separate from the mining of the ore. If the BLM truly desires to evaluate the impact of mining on northern Arizona, then the economic impact analysis should be focused on the mining activities that occur only in Arizona. Virtually all environmental assessments of the impact of mining in the DEIS focus just on Arizona, not Utah. The economic impact assessment should be conducted in a similar manner.	As discussed in Section 3.16, the study area for the social and economic analysis was defined to include the counties and communities most likely to be substantially affected by the alternatives, including counties and communities in southern Utah.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	68	However, the yellow cake is processed in Utah, not Arizona, and is sold out of Utah by Denison Mines, a Canadian company. The economic impact of the processing operation benefits Utah, particularly San Juan County, and not Arizona. In addition, any profits related to the sale of yellow cake will flow out of the U.S. to the Canadian company and its shareholders. This fact is not addressed anywhere in the DEIS.	As discussed in Section 3.16, the study area for the social and economic analysis was defined to include the counties and communities most likely to be substantially affected by the alternatives, including counties and communities in southern Utah. The revised analysis of the economic impact of the alternatives provided in Section 4.17 of the FEIS provides a clearer discussion of the contribution of milling and hauling to the economic value added in uranium extraction and the distribution of uranium revenues among these stages of production.
Grand Canyon	225279	69	Instead, the economic impact of mining in northern Arizona should be	As discussed in Section 3.16, the study area for the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity			based on the value of the ore as it is extracted from the ground and transported to Utah. Clearly there is a value to be placed on this ore and, in fact, Denison Mines' White Mesa Plant is purchasing ore from mines in northern Arizona controlled by independent parties. Denison Mines' Independent Miner - Ore Schedule of February 1,2011 for Arizona Strip uranium ore provides pricing for a ton of ore ranging from $227.50 per ton with a uranium grade of 0.34% to $966.08 per ton with a uranium grade of 1.05% (based on a uranium sales value of $73 per pound). Assuming the grade of the ore averages 0.60%, the mining and hauling operation would account for approximately 60% of the value of the finished uranium yellow cake. At a price of $62.50 per pound (the average price of uranium yellow cake in January 2011), the uranium ore would be worth approximately 57% of the value of yellow cake (uranium spot price hit low of $53 on 3/18 and as of 3/21 was $60.	social and economic analysis was defined to include the counties and communities most likely to be substantially affected by the alternatives, including counties and communities in southern Utah. The revised analysis of the economic impact of the alternatives provided in Section 4.17 of the FEIS provides a clearer discussion of the contribution of milling and hauling to the economic value added in uranium extraction and the distribution of uranium revenues among these stages of production.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	70	A second source of information was found in a technical report prepared by Scott Wilson, an engineering firm that is now part of URS Corporation. The report entitled "Technical Report on the EZI and EZ2 Breccia Pipes, Arizona Strip District, U.S.A." was prepared for Denison Mines Corporation and downloaded from their website. The table references historic operating costs from the late 1990s. While dated the informatio . dicates that mining and transportation represents about 58% of total operating costs. This source could be used to address the value of output om uranium mines in northern Arizona.	The revised analysis of the economic impact of the alternatives provided in Section 4.17 of the FEIS provides a clearer discussion of the contribution of milling and hauling to the economic value added in uranium extraction and the distribution of uranium revenues among these stages of production.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	71	Table 3.16-21 on page 3-276 estimates the value of estimated total available uranium resources in the proposed withdrawal area at $2,917,640,000 based on 33,155 tons ofU308 at $40 per pound. Based on information available, a portion of this value, perhaps 55% to 60%, is related to the value of the raw ore delivered to Blanding, Utah. At a price of $40 per pound for yellow cake, $22 to $24 per pound may be related to the value of the raw ore. This value establishes the ultimate output of the northern Arizona mining operation and is the basis for modeling the economic impact. * See submittal 225279 for detailed tables	As discussed in Section 3.16, the study area for the social and economic analysis was defined to include the counties and communities most likely to be substantially affected by the alternatives, including counties and communities in southern Utah. The revised analysis of the economic impact of the alternatives provided in Section 4.17 of the FEIS provides a clearer discussion of the contribution of milling and hauling to the economic value added in uranium extraction and the distribution of uranium revenues among these stages of production.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	72	Page 3-251: The authors use Bureau of Economic Analysis (BEA) data for evaluation of employment related to mining and tourism. While the data is useful in certain analyses, it is not current and is only available through 2009. Employment data available from the Bureau of Labor Statistics (BLS) is current on a monthly basis and provides a more realistic picture of employment trends. BLS data is the most widely referenced by the media since it estimates job gains and losses on a monthly basis. BEA data, alternatively, includes both full-time and part-time jobs as well as double counting of jobs for those persons with two jobs. As a result, BEA employment data is upwards of 1I3rd higher than BLS data. While a small	Different agencies count jobs (or employed persons) in different ways, including different treatment of part-time positions, self-employed individuals and other issues. The table discussed in this comment reflects data published by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). BEA data was used to describe existing employment because it provides consistency across sectors, time periods and among different counties. BEA data also provides a more comprehensive tabulation of employment

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			issue, we believe BLS data should be used as well in the analysis.	(including positions not covered by unemployment insurance) than other sources such as Bureau of Labor Statistics (BLS) data.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	73	Pages 4-245 and 4-246 do not identify the economic impact mUltipliers used in the analysis nor the year in which the dollars are stated (such as, for instance, constant 2008 or inflated dollars). The value of uranium is not identified nor how the wages of mining employees are calculated. While IMPLAN is identified as the input/output modeling system, the inputs to the system are not identified in the chapter.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	74	Under Section 4.16.2 Impacts of Alternative A: No Action, employment per mine is incorrectly stated as 75 employees per mine based on seven years of planning and permitting, mine development, mine production, and reclamation with a maximum of six mines operating at one time. Employment in economic impact analysis is typically based on person-years of employment. In actuality, each mine will have 200 person-years of employment over seven years or an average of28.6 employees per year. This miscalculation of mining employment is the most serious error in the economic impact analysis and calls into question the accuracy of the conclusions of all four withdrawal alternatives. The authors of the impact analysis also indicate that direct employment under Alternative A over 20 years is 2,250 employees or 112 per year This calculation is in error. Actual direct employment under the assumptions, in fact, totals 5,855 person-years over 20 years or an average of 308 direct jobs per year. With these miscalculations, the direct, indirect and induced employment and output of the mining operation outlined in this section are in error.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	75	The text related to Table 4.16-3 states a total of $5.46 billion in value added and output related to uranium mining, comprised of $2.06 billion in value added and $3.39 billion in output. According to IMPLAN and economic theory, value added is a part of output and the two values cannot be added together to arrive at a total estimated impact. Following are the definitions from IMPLAN. Value Added: The difference between an industry's or an establishments total output and the cost of its intermediate inputs. It equals gross output (sales or receipts and other operating income, plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). Output: Output represents the value of industry production. In IMPLAN these are annual production estimates for the year of the data set and are in producer prices. For manufacturers this would be sales plus/minus change in inventory. * See submittal 225279 for detailed tables	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Grand Canyon	225279	76	The inputs to Table 4.16-3 are not identified in the DEIS. We are not able	The discussion of the economic effects of mining

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity			to analyze the table due to the lack of identification of inputs and the errors noted above. The same situation applies to Table 4.16-4.	under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	77	Even in the event that Table 4.16-3 was accurate, the output of $3.39 billion is higher than the value of estimated total available uranium resources in the proposed withdrawal area of $2.92 billion based on 33,155 tons of U308 at $40 per pound (see Comment 2 of this report related to Table 3.16-21 of the DEIS Chapter 3). The value of the output of withdrawal Alternative A cannot be larger than the $2.92 billion unless some undisclosed assumptions are provided to explain how they arrived at a higher number. As noted previously, this is just one instance of the inconsistency in the data presented in the economic impact analysis of the DEIS.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
National Mining Association	225281	6	The wide-ranging consequences of the withdrawal have not been adequately assessed in the DEIS, particularly potential implications for national economic or energy security. The Mineral Report prepared in conjunction with the DEIS accurately notes that "failure to develop uranium resources on the subject lands that have the potential of becoming the second most important uranium-producing region in the United States has far reaching economic implications," but concludes that those implications are "beyond the scope of this report." Mineral Report at p. 23. The Mineral Report may not be the appropriate vehicle for addressing such implications but certainly the Socioeconomic Report or the DEIS would be. But these documents fail to acknowledge the implications to our national economic and energy security. Instead, the Socioeconomic Report and DEIS dismiss the potential benefits of mining domestic sources of uranium with statements such as: Like oil and lumber, uranium mined in the United States can be sold to consumers domestically or abroad, based on demand and subsequent market prices. Currently, there are no laws in place that would require domestic uranium to be solely purchased and consumed within the United States. As a result, uranium mined and produced in the United States would not necessarily move the United States toward energy independence. [and thus would not represent an impact to national energy resources] DEIS at 4-253. Socioeconomic Report at 39 and DEIS at 3-276. Such a statement is without merit. There are many commodities from agricultural to livestock to oil that are sold on the global market but that are still important to develop domestically in order to further our national and economic security.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS. Note, however, that the role of nuclear energy in the nation's energy future was an issue eliminated from further analysis as discussed in Section 1.5.3.
National Mining	225281	7	The dismissiveness of the DEIS regarding the ability of domestic uranium	A revised discussion of uranium supply and demand

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Association			to assist in achieving the U.S.' energy independence goals ignores how development of domestic uranium promotes economic and energy security. The U.S. has the world's largest fleet of nuclear reactors (now 104), which produce nearly 20 percent of our country's electricity. The U.S. has one of the world's largest resource bases of uranium of any country in the world and as noted in the DEIS, some of the richest uranium deposits in the U.S. are in the proposed withdrawal area. Despite these resources and the size of our nuclear fleet, however, the U.S. produces less than 10 percent of its own uranium and imports over 90 percent of what is needed to operate our reactors. At a time when energy costs are rising and all available sources of energy must be utilized to meet increased demand, preventing access to the resources to provide such energy is bad public policy, especially when such actions are unnecessary to provide effective protection of the environment and special places like the GCNP.	and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS. Note, however, that the role of nuclear energy in the nation's energy future was an issue eliminated from further analysis as discussed in Section 1.5.3.
Northwest Mining Association	225275	8	Another economic consideration is the cost to the government, i.e., U.S. taxpayers, of the proposed withdrawal. Federal law provides that prospectors and miners have a statutory right to locate mining claims for exploration, development and production of minerals. Mining claims in good standing provide these miners with vested property rights, and blocking such rights would likely subject the United States to substantial takings litigation. Furthermore, the land management agencies clearly do not have the funding and resources required to perform in a timely manner the mineral examinations required under a withdrawal scenario.	A property right is only conveyed to the mining claimant if the claim is valid. Within a withdrawal, validity of claims are determined through mineral examination. Mineral examinations are paid for by the mine proponent, so there will be no additional cost to the Federal Government.
Northwest Mining Association	225275	9	Furthermore, it is incumbent on Federal land management agencies, when balancing the environmental analysis during the NEPA process, to give equal consideration to the social and economic factors and not presume that environmental harm will outweigh all other considerations. Accordingly, the ninth circuit court of appeals in Lands Council v. McNair, 537 F.3d 981 (9th cir. en banc 2008), stated: "Our law does not allow us to abandon a balance of harms analysis just because an environmental injury is at issue. As we have articulated above, there is no environmental injury at issue in this case, as current Federal and state environmental laws and regulations provide sufficient authorities and tools for the protection of all resources while providing for multiple-use of the area." Therefore, the BLM must give significant weight to the adverse economic harm resulting from a mineral withdrawal in northern Arizona. Given the current state of the U.S. economy, it is more important than ever to adhere to the statutory	The EIS analysis has considered all the factors required for environmental review and followed all appropriate policies and regulations in doing so.
National Mining Association	225281	10	If the DEIS underestimates the amount of uranium that can be recovered from the proposed withdrawal area, it similarly underestimates the potential economic benefits of uranium mining. As noted in the Socioeconomic Report, the proposed withdrawal area has suffered during the recent recession, "Arizona has been hard hit by the recent national economic downturn, leading the nation in job losses and housing foreclosures." Socioeconomic Report, p. 14. The current precarious	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			economic situation only highlights the need to carefully consider a withdrawal that puts at risk hundreds of high-paying mining jobs-with an average annual wage of $59,000, 33 percent higher than the combined annual average for all industrial jobs-in Arizona, and Utah. The difference in wages is magnified when one examines the average wages in the counties that would be impacted by the withdrawal since these counties generally lag behind the average state wage. See Socioeconomic Report at p. 20 (2007 wages for Mohave and Coconino Counties lag behind the Arizona average wage of $42,214 at $35,123 and $32,135 respectively; and Socioeconomic Report at p. 22 (2007 wages for Kane, San Juan and Washington Counties lag behind the Utah average wage of $37,722, at $26,836, $29,212 and $30,310 respectively.) Obviously, the high-paying mining jobs would be a boon to these counties. And while many of the commenters during the scoping period may claim otherwise, tourism jobs cannot compete with mining jobs. As accurately portrayed in the Socioeconomic Report, "tourism related jobs are often seasonal, require unskilled labor, and provide low income. These jobs are often part-time jobs and do not provide insurance benefits." Socioeconomic Report, p. 24.	
Ted Jensen	225282	2	Many good people honestly invested extensive time and money into their claims. Liability precedence exists for compensation of proven damages. Direct liability damages will be in the hundreds of millions of dollars and indirect damages will further magnify the liability. These costs need to be included in the alternatives.	Existing claims determined to be valid through a validity examination would be allowed to move forward under any of the alternatives. See PL 94-579 Sec. 701 (Federal Land Policy Management Act).
Ted Jensen	225282	6	Impacts on economic conditions appears incomplete or inaccurate. On page 4-240 it states that there will be no impact on jobs or population in Fredonia. How was this statement of opinion incorporated? Within your study it states that Coconino County has witnessed a 20% growth but Fredonia has a negative 14.2% growth rate. Note this an effective difference of 34.2% as compared to the rest of Coconino County. The town of Fredonia has lost its logging industry, tourist activity is being further restricted, ranching all but stopped, and other agendas are slowly killing this town. The loss of even one more job may tip this town over. To discount the economic impact is wrong. In turn, economic impacts are not carried into the Executive Summary section. One of the most important categories involving people is inappropriately discounted as "no impact."	The discussion and analysis of demographic impacts of the alternatives has been revised in Section 4.16 of the FEIS.
Ted Jensen	225282	18	Statements regarding economic impacts fail to fully look at how vulnerable Fredonia, Paiute Tribe, and other low income communities are to complete failure. The negative growth rate combined with withdrawal of all mining may destroy this area. Logging and ranching have all but been stopped due to other environmental good intentions. Please note that tourist business is very weak and the most important tourist draw, the Grand Canyon North Rim is closed for fifty percent of the year (October to May 15).	The discussion and analysis of demographic impacts of the alternatives has been revised in Section 4.16 of the FEIS. Disadvantaged communities are discussed in the environmental justice portions of Section 3.16 and 4.16.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Doug Reagan	242175	2	The economic justification for not withdrawing lands at this time is incomplete to the point of being inadequate; it does not include the value of tourism, aesthetics, or existence value of the resources that would be affected by exploration and mining (e.g., roads, drill sites).	The economic value of tourism and recreation, including existence values, is discussed in Section 3.17 and 4.17 under the heading "Recreation and Environmental Economics."
Maren Mahoney	226214	3	Under the economic analysis, the EIS failed to consider the negative impacts to the economy in both the local area and the entire state of Arizona. Mineral development might lead to economic gains for mining companies and some of their employees, but it is unclear where the majority of the economic gains will go.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.16 of the FEIS.
Maren Mahoney	226214	5	The EIS fails to take into account time scales when analyzing economic impacts of tourism-related industry and mining-related industry and economic generation. Mining is a finite industry dependent almost completely on the quantity of mineral resources. Once the mineral source has been exhausted, the mining industry packs up and leaves the region (see, for example, Tombstone). Tourism, on the other hand, has the potential to dramatically expand and empower local economies. However, this depends on the long-term protection of the natural resources, not the short-term extraction of those resources. By failing to consider time scales on economic impact, the analysis is flawed.	The EIS has a time horizon of 20 years, consistent with the definition of the proposed action and alternatives.
Kate Johnston	226267	2	I question the utility of the DEIS in toto. Additionally, the pricing supplied in the DEIS is for yellowcake, which is not the raw ore being sold to the processor in Utah. The yellowcake price outstrips the raw ore price, making the DEIS estimates flawed and not indicative of the profitability of the proposed mines.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Kate Johnston	226267	4	The DEIS misuses economic theory and disregards IMPLAN by combining value added and output in order to come up with a favorable number. This is in opposition to best practices by the industry, not to mention the government. Therefore this DEIS is flawed and unacceptable and at the very least another DEIS should be performed which does not contain the many drawbacks and obfuscations perpetrated by this DEIS.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Lela Rhodes	226422	3	The DEIS makes no mention of the economic benefit to the BLM from annual claims payments made by those US Citizens or US companies that have filed those claims. Your database lists 5207 claims within the withdrawal were renewed for 2010. At $140 per claim, the BLM received $728,980 in income. Using the 2011 claim renewal number of 3301, your income was $462,140. This economic benefit should be listed in the DEIS. Also, your plan for reimbursement of these monies should be reported in the final EIS should the decision be made to withdraw the land.	The annual fee noted assists in covering the costs that BLM incurs in administering claims. A reduced number of claims may result in corresponding reduction in BLM expenditures. Annual fees would continue to be recovered from current claim holders under all alternatives. No assumption has been made about the number of claims that might be relinquished or the number of new claims that might be filed under any of the alternatives.
Seth Cude	232398	2	Section 1-4 and 1-5: Important point missing: Change in public perception due to mining the Grand Canyon would have a very negative impact annual park visitation. The pristine untouched beauty of the park brings	The basis for the assessment that total visitor use in the region would not be noticeably affected under any of the alternatives is described in Section 4.15.3,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			millions of visitors. If this perception is tarnished by mining park attendance and income would be greatly reduced.	Impacts to Visitor Use. No mining is currently allowed within the Grand Canyon National Park, and none will be. The degree to which tourist behaviors are affected by perceived impacts has not been studied. Any attempt to characterize these behaviors would be speculative.
VANE Minerals	242650	2	Mining companies have excellent knowledge as to where the best potential lies and therefore, the withdrawal of these lands will kill the industry as well as cause undue personal burden and hardship on families due to job loss and the loss of economic opportunity to businesses in the area. The DEIS states that the average annual wage for the tourism-related sector which is a major employer in the region is $21,230 for Arizona, and $20,200 for Utah. The US Poverty Line for a family of four in 2009 was $22,050. The mining industry represents one of the last alternative economic opportunities available on public lands in the region and a decision to withdraw these lands will help encourage a future of poverty.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
VANE Minerals	242650	7	With respect to Impacts on Economic Conditions as addressed on page ES-14 of the DEIS document, the application of simple proportional economic impacts to the various alternatives is wrong and reflects the inexperience, if not naivety, of the author. It is not simply a math problem whereby, when decreasing the area of lands open to mining, the economic benefit decreases proportionally. Any of the withdrawal alternatives (except A, no withdrawal) will likely drive companies from the district as the entire area needs to be available and open for exploration in order to have economic viability. While Alternative D might result in some continued interest, Alternative C will likely have the same impact as Alternative B (full withdrawal).	Beyond the need for a sufficient scale of regional mining to allow milling operations to continue to be viable, there is no evidence from the historical experience of the area to support the notion that all of the proposed withdrawal areas need to be fully available to make uranium exploration and production viable.
VANE Minerals	242650	8	The DEIS does not reveal that exploration is essentially dead since the segregation order was handed down, due to the use of "heavyhanded" interpretation of the "prudent man rule" in the Mining Act of 1872. And, the DEIS does not recognize that in Alternative B, upon mining out the known deposits, activity in the district will stop. Further to this, the DEIS does not disclose the economic impacts of what will happen when all activity stops. Jobs and taxes directly related to mining and indirect impacts such as income for local businesses will all end.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
VANE Minerals	242650	13	Energy Resources, page 4-253, third paragraph *... there are no laws in place that would require domestic uranium to be solely purchased and consumed ...* and *... uranium mined and produced from within the parcels would not necessarily move the United States toward energy independence* .This conclusion misses the point. That being, at present the United States imports 90% of the uranium it consumes for its nuclear power industry. This means that the present capacity of domestic uranium mines is 10% of the US demand. Production of uranium from the area will	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			increase domestic production so that in the event some protectionist policies are needed due to foreign instability, that production can be called upon. Uranium production (or any mined commodity) cannot be "turned on" when needed, but requires many years of lead time for exploration and mine development to come on stream. Having 100% of the US demand covered with domestiC production whether or not it is used domestically is a healthy strategic policy. One needs only to look at US oil demand and production to get the picture. Therefore, it is a fact that uranium produced from within the parcels would move the United States toward energy independence.	
Mary Crow-Costello	242652	7	Economic Impacts: The economic analyses appear to be are based on an over-simplistic model. It is stated on pg. 248 of 270: *overall regional tourist activity and associated employment are unlikely to be affected under Alternative A.* If thirty new uranium mines are constructed, the damage caused by these mines likely will be noticeable to tourists and will affect the amount of repeat visits and new visits over time as the word gets out.	The basis for the assessment that total visitor use in the region would not be noticeably affected under any of the alternatives is described in Section 4.15.3, Impacts to Visitor Use.
Mary Crow-Costello	242652	8	The mere perception of pollution, especially radioactive pollution, will deter potential new residents and business upstarts from the area. It also will likely spur an emigration from the area. Was this accounted for in the economic model?	The study area is generally sparsely populated and most or all new mines are likely to be located in essentially unpopulated areas. We are unaware of any historical information indicating that concerns regarding uranium mining or waste products have deterred residents or businesses from locating in area communities or have led to outmigration.
Arizona Rock Products Association	242654	5	The impact to the nation's nuclear fuel supply by removing between 326 - 375 million Ibs of America's highest grade uranium deposits at a time our domestic utilities are importing 90% of the uranium they use from foreign nations even though we could easily be self sufficient; and finally, why the Secretary of Energy is out promoting President Obama's agenda to build additional nuclear power plants, while the President's Secretary of the Interior is moving rapidly to block access to one of the largest domestic supplies of fuel necessary to operate new reactors , not to mention the 104 reactors now operating within the United States. There will be renewed interest in building additional nuclear power facilities to meet the needs of a growing U.S. population. These breccia pipe uranium deposits are a key part of meeting current and future demand and the Administration has done little to validate its reasons for its actions.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.16 of the FEIS. The role of nuclear energy in the nation's energy future was an issue eliminated from further analysis as discussed in Section 1.5.3.
Arizona Rock Products Association	242654	19	ARPA is also concerned 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.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS. The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Section 4.17 of the FEIS.
Arizona Rock Products Association	242654	22	suspects that the DEIS has massively underestimated the number of mineralized breccia pipes available for development and consequently have not adequately constructed an analysis in the RFD that correctly identifies and addresses the massive financial implications of closing the withdrawal area to development. Clearly, a withdrawal would essentially destroy the entire productive potential of the highest grade and most favorable endowment of uranium mineralization in the United States.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Groundwater Awareness League, Inc	242658	5	Although at present, the ore is trucked to Blanding , UT, it is feasible if more mines were to open, the mining companies would put a milling operation in the Grand Canyon region to avoid the 250 to 300 mile trip. This heavy use of fossil fuel is one of the issues with the claim that nuclear power is clean energy. Therefore, it is essential to understand the ramifications of a milling operation. Exporting an environmental problem elsewhere is no reason to eliminate its consideration.	Potential alternate mill locations was an issue eliminated from further analysis in the EIS. Please see Section 1.5.3.
Quaterra Resources, Inc.	242664	5	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.	As described in the Geology and Mineral Resources and Economic Conditions sections of Chapter 4, the estimated economically recoverable reserves in the proposed withdrawal areas are approximately 79.3 million pounds.
Quaterra Resources, Inc.	242664	17	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 (Attached) 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 $10.5 billion, 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	The EIS has a time horizon of 20 years consistent with the definition of the proposed action and alternatives. Please also note that the economic analysis contained in Section 4.17 has been revised for the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			from the NAPWA 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. Mining companies contract with 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. **(see submittal 242664 for detailed table info.**	
The NAU Project, LLC	242913	18	Impacts on Economic Conditions Alternative A would result in beneficial moderate to major long-term impacts to economic activity from mineral development because of the potential economic value of uranium mined of $2.9 billion and direct industry employment total of $613.7 million. The economic value of the uranium mined is about $139.7 billion and not $2.9 billion. The $2.9 billion dollar figure is 4817% too low. The economic value of the uranium fuel mineral for this DEIS was only calculated for the commodity value of the uranium and not its economic value as a fuel mineral. This is incorrect. A false assumption lead to the omission of an entire analysis that was required by this EIS and the NEPA process. This lack of analysis appeared to be intentional. These errors must be corrected. I have made many suggestions and analysis on how this could be done.	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium. The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained from elsewhere in the U.S. or overseas.
The NAU Project, LLC	242913	19	Table 3.1-1 indicates the analysis was to be done, but it was not. For example: the Uranium in the withdrawal area is equivalent to 642 million	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			tons of coal. Uranium exploration and mining is projected to disturb 1364 acres of land, and coal production of 642 million tons would disturb about 25,600 acres. See my detailed analysis in my Comments for Chapter 3. A Solar comparison is easily analyzed in about 30 minutes of research and another 30 minutes to write it up. There is a concentrating solar power plant that has received approval for construction near Gila Bend, Arizona. It will be built by Crossroads Solar Energy. According to press releases and their website, the plant will produce 450,000 Mwh of electricity per year. This equates to 450 million Kilowatt-hours per year. The cost of the solar plant will projected to be $650 million and it will take up 4 sq-mi of land area. I don't have information on what its water usage will be, but I am sure that this value could be found.The uranium in the withdrawal area has an electrical generating value of 1284 Billion Kilowatt-hours and a yearly value(divide by 20) of 64.2 Billion Kilowatthours. Thus the number of solar power plants required to produce the same amount of electricity is found by: (64.2 billion kWh/yr) nuclear/ (450 million kWh/yr)Solar = 142.7 Solar Power Plants. The Cost of these new Solar Power plants would be $92.755 Billion. The land area to site these plants would be 570.8 square miles or 365,312 acres or more than 1/3 of the acres sought for withdrawal. This land would, in essence, be totally consumed as no other uses would be available. The Solar power plants have their own life cycle and would undergo periodic replacement as the mirrors will all need replacement over time. These solar power plants, due to their inherent use of large areas of land and water requirements, face their own EIS challenges as can be seen in the press. The uranium mined in the withdrawal area can be used in U.S. nuclear reactors and reduce the imports of uranium into the U.S. at no additional build out cost. See below graphic for how much land would be required to equate to the uranium electrical energy overlaid on the withdrawal map. A short analysis can be made for the other alternative energy source listed in the DEIS.The amount of land required to site a Solar power plant equal to the uranium electrical equivalent on a per year basis. This amount of land completely cover with solar collector mirrors. No other uses available.	The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained from elsewhere in the U.S. or overseas. The analysis of specific alternative energy sources was an issue eliminated from further analysis, as described in Section 1.5.3.
The NAU Project, LLC	242913	24	Table 1.5-1 Economic Conditions Energy resources available The withdrawal could lead to increased reliance on energy sources other than nuclear, such as additional mining elsewhere, imports of uranium from foreign sources, or production from equivalent amounts of other sources like coal, petroleum, natural gas, wind power, or solar. The above analyses were never done. This is a BIAS by omission in the writing of this EIS and the level of thought that went into the justification for not doing these analyses indicate that the omission was purposeful. The justification is bases on a false premise and the required analyses should be done and included in the EIS. NEPA requires that indirect impacts must be analyzed. The EIS must identify all the indirect effects that are known, and make a good faith effort to explain the effects that are not known but are	Since the vast majority of U.S. uranium demands are currently met by uranium imports, and the economically recoverable resource within the proposed withdrawal areas would comprise a very small portion of overall world supplies of uranium as discussed in Section 4.17, there is no evidence to suggest that the proposed withdrawal would have an effect on the mix of future U.S. electricity generation sources.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			"reasonably foreseeable." This good faith effort is missing, even though the effects actually are known and easily analyzed. This DEIS fails to do so! NEPA requirements are not being met.	
The NAU Project, LLC	242913	35	Section 3.16 AND Section 4.16 Energy Resources Available This section regarding the "energy resources available" was poorly conceived and executed and in my opinion, was written with the intent to minimized the value of the uranium in the withdrawal area The exploration and mining of uranium in the proposed withdrawal area has the greatest economic impact outside the withdrawal area, i.e., nationally. The economic impact for uranium energy resources available is much larger and more complex than is presented in this DEIS, but not so much that it is hard to conceive or understand. The introduction to Chapter 3 states:*The effected environment description will vary by resource and is not confined to the proposed withdrawal area for all resources or issues*. This caveat was applied to many resources and issues, but was plainly not applied to the concept of uranium energy resource. Uranium is an energy mineral and its primary value is not in its value as a commodity, but in the energy content that it represents. Any analysis that does not address this concept is slipshod. The Introductions goes on to say: *The information presented in Chapter 3 does not describe impacts, but rather describes the existing environment with an emphasis on the present value of these resource condition indicators.* The condition indicators for "energy resources available" and their attendant indicators are for the most part not addressed and are ignored.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS.
The NAU Project, LLC	242913	36	Starting with the description of relevant issues, the withdrawal of uranium deposits in the study area would remove a potential source of energy production. Note that the concept here is the loss of energy represented by the uranium and not the value of it as a commodity. Further, that this loss would then have to be made up by other production elsewhere, or by imports, or by production from equivalent amounts of other energy sources available, i.e., coal, petroleum, natural gas, etc. Since nuclear energy is a base load electrical power producer, coal would be the natural replacement since coal is our nations largest supplier of base load electrical capacity. Imported uranium would be the other likely replacement source. Another implied issue is, that when you replace the uranium energy resource that is removed by the withdrawal, you not only have to consider what the replacement energy resource is, but also the associated environmental impact that the production of that replacement resource has. We, as a Nation, are now exporting the environmental impact that would occur in the withdrawal area to some other location in the USA, or to some other location and peoples in the world. i.e., Canada, Uzbekistan, Africa, Australia, etc. The two concepts are not separate. Therefore another "Indicator" needs to be added and that would be: The environmental impact caused by the equivalent replacement energy	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium. The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained from elsewhere in the U.S. or overseas. The analysis of specific alternative energy sources was an issue eliminated from further analysis, as described in Section 1.5.3.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			source either in the USA or a foreign country.	
The NAU Project, LLC	242913	37	"Providing a domestic source of mineral resources is one of the legitimate uses of public lands. Restrictions or closures individually and cumulatively decrease this ability." There are two aspects of the treatment of this issue within this DEIS that I find extremely troubling. One aspect is that the energy value of the uranium is declared to not contribute to energy independence, from Chapter 3.16.1: Like oil and lumber, uranium mined in the U.S. can be sold to consumers domestically or abroad, based on demand and subsequent market prices. Currently, there are no laws in place that would require domestic uranium to be solely purchased and consumed within the United States. As a result, uranium mined and produced in the United States would not necessarily move the United States toward energy independence. It is my opinion that this declarative statement is used by, and allows, the authors of this DEIS to believe that no consideration of the value of the energy resource represented by the uranium in the withdrawal area is necessary or required. The authors continue and reiterate this concept in Chapter 4 by declaring: As previously mentioned in Section 3.16.1, Energy Resources, uranium is considered a fungible commodity where it can be mined in the U.S. and sold to consumers both domestically and abroad based on demand and subsequent market prices. Currently, there are no laws in place that would require domestic uranium to be solely purchased and consumed within the United States. As a result, uranium mined and produced within the parcels would not necessarily move the United States toward energy independence and thus would not represent an impact to national energy resources. However, These statements are completely and utterly false and represent either complete ignorance or purposeful deceit. It allows for dismissing the rather large value of the energy that the uranium in the withdrawal area represents (and cumulative affects of previous withdrawals) and to the impacts discussed above that replacement energy sources are likely to have. This is a pretty neat trick if you can get away with it, but as I said before it is quite dishonest intellectually at a minimum and at most shows that there is a purposeful agenda at work.	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium. The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained from elsewhere in the U.S. or overseas. The analysis of specific alternative energy sources was an issue eliminated from further analysis, as described in Section 1.5.3.
The NAU Project, LLC	242913	38	A simple mental exercise will demonstrate that the two propositions in the DEIS are false. * **See submittal #242913 for detailed info and explaination**	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium. The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				from elsewhere in the U.S. or overseas. The analysis of specific alternative energy sources was an issue eliminated from further analysis, as described in Section 1.5.3.
The NAU Project, LLC	242913	39	Uranium Energy Resource Value I will provide a simplified (not complete) value model for domestically produce uranium fuel mineral based on three basic values. The total value and economic impact of this model should be increase by any economic multipliers that apply for each value. A full analysis of this model is beyond the scope of what I can provide, but more qualified professionals should have no problem doing so. These values are: 1. The value of the uranium as a commodity. 2. The value added to the uranium due to processing the uranium into fuel. 3. The average electrical value of the uranium when it is sold to residential and commercial customers. ***see submittal #242913 for detailed explaination and info** The above basic analysis provides a present value for the energy resources for the lands in question and provides some prospective on the present value for the uranium fuel mineral as compared to another equivalent energy source. Similar analysis can be made for wind, solar, and gas fired power plants. The above kinds analysis and comments need to be incorporated and addressed so that this EIS can meet the requirements of NEPA and to fix major deficiencies in this DEIS	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium. The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained from elsewhere in the U.S. or overseas. The analysis of specific alternative energy sources was an issue eliminated from further analysis, as described in Section 1.5.3.
The NAU Project, LLC	242913	41	Page 3-279 Energy Resources Indicators used to determine conditions regarding the availability of energy resources include the amount of undiscovered uranium resources or uranium reserves remaining at existing mines and the energy equivalent of those uranium resources. The energy equivalent is not the only measure. The "energy value" as stated in Table 3.16-22 is also considered. Left out (and should be added) of the above statement is the: Equivalent amount of other energy-producing commodity represented by uranium.	The economic analysis contained in Section 4.17 of the EIS reflects the projected market value of uranium. The value-added between the beneficiation of uranium at the mill and the actual production and sale of nuclear-generated electricity occurs primarily at the power plants themselves and through the distribution and sale of the electricity. This value-added is a return to electricity generation and distribution operations that are far from the study area, and would remain the same whether those plants use fuel originally mined within the proposed withdrawal area or fuel obtained from elsewhere in the U.S. or overseas. The analysis of specific alternative energy sources was an issue eliminated from further analysis, as described in Section 1.5.3.
The NAU Project, LLC	242913	72	Section 4.16.1 Page 4-246 Assumption List: Present and future demand for uranium will not change from 2008 demand. Simply not true, the global demand for uranium will continue to increase. Growth in tourism-related sectors will be consistent with historic growth trends in Arizona and Utah. OK, so it is alright to assume tourism-related sectors will experience growth but the demand for uranium will not. Hmmmm. What if the price of gasoline goes to 5 or 6 dollars per gallon? Might that cut into tourism growth?	The assumption was incorrectly stated in the DEIS and has been corrected in the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
The NAU Project, LLC	242913	73	Page 4-252 Energy Resources This section is just B.S. and should be deleted in whole and re-analyzed per my comments for Section 3.16. The greatest contribution of uranium exploration and mining in the withdrawal areas is reduced to a negative sound-bite based on a faulty and deceptive proposition designed to eliminate thoughtful analysis of the economic value and contribution that uranium has as a fuel mineral. NEPA requires the analysis anyway and saying that uranium does not contribute to National Energy Resources does not allow not doing the analysis. You may comment after the fact that you believe that it doesn't contribute, but NEPA does not allow such obvious and substantial indirect impacts to be dismissed un-analyzed. The lack of analysis for these issues greatly contributes to the BIAS in the writing of this DEIS, especially when the lack of analysis appears to be intentional. Each alternative should be analyzed with regards to the newly determined economic value for the uranium energy resource. See comments on section 3.16 for Chapter 3. The DEIS specifically lists the issues that were not to receive detailed analysis, but many additional issues specified to receive analysis did not receive any analysis at all, much less a detailed one. This failing must be corrected. The DEIS should be reviewed for any missing analyses and those analyses should be performed. NEPA requires the analysis be done and included in this EIS.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS. The role of nuclear energy in the nation's energy future is an issue that was eliminated from detailed analysis, as described in Section 1.5.3.
Arizona State Land Department	225280	8	At the bottom of page 2-8, in Subsection 2.4.1, the DEIS discusses previous withdrawals of federal lands in the area. These include 459 square miles for the Vermilion Cliffs and 1,638 square miles for the Grand Canyon - Parashant National Monuments. State Trust lands have also been included within and impacted by these previous withdrawals, including all or parts of 27 sections in the Vermilion Cliffs and of 51 sections in the Grand Canyon - Parashant National Monuments. All of these 78 sections of State Trust lands have been effectively closed to mineral exploration and development. While these State Trust lands are technically NOT a part of the National Monuments and are considered open by the ASLD, mineral and mining interests have told the ASLD they would not even consider trying to prospect or mine on State Trust or other open lands within the boundaries of a National Monument. This, too, suggests a loss of potential revenue for the State Trust lands and their beneficiaries.	National Monuments, Wilderness Areas, and National Parks have very different land use allocations from the "open" public lands that are the subject of the proposed withdrawal alternatives. The proposed withdrawals considered in this EIS would only withdraw Federally managed lands from mineral entry and would not impose the additional restrictions that affect National Monuments, Wilderness Areas or National Parks.
Joseph Turner	246049	12	Though it is portrayed as a source that can be used to wean society off carbon based fuel, there is no support for uranium and nuclear power replacing any carbon based plants. Scaling up production will most likely only be in addition to existing regimes of energy production, and since there is no immediate need to decrease the price of uranium, because that is probably the most insignificant of nuclear power production capital investments, the only thing driving the mining of this low grade to extremely low grade ore (as included in endowment estimates) is profit for	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS. The role of nuclear energy in the nation's energy future is an issue that was previously eliminated from detailed analysis, as described in Section 1.5.3.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			entities that offer a large amount of risk for little benefit. Please do not just state a value of 2.91 billion dollars, please also provide a pie diagram of where the money is distributed.	
Coconino County Board of Supervisors	225238	3	The economic conditions and economic impact sections of the EIS seem to have the most serious flaws. The potential positive impacts of mining are overstated and the economic impacts related to tourism are understated. The relevant sections of the EIS are 3.16 and 4.16. First of all it is important to note that mining accounts for only 0.3% of jobs in the County (Table 3.16-1), and most of those are related to cinder pits and sandstone quarries, not what is typically thought of as hard rock mining with high paying jobs having a significant impact on the economy. The jobs are important to those who hold them, but the overall impact of mining as an employment sector in Coconino County is exceedingly small and would continue to be under any of the alternatives.	The discussion of the respective roles of mining and tourism in the Coconino County economy has been revised. Please see Section 3.17 of the FEIS.
Coconino County Board of Supervisors	225238	4	The discussion of the positive impacts related to mining employment starts on page 4-247. The initial text contains the number of jobs for each phase of mining, including planning, permitting, actual mining, and reclamation. The maximum number of jobs at anyone time is stated to be 35, which in itself seems to be high based on a tour of the active mine in the North area (and is only supported by a cited personal communication from a single mining company representative), but the number of jobs is totaled over the 7-year life of a mine, yielding 75 employees. Multiplying by all 30 possible mines under the Reasonable Foreseeable Development for Alternative A yields 2,250 jobs (page 4-248). However, there are never more than 35 at one time for any given mine. Most employees have been counted numerous times to get to a total of 75. Furthermore, multiplying by the potential number of mines is exceedingly misleading as the method of operation is for only a small number of mines to be operating at anyone time, perhaps two or three, with employees and equipment moving from one site to the next as one breccia pipe is exhausted and the next is ready to be opened.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Coconino County Board of Supervisors	225238	5	The number of indirect jobs, if one agrees that the correct multiplier is nearly 2.0, which in this case is based on an economic model and not regional reality, is the total over the 20 years and not the number at anyone time. Again, most jobs are counted multiple times. If one assumes that three mines were operating at any given time, this would mean direct employment of no more than 105 and indirect employment of 210, not the 4,398 indirect jobs cited in the DEIS.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Coconino County Board of Supervisors	225238	6	While the potential positive economic impact of mining is overstated, the economic Impact of tourism in the region is understated. On page 3-254 there is an explanation of the use of the IMPLAN model to estimate the economic impacts of tourism. According to the model, 25% of the five-county region's employment is attributable to tourism-related sectors.	Discussions of the contribution of tourism to the economies in the study area in Section 3.17 of the FEIS have been revised and no longer rely on national tourism impact ratios.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			There is no question that 100% of the money spent at hotels, restaurants, bars, outdoor equipment stores, general merchandise stores, etc. is not entirely related to tourism. local residents also patronize restaurants and other businesses. So the percentage of spending at such establishments that is basic, in other words generated from outside the region, is difficult to assess without collecting primary data from each establishment. Therefore secondary data and models are used to make the estimates. However, the DE IS preparers used the national averages estimated by IMPLAN to arrive at the conclusion that only 20% of the total employment in tourism-related sectors is attributable to tourism. This implies that spending in New York City and los Angeles is a good model for spending in the Grand Canyon region, which is preposterous. In Coconino County, the spending at tourist-related businesses at the South Rim and nearby gateway communities that is attributable to locals is probably on the order of 1% or less, not 80% as the DEIS assumes. The importance of tourism and the basic sector employment related to tourism to Coconino County is critical to the County's well-being.	
Coconino County Board of Supervisors	225238	7	There is a sentence near the bottom of page 3-254 that states that employment related to mining is 4.4% lower than that provided by tourism, which must be a mistake after text above asserts that employment in tourism related sectors is 25% in the region and mining is 0.4%. The IMPLAN-derived employment for mining is 901 and the IMPLAN-derived employment for tourism is 53,222, so mining employment is 98% less than that provided by tourism, not 4.4%.	The discussion of the existing economic contribution from tourism and mining has been revised in Section 3.17 of the FEIS.
Coconino County Board of Supervisors	225238	8	It should be noted that the potential economic impact of mining is derived from the indirect impact of salaries, spending, taxing, etc. related to the employees. There is no direct revenue from the mining companies through leases, royalties, property taxes or other taxes and revenues to local governments. This is unlike the economic impact of businesses related to the tourism sector that have a substantial positive economic impact on local governments through property taxes and sales taxes.	The fiscal impact discussion in Section 4.16 of the DEIS has been revised to provide more detail in Section 4.17 of the FEIS.
Coconino County Board of Supervisors	225238	9	It is also important to note that according to the DEIS, and based on the possible exercise of valid existing claims, one third of the potential positive economic impact related to mining would still occur under Alternative B, full withdrawal. On page 4-255 there is a statement that there is 63% less economic impact under Alternative B than under Alternative A, the no action alternative. Furthermore, a reading of Section B.5 in the appendices would lead one to conclude that there was considerable guesswork involved in arriving at the likely number of future mines, albeit educated guesswork, adding to the speculative nature of estimating future economic impacts.	The rate of uranium development and number of future mines under any of the alternatives has been projected based on the best available information, but is subject to considerable uncertainty. Section 4.17 of the FEIS discusses one aspect of this uncertainty, particularly related to variability in the future price of uranium.
Coconino County Board of	225238	19	There is a brief section on public safety and potential impacts on page 4-238. Some of the statistics cited are based on personal communications	The Transportation Conflicts discussion in Section 3.16 and 4.16 of the FEIS has been updated based on new

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Supervisors			with one mining company representative and do not reflect national statistics on the probability of accidents for certain types of travel and certain types of roadways. While the number of vehicle accidents for any mode of travel is very very small relative to the total number of trips or the total number of miles traveled, it is indisputable that accidents happen. For example, accidents involving tour buses are infrequent but when they occur, they often make national news. The number of accidents compared to the total number of tours is almost infinitesimally small, yet the impact of each accident can be very large, with the potential for multiple deaths. The DE IS states that for the 10-year period from 1980 to 1990 there were only five spills, though no other details are provided on the types of accidents that resulted in the spills, whether other vehicles were involved, whether there were injuries, etc. The use of a large number of haul trucks over roads that can be heavily traveled by both locals and tourists certainly causes risks of future multi-vehicle accidents.	information provided by the public and using a more refined methodology. Further discussion of the potential frequency of haul-related accidents and spills is provided in the FEIS in Section 4.16.3.
Coconino County Board of Supervisors	225238	20	Spills are an entirely different matter whether or not other vehicles are involved. If a haul truck overturns with a load of ore, remediation must be done, including not only the material spilled, but a large amount of soil around the spill. The remediation crew is not located locally but at the mill in Blanding, necessitating long travel times to reach the scene of the needed remediation. If that spill occurred along Highway 64 between Valle and Tusayan from a haul truck that originated at a mine in the South Area, this could have very major economic implications. Numbers in the DEIS can be used to illustrate this point. According to Table 3.16-17 on page 3-272, the annual economic impact of Highway 64 is $438,960,909. If one makes the somewhat simplistic assumption that the economic value of that highway is evenly distributed on each day of the year, there is an economic impact of over $1.2 million per day. If clean-up and remediation took a week, the negative economic impact related to the spill would be $8.4 million.	The Transportation Conflicts discussion in Section 3.16 and 4.16 of the FEIS has been updated based on new information provided by the public and using a more refined methodology. Further discussion of the potential frequency of haul-related accidents and spills is provided in the FEIS in Section 4.16.3.
Washington County Commission	225251	8	The DEIS has not demonstrated that mining would result in one lost dollar in revenue to tourism business and no harm to the Grand Canyon. Contrast that with the acknowledged $3.4 billion in uranium and hundreds of jobs to be had - as well as needed energy for our country. Although the DEIS has failed to demonstrate how mining has had an adverse impact on the Grand Canyon's tourism trade, there is absolutely no question what the impact of the proposed withdrawal would be on mining related jobs and industry if it is enacted. Uranium miners earn on average $60,000 to $70,000 dollars per year plus benefits. The average tourism-related job in Arizona pays a paltry $21,000 per year while the national poverty level for a family of four is $22,300 per year.	The discussion of the economic effects of mining under the alternatives has been revised to clarify the results and reflect a revised economic impact analysis. Please see Section 4.17 of the FEIS.
Washington County Commission	225251	9	It's been stated that domestic uranium production supplies a mere eight percent of the uranium utilized by our nation's nuclear reactors, which in turn supply 20 percent of the United States' electricity. The remaining 92%	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			is supplied by other nations such as Australia, Canada, or Russia.	supplies is provided in Section 4.17 of the FEIS.
Washington County Commission	225251	10	The USGS estimates that northern Arizona contains at least 375 million pounds of the highest grade uranium ore in the United States. This is the equivalent of 27 billion kilowatt hours of electricity. This is the equivalent of all the electricity generated by all of the coal plants in the United States for 10 years. It has been estimated to be the equivalent of 13.3 billion barrels of oil, which is the total amount of recoverable oil in Prudhoe Bay. The conclusion for us is straight forward and simple.	The economically viable uranium resource under the lands considered in this EIS is estimated at 39,666 tons (about 79.3 million pounds) per Appendix B.
San Juan County Commission	243250	2	The DEIS has not completely identified, evaluated and considered the impact of the historical mining activities that have and will continue to occur in this County. Uranium mining has been an active part of the County's tax base since the 1950's. During some periods of time, there were at least three active uranium mills operating in the County. The mining portion ofthe uranium industry has been operating on and off during the last 60 plus years. Generation after generation has engaged in the mining process and this industry has provided for some the highest paying jobs in the area. One particular company, Young's Machine Company located in Monticello still produces underground mining equipment such as the Young Buggy which has been sold worldwide. The industry has provided the County, the School District, and other taxing entities with large amounts of property and other taxes. Many roads were improved during this period of time to provide access to the mines and to the mills. These roads have remained and are used by a variety of users including hunters, grazers, recreation users, and others. Many important public facilities were constructed during these times including a hospital, nursing home, medical clinics, and libraries to name a few.	The DEIS provided information on historical mining activity in Appendix B. Additional information on the historic contribution of mining to the economy in the study area is included in Section 3.17 of the FEIS.
San Juan County Commission	243250	3	The County's Master Plan specifically demonstrates the need and support for hard rock mining and its importance in the local economy. We would specifically request that the language in the County's Master Plan be analyzed and reflected in the final EIS. The State of Utah understands the importance of the nuclear industry in its new Energy Plan, specifically detailing information on how the uranium industry has and will play an important role in providing cost effective energy for generations to come. San Juan County has the only licensed and operating uranium mill.	Section 3.15 of the DEIS and Section 3.16 of the FEIS discusses stakeholder values and support for uranium mining.
San Juan County Commission	243250	4	The U.S. Uranium industry is only currently providing about 8% ofthe current national need. The demand will grow and it makes sense to use the high grade uranium that is currently being mined on the Arizona Strip to continue and to make the Nation self supporting in its portion of energy needs. There is no reason to rely on foreign sources when this energy source can be totally developed internally: President Obama has indicated in past speeches the need for a portion of the overall energy needs of the Nation to be provided in this area.	A revised discussion of uranium supply and demand and the potential contribution of uranium resources within the Proposed Withdrawal Area to U.S. uranium supplies is provided in Section 4.17 of the FEIS. The role of nuclear energy in the nation's energy future is an issue that was eliminated from detailed analysis, as described in Section 1.5.3.
San Juan County	243250	5	The impacts of mining on the local economy was not generally studied for	San Juan County was included in the analysis

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Commission			this County. The DEIS used employers from the Wasatch Front of the State that has no relationship to the local economy. Unemployment is high in the County. The study by the American Clean Energy Resource Trust (ACERT) titled "Economic Impact of Uranium Mining on Coconino and Mohave County Arizona" was completed to measure the impacts of withdrawing over 1,000,000 acres of public lands in northern Arizona from uranium mining and exploration. The study showed that if the proposal withdrawal is not implemented and the industry were allowed to operate as it did in the 1980's and 1990's, the following is a conservative estimate that would be realized in northern Arizona and southern Utah over a forty-two year period: 1,078 new jobs in the project area, $2 billion in federal and state corporate income taxes, $9.5 million in claims payments and fees to local governments, Increased property taxes for local governments, Increased business for regional and national mining support vendors, Increased state and local sales taxes, $168 million in state severance taxes, $1.6 billion to trucking firms transporting ore.	provided in Section 4.16 of the DEIS. The FEIS provides a revised and more detailed economic analysis in Section 4.17.
Hualapai Tribe-Office of the Chairman	225270	26	Socioeconomic Issues Related to Water. To sustain itself, Hualapai operates a robust tourism business that depends on the natural resources of the Grand Canyon, including water resources. Corruption of these resources, whether real or perceived, will negatively impact the Hualapai tourism industry as many patrons are environmentally conscious. A large segment of patrons would be dissuaded to use our water recreation activities due to upstream uranium mining and the threat of contamination of the water flowing through the Canyon.	The degree to which tourist behaviors are affected by perceived impacts has not been studied. Any attempt to characterize these behaviors would be speculative.
Navajo Nation Department of Justice	225264	2	The Navajo Nation would like to also state its Fundamental Position remains that there will be no uranium mining or processing within the Navajo Nation, until our expressed concerns have been adequately addressed. The Navajo Nation concerns regarding Uranium Mining and Processing have been codified in the Dine' Natural Resources Protection Act of 20 OS, CAP-18-05; and have been provided in testimony to the U.S. House of Representatives, Committee on Oversight and Government Reform, Hearing on the Legacy of Uranium Mining Impacts on the Navajo Nation," October 2007.	The DEIS includes a discussion of stakeholder values, including the position of the Navajo Nation (see Section 3.15). Additionally, the 1997 Hearing testimony is cited in this text.
Garfield County	246167	1	The document seems to be based on arbitrary and capricious information. Authors arbitrarily identified a 50 mile radius as an area of concern. Then, they promptly violated their own rule and evaluated San Juan County and the associated mill at Blanding. It should be noted that Uranium One holds a significant number of leases in the study area and also owns a processing mill. Uranium One has gone on record as by stating they intend to use the Ticaboo mill to process any uranium extracted from the Arizona strip. The validity of using a competitor's mill that is located farther away causes us to question the validity of the entire economic analysis. Did the authors understand the relationship of the milling operations with Uranium One's holdings? Did the research intentionally omit the Ticaboo milling	The study area has been revised in the FEIS to include communities more likely to be affected by the proposed alternatives than others. It is assumed in this EIS that uranium ore in the region will continue to be processed at the White Mesa Mill in Blanding, Utah, because the quantity of uranium ore determined in the Locatable Mineral Resources—Reasonably Foreseeable Development Scenarios (see Appendix B) can be met by current milling capacity. Alternate mill locations besides the White Mesa Mill in Blanding was an issue eliminated from detailed analysis, as

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			process? Is their documented evidence that this report is well reasoned and founded on valid information given the obvious oversight by omitting the Ticaboo mill?	described in Section 1.5.3.
Garfield County	246167	2	ACERT recently completed an economic study. The socioeconomic study performed by SWCA environmental consultants makes no mention or reference to the research study. It is believed the ACERT research study has the highest most reliable quality data available for economic information. Failure to include it in the SWCA study is a fatal flaw. Based on provisions of the Data Quality Act, we respectfully request information regarding the accuracy, quality, and reliability of data used to complete the SWCA document.	The American Clean Energies Trust (ACERT) 2009 report was used throughout the DEIS (see page 6-8 of the DEIS for the full citation); please note that it is referenced in the FEIS as Tetra Tech (2009). Additionally, BLM contracted with an economist to assist in analyzing and responding to comments on the DEIS and refining the analysis for the FEIS (see Section 5.6, List of Preparers).
Garfield County	246167	3	The socioeconomic study prepared by SWCA environmental consultants is replete with general and irrelevant information, but the study lacks detailed data and analysis regarding impacts to economies custom, culture, and socioeconomics of affected areas. It seems to fulfill the requirements of documents NEPA, CEQ regulations and FLPMA condemn. Consequently economic analysis in the body of the EIS is similarly flawed.	BLM contracted with an economist to assist in analyzing and responding to comments on the DEIS and refining the analysis for the FEIS (see Section 5.6, List of Preparers). Additionally, the analysis in the FEIS has been enhanced based on input from affected counties and other sources.
Garfield County	246167	4	The draft EIS fails to mention the ACERT report. Did research use the report, and if so, why was it omitted from references cited? In as much as the ACERT report is specifically tied to uranium development in the Arizona strip, why does it not have a more prominent role in the environmental analysis?	The American Clean Energies Trust (ACERT) 2009 report was used throughout the DEIS (see page 6-8 of the DEIS for the full citation; please note that it is referenced in the FEIS as Tetra Tech (2009).
Fish and Wildlife				
Donna Brown	225253	7	Small thirsty animals, birds, and bats may be able to access them to drink, and thereby suffer acute or chronic adverse effects. <u>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?</u>	The effects of ponds are discussed in Section 4.7.4. The FEIS has been revised to include additional detail regarding potential impacts of ponds to wildlife species.
Donald Begalke	225254	11	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 exploration efforts and at/around uranium mining operations. <u>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?</u> How can we have a complete environmental-impact statement without the studied reports on amphibians, fish, mammals and turtles? Respectively, BLM is	Specific locations, size, and proposed operations for potential individual mining operations are not known. Without that level of specificity, making determinations on changes in populations over two to five year periods would be speculative. This analysis describes the overall general impacts on key taxa that are representative of the potentially impacted habitat types in the project area. These species are discussed in Sections 3.6 to 3.8, and potential impacts to them are described in Sections 4.6 to 4.8 of the FEIS. Site-specific impact analysis for all pertinent species associated with any individual mining permit application will be conducted and disclosed as part of

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			requested to include such reports in the Final EIS.	the NEPA process that would be required prior to approval of the of that application and the associated mining plan of operations.
American Clean Energy Resources Trust (ACERT)	225256	38	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.	The list the comment refers to includes those species known to occur within the counties affected by the proposed action and alternatives. This list was provided by the U.S. Fish and Wildlife Service as a starting point for the BLM to consider as they determine what species could be potentially impacted by the proposed project. This list was provided in the DEIS to enable the reader to understand what species were and were not analyzed in detail in the DEIS, and the rationale for that decision. As required by NEPA and the Endangered Species Act, the DEIS provides detailed descriptions and impacts analysis only for those species that could be potentially impacted by the proposed project alternatives.
American Clean Energy Resources Trust (ACERT)	225256	92	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 Alterative 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 Alterative 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.	Cumulative impacts of past, present, and reasonably-foreseeable future actions on ephemeral drainages, and springs and seeps can be found in Section 4.7.3. The FEIS has been revised to include additional detail ephemeral drainages, and springs and seeps can be found in Section 4.7.3.
American Clean Energy Resources Trust (ACERT)	225256	93	Pages 4-129 to 4-136 Comment: It is concluded that even for Alterative 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 Alterative B, or even the lesser amounts presented in options C and D. 2.	Cumulative impacts of past, present, and reasonably-foreseeable future actions on wildlife can be found in Section 4.7.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	94	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 a" 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.	Cumulative impacts of past, present, and reasonably foreseeable future actions on ephemeral drainages, and springs and seeps can be found in Section 4.7.3.
Energy Fuels Resources	225260	10	I disagree that a major long-term impact could occur to aquatic and terrestrial habitats under Alternative A. I could not find any mention of a "major long-term impact" in Sections 4.6 and 4.7, which provide the detailed analyses for vegetation and fish and wildlife.	The Executive Summary has been revised as necessary to ensure it is consistent with the Environmental Effects reported in Sections 4.6 and 4.7.
Uranium Watch	225262	17	Section 2.8, Comparison of Alternatives; Table 2.8-1, Summary of Potential Environmental Impacts by Alternative; Water Resources. Page 2-33. There is no discussion of the extent to which existing and potential uranium mines would be in areas where water would enter the mine, requiring the mines to be dewatered during the life of the mining operation. Therefore, there is no assessment of the potential for contaminated mine water that is held in evaporation ponds or discharged offsite to impact the quality and quantity of water resources. Mine dewatering and the need to remove radium and uranium from mine water prior to discharge under a state or federal Pollutant Discharge Elimination System permit is an essential part of the operation of a uranium mine that is subject to drainage and flooding. There is no basis for the assumption that contaminated mine water would not be discharge off site. Offsite discharge has the potential to adversely impact ephemeral and permanent watercourses, riparian vegetation, and animals that drink from those water sources and consume the vegetation.	The likelihood of a mine being located in an area where water would enter the mine is low because the location mine features (such as the shaft and air vents) can be located to avoid surface features that might create such a problem. The probabilities of a mine encountering a perched aquifer influence zone are given in Table 2.8-1 under the heading Water Resources (4.4), Perched aquifer springs quantity and quality of water. The “Probability of impact” is the calculated probability of a mine being located within the estimated influence zone of a perched aquifer spring. (A detailed description of these probability calculations is given in Section 4.4.1.) Mine operations are required to acquire an aquifer protection permit from the Arizona Department of Environmental Quality. Compliance with this permit prohibits off-site discharge. Further, as described in Section 4.4.3, mines are designed with a berm around the mine site sufficient to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				withstand a 500 year flood event, and evaporation ponds are designed to withstand a 100 year flood event. The assumption that any contaminated mine materials would not be discharged off-site is based on regulatory requirements for site-specific mining operations (See Section 4.5.2 of the Draft EIS). To assume that these regulatory requirements would not be followed at the site-specific implementation level is speculative.
Uranium Watch	225262	38	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The DEIS discussion of Impacts Common to All Alternatives (Section 4.2.4, page 4-16) manages to totally ignore the radioactive and hazardous constituents of any fugitive dust from the mining operation. The EIS must identify all hazardous radioactive and non-radioactive constituents of fugitive dust from the uranium mining operations and assess their impact on the environment. This would include an evaluation of potential exposure pathways and impacts to the public, workers, ground and surface water, soils, vegetation, and native and domestic animals over the short and long term.	Potential impacts of fugitive dust and any potential radioactive constituents on vegetation, soil, and wildlife are discussed in Sections 4.6.1, 4.6.3, and 4.7.4 of the Draft EIS.
Uranium Watch	225262	75	Section 4.7 (page 4-119) states: *The impacts discussion of this DEIS assumes all mining projects within the study area would comply with standard environmental regulatory requirements and procedures.* Here the DIES assumes that the standard environmental regulatory requirements and procedures are adequate to protect the environment from adverse impacts of uranium mining. The problem is that the regulatory requirements and procedures of the BLM and USFS were not developed specifically to deal with the unique impacts of uranium mining, such as the dispersal of radionuclides into the environment or the need for long-term care of contaminated areas. Further, based on the current BLM regulation of uranium mining operations on BLM land, there is no basis for the assumption that the uranium mining operations will comply with all state and federal regulatory requirements and procedures. Denison Mines, the primary owner of existing uranium mines in the area, has already shown a lack of commitment to compliance with regulatory requirements of the ADEQ and the Mine Safety and Health Administration (MSHA). A review of the violations at the Arizona 1 Mine (Mine ID 0202443), show a continual pattern of inattention to worker health and safety requirements. Looking at the history of the operation of Denison's Pandora and Beaver Shaft Mines in La Sal (Mine ID 4200470), there is a history of increasingly serious health and safety violations and increasing amounts of penalties over the past two years. These violations include those associated with a fatal mine accident, exposure of workers to unacceptable levels of radon, and faulty equipment. I would direct the reviewer of these comments to the MSHA	The federal government is required to do NEPA on an action that is proposed, and is therefore, ripe for analysis. In this case, that action is only the proposed mineral withdrawal, not the permitting of actual mining operations. The Draft EIS analyzes the impacts of a proposed mineral withdrawal, including the reasonably foreseeable mineral development under each alternative.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			description of violations at the Pandora Mine Complex.	
Uranium Watch	225262	76	Section 4.7 does not give any indication that it considers the impacts of the emission of radon and radon progeny from the mine vents on wildlife. The EIS must evaluate those impacts.	Section 4.7 has been updated to add more depth to the discussion on emission of radon and radon progeny,
Pew Environment Group	225274	5	While we understand that the Department cannot predict precisely which springs might be at risk, we believe that the DEIS should recognize that even temporary loss of an individual spring could have serious repercussions for the Park area's species diversity. Even if spring flows are eventually restored, species loss could be permanent.	Section 4.7 has been updated to include more discussion on aquatic hazards.
Pew Environment Group	225274	10	It is clear from the recent USGS report on biological pathways that the ecological assessment of potential impacts is hampered by lack of species-specific toxicity data on uranium and an acknowledged lack of information on habitat usage within the three parcels. In addition, the analysis does not cover selenium, arsenic or other constituents that may occur with the uranium, be mobilized in the environment by mining, and, as the USGS points out, be as harmful or more so than uranium. The Department should take seriously the caution offered by these studies that uranium and other radionuclides can impact survival, growth and reproduction, and the particular concern expressed for animals that would use mine shafts for habitat or spend significant amounts of time in burrows where they can inhale or ingest contaminants. Special consideration should be given to protecting plant-eating species, such as the desert tortoise, elk and bighorn sheep, that may experience high levels of exposure from wind-deposited contamination on vegetation, birds that may be a greater risk to radiation exposure compared with other vertebrates, and fish species that may concentrate uranium.	Section 4.7 has been updated to include a more detailed discussion on other inorganic constituents and potential radiation hazards.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	25	Because the DEIS fails to analyze a worst-case groundwater pollution scenario, we are generally concerned that the DEIS also underestimates potential effects of uranium mining to species dependent on surface water in the withdrawal area and Grand Canyon National Park. As the DEIS describes, species occupying those aquatic habitats are particularly prone to harm from mining pollution or water depletion: Uranium and its decay products can be transported by way of infiltration into groundwater and surface waters. In addition to aquatic exposure pathways, wildlife can be exposed to chemical and radiation hazards through various pathways, including ingestion of soil and food (prey species), inhalation, and various cell absorption processes. As discussed by the USGS (Bills et al. 2010), some streams, seeps, and springs within the proposed withdrawal area contain high concentrations of dissolved trace elements and radionuclides owing to past mining activities and natural processes of evaporation, weathering, and erosion. Aquatic organisms and plants rely on these water bodies, and minor changes in water quality and quantity could result in mortality of fish and other aquatic organisms or in degradation of their	The potential impacts of uranium mining on wildlife are disclosed in Sections 4.6.1 and 4.7.4 of the Draft EIS. The EIS analyzes impacts that are anticipated to occur from implementation of the four alternatives.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			habitat. DEIS at 4-144. Under a worst-case pollution scenario, we would expect those effects to be greatly magnified.	
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	27	Nor does the DEIS sufficiently consider the potential impacts of uranium mines on migrating birds. BLM does not require uranium mine tailing ponds to be covered. Migrating birds, especially water birds, can therefore be attracted to mine tailing ponds for feeding, wading, drinking, bathing and resting during migration. Because mine water can be polluted with mining waste, exposure to mine tailing pond water could poison or kill migrating birds. Because mine ponds contain no fish or invertebrates, migrating water birds that are attracted to and attempt to forage in mine tailing ponds will expend energy attempting to gain energy, thereby depleting rather than restoring critical fat reserves necessary for migration. In these ways, uranium mining tailings ponds can serve as habitat traps for migrating birds. In April of 2011 Taylor McKinnon of the Center for Biological Diversity documented a White-faced ibis (Plegadis chihi) at the Pinenut mine tailing pond. It was perched on the barbed-wire fence adjacent to the pond and was observed perched at and flying over the pond. (Figure 1) **See comment #225279 for figure information**	Potential project impacts on migratory birds are disclosed in Section 4.7.5 of the Draft EIS. This section of the FEIS has been revised to provide additional detail regarding these impacts. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	28	Fig. 3.7-1 in the DEIS ignores some critical wildlife linkages, and may therefore underestimate the impacts of mining and hauling on large mammals. Maps of radio-collared deer prepared by the Arizona Game and Fish Department (AGFD), and a dispersing mountain lion tracked by the National Park Service (NPS), reveal nearly identical travel routes for these large mammals between the Grand Canyon and the San Francisco Peaks (Fig. 1, this document). Fig 3.7-1 should be amended to show this corridor, which covers a large portion of the south segregation area. Mining and trucking activities that bisect a wildlife corridor could disproportionately impact animal populations. Mule deer and elk stay at least 500-3700m from developed areas when possible, and shift distributions into more marginal habitats to avoid mines (Edge & Marcum 1985, Sawyer et al 2006). Impacts to wildlife corridors are predicted to negatively impact wildlife populations and recreation (hunting, wildlife watching, photography). **See comment #225279 for figure information**	Section 4.7.4 discloses the potential impacts of the project on general wildlife, including the quantification of potential habitat impacts associated with noise from development. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon	225279	29	There may be more unidentified migration corridors in other parts of the action area. For example, a letter from Norris L. Dodd, then-president of The Wildlife Society, to G. William Lamb, District Manager of the Bureau of Land Management (BLM) on April 3, 1988, identifies the vicinity of the Arizona 1 Mine as a travel corridor for pronghorn antelope (Dodd 1988 letter, attached). This corridor is not identified in Fig 3.7-1.	The analysis of this EIS has been prepared based on the best available information.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Chapter, Center for Biological Diversity				
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	30	The map on the right side of Fig. 1 is evidence of mountain lion presence in the proposed withdrawal area, and the column Documented in the Proposed Withdrawal Area? in Table 3.7-1 in the DEIS should be amended from Possible to Yes for mountain lions. Risks to mountain lions, as Management Indicator Species (MIS), are recognized in the DEIS (p. 3-123): Large tracts of roadless habitat are necessary to maintain individual populations, and the corridors that connect these tracts are required for dispersal of lions between populations. In addition, any loss of habitat of their prey species (deer) may cause a reduction in the mountain lion population. DEIS 3-123. Prey species such as deer will be impacted by uranium mines in and near these corridors. For example, the Final EIS for a single mine, the Canyon Mine (USDA 1986), states: "Five elk calving areas totaling approximately 2,000 acres, have the potential to be impacted by the mine proposal... Water is an important component in elk calving habitat. Calving occurs during the dry months of May and June when water becomes limited. This makes the habitat adjacent to reliable waters particularly critical. Each of the known calving areas is within the proximity of a reliable water source." (p. 3.15, USDA 1986) "Approximately 9,900 acres of deer fawning habitat have been identified in the vicinity of the mine and ore haul routes" "Quality forage and available water are essential components in optimum fawning habitat. (p. 3.18, USDA 1986) "Three [antelope] fawning areas, totaling roughly 2,300 acres have been identified in the vicinity of the mine and ore haul routes." (p. 3.18, USDA 1986) "Approximately 1,600 acres of turkey nesting habitat have the potential to be impacted by the mine." (p. 3.18, USDA 1986) Haul route traffic is likely to disrupt the use of adjacent wildlife water sources. "These waters represent 13 percent of all reliable waters in the affected area which are historically used by wildlife. The predicted loss in utilization of these tanks will reduce the overall habitat carrying capacity." (p. 4.15, USDA 1986) Impacts to deer, elk, antelope, and turkey will negatively impact wildlife populations and recreation (hunting, wildlife watching, photography). **See comment #225279 for figure information**	Table 3.7-1 of the FEIS has been revised to address these concerns. Section 4.7.4 discloses the potential impacts of the project on general wildlife, including the quantification of potential habitat impacts associated with noise from development.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	31	Roads will not only remove and fragment habitat, increase mortality from vehicle collisions, release dust, spread non-native species, create noise and visual impacts; it will also lead to the negative impacts that accompany easier access to remote areas. One of these impacts, which is not addressed in the DEIS, is poaching. A letter from Richard W. Marks, then-Superintendant of Grand Canyon National Park, to BLM, dated May 6, 1988, raises concerns about increased poaching when roads create easy access to remote areas (Marks 1988 letter, attached). More recently, in proceedings at the 2009 Arizona Hydrological Society Annual Water	To assume that poaching would occur as a result of project alternatives and to determine the level of potential impacts of that poaching is speculative and is not appropriate in a NEPA analysis. Poaching is an illegal activity that would be addressed through law enforcement.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Symposium, Don Bills of the U.S. Geological Survey (USGS) recognized that, "Increases in wildlife poaching within and near the park boundaries have been associated with increased mining exploration activities in previous years." (Bills et al. 2009) Poaching will negatively impact wildlife populations and recreation (legal hunting, wildlife watching, photography).	
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	48	Soundscapes should not only be protected for people, they should also protect wildlife. According to the Organic Act [16 USC 1], the purpose of the National Park Service includes conserving "the wild life therein". Sound studies and modeling for the DEIS are weighted to represent human hearing. The DEIS should consider that wildlife can be harmed by sound disturbances. According to a recent sound study, humans will perceive an approximately 100-fold sound increase in some areas of Grand Canyon National Park, due to mining activities, but the actual measured sound in these locations will be 2000 times ambient sound (Ambrose 2010). This, for example, could impact bats, of which there are at least 20 species in Grand Canyon National Park, 10 being species of concern to one of the wildlife governing agencies (NPS 2010, pp. 22-24). Bats rely on sound to navigate and feed. If hibernating creatures are disturbed, they could expend more energy than they have reserved for the winter season, leading to mortality.	Potential impacts to bats are disclosed in Sections 4.8.4 through 4.8.7 of the Draft EIS. Additionally, this discussion on bat impacts has been updated in the FEIS to provide additional detail on the timing of potential reasonably-foreseeable mining activities for non-withdrawal alternatives and how that relates to impacts on bats.
Doug Reagan	242175	3	More information is needed on the species distributions in the potentially affected area, their movements, seasons of activity, and use areas (e.g., nesting, feeding).	Key wildlife species that are representative of potential wildlife impacts are discussed in Sections 3.6 through 3.8 and 4.6 through 4.8 of the Draft EIS. Specific species analyses for individual mining permit applications would be disclosed as appropriate through site-specific NEPA conducted prior to approval of those mining operations. This analysis is based on the best available information.
VANE Minerals	242650	6	Under Impacts on Fish and Wildlife in the Executive Summary, page ES-14, when discussing wildlife habitat and habitat fragmentation, the DEIS states: "Alternative A would have a minor to major long-term impact on aquatic and terrestrial habitats ... ". What exactly, is the quantitative basis for this statement? Further to this, Table 4.10-7 (Page 4-198) predicts, for the South Parcel (which encompasses the entire Tusayan Ranger District), the construction of 3.6 miles of new road . The DEIS does not mention that the USFS is considering plans to close over 140 miles of existing roads while leaving over 560 miles of road open in the Tusayan Ranger District alone . Nor does the DEIS clarify that reclamation of new mine roads can be required, therefore making impacts temporary. The DEIS inference of minor or major longterm impact on habitat fragmentation from 3.6 miles of "temporary" road is unfounded.	The FEIS has been revised as necessary to ensure that the Executive Summary is consistent with the analysis described in Section 4.7.3.
Mary Crowe Costello	242652	5	How would increased truck traffic associated with these mines impact local wildlife, such as ungulates and raptors? I have property in southeastern	Section 4.7.4 of the Draft EIS discloses the impacts of roads on wildlife species, including risks of

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Utah and have witnessed the amount of wildlife killed by uranium haulers in the corridor between Blanding and Moab, Utah. It is having a big impact on local ungulate populations.	vehicle/wildlife collisions.
Arizona Elk Society	242661	1	Although the DEIS is correct in stating that several of the Federally-listed big river fish such as humpback chub and Colorado River pikeminnow are not found in the project area, we feel that the document is remiss in not adequately identifying that activities in the watershed of Kanab Creek could have dramatic impacts on these unique resources.	Sections 4.7.2, 4.7.3, and 4.7.4 of the Draft EIS disclose the potential project alternative impacts on Kanab Creek and associated wildlife.
The NAU Project, LLC	242913	66	Section 4.7 Fish and Wildlife This section should be reviewed after other sections within this DEIS have been "corrected" based on comments received. The Water Resources section deserves heavy revision and so impacts to fish and wildlife may have to be revised accordingly.	Section 4.7 of the FEIS has been revised as necessary to address substantive comments made on the DEIS.
The NAU Project, LLC	242913	90	4.7 FISH AND WILDLIFE page 4-119 As previous discussed in Chapter 2, the BLM and Forest Service require the preparation of plans of operation for all uranium mining projects. Plans of operation include standard operating and reclamation measures to minimize or mitigate impacts to fish and wildlife resources. Like what?	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Fish and Wildlife Service	242660	5	Page 1-22, Table 1.5-1: A potential impact on fish and wildlife resources and special status species also includes the possible chemical (uranium and other heavy metals) and radiation contamination of these resources through ingestion of plants, uptake of water, and exposure to soils in the vicinity of mining operations.	Section 1.5.2, Table 1.5-1. Fish and Wildlife Resource Section, sub columns has been revised to add additional discussions regarding potential impacts to fish from chemical and radiation contamination.
U.S. Fish and Wildlife Service	242660	37	Page 4-130, first partial paragraph: The referenced study compared small mammal populations along an interstate in Utah and a two-lane highway and an existing transmission ROW road in forested habitat in British Columbia. The results of this study have limited applicability here to the effects of new roads on larger mammals in this arid environment.	Discussion on impacts from roadway on general wildlife species is included in Section 4.7.4. Referenced reports on Wildlife and impacts of roads have discussions on many variables that apply including seasonal variables, terrain and other obstructions play a large role in conflicts and shy distances to roads. Discussion in Section 4.7.4 includes a 1/2 mile 'zone' around all roads and power lines, which is a physical acreage impact to quantify potential impacts associated with roadway noise, air quality, habitat modifications, and other visual disturbances.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
U.S. Fish and Wildlife Service	242660	38	Page 4-131, first paragraph: Biological soil crusts are also important for holding soil (especially topsoil) together and preventing erosion.	Section 4.7.4 of the FEIS has been revised to provide additional detail regarding biological soil crusts.
U.S. Fish and Wildlife Service	242660	39	Page 4-136, Migratory birds: Impacts to aquatic habitats could result in impacts to other bird species using these habitats, in addition to wading birds. Also, we could not locate the discussion about impacts to wading birds in Section 4.7.4 that is referred to here.	Section 4.7.6 of the FEIS has been revised to provide additional detail regarding impacts to wading birds.
U.S. Fish and Wildlife Service	242660	40	We recommend acknowledging the risk to migratory birds from water collection ponds within mine operation areas. Based on sampling conducted by USGS, these ponds have high levels of radiation and contamination. Measures to mitigate the risk of this exposure to migratory birds, as well as risk associated with exposure to waste rock piles and other sources of contamination, should be developed and incorporated into future plans of operations.	Impacts to migratory birds are discussed in Section 4.7.5 of the DEIS. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Fish and Wildlife Service	242660	43	We also recommend including a conservation measure to add perching and nesting deterrents to any utility structures erected in or near mine sites so that large raptors, including bald and golden eagles as well as condors, are discouraged from using these facilities.	The applicability of perching and nesting deterrents in or around potential future mine sites would be determined based on site-specific NEPA analysis that would be completed prior to approval of specific proposed mine projects. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Geological Survey	242871	1	The DEIS considers impact in terms of habitat destruction and/or fragmentation and the repelling of species from the area. We disagree because this approach fails to account for mining sites being attractive nuisances for some species. Some species will be drawn to the area (and	Section 4.7 of the FEIS has been revised as necessary to address these concerns. The purpose of the EIS is to analyze the effects of the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			thus have greater potential exposure) because of water availability in the waste ponds, human activity, and perching structures. Migratory birds are good examples of species that may be attracted to mining sites.	Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Geological Survey	242871	2	*Increased levels of uranium and decay products are anticipated to be minor and long term to biological resources.* There is no scientific basis for this statement in the DEIS nor data to support it from our USGS report. Site specific contaminant data is lacking but needed. To truly make such a statement, a risk assessment needs to be performed as suggested in our BRD chapter.	Both the Executive Summary and Section 4.7.2 of the FEIS have been revised as necessary to address these concerns.
U.S. Geological Survey	242871	3	The DEIS evaluates impact based on habitat but fails to account for chemical toxicity, and radiation toxicity is barely even mentioned in the DEIS because of its focus on aquatic habitats.	Sections 4.7.3 and 4.7.4 of the Draft EIS disclose potential chemical and radiation toxicity impacts on aquatic and terrestrial species respectively.
U.S. Geological Survey	242871	5	Habitat quality is only discussed in terms of aquatic habitat quality. We disagree with this because terrestrial habitat is sensitive and should be considered as well. A good example is Kanab North mine (below) which hasn't been mined for 20+ years. Note how vegetation has not re-established within the mining perimeter.	Section 4.7.4. of the Final EIS has been revised as necessary to provide additional detail regarding these impacts.
Arizona Game and Fish Department	242655	1	Increased uranium activity within the three parcels may result in wildlife disturbance, changes in habitat use by wildlife, and/or reduction in wildlife habitat quality. For example, Gavin and Komers (2006) found that pronghorn foraging behavior was disturbed along high traffic roads, but that general risk-avoidance behavior was higher near roads regardless of traffic level, suggesting an overall perception of risk toward road disturbances.	Section 4.7.4 of the Draft EIS discloses the impacts of roads on wildlife species, including risks of vehicle/wildlife collisions and impacts on habitat quality and quantity.
Arizona Game and Fish Department	242655	2	Changes in habitat use by wildlife, Sawyer et al. 2009 found that mule deer responded to oil and gas operations by selecting habitats 2.61 km from roads traveled by 2-5 vehicles per day, 4.3km roads traveled by 4-9 vehicles per day, and 7.49 km from roads traveled by 86-145 vehicles per day. While oil and gas exploration may not be comparable to uranium mining on some levels, vehicles per day in this research does approximate what the DEIS suggests will be the increase due to mining activity	Section 4.7.4 discusses impacts from roadway on general wildlife species. Referenced reports on Wildlife/road have discussions on many variables that apply including seasonal variables, terrain and other obstructions play a large role in conflicts. Discussion in Section 4.7.4 includes a 1/2 mile 'zone' around all roads and powerlines which is a physical acreage impact to quantify potential impacts associated with roadway noise, air quality, habitat modifications, and other visual disturbances.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Section 4.4 addresses water resources in more detail.
Arizona Game and Fish Department	242655	5	The Department also has concerns that uranium drilling may decrease perched aquifer water resources. The DEIS states that this is a possibility in Chapter 4, page 126. As you are aware, the Department is engaged in efforts to manage natural and artificial water sources for wildlife when necessary. The Department actively manages wildlife waters because research has shown that natural and artificial sources are important for multiple species. For example, Ockenfels et al. (1992) suggested the free water could make the difference between good and poor pronghorn fawn recruitment when forage moisture is low. Rosenstock et al. (2004) concluded that nongame species visitations at water sources often exceeds game species visits, and includes a high diversity of species like bats.	Sections 4.7 and 4.7.3 of the Draft EIS disclose the potential impacts of project alternatives on perched aquifer water resources and associated wildlife species.
Geology and Mineral Resources				
Five County Association of Governments	50521	1	Northern Arizona contains some of the highest grade uranium deposits in the nation. In a time when the country is in desperate need to lessen dependence on imported energy resources and nuclear power generation will be a vital part of the national long-term energy strategy, it is folly to withdraw some of the best proven uranium resources on federal lands from use.	The purpose and need for this action are described in Section 1.3.1. How a potential withdrawal would comport with national long term energy strategy may be a factor in the Secretary of Interior's Decision on Withdrawal, but is not relevant to the EIS analysis.
Robert Grossman	54251	2	The projected demand for U does not specify if it includes the amount recoverable from decommissioned weapons. Further it does not mention the U recoverable from the tonnes of greater than 0.2 tails stored by the AEC/DOE. Both should be listed to confirm the validity of the demand estimate.	It is assumed that the commenter meant the projected uranium supply, not demand. The estimate provided from EIA does not include any recoverable from decommissioned weapons or from tails. Section 3.3.2 of the FEIS has been modified to indicate this.
Lawrence M'tigue	94040	3	(Page ES-14) says: *Impacts on Geology and Mineral Resources: Alternative A would have no impact on the underground geological conditions, availability of mineral resources, or depletion of uranium resources within the proposed withdrawal area. Alternative B would reduce the number of ore deposits mined but would not change the potential for subsidence or alteration of geology or topography in the proposed withdrawal area.*.Comment: In the first sentence, at the start of the paragraph (above), it says: "Alternative A would have no impact...". This is (extremely) poorly worded. Did you mean to say Alternate B, rather than Alternate A? I understand what (might) be meant, since (in effect), no change in (current) management of those areas would occur. But, what that also means is that (new) uranium mining claims (would) continue to be (allowed) and (new) uranium mining (would) increase, with few restrictions	Wording to the Executive Summary has been modified.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			imposed. So, with all that (new) mining activity (taking place), impacts "on the underground geological conditions, availability of mineral resources, or depletion of uranium resources" would (indeed) be impacted!!! If you really (did) mean to say Alternate A, then you should re-word it to say: "Alternative A would have no impact on the (current management policies) of the land areas being discussed here. Under Alternate A, (extensive) impact on underground geological conditions and (extensive) depletion of uranium resources from (unrestricted) mining of uranium (would) occur, under Alternative A. If you meant to say Alternative B, then you need to change it, to (say) Alternative B.	
Lawrence M'tigue	94040	4	(also on Page ES-14): (under) Impacts on Geology and Mineral Resources It states: *Alternatives C and D would also reduce the number of ore deposits mined but would not reduce the number as much as Alternative A. Alternatives B, C, and D would also cause a moderate to major long-term impact to the availability of mineral resources and depletion of uranium resources within the proposed withdrawal area.*Comment: In the first sentence above, did you mean to say: Alternatives C and D would also reduce the number of ore deposits mined but would not reduce the number as much as Alternative B? Alternative A would (not) reduce the number of ore deposits (mined), at all!!! On the contrary, Alternative A (allows) nearly (unrestricted) filing of (new) uranium mine claims and virtually unrestricted (mining) of uranimum in all (3) areas!!! If this was worded incorrectly, it needs to be changed to Alternative B (not) A!!! In the last sentence, it says: *Alternatives B, C, and D would also cause a moderate to major long-term impact to the availability of mineral resources and depletion of uranium resources within the proposed withdrawal area..*This is also (very) poorly worded. It should be changed, to state the following: Alternatives B, C, and D would also cause a moderate to (major) long-term impact, in the (availability) of mineral resources (to the mining industry). Also, (depletion) of uranium resources would occur, within the proposed withdrawal areas, where (some) current mining claims would continue to be allowed. Some (new) uranium mining claims would be allowed, under Alternatives C and D, but (not) under Alternative B.	Wording to the Executive Summary has been modified
Frank Bain	215490	3	My last comment has to do with the gross underestimation of the number of breccia pipes that are thought to exist in the proposed withdrawal area. Most of the government scientists and others involved in determining the percentage of pipes thought to exist in the withdrawal area are not seasoned explorationists and do not have the expertise or access to confidential company data to determine how many pipes are present in this area. Most exploration geologists familiar with the area agree that the 12% number given in the EIS is a gross underestimation of the number of pipes that will be made off limits by the withdrawal. Just look where the majority of the mining claims are located. This issue must be revisited, and the numbers revised with the input of industry and knowledgeable	The USGS Report is a peer-reviewed publication that provided the estimated uranium endowment for the proposed withdrawal area. While some commenters have presented alternate or supplemental approaches to assessing the uranium endowment from that provided by USGS, these alternate approaches have not been developed or peer reviewed to the extent that they can replace or supersede the USGS endowment assessment presented in SIR 2010-5025. As with many scientific fields, new information is constantly being collected which leads to new or refined

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			professionals to accurately reflect the impacts of what withdrawing this valuable resource will have on local communities and America's security.	conclusions. However, at present, the USGS Report contains the best credible information available regarding the uranium endowment estimate and was therefore used as the basis for the reasonably foreseeable development scenarios in the EIS.
DIR Exploration, Inc.	225241	1	The general and specific assessments of uranium resource potential provided at http://www.blm.gov/az/st/en/prog/mining/timeout/maps.html as Segregation Mineral Potential Report and as Chapter A, Uranium Resource Availability in Breccia Pipes in Northern Arizona, in Hydrological, Geological, and Biological Site Characterization of Breccia Pipe Uranium Deposits in Northern Arizona, do not take into account a geologically-obvious structural control of the distribution of economically-mineralized uranium-bearing breccia pipes in northern Arizona. Resource estimates qualified by recognition of this clear control of the location of economic breccia pipe uranium mineralization show that the proposed withdrawal of about 1,000,000 acres of northern Arizona will not result in a small 12% decrease of the Arizona uranium resource availability, but will instead result in a much larger (6x) 76% decrease in availability of this particular domestic energy resource. ***see comment submittal # 225241 for more detailed explanation, Including figures, rational and citations.**	See RFD Comment 225241:4
American Clean Energy Resources Trust (ACERT)	225256	24	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	Text in Section 3.3.1 of the FEIS has been reworded
		25	Locatable Minerals Pages 3-32 to 3-35 Table 3.3-1, Page 3-32 Comment: The amount of U30 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 U30 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	See RFD Comment 225256:129

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			analyses) without the background mentioned above.	
		26	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 stops 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.	The history of the Hack Canyon complex offered by the commenter is at odds with that summarized by the USGS, which identified four individual breccia pipes in Hack Canyon. The USGS Report is a peer-reviewed publication and represents the best credible information available regarding uranium development in the area.
		65	Pages 4-38, and 4-40 Statement: *Under Alternative A, the mines would produce 33,155 tons of URANIUM (U30 S)" 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 U30 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?	See RFD Comment 242664:13 concerning the change to these numbers.
		66	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	Based on literature examining historic mines, low-grade ore has been left in mines in the past. This is not necessarily the case for future mines. Text has been modified in Section 4.3.4 of the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			document.	
		67	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 NOTallow 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 DEIS. 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.	Text has been changed in Section 4.3.1 of the FEIS to further discuss this issue.
		68	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.	As stated in the notice of proposed withdrawal published in the Federal Register on July 21, 2009, the withdrawal is from "location and entry under the 1872 Mining Law, but not the mineral leasing, geothermal leasing, mineral materials laws, or public land laws." 74 Fed. Reg. 35887 (July 21, 2009). Consequently, the commenter is correct that exploration for oil and gas may continue under the mineral leasing laws, subject to the Secretary's discretionary authority. In addition, any withdrawal from the Mining Law would withdraw all locatable minerals, not just uranium.
Energy Fuels Resources	225260	21	Section 4.3.1, Page 4-37: The average U,S. citizen is not able to translate pounds or tons of uranium into a meaningful context. I suggest providing the power generation equivalent of the estimated production for each alternative in a readily understandable manner. For example, the number of Phoenix Metropolitan areas that could be powered by the uranium once	There is no guarantee that uranium mined from the proposed withdrawal area would be used to produce domestic electricity, and therefore calculations of energy equivalency are beyond the scope of this EIS (see Chapter 1, Section 1.5.3, Issues Eliminated from

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			it is converted into fuel rods. In addition, that data should also be compared to the equivalent amount of coal and oil needed to generate the same amount of power. This will help the average person understand the importance of exploring for and developing this resource,	Detailed Analysis). This section has been expanded in the FEIS to provide specific rationale for elimination from detailed analysis.
Uranium Watch	225262	51	Section 4.3 Geology and Mineral Resources. Pages 4-36 to 4-42. Section 4.3.3 Compliance with Environmental Regulations and Permitting (page 4-38) describes the types of reclamation that will take place at uranium mines.This section should have described the clean up of hazardous radioactive (such as uranium and radium) and non-radioactive (such as arsenic) contaminated materials during site reclamation. This section should have included a discussion of the unique issues associated with the reclamation of uranium mine sites. This section should have included a discussion and assessment of the reclamation of any water treatment facilities at the uranium mines.	Reclamation requirements are specified on a case-by-case basis. Further information has been added to Section 4.3.3 discussing what has been required historically and what is in current proposed plans of operation.
Uranium Watch	225262	52	Section 4.3 Geology and Mineral Resources. Pages 4-36 to 4-42. Section 4.3 should have included an assessment of other uranium mineral resources in the Utah and Colorado area that currently provide, have been permitted to provide, or have the potential to provide uranium ore to the White Mesa Mill. The development of additional uranium mining operations, under Alternatives A, C, and D, should be looked at in conjunction with an assessment of other uranium reserves on private, state, and public lands in the region that can provide uranium ore to the White Mesa Mill. This would include an assessment of the uranium resources associated with the non-breccia pipe mines that are owned by Denison Mines (USA) Corporation and the other uranium resources currently available to DUSA outside the withdrawal area.	The purpose of this EIS is to analyze the impacts of the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. Comparison of impacts with mining in other areas isn't relevant to the analysis in this EIS.
Uranium Watch	225262	53	Section 4.3 Geology and Mineral Resources. Pages 4-36 to 4-42. The DEIS must assess the environmental impacts associated with the mining of uranium in areas outside the north and south rims of the Grand Canyon in order to provide ore for the White Mesa Mill over the next 20 years. Since there are other sources of uranium ore in the vicinity of the White Mesa Mill, some much closer to the Mill than the withdrawal area, and many of those resources are on public lands, a full assessment of those resources is warranted.	The purpose of this EIS is to analyze the impacts of the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. Comparison of impacts with mining in other areas isn't relevant to the analysis in this EIS.
Arizona Mining Association	225266	8	Section 2.4.1, Section 4.3.5 and Section 4.3.6 The DEIS does not put into proper context the fact that considerable acreage of land has already been withdrawn in the vicinity of the proposed withdrawal area. As acknowledged in Sections 4.3.5 and 4.3.6 of the DEIS, 50% ofthe 9,100 square miles designated as high mineral potential for uranium in Northern Arizona has already been withdrawn from mineral location and entry. Under the Proposed Action, the land withdrawn would increase by 1,579 square miles to almost 70% of the land with high uranium potential. Furthermore, the withdrawal of 70% of lands with high uranium potential	This information is already considered in the FEIS in Table 4.3-3, which summarizes the percentages of cumulative land withdrawal for all alternatives. It is further described in the cumulative impacts portion of Sections 4.3.5 and 4.3.6.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			does not include large land blocks that various tribes have closed access to under uranium mining moratoriums. As noted in ARPA's comments, this region is one of the most important uranium-producing regions in the United States with nearly a 300-400 million pound uranium endowment according to the BLM and the USGS (Circular 1051). This endowment represents an enormous and vital domestic supply of clean energy at a time critical to the energy needs of the United States. The Proposed Action would require the nation to forego almost half of its uranium resources and force the country to become even more import dependent for this strategic mineral.	
National Mining Association	225281	7	According to the DEIS, the undiscovered uranium endowment in the proposed withdrawal area is approximately 326 million pounds, of which about 33,155 tons (or more than enough to fuel all 104 US reactors for over a year) would be economically viable Furthermore, these numbers do not appear to factor in the Mineral Report conclusion that it is possible the majority of uranium resources on the subject lands have yet to be discovered. There is potentially a large number of hidden breccia pipes that remain to be discovered by advanced geophysical techniques. (Emphasis added.) Mineral Report at p. 22. And the statement on hidden breccia pipes is not speculative: However, the potential to discover additional hidden mineralized pipes with airborne VTEM geographical surveys is high. Hack II, the largest and one of the highest grade uranium deposits ever discovered on the land involved, is a hidden breccia pipe. Mineral Report at p. 27. For reasons unclear to NMA, neither the DEIS nor the Socioeconomic Report track or follow up on the suggestion that there may be a large potential for future discovery of hidden breccia pipes.	With respect to the RFD, hidden breccia pipes are part of the uranium endowment within the project area. As such mining of hidden breccia pipes is already incorporated into all aspects of the DEIS analysis.
Ted Jensen	225282	11	In Minerals section it states that alternatives are "subject to valid existing rights". This needs to clearly state that this means all but very few claims will be considered valid and in effect closes the Arizona Strip.	The commenter is correct that all of the action alternatives analyzed in this EIS will close the lands within the area proposed for withdrawal from location and entry of new mining claims. Determination of how many existing mining claims would constitute valid existing rights is outside the scope of this EIS.
Quaterra Resources, Inc.	242664	2	Two USGS studies have estimated an endowment in excess of 320 million lbs. yet the DEIS has incorrectly referenced a highly subjective and 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.*	See RFD comment 225256:127
Quaterra	242664	3	The assumption made in the DEIS that uranium pipes are uniformly	See RFD comment 225256:126

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Resources, Inc.			distributed throughout the area and that the potential loss of uranium is directly proportional to the number of acres withdrawn, not which lands are withdrawn is a huge mistake. 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 of proposed withdrawal was selected by drawing a line around the focus of the claim staking activity.	
Quaterra Resources, Inc.	242664	4	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.	This comment misunderstands the USGS endowment figures. The entire uranium endowment includes ore grades down to 0.01%. This is much lower than is considered economic to mine. By contrast, historic uranium mines averaged over 0.5% grade ore, and pipes currently expected to be mined average over 0.25% grade ore.
The NAU Project, LLC	242913	22	Table 1.5-1 Geology And Mineral Resources The energy potential for uranium was never calculated for the withdrawal area or for those areas already cumulatively withdrawn. I did provide analysis for this in my comments for Chapter 3 or 4 or both. This analysis needs to be done as required by NEPA.	There is no guarantee that uranium mined from the proposed withdrawal area would be used to produce domestic electricity, and therefore calculations of energy equivalency are beyond the scope of this EIS (see Chapter 1, Section 1.5.3, Issues Eliminated from Detailed Analysis). This section has been expanded in the FEIS to provide specific rationale for elimination from detailed analysis.
The NAU Project, LLC	242913	28	Page 3-5 Table 3.1-1 3.3 Geology and Mineral Resources Issue: Depletion of uranium resources. Mining these uranium deposits in the near future depletes domestic resources that may be needed later for energy production or national security purposes. The U.S. Government has all the uranium and plutonium that it desires for national security purposes and by treaty must down blend some of it and turn it into fuel for nuclear power plants. Therefore, the uranium in the withdrawal area is not needed for national security purposes. The U.S. imports nearly all of our uranium now, so saving in ground domestic supplies for later doesn't make too much sense when the goal is to become energy independent now. Any discussion of the above issue should recognize these facts.	This comment is non-substantive. It does not question the accuracy of information used, the adequacy of specific assumptions or methodology, provide new information, or offer reasonable alternatives or changes to alternatives. However, note that these concerns are discussed in great detail in other comments.
The NAU Project, LLC	242913	32	Page 3-32 The uranium deposits within the northern Arizona breccia pipes are of higher grade than approximately 85% of the world's known uranium deposits (International Atomic Energy Agency 2009; World Nuclear Association 2009). It should be acknowledged here that the breccia pipe uranium deposits are considered world class and have attracted exploration and mining interest from all over the world and from across our country.	This comment is non-substantive. It does not question the accuracy of information used, the adequacy of specific assumptions or methodology, provide new information, or offer reasonable alternatives or changes to alternatives. However, note that these concerns are discussed in great detail in other comments.
The NAU	242913	33	Page 3-37 to 38 : Cumulative Withdrawal of High Mineral Potential Lands.	The conversion of acres withdrawn into tons of

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Project, LLC			This section gives no context as to what amount of uranium these cumulatively withdrawn areas represent. The 5100 square miles represents 73,899 short tons of U3O8 and this figure needs to be included in the discussion.	uranium would be not be possible since not all of these withdrawn areas are covered by existing studies (i.e., Finch 1987).
Janet Remington	244004	2	How many individuals or corporations have filed claims to mine uranium in or near the Grand Canyon?	The purpose of this EIS is to analyze the impacts of the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. Identification of the individuals or corporations holding mining claims isn't relevant to the analysis in this EIS.
Joseph Turner	246049	5	UNe have assumed that uranium yellowcake will sell for a baseline average of $40/lb. Hard-rock minerals are known to boom and bust, this should be mentioned when explaining 'the use of a baseline]	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
Joseph Turner	246049	6	Why not look at all the reasonable scenarios that might cause these mines to be "mothballed?" Specific examples that do not seem so far fetched are: 1) nuclear accidents (especially now, but no less before this month tragedy) 2) hard-rock mining reform bills similar to ones that have passed the house as late as 2008 (there are not that many variations, basically would these mines operate at the 40$ price if they had to pay royalties) 3) litigation or heavy pressure on local agencies to deny permits (how long are the permits good for and is it possible to be legally embroiled. Even if you can not explore these scenarios, could you develop a generic scenario were the price dropped or the net profitability dropped? The specifics of these scenarios aren't essential, their affect on demand, and thus price, is. Could you publish a predicted figure for the price of uranium that would probably cause a scenario where mining and exploration in the region would stop.	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
Joseph Turner	246049	7	These pipes are localized and the public would at least like to be better informed. Disclose the exact location of as many of the 30 mine locations, as well as the unavoidable, but not explicitly disclosed "nine mines" that are on the way no matter the decision of the agency on the withdrawals. In other words characterize the science based potential for each possible	The majority of the mines that are estimated to be developed are based on as-of-yet undiscovered breccia pipes. There is no reasonable way to estimate where these mines might be. Even with respect to known deposits, it cannot be stated for certain that

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			exploratory sites with an active claim on the exclusion areas that can not be stopped under existing laws, and if they can not be ruled out, please do not estimate a figure of 30 mines (the probabilities of water and air contamination depend on it), cite instead the potential of all valid claims. It seems quite possible figures could grow enormously if there are 1000 sites and say that 15% have economically extractable resources instead of 3%, that could more than double the mining activity here. These deposits have been known to yield more uranium than was previously thought too, so maybe we should error on the side of the miners proceeding at more sites.	these deposits will result in operating mines since any mining claims covering such deposits would still be required to demonstrate valid existing rights prior to approval of a mining plan of operations. The only mines that can be located with any certainty are the four mines with approved plans of operation, and these have been specifically identified. These mines are already located in the FEIS on Figure 3.4-1.
Alicia Sullivan	102970	1	After reviewing the document I have a concern around the analysis of the surface area disturbance for alternative A on page B-35 and B36. In the paragraph at the bottom of page B-35 the document states that "Acreage disturbed includes the footprint of the mines themselves and the acreage disturbed by new roads, new power lines, and exploration activities. Estimates of the acreage disturbed by each mine footprint vary from 3 to 4 acres per mine (Wenrich 2009) to approximately 15 to 20 acres per mine (personal communication, Spiering 2010d) to more than 40 acres per mine (Denison 2010)." However in the analysis, an assumption of 20 acres was used to calculate the surface disturbance. Given the statement above, especially in regard to the the comment that a mine may be greater than 40 acres, I think that using an assumption of 20 acres is misleading and is potentially providing inaccurate and low estimates of surface disturbance. There should be a way to estimate the mine size and surface disturbance based on the explorations and number of breccia pipes found on a site rather than making an assumption about it. What data is available to provide information to do this, has this been researched? Is there an estimate of breccia pipes for each proposed site? How much surface disturbance is there for a mine of a similar type other place in the US or worldwide? I believe that this could be quantified more accurately and with less variation than what has been provided.	The commenter assumes detailed information is available for each of the proposed mine sites; this is not the case. Most of these mines sites are based on as-of-yet undiscovered breccia pipes. The use of the 40 acre number is taken out of context. As explained on page B-36 of the DEIS, the high end number refers to a site where several breccia pipes are to be mined (EZ-1, EZ-2, What). The average acreage per breccia pipe at these multiple-pipe sites (13.3 acres per pipe) is actually less than the average of 20 acres that was used for the RFD, not more. Overall the RFD was based on the simplifying assumption that one mine equals one breccia pipe. The surface acreage disturbed is more than likely overestimated due to this assumption. If multiple pipes are developed per site, acreage will actually be smaller and fewer roads will be constructed.
Alicia Sullivan	102970	2	Also in regard to the surface area disturbance analysis for roads (page B-34), the surface area should also include turn outs and take into account the topography that the road will be built on. While the addition of 50% to the average distance was added to try and account for this, a through GIS analysis based on a Digital Elevation Model or contour map could easily determine the exact distance from the theoretical mines to the existing road network.	Such a detailed analysis assumes that the locations of those mines will be known exactly. On the contrary, the locations of only four of the mines are known with certainty.
Alan Kuhn	87261	1	The methodology and conclusions in this DEIS are flawed. The DEIS ignores the fact that modern exploration, mining, and reclamation techniques are protective of the environment when applied properly, and the actual footprint of uranium or other mineral development in the subject area is very small and quite manageable with modern methods.	The regulatory framework established to protect the environment is described in Appendix B, RFD Scenarios, section B.3.1.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Arizona State Land Department	225280	11	In Subsection B.1.3, Study Area, Tables B-1 and B-2 on page B-3 include seven or so uranium mines that were active, primarily during the 1980's. Were there any problems or issues with any of these mines that would justify the present level of concern necessary for the proposed withdrawal?	This information is not pertinent to the RFD. However, note that the legacy of these mines was discussed in detail in the DEIS on pages 3-57 through 3-60, and on page 3-85. Discussion of effects on soils and stream sediments from these historic mines is given in the DEIS section titled "EFFECTS FROM HISTORIC (1980s) MINING", pages 3-102 to 3-108. This discussion draws primarily from Otton et al (2010). No definitive impacts to water resources have been determined from these (1980s-era) historic mines. However, Appendix G discusses impacts to groundwater and surface waters associated with the Orphan Lode mine.
Arizona State Land Department	225280	12	In Section B.4 on page B-10, the RFD notes that there are six stages in the development of a uranium mine, but there are seven bullet points listed.	The text in Section B.4 has been changed to reflect seven stages.
Arizona State Land Department	225280	13	In Subsection B.4.1 on page B-11 , the RFD notes that the first breccia pipes were originally discovered as a result of their exposures in the walls of the canyons. However, there is no discussion anywhere within the RFD or the DEIS of how many pipes are naturally exposed within, and how much uranium is consequently being naturally eroded and released into, the Colorado River watershed. The Arizona Geological Survey (AGS) did a recent study of these naturally exposed breccia pipes, and found that the amount of uranium naturally eroding into the watershed from these exposed breccia pipes would greatly exceed any accidental release of uranium from mining activity.	This information is not pertinent to the RFD. However, note that the impact of exposed breccia pipes on water quality is discussed on page 3-78 of the DEIS. Section 3.4.4 (page 3-57) of the DEIS provides some discussion of natural release of uranium into the environment from breccia-pipe ore bodies. The number of known breccia pipes exposed is discussed on page 3-57 and these pipes are shown on Figure 3.4-5. Breccia pipe uranium deposits appear to be the source of widespread low to moderate concentrations of dissolved uranium in groundwater throughout the region. The continuum of conditions at breccia pipe ore deposits in the study area may be divided into three broad categories. In the first case, where breccia pipes and especially their ore bodies have been exposed in canyon walls for a significant amount of time, the uranium ore has largely been removed prior to modern times by oxidized surface waters and groundwaters. Exposure of breccia pipes in canyon walls results in accelerated weathering and fracturing of the pipe that provides significant routes of access for water to dissolve and leach minerals out of the ore body. In the second case, where breccia pipes or their ore bodies are not significantly exposed, far less contact with migrating water is possible; this condition results in slow and longer term release of uranium into the groundwater or surface water. In the third case, as described in Section 3.4.4, breccia pipes containing

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				economically viable uranium ore that could be targeted for mining 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. The article referenced by the commenter (Spencer and Wenrich 2011) discusses background concentrations of dissolved uranium in the Colorado River. Although some influx of dissolved uranium to the river occurs in the study area as a result of natural erosion of uranium deposits in the Grand Canyon region, only a very small fraction of the uranium in the river is contributed from streams and springs originating in the Grand Canyon. Nearly all of the uranium load in the Colorado River in Grand Canyon is derived from areas upstream of the study area.
Arizona State Land Department		14	The last two sentences in Subsection B.4.5 on page B-15 are either confusing or meaningless. Are levels of uranium above background unacceptable or not since they are below levels for which ADEQ requires remediation? If the levels are acceptable, what is the point of mentioning this?	There is a difference between regulatory jurisdiction and disclosing impacts. The identification of uranium levels above background concentrations is pertinent to disclosing impacts from known uranium mines that may require reclamation, even though they may not exceed limits under Arizona regulations. It should be noted that the RFD (Appendix B) is not meant to cover this topic in detail. Rather, this topic is discussed in full detail in Section 3.5 of the FEIS. The text cited does not establish a value judgment regarding levels of uranium that are in excess of background. The ADEQ remediation standard applies to non-residential areas and is used to quantify impacts in DEIS Chapter 4 (pages 4-97, 4-98, 4-104, and 4-105 of the DEIS). Levels of uranium in excess of background, but less than 200 ppm may have specific consequences for other resources, such as wildlife.
Arizona State Land Department	225280	15	In Section B.5 on page B-17, the RFD reports approximately 5,300 claims within the three withdrawal parcels. It would seem appropriate to reference here the discussion on pages B-23 and B-24 of Known Mineralized Breccia Pipes with No Estimate of Uranium Resources and Known Mineralized Breccia Pipes with Underermined Mineralization, respectively, that a very small percentage of these claims will actually result in mines. Similar to the discussion on pages B-23 and B-24, the ASLD's experience	See RFD Comment 242664:9

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			is that only one or two in ten exploration projects proceed to the development stage, and only one or two in ten development projects then proceed to become an actual mining operation. Thus, the number of claims is on the order of 50 to 100 times higher than the number mines that will ever be developed. This is a point which should be stressed. Many statements from some groups regarding the proposed withdrawal indicate that they assume ALL mining claims are going to result in actual mines. This is, of course, far from the reality.	
Arizona State Land Department	225280	16	There should be some discussion in the RFD or the DEIS about how long it would take to establish valid existing rights for all of the mining claims	The selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations. From that time, it can take a minimum of 6 months to several years to complete a validity determination.
Arizona State Land Department	225280	17	In Subsection B.7.1 on page B-18, the RFD notes that the value of other commodities or metals that could be recovered during the mining of the breccia pipes would not be sufficient to drive mine development. However, the rare earth elements were not specifically listed as one of the other metals. Several sample analyses that the ASLD has seen from some of the exploration projects in the breccia pipes on the Colorado Plateau recorded high concentrations of rare earth elements. With the current world-wide interest in and demand for the rare earth elements, the breccia pipes could represent a potentially valuable source.	See RFD Comment 242664:8
Arizona State Land Department	225280	18	In Subsection B.7.2 on pages B-18 thru B-20, the RFD assumes that the price of uranium will remain stable at around $40/lb. over the 20 years of the proposed withdrawal. The limited, 15-year range of price history shown on Figure B-4 might mislead anyone not familiar with mineral commodity prices in general and uranium prices in particular. 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 ups and downs of the price of uranium would be seen, especially the rise in the 1970's and the dramatic fall in 1979 and 1980 after Three Mile Island. There should also be some discussion of the price of uranium being kept artificially low and stable throughout most of the 1990's to around 2005 by the reprocessing of uranium from the nuclear weapons in the arsenals of the former Soviet Union. On the futures end of uranium prices, since this section was written, probably in mid to late 2010, the price of uranium has already increased dramatically from the $40/lb. level. The spot price for uranium hit $72/lb. in January 2011 before falling to $69/lb. in February 2011. And while the spot price fell even further to about $57/lb. by the end of March following the disaster at the Fukushima plant in Japan, it has generally rebounded to	For the purposes of the RFD, the price of uranium was assumed to remain at or above current levels and therefore high enough to allow development of breccia pipes. There are no cost prohibitions in the RFD that would limit development. Prices above $40/pound would not necessarily result in changes to the RFD scenario. This is because under the assumptions used in the RFD, the limiting factor in development of uranium resources was determined to not be the industrial capacity to mine uranium, but the physical amount of uranium available to be mined.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			trade in the mid $50/lb. to low $60/lb. range thru April. All of these recent prices are well above the $40/lb. level assumed in the RFD.	
Arizona State Land Department	225280	19	Also in Section B.8.1 on page 8-25, in the discussion of Undiscovered Uranium Resources the RFD references the Finch, et al. 1990 USGS Circular 1051 report. In the USGS Scientific Investigations Report 20I 0-5025 , several of the figures from Finch, et al. 1990, were reproduced in Chapter A on uranium resource availability, specifically Figures 3 and 5, and it might be helpful to repeat those figures here. On page B-28, it refers to Figure B-5, but the report skips from Figure B-4 to B-6 and it is not clear if it is really Figure B-6 that is being referenced. Also on page B-28, in discussing Uncertainty Factors in Commodity Prices, the RFD refers to uranium prices recovering at the end of the 1990's as shown on Figure B-4; however, Figure B-4 does not start showing uranium prices until 1995 and it doesn't look like there is any real recovery in price until 2003 or 2004. This is another reason to show the earlier price fluctuations in Figure 8-4, as commented on earlier.	Figure B-5 has been added to Appendix B of the FEIS.
Arizona State Land Department	225280	20	At the end of the RFD, in Table B.1-1, with the exception of mentioning the hauling of explosives regulated by the ATF, there is no mention of hauling or transportation licenses or permits. At the Arizona Department of Environmental Quality's (ADEQ) recent public meetings and hearings for air and water quality permits for Denison's Canyon, EZ and Pinenut Mines, many of the questions and concerns raised by the attendees regarded the truck traffic and hauling. The relative disappearance of transportation as an issue for the DEIS is even more surprising since it was identified as a main issue during the public scoping process (page 2.2). The only other real mention of transportation is in Table 2.8-1, where on page 2-43 the table notes that the 22.4 miles of new roads would benefit driving for pleasure, and on page 2-45 where the table notes that the mining companies would be responsible for maintenance of unpaved public roads used for hauling. Another issue for hauling is rights-of-way across nonfederal lands. For any new roads associated with new mines that would cross non-federal lands, a right-of-way agreement would be required with the land owner, either the ASLD or the private entity. In the case of a withdrawal, the converse is whether a mine operator on ASLD or private lands would be able to obtain a right-of-way across the federal lands that are now closed to location or entry.	The haul trucks are designed such that the material being transported is covered and sealed; therefore, emissions from the ore being hauled are not allowed to escape the vehicle as a fugitive source. It is the applicable regulatory agency's responsibility to protect human health and the environment. Each site-specific mine plan will include mitigation and control measures for the transportation of uranium ores from the mine site to the processing facility. Language has been added to EIS Section 3.2.2., Legal and Regulatory Requirements, to identify the applicability of 49 CFR Part 171, 172, and 177 to the transport of uranium ore from the mine location to the processing facility. Transportation conflicts are discussed in Chapter 3, Section 3.16, under Public Health and Safety, and potential impacts are discussed in the Public Health and Safety section of Chapter 4, Section 4.16. Neither the proposed withdrawal nor any alternative withdrawal would have any effect on rights-of-way (ROWs) or access to non-federal lands within the project parcels. ROW applications would continue to be processed as before. The FEIS has been revised to provide clarification on this issue.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Mitigation and Monitoring				
LO I & Won Yin	50531	2	In the final decision, we would like to see a statement of what BLM will do to identify and cancel fraudulent mining claims - those that have no valuable mineral deposit. We would not be surprised if most of the existing claims were bogus.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
Lynn Hague	54297	2	Please include a program to challenge all existing mining claims that lack a valid mineral discovery. Any claim that has no valuable mineral deposit can be cancelled, and thereafter the claimant has no right to disturb the land in any way. Many of the existing claims undoubtedly were speculative, without any proof of minerals.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
Elizabeth Robinson	54302	2	The final EIS should include a plan for BLM to challenge claims that have no valuable mineral deposit. Such claims should be contested and cancelled, so there can be no damage on those sites.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
Jan & Gayla Kobialka	54305	2	We notice on the map that hundreds of mining claims were staked before the area was closed by Secretary Salazar's emergency order 2 years ago. We urge BLM to challenge those claims and cancel those that do not qualify under the mining law by having a valuable mineral deposit.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
Larry Laffoon	54306	2	To support the withdrawal, BLM should contest all existing claims that lack a valuable mineral deposit. No doubt many claims do not meet the Mining Law's standard and can be invalidated before any damage is done.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
George & Lauria Riley	54314	2	BLM should check every existing mining claim and, if it lacks a valuable mineral deposit as the Mining Law requires, it should be cancelled. Many if not most of the mining claims are probably not valid.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				will be determined at the time that the operator submits a notice or a plan of operations.
George & Lauria Riley	54314	3	For those claims that prove to be valid existing rights, **BLM should undertake to acquire the rights by exchange or buyout.** No new mines should be allowed in the withdrawal area if there is any possibility of acquiring the rights.	The purchase of valid mining claims by the Federal Government is out of scope of the analysis of this EIS. This EIS analyzes the impacts of a mineral withdrawal. Acquisition of property rights subsequent to any decision to administratively withdraw these lands is outside the scope of the analysis of this EIS.
George & Frances Alderson	54360	2	No doubt the RFD figures are based on a presumption that certain claimants hold valid existing rights as of the date of the segregation in 2009. BLM should develop options to avert those impacts and present recommendations to the Secretary of the Interior and Congress if legislation is necessary. These options could include: contest all mining claims and cancel those that lack a valuable mineral deposit; **buy out the rights of any valid claims that remain**; **exchange the mineral rights for BLM public lands outside the withdrawal area; exchange the mineral rights for rights under the Mineral Leasing Act** for coal, oil, gas, phosphates or sodium, on BLM public lands outside the withdrawal area.	This EIS analyzes the impacts of a mineral withdrawal. Acquisition of property rights subsequent to any decision to administratively withdraw these lands is outside the scope of the analysis of this EIS.
Anonymous	61987	1	I am writing in favor of carefully regulated mining in the Grand Canyon. We need to preserve the Grand Canyon as a national monument, but I am not in favor of that putting mining completely off limits. If penalties for polluting are sufficiently high to begin with, I believe that mining can and would be undertaken in a way to preserve the Grand Canyon and still allow us to benefit from its natural mineral resources.	The alternative for promulgation of surface management regulations specific to the withdrawal area is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis. Regardless of the alternative selected by the Secretary of Interior, appropriate rule making could be undertaken.
Robert Pearson	98237	1	Any future mining developers must be made to establish a major cleanup & rehabilitation fund adequate to cover all foreseeable costs to the affected watersheds. Funded prior to and development work. Funds to be jointly managed by EPA & BLM.	Mining operators within the withdrawal area are currently required to post a bond prior to mining activities. The bond is a financial guarantee that provides assurance that the operator will fulfill reclamation obligations as outlined in their mining permits.
Denison Mines Corp	104145	2	Current regulations, including both State and Federal, provide more than adequate protection of the Grand Canyon watershed. If additional safe guards are needed for specific areas, then these can be better addressed by promulgating surface management or other regulations specific to areas adjacent to the Grand Canyon.	The alternative for promulgation of surface management regulations specific to the withdrawal area is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis. Regardless of the alternative selected by the Secretary of Interior, rule making could be undertaken.
Denison Mines Corp	104145	3	Denison strongly believes that the values of Grand Canyon National Park must be protected. There can be no question about that. However, there already exists, without the proposed withdrawal, the protections in place to ensure the park is protected while allowing the development of critical domestic mineral resources. Existing law, including the Clean Air Act	The EIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			(CAA), the Clean Water Act (CWA), the Federal Land Policy and Management Act (FLPMA), the National Environmental Policy Act (NEPA), and Forest Service and Bureau of Land Management policies, as well as applicable state and local permitting and financial assurance requirements provide sufficient authorities and tools for the protection of resources while providing for multiple use of the area.	Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Albert Banwart	192975	1	If mining is allowed it should only be under specific conditions: 1) No surface or ground water can be disturbed; 2) Once mining is begun, a suitable bond must be posted to cover any cleanup (e.g., 1million - 1 billion dollars per acre, with the premiums paid for at least 25 years, which can be ended once mining has ended and all cleanup is complete; and 3) Water leaving the mining area must be as good, or better, quality than when it entered.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Maryland Ornithological Society	213913	2	All seven new mines predicted for Alternative B are within the North Parcel. These should be reduced to zero, if possible, leading to corresponding reductions in impacts of roads, surface disturbance, etc. Possible approaches include: **(1) buying-out the mineral rights, (2)exchanging the rights for federal lands elsewhere, or (3) exchanging the rights for mineral rights under the Mineral Leasing Act of 1920 (generally fossil fuels, phosphates, and sodium).**	This EIS analyzes the impacts of a mineral withdrawal. Acquisition of property rights subsequent to any decision to administratively withdraw these lands is outside the scope of the analysis of this EIS.
Maryland Ornithological Society	213913	3	We also urge BLM to carry out an aggressive program of cancelling non-valid claims. A mining claimant under the Mining Law has rights against the United States Government only when a valuable mineral deposit has been discovered on the claim. The BLM should investigate all claims that had been staked before the segregation took effect on July 20, 2009. Any claim that lacks a qualifying mineral deposit should be cancelled. Fluctuations in the uranium market are pertinent. To be valid, a claim must have had a mineral deposit that was valuable at the time it was staked and that was still valuable on July 20, 2009. A graph in Appendix B indicates that uranium market prices were much lower in 2009 than in 2007-2008 (EIS, Figure B-4 at page B-20). Claims that were valid in 2008 may have lost validity before the segregation took effect.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
Roland Maldonado	213918	1	The need for radiation monitoring along the haul route, both north and south of the canyon, is a first and best line of defense against radiation poisoning.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Roland Maldonado	213918	2	Monitoring for radon gas is inadequate, as it dissipates fairly rapidly. The contracts, or your agreements of understanding, do not address these issues. Your regulatory authorities have no real authority to enforce any of these issues. They should be part of their agreements of understanding.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Roland Maldonado	213918	3	There needs to be a timeline of reclamation when a mine is on stand-by so we do not have material lying about for years and/or decades, as is the case with Kanab North. Stand-by should not be an open-ended situation.	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
Roland Maldonado	213918	4	Halo effect of contamination of the mine and surrounding area should not be once the mine closes, but should be an ongoing inspection item. Contamination does not happen after the mine closes, it happens during operations. This is one way of monitoring actual effects and contaminations.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Donna Brown	225253	2	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.	Selection of one of the withdrawal alternatives does not require the government to immediately begin validity examinations on all of the mining claims within the withdrawn areas. Rather, if the Secretary selects any of the withdrawal alternatives, mining claim validity will be determined at the time that the operator submits a notice or a plan of operations.
Donna Brown	225253	3	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.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. The BLM and Forest Service regularly inspect mining operations. The BLM, under the 3809 Surface Management Regulations, inspects active operations two times per year, at a minimum, and conducts more frequent inspections when necessary. The minimum number of inspections for active operations on Forest Service lands is one time per year with more frequent inspections when necessary.
Donna Brown	225253	4	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 I 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 handed 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.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. The BLM and Forest Service regularly inspect mining operations. The BLM, under the 3809 Surface Management Regulations, inspects active operations two times per year, at a minimum, and conducts more frequent inspections when necessary. The minimum number of inspections for active operations on Forest Service lands is one time per year with more frequent inspections when necessary.
Donna Brown	225253	5	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.	Mining operators within the withdrawal area are currently required to post a bond prior to mining activities. The bond is a financial guarantee that provides assurance that the operator will fulfill obligations as outlined in their mining permits. NEPA does not require a worst-case scenario analysis (this analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618, Apr. 25, 1986), only analysis of circumstances that are reasonably foreseeable is required. Appendix B provides this reasonably foreseeable development scenario and provides a rationale to why this scenario is used.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Uranium Watch	225262	67	The DEIS fails to consider other remedial standards that could be applied by the BLM to the reclamation of mine sites on BLM land. The DEIS must consider establishing a more stringent remedial standard for reclaimed uranium mines on BLM and USFS land.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Arizona Mining Association	225266	3	There are no significant environmental reasons for the withdrawal because there are existing laws and regulations that adequately protect the environment. These laws, including the Clean Air Act (CAA), the Clean Water Act (CWA), the Endangered Species Act (ESA), the Federal Land Policy and Management Act (FLPMA), the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), the Arizona Environmental Quality Act which authorized Arizona's Aquifer Protection Program (APP), the Forest Service (USFS) and Bureau of Land Management surface management regulations and policies, as well as applicable state and local permitting and financial assurance requirements, provide sufficient legal authorities and tools for the protection of all environmental resources while providing for multiple-use of the area.	The EIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Pew Environment Group	225274	9	While it may be too late to truly understand the impact of past mining operations, we urge the BLM to make additional investigations a priority. We believe that the withdrawal period offers a reasonable window for developing the knowledge and baseline data that are needed to protect the water resources that run through this vulnerable area with its complex interplay of groundwater and surface water and a multitude of fractures, faults, sinkholes and other features that can serve as conduits for contaminant movement.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
National Mining Association	225281	11	We request BLM review the impacts of the proposed withdrawal given its multiple use mission under FLPMA. The agency can take other less restrictive measures to protect park resources, such as those outlined in BLM's RMP for the Arizona Strip.	As requested, this EIS does review the impacts of the proposed withdrawal. Section 1.3 of the EIS explains the purpose and need of this document. The decision to be made is whether or not to withdraw the area from the Mining Law of 1872, subject to valid existing rights. This EIS is being prepared to help inform that decision.
David Kreamer	227290	3	I believe current monitoring and proposed monitoring associated with	The purpose of the EIS is to analyze the effects of the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			future mining activities is inadequate, and not in line with what is required of other potential contaminant sites and normal, diligent industry practices.	Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Doug Reagan	242175	4	Mitigation measures are vague and do not adequately specify how they will be implemented or monitored. Criteria for achieving adequate restoration should be stated, and provision for adequate restoration monitoring should be specified.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Arizona Raft Adventures & Grand Canyon Discovery	242647	3	Consequently, as an amendment to the proposed 20 year withdrawal as outlined in Alternative B, we believe the implementation of a region- wide groundwater monitoring program is appropriate, given the limited timeframe of the withdrawal and the potential for mining's impacts in the future.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Grand Canyon River Guides, Inc.	242649	2	We find the lack of oversight, the insufficient environmental safeguards, and the absence of a scientifically credible and comprehensive monitoring program to be unacceptable, placing the burden of risk from any potential contamination on the public and on Grand Canyon itself.	The alternative for promulgation of surface management regulations specific to the withdrawal area is discussed in Section 2.3 Alternatives Considered But Eliminated From Detailed Analysis. Regardless of the alternative selected by the Secretary of Interior, rule making could be undertaken.
Grand Canyon River Guides,	242649	3	Consequently, as an amendment to the proposed 20 year withdrawal as outlined in Alternative B, we believe the implementation of a region-wide	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Inc.			groundwater monitoring program is appropriate, given the limited timeframe of the withdrawal and the potential for mining's impacts in the future.	withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Mary Crow-Costello	242652	6	Monitoring & Enforcement: What type of monitoring would be conducted? Would the state of Arizona be relied upon to conduct monitoring and enforcement? How can public lands and resources be protected with the lax or nonexistent monitoring and enforcement that Arizona's DEQ has already demonstrated? What would happen if the Arizona legislature cuts funding for monitoring and enforcement?	The BLM and Forest Service regularly inspect mining operations. The BLM, under the 3809 Surface Management Regulations, inspects active operations two times per year, at a minimum, and conducts more frequent inspections when necessary. The minimum number of inspections for active operations on Forest Service lands is one time per year with more frequent inspections when necessary.
The NAU Project, LLC	242913	74	The DEIS doesn't satisfy the requirements of NEPA regarding mitigating measures. It seems that for the most part, the mitigating measures considered are the Alternatives themselves. This is hardly in accordance with NEPA. Mitigating measures should be developed and proposed as required by NEPA for those impacts identified for which current mitigating practices are insufficient and where new practices will result in lower impact levels. Only a few of the Issues analyzed for impacts offered mitigating measures in and of themselves. Most mitigating measures identified are measures already being implemented. The NEPA process requires the identification of mitigating measures be made for each of the issues identified and analyzed if mitigating measures can be developed. From Question 19 of Forty most asked NEPA questions: All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies...Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation. The mitigation measures discussed in an EIS must cover the range of impacts of the proposal. The measures must include such things as design alternatives that would decrease pollution emissions, construction impacts, esthetic intrusion, as well as relocation assistance, possible land use controls that could be enacted, and other possible efforts. It is my suggestion that each impact section in Chapter 4 have its own Mitigation Section which discusses the mitigation methods already in use and whether they are considered adequate as currently used. In addition would be any new mitigating measures that could be	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			implemented that would help mitigate projected impacts for that particular impact category.	
U.S. Fish and Wildlife Service	242660	1	Areas of uncertainty include the unknown specific locations of exploration activities and mines during the 20-year period of analysis, the size of ore bodies (and consequently depth, size, and duration of mining activity), the number and duration of periodic episodes of temporary closure of mines (interim management) that may occur in the future, and future activity associated with valid existing claims. There is also uncertainty in the analysis because we simply do not have long-term data nor consistent monitoring of water quality and quantity on a broad enough scale to provide a conclusive evaluation of potential risk to these resources. Lack of toxicity information and radiation hazards associated with uranium on fish and wildlife species local to this area make it difficult to meaningfully assess risk and potential impacts. Therefore, we concur with research suggestions that USGS outlines in their report (Alpine 201 0) and recommend incorporating a federally-led research and monitoring program that will in help to fill some of the data gaps identified in the "Incomplete or Unavailable Infonnation" sections of the analysis, particularly those associated with potential impacts to water resources and chemical and radiation hazards to fish and wildlife and special status species. We also recommend incorporating a long-term and comprehensive monitoring plan focused on evaluating past, current, and future mining impacts.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Fish and Wildlife Service	242660	2	For the impact analysis in Chapter 4, the DEIS relies on the assumption that state and Federal regulations have been and are being met in order to minimize environmental impacts to various resources (e.g., air quality on page 4-17, water quality and quantity on page 4-57, Compliance with Environmental Regulations and Pennitting on pages 4-66 to 67). However, a recent media report (Arizona Daily Sun, March 11,2011, "Three uranium mines advance") states that Arizona Department of Environmental Quality (ADEQ) did not inspect the currently-operating Arizona 1 mine until it had been open for nine months, and that four "major" violations were not addressed. In addition to testing this assumption, longer-tenn and comprehensive monitoring would also serve to evaluate the potential effects that may result from variations in regulatory compliance.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Arizona Geological Survey	225263	2	In our discussions with companies engaged in exploration for uranium in northern Arizona, we have learned of innovative, but common-sense approaches to mining of breccia pipe deposits that have the potential to minimize, mitigate, or avoid many of the fears raised. Some of these include: Limiting the surface footprint of a mining project to perhaps 5-10 acres Creating berms or similar barriers of natural materials to hide operations from view Refilling breccia pipe mines with waste rock mixed with a concrete or similar slurry to seal the shaft, preventing rainfall and surface runoff from entering the mine and thus protecting groundwater resources Require surface restoration such as has occurred at the Pigeon	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Mine.	could be considered for incorporation into relevant land use plans.
Arizona Game and Fish Department	242655	4	We encourage the BLM to develop a programmatic invasive species weed treatment document like the Forest Service (FS) has done (2005) so that weed treatments can be handled aggressively, and at larger landscapes than individual projects usually allow.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Arizona Game and Fish Department	242655	7	The determination of whether a site has been reclaimed also seems to vary when it comes to mining activities. While many of the previous mines from the 1980's such as Hack Canyon and Pigeon Mine have recovered well, the current landscape has new challenges, such as invasive weeds, that might make reclamation more difficult. The Department remains concerned over the process of reclamation and is willing to engage in the process to ensure that a qualified habitat specialist or botanist determines whether or not reclamation is sufficient prior to the release of the bond.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Arizona Game and Fish Department	242655	8	A solution for addressing topics such as exploratory drilling footprints and reclamation processes would be for the Department to engage in a more formalized process for developing standardized Best Management Practices (BMP's). It is our understanding that BMP's are usually created on a site by site basis as projects arise. However, more standardized BMP's could alleviate some of the concerns for wildlife impacts discussed earlier. We recommend that a collaboratively-based programmatic BMP document be drafted with Department participation.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Arizona Game and Fish Department	242655	10	The Department strongly recommends that under any Alternative a research and monitoring program be established. In addition to the USGS research already underway, the Department's Research Branch would be willing to assist the BLM and FS with research needs. Suggested topics of research and monitoring include:	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Effects to big game habitat use with increased mining activity, Effects of increased traffic on wildlife movement, Effects of uranium mining on surface water resources, both in terms of availability and toxicity to wildlife, Levels at which disruption and reduction in habitat quality lead to habitat fragmentation for wildlife species.	is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plan.
Coconino County Board of Supervisors	225238	14 / 15	There is apparently no required monitoring of soils along all of the haul routes for any potential increase in radioactivity levels. The haul route from each of the three areas to Blanding involves a trip of hundreds of miles, in most cases involving trucking through established communities such as Fredonia, Kanab, Flagstaff, Page, Cameron, Tuba City and Kayenta. Monitoring of soils along the roadsides over all of the haul routes would be a daunting task, but one that should be required as part of the ongoing mining process by the companies or by the Arizona Department of Environmental Quality.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Coconino County Board of Supervisors	225238	16 / 17	Long term cumulative impacts on soil quality and radioactivity levels in soils are also typically not monitored over the long term. At the Pigeon Mine reclamation site, which from casual observation appears to have been extremely well done by the mining company, USGS tests at the site uncovered hot spots that had surfaced since the reclamation effort, demonstrating that there is certainly the possibility of the impacts of radioactivity at mine sites being carried off site in a downstream direction years after reclamation.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Hualapai Tribe-Office of the Chairman	225270	2	Regardless of whether Alternative B is approved, we implore you to: Develop a plan, in consultation with the Hualapai and other affected Indian tribal governments, to mitigate natural, cultural, wildlife and water resource damage from the four existing mines and in advance of the seven potential new mines identified in Alternative B.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Navajo Nation Department of Justice	225264	3	If the U.S. Department of the Interior (USDOI) intends to allow for limited uranium mining and milling for those mining claims where valid existing rights are determined to exist; then the USDOI must be willing to provide adequate resources and technical support to the Navajo Nation for the following: improved emergency planning and response capabilities to address any potential releases of hazardous and radioactive substances along identified transport routes; especially any transport routes that traverse any part of the Navajo Nation; enhanced government-to-government consultation on any subsequent federal decisions that could impact Navajo Nation resources, but not limited to environmental air quality permits, cultural resources determinations, endangered species determinations, and water resources; and enhanced federal policy implementation that supports the role of the Navajo Nation in any subsequent decisions that the State of Arizona may make regarding uranium mining and processing.	The U.S. Department of the Interior (USDOI) is required to consult with the Navajo Nation through the Section 106 Government to Government process on all projects that could impact tribal resources. The Navajo Nation will continue to be consulted on all future BLM and Forest Service mining proposals on a case by case basis using the Section 106 process. The comment request for USDOI to provide resources and technical support is outside the scope of analysis in this EIS.
National Environmental Policy Act				
NEPA: Proposed Action				
Arizona Mining Association	225266	4	Contrary to the stated purpose of the withdrawal, it appears that the proposed withdrawal is merely an effort to restrict mining on public lands. The map of the proposed withdrawal area clearly demonstrates that the proposed boundary extends beyond a buffer zone of the Colorado River and its tributaries to intentionally cover areas of known or expected mineralization.	The proposed withdrawal area, as analyzed in this EIS, is fundamentally the same as that contained in the original petition for withdrawal submitted to the Secretary of the Interior on July 15, 2009. The Federal Register notice of July 21, 2009, the Secretary's Notice of Proposed Withdrawal, contained the boundary which the BLM and Forest Service was required by law (Section 204, Federal Land Policy Management Act of 1976, 43 USC 1714(a); 43 CFR 2310.1) to consider. For more detail concerning the Proposed Withdrawal boundary, see the discussion in EIS Section 1.2.
Arizona Mining Association	225266	6	The Proposed Action is inconsistent with current laws and federal policies. It is unclear why the Secretary of Interior is moving rapidly to block access to one of the largest domestic supplies of fuel necessary to operate new reactors at nuclear power plants being promoted by the Secretary of Energy under President Obama's energy agenda. The Proposed Action also is inconsistent with the Domestic Minerals Program Extension Act of 1953, the Mining & Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980, and the Arizona Strip Wilderness Protection Act of 1983.	The proposed withdrawal is consistent with all of the Acts cited in the comment. The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13.
Western	225271	2	The stated purpose of the proposed withdrawal is to protect the Grand	As stated in Section 1.3.1 of the DEIS, the purpose is

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Business Roundtable			Canyon watershed from adverse effects of locatable hard rock mineral exploration and mining for a 20-year period. Yet, this explanation begs many more questions than it answers. Logically, emergency withdrawal implies several things: 1) evidence that environmental degradation is occurring; 2) evidence that the current suite of environmental laws, regulations, agreements, etc. cannot be applied to fix the problems; 3) evidence that the problems are of such scope that emergency withdrawal is the only way to safeguard the resources being impacted. Here, the misapplication is beyond obvious: not only is there a comprehensive set of environmental requirements in place, but there is a good track record of compliance by uranium producers. In fact, the evidence points to the fact that current system of protections -- down to and including specific project reviews -- is working well.	to protect the natural, cultural, and social resources in the Grand Canyon watershed from the possible adverse effects of the reasonably foreseeable locatable mineral exploration and development that could occur in the area proposed for withdrawal. The EIS analyzes these potential effects and acknowledges the existing regulations and their effectiveness. The decision to be made is whether or not to withdraw, for up to 20 years, some or all of the area from location and entry based on the analysis in the EIS. The proposed action being analyzed in this document is not an “Emergency Withdrawal” but rather a “conventional” withdrawal pursuant to the Secretary’s general authority in Section 204 of FLPMA.
Western Business Roundtable	225271	4	WITHDRAWAL POLICY MIS-ALIGNED WITH EXECUTIVE ORDER 13563 On January 18, 2011, President Obama issued Executive Order 13563, Improving Regulation and Regulatory Review. The Order directed all federal agencies to develop and submit plans to identify and review existing regulations that can be made more effective and less burdensome, while achieving regulatory objectives.	The NEPA process for the DEIS follows the recommendations issued in this Executive Order.
Western Business Roundtable	225271	5	WITHDRAWAL SHOWS INCOHERENCE OF ADMINISTRATION CLIMATE POLICIES The locking down of access to nearly half the nation’s known uranium reserves is particularly perplexing, coming from an Administration that is clearly committed to implementation with or without Congressional approval of a federal climate policy. We are hard-pressed to see how such a policy can be achieved without a vigorous commitment to nuclear energy and the domestic uranium resources that would fuel the sector.	The purpose and need for this action are described in EIS Section 1.3.1. How a potential withdrawal comports with the President’s Climate Policy may be a factor in the Secretary of Interior’s Decision on Withdrawal, but is not relevant to the EIS analysis.
Northwest Mining Association	225275	2	The stated purpose of the withdrawal would be to protect the Grand Canyon watershed from adverse effects of locatable hardrock mineral exploration and mining for up to a 20-year period. There exists, without the proposed withdrawal, the protections and regulatory tools in place to ensure the Park is protected while allowing the development of critical domestic mineral resources. Existing law, including the Clean Air Act (CAA), the Clean Water Act (CWA), the Endangered Species Act (ESA), the Federal Land Policy and Management Act (FLPMA), the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), Arizona and Utah environmental laws and regulations, Forest Service (USFS) and Bureau of Land Management surface management regulations and policies, as well as applicable state and local permitting and financial assurance requirements provide sufficient authorities and tools for the protection of all resources while providing for multiple-use of the area. The National Academy of Sciences (NAS) National Research Council (NRC) reviewed the existing federal and state regulatory	As stated in Section 1.3.1 of the DEIS, the purpose is to protect the natural, cultural, and social resources in the Grand Canyon watershed from the possible adverse effects of the reasonably foreseeable locatable mineral exploration and development that could occur in the area proposed for withdrawal. The DEIS analyzes these potential effects and acknowledges the existing regulations and their effectiveness. The decision to be made is whether or not to withdraw, for up to 20 years, some or all of the area from location and entry based on the analysis in the EIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			framework for hardrock mining and concluded that the existing federal and state laws were generally effective in ensuring environmental protection. Hardrock Mining on Federal Lands, National Academy of Sciences, National Academy Press, 1999, p. 89.	
Northwest Mining Association	225275	5	The proposed withdrawal violates the Mining and Minerals Policy Act of 1970 (MMPA), in which Congress clearly stated that it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, (2) the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs. For clarification, Congress defined minerals to include all minerals and mineral fuels including...uranium.	The proposed withdrawal is consistent with the Mining and Minerals Policy Act of 1970 (30 USC 21 *et seq*.). Only locatable minerals managed under the Mining Law of 1872 would be affected by this withdrawal action. Furthermore, The Secretary of the Interior retains the authority to approve withdrawals as provided in Section 204 of the Federal Land Policy and Management Act of 1976 (43 USC §§ 1701-1782) and by the rules and regulations contained in 43 CFR 2310.
Northwest Mining Association	225275	10	A mineral withdrawal is an extreme action and should be considered and used only when all other tools have failed to protect the environment and in this case the values of the Grand Canyon National Park and the Colorado River watershed. With respect to the proposed withdrawal, there is no evidence that the other tools in the tool box, such as the performance standards of the 3809 and 228 regulations, have failed to protect the environment and important resources.	As stated in Section 1.3.1 of the DEIS, the purpose is to protect the natural, cultural, and social resources in the Grand Canyon watershed from the possible adverse effects of the reasonably foreseeable locatable mineral exploration and development that could occur in the area proposed for withdrawal. The DEIS analyzes these potential effects and acknowledges the existing regulations and their effectiveness. The decision to be made is whether or not to withdraw, for up to 20 years, some or all of the area from location and entry based on the analysis in the EIS.
National Mining Association	225281	2	Creation of an additional one million of acres buffer zone around the park is not justified given the lack of evidence in the DEIS that the GCNP is at risk from mining given existing protections. The 1.2 million acres of federal land included in the GCNP are already protected from the impacts of mining as these lands appropriately have been withdrawn from the operation of the Mining Law.	As stated in Section 1.3.1 of the DEIS, the purpose is to protect the natural, cultural, and social resources in the Grand Canyon watershed from the possible adverse effects of the reasonably foreseeable locatable mineral exploration and development that could occur in the area proposed for withdrawal. The DEIS analyzes these potential effects and acknowledges the existing regulations and their effectiveness. The decision to be made is whether or not to withdraw, for up to 20 years, some or all of the area from location and entry based on the analysis in the EIS.
National Mining Association	225281	4	These laws and regulations that govern mining on federal lands are "cradle to grave," covering virtually every aspect of mining from exploration through mine reclamation and closure. The National Academy of Sciences (NAS) reviewed the existing federal and state regulatory framework for hardrock mining and concluded that the existing laws were "generally	The DEIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			effective" in ensuring environmental protection. Hardrock Mining on Federal Lands, National Academy of Sciences, National Academy Press, 1999, p.89.	Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place. By law (Section 204, Federal Land Policy Management Act of 1976, 43 USC 1714(a); 43 CFR 2310.1), the Secretary of Interior is required to issue a decision once a valid application for withdrawal has been made.
Quaterra Alaska Inc.	225288	5	The great majority of the mining claims are staked on the belt of mineralized pipes because the mining companies know this is where breccia pipes containing ore bodies are likely to be found. The radical anti-industry groups chose the proposed withdrawal area not because it warrants protection more than other areas, but because that is where the mining claims are. House Rock Valley is included in the proposed withdrawal area, not because there are many mining claims there or because ore bodies are very likely to be found there, but because the Grand Canyon Trust owns a ranch there. The government agencies writing the EIS should be more open and honest about this.	The proposed withdrawal area, as analyzed in this EIS, is fundamentally the same as that contained in the original petition for withdrawal submitted to the Secretary of the Interior on July 15, 2009. The Federal Register notice of July 21, 2009, the Secretary's Notice of Proposed Withdrawal, contained the boundary which the BLM and Forest Service was required by law (Section 204, Federal Land Policy Management Act of 1976, 43 USC 1714(a); 43 CFR 2310.1) to consider. For more detail concerning the Proposed Withdrawal boundary, see the discussion in EIS Section 1.2.
VANE Minerals	242650	1	If one looks at the map of the proposed withdrawal area relative to the density of mining claims, the boundary directly overlays the greatest density of mining claims. The boundary does not follow some thoughtful process such as being located a set distance from the Colorado River or its tributaries or the boundary of a Park or Monument, and even leaves several miles of public land encompassing upper Kanab Creek out of the proposed withdrawal area. There happened to be few or no mining claims in that area at the time the boundary was drawn . One would reason that if the Colorado River and its tributaries are the worry, then the boundary would be drawn reflecting the shape of these features. That indicates that the intent of the proposed withdrawal is on mining claims rather than a set distance to the Colorado River and its tributaries.	The proposed withdrawal area, as analyzed in this EIS, is fundamentally the same as that contained in the original petition for withdrawal submitted to the Secretary of the Interior on July 15, 2009. The Federal Register notice of July 21, 2009, the Secretary's Notice of Proposed Withdrawal, contained the boundary which the BLM and Forest Service was required by law (Section 204, Federal Land Policy Management Act of 1976, 43 USC 1714(a); 43 CFR 2310.1) to consider. For more detail concerning the Proposed Withdrawal boundary, see the discussion in EIS Section 1.2.
Quaterra Resources, Inc.	242664	1	The avowed purpose of the proposed withdrawal is to protect the natural, cultural and social resources of the Grand Canyon watershed from mineral exploration and development. In such a situation, the burden of proof lies squarely with the DOI to show that such activities represent a clear and present danger. The report fails to do this. Ten of the fifteen potential environmental consequences are judged in the DEIS to have no to minimal impact, and three others only minor to moderate impact. Most important, the report describes the impact on the Virgin and Colorado Rivers as negligible. Potential contamination of the Colorado River was the principal trigger for the withdrawal.	Section 1.3 of the FEIS explains the purpose and need of this document. The decision to be made is whether or not to withdraw the area from the Mining Law of 1872, subject to valid existing rights. This EIS is being prepared to help inform that decision.
Frank Bain	242677	4	The issue of the newly proposed area for withdrawal was supposedly settled back in the 1984 when the Arizona Strip Wilderness Act was	The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			passed, an agreement with the USFS, BLM, mining companies, and other interested groups where a large portion of land on the North Rim was withdrawn from mineral entry and that the remaining lands outside of this withdrawal would remain open for exploration and mining. Why is government attempting to renege on this agreement? Why was this agreement and issue not mentioned in the EIS?	4.13.
NEPA: Document Layout				
Energy Fuels Resources	225260	6	I also recommend that the topics under the "Affected Environment" and "Environmental Consequences" should be presented in the same order as in the main body of the DEIS. Changing the order serves no purpose and makes it more difficult to read the document. A summary table could also be added to the "Environmental Consequences" section and in a new 4.17 subsection of the report so that the reader can more easily understand the document's conclusions.	The EIS is presented with the affected environment in Chapter 3 and environmental impacts in Chapter 4. All resources are presented in the same order in both chapters to help the reader easily navigate through the document. A general summary of impacts appears in the Executive Summary and a detailed listing of potential environmental impacts identified as a result of the analysis is provided as Table 2.8-1. The Executive Summary has been modified in the FEIS to present resources in the same order as Chapter 3 and Chapter 4.
Uranium Watch	225262	1	The DEIS lacks citations for most of the data and information in each section. There is just one list of references, rather than references after each section. Therefore, a member of the public has no idea of the source of the data and information in the DEIS.	Each section contains complete references that are then listed in full in Chapter 6, Literature Cited. This chapter is organized alphabetically in order to help the reader find the appropriate reference. There is no requirement that references appear at the end of each section.
Uranium Watch	225262	5	The DEIS contains extensive references. However, there is no indication of where the referenced material is available to the public. The agencies must make all referenced documents publicly available by providing a link to those documents on the EIS website.	References are documented in the project file. Cited references must be either generally available to the public (such as on the internet or a public library) or available upon request. There is no requirement that referenced materials be made available via the BLM project website.
Ted Jensen	225282	13	Executive summary includes a statement of purpose for each of the different study categories and then later restates the categories with study results. The executive summary document length can be cut in half by just combining these sections. For example, Air Quality concerns (pg. ES-2) portion should be combined with Impacts on Air Quality (pg. ES-13). Also, by stating the concerns without the details can be very misleading. It is misleading to allow for unsupported statements to be made and then add clarifications or ratings later	The issues and concerns described in the first part of the Executive Summary are those that were identified as a result of the public scoping process for this project. The impacts summarized later in the Executive Summary are those identified as a result of the EIS analysis (i.e., they summarize the results detailed in Chapter 4, Environmental Consequences).
Ted Jensen	225282	14	The Introduction section should simply state it is the Introduction. On page 1-1 it states the introduction as follows: Introduction: Purpose Of And Need	There is no bias inherent in the title of this chapter. It serves as both an introduction to the EIS and identifies

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			For Action. This is not an unbiased statement and implies closure.	the purpose of and need for action, which is a NEPA requirement (40 CFR 1502.13)
Ted Jensen	225282	17	The initial basis for the closure was the downstream water quality concerns. The open forums led by Representative Grijalva clearly expressed this as a primary concern. On the last page it states that impacts on the Colorado water is none to negligible. This is a major component of the study and deserves much emphasis or additional weight, yet, this critical study result is all but buried on the last page.	Numerous issues and concerns, from federal, state, and municipal agencies as well as tribes and members of the public, were identified during the scoping process for this EIS. They were not limited to water quality concerns. The issues identified for further analysis are discussed in Chapter 1, Section 1.5. The purpose and need for the proposed withdrawal is described in full in Chapter 1, Section 1.3.
Quaterra Alaska Inc.	225288	6	There are many examples of failing to provide perspective in the DEIS, where numbers are quoted without giving anything to compare them to. For example quoting the total amount of gaseous emissions from all the projected mines over a 20 year period gives some large numbers until they are compared to automobile emissions, non-road equipment emissions, forest fire emissions, and others in table 3.2-5. Many numbers for emissions are included in the EIS, but they are in widely separated sections so that they cannot easily be compared.	The data provided in Chapter 3.2.3 *Existing Air Quality*, Tables 3.2-4 and 3.2-5 were not intended for comparison of one source to another. These data are used for modeling purposes and provide the basis for existing (i.e., background) air quality.
Quaterra Alaska Inc.	225288	10	p.4-13 Table 4.2.4 Incomplete labeling It appears that the numbers in the table are not completely defined. Are they tons per day, tons per month, tons per year etc?	It is unclear as to which table the commenter is referring, but it is believed the commenter is referring to Table 4.2-4, *Hypothetical/Typical Mine Vehicle/Equipment Exhaust Emissions in Tons* (DEIS page 4-13). The units of Table 4.2-5 should be expressed in tons per mine life. The units in Table 4.2-5 have been revised.
Lela Rhodes	226422	2	While reviewing your maps of surface ownership, I find no indication of private land in House Rock Valley. It should be widely known that the Kane and Two-Mile Ranches now belong to the Grand Canyon Trust. Though they are a so-called nonprofit organization, their ownership of those lands are considered Private and should be noted in that manner on your maps.	Surface ownership as shown in the DEIS is accurate.
Lela Rhodes	226422	6	With the number of errors in this document, it seems that it would be more appropriate to re-issue a DEIS that has been reviewed for accuracy and one that actually states a preferred alternative as NEPA requires.	BLM recognizes there are a number of typographical and other errors in the DEIS. These have been corrected for the FEIS. Department of the Interior NEPA Implementing Regulations, at 43 CFR 46.426(a), state: "Unless another law prohibits the expression of a preference, the draft environmental impact statement should identify the bureau's preferred alternative, if one or more exists." No preferred alternative existed at the time the Draft EIS was published. Both the Department of Interior Office of Environmental Policy and Compliance and the USDOI solicitor's office

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				approved the Draft EIS publication without a Preferred Alternative. Agencies frequently refrain from identifying a preferred alternative in the DEIS, both so as to avoid the appearance of a final decision having been made prior to the DEIS even being published, and because they wish to elicit as much input from the public and other interested parties prior to actually deciding what their preferred alternative will be. See Question 4c, Council on Environmental Quality's Forty Most Asked Questions Concerning CEQ's NEPA Regulations.
NEPA: Review Timeline				
The NAU Project, LLC	254	1	The NEPA rules indicate that the DEIS be as compact as possible and not to run too much over 300 pages. This EIS is way beyond this and 45 days to review and comment is scarcely enough time to do this.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments. Although the EIS exceeds the number of pages suggested by CEQ regulations, it contains the number of pages needed to provide the information necessary to inform the Secretary of Interior's decision.
Quaterra Alaska Inc.	39195	1	I have concluded that the 45 days allotted for public response is far too short a time a minimum of 90 days, and more if possible, are needed for an objective and fair response.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments.
Patrick Hillard	50520	1	After extensive review of the document I have concluded that the 45 days allotted for public response is far too short a time, giving the impression that the Federal Government is attempting to "cram it down the throats" of the public. There is significant material presented in the draft with which I and other people knowledgeable about the withdrawal area disagree, however a reasonable amount of time is required for research to document and provide details concerning our facts.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments.
Sedona Chamber of Commerce	50524	2	We understand that your two-year temporary ban will expire on July 20, 2011, and that exploratory drilling on thousands of new claims would immediately resume. We urge you to complete the environmental review process and issue a decision well before that deadline.	An Emergency Withdrawal was issued by Secretary Salazar that expires January 20, 2012, to allow for the completion of the FEIS and final decision.
Arizona House of Representatives	54290	3	I support Alternative B and strongly encourage you to make a final decision prior to July 20, 2011, when the current segregation order expires.	An Emergency Withdrawal was issued by Secretary Salazar that expires January 20, 2012, to allow for the completion of the FEIS and final decision.
Grand Canyon Wildlands Council	97142	1	The AZ Strip website (http://www.blm.gov/az/st/en/prog/mining/timeout.html) states that the DEIS for the Uranium Mineral withdrawal is scheduled for release in "early 2011." Do you have an updated timeline for this process?	The final EIS is scheduled to be released to the public in the Fall of 2011. The decision by the Secretary of Interior can be issued as soon as 30 days after that.
AZ State Senate	213915	3	It is imperative that action be taken on this proposal prior to the expiration	An Emergency Withdrawal was issued by Secretary

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			of the current segregation order (July 20, 2011) so the area remains closed to mining.	Salazar that expires January 20, 2012, to allow for the completion of the FEIS and final decision.
Energy Fuels Resources	213922	1	I have been reviewing the EIS and I intend to provide substantive comments. However, the current 45-day comment period for such a massive document that exceeds 1000 pages and took over 1 1/2 years to prepare is insufficient. The ability to review and analyze the draft EIS is crucial for me to provide meaningful comments that need to be considered before any final decision is made with respect to the proposed withdrawal. Therefore, I request an extension of the comment period for an additional 45 days from the current April 4 deadline.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments.
National Mining Association	213923	1	NMA intends to provide substantive comments on the draft EIS. However, the current 45-day comment period for a document that exceeds 1000 pages is simply insufficient. The ability to review and analyze the draft EIS is crucial to NMA's effort to provide meaningful comments that need to be considered before any final decision is made with respect to the proposed withdrawal. Therefore, NMA requests and extension of the comment period for an additional 45 days from the current April 4 deadline.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments.
Northwest Mining Association	213924	1	The Northwest Mining Association (NWMA) hereby requests a 45-day extension to the public comment period for the Draft Northern Arizona Proposed Withdrawal Environmental Impact Statement (EIS). On Feb. 18, the Bureau of Land Management (BLM) announced the opening of a 45-day public comment period on the Draft EIS, set to expire on April 4. A 45-day comment period is insufficient to adequately analyze and provide meaningful comments on a document of more than 1,000 pages.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments.
Frank Bain	242677	2	The comment period needs to be extended again, new public meetings scheduled, and anyone with a comment, pro or con should be allowed to speak.	The review time for the DEIS was extended from 45 days to 75 days to allow additional time to review and provide comments. During the public comment period, public meetings were held in Phoenix, Flagstaff, and Fredonia Arizona, and in Salt Lake City, Utah. At each of these meetings attendees were allowed to write a question on a card that was read and answered for everyone at the meeting. Attendees were also given the opportunity to meet individually with agency and contract resource specialists.
NEPA: Purpose and Need				
American Clean Energy Resources Trust (ACERT)	225256	7	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 hard rock 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*	The legacy of impacts created by uranium mining and processing in the region extends well beyond the Orphan mine. The DEIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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, edits 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: **(SEE COMMENT #225256 for detailed table information)** 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	Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Doug Regan	242175	1	In a time of rising concern for the energy needs of the nation and the world, nuclear energy must remain an option. However, cleaner, cheaper, and safer options are available that have not been sufficiently exploited. Ample sources of uranium have already identified in areas where exploitation does not incur the types and severity of impacts associated with hardrock mining in the rapidly dwindling areas of fragile arid lands of	The purpose and need for the proposed action is defined in Chapter 1, Section 1.3. The overall objective of this EIS is to allow an informed decision to be made as to whether or not to withdraw lands in the area from locatable mineral exploration and development.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the Southwest. Such considerations are part of the overall evaluation of the PURPOSE AND NEED for allowing mining permits in the Arizona Strip. Such a need AT THIS TIME has NOT been demonstrated.	
NEPA: General Impact Analysis				
Quaterra Alaska Inc., Patrick Hillard	39195, 50520	2	Some of the government agencies (not the BLM) which have contributed to the draft have been openly opposed to mining for many years. I cannot believe that their conclusions and presentation of data are as objective as they would be if these agencies were neutral. Some of these same agencies in the past have accepted data and information from the radical anti-development groups including but not limited to the Grand Canyon Trust, the Sierra Club, and the Center for Biological Diversity. Many of the people from these groups who have provided information have no professional credentials and have been known to make up facts to suit their own purposes. Thus even more time is required to counter prejudiced conclusions and bad information.	No data or analyses from any special interest groups were used in development of the EIS. The commenter is referred to Chapter 6, Literature Cited, to review the source materials that did contribute to the analysis.
Valarie Bryant	50529	1	In reading through the Executive Summary and Table 2.8-1 Summary of Potential Environmental Impacts by Alternative, it seems, even though the entire study was very well prepared, that this is still a "best guess" scenario. Almost all the impact statements contain the phrase; 1) are not able to be determined, 2) if any impact would occur, 3) impacts could range from, 4) changes might be large, 5) impacts on ___ are possible or vary, depending on, 6) may impact, 7) would depend on, 8)assuming that, 9) could result, 10) depend on. You are, therefore, saying that you just do not know!	The DEIS was prepared using the best peer-reviewed scientific studies available. But, even so, there are known to be gaps in the data and other some information is largely non-existent at this time. Incomplete or unavailable information is identified in each Chapter 4 resource section. The DEIS does, however, provide adequate data to distinguish between the alternatives and to make an informed decision (see 40 CFR 1502.22).
Valarie Bryant	50529	2	How about presenting known facts on mining effects. The USGS Fact Sheet 2010/3050 "Breccia Pipe Uranium Mining etc" seems to support this negative effect-under the "effects of 1980's uranium mining" paragraph.	Much of the analysis presented in the EIS is based on the USGS studies specifically cited in USGS Fact Sheet 2010-3050.
Arizona House of Representatives	54290	2	I am also concerned about failures to enforce much-needed safeguards to prevent pollution from mining. In 2009, a Canadian mining company reopened a uranium mine located on the Arizona Strip District of the Bureau of Land Management. The company is routinely found to be operating in violation of state and federal regulations. While Arizona's Department of Environmental Quality has some regulatory authority it is unable to monitor the mine's operations to protect air and water quality.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
Alan Kuhn	87261	2	The methodology and conclusions in this DEIS are flawed. The DEIS ignores the fact that modern exploration, mining, and reclamation techniques are protective of the environment when applied properly, and the actual footprint of uranium or other mineral development in the subject	The DEIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			area is very small and quite manageable with modern methods.	Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Mari Rubens	104124	1	In regards to the Flagstaff public meeting: Why could the Havasupai people not receive an answer regarding impact to animals & flora from levels other than federal that was very limited?	Potential impacts to flora and fauna under each alternative are described in Sections 4.6, 4.7., and 4.8 of the EIS. In addition to species listed or candidates for listing under the federal Endangered Species Act, the impacts analysis discloses anticipated effects on BLM-listed Sensitive species, Forest Service-listed Sensitive species, National Park Service-listed Species of Concern, and Arizona State Game and Fish Department-identified Species of Greatest Conservation Need.
Cynthia Pardo	104125	5	Please assess the impact if an accident from uranium mining were to occur. - This is not, and should not, be out of the purview of the study.	Assuming the commenter is referring to potential accidents involving haul trucks coming to/from any mines, this issue is addressed for each of the alternatives in Chapter 4, Section 4.15, Social Conditions, under the subheading "Transportation Conflicts." Historical contamination of Navajo lands by mining activities in the 1940s—1970s is discussed in Chapter 3, Section 3.15, under the subheading “Withdrawal Support,” and known health risks are described in the pages immediately following under “Public Health and Safety.”
Darrin Kaska	104134	1	I see that only forest and National Park service has been inspected, why not the state land be included too?	Withdrawal alternatives analyzed in the EIS are only applicable to minerals under federal (e.g., BLM, Forest Service) jurisdiction. The Secretary of the Interior does not have authority to withdraw minerals not under federal jurisdiction.
Dawn Dyer	104170	1	I believe the DEIS does not adequately stress the fragility and importance of the area surrounding the Grand Canyon to local residents, native tribes, water safety, biodiversity, and local economies.	These resources are each addressed in detail in Chapters 3 and 4. See the sections on Social Conditions, Water Resources, Vegetation Resources, Fish and Wildlife, Special Status Species, and Economic Conditions, respectively.
Kristen Wert	213916	1	The work "compliance" shows up in the EIS document a total of 38 times. The word "non-compliance" shows up zero times. So I'm guessing company non-compliance with environmental regulations was not included as a worst case scenario in the environmental and economic impact estimates for the alternative scenarios. You are assuming that mining corporations would comply with all environmental regulations. But we've already seen the Denison re-opened the Arizona 1 mine without approval	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			from the EPA (see Denison attachment). Wouldn't this company also be the one most likely to develop other mining sites in the area? This company's refusal to comply with laws is not an isolated case. There are other examples of uranium mining companies failing to follow federal and local regulations. (For example see the Crow Butte attachment.) Even if regulations were enough to prevent severe damage to the environment, there is no guarantee that it would not be more profitable for mining companies to violate laws and pay the resulting fines than it would be for them to follow regulations in the first place.	NEPA does not require development of worst-case scenario. The worst-case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios. Nevertheless, in an effort to address this concern, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their future monitoring and enforcement efforts in and around Grand Canyon National Park.
Kanab Utah	225250	2	The EIS substantively ignored requirements of Section 1502.16 (c) which requires discussions of possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.	Subsection 1.4.4 has been added to Chapter 1 to address conformance of each alternative with existing federal, county, tribal, and municipal land use plans.
Donald Begalke	225254	2 & 3	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? "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	The Executive Summary has been revised to explicitly state that a separate, 98-page Scoping Report was produced in March 2010 and made publicly available on the BLM project website.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			specific numbers are flagrantly missing -? For best assessments of the categories, having each broken down into sub-categories would show project accountability, and I request BLM do the breakdowns for the Final EIS. 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 -?	
Donald Begalke	225254		Continued... 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. 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 V.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. 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	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			presentations.	
Donald Begalke	225254	6	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.	Since the publication of the proposed withdrawal in the Federal Register on July 21, 2009, no new mining claims have been located in the area. Current mining claim information is available on the BLM's LR2000 system (http://www.blm.gov/lr2000/). The Mining Claim Recordation (MC) section contains information on unpatented mining claims located on federal lands within the area proposed for withdrawal
American Clean Energy Resources Trust (ACERT)	225256	4	READER LETTER 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	All acreage calculations have been reviewed and corrected as necessary in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	5	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 nonfederal 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.	All acreage calculations have been reviewed and corrected as necessary in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	6	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	As stated in the July 21, 2009 Federal Register notice announcing the segregation and proposed withdrawal, "The purpose of the withdrawal...would be to protect the Grand Canyon watershed from adverse effects of *locatable hardrock mineral exploration and mining"* [emphasis added]. Leasable and salable mineral

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			impact the soil, view, air, wildlife, birds, plants, water, traffic and every other issue raised in this DEIS.	exploration and development were not included in the Secretary's proposal and are thus beyond the scope of this EIS.
American Clean Energy Resources Trust (ACERT)	225256	8	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	As stated in 40 CFR 1501.7 and in BLM NEPA Handbook H-1790-1, the fundamental purpose of scoping is to help identify potential issues, impacts, and alternatives to be analyzed in detail in the EIS, as well as those that are probably not significant enough to warrant detailed analysis. Scoping is typically conducted internally (among agency staff) and externally interested government agencies, non-governmental organizations, industries, and the public in general. It is not a balloting process, but a means to help assure that all issues relevant to the EIS are adequately investigated. Public scoping comments are tallied for statistical purposes and as a matter of public record.
American Clean Energy Resources Trust (ACERT)	225256	9	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.	The area under review is remote and undeveloped. While cadastral survey has been conducted to establish land locations, the lack of survey associated with aspects of this analysis dictate that the acreage calculations used are estimates derived from GIS or other techniques. All acreage calculations have been reviewed and corrected as necessary in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	10	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*	The commenter appears to be reading more into the reference to the Center for Biological Diversity (CBD) than the EIS authors intended; the CBD was only cited as an example of an environmental NGO because the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	CBD has, along with the Sierra Club, the Grand Canyon Trust, and others, been highly active in attending scoping and other public meetings on the project and in submitting comments throughout the process. Their comments, however, receive no greater or lesser degree of consideration than those submitted by anyone else. This reference to the CBD has been removed in the Executive Summary of the FEIS. Since the area does receive international visitors, and especially the Grand Canyon, they do comprise a component of the public demographic that could be potentially affected by the action. We received, and accepted, comments from people all over the world.
American Clean Energy Resources Trust (ACERT)	225256	15	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.	The purpose of and the need for the Proposed Action are documented in Chapter 1, Section 1.3.
American Clean Energy Resources Trust (ACERT)	225256	16	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	The annual fee noted is cost recovery of BLM expenses incurred in administering claims, so a reduced number of claims would result in corresponding reduction in BLM expenditures. The annual mining claim maintenance fee assists in covering the costs that BLM incurs in the mining law administration program.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	17	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.	Although current reclamation bond requirements are discussed in EIS Appendix B, Section B.3.4, Plan of Operations Approval Process, the FEIS has been revised in Section 3.5.4 to reflect the distinction between current requirements and historic practices.
American Clean Energy Resources Trust (ACERT)	225256	19	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.	The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
American Clean Energy Resources Trust (ACERT)	225256	21	Page 2-33, Table 2.8-1 Statement: *Under Alternative A, the mines would produce 33,155 tons of URANIUM (U30 S), 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 U30 e 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?	The section of Table 2.8-1 cited in the comment presents the availability of mineral resources data that resulted from the analysis. Review of the assumptions used to estimate the uranium production figures under each alternative have resulted in a change to uranium production figures. The revised numbers can be found in Table 2.8-1, Chapter 3 Section 3.3.1, and Chapter 4 Section 4.3.4.
American Clean Energy Resources Trust (ACERT)	225256	119	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.	Scoping Report Section 4.0, “Summary of Public Scoping Comments,” documents the overall numbers and statistical breakdown by type of public comment received. The commenter is correct in stating that 83,525 individual comment submittals were received, but that 1,805 of these were identified as duplicate submittals. The language in Section 5.1 of the FEIS has been revised to be consistent with the Scoping Report.
American Clean Energy Resources Trust (ACERT)	225256	120	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.	This was an editorial oversight. The dates have been corrected in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	121	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.*	As part of the Section 106 process, BLM is required to comply with Section 101(d)(6)(B) of the National Historic Preservation Act, which requires federal agencies to consult with any American Indian tribe that "attaches religious and cultural significance to historic properties that may be affected by an undertaking" (36 CFR 800). Communication with knowledgeable persons in the mining industry is also vital to the analysis process.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	EIS Chapter 6, Literature Cited, documents the input that was obtained from Denison Mines Corporation, Energy Fuels Nuclear, Inc., Eugene Spiering of Quaterra Resources, Inc., and many others, both in the form of documents and personal communications.
American Clean Energy Resources Trust (ACERT)	225256	123	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.	With the exception of referenced periodicals, it is not standard editorial practice to include page number citations in documents of this type. There is also no NEPA requirement to do so.
American Clean Energy Resources Trust (ACERT)	225256	124	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, 01-8. CD-ROM. --,.2010. Mission statement Available at: <http://www.azgs.az.gov/aboutshtml>. Accessed February 19, 2010. American Clean Energies Trust 2009. Economic Impact of Uranium Mining on Coconino and Mohave Counties, Arizona. Available at: <http://acertgroup.comlEconomic_Impactpdf>. Accessed June 1, 2010. Arizona Oil and Gas Commission. 2005. Oil and gas wells in the State of Arizona, 01-33. 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."	These references have been corrected in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	125	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 anyone section. The public will not be able to locate all	The Chapter 8 index is in conformance with CEQ requirements and current NEPA documentation standards (see 40 CFR 1502.10).

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			references to a desired topic without a comprehensive index.	
American Clean Energy Resources Trust (ACERT)	225256	133	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.	According to USGS, the mineralized samples found by USGS, as shown in Figures 27 and 28 (p. 123-124) of SIR 2010-502, were in the active part of the stream channel and appeared (as the sample photos in the report suggest) to be relatively fresh rock, not substantially weathered or eroded, and therefore more likely to come from the waste rock used in the reclamation of the site and re-worked by the flooding in the mid-1980s, and not from natural erosion that would pre-date mining. The boulder and chunks in Hack Canyon were entrained in the surface layers of the dry stream channel, and were located downstream of the mines and an eroded terrace composed of Hack Canyon mine waste material. The sulfides remain intact (unoxidized) in these boulders, which does not suggest they had sat in the stream channel for hundreds or thousands of years. Their chemistry matched ore and waste material from the Hack mines. Thus, USGS field observations suggest the mineralized boulders came from the eroded terrace filled with mine waste material adjacent to the stream channel of Hack Canyon. It is difficult to envision coherent blocks of this material on the surface of the stream channel derived from the erosion of a breccia pipe thousands or more years ago.
American Clean Energy Resources Trust (ACERT)	225256	134	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.	SWCA Environmental Consultants was selected as a contractor to assist in development of the EIS. All materials prepared and submitted by SWCA have been subject to BLM and Cooperating Agency review and approval. The science used in preparation of this EIS is cited in Chapter 6, Literature Cited.
American Clean		137	There is no mention at all of the stellar record of uranium mining by Energy	Documents from Energy Fuels Nuclear were

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Energy Resources Trust (ACERT)			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.	extensively consulted during development of the EIS, particularly the Chapter 3 and Chapter 4 Water Resources sections; this study was supplemented by conversations with Roger Smith, former mine foreman for EFN. Please see Chapter 6, Literature Cited.
National Parks Conservation Association	225257	2	We ask that Alterative C and D be rejected for two reasons. First and foremost, the most significant potential impacts of uranium mining in this area are not localized. Radiation-laden dust can travel long distances. The complex aquifer system, should it be compromised by drilling or underground mining, can transfer radioactive material in ways not yet understood. Historic accidents have spread damage long distances down surface water drainages. There is really no reasonable way to forecast how the risks that are allowed by uranium mining in this area would be confined to only a percentage of this watershed, not as long as additional uranium exploration and development is permitted in some portion of it.	The purpose of this EIS was to evaluate the best scientific information available so as to allow the Secretary to make a decision regarding the proposed withdrawal. NEPA requires that other alternatives to the Proposed Action and the No Action alternatives be evaluated with equal rigor (see 40 CFR 1502.14 and Question 1 of the Council on Environmental Quality's Forty Most Asked Questions Concerning CEQ's NEPA Regulations). Alternatives C and D are valid alternatives derived by resource specialists, specifically developed to present a range of alternatives between the Proposed Action and the No Action alternatives that would also meet the Purpose of and Need for Action (EIS Section 1.3).
Energy Fuels Resources	225260	2	In Section 1.3.1 of the DEIS, the Purpose of the Action is described as *to protect the natural, cultural, and social resources in the Grand Canyon watershed from the possible adverse effects of the reasonably foreseeable locatable mineral exploration and development that could occur in the segregated area.* The Need for Action is described in Section 1.3.2 of the DEIS as *concerns that future hardrock mining activities in the Grand Canyon watershed, particularly for uranium, could result in adverse effects on resources.* The first paragraph states that historic mines in the area date back to the 1860's and those impacts from these mines are primarily associated with older copper and uranium mines that were operated prior to the new regulations and permitting that mitigates potential issues. However, the DEIS analysis clearly shows that most of the projected impacts to resources are negligible or minor under the "No Action" alternative. Furthermore, the projections of moderate or major impacts are based on "worst case" scenarios that do not adequately take into account the mitigation that would be required under the site-specific NEPA analysis for each project. Accordingly, it is my belief that there is no need for action and that no further withdrawals of public land are justified.	The Secretary of the Interior was concerned enough about possible impacts to the watershed to consider withdrawal. As stated in Federal Register notice 74:108 (July 21, 2009), a key purpose of the Secretary's Notice of Proposed Withdrawal was "to allow time for various studies and analyses, including appropriate National Environmental Policy Act analysis. These actions will help inform the final decision on whether or not to proceed with a withdrawal."
Energy Fuels Resources	225260	3	As described in Section 2.4.1 of the DEIS, 4,998 square miles of lands in the vicinity of the proposed withdrawal area have been previously withdrawn from mining activity under national park, national monuments, and game preserve designations. This does not include other large land blocks controlled by various tribes in the region that have also declared uranium mining moratoriums. Further, as discussed in Sections 4.3.5 and 4.3.6 of the DEIS, approximately 50% of the 9,100 square miles	The purpose of the Secretary's Notice of Proposed Withdrawal and this NEPA evaluation is to enable an informed decision to be made regarding withdrawal that would ensure protection of "the natural, cultural, and social resources in the Grand Canyon watershed." The economic benefits of mining, while a critical component in the overall analysis, must be weighed

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			designated as high mineral potential for uranium in northern Arizona and southern Utah have been previously withdrawn from mineral location and entry. Under the Proposed Action, the land withdrawn would increase by 1,579 square miles to almost 70% of the land with high uranium potential. This proposed action is inconsistent with the Energy Policy Act of 2005 (Public Law 109-58), which emphasizes the reestablishment of nuclear power (Sections 601 through 657). Implementation of the proposed action would decrease our ability to meet the world demand for uranium which is projected to grow from approximately 189 million pounds in 2010 to 336 million pounds in 2020 (RBC Capital Markets, September 2010).	against numerous other resource considerations. The proposed withdrawal is consistent with the Energy Policy Act of 2005.
Energy Fuels Resources	225260	4	The Proposed Action is also inconsistent with the following federal legislation. The Domestic Minerals Program Extension Act of 1953, The Mining and Minerals Policy Act of 1970, The Federal Land Policy and Management Act of 1976, The National Materials and Minerals Policy, Research and Development Act of 1980, The Arizona Wilderness Act of 1984.	The proposed withdrawal is consistent with all of the Acts cited in the comment. The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13.
Energy Fuels Resources	225260	5	The executive summary appears to ignore the findings of the technical specialists and overstates the impacts of the proposed alternatives, especially Alternative A (No Action) for cultural resources, American Indian resources, aquatic and terrestrial habitats, and special status species when compared to the detailed analyses provided in Section 4 of the DEIS. Major direct impacts are not identified for any of these resources in Section 4 and it appears that the Executive Summary does not accurately represent the findings of the technical specialists. It is recommended that this section be entirely rewritten to correct statements that do not properly reflect the detailed analysis and that additional general information be included, especially the types of mitigation that are required by federal and state agencies to minimize impacts, which are incorporated into an approved Plan of Operations and are specified in the Decision Record.	The Executive Summary has been re-reviewed by the project team prior to finalization of the FEIS. Because the Proposed Action and Alternatives being analyzed in this EIS are various configurations of withdrawal from the Mining Law of 1872, mitigations to withdrawal are not appropriate. Mitigation measures will be incorporated into any future site-specific NEPA analyses conducted to approve specific Mine Plans of Operations.
Uranium Watch	225262	2	The EIS should provide a full assessment of the current condition of the existing and potential mining operations, such as soil contamination, ground and surface water contamination, extent of waste rock piles, and extent and success of remediation efforts and re-vegetation of areas impacted by previous uranium exploration and mining activities.	These conditions are described in Chapter 3, Sections 3.4 and 3.5.
Uranium Watch	225262	7	The DEIS assumes that all state and federal regulations will be complied with. There is no basis for that assumption. The recent record of compliance with state and federal regulations by Denison Mines (USA) Corporation (Denison Mines), the owner of existing and proposed uranium mines in the withdrawal area, is evidence that uranium mines will have problems.	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				of this EIS. The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
Uranium Watch	225262	8	The EIS should include a full description of the types of radiological and non-radiological contaminants that would be released from a uranium mine operation, the specific source of those contaminants, the state and federal regulations that apply to those contaminants, the regulatory program that would administer and enforce those regulations.	Potential contaminants are described in Section 3.4 of the Affected Environment, Water Resources, and 3.5, Soil Resources, as well as in the "Public Health and Safety" subsection of Section 3.15, Social Conditions. Applicable regulations are listed in Chapter 1, Section 1.4.3, Authorities.
Uranium Watch	225262	9	The EIS should demonstrate that the Arizona Department of Environmental Quality (ADEQ), the Bureau of Land Management (BLM), and U.S. Forest Service (USFS) have the staff, finances, and inspection and enforcement programs that will assure that the existing regulations will be complied with by the mine owners and operators.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. The BLM and Forest Service regularly inspect mining operations. The BLM, under the 3809 Surface Management Regulations, inspects active operations two times per year, at a minimum, and conducts more frequent inspections when necessary. The minimum number of inspections for active operations on Forest Service lands is one time per year with more frequent inspections when necessary.
Uranium Watch	225262	12	The whole history of uranium mining is a story of disregard for human health and wellbeing and a disregard of the impacts to the environment. The DEIS assumes that such disregard is no longer present in the regulatory decision making process. That is clearly not the case. There will continue to be unacceptable risks and impacts from uranium mining, along with an inability of the regulatory agencies to fulfill their responsibilities to protect human health and the environment.	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope of this EIS. Nevertheless, in an effort to address this concern, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				agreement as to how to best coordinate their future monitoring and enforcement efforts in and around Grand Canyon National Park.
Uranium Watch	225262	14	Section 2.4.3, Alternative B: Proposed Action (20-Year Withdrawal); Alternative B Reasonably Foreseeable Future Activity. Page 2-14. This section states, in part: *Because reclamation occurs once exploration or development is concluded, not all the disturbance shown below would occur at the same time*. The statement that reclamation occurs once exploration or development is concluded is blatantly false. Reclamation of some of the land may commence when exploration or development ends, but it certainly will not be complete. Some disturbance from exploration and development will remain over the long term and be cumulative. Some of the land may be permanently disturbed due to the presence of waste rock piles. In an arid climate, it can take decades before the land returns to the same conditions that existed prior to development. Also, mines can remain on stand-by for decades, with little or no reclamation. The data related to land disturbance should have included a breakdown of the types of disturbance and the length of time it will take to restore the land to a pre-mining environmental conditions.	Mining-related soil disturbance, reclamation efforts, and associated timelines are discussed in greater detail in Chapter 4, Sections 4.5.2 and 4.5.3, and in Appendix B, Reasonably Foreseeable Development Scenarios.
Uranium Watch	225262	27	Section 4.1.1 Foreseeable Activity Assumptions. Pages 4-1 to 4-2. The EIS must assess the impacts of mines during times of non-operation when waste rock, stockpiled ore, low grade, and other aspects of the mine operations can contribute to adverse environmental impacts. Some uranium mine sites that have remained inactive for over a decade, with little site reclamation. Waste rock has been removed from mine sites, transformers have remained on site, mine vents have remained open, and other hazardous conditions have not been addressed at mines on standby. In sum, the BLM does not have a history of assuring that mines on standby are properly maintained.	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
PEW Environment Group	225274	3	It is inappropriate for the analysis to dismissively conclude that impacts on water, wildlife, tourism, aesthetics and cultural values may range from minor to major, and from short-term to long-lasting. The true value of the resources at risk and the inherent uncertainties of prediction should be more forthrightly addressed, and the option chosen that offers the most certainty for preventing damage to the delicate ecosystems of the Canyon region.	Every effort was made throughout development of the DEIS to provide quantitative data wherever possible so as to enable a rigorous comparative analysis between alternatives. Guidelines to magnitude and duration of anticipated impacts were included to allow readers lacking technical expertise in a particular field, such as air quality or economics, to better understand what these data mean in a broader context.
PEW Environment Group	225274	16	The risks associated with milling and mill tailings disposal are substantial, particularly in an area subject to relatively high winds and frequent flash flooding. Any tailings disposal facility would have to be carefully managed,	No on-site ore processing or tailings are anticipated under any of the alternatives analyzed in the DEIS. All ore would be transported by haul truck from the project

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			not only through its operational life, but for decades to come. Under the Uranium Mill Tailings Radiation Control Act, this area would present a long-term radiation hazard and be permanently off limits to any activities or visitation. Such a use would clearly be incompatible with the natural resource protection goals of the broader area and the recreation use of the Park, the nearby Monuments and the nearby wilderness areas.	area for processing elsewhere (most likely to the White Mesa Mill near Blanding, Utah). If any on-site processing were to be proposed in the future, that proposal would be subject to a separate, site-specific NEPA analysis.
PEW Environment Group	225274	17	Another point on which the DEIS fails is its repeated assumption that mine operations will at all times be fully compliant with environmental laws and regulations and that such regulations will consistently offer adequate protections. An assumption of 100% compliance, 100% of the time is, without doubt, at odds with reality, this assumption should not be used even as the basis for a "best case scenario." Even under the management of highly competent and well-capitalized operators and enhanced oversight by regulatory agencies, accidents, spills and other problems may occur from time to time, and must be considered.	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope of this EIS. NEPA does not require a worst-case scenario analysis (this analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618, Apr. 25, 1986), only analysis of circumstances that are reasonably foreseeable is required. Appendix B provides this reasonably foreseeable development scenario and provides a rationale to why this scenario is used. However, the analysis did assume the potential for vehicular accidents involving haul trucks and for other risks to human health. See the Chapter 4, Section 4.15, Social Conditions, Subsection Human Safety Risks (DEIS pages 235-239).
Center for Biological Diversity	225279	2	The DEIS states, *For purposes of this EIS, it must be assumed that state and federal regulations have been and are being met.* DEIS at 4-57. The DEIS relies on that assumption throughout its analyses to conclude that uranium mining and exploration would not cause environmental damage. A discussion of the fallacy of these assumptions and thus the inadequacy of existing regulatory mechanisms follows in these comments. See Support for Proposed Action section and subsection "c" immediately below in these comments.	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope of this EIS. Nevertheless, in an effort to address this concern, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				agreement as to how to best coordinate their future monitoring and enforcement efforts in and around Grand Canyon National Park.
Center for Biological Diversity	225279	3	The DEIS consistently downplays the impacts of past, current and potential future uranium mining on the proposed withdrawal area and Grand Canyon National Park while exaggerating its potential economic benefits.	The impacts of past, current, and future uranium mining have been disclosed in the EIS as completely and accurately as the available science allows, sufficient to compare alternatives and to inform the decision by the Secretary of Interior. The FEIS has included a more refined description of the current economic conditions in Section 3.17 analysis in Section 4.17.
Center for Biological Diversity	225279	4	The DEIS presumes that existing regulatory mechanisms will be followed and will prevent pollution; facts demonstrate that existing regulatory mechanisms are inadequate, not consistently followed or enforced, and are not implemented in a way that prevents pollution.	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope of this EIS. Nevertheless, in an effort to address this concern, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their future monitoring and enforcement efforts in and around Grand Canyon National Park.
Center for Biological Diversity	225279	10	By grouping effects into categories of severity, the DEIS undermines the comparison of alternatives by precluding a discussion of relative impact of effects grouped in common categories.	It is unclear what portion of the DEIS this comment refers to.
Center for Biological Diversity	225279	13 & 14	As described below, facts do not support the DEIS's assumption that compliance with existing regulatory mechanisms will occur or will prevent harmful effects from mining and exploration. Ensuing analyses throughout the DEIS that discount the possibility of effects stemming from non-compliance, or that are based on an assumption that non-compliance will not occur, are therefore invalid and underestimate the potential environmental impacts that could result from mining and exploration activity. The DEIS states, *For purposes of this EIS, it must be assumed that state and federal regulations have been and are being met.* DEIS at 4-57. The DEIS relies on that assumption to conclude that uranium mining and exploration would not cause environmental damage. For example, the	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope of this EIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			DEIS further states, *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.* DEIS at 4-66. But as is evident by the State's regulation of ground water, Arizona completely ignores contamination of the aquifer from a mine shaft and refuses to require aquifer monitoring. BLM's assumption that uranium mining companies will follow applicable laws and regulations, or those responsible agencies will ensure those laws and regulations are followed, is not supported by facts. As reported in the Arizona Daily Sun's article "Mining on the Honor System," ADEQ's first inspection of the Arizona mine in September 2010, nine months after the mine had commenced operations, yielded four major violations: (1) There were no pumps in the mine to eliminate any water there, as was required; (2) A test measuring the permeability of the rock in the mine hadn't been done, as was required; (3) A pipe was sticking through a lined pond that is intended to prevent groundwater contamination from ore or water pumped out of the mine. (4) Plans for the mine didn't match what inspectors found when they visited. Those violations were ongoing for nine months for lack of any regulatory oversight from BLM, ADEQ, EPA or any other regulatory agency. Similarly, a site visit by Center for Biological Diversity staff to inspect exploratory drilling operations by VANE Minerals in 2009 documented drilling operations in violation of conditions set forth in the Forest Service Decision Memo authorizing that activity: (1) Drilling residues were required to be contained in a closed container or open fluid waste pits; drilling residues were instead dumped into an open truck trailer that in turn leaked residue into Deer Creek Wash, two miles from the boundary of Grand Canyon National Park. (2) Drilling residues, if left an open fluid waste pit, were required to be netted on the top to prevent access to the pits by birds; there was no netting to prevent birds from being exposed to drilling wastes. Drilling waste was left in the wash. (3) The Decision Memo required open fluid waste pits to be fenced along the sides to protect wildlife; neither the trailer nor the drilling waste that flowed into and down Deer Creek Wash were fenced to prevent wildlife exposure. McKinnon Declaration at 2. (Appendix 1). In the former case, the Arizona 1 mine had been reopened for nine months prior to ADEQ's first inspection in September 2010; the four major violations it yielded had been ongoing for nine months for lack of any regulatory oversight. In the latter case, the U.S. Forest Service had not visited VANE's exploration site, or had visited it and not enforced conditions of the authorizing Decision Memo. Neither case demonstrates voluntary industry compliance with law or regulation. Neither case demonstrates a capacity among responsible agencies to monitor or ensure compliance with laws and regulations in a consistent, timely manner. Both cases demonstrate industry non-compliance with laws and regulations. Both cases demonstrate failure by responsible agencies to ensure that applicable laws and regulations are followed while mining	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			and exploration activities are underway.	
Center for Biological Diversity	225279	15	The chasm separating the DEIS' regulatory aspirations from regulatory reality is found in the DEIS itself: Reclaimed sites are monitored on a regular basis after closure to evaluate the effectiveness of the reclamation actions and to maintain the designed features against erosion. DEIS at 4-101. The DEIS then states: Detailed documentation of specific reclamation results for the five reclaimed mines (Hack 1, 2, and 3; Hermit; and Pigeon) on the North Parcel was either incomplete or unavailable for this analysis. General documentation was available in documents submitted to the administering agencies, and helpful details were obtained from discussions with former mine personnel. DEIS at 4-66. The DEIS' own facts undermine its assumptions by demonstrating the failure of responsible agencies to ensure that applicable laws and regulations are followed.	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. Changes to current regulations governing mining are legislative actions or executive branch decisions that are beyond the scope of this EIS. Nevertheless, in an effort to address this concern, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their future monitoring and enforcement efforts in and around Grand Canyon National Park.
National Mining Association	225281	3	To some degree the department acknowledges the role of existing regulations but the DEIS should contain a more complete picture of the comprehensive framework of federal and state environmental, ecological, and reclamation laws and regulations that ensure operations are fully protective of public health and safety, the environment, and wildlife. Indeed, any proposed mining project would be evaluated as required by each of these laws to ensure that mining could be completed in a manner that is protective of the environment.	Applicable laws and regulations are identified and discussed in Chapter 1, Section 1.4.3, Authorities. Additional information is provided in Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory Framework.
Ted Jensen	225282	4	Missing from the study is the previous withdrawal of lands with the expansion of the Grand Canyon boundaries to allow for a greater buffer zone. Additional Grand Canyon buffer area were added with the addition of the Grand Canyon Parashant National Monuments and designated wilderness areas in the Vermilions and Kanab Creek areas.	The establishment of the Grand Canyon Parashant National Monument and the designation of the Vermilion Cliffs and Kanab Creek Wilderness areas did not alter the status of lands within the three parcels proposed for withdrawal with respect to mineral exploration and development. The status with respect to mineral entry of these and other special designation lands are described in DEIS Chapter 3, Section 3.1.
Ted Jensen	225282	5	Missing is a description of the compromises and agreements reached with the addition of the Grand Canyon Parashant National Monument. This provided a huge buffer area to the Grand Canyon. President Clinton and Secretary Bruce Babbitt added this monument and agreement was reached to allow the remainder of the Arizona Strip to be open for exploration. The North Segregation area is within this open area and now those agreements are being ignored.	The establishment of the Grand Canyon Parashant National Monument did not include any provision that the remainder of the Arizona Strip was therefore open to mineral exploration and development. Presidential Proclamation 7265, which created the Monument, provides the Purpose of the National Monument and the framework for its creation.
Ted Jensen	225282	7	It appears the measurement magnitude scales (minor and major) are	The impacts of past, current, and future uranium

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			incorporating land areas that are not really subject to mining. Not all claims will even be explored; yet, area impact measurements appear to include these areas. This dramatically skews the summary results and is very misleading.	mining have been disclosed in the EIS as completely and accurately as the available science allows, sufficient to compare alternatives and to inform the decision by the Secretary of Interior. Although only a small fraction of mining claims would eventually be mined, the assumptions for mineral development for each alternative that was used to estimate impacts are described in Appendix B, Reasonable Foreseeable Development.
Ted Jensen	225282	16	The Executive Summary states that alternatives are subject to valid existing rights (page ES-1). Missing is a clarification that this really means most claims will be void and only those with drilled verified results are considered valid.	The process of determining valid existing rights to mining claims that pre-date the notice of proposed withdrawal is outside the scope of this FEIS. To the extent mining claim validity determinations interact with the RFD analysis, they are discussed in Section B.8.2 of Appendix B.
VANE Minerals	242650	3	The United States Geological Survey was charged with producing USGS Scientific Investigations Report 2010-5025 (USGSsir2010-5025) to provide data for the EIS. Although, the DEIS relies heavily on data from this report, nowhere in the DEIS is it explained that USGS Scientific Investigations Report 2010-5025 was completed for the expressed purpose of the EIS. It should be noted that none of the credentials of the authors of USGSsir2010-5025 are provided to authenticate their qualifications for this project. Specifically, with respect to Chapters A and B which present mineral exploration and mining data, it is not clear whether the authors are geologists or have a background in mining. Further to this, the editor of USGSsir2010-5025, Andrea Alpine, is not a geologist or mining engineer. The data provided for the DEIS is flawed from the intrinsic reason that, given the main issue in the withdrawal is mining, the United States Geological Survey should have charged the responsibility of this to a geologist or engineer with mining qualifications. The need to ensure that the best qualified people are put on this project is critical since the EIS process is for the purpose of deciding whether to withdraw a large tract of land for 20 years and thereby permanently affecting people's lives. The DEIS should clearly state what the purpose of USGSsir2010-5025 was, the credentials of the authors with respect to their being qualified, and the fact that this document is heavily relied on and referred to in the DEIS.	USGS has expertise recognized by the federal government that qualifies them to produce scientific investigations. They were specifically tasked by the Department of Interior with conducting the investigations documented in SIR 2010-5025. Qualifications of the authors of SIR 2010-5025 are available from USGS.
VANE Minerals	242650	10	Section 1.4.3, Authorities, does not list the Arizona Strip Wilderness Act of 1983. The DEIS does not mention that the withdrawal is in direct conflict with this act and implementation of the withdrawal would likely violate this act and therefore be illegal.	The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13. The proposed withdrawal and alternatives are consistent with the act.
VANE Minerals	242650	14	The DEIS continually uses the term "could" in describing potential impacts. This interpretation is clearly flawed in that it is not quantitative. The basis for a withdrawal is not justifiable on the qualitative term "could", but must	The EIS includes quantitative data wherever it was applicable and available. Please refer to Chapter 6, Literature Cited, for these sources. Known data gaps,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			be justified based on quantitative impacts described as "will" or "would".	by resource, are identified in the "Incomplete or Unavailable Information" subsections of Chapter 4.
Kris Hefton	242651	1	Paragraph 1 on Page ES-I of the DEIS states, *The withdrawal was proposed in response to increased mining interests in the region's uranium deposits, as reflected in the number of new mining claim locations. . .*This is a misleading statement and I would like to clarify the facts: 1) The number of new mining claims is about 1/3 of the number of claims that existed in the district in the early 1980s, at which time the Arizona Strip Wilderness Act of 1983 was implemented as a mitigating action. 2) The current proposed withdrawal is the result of various environmental groups including Grand Canyon Trust, Center for Biological Diversity, and the Siena Club, lobbying Former Secretary of Interior, Dirk Kempthome to withdraw the acreage. Secretary Kempthome refused on the grounds that there was no evidence of long-term irreparable harm nor did an emergency condition exist. Upon being elected, President Obama appointed Ken Salazar to Secretary of Interior and he soon issued the segregation order and proposed withdrawal of the 1M acres. There is insufficient data to indicate to any reasonable authority that uranium exploration and mining activities would cause immediate or long-term environmental harm. Clearly, this illustrates the political involvement in this issue whereby a decision was made on subjective, rather than objective reasoning. 3) The environmental lobby base their recommendation and support of the withdrawal on preserving the Grand Canyon for recreation and tourism. Recently, these environmental interest groups have challenged the company over rights of the Grand Canyon which resulted in public hearings in Phoenix. This is a direct contradiction to their reasoning for support of the withdrawal in favor of protecting the interest of tourists. These facts should be placed in the DEIS.	The purpose and need for the proposed withdrawal is defined in DEIS Chapter 1, Section 1.3. A brief history of the project is included in the Background discussion of Chapter 1, Section 1.3.
Arizona Rock Products Association	242654	1	The National Materials and Minerals Policy Research and Development Act of 1980 specifically, Title 30 Chapter 28 § Section 1601-1604 includes provisions in order to identify materials needs and assist in the pursuit of measures that would assure the availability of materials critical to commerce, the economy, and national security. The policy recognizes that the availability of materials is essential for national security, economic well-being, and industrial production in the U.S. Conversely, the proposed withdrawal at any level would have the opposite effect.	The proposed withdrawal is consistent with the Mining and Minerals Policy Act of 1970 (30 USC 21 *et seq*.). Mineral Material availability would not be affected by any withdrawal analyzed in this EIS. Furthermore, the Secretary of the Interior retains the authority to approve withdrawals as provided in Section 204 of the Federal Land Policy and Management Act of 1976 (43 USC §§ 1701-1782) and by the rules and regulations contained in 43 CFR 2310. The Secretary of the Interior also has the authority to revoke a withdrawal under FLPMA.
Arizona Rock Products Association	242654	2	Significant concern that access to either State Trust or private lands from federal lands for mineral exploration projects or for any roads or utility easements required for new mine development will become more difficult if this land is removed from entry. If the withdrawal is authorized, the DEIS does not address the ability of a permittee on state or private lands to	Neither the proposed withdrawal nor any alternative withdrawal would have any effect on rights-of-way (ROWs) or access to non-federal lands within the project parcels. ROW applications would continue to be processed as before. FEIS Section 2.4 has been

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			obtain a right-of-way across the federal lands that are closed to mineral location or entry. Clearly, this is a significant omission in the DEIS because these right-of-way limitations could serve to effectively increase the withdrawal area or expand the exclusion to include common minerals without an appropriate evaluation of impacts as required in the NEPA process.	revised to provide clarification on this issue.
Arizona Rock Products Association	242654	7	The DEIS notes that the no-action alternative would rely on the existing entitlement requirements and environmental programs to protect the resources in the Grand Canyon watershed. ARPA takes issue with this statement because it implies that the basic need for the withdrawal is to compensate for an inadequate existing federal, state and local regulatory framework.	The purpose and need for the proposed withdrawal is defined in DEIS Chapter 1, Section 1.3.
Arizona Rock Products Association	242654	8	ARPA believes that the difficulty of establishing a Valid Existing Right (VER) and obtaining approval of a reasonable Plan of Operations results in the Reasonably Foreseeable Development (RFD) significantly over-estimating the amount of potential future development in the withdrawal area. Again, this substantially underestimates the magnitude of the uranium resources lost to the withdrawal.	In addition to experts within the BLM, Forest Service, and USGS, numerous representatives of mining interests were consulted during development of the RFD. These sources are identified in EIS Chapter 6, Literature Cited, and in Appendix B, Section B.10, Literature Cited.
Arizona Rock Products Association	242654	10	The DEIS fails to demonstrate that future mineral development (under the no action alternative) would have no more than a minimal impact to the environment. ARPA is concerned that if any withdrawal can be justified on the basis of the poorly-documented Environmental Consequences (Chapter 4) than any future reversal of the withdrawal could never be justified.	The Secretary of the Interior is required by law to review withdrawals prior to expiration and issue a new decision as to renewal, extension, or termination of the withdrawal. See Section 204 of the Federal Land Policy and Management Act of 1976 (43 USC §§ 1701-1782) and the rules and regulations contained in 43 CFR 2310.4.
Friends of the Arizona Strip	242663	2	We find it both disturbing and unsettling that this Draft Environmental Impact Study makes absolutely no mention whatsoever of the 1984 Arizona Strip Wilderness Act and that at least two of the environmental groups who were a party to the agreements made back then have reneged on the promises they made.	The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13.
Quaterra Resources, Inc.	242664	6	The EIS is strangely silent on a number of issues germane to a decision on whether to withdraw these lands from mineral exploration and development, and more importantly would give an uninformed reader a sense of perspective and balance. These issues include 1) the contamination of the entire area by atmospheric testing of atomic devices by the US government.	We recognize that there were historical issues with radioactive fallout within the withdrawal parcels. The FEIS has been revised in Section 3.2 to include discussion of this history.
Quaterra Resources, Inc.	242664	11	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	Neither the proposed withdrawal nor any alternative withdrawal would have any effect on rights-of-way (ROWs) or access to non-federal lands within the project parcels. ROW applications would continue to be processed as before. FEIS Section 2.4 has been revised to provide clarification on this issue.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
Quaterra Resources, Inc.	242664	18	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.	The current status of applicable environmental laws and regulations (see FEIS Chapter 1, Section 1.4.3, Authorities) does not alter the underlying purpose and need for the project, which is identified in Chapter 1, Section 1.3, Purpose of and Need for Action.
Quaterra Resources, Inc.		19	Section 204 of the Federal Land Policy and Management Act allows for withdrawals to be renewable as long as the underlying reason for the	The Secretary of the Interior is required by law to review withdrawals prior to expiration and issue a new

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	decision as to renewal, extension, or termination of the withdrawal. See Section 204 of the Federal Land Policy and Management Act of 1976 (43 USC §§ 1701-1782) and the rules and regulations contained in 43 CFR 2310.4.
Bryan Bates	242723	1	Third, in the State of Arizona, the permitting for mining falls to the air quality program. Air is an issue, but given the density of radionuclide's, most fall near the source thus affecting miners and local biota, unless transported to a distant site for processing. The sphere most likely to be heavily affected is the hydrosphere, but water quality does not have standing in this case due to the dysfunctional nature of some governmental machinations. The key point however is that the State is severely in debt. Thus all services, especially the perceived expendable services of the State Environmental Protection Agency have been severely curtailed to the point where the State EPA is dependent on the mining company to report and correct its own shortcomings. (See enclosed article from Arizona Daily Sun). This "fox guarding the henhouse" scenario is particularly unsettling when one considers that Dennison Mining has been cited for several violations of environmental regulations and the pattern is not likely to change with a decrease in regulatory oversight. Even when State EPA officials were available, the quality of their work appears to be lacking, this in a state where the Governor's mining advisory board is wholly composed of mining corporate executives and employees (See article referred to above.)	NEPA analyses such as this EIS are not conducted under the assumption that a mining company--or any other entity--would operate in violation of existing laws. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary. The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, National Park Service, and U.S. Geological Survey have agreed to initiate formal talks with ADEQ so that all five agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
The NAU Project, LLC	242913	13	There should be a Background Section that gives the historical context for the current situation. The Arizona Wilderness Act of 1984 set the stage for the areas that are open to mineral entry and provided the necessary certainty for mineral development. There is absolutely no mention of this law in this DEIS at all. There is no mention that this was a landmark bill that stakeholders involved in the 1980's came together and through compromise set aside more land that was not open to mineral entry while defining those that were.	The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13.
The NAU Project, LLC	242913	14	Page ES-6 and ES-7 Each Alternative should contain a statement that each proposed uranium mine will have to undergo its own NEPA report along with all the public inputs and meetings as this EIS report is subject to.	Both BLM and Forest Service require analysis under NEPA before approving a mining plan of operations.
The NAU Project, LLC	242913	20	Page 1-15 The Arizona Wilderness Act of 1984 is not listed. This act was the cornerstone legislation that defined the areas that would be open for mineral entry around the Grand Canyon. This Act and a discussion of what was negotiated at the time should be included in this EIS, both in Chapter 1 and in the Wilderness Sections. The American Indian Religious Freedom Act could use some clarification. From the Canyon Mine EIS: The American Indian Religious Freedom Act requires that Federal Agencies	The FEIS has been revised to include information on the 1984 Arizona Wilderness Act in Sections 3.13 and 4.13. The EIS description of the American Indian Religious Freedom Act in Chapter 1, Section 1.4.3, Authorities, has been expanded to clarify that this law, designed to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			consider Native American beliefs and practices in the formulation of policy and approval of actions. The intent of the Act is to insure for traditional Native religions the same rights of free exercise enjoyed by other religions. However, it does not afford Indian religions a more favored status than other religions, but only insures equal treatment. The Act does not mandate protection of Tribal religious practices to the exclusion of all other courses of action. It does require that Federal actions be evaluated for their impacts on Indian religious beliefs and practices. I think the above statement should be included in Chapter 1 and in the Chapter 4 section on Indian resources.	protect American Indian rights of religious freedom, does not mandate that American Indian concerns are always paramount, but only that the federal government will consider their concerns in its decisions.
The NAU Project, LLC	242913	98	The basic philosophy of this current Draft EIS is to substitute the "judgment" of a global EIS over the "judgment" 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.	The purpose and need for this particular action is identified in EIS Chapter 1, Section 1.3. Both BLM and Forest Service require analysis under NEPA before approving a mining plan of operations.
The NAU Project, LLC	242913	99	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	It would be highly speculative to make assumptions as to where in the project parcels or the timeframes in which any exploratory projects and/or development projects might occur. They may or may not be grouped in particular geographic areas and may or may not occur simultaneously or gradually over a period of years. There is therefore is no basis to separate these activities in the analysis.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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. ****see submittal #242319 for attachment 1 information**	
The NAU Project, LLC	242913	100	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: ****See submittal #242913 for more detailed information**	In numerous places the DEIS points out that site-specific analysis NEPA will yield more concrete conclusions regarding likely impacts. This does not mean that site-specific analysis for every potential future mineral exploration or development proposal must be carried out before the stated purpose and need of this EIS can be met, which is to provide analysis of the potential impacts of a withdrawal, not of specific mining projects (see Chapter 1, Section 1.3, Purpose of and Need for Action).
Connor	243244	1	We are all signing this letter to let Denison Mines Company know that we are all against the hauling of uranium ore through any part of the Navajo Nation. What kind of environmental questions would come up if this was hauled through Metro Phoenix or any major city? It shouldn't be any different here.	Particular ore haul routes would be identified and the potential impact of use of these routes would be assessed during site-specific NEPA analysis. This level of analysis was not within the decision-making framework of the Northern Arizona Proposed Withdrawal EIS. However, the FEIS has been revised to reflect the commenter's concerns in Chapter 3, Section 3.16, Social Conditions.
Alicia Sullivan	102970	3	As a GIS professional I am concerned about the methods used in this portion and other portions of the analysis. My concern is based on these methods and the fact that no information provided about the accuracy, collection method or age of the data used in these analysis. Without disclosing the accuracy of data the entire analysis is brought into question.	All GIS data used throughout the EIS are the best available in terms of relevancy, content, condition, and spatial accuracy for the anticipated project lifecycle. Datasets were often updated as new information was provided. In addition, most datasets were provided by the BLM and other cooperating agencies that included state and local agencies. Metadata documentation is part of the record and is available for review.
Greg Webb	103019	1	I do question some assumptions on which the alternatives were developed, specifically alternatives C and D. Your system for deciding what areas to set aside for withdrawal, in these alternatives, seems to center around identifying sections where more than one 'resource' overlap as being those most critical for withdrawal. It also seems to identify some fairly large areas as having ZERO resources, specifically in the North parcel, despite the fact that those areas have hydrologic features such as streams running through them.	As disclosed in Chapter 2 of the DEIS, the BLM and cooperating agency managers and scientists—as a group and as separate resource-specific teams—initially decided on several general parameters that could be changed in order to develop a range of reasonable alternatives that would meet the purpose of and need for action, minimize impacts to resources, and address the key concerns identified in scoping. These parameters are disclosed in Section 2.2 of the DEIS.
Greg Webb	103019	5	I would ask that in the final EIS, the hydrology element be re-assessed to recognize the uncertainties in the data you are using, to recognize the dual	Data uncertainties are acknowledged. Please see Section 4.4, Water Resources, Subsection 4.4.2,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			nature of hydrologic resources as BOTH Water Quality and American Indian resources, and to, therefore, recognize Alternative B as the preferred alternative for this proposal.	Incomplete or Unavailable Information, Section 4.11, Cultural Resources, Subsection 4.11.3, Incomplete or Unavailable Information, and Section 4.12, American Indian Resources, Subsection 4.12.3, Incomplete or Unavailable Information. The Preferred Alternative was selected by the Secretary of Interior on June 20, 2011, as the Proposed Alternative, Alternative B.
Joseph Turner	246049	1	I am particularly interested in the Honorable Secretary of Interior's characterization of the "... best science available." I am not sure that the best science available can be assembled in these compressed time frames. Also when I analyzed chapter six, I found that less than 20 percent of the articles were from academic sources subject to the level of review deserving the distinction II peer reviewed." Could marks be made next to articles in the reference section to show that the articles have been subject to peer-review? Are determinations being made by a scientific consensus, experiments, or some other standard? From my observation of the agency I would say that it is not always the "... best science available," but what I would call “less than arbitrary" program management standards that try to balance expertise from different disciplines. It is well done, and the scientists are competent, but I think these documents should not just be voluntarily reviewed, they should have to be fully peer reviewed.	The best available data are not always peer-reviewed as sometimes peer-reviewed literature is not available for specific topics. USGS and other agency experts and scientists were consulted during the EIS development process and provided the most current data available to them.
Joseph Turner	246049	2	If and when there is a legitimate conflict in view expressed by a researcher, academic, or equivalently qualified cultural expert, over an issue that the agency chooses not to consider or include, could in-text foot- or end-notes refer the reader to as much information as possible? For example, could the public be referred to the researchers, agencies, institutions, and major publications holding the dissenting view, if they are willing to be identified as such? To me this is especially important for only the most crucial assumptions in the document, such as ones that would heavily alter figures for probability of adverse impacts.	The sources used in development of the EIS are identified in Chapter 6, Literature Cited. There is no requirement to distinguish between peer-reviewed and non-peer reviewed sources, nor to subjectively assess whether an author “assents” or “dissents” from the data or conclusions presented in the EIS.
Joseph Turner	246049	3	Many feel as these documents try to WOW the public," or make them feel overwhelmed and under qualified to approach the perspective of the authors. Since many in the public will never be formally trained, the extra information such as peer review standards, information regarding time constraints on studying the issues, and legitimate dissenting views, being fully and clearly presented will help the public maintain a coherent view of what is sometimes very complicated and contested scientific findings.	The sources used in development of the EIS are identified in Chapter 6, Literature Cited. There is no requirement to distinguish between peer-reviewed and non-peer reviewed sources, nor to subjectively assess whether an author “assents” or “dissents” from the data or conclusions presented in the EIS.
Joseph Turner	246049	4	A lot can happen in 20 years, and I think it is CLASSIC that the Director of the EIS claimed, when referring to the stability of the uranium market at the open house, that a major nuclear catastrophe was virtually impossible in today's nuclear practices. This is a great instance of how trends in thinking amongst those with political positions limit the scientific viability of these documents. I understand that many avenues of reasoning may be	NEPA does not require a worst-case scenario analysis (this analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618, Apr. 25, 1986), only analysis of circumstances that are reasonably foreseeable is required. Appendix B provides this reasonably foreseeable development scenario and provides a

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			politically problematic, and maybe even beyond the authority of the law on occasion, but science is not supposed to focus too much on what is sacred, but what is true. Perhaps appendices could be added express some of the more oddball scenarios. I think I was told that they couldn't "speculate," but honestly there are many reasonably foreseeable developments, and they all take a lot of speculation. In fact, isn't speculation a major part of Science?	rationale to why this scenario is used.
Joseph Turner	246049	9	Risk management includes risk perception, and this activity will ALWAYS be at odds with Native American culture, even if occasional tribes decide otherwise; maybe the impact statement should elucidate on this very point. In other words, the safety of this activity will always be viewed with skepticism or outright alarmism by the Native American community; perhaps we should protect the character of the region without placing a further burden on our anthropologically significant neighbors sentiments and cultural identity. If a value could be placed on their relationship to the land, I bet it would exceed the potential gains to society from this activity.	The EIS discusses the potential impacts to traditional use areas from anticipated mineral exploration and development activity, the likelihood of concurrent or overlapping timing of traditional activity with mineral exploration and development activity, the manner and degree of auditory or visual disruptions in the traditional use area, and the number or acres of key springs, plants, or traditional use items lost or damaged as a result of exploration and development activity. See Chapter 4, Section 4.12, American Indian Resources.
NEPA: General Cumulative Impacts				
Grand Staircase Escalante Partners	106647	2	Impacts on Grand Staircase Escalante National Monument. There was no consideration given for GSENM resources and recreational values. When questioned about this deficiency at the Fredonia public meeting, the staff's response was GSENM was outside the study area. It appears that decision was based on the fact that GSENM is located one foot over the Utah/Arizona state line. Impacts to resources and values do not stop at the state line. DEIS Figure 3.2-1 shows that ½ of this national monument is within the air quality boundary considered by the DEIS. In addition the Monument has over 700,000 visitors a year that should be considered in addressing the impacts on Recreation Resources and Social Conditions. When addressing Economic Conditions the DEIS considered benefits for Kane County, Kanab, Orderville and other communities within 50 miles of the Parcel's boundaries. Communities along primary haul roads such as Kayenta, Arizona were also included but impacts on the recreational traffic along several miles of Highway 89 within GSENM were not considered or even mentioned.	The FEIS has been revised in Section 4.15 to clarify the Recreation Resources Study Area. The potential impacts to recreation users of Grand Canyon–Parashant National Monument have been included in the FEIS in Section 4.16.2, Stakeholder Values. In addition, the potential impacts to adjacent federal lands are discussed in Section 4.14.3, Wilderness Characteristics.
AZ State Senate	213915	2	The cleanup from the last round of uranium mining is a long way from being completed and yet we are being asked to consider opening the area to another generation of uranium mining. This seems unnaturally short-sighted as any new uranium mining will further expose the Native populations of northern Arizona and southern Utah to more uranium contamination through the transportation of ore to the mill site in Blanding,	The proposed action (see Chapter 2) is not to open the project area to mining; this area was already open to mining prior to the Secretary of Interior's announcement of the proposed withdrawal, which segregated the lands until July 20, 2011. The decision to be made, informed by the analysis in the EIS, is

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Utah.	whether or not to withdraw, for up to 20 years, some or all of the area from location and entry.
Arizona House of Representatives	213921	2	The DEIS is deficient when it fails to take into account the legacy of harm and cumulative impacts caused by past uranium activities near Navajo communities in its assessment of environmental injustice impacts (DEIS, p. 4-239). It concludes that "there are other non-environment justice communities within the study area that could be exposed to the same health risks; therefore, these effects are not expected to be disproportionate to tribal environmental justice communities." Non-tribal communities, such as St. George, Ordervill, and Hildale cited in the DEIS, and non-environmental justice communities have been unaffected by several decades of uranium mining that occurred on Navajo lands, beginning in the 1950s. Unlike Navajo communities, that are not currently suffering from the pre-existing cumulative impacts of past uranium activities. Navajo people will therefore be disproportionally affected by the cumulative impacts of new uranium mining. The National Environmental Policy Act requires the consideration of "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other activities" [40 CFR 1508.7]	The Environmental Justice discussions in the FEIS in Sections 3.16 and 4.16 have been updated based on new information provided by the public and using a more refined methodology. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The discussion of potential impacts to non-environmental justice communities complies with legal requirements and Executive Order 12898 requiring environmental justice analysis. The revised environmental justice analysis thoroughly addresses cumulative impacts to the Navajo Tribe and other low-income or minority communities in or near the area proposed for withdrawal as required by law and the Executive Order.
Donna Brown	225253	8	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.	The number of mining claims has little bearing on the number of mines that may eventually be developed. Appendix B, the Reasonable Foreseeable Development scenarios, provides a projection of the reasonable projected mine development under each alternative in the EIS. The EIS uses the best available information and historic data to provide assumptions for the reasonably foreseeable development scenario described in Chapter 4 and Appendix B of the EIS. This information is used to provide a prediction of the level and type of reasonably foreseeable future locatable mineral exploration and development that could occur in the proposed withdrawal area.
Uranium Watch	225262	10	A major flaw in the DEIS is the failure to evaluate the impacts of the processing of the uranium ore at the White Mesa Mill, San Juan County, Utah, or even consider that the tailings from the processing of the ore will have to be under government control in perpetuity. The impacts from the dispersion of those tailings when the government is no longer able to provide long-term care have not been addressed.	Since operation of the White Mesa Mill will not change outside current permitted operations, the operation of the White Mesa Mill is out of the scope of this EIS. This EIS focuses on the direct or indirect changes to the human and physical/natural environment in and around the proposed withdrawal area.
Uranium Watch	225262	11	The DEIS provides a partial and inadequate assessment of the cumulative impacts from the historic uranium mining in the withdrawal area. The DEIS must fully assess the current impacts from historic uranium mining operations in the withdrawal area.	Chapter 3 of the DEIS describes the affected environment, with a focus on the existing resources and uses that could be affected by the Proposed Action and alternatives. This chapter takes into

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				account the historic uranium mining that has occurred in the project area. The cumulative impacts sections in Chapter 4 also take this historic impact into account. Appendix B provides additional historic background information for the withdrawal area.
Pew Environment Group	225274	2	While individual breccia pipe mines may have relatively small footprints compared to traditional open pit mines, the Department and its DEIS should consider, not only the possible impacts of individual mines, but also the broader impacts of turning the three proposed withdrawal areas into full-fledged mining districts. In our view, the DEIS does not deal appropriately with these potential cumulative impacts or with the discussion and evaluation of possible worst-case scenarios.	It must be emphasized that the proposed action is to withdraw the lands for up to 20 years from mineral location and entry, rather than to "turn the three proposed withdrawal areas into…mining districts." Appendix B contains a description of the reasonably foreseeable development scenarios and provides the rationale for these scenarios. The EIS discloses potential cumulative impacts in each section of Chapter 4 using the best available information to evaluate reasonably foreseeable impacts to the human environment. In addition, NEPA does not require development of worst-case scenario. The worst case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios.
Pew Environment Group	225274	12	In addition, the DEIS fails to consider a scenario in which a mine operation initially focused on a seemingly isolated ore body opts to move operations beyond that initial discovery. As the Department knows, this is a common mining practice, particularly on federal lands where the modest claimstaking requirements make it relatively inexpensive to pursue additional exploration in areas adjacent to an operating mine. The impacts of such expanded activity are apparent at the Bingham Canyon mine in Utah, in Butte, Montana, across the Carlin Trend of Nevada and elsewhere. Indeed, that potential arose at the Grand Canyon itself, when operators of the Orphan Mine in the 1960s pressed for authority to follow an ore discovery on claims then outside of the Grand Canyon National Park into the Park itself. Such scenarios, common to hardrock operations, are not accounted for in the DEIS, but could easily develop given the volatility of metals prices and the common practices of the hardrock mining industry. They would result in longer-lived and larger operations than those considered in the DEIS, greater levels of water usage and possible pumping over longer periods of time, as well as additional opportunities for waste materials to be spread through the environment. The cumulative impacts of these scenarios should have been considered in the DEIS.	Appendix B contains a description of the reasonably foreseeable development scenarios and provides the rationale and purpose for this scenario. Many experts in the BLM, USGS, Forest Service, other federal and state agencies, as well as individuals in the mining industry, were consulted in development of the RFD. Review of the geological conditions of breccia pipe ore deposits as described in USGS SIR 2010-5025 demonstrate that mine expansion as described in the comment are highly unlikely. However, should other breccia pipes be discovered in close proximity to ones being exploited by a mine both BLM and Forest Service require analysis under NEPA before approving any proposed mining operations —including proposed expansions of existing operations— which would be required to include its own cumulative effects analysis.
Pew	225274	15	Another assumption regarding the likely extent of mining activity deserves	Based on currently expected mining development as

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Environment Group			reconsideration. For purposes of the DEIS, the Department assumes that no milling would take place in the segregation areas themselves. It assumes that the current industry plans to haul ores to the existing uranium mill in Blanding, Utah would remain unchanged, regardless of the level of actual mining activity, the price of uranium or the price of oil. We agree that this is a possibility, but disagree strongly that it represents the only foreseeable scenario. Depending upon the price of uranium and future discoveries in what USGS describes as thousands of possible breccias pipes in the area, a much larger amount of uranium ore could be mined than that arbitrarily predicted in the DEIS. If extensive mining were to occur at the same time that oil prices rose, the cost of ore hauling operations or competition for access to the Blanding mill from additional mines in Utah could drive the economics of a Grand Canyon regional uranium mill. Failure to evaluate such a scenario seriously underestimates the deleterious impacts that could result, impacting the Park and its visitation, the Colorado River and the critically important deep R-aquifer. The risks associated with milling and mill tailings disposal are substantial, particularly in an area subject to relatively high winds and frequent flash flooding. Any tailings disposal facility would have to be carefully managed, not only through its operational life, but for decades to come. Under the Uranium Mill Tailings Radiation Control Act, this area would present a long-term radiation hazard and be permanently off limits to any activities or visitation. Such a use would clearly be incompatible with the natural resource protection goals of the broader area and the recreation use of the Park, the nearby Monuments and the nearby wilderness areas.	expressed by EIS Appendix B, Reasonable Foreseeable Development, there is no reasonable foreseeable milling operations within the project area. Because of industry input, the RFD assumes that the existing mill in Blanding, Utah, will continue to operate adequately and handle regional processing, and that no new uranium processing facilities will be constructed. Any proposed future milling operations on federal lands would be subject to site-specific NEPA analysis and regulatory permitting.
Mary Crow Costello	242652	3	Examining the DEIS, it appears that a thorough job of identifying environmental impacts was done. However, estimating the cumulative damage of multiple mines would be problematic and under-estimated as the complexities of many ecological processes are unknown to us. How will the BLM address cumulative impacts if there is no withdrawal, or a limited withdrawal?	Each resource section in Chapter 4 of the EIS discusses and analyzes potential cumulative impacts based on potential development scenarios defined in Appendix B, Reasonably Foreseeable Development Scenarios.
NEPA: Procedural Violation				
The NAU Project, LLC	242913	2	Based on the fact that opinion comments will be considered to in the decision making process and the fact that based on these comments, the BLM will identify a preferred alternative in the final EIS, how can anyone not conclude that this is voting and that the voting will determine the preferred alternative for the Final EIS. One other note, the BLM is the lead agency for the EIS and therefore the person responsible is the lead agency's official with line responsibility for preparing the EIS and assuring its adequacy is responsible for identifying the agency's preferred alternative(s). Are you saying the Secretary of the Interior is the BLM's official with line responsibility for preparing the EIS? I can see that the	The Dear Reader letter, the second project newsletter (February 2011) announcing availability of the Draft EIS, and the "Fact Sheet" that was handed out to everyone who signed in at the four public meetings each explicitly state that BLM is seeking substantive, meaningful comments rather than simple statements of opinion. All three documents include descriptions of the specific criteria for what is considered a substantive comment. In addition, the fact that BLM was seeking substantive comments rather than opinion was

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Secretary is the decision maker, but it seems that he is violating the NEPA process to interject himself at the lead agency level.	reiterated by BLM representatives during their introductory remarks at each of the public meetings. Although substantive comments are more helpful for NEPA purposes, all comments submitted were entered into the record and were made available for the Secretary of Interior to consider in making his decision, properly providing an opportunity for the public to voice their opinions under the public involvement requirements of FLPMA's withdrawal provisions and BLM's implementing regulations. By law, the Secretary of the Interior is the federal official authorized to make, modify, extend, or revoke withdrawals of public land (Section 204, Federal Land Policy Management Act of 1976, 43 USC 1714(a)). In that capacity, it is also his privileged to select the preferred alternative of the EIS.
Adam Whitman	58875	1	You are attempting to blanket remove a huge area from potential envelopment via a blanket use of NEPA. This is in place of allowing for exploration claims and permitting to take place with site-specific NEPA analysis that considers in-depth and real impacts instead of wild speculation based on an exponentially greater number of "what-ifs" when compared to a project development NEPA analysis.	The Secretary of the Interior is authorized to make, modify, extend, or revoke withdrawals of public land (Section 204, Federal Land Policy Management Act of 1976, 43 USC 1714(a)). The purpose and need for this particular action is identified in EIS Chapter 1, Section 1.3
Donald Begalke	225254	1	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.	Only brief summaries of issues identified during scoping were presented in Section 1.5.1 of the DEIS. This section has been amended in the FEIS to state that a separate, 98-page Scoping Report was produced in March 2010 and posted to the BLM project website.
American Clean Energy Resources Trust (ACERT)	225256	2	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 Congo 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	Department of the Interior NEPA Implementing Regulations, at 43 CFR 46.426(a), state: "Unless another law prohibits the expression of a preference, the draft environmental impact statement should identify the bureau's preferred alternative, if one or more exists." No preferred alternative existed at the time the Draft EIS was published. Both the Department of Interior Office of Environmental Policy and Compliance and the USDOI solicitor's office approved the Draft EIS publication without a Preferred Alternative. Agencies refrain from identifying a preferred alternative in the DEIS, both so as to avoid the appearance of a final decision having been made prior to the DEIS even being published, and because

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	they wish to elicit as much input from the public and other interested parties prior to actually deciding what their preferred alternative will be. See Question 4c, Council on Environmental Quality's Forty Most Asked Questions Concerning CEQ's NEPA Regulations. The Proposed action is clearly identified in the EIS in Chapter 1, Section 1.1.
National Mining Association	225281	5	Comments submitted by NMA during the scoping period prior to development of the DEIS, requested the department identify specific deficiencies with the existing land use planning process to explain why the process was insufficient to protect GCNP resources from the impacts of mining. Receipt of this and similar comments is noted in the BLM March 2010 Proposed Withdrawal Scoping Report, "BLM is ignoring its 5-year effort to revise its management plan, which would have kept much of the land in question open for mining activities." Scoping Report, p.43. One purpose of scoping is to identify issues and concerns to be considered in the environmental impact statement. Yet the DEIS fails to provide any discussion of the Resource Management Plan (RMP) developed by BLM that covered much of the land within the proposed withdrawal.	DEIS Chapter 1, Section 1.4.1, page 1-5 states: "In accordance with FLPMA, the Arizona Strip Field Office RMP allows for sustainable multiple uses of public lands. If a withdrawal alternative is implemented, the RMP will be updated if necessary." The Arizona Strip RMP (February 2008) is not yet due for the five-year evaluation; the analysis provided in this EIS will help inform that review.
Quaterra Resources, Inc.	242664	9	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.	Legal descriptions of all parcels proposed for withdrawal under each of the alternatives have been included as Appendix C to the FEIS.
Frank Bain	242677	1	My first comment has to do with the favoritism that is obviously being granted to Native American Tribes whose reservations are near the proposed withdrawal area. After attending the public meeting in Flagstaff where the Draft EIS was presented by personnel from various state and federal agencies, the elders of the Havasupai Tribe were given time to address the audience and present their point of view regarding uranium exploration on non tribal land. The Havasupai and other tribes are sovereign nations so why is the federal government giving preference to their opinions. The average citizen, environmental group, mining claim	The decision to allow the Havasupai elders to speak was consistent with long-standing BLM policy to encourage cooperation and mutual respect between U.S. Government agencies and sovereign Tribal governments. It was also an acknowledgement of the very substantial time and effort required for the Havasupai to leave their reservation and travel to and from the meeting in Flagstaff.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			owner, or uranium mining company was not afforded this same opportunity to address the audience. Why not?	
Garfield County	246167	5	The socioeconomic analysis of the EIS is lacking any perspective, depth and/or specificity. Local governments in the area have jurisdiction and expertise over socioeconomics, custom, culture and the human environment. Yet, it appears that no local government was offered cooperating agency status and the federal agencies prepared the document without any significant input from potential cooperating agencies and/or joint lead agencies. Did the BLM offer cooperating agency or joint lead agency status to any level of local government and if so what level? Were cooperating / joint lead agencies able to be involved in the development of the EIS in accordance with the NEPA, CEQ regulations and FLPMA?	Details of the Public Participation Process, including the participation of Cooperating Agencies, is described in Chapter 1, Section 1.4.2, and in Chapter 5, Section 5.2. The project spans a million acres and two Arizona counties, which limits the level of specificity the EIS can address pertaining to any potential resource impact. Since the analysis is not specific to a particular mining proposal, but rather the possible change in mining activity due to the proposed withdrawal and alternatives across the entire area, the specificity of the economic analysis is necessarily high level. In the early stages of the project, letters were sent to the state and local governments and agencies inviting them to participate as Cooperating Agencies. That list was developed based on anticipated impacts from the proposed action, since no actual impact analysis was completed at that time. As a result of those invitations, Cooperating Agency Memoranda of Understanding were developed and signed with Mohave and Coconino Counties in Arizona, Washington, Kane and San Juan Counties in Utah. Recently, Garfield County Utah requested Cooperating Agency status and a Memorandum of Understanding was signed with them as well. Throughout the EIS process, Cooperating Agencies have participated in the project. Four Cooperating Agency meetings have been held at various points in the EIS process, and all Cooperating Agencies have had access to a project Data Share site where draft versions of all project documents have been made available for review and comment before being released to the public. Monthly teleconference calls have been held with Cooperating Agencies throughout the EIS process to keep cooperators informed and to continue to provide an opportunity for input. Finally, all cooperators have had an opportunity to contribute to the project based on their legal jurisdiction or special expertise as identified in their signed Cooperating Agency Memorandum of Understanding.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Reasonably Foreseeable Development Scenarios				
Karen & Robert Cizek	104116	1	If any mining is done in this area (and thus impacts the U.S. Environment) the mineral should be used in the U.S., not sold abroad. Is this addressed in the report? Is there any legal presedent to do this?	This issue is addressed in the FEIS; see Section 4.17.2, Energy Resources.
Karen & Robert Cizek	104116	2	Is there some place else in the U.S. where uranium and other minerals could be obtained with less risk to the environment and less risk to cultural resources? Is this address in the report? If not, it should be.	The purpose of this EIS is to analyze the impacts of the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. Comparison of impacts with mining in other areas isn't relevant to the analysis in this EIS.
Donald Begalke	225254	12	In uranium-mining operations, can used water be recycled to continue mining operations?	The reuse of water is an operational concern that would be assessed on a site-specific basis. In terms of the calculations used in the FEIS, 60% of the water is consumed for dust control and is not available for recycling. The remaining 40% is used for drilling operations and sanitation, and is not likely to be recycled either. For the purposes of estimating impacts from water use, the FEIS assumes that no recycling will occur.
DIR Exploration, Inc.	225241	4	The general and specific assessments of uranium resource potential do not take into account a geologically-obvious structural control of the distribution of economically-mineralized uranium-bearing breccia pipes in northern Arizona. Resource estimates qualified by recognition of this clear control of the location of economic breccia pipe uranium mineralization show that the proposed withdrawal of about 1,000,000 acres of northern Arizona will not result in a small 12% decrease of the Arizona uranium resource availability, but will instead result in a much larger (6x) 76% decrease in availability of this particular domestic energy resource.	The full comment letter questions the approach of assigning mineral potential to regions of Northern Arizona that was used in the 2010 USGS estimate of uranium availability, and concludes that the preferential presence of breccia pipe mineralization on the proposed withdrawal lands is not properly incorporated into the estimates of uranium availability. While the commenter provided a statistical correlation of known mineralized breccia pipes to underlying geologic structures, no geologic explanation or new information was provided to justify the hypothesis that mineralized breccia pipes occur preferentially on the proposed withdrawal lands. The USGS Report is a peer-reviewed publication that provided the estimated uranium endowment for the proposed withdrawal area. While some commenters have presented alternate or supplemental approaches to assessing the uranium endowment from that

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				provided by USGS, these alternate approaches have not been developed or peer reviewed to the extent that they can replace or supersede the USGS endowment assessment presented in SIR 2010-5025. As with many scientific fields, new information is constantly being collected which leads to new or refined conclusions. However, at present, the USGS Report contains the best credible information available regarding the uranium endowment estimate and was therefore used as the basis for the reasonably foreseeable development scenarios in the EIS. No change is warranted to the 2010 USGS estimate of uranium availability, or the use of this estimate in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	126	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."	As with the comment from DIR (225241:4), the commenter suggests that mineralized breccia pipes occur preferentially within the proposed withdrawal lands, including a reference to a large number of non-mineralized pipes drilled outside of the proposed withdrawal area. However, no geologic explanation or new information was provided to justify the hypothesis that mineralized breccia pipes occur preferentially on the proposed withdrawal lands. The USGS Report is a peer-reviewed publication that provided the estimated uranium endowment for the proposed withdrawal area. While some commenters have presented alternate or supplemental approaches to assessing the uranium endowment from that provided by USGS, these alternate approaches have not been developed or peer reviewed to the extent that they can replace or supersede the USGS endowment assessment presented in SIR 2010-5025. As with many scientific fields, new information is constantly being collected which leads to new or refined conclusions. However, at present, the USGS Report contains the best credible information available regarding the uranium endowment estimate and was therefore used as the basis for the reasonably foreseeable development scenarios in the EIS. No change is warranted to the 2010 USGS estimate of uranium availability, or the use of this estimate in the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
American Clean Energy Resources Trust (ACERT)	225256	127 & 128	Pages 8-24 thru 8-27 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. …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. *see submittal #225256 for detailed figure information.	The USGS prepared an analysis of the uranium "endowment" in the proposed withdrawal area; "endowment" refers to ore with over 0.01% grade uranium. However, only a percentage of this uranium endowment is considered economically mineable; the assumption in the FEIS is that 15% of the uranium endowment would be economically mineable. This comment questions the use of this percentage In order to facilitate the impact analysis we need to be able to differentiate between mineralized deposits and economically mineable deposits. To this end, we identified available data and literature, and interviewed agency, academic and industry experts. It became readily apparent that the information needed to make a precise calculation is not available. As such we used the information that is available, including the sole available literature reference (Weinrich and Sutphin 1988), analysis of the ore grades planned to be mined in known breccia pipes, and general success rates for mining exploration, and made the assumption that 15% of mineralized deposits would be economic to mine. We received several comments on the 15% assumption, including alternative approaches. We considered these comments and evaluated the proposed alternatives to determine if they proved to be any more viable than the approach we took. In the end, we concluded that there are just too many unknowns with the data set we have on known breccia pipes in the area to allow for an exact calculation of the portion of the endowment that would be economic to mine.
American Clean Energy Resources Trust (ACERT)	225256		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	This comment offers an alternative method for calculating the uranium endowment. The proposed technique is both valid and fundamentally different from the technique used by the USGS to estimate the uranium endowment. However, there is no obvious merit or improvement over the technique used by the USGS. The USGS Report is a peer-reviewed publication that provided the estimated uranium endowment for the proposed withdrawal area. While some commenters have presented alternate or supplemental approaches to assessing the uranium endowment from that provided by USGS, these alternate approaches have

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	not been developed or peer reviewed to the extent that they can replace or supersede the USGS endowment assessment presented in SIR 2010-5025. As with many scientific fields, new information is constantly being collected which leads to new or refined conclusions. However, at present, the USGS Report contains the best credible information available regarding the uranium endowment estimate and was therefore used as the basis for the reasonably foreseeable development scenarios in the EIS.
American Clean Energy Resources Trust (ACERT)	225256	129	Page 8-25, Table B-4 Comment: The amount of U30 a 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 U30 a 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.	This comment misunderstands the USGS endowment estimate. The entire USGS endowment is not economically mineable, only a portion of it is. Section 3.3 of the FEIS has been changed to reflect updated numbers from the EIA
Energy Fuels Resources	225260	13	The assumed scenario of 18 new mines coming into production over the next 20 years in addition to the three existing ones is extremely optimistic and probably represents the maximum number of mines that could possibly be found, permitted and put into production during that time frame if exploration was very successful. A more likely number would be 10 (one every two years). Based on my past experience during the 1980's and 1990's there was extensive exploration carried out by numerous companies. Energy Fuels Nuclear Inc had an aggressive exploration program as did Rocky Mountain Energy, Pathfinder Mines, Uranerz and others. During the ten year period from 1982 to 1992 only five new deposits were located (Hack Canyon and the Canyon pipes were discovered in the 1970's) and developed into mines and two of the five were readily visible from adjacent canyons. Therefore, the easy-to-find deposits in the area have already been found and it is unlikely that future exploration will be as successful as past exploration even with improved exploration techniques. Furthermore, the time to permit a new mine on public land in the U.S. now averages about 7 years starting with baseline studies and mine design, continuing through development of a plan of operations, and culminating with state permit applications and the NEPA	The difficulty finding breccia pipes as described in the comment is not consistent with changes and improvements in technology described by industry. These improvements suggest that in the future exploration for pipes will not rely on exposure or visibility, but rather on remote sensing techniques. Exploration success is not expected to be a limiting factor in breccia pipe development. With respect to development time frames, these times took into account viewpoints from RFD team members, regulators, geologists, and industry representatives, and are considered reasonable.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			analysis.	
Energy Fuels Resources	225260	14	Under Bullet 2, of the 45 confirmed breccia pipes noted for potential future mining activity, many of these pipes have been thoroughly explored and don't have sufficient resources to justify mining operations now or in the future. In addition, several of the breccia pipes on the list that are classified as undetermined have sufficient exploration to remove them from the list since they are not breccia pipes. Therefore, based on my knowledge of most of the pipes on this list, this list should be reduced by at least 12, a reduction of over 26%.	All breccia pipes listed in Table B-3 have been “drill confirmed”. A breccia pipe is considered "drill confirmed" when one or more holes have identified breccia or mineralization in or below the lower Toroweap horizon. Insufficient information is provided by the comment to contradict the previous information provided in Appendix B, Table B-3.
Energy Fuels Resources	225260	15	[section 4.1.1] The 7-year mine life listed under Bullet 4 appears to be based on historic information. Currently, permitting and planning is typically much longer than two years for a new mine. There is insu'fficient milling capacity at the White Mesa Mill to process full production (assumed at 300 tons per day) from six mines on the Arizona Strip. Because of the relatively high grade of the ore, the precipitation and packaging portion of the mill can probably only handle 1,000 tpd over a 350 day work year and that would assume that all of the mill's ore was coming from the Strip and none from existing mine operations in Utah and Colorado.	With respect to development time frames, these times took into account viewpoints from RFD team members, regulators, geologists, and industry representatives, and are considered reasonable.
Energy Fuels Resources	225260	16	Assuming a maximum number of mines (i.e., 6) at a relatively high average production rate (i.e., 300 tpd) results in an over-calculation of impacts including the truck haulage numbers. While I do not object to making these assumptions, the text should state that the numbers represent a maximum potential impact.	The haul numbers were based on proposed plans of operation for the EZ-1/EZ-2/What breccia pipes (Denison 2010a) and are considered realistic representations of expected conditions.
Energy Fuels Resources	225260	17	Under Bullet 8, making the assumption that each mine would drill a production well into the R-aquifer is not a correct assumption. These wells are deep and expensive and several of the mines on the list that will be developed and mined are clustered (i.e. EZ 1, EZ2 and the What and Findlay Tank NW and SE) where only a single well would be drilled for the clustered pipes. It is also highly likely that breccia pipes near a facility with a deep well, if developed, would truck water from an existing well rather than take the risk and go to the expense of drilling and developing a new well. Also, the amount of water assumed to be used by each mine is exaggerated due to the fact that each breccia pipe has some perched water that is contained in the mine and can be used for mining operations.	The number of production wells does not actually enter into any calculation or impact analysis; rather, the total water use of the mines is used to estimate impacts and this will not change whether the water is withdrawn on site or nearby. It is recognized that some dewatering could occur in mines associated with perched aquifers, but given that not all mines would encounter perched aquifers, a more conservative approach was selected for the RFD to assume water needs for dust control, sanitation, and drilling would be pumped from deep supply wells.
Uranium Watch	225262	13	This section states that there are six (6) new uranium mines likely to occur in the South Parcel. However, in the discussion of Alternate B (page 2-14), it states: *In the South Parcel, there is one partially developed mine, the Canyon Mine, but there are no other breccia pipes with estimated uranium resources.* If there are no other breccia pipes with estimated uranium resources with estimated uranium resources in the South Parcel, there does not appear to be any basis for the estimated 6 new uranium mines in the next 20 years. The EIS should provide a factual basis for the	Breccia pipes with estimated uranium resources from only a portion of the reasonably foreseeable development scenario. To be complete, the RFD needs to account for potential future exploration and discoveries. As shown in Table B-7 of Appendix B in the FEIS, in addition to the one known pipe with uranium (the Canyon mine), of the 6 new uranium mines, one is estimated to arise from known

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			estimation of 6 new mines in the South Parcel under Alternative A.	mineralized breccia pipes, and 5 are estimated to arise from as-of-yet undiscovered breccia pipes. These new mines are undiscovered, but their potential to be discovered and mined are estimated based on appropriate probabilities.
Uranium Watch	225262	23	Section 4.1.1 Foreseeable Activity Assumptions. Pages 4-1 to 4-2. This section assumes a life cycle of a mine to be 7 years. However, there are existing uranium mines in the withdrawal area that have been on stand-by for a time period much longer than 7 years. There is no basis for the assumption that waste rock and other sources of radioactive and non-radioactive contamination will remain on the surface for a period of time less than 7 years. Therefore, the EIS should include a full assessment of the impacts to the environment of uranium mining operations for periods of time that exceed 7 years. The 7-year life cycle was determined from a review of existing and recent locatable mining activity. The DEIS does not include data and information about existing uranium mining operations and their life cycles or the life cycle of previous uranium mining operations in the withdrawal area. The data and information on the life cycle of past and current uranium mining operations in the withdrawal area that formed a basis for the 7- year life cycle estimate should be included in the EIS.	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
Uranium Watch	225262	24	Section 4.1.1 Foreseeable Activity Assumptions. Pages 4-1 to 4-2. The DEIS assumes that waste rock will be backfilled into the mine. The DEIS does not provide a basis for the assumption that all waste rock and other contaminated materials will be backfilled into the mine. It is possible, under BLM and USFS regulations, to have waste rock and other sources of contamination remain on the surface. Unless there is a legal requirement for all waste rock and other deleterious material at the uranium mines to be placed back in the mines, the EIS must assume that those materials will remain on the surface and evaluate the environmental impacts of those surface materials over the short and long term.	The assumption that waste rock will be backfilled into the mine is taken from the proposed plan of operation for the EZ-1/EZ-2/What mine (Denison 2010) and is considered a realistic representation of expected conditions. A reference has been added to the FEIS in Section B.4.5, Appendix B, to identify the source of this assumption.
Uranium Watch	225262	26	Section 4.1.1 Foreseeable Activity Assumptions. Pages 4-1 to 4-2. What is the basis for the assumption that the disturbance from exploration drilling will be temporary? At what point is an area that has been "disturbed" no longer considered to be "disturbed"?	Surface disturbance associated with exploration is temporary. Once exploration is completed the area is reclaimed in accordance with the reclamation plan; the drill holes are plugged and the drill site is reshaped, where necessary, and then seeded. This usually occurs within the same field season as the drilling activity. Upon completion of the revegetation requirements the reclamation financial guarantee is released and the area is considered reclaimed, i.e., no longer “disturbed.” For mine development and mining, the surface disturbance is longer term, although the reclamation process is similar to that describe for exploration. A

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				reclamation plan is developed in advance of any surface disturbance along with a reclamation cost estimate. As mine operations come to conclusion the mine equipment and facilities are removed, the area is reshaped, the openings are plugged and sealed, and the disturbance area is reshaped to approximate pre-disturbance contours. The area is seeded with a pre approved seed mix. After a couple of growing seasons the revegetation is assessed to determine whether it meets the success criteria. If so, the reclamation financial guarantee is released and the area is considered reclaimed, i.e., no longer "disturbed." For a mine site the disturbance can last 5-7 years depending upon the operating schedule. Should a mine go into standby mode under its interim management plan some interim reclamation may be required to stabilize the area but it would still be considered disturbed since final reclamation had not been implemented. Explanatory text has been added to the FEIS in Sections B.4.3 and B.4.4.
Uranium Watch	225262	28	Section 4.1.1 Foreseeable Activity Assumptions. Pages 4-1 to 4-2. The section on reasonably foreseeable developments assumes that a maximum of six mines would be in production at any given time. Given the assumption that a typical breccia pipe would produce 1,500 tons of U3O8 and would be productive for 3 years, the amount of U3O8 produced by 6 mines in a single year would be 3,000 tons. The White Mesa Mill is permitted in its license to produce 4,380 tons of yellowcake per year.1 In addition to the existing (Arizona 1 Mine) and potential breccia pipe mines, the White Mesa Mill is currently receiving ore from the Pandora Mine, Beaver Shaft Mine, and Daneros Mine in Utah. Denison Mines (USA) Corporation also has at least 3 mines on standby (Tony M, Rim, and Sunday Mine Complex), there are at least 3 proposed mines in Utah that would supply ore to the mill, and there are additional proposed exploration projects in Utah. Therefore, given the limitation on the production of U3O8 at the White Mesa Mill and the operation of mines outside the withdrawal area that would provide ore to the mill, it is unlikely that the mill would support the production of ore from 6 mines per year in the withdrawal area over the next 20 years.	The RFD considers not just the capacity of the White Mesa Mill, but also the likelihood of additional mill capacity coming online in the region. For example, the White Mesa Mill capacity is, as stated, 4,380 tons per year. Pinon Ridge is expected to eventually handle 1,000 tons of ore per day, which could yield close to 2,000 tons of uranium per year. This brings the known mill capacity in the region to over 6,000 tons per year. Nor is this the only mill in consideration in the region. For instance, Strathmore Minerals Corporation is currently seeking permits for a mill to service the planned Roca Honda mine in New Mexico. Based on the estimated capacity and the estimated production, even given the current needs from existing mines, mill capacity was not considered to be a limitation. Industry representatives contacted indicated this opinion as well. The capacity of the White Mesa and Pinon Ridge mills has been further clarified in the FEIS in Appendix B, Section B.8.1.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Uranium Watch	225262	95	Appendix B fails to discuss the installation of ventilation shafts at uranium mines to provide fresh air and to reduce the amount of radon in the underground mines. The installation of vents results in surface impacts for access roads and the vent site.	Vent shafts were one of the mine features included within the mine site foot print for each mine in the RFD. For example, according to the proposed mine plan of operations for the EZ-1/EZ-2/What breccia pipes (Denison 2010), vent shafts would be located approximately 200 feet from the breccia pipes. This would place the vent shafts well within the expected 20-acre footprint of the mine.
Uranium Watch	225262	96	Appendix B overestimates the foreseeable future mineral development for Alternatives A, C, and D. Appendix B fails to consider the ownership of the mine site on the economic viability of a proposed mining operation. Denison Mines is the owner of the currently operating and proposed uranium mines in the withdrawal area. Denison Mines ships that ore to the White Mesa Mill, which they also own. Mine project that are owned by other companies must consider the financial arrangements with Denison Mines for the milling of ore. Currently, there is only one mine that is currently shipping ore to the White Mesa Mill that is not owned by Denison Mines: the Daneros Mine, San Juan County, Utah, owned by Utah Energy Corporation, a subsidiary of White Canyon Uranium LLC, an Australian company. Utah Energy Corporation is the same family that operates Denison Mines' Pandora Mine in La Sal, Utah. Therefore, there appears to be a special relationship between Denison Mines and the Utah Energy Corporation for the purchase of ore.	The RFD is based primarily upon the uranium resource capabilities of the area, mining technology available, and economic conditions. Relationships between corporate entities that may or may not be operating in the area were not determining factors in preparation of the RFD. The focus for analysis is on the potential mines and not any particular operator. Most mines considered in the RFD are based on as-of-yet undiscovered breccia pipes. The future ownership of these breccia pipes or mines is impossible to know. Nor is the ownership of mills in the area guaranteed to remain constant. For these reasons, the effect of the relationships between mine and mill owners is considered too speculative to be a determining factor used in preparation of the RFD.
Uranium Watch	225262	97	A major economic consideration associated with foreseeable development of breccia pipe mining operations by mining companies other than Denison Mines would not be the price of uranium. It would be the uranium ore purchase agreement or other financial agreement with Denison Mines or the owner of the Piñon Ridge Uranium Mill, should that mill be constructed. Therefore, it is possible that it would not be economical to mine confirmed mineralized breccia pipes. The EIS should also consider this aspect of the economic viability of uranium development in the withdrawal area.	The RFD is based primarily upon the uranium resource capabilities of the area, mining technology available, and economic conditions. Relationships between corporate entities that may or may not be operating in the area were not determining factors in preparation of the RFD. The focus for analysis is on the potential mines and not any particular operator. Most mines considered in the RFD are based on as-of-yet undiscovered breccia pipes. The future ownership of these breccia pipes or mines is impossible to know. Nor is the ownership of mills in the area guaranteed to remain constant. For these reasons, the effect of the relationships between mine and mill owners is considered too speculative to be a determining factor used in preparation of the RFD.
Uranium Watch	225262	98	The EIS must also consider the processing and tailings impoundment capacities of the White Mesa and Piñon Ridge Mill and the operation or development of uranium mines in other locations when considering foreseeable mine development in the DEIS area.	The processing or uranium and storage of tailings are beyond the scope of this EIS (see Chapter 1, Section 1.5.3, Issues Eliminated from Detailed Analysis). This section has been expanded in the FEIS to provide specific rationale for elimination from detailed analysis.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Uranium Watch	225262	99	The Tables in Appendix B that estimate the duration of temporary surface disturbance have no basis. The tables estimate temporary disturbance of 4 years for the mines and 1 month for the exploration drilling. This does not take into consideration the time it takes to reclaim the disturbed areas. The EIS must include a full evaluation of the time it has taken to restore roads, exploration drill sites, mine sites, power lines, ore storage areas, waste rock areas, vent hole sites, and other areas disturbed by historic uranium mining operations in the withdrawal area.	Explanatory text has been added to the FEIS in Sections B.4.3 and B.4.4 regarding the duration of temporary impacts, and the tables in Appendix B referencing the time period of 4 years will be modified to reflect reclamation. These include Tables B-14, B-16, B-22, B-24, B-31,B-33, B-40, and B-42.
Uranium Watch	225262	100	Appendix B does not take into consideration the duration of surface disturbance for the existing breccia pipe mines and the possible length of time that a mine may be temporarily suspended prior to the completion of reclamation.	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
Uranium Watch	225262	101	Appendix B assumes that the waste rock will be returned to the mines and will not remain on the surface. The EIS must include the basis for that assumption.	The assumption that waste rock will be backfilled into the mine is taken from the proposed plan of operation for the EZ-1/EZ-2/What mine (Denison 2010) and is considered a realistic representation of expected conditions. A reference has been added to the FEIS in Section B.4.5, Appendix B, to identify the source of this assumption.
Uranium Watch	225262	102	Appendix B estimates the number of ore-haul trips, but does not provide the estimated mileage for those trips or the amount of fossil fuel that will be consumed. That data should be included in the EIS.	Given the unknown locations of as-of-yet undiscovered breccia pipes and the mills to which ore might be taken, estimating mileage is not possible. Estimates of emissions from hauling are included in Section 4.2 of the FEIS.
Uranium Watch	225262	103	Appendix B contains data on the estimated surface disturbance under the 20-year time frame. However, there is no data for the amount of land that will have been disturbed and will remain disturbed (not yet fully reclaimed) beyond 20 years. The EIS should include an evaluation of the amount of land estimated to still be disturbed after 20 years of mining activities under the various alternatives.	An underlying assumption in the RFD is that the life cycle of each mine would consist of 7 years, which includes a 1 year reclamation phase. Under this assumption, no permanent surface disturbance would persist following reclamation. While there indeed may be several mines that are in the middle of operations at the end of 20 years, surface disturbance at these mines would be expected to be fully reclaimed as well.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Uranium Watch	225262	104	Appendix B should include data on the industrial capacity to mill uranium at the White Mesa and the proposed Piñon Ridge Mill.	The capacity of the White Mesa and Pinon Ridge mills has been further clarified in Appendix B, Section B.8.1.
Uranium Watch	225262	105	Appendix B should include data on the quantity of uranium available to mine in other areas that could reasonably be expected to provide ore to the White Mesa Mill and the proposed Piñon Ridge Mill. The EIS must not give the impression that there are no other sources of uranium ore in the area of the existing and proposed uranium mills. Any current and proposed uranium mines that would supply ore to the White Mesa Mill and proposed Piñon Ridge Uranium Mill are related actions. There are currently 4 mines that supply ore to the White Mesa Mill, 3 of which are on BLM land. There are also 2 DUSA mines on standby that are on BLM land, and other foreseeable mining operations in the area that are on standby or in the permitting process.	The processing of uranium ore and related activities at the White Mesa Mill are beyond the scope of this EIS (see Chapter 1, Section 1.5.3, Issues Eliminated from Detailed Analysis). This section has been expanded in the FEIS to provide specific rationale for elimination from detailed analysis.
Arizona Mining Association	225266	8	Section 2.4.1, Section 4.3.5 and Section 4.3.6 The DEIS does not put into proper context the fact that considerable acreage of land has already been withdrawn in the vicinity of the proposed withdrawal area. As acknowledged in Sections 4.3.5 and 4.3.6 of the DEIS, 50% ofthe 9,100 square miles designated as high mineral potential for uranium in Northern Arizona has already been withdrawn from mineral location and entry. Under the Proposed Action, the land withdrawn would increase by 1,579 square miles to almost 70% of the land with high uranium potential. Furthermore, the withdrawal of 70% of lands with high uranium potential does not include large land blocks that various tribes have closed access to under uranium mining moratoriums. As noted in ARPA's comments, this region is one of the most important uranium-producing regions in the United States with nearly a 300-400 million pound uranium endowment according to the BLM and the USGS (Circular 1051). This endowment represents an enormous and vital domestic supply of clean energy at a time critical to the energy needs of the United States. The Proposed Action would require the nation to forego almost half of its uranium resources and force the country to become even more import dependent for this strategic mineral.	This information is considered in the FEIS in Table 4.3-3, which summarizes the percentages of cumulative land withdrawal for all alternatives. It is further described in the cumulative impacts portion of Sections 4.3.5 and 4.3.6.
Pew Environment Group	225274	11	The DEIS assumes that each new mine opened around the Grand Canyon would operate from permitting and development through mining and reclamation for a total of seven years. It also assumes that a maximum of six mines would operate at any one time. The basis for these assumptions reportedly comes from review of existing and recent mining activity in the area, and the sources cited are primarily uranium industry documents and communications. While it is true that at least two of the mines that operated in the area in the past fit the seven-year timeframe, we do not believe that information should be relied upon for predictions of future activity. In contrast to the assumptions in the DEIS, most hardrock mines, including other mines in the Grand Canyon area, have "operated" for much longer periods, not moving directly to final reclamation in less than a	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			decade, but frequently suspending operations or stockpiling low grade ores during times of low prices. In such instances, unreclaimed waste ore, overburden and lower grade ores may remain on the site and subject to the wind erosion or high-volume flash flooding which USGS notes is common to this area. As the USGS studies indicate, this has been the case for existing mines, including Kanab North and Arizona 1, both of which halted operations for nearly two decades before recently resuming production. To the extent that any new mines would encounter groundwater that might necessitate pumping, most likely in a perched aquifer formation, such pumping would likely continue during shut-down in order to keep the mine workings dry.	management.
Pew Environment Group	225274	13	In addition, the DEIS fails to consider a scenario in which a mine operation initially focused on a seemingly isolated ore body opts to move operations beyond that initial discovery. As the Department knows, this is a common mining practice, particularly on federal lands where the modest claimstaking requirements make it relatively inexpensive to pursue additional exploration in areas adjacent to an operating mine. The impacts of such expanded activity are apparent at the Bingham Canyon mine in Utah, in Butte, Montana, across the Carlin Trend of Nevada and elsewhere. Indeed, that potential arose at the Grand Canyon itself, when operators of the Orphan Mine in the 1960s pressed for authority to follow an ore discovery on claims then outside of the Grand Canyon National Park into the Park itself. Such scenarios, common to hardrock operations, are not accounted for in the DEIS, but could easily develop given the volatility of metals prices and the common practices of the hardrock mining industry. They would result in longer-lived and larger operations than those considered in the DEIS, greater levels of water usage and possible pumping over longer periods of time, as well as additional opportunities for waste materials to be spread through the environment. The cumulative impacts of these scenarios should have been considered in the DEIS.	This question was considered during the development of the RFD. Breccia pipes are relatively small, isolated geologic deposits. Expansion of mining into the formation beyond the immediate pipe is not foreseeable. The types of deposits cited by commenter as examples of mine expansion in the typical large scale open pit mines associated with disseminated gold and copper deposits. These mines are very different deposit types than the small discrete underground mining operations associated with uranium-bearing breccia pipe deposits in the proposed withdrawal area. However, it is widely known that multiple breccia pipes might occur in the same area, and that these might be developed together. This possibility is considered in Appendix B of the FEIS. To simplify the RFD, each breccia pipe was estimated to be mined independently, even if discovered together. In the known cases where this has occurred (EZ-1/EZ-2/What is a good example), the footprint has been larger than a single pipe, and the production duration has been significantly longer as well. Thus, on a per-breccia-pipe basis, handling each mine individually is acceptable.
Pew Environment Group	225274	14	Another assumption regarding the likely extent of mining activity deserves reconsideration. For purposes of the DEIS, the Department assumes that no milling would take place in the segregation areas themselves. It assumes that the current industry plans to haul ores to the existing uranium mill in Blanding, Utah would remain unchanged, regardless of the level of actual mining activity, the price of uranium or the price of oil. We agree that this is a possibility, but disagree strongly that it represents the only foreseeable scenario. Depending upon the price of uranium and	The permitting, construction, and operation of a uranium mill facility within the proposed withdrawal area is not considered reasonably foreseeable due to sufficient existing milling capacity in the region for the uranium resource present and the large capital outlay such a project would require. It was therefore not included in the RFD. Estimating the location, size, and operating parameters for such a low probability

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			future discoveries in what USGS describes as thousands of possible breccias pipes in the area, a much larger amount of uranium ore could be mined than that arbitrarily predicted in the DEIS. If extensive mining were to occur at the same time that oil prices rose, the cost of ore hauling operations or competition for access to the Blanding mill from additional mines in Utah could drive the economics of a Grand Canyon regional uranium mill. Failure to evaluate such a scenario seriously underestimates the deleterious impacts that could result, impacting the Park and its visitation, the Colorado River and the critically important deep R-aquifer. The risks associated with milling and mill tailings disposal are substantial, particularly in an area subject to relatively high winds and frequent flash flooding. Any tailings disposal facility would have to be carefully managed, not only through its operational life, but for decades to come. Under the Uranium Mill Tailings Radiation Control Act, this area would present a long-term radiation hazard and be permanently off limits to any activities or visitation. Such a use would clearly be incompatible with the natural resource protection goals of the broader area and the recreation use of the Park, the nearby Monuments and the nearby wilderness areas.	development would be too speculative to inform the EIS. Should such a uranium mill proposal be put forward in the future it would have to undergo its own permit process and would not escape environmental review.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	8	The DEIS overstates and misrepresents the potential ore production and corresponding economic benefits of mining. The DEIS presumes favorable future market and investment conditions in its characterization of Reasonable Future Development (RFD) and ignores the potential for downturns in uranium spot prices and capitol investment as could be catalyzed by global events. Global events catalyzed downturns in the 1980s, 1990s and, in the wake of Japan's nuclear crisis, similar downturns are again underway. The effect of these assumptions is to inflate the environmental consequences of Alternative B, assessed in Chapter 4 of the DEIS. In doing so, the DEIS minimizes the potential beneficial environmental impacts that would occur if new uranium claims were not allowed to be developed during the 20-year withdrawal.	While fluctuations in future uranium prices are foreseeable, the decision was made to assume that for the purposes of the RFD and FEIS uranium prices would remain at or above the current level of $40/pound. This approach was considered appropriate because a) this price level is relatively conservative and therefore does not overestimate the economic impacts of mining based on short-term price spikes, and b) at this price it is known that mining uranium in breccia pipe deposits is economically viable. While the exact dollar amount was not expected to remain constant it was decided that the RFD estimate would be based on the assumption that prices would generally remain sufficient to support operations. To do otherwise would require speculation not only on economic conditions but other global events (e.g., Japan earthquake, arms reduction efforts, etc.) that simply cannot be predicted with any degree of accuracy.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center	225279	40	The RFD assumes that 11 mines would be developed under Alternative B. This assumes that the four mines with previously approved plans of operations would be mined. But these plans were approved in the 1980s, as were their assessments of environmental impacts. In the case of the Canyon Mine, the U.S. Forest Service has indicated that a new plan of operations and a new environmental impact statement will need to be completed before that mine can be reopened (personal communication	The comment asserts that the RFD incorrectly described the reasonably foreseeable development under Alternative B, C, and D, and essentially states that the RFD should have concluded that mining is not reasonably foreseeable on any lands that would be withdrawn. BLM disagrees with the commenter because it is not reasonably foreseeable that there

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
for Biological Diversity			with Kaibab Forest Supervisor Mike Williams). Changing environmental, economic, and legal conditions may make it cost prohibitive to invest in the process of permitting and operating a uranium mine near the south entrance of Grand Canyon National Park. Therefore, we question whether it is reasonable to assume "business as usual" and that all mines with preexisting plans of operations will be mined. The RFD further assumes that seven mining claims that have confirmed uranium resources will also be mined under Alternative B. For the purposes of the RFD scenario, it is assumed that these breccia pipes have valid existing rights and would be mined. However, the BLM project manager Chris Horyza stated publicly on April 7 that none of the claims within the proposed withdrawal area have valid existing rights. Again, we question whether it is reasonable to assume that these seven mines would be developed if the Secretary of the Interior's proposed withdrawal is adopted. An objective assumption would be to start with the fact that none of these claims have valid existing rights, rather than to assume that they do (page B-39). The effect of these assumptions is to inflate the environmental consequences of Alternative B, assessed in Chapter 4 of the DEIS. Similar assumptions are made in assessing consequences for Alternatives C and D. In doing so, the DEIS minimizes the potential beneficial environmental impacts that would occur if new uranium claims were not allowed to be developed during the 20-year withdrawal. The Final Environmental Impact Statement should use an objective set of activity assumptions when assessing the environmental consequences that would result under Alternatives B, C and D.	would be no mining on lands withdrawn under any of the action alternatives. As noted in the comment, there are 4 mines with approved mining plans of operations in the proposed withdrawal area, including one mine that is currently producing uranium ore. Because there is currently mining occurring, and because the remaining three mines operating under interim management with approved mine plans have indicated to the surface managing agencies that they plan to mine the ore remaining in their deposits, the RFD appropriately considered mining at these four permitted operations, as well as of the seven known breccia pipes where there had been significant enough drilling and sampling to estimate uranium reserves, to be reasonably foreseeable under all alternatives.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	41	The BLM and associated consultants and contractors should be held accountable for failing to provide an objective and independent source for a key assumption used in the DEIS analysis of economic impacts derived from uranium mining in northern Arizona. As concluded in Attachment 1: The source of the estimated output of 3 million pounds of U3O8 per mine is indicated on page B-26 of Appendix B as the American Clean Energy Resources Trust (ACERT), which has a vested interest in the uranium assets of northern Arizona on behalf of its members. ACERT issued an economic impact report prepared by Tetra Tech entitled "Economic Impact of Uranium Mining on Coconino & Mohave Counties, Arizona in September 2009." By relying on the Tetra Tech report, the agency introduced an unwarranted and blatant bias into a NEPA analysis that is supposed to objectively evaluate the impacts of the proposed action	As described in Appendix B of the FEIS, the ACERT estimate was not taken at face value but was independently verified by looking at the amounts of uranium produced from the historic mines in the area. The result of that estimate was 3.1 million pounds per mine, compared to the ACERT estimate of 3.0 million pounds per mine. The assumption is based on more than just the ACERT report (ACERT 2009), and is considered reasonable and unbiased.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center	225279	59	We question the assumption for the average uranium ore body per mine of 3 million pounds or 1,500 tons of U308. This assumption is more than twice the expected output from existing mines that are currently in production or permitted and planned for production in the near future. It is a fundamental assumption that is used throughout the economic analysis.	See response 225279:41

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
for Biological Diversity				
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	63	The assumption for the average uranium ore body per mine of 3 million pounds of U308 exceeds the expected output from four existing mines that are currently in production or permitted and planned for production in the near future. Those four mines, Arizona 1, Kanab North, Pinenut and Canyon, are expected to average 1.2 million pounds of U308 (Tables B-11 and B-12 on page B-35). We question whether the assumptions used in the development of withdrawal. scenarios seriously overstate the potential mine output for northern Arizona and, as a result, overstate the economic impacts of mining on the region. * See submittal number 225279 for detailed tables	See response 225279:41
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	64	Similarly related to Table B-12 on page .B" -35, the ore tonnage for the (existing four mines is listed as 276,166 or 69,000 tons per mine. The number of haul trips for 26 new mines of 289,120 calculates to 11,120 haul trips per mine or 278,000 tons of ore per mine based on 25 tons per haul trip. We question how the ore tonnage for each new mine (278,000) nearly equals the total ore tonnage for the four existing mines (276,116). These estimates extend the production time estimated for each mine to three years when the new mines might require fewer production years. This assumption drives the economic impact analysis and could lead to overstating the expected impact in northern Arizona. *See submittal 225279 for detailed tables	See Comment 242664:13. The amount of uranium associated with known deposits has been revised in the FEIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	65	The source of the estimated output of 3 million pounds of U308 per mine is indicated on page B-26 of Appendix B as the American Clean Energy Resources Trust (ACERT), which has a vested interest in the uranium assets of northern Arizona on behalf of its members. ACERT issued an economic impact report prepared by Tetra Tech entitled "Economic Impact of Uranium Mining on Coconino & Mohave Counties, Arizona" in September 2009. That report outlines historic mining activity in the region in Table 2 on page 9. A copy of the table follows: * See submittal 225279 for detailed table * In actuality, according to the table, the historic output per mine in northern Arizona is 2.7 million pounds of U308, not 3 million pounds. This overstates the average output by more than 10%. In addition, the data is skewed by the output of The Hack Canyon II mine at 7 million pounds of U308. A more logical output estimate may be the median value rather than the average due to the extremely high output of one mine. The median value is 1.4 million pounds. Also, the number of tons of ore mined in the seven mines averages 210,563 with a median value of 133,822 tons. These actual production values are much less than the forecasted 278,000 tons of ore produced per mine contained in the DEIS. Once again, the overstatement of the forecast estimates in the DEIS creates an overstatement of the economic impact of mining on northern Arizona.	See response 225279:41

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	66	The Denison Mines' website contains a table of expected ore tonnage and uranium output for the Arizona 1 mine and the four additional mines that are planned and permitted in the region. The estimates were obtained from technical reports prepared by Scott Wilson, an engineering firm that is now part of URS Corporation. Those forecasts show similar results as previously mentioned - that the mining of ore and output of U308 is much less than 3 million pounds ofU308 per mine. In the case of the five mines noted below, the amount of ore mined averages 92,840 tons, producing nearly 1.1 million pounds of U308. * See submittal 225279 for detailed tables * In summary, the estimated output of 278,000 tons of ore and 3 million pounds of U308 from each mine appears to seriously overstate the expected economic impact of uranium mining on northern Arizona. These assumptions need further investigation and support.	See Comment 242664:13. The amount of uranium associated with known deposits has been revised in the FEIS.
National Mining Association	225281	8	The failure of the DEIS to mention or incorporate the information about hidden breccia pipes seems to be a deliberate attempt to discount the true impacts of the proposed withdrawal.	Hidden pipes are not explicitly described in the USGS methodology for estimating uranium endowment, but they are incorporated into the numerical estimate. The USGS estimate of uranium endowment extrapolates from known conditions within an area known as the Hack-Pinenut control area. Many of the pipes discovered within the control area were exposed pipes. However, the uranium resources within the control area also included the Hack 2 pipe, which was a hidden pipe. Since this was part of the resource extrapolated to the proposed withdrawal area, with respect to the RFD, hidden breccia pipes are part of the uranium endowment. As such, mining of hidden breccia pipes is already incorporated into all aspects of the FEIS analysis.
VANE Minerals	242650	11	Section 4.1.1. The DEIS assumes a large number of documented mineralized pipes have the potential of being mines, when in fact most of the pipes listed do not contain enough reserves nor have the exploration potential to be economic. It does not appear that the authors are experienced in mining economics or checked with industry experts familiar with the details to confirm their assumptions.	The comment is not borne out by the actual RFD approach. With respect to mineralized pipes, in the absence of an actual estimate of uranium reserves, only 15% are considered to have the potential of being mines.
Arizona Rock Products Association	242654	3	Significant reservations about how the Draft Environmental Impact Statement(DEIS) can seemingly ignore credible resource estimates produced by BLM and the USGS (Circular 1051) that conclude that the district has the potential of becoming one of the most important uranium-producing regions in the United States. In other words, how can the DEIS arbitrarily reduce a 300 to 400 million pound uranium endowment (as estimated by the USGS and others) to a relatively unremarkable resource of merely 45 million pounds?	This comment misunderstands the USGS endowment figures. The entire uranium endowment includes ore grades down to 0.01%. This is much lower grade than what is considered economic to mine. By contrast, historic uranium mines of this type averaged over 0.5% grade ore, and the breccia pipes currently expected to be mined average over 0.25% grade ore. Only a portion of the USGS-estimated endowment can be considered economic and hence likely to be mined under the RFD. To determine that amount a correction

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				factor of 15% was used, yielding the 45 million pounds.
Arizona Rock Products Association	242654	4	ARPA has learned that resource companies have utilized remote sensing and geophysical surveys to locate hundreds of previously-unknown anomalies within a small portion of the proposed withdrawal area. We strongly believe that these surveys have validated the existence of hundreds of undiscovered pipes in the withdrawal area and consequently should be considered in the resource estimate.	Hidden pipes are not explicitly described in the USGS methodology for estimating uranium endowment, but they are incorporated into the numerical estimate. The USGS estimate of uranium endowment extrapolates from known conditions within an area known as the Hack-Pinenut control area. Many of the pipes discovered within the control area were exposed pipes. However, the uranium resources within the control area also included the Hack 2 pipe, which was a hidden pipe. Since this was part of the resource extrapolated to the proposed withdrawal area, with respect to the RFD, hidden breccia pipes are part of the uranium endowment. As such, mining of hidden breccia pipes is already incorporated into all aspects of the FEIS analysis. The techniques indicated in the comment are discussed in Appendix B of the DEIS.
Arizona Rock Products Association	242654	9	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 and properly permit all of these 5,300 mining claims. Additionally, typically less than one percent of these mines would actually be developed.	The comment indicates the extremely low percentage of mining claims that ever become mines is not properly disclosed. The total number of mines estimated to occur under any scenario over the next 20 years is 30. This represents less than 1% of the 5,300 mining claims, similar to the percentage indicated in the comment.
Arizona Rock Products Association	242654	15	In Appendix B the DEIS assumes that the price of uranium will remain stable at around $40 per pound for the full 20 year withdrawal. However, since the DEIS was written, the price of uranium has already increased dramatically from the $40/lb. level. The spot price for uranium reached $72/pound in January 2011 and subsequently settled to $611lb. in early April. Further, as shown on Figure B-3, yearly reactor requirements for uranium have exceeded the annual production of uranium since approximately 1990. As global stockpiles of uranium have been gradually depleted, the price of uranium will inevitably rise and the pace of worldwide uranium consumption suggest future prices will remain well above the $40/lb. level assumed in the DEIS. This further discredits the RFD as commodity pricing will influence mining activity and projected revenues, dramatically undervaluing the endowment and incorrectly minimizing the financial impact of the withdrawal.	While fluctuations in future uranium prices are foreseeable, the decision was made to assume that for the purposes of the RFD and FEIS uranium prices would remain stable at a level of $40/pound. This approach was considered appropriate because a) this price level is relatively conservative and therefore does not overestimate the economic impacts of mining based on short-term price spikes, and b) at this price it is known that mining uranium in breccia pipe deposits is economically viable.
Arizona Rock Products Association	242654	18	ARPA is also concerned 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	Other comments have suggested alternatives to the use of 15% of the endowment figure (see Comment 225256:127); however, these techniques were not

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Rights, and underestimates the loss of royalties, jobs, taxes and investments resulting from the withdrawal.	found to have any better justification than that used in the RFD.
Arizona Rock Products Association	242654	20	Despite the fact that the RFD irrationally discounts the USGS estimate of uranium endowment, any estimate of the endowment 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.	Hidden pipes are not explicitly described in the USGS methodology for estimating uranium endowment, but they are incorporated into the numerical estimate. The USGS estimate of uranium endowment extrapolates from known conditions within an area known as the Hack-Pinenut control area. Many of the pipes discovered within the control area were exposed pipes. However, the uranium resources within the control area also included the Hack 2 pipe, which was a hidden pipe. Since this was part of the resource extrapolated to the proposed withdrawal area, with respect to the RFD, hidden breccia pipes are part of the uranium endowment. As such, mining of hidden breccia pipes is already incorporated into all aspects of the FEIS analysis. The detection techniques indicated in the comment are discussed in Appendix B of the DEIS.
Arizona Rock Products Association	242654	21	DIR suspects that the DEIS has massively underestimated the number of mineralized breccia pipes available for development and consequently have not adequately constructed an analysis in the RFD that correctly identifies and addresses the massive financial implications of closing the withdrawal area to development. Clearly, a withdrawal would essentially destroy the entire productive potential of the highest grade and most favorable endowment of uranium mineralization in the United States.	Other comments have suggested alternatives to the use of 15% of the endowment figure (see Comment 225256:127); however, these techniques were not found to have any better justification than that used in the RFD.
Quaterra Resources, Inc.	242664	5	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.	This comment misunderstands the USGS endowment figures. The entire uranium endowment includes ore grades down to 0.01%. This is much lower than is considered economic to mine. By contrast, historic uranium mines averaged over 0.5% grade ore, and pipes currently expected to be mined average over 0.25% grade ore.
Quaterra Resources, Inc.	242664	10	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)	A map showing mineral ownership has been included in the FEIS.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			scenarios discussed in Appendix B.	
Quaterra Resources, Inc.	242664	12	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 clear bias towards minimizing the impacts of the withdrawal or a serious lack of understanding of the economic mineral potential of the subject area.	Other comments have suggested alternatives to the use of 15% of the endowment figure (see Comment 225256:127); however, these techniques were not found to have any better justification than that used in the RFD.
Quaterra Resources, Inc.	242664	13	The only way to accurately 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. **(pg 7 letter # 242664)** These 45 confirmed breccia pipes include 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 resource 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). (pg 8**) Thus, 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). (pg 9) *see submittal #242664 for detailed Table Information** Because much of the mineralization in breccia pipes is hosted in near vertical ring fractures and ore shoots, ore reserves cannot be fully defined with holes drilled from the surface. Consequently,	Other comments have suggested alternatives to the use of 15% of the endowment figure (see Comment 225256:127); however, these techniques were not found to have any better justification than that used in the RFD. See Comment 242664:20 concerning inclusion of blind pipes in the RFD. The commenter provides information supporting the fact that total production of uranium has historically been 2.57 times great than the amount estimated from surface drilling alone. This information is new and warrants revisions to the RFD. The overall uranium resource considered in the RFD consists of 4,147 tons of U3O8 from drilling estimates of known deposits, 4,500 tons of U3O8 estimated in other known breccia pipes that haven't been adequately characterized, and 33,155 tons of U3O8 in as-of-yet undiscovered breccia pipes (Table 3.3-1). The new information presented by the commenter leads to the conclusion that the amount of uranium in known deposits (4,147 tons) is likely underestimated. A more reasonable estimate would be 10,658 tons (i.e., 4,147 x 2.57). This information has been incorporated into Section B.8.1 of the FEIS. It has not resulted in a

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the final determination of a deposit's resource and mineable reserves must include an extensive program of underground drilling. Additional underground drilling on the 19 partially tested pipes could easily raise the 35% figure to well above 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 manifested at the surface.	change in the number of mines, but has resulted in changes to the amount of uranium mined and the expected number of haul trips and the amount of uranium used for analysis in Chapters 3 and 4.
Quaterra Resources, Inc.	242664	14 & 15	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 lacked 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 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.	See Comment 225256:126 and 225256:128

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			(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.) 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.	
Quaterra Resources, Inc.	242664	14 & 15	Continued... 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. 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. (Source: Spiering, 2010, Exploration and discovery of blind breccia pipes: the potential significance to the uranium endowment of the Arizona Strip District, Northern Arizona - Presentation to SME Annual Meeting-Phoenix, AZ.) 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 within the mineralized corridor 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 postmineral collapse, this total number could be significantly higher Figure 3: Log- Log plot of breccia pipe density vs. cumulative thickness of sedimentary cover.	See Comment 225256:126 and 225256:128
Quaterra Resources, Inc.	242664	14 & 15	Continued... (Source: Spiering, 2010, Exploration and discovery of blind breccia pipes: the potential significance to the uranium endowment of the Arizona Strip District, Northern Arizona - Presentation to SME Annual Meeting-Phoenix, AZ.) 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	See Comment 225256:126 and 225256:128

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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). Table 3: Produced and remaining uranium resources of all developed breccia pipes in the NAPWA (Source: Energy Fuels Nuclear Inc. Internal Memorandum, 1990). The U.S. 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 similar geophysical signatures. 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. *see comment # 242664	
Quaterra Resources, Inc.	242664	16	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 U.S. 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	This comment misunderstands the USGS endowment figures. The entire uranium endowment includes ore grades down to 0.01%. This is much lower than is considered economic to mine. By contrast, historic uranium mines averaged over 0.5% grade ore, and pipes currently expected to be mined average over 0.25% grade ore.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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" (Attached) 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 $10.5 billion, for a total impact of $29.4 billion, resulting in an average annual impact of $700 million.	
Quaterra Resources, Inc.	242664	20	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.	Under the various withdrawal scenarios (B, C, and D), it is reasonably foreseeable that some of these pipes will be situated on mining claims and that those mining claims will be determined to have valid existing rights. Specifically, a determination that valid existing rights existed was considered reasonably foreseeable if a breccia pipe already has significant enough drilling and sampling data for an estimate of uranium reserves to be conducted.
Quaterra Resources, Inc.	242664	21	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	Under the various withdrawal scenarios (B, C, and D), it is reasonably foreseeable that some of these pipes will be situated on mining claims and that those mining claims will be determined to have valid existing rights. Specifically, a determination that valid existing rights existed was considered reasonably foreseeable if a breccia pipe already has significant enough drilling and sampling data for an estimate of uranium reserves to be conducted.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			"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 hold 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 overestimates 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 safely extract these resources.	
Quaterra Resources, Inc.	242664	27	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.	See Comment 242664:9
Quaterra Resources, Inc.	242664	28	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 EIS was revised to acknowledge rare earth elements, but there isn't any indication that they will drive development or change the way mining occurs.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	However, this does not change the outcome of the RFD. The underlying assumption is that uranium prices would remain at levels sufficient to support economic development of mines. The impetus to develop mines is already incorporated into the RFD and a higher price incentive due to the presence of rare earth metals won't change this.
Quaterra Resources, Inc.	242664	29	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 U.S. and former Soviet Union. However, as shown on Figure B-3, yearly reactor requirements for uranium have significantly 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 rose to $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.	See Comment 242664:14
Quaterra Resources, Inc.	242664	31	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	This comment misunderstands the USGS endowment figures. The entire uranium endowment includes ore grades down to 0.01%. This is much lower than is considered economic to mine. By contrast, historic

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	uranium mines averaged over 0.5% grade ore, and pipes currently expected to be mined average over 0.25% grade ore.
The NAU Project, LLC	242913	1 & 2	The methodology for determining the estimated uranium reserves in the withdrawal areas is flawed. The uranium reserves obtained from Denison Mines or from published technical reports (Scott Wilson RPA) represent, for the most part, the minimum uranium resource that can be calculated from the data available to make a resource calculation. From "Technical Report On The Arizona Strip Uranium Project, Arizona, U.S.A." prepared by Scott Wilson RPA on February 26, 2007 on page 6.7: HISTORICAL RESOURCE ESTIMATE COMPARISON WITH ACTUAL PRODUCTION In its Preliminary Feasibility Report for the Canyon project (dated December 11, 1984), Energy Fuels provided historical reserves/resources estimates for various pipes based on surface drilling only. Scott Wilson RPA has compared those reserve/resource estimates with actual production results in Table 6-2. As can be seen from Table 6-2, the surface drilled estimate does not often correspond to the actual production of the mine. The average estimated uranium resource found in an "unexplored" breccia pipe has been set to 1500 tons U3O8 based on the average production from the above mines. If the surface drilled indication of resource was used, the average estimated resource for a representative ore grade pipe would have been 565 tons vs the 1500 tons that is currently being used. It is a fact that the actual production from a breccia pipe uranium mine is, on average, much greater than the surface drilled resource estimate. The average of the seven "surface drilled to production resource" ratios can be used to provide a better resource estimate for surface drilled ore grade breccia pipes. The average for the above ratios in Table 6-2 is three and this should then become the Production Ratio Factor or PRF! A Vane Minerals press release illustrates my point : http://www.vaneminerals.com/press/pressview/334 The Arizona 1, Kanab North, and Pinenut mines have all been surface drilled and drilled from underground station to such an extent that the estimated resource will be assumed to be the actual production resource.	See Comment 242664:13
The NAU Project, LLC	242913	1 & 2	The EZ-1, EZ-2, and Canyon mines have only been surfaced drilled and so should have the PRF applied to them to determine estimated uranium production resource. The DB, Findlay Tank NW, Findlay Tank SE, Rim, and What breccia pipes should have the PRF applied as well. However, if these breccia pipes have only a relatively few surface drill holes and the resource estimate was based on so few surface drilled holes, then I believe that the generic 1500 ton estimate of uranium resource should be applied to these breccia pipes. Often, exploration companies will provide interim resource figures for "bragging rights" or to let their stockholders know they are making progress. I leave it to the authors of this DEIS to determine which category the above pipes belong in. Not using the	See Comment 242664:13 concerning the use of surface drilling data and uranium reserve estimates The exploration discussion in Section B.4.3 has been updated to include these techniques, and the text in Section B.5 has been modified to indicate that historically it has been the case that only drilling can confirm the presence of a breccia pipe.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Production Ratio Factor underestimates the total uranium resource by 19% and alternately 30% if the DB, Findlay Tank NW, Findlay Tank SE, Rim, and What breccia pipes are adjusted to 1500 tons per pipe. Both the 19% and 30% increases in the estimated uranium resource for the withdrawal area is very significant and the authors of the DEIS need to make adjustment to this section and all other segments of the DEIS that use these figures. The following table summarizes the above. The uranium resources for the DB, Findlay Tank NW, Findlay Tank SE, Rim, and What breccia pipes were evenly divided by these targets after the DEIS resources for the EZ-1 and EZ-2 were subtracted from the original 2362 ton resource for the seven pipes. At the public meeting in Phoenix, I spoke with the gentleman that wrote this section and he confirmed that he knew about the underestimation of the uranium resource due to the surface drilling estimate v. production results issue, but that a decision was made to go with the "published" resource. This is in error and injects a BIAS into the EIS. Remember, this is a resource estimate and so it is entirely appropriate to estimate the uranium resource for surface drilled breccia pipes when there is good evidence to do so. After all, that is exactly what you are doing when you estimate the unexplored ore bodies yet to be discovered at 1500 tons. Is it correct to believe that any of these pipes, if surface drilled, would actually have a defined resource of 1500 tons? The method to estimate uranium reserves should be re-evaluated and corrected. Re-consult with industry experts to get a better estimate of uranium resources for the withdrawal areas. * see submitall #242913 for detialed table info	
The NAU Project, LLC	242913	3	B.5, Page B-15 In most cases, the presence of a breccia pipe can only be confirmed by actual drilling and usually only by drilling deep enough to identify the presence of breccia below the lower horizon of the Toroweap Formation. This statement is not true. The combination of Soil Gas Hydrocarbon (SGH) Analysis and CSAMT geophysics survey can determine with certainty whether a uranium mineralized breccia pipe exist at a given location. The CSAMT survey will model the sub-surface structure of the pipe and the SGH survey and analysis will determine if uranium mineralization is present. Since only breccia pipes have uranium in them in the withdrawal areas, the combination of the two techniques confirms the breccia pipe and its uranium mineralization. New technology makes identifying breccia pipes easier.	This comment is non-substantive. It does not question the accuracy of information used, the adequacy of specific assumptions or methodology, provide new information, or offer reasonable alternatives or changes to alternatives.
The NAU Project, LLC	242913	5	*B.7.2 Page B-18 While production costs can be controlled or anticipated through management and technology, the significant unknown factor will continue to be the price of uranium.* The bold portion of this sentence is false. The price of uranium is past the point where its future price will bar the profitable development of breccia pipe mines. The uranium exploration companies recognize this situation and have therefore invested their resources in the proposed withdrawal area. That the authors of this DEIS	See Comment 225279:8

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			do not explicity recognize this fact is troubling. The other point to recognize is that the Spot Market price for Uranium is the thinnest traded part of the uranium market. The largest majority of uranium is sold through negotiated long term contracts that are usually higher than the “spot” price at any given time. While there is certainly speculative factors in the uranium market place, it is a very,very, small and somewhat exclusive market place that is driven primarily by supply and demand. The uranium marketplace is at the beginning part of a long term supply to demand deficit. There are numerous and detailed analysis available online from multiple sources that confirm this concept and explain it in great gory detail. To suggest that the price of uranium will, for reasons unknown, fall to the point of unprofitability is unreasoned in the face of all the evidence to the contrary. While there are scenarios that could be developed that would cause the price of uranium to fall dramatically, the probability of them happening is remote. Therefore the scenarios of increasing price over time should be applied in the evaluation of impacts in this EIS. There is a basic primer on these concepts at: http://en.wikipedia.org/wiki/Peak_uranium#Uranium_demand	
The NAU Project, LLC	242913	6	B.7.2, Page B-19 Figure B-3 does not have enough context to provide a meaningful interpretation of the graph. Some background information on why uranium prices have fluctuated should be included in this EIS. An excerpt from Uraniumletter International October 2006 gives the following historical explanation of Figure B-3. *** see submittal #242913 for detailed excerpt**	Section B.7.2 of the FEIS has been modified to give better context to the historical uranium prices.
The NAU Project, LLC	242913	7	Page B-19 The statement: *The peak in 2007 was driven largely by global speculation, and prices have since settled to approximately $40/lb. It should be noted that the spot market may not be an accurate indicator of long-term contract prices for uranium, which are what determine the economics of mining specific breccia pipe ore bodies. For the purposes of the RFD scenarios, it is assumed that uranium prices will remain stable at this level. Historically, price changes have been the primary reason for mining companies to operate under interim management; therefore, based on the assumption that prices will remain stable, the mines considered in the RFD are not likely to operate under interim management.*It would be better to explicitly admit that the price of uranium will not fall below the profitability level required to operate a breccia pipe mine. That is exactly what the last sentence in this statement tacitly does. That being done (whew!!!), it does not matter what the particular price of uranium is at any given time period over the next 20 years, but the primary concept is that there will be upward pressure on pricing. For computational purposes, a bar graph for the value of the estimated uranium resources in the withdrawal area could be constructed to demonstrate the range in values (say 50 to 120 dollars) that the uranium would have at various prices with an explanation that the "true value" is unknown but would most probably fall somewhere within this range. To insist on a $40 constant value over 20	The commenter correctly interpreted the intent of keeping the price at or above current levels for the purposes of the RFD. See Comment 225279:8

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			years really serves no purpose at all, but detracts significantly from any sense of institutional competence in the writing of this EIS.	
The NAU Project, LLC	242913	8	The RFD assumes that prices will remain constant at current levels for the next 20 years. (see above and ditto to the Nth power) Prices play a critical role in the extent to which uranium deposits are developed in the United States and in other parts of the world. Relatively higher prices would be anticipated to stimulate additional mining, from both new and existing mines. Additional production would be expected to act as a moderating force on additional price increases. Deviations from this assumption could affect several parts of the RFD, such as the total number of mines and the total uranium mined, which would then carry through to the evaluation of impacts. One of the drivers of uranium prices is world supply. The top five uranium producers (Kazakhstan, Canada, Australia, Namibia and Russia) accounted for 75% of world supply in 2008 and 85% in 2009 (World Nuclear Association 2010a). The United States produces about 3% of world supply. An increase in production by the top producers would be expected to put downward pressure on prices. These changes would affect the other impacts described in the EIS. For example, reduced mining activity may lead to reduced impacts under the No Action Alternative, such as fewer particulate matter emissions, less disturbance of habitat and cultural, historical, or Indian resources, and less displacement of recreation activity. This in turn reduces the differences between the No Action Alternative and any of the action alternatives (B, C, or D). The above Bold and Italicized statements are some what true in a general economic sense, but in the case for uranium, will probably only apply over short time intervals while uranium buyers delude themselves into believing that the increase in production supply is going to ease the structural large gap that exists in real and projected uranium consumption. The second issue is that of depletion of uranium supply. When the lower cost supplies of uranium are mined, these low cost materials are depleted and lost to future production. Accelerating the depletion of these low cost sources to moderate increasing prices (as will happen) will deplete these sources sooner rather than later. The next mining projects available will be those that can be brought online at a higher price, and thus will move prices up to the next pricing tier. However, the late realization that this event will unfold will cause multiple spikes in prices over time because the new projects won't be brought online in time to provide additional supply before the supply falls back into increasing deficit. Rinse and repeat, this cycle of price moderation, depletion, and price increase would be expected to exist for the 20 year time period under consideration. See article from Mineweb at: http://www.mineweb.com/mineweb/view/mineweb/en/page72103?oid=122532&sn=Detail&pid=92730. Recommendation: Ditch the idea that uranium prices are so volatile and mysterious and that the price cannot be figured out. Embrace the concept that we are at a point in history where the price will be increasing over time and that breccia pipe mining will be	See Comment 225279:8

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			profitable for the foreseeable future. The particular price of uranium is not relevant, provided that the price makes breccia pipe mining profitable. The scenario with the highest degree of confidence is uranium prices increasing over time and certainly over the next 20 years. Provide a range of values for the worth of the estimated uranium resource in the withdrawal areas.	
The NAU Project, LLC	242913	9	B.8, Page B-28 Commodity Prices In general, the section headed with "Commodity Prices" makes reference to Table B-2 and to Figure B-4 without supplying any historical context to explain what external events were driving the pricing of uranium. The continually and repeated stated "commodities market volatility" with respect to uranium implies that the reasons for the changes in uranium prices are at the "whim" of some nebulous "Commodities Market" and are therefore beyond credible analysis. This is simply not true. Solution: Provide a "historical" section on how and why the uranium market is the way it is today by looking at the past. I have provided a basic analysis in these comments above by excerpting an analysis found on the net. There are others to chose from or synthesize your own. Refer to this historical EIS section when referencing tables and figures that look backwards in time to give context to the time period under discussion. This section "COMMODITY PRICES" third paragraph, The historical data also show how much variability can occur in commodity prices even over several years. Future commodity prices and price fluctuations are a source of uncertainty in this analysis. The assumption in this analysis is that uranium prices will remain stable at current levels over the 20-year period of analysis. Similarly the estimate of the industrial capacity to maintain six mines in production at any one time is assumed to be primarily driven by uranium commodity prices and will remain similar over the 20-year period of analysis. A degree of variation in commodity prices is expected to occur, but to predict that drastic increases or decreases in uranium commodity prices will occur is considered speculative for this analysis.	See Comment 225279:8
The NAU Project, LLC	242913	11	B.8, any section that has haul trips The haul trips to take uranium ore to the mill will have to be adjust based on the increased uranium resource to be mined as outline in my comments on "Total Estimated Uranium Resources".	The number of haul trips has been modified in the FEIS to reflect greater uranium reserves in known deposits.
The NAU Project, LLC	242913	12	Table B-44, page B-57 Assumptions Used to Develop Reasonably Foreseeable Development Scenarios" Redo any assumptions that my comments for Appendix B pertain to that are found to be valid. Assumptions 3,16, and 17.	The number of haul trips has been modified in the FEIS to reflect greater uranium reserves in known deposits.
Janet Remington	244004	3	What is the acreage of each of the uranium mine claims filed for land in or near the Grand Canyon?	Breccia pipe uranium deposits are generally located by lode mining claims which can be up to a maximum of 20 acres.
Janet Remington	244004	5	What are the names of these individuals or corporations, and if	The purpose of this EIS is to analyze the impacts of

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			corporations, who are the board members?	the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. Identification of the individuals or corporations holding mining claims isn't relevant to the analysis in this EIS.
Janet Remington	244004	7	How many of the claims to mine uranium in or near the Grand Canyon possessed by other than U.S. citizens or U.S. corporations?	The purpose of this EIS is to analyze the impacts of the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. An analysis of the nationality of parent companies holding uranium claims isn't relevant to the analysis in this EIS.
Janet Remington	244004	8	Are there any laws or rulings to prevent sales of these claims to non-U.S. citizens?	The purpose of this EIS is to analyze the impacts of the Proposed Action and alternatives, which is a withdrawal from the mining law of 1872 of approximately 1 million acres in Northern Arizona and two reduced withdrawal alternatives. An analysis of the nationality of parent companies holding uranium claims isn't relevant to the analysis in this EIS.
Recreation				
David Thompson	26595	2	Concerns that were inadequately or only partially addressed include the profound spiritual meaning that the Grand Canyon teaches anyone who is fortunate enough to spend time there.	The FEIS includes discussions and analysis on "Sense of Place" in the Stakeholder Values sections of 3.16 and 4.16, Social Conditions. Because a "profound spiritual meaning" is a very personal experience, it would be speculative to attempt to address it in an EIS.
American Whitewater	54357	1	Your analysis failed to consider the impacts that unrestricted or under-restricted uranium mining could have on Grand Canyon river trips. The people on these trips, our members, literally live in the canyon for weeks at a time. They marvel over, drink from, and swim in the Colorado River as well as cherished tributaries like the Little Colorado River, Kanab Creek, and Havasu Creek. Experiencing each of these streams is a vital part of paddling the Grand Canyon, and the water quality and quantity of each is threatened by uranium mining. Failing to consider the very real risks to this incomparable and irreplaceable recreational experience is a massive oversight in the DEIS.	The recreation section of the FEIS includes discussions on potential indirect effects to recreation users in the Grand Canyon Watershed in Section 4.15, Recreation Resources. The analysis included effects on the recreational experience of users throughout the area. Analysis of the potential impacts to water quality of the Colorado River and its' tributaries are discussed in Section 3.4 and 4.4, Water Resources.
American Whitewater	54357	2	Your analysis seeks to quantify the risks of allowing uranium mining near the Grand Canyon. The results of your analysis confirm that the risks of long term water quality and quantity impacts exist that could impact iconic tributaries to the Grand Canyon. We believe that by excluding the Grand Canyon paddling experience from your analysis, including hiking along, swimming in, and drinking from the tributaries, you have miscalculated the	The recreation section of the FEIS includes discussions on potential indirect effects to recreation users in the Grand Canyon Watershed. The analysis included effects on the recreational experience of users throughout the area. Analysis of the potential impacts to water quality of the Colorado River and its'

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			risks of allowing future uranium mining. Radiation and other pollution in these streams would directly impact human health and perceptions of wildness. Even very small reductions in flow in tributaries and springs would impact the experience of these places.	tributaries are discussed in Section 3.4 and 4.4, Water Resources.
Jackie Blumberg	180636	2	The statement in the Executive Summary, page ES-14 within the Impacts to Recreation section, The increase in miles of new mining related roads for all alternatives would benefit driving for pleasure is complete nonsense. No motorists I know of delights in dodging mining related haul traffic, heavy equipment or busloads of miners during a pleasure cruise.	In response to this comment, the FEIS has been revised in the Executive Summary to read: “The increase in miles of new mining-related roads for all alternatives would provide an increase of motorized recreation opportunities, resulting in a benefit to driving for pleasure..." The BLM’s Arizona Strip Field Office Resource Management Plan specifies off-highway vehicle use and driving-for-pleasure amongst the most popular recreation experiences in the Planning Area, as discussed in Section 3.15 of the FEIS. All routes are available for public use unless otherwise specified. Mining-related roads would be closed post-mining. Determining the specific preferences for the driving-for-pleasure recreation experience is outside of the scope of this EIS.
American Clean Energy Resources Trust (ACERT)	225256	11	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.* This comment seems to be specific to the north parcel. One has to ask if anyone 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	The FEIS recreation discussion is consistent with the recreation settings, experiences and opportunities as they are discussed, evaluated and subsequently managed in the Arizona Strip Field Office Resource Management Plan and Kaibab National Forest Plan.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			wilderness areas in northern Arizona.	
American Clean Energy Resources Trust (ACERT)	225256	106	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): 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 anyone 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 sitespecific EIS and the NEPA process and strict scrutiny.	Analysis of mining effects on visitation n the Grand Canyon National Park is in EIS Section 4.15. In addition, information has been added to Section 4.15, Recreation Resources that specifies the difference of the recreation settings offered by the South Parcel as compared to the North and East Parcel. Approval of a mining plan of operation(s) is a subsequent decision and will include separate, site-specific NEPA analysis which would further address any potential to impact recreation resources. The environmental analysis of the proposed withdrawal in this EIS presents overall impacts to recreation as it applies to all three parcels.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Social Conditions				
Albert Hale	213921	3	The DEIS should acknowledge that implementing Alternative A will cause significant impacts to Navajo people because it will result in " Disproportionately high and adverse environmental health impacts to an identified minority or low-income population that appreciably exceed those to the general population around the project area" (DEIS, p. 4-232).	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology; the revised analysis in the FEIS no longer includes a comparison to non environmental justice communities. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder Values (see Section 3.15 of the DEIS). The revised environmental justice analysis in the FEIS thoroughly addresses cumulative impacts to the tribes in the study area, and other low-income or minority communities in or near the area proposed for withdrawal, as required by law and the Executive Order.
		4	The DEIS is deficent when it fails to take into account the legacy of harm and cumulative impacts caused by past uranium activities near Navajo communities in its assessment of environmental injustice impacts (DEIS, p. 4-239). It concludes that "there are other non-environment justice communities within the study area that could be exposed to the same healh risks; therefor, these effects are not expected to be disproportionate. To tribal environmental justice communities." Non-tribal communities, such as St. George, Ordervill, and Hildale cited in th DEIS, and non-environmental justice communities have been unaffected by serverall decades of uranium mining that occurred on Navajo lands, beginning in the 1950s. Unlike Navajo communities, thar are not currently suffering from the pre-existing cumulative impacts of past uranium activiies. Navajo people will therefore be disproportionally affected by the cumulative impacts of new uranium mining. The National Environmental Policy Act requires the consideration of "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other activities" [40 CFR 1508.7]	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology; the revised analysis in the FEIS no longer includes a comparison to non environmental justice communities. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder Values (see Section 3.15 of the DEIS). The revised environmental justice analysis in the FEIS thoroughly addresses cumulative impacts to the tribes in the study area, and other low-income or minority communities in or near the area proposed for withdrawal, as required by law and the Executive Order.
Adam Shapiro	40305	2	anyone except miners. This does not reflect the scope of current scientific understanding. It cites a body of scientific research that depends on flawed logic. Studies have indeed shown that depleted uranium (DU) can cause cancer (i.e. Miller, A. C., et al. Observation of radiation-specific damage in human cells exposed to depleted uranium: Dicentric frequency and neoplastic transformation as endpoints. Radiol. Protection Dosimetry 99(14):275, 278, 2002). Studies also show that the toxicity and the radioactivity of DU amplify its effects so that over eight times as many cells	The FEIS has been changed to further emphasize that there is currently a lack of understanding as to the cause and effects of uranium exposure and cancer in humans. A discussion of depleted uranium is considered relevant, and is included in the EIS in Section 3.16, because the paucity of studies of natural uranium effects on humans requires that the much more

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			suffer cytogenic damage (i.e Royal Society (U.K.). The Health Effects of Depleted Uranium Munitions, Parts I and II. London, May 2001 and March 2002, and Miller, A. C., et al. Potential late health effects of depleted uranium and tungsten used in armor-piercing munitions: Comparison of neoplastic transformation and genotoxicity with the known carcinogen nickel. In Proceedings of the International Conference on Low-Level Radiation Injury and Medical Countermeasures, ed. T. M. Blakely et al. Bethesda, MD, November 810, 1999; reported in Military Med. 167(2): 120122, 2002). The logic of many medical studies cited in the DEIS is flawed (Agency for Toxic Substances and Disease Registry 1999; Argonne National Laboratory 2005; Craft et al. 2004; EPA 2000, 2010m; Lantz 2010). These sources are used to support the claim that a direct link cannot be shown between uranium mining and cancer because miners expose themselves to other carcinogens. Just because there is no way to say that a certain case of cancer is due to any one factor does not mean that exposure to radioactive chemicals does not itself pose a significant threat to human health. The logic used in the DEIS is similar to the logic in the following statement, "James is picked on by his peers, is abused by his parents, and has untreated medical conditions. We are denying him services because his mental health issues are not clearly a result of any one of these conditions." This logic has a place in scientific research, but not in a report on potential health impacts on humans.	studied effects of DU is used as a surrogate for estimating those effects. Section 4.16.2, “Incomplete or Unavailable Information” has been added to the FEIS further clarify this information. In the paper cited (Miller et al. 2002) the authors demonstrate that depleted uranium (DU) at relatively high levels can cause cellular transformation. In the paper, Miller et al. (2002) used a human osteoblast immortalized cell line to study the effects of uranium and found that the cells were transformed and had DNA damage. However, cellular transformation, while indicative of the ability of a compound to alter cells and damage DNA, is only part of identifying a carcinogen. Further studies need to be conducted in humans to determine to what degree uranium causes increases in osteosarcomas.
Hopi Tribe	213932	2	*Hopisinom* and many other Native American people suffer an ongoing legacy of death by cancer, chronic health problems, and radioactive contamination including water contamination on tribal lands. The legacy of uranium mining has devastated the people and the land, and the 1872 mining law continues to destroy the land and lives of *Hopisinom*, Native Americans, and Americans alike.	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology.
Kaibab Band of Paiute Indians	246166	2	The Recreation Resource category appears not to have considered the increased risks to safety for impacts from mining haul trucks on roads other than Highway 64.	Human health and safety is discussed and analyzed under Social Conditions in the DEIS. The recreation resources sections, in regard to haul routes, discuss the experiences, opportunity, and settings of the routes, not the risks to safety. The analysis does, however, recognize the potential impact increases in mining haul trucks would have on recreation resources. As stated in the DEIS, Section 4.14.3, Impacts of Alternative A: No Action, “The increase in activity associated with 30 new mines, increases in heavy-haul trucks, increase in noise, and 22.4 miles of new roads could affect the recreational experience, although the impact would be minor.” The DEIS includes a comprehensive listing of existing roads that would be used for haul routes for each proposed withdrawal parcel, including State Highway 64, in 3.15,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Social Conditions, under the 'Transportation Conflicts' section. These conflicts are analyzed in Section 4.16, Social Conditions, in the FEIS.
Sustainable Economic Development Initiative	54353	5	There are several important negative impacts of these accidents not considered in the DEIS, including the economic and social safety impacts of accidents, injuries, and deaths. Beyond the economic impact from access route closures and delays, 367 accidents, causing 151 injuries and 4 deaths would have significant direct and indirect economic and social safety impacts on the region. Although these impacts are difficult to quantify because of the unknown severity of each accidents and injury, and the unknown lost income for the wide range of potential accident victims and their families, these impacts would be significant.	The Transportation Conflicts discussion in Section 3.16 and 4.16 of the FEIS has been updated based on new information provided by the public and using a more refined methodology based on risk frequency calculations for hazardous material transportation (U.S. Department of Transportation [USDOT] 2007).
Herbert Alexander	54361	2	At a recent meeting of the Kanab City Council, the higher cost of health insurance for city employees, six of whom are suffering from the effects related to air born radiation, was discussed. Because we are considered "Down Winder's" from the effects of being downwind of previous nuclear testing in Nevada, insurance carriers charge us a higher premium. Has this problem been taken into consideration by your team? If so, what conclusions did you come to, and why?	The DEIS includes an analysis of potential impacts to air quality (see Sections 3.2 and 4.2 of the DEIS). If a future, specific mine is proposed, a separate site specific analysis would evaluate potential dispersion impacts from a particular source and destination. Additionally, the potential human health impacts from exposure to uranium are discussed in the EIS (see "Public Health and Safety" in Sections 3.16 and 4.16 of the DEIS). The higher cost of insurance charged to "down winders" has not been considered in the FEIS because neither extraction and hauling of uranium ore, nor withdrawal of the area from the mining law is expected to have any effect on the cost of insurance premiums.
Herbert Alexander	54361	4	As there will be many trucks loaded with radioactive material and driving through radioactive dust at the loading point traveling through the heart of Kanab, what studies did you do about contamination of trucks before they leave the mine and the processing plant. Also, as trucks will be stopped at the red light in town and will be in close contact with buildings and pedestrians, are there systems in place to minitor radiation there and other places in the city and on public roads. As has been noted repeatedly on the news since the Japan crisis, no amount of radiation is safe.	Ore is transported by haul trucks from the mine to the mill. The haul trucks are designed such that the material being transported is covered in such a way that the ore being hauled is controlled/mitigated and not allowed to escape the vehicle as a fugitive source. The Transportation Conflicts discussion in Section 3.15 and 4.15 of the FEIS has been updated based on new information provided by the public and using a more refined methodology, including estimates of exposure of the public from transportation shipments containing uranium ore. Although there is no regulatory requirement for radiation monitoring along haul routes, many mining companies voluntarily conduct gamma monitoring. A summary of monitoring data from the Arizona 1 Mine is included in the FEIS.
Adam Shapiro	104131	1	The DEIS ignores the intent of the concept of environmental justice by	The Environmental Justice discussion in the FEIS has

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			stating that potential impacts from mining would effect minority and poor populations as well as other people, so there is no environmental injustice (p. 4-239). Any impacts on drinking water, health issues, etc. would absolutely have a disproportionate effect on poor or minority communities. Wealthy people have greater ability to move away. Non-indigenous people have the ability to move away without leaving their culture and homeland. Please acknowledge that any mining has the real potential to create environmental injustice.	been updated based on new information provided by the public and using a more refined methodology.
Noel Poe	106647	3	Reclamation of roads and site development. The discussion made about reclamation of surface disturbing mining activities on pages 3-245, 4-103, 4-223, etc. gloss over the difficulty of reclaiming man-made disturbances in the desert. There are statements that disturbed areas would be returned to a natural condition or such areas would be reclaimed to insure ground surface integrity is not compromised. The former is not possible and the latter is not sufficient. In addition on page 4-222, mine roads are listed as having a short term impact because they exist less than 5 years. However elsewhere in the document a statement is made that the average life of mining activities at a site is 6 years. If one looks at the figures in the USGS Legacy Report it is obvious that 10 or even 20 years of reclamation efforts have not reclaimed roads or mine sites. See Figures 5, 8, 18, and others.	Reclamation requirements are specified on a case-by-case basis. Further information has been added to Section 4.3.3 discussing what has been required historically and what is in current proposed plans of operation. Appropriate mitigation for future mining activity, including required reclamation standards, would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. In addition, State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Kanab Utah	225250	6	The EIS list of preparers includes 52 entities, none of whom demonstrate skills in assessing social and economic impacts on local communities. In fact, the preparers are predominantly from agencies whose missions and training would lend them to a bias against resource development to provide social and economic benefit to such communities. By refusing to include preparers with an understanding of such impacts, the recommendations are biased by definition.	BLM contracted with an economist to assist in analyzing and responding to comments on the DEIS and refining the analysis for the FEIS (see Section 5.6, List of Preparers). In terms of the social aspects of the analysis, several staff on the team, both at the BLM and their consultant (SWCA), are experienced in evaluating social impacts, including anthropology and sociology.
Donald Begalke	225254	5	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.	Since the publication of the proposed withdrawal in the *Federal Register* on July 21, 2009, no new mining claims have been located in the area, and many have lapsed due to non-payment of assessment fees. The current number of claims within the proposed withdrawal area (as of July 15, 2011) is approximately 3,350. A map of project mining claims will not be included in the FEIS; however, current mining claim information is available on the BLM's LR2000 system (http://www.blm.gov/lr2000/). The Mining Claim Recordation (MC) section contains information on unpatented mining claims located on federal lands within the area proposed for withdrawal. Using the legal descriptions in Appendix C of the Final EIS, the

Table 5.6-4. Response to Comments (Continued)

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				number and location of claims can be extracted from LR 2000.
		10	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?	The EIS includes an analysis of potential impacts to human health both to miners and area recreationists (see Sections 3.16 and 4.16, "Human Safety Risks"). Each mining operation has a Reclamation Plan as a part of the approved Mining Plan of Operations. As discussed in Section 2.4.2 of the EIS, "The operator is required to provide the BLM with an approved financial guarantee that is adequate to cover the estimated cost to complete the reclamation plan before beginning activities under either a notice or plan of operations." Reclamation standards are based on site conditions and are developed when site-specific NEPA is conducted during processing of a mine plan of operations.
American Clean Energy Resources Trust (ACERT)	225256	12	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.	The FEIS includes an updated description of the study area and better clarification of population density.
American Clean Energy Resources Trust (ACERT)	225256	49	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.	The FEIS includes an updated description of the study area; additionally Garfield County has been added to the analysis in Sections 3.16, 4.16, 3.17 and 4.17. Please note that the methodology described in the DEIS is intended to provide a snapshot of the demographic characteristics of the area for which data exist.
American Clean Energy Resources Trust (ACERT)	225256	50	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.	Per Section 1.5.3 (Issues Eliminated from Detailed Analysis) of the DEIS, “alternate locations besides the White Mesa Mill in Blanding, Utah, in which mined uranium should or should not be processed, stored or sold.” Rationale for issues eliminated has been added to the FEIS in Section 1.5.3.

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			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.	
American Clean Energy Resources Trust (ACERT)	225256	51	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 1-40 and 1-17 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	The FEIS (Section 3.16.1) has been updated based on direct input from the counties in Utah and Arizona, including information in local land use and economic development plans.
American Clean Energy Resources Trust (ACERT)	225256	52	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	The intent of the EIS is to estimate and disclose the affects of the proposed action and alternatives. Comparisons with other potentially hazardous activities, while interesting, is not relevant to the disclosure of impacts of this EIS. The section on potential hazard was written by Dr. Clark Lantz (see Table 5.3-1 of the DEIS), an environmental health expert at the University of Arizona, Southwest

Table 5.6-4. Response to Comments (Continued)

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			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.	Environmental Health Science Center, of which he has been a director since 2000.
American Clean Energy Resources Trust (ACERT)	225256	53	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 ofthe 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.	This section was written by Dr. Clark Lantz (see Table 5.3-1 of the DEIS), an environmental health expert at the University of Arizona, Southwest Environmental Health Science Center, of which he has been a director since 2000. A discussion of depleted uranium is considered relevant, and is included in the FEIS (as it appears in the DEIS in Section 3.15) because the paucity of studies of natural uranium effects on humans requires that the much more studied effects of DU is used as a surrogate for estimating those effects. This is not to imply that miners would be exposed to depleted uranium but rather since more is known about health effects from exposure to depleted uranium it is used here to help fill in gaps of knowledge related to expected adverse health outcomes in miners from exposure to natural uranium. As discussed in the FEIS, natural uranium is more radioactive and may cause more health effects that depleted uranium. Section 4.16.2, “Incomplete or Unavailable Information” has been added to the FEIS further clarify this information.
American Clean Energy Resources Trust (ACERT)	225256	54	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 1-40, use 1-40, 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	The Transportation Conflicts discussion in Section 3.16 and 4.16 of the FEIS has been updated based on new information provided by the public and using a more refined methodology, including estimates of exposure of the public from transportation shipments containing uranium ore and existing vs. projected traffic conditions.

Table 5.6-4. Response to Comments (Continued)

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			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.	
American Clean Energy Resources Trust (ACERT)	225256	55	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 (COP), 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.	The study area has been revised in the FEIS to include communities more likely to be affected by the proposed alternatives than others. The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology. Additionally, a statement of clarity has been added regarding the physical proximity of the Navajo Nation, Kaibab Reservation, and Hualapai Reservation.
American Clean Energy Resources Trust (ACERT)	225256	140	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.	The EIS discusses potential transportation conflicts with changes in traffic (see Section 4.16, "Human Safety Risks," "Transportation Conflicts"). The Transportation Conflicts discussion in Section 3.16 and 4.16 of the FEIS has been updated based on new information provided by the public and using a more refined methodology, including estimates of exposure of the public from transportation shipments containing uranium ore and existing vs. projected traffic conditions.
American Clean Energy	225256	142	Environmental Justice None of the nine environmental justice communities within the withdrawal-affected area would experience risks	The Environmental Justice discussion in the FEIS has been updated based on new information provided by

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Resources Trust (ACERT)			disproportionately larger than those to non-environmental justice communities.	the public and using a more refined methodology.
American Clean Energy Resources Trust (ACERT)	225256	143	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.	The DEIS discusses the roles of MSHA regulations in maintaining safety and health standards (see page 3-242). The health risks discussed in "Public Health and Safety" are based on the professional expertise of Dr. Clark Lantz (see Table 5.3-1 of the DEIS). The Transportation Conflicts discussion in Section 3.16 and 4.16 of the FEIS has been updated based on new information provided by the public and using a more refined methodology.
Energy Fuels Resources	225260	30	Section 4.15.3: The second paragraph on page 4-240 states that there would be no impact on employment at the White Mesa Mill if Alternative B is adopted. We believe that the statement by a Denison employee was probably taken out of context. The fact of the matter is that if the mill does not have an adequate amount of ore at a sufficiently high grade, it cannot run economically and it is shut down, resulting in large layoffs. The higher grade ore found on the Strip is an important asset during downturns in the uranium market, as it has allowed the White Mesa Mill to continue operating in the past when other mills had to shut down.	As discussed in the RFD, all uranium mined from both the North Study Area and the South Study Area is anticipated to be milled at the White Mesa Mill, located in the North Study Area. All alternatives considered in the EIS include some level of additional uranium mining activity, beyond current activity (see RFD, Appendix B). The White Mesa Mill is able to operate under current conditions and with the current level of mineral activity, therefore none of the alternatives are expected to affect the ability of the mill to continue operating. The social and economic analyses have been revised in the FEIS to more clearly discuss the current conditions and potential impacts (see Sections 3.16, 3.17, 4.16 and 4.17).
Uranium Watch	225262	12	The whole history of uranium mining is a story of disregard for human health and wellbeing and a disregard of the impacts to the environment. The DEIS assumes that such disregard is no longer present in the regulatory decision making process. That is clearly not the case. There will continue to be unacceptable risks and impacts from uranium mining, along with an inability of the regulatory agencies to fulfill their responsibilities to protect human health and the environment.	The DEIS discusses how past experiences with uranium mining, specifically the Navajo Nation, influence people's opinions about mining activity; see "Stakeholder Values," in Section 3.15. For the purposes of this analysis, we assume that the regulations in place (see Chapter 1 of the DEIS, Section 1.4.3, "Authorities") are effective and enforceable.
Uranium Watch	225262	34	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The DEIS discussion of Impacts Common to All Alternatives (Section 4.2.4, page 4-16) manages to totally ignore the radioactive and hazardous constituents of any fugitive dust from the mining operation. The EIS must identify all	The DEIS includes an analysis of potential impacts to air quality (see Sections 3.2 and 4.2 of the DEIS). If a future, specific mine is proposed, a separate site specific analysis would evaluate potential dispersion

Table 5.6-4. Response to Comments (Continued)

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			hazardous radioactive and non-radioactive constituents of fugitive dust from the uranium mining operations and assess their impact on the environment. This would include an evaluation of potential exposure pathways and impacts to the public, workers, ground and surface water, soils, vegetation, and native and domestic animals—over the short and long term.	impacts (see Section 4.2.2 of the DEIS). Additionally, the potential human health impacts from exposure to uranium are discussed in the DEIS (see "Public Health and Safety" in Section 4.15 of the DEIS).
Uranium Watch	225262	83	The discussion of Demographics (Section 4.15.2 page 4-234) states: *Mining activity is not expected to increase the burden on area infrastructure.* The operation of uranium mines would have an impact on local emergency responders, who will be called upon to respond in case of an accident or emergency at the mine. Although the mine owners and operators are required to have an emergency response team available, those teams often are located at a greater distance than local responders. At Denison Mines' uranium mines in La Sal, Utah, there have been a number of instances when local emergency responders have been called upon to respond to an accident. This has an adverse impact on the responders because they are not trained to respond to mine accidents and are not given the equipment and guidance underground to assure their health and safety.	The FEIS indicates that area communities have the infrastructure capacity to handle the potential increases in population associated with project alternatives (see Section 4.16, "Demographics"). Information has been added to the FEIS discussing MSHA's mine rescue requirements (see "Health Risks" in Section 3.16).
Uranium Watch	225262	84	The discussion of Stakeholder Values (page 4-234) should include another stakeholder - the stakeholder who wants uranium mining activities to be in compliance with state and federal regulations and wants improvements in the regulations and their implementation and enforcement. Currently and historically, the mine owners and operators and regulatory agencies have not complied with a number state and federal regulations. This includes lack of compliance with the Clean Air Act, the National Environmental Policy Act, and Mine Safety statutes and their implementing regulations. There have been no changes in many of the laws and regulations applicable to uranium mines over the past 20 years. Many of the mining regulations do not specifically address with unique issues associated with uranium mining, such as the emission of radon and other radionuclides from the surface operation.	NEPA impact analyses are not done under the assumption that a mining company--or any other entity--would operate in violation of existing laws. NEPA analysis is conducted on the actions authorized by the agency. There are standards for radon emission issued through EPA regulation and controlled by EPA permit. It is the responsibility of federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary.
Uranium Watch	225262	85	In the discussion of Public Health and Safety (page 4-235) the EIS should recognize that uranium mine operators and in particular Denison Mines has a history of noncompliance with MSHA regulations. The more mines that operate, the more accidents will occur	NEPA impact analyses are not done under the assumption that a mining company--or any other entity--would operate in violation of existing laws. NEPA analysis is conducted on the actions authorized by the agency. It is the responsibility of federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary.
Uranium Watch	225262	86	The discussion of Health and Safety Risks (page 4-236) tries to minimize the potential health and safety risks associated with uranium mining. Thousands of people have been exposed to uranium, radon, radon	The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder Values (see

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			progeny and other radionuclides from uranium mining milling. However, most of those who have been exposed have never been studied. The impacts of uranium mining to Navajo miners is well known, yet most Navajo people do not smoke, so the DEIS's focus on adverse health impacts from radon only in association with smoking ignores this group of people. There have been a number of adverse health impacts to the people who worked at uranium mines, their families, and citizens who lived in the vicinity of the mines. There have been no studies of the health impacts to the families of mine workers.	Section 3.15 of the DEIS). However, the legacy and source of these increased cancers is more likely exposure to radon without adequate inhalation protection and not exposure to uranium. This can be seen with reports that mill workers did not develop the increased levels of cancer associated with the mining process. The FEIS has been revised to further clarify the differences between the legacy of mining practices in terms of health impacts.
Uranium Watch	225262	87	The EIS must recognize the failure of government agencies to adequately study the impacts of uranium mining and milling on the health of the workers, their families, and surrounding communities. Additional studies are needed, as there is ample evidence of extensive health impacts from uranium mining.	Impacts to human health and safety are included in EIS Section 4.16.
Uranium Watch	225262	88	The discussion of Radon (page 4-227) states that *all mines would comply with MSHA standards, including a ventilation plan and monitoring of radon levels.*There is no way to know if all the mines would comply with MSHA standards. The mines would be subject to MSHA standards, but compliance is another matter. The inspection information and inspection reports for the Beaver Shaft (owned and operated by Denison Mines) and the Pandora Mine (owned by Denison Mines, operated by Reliance Resources) clearly shows that these mines have not been in compliance with MSHA standards and regulations associated with the exposure to underground workers to radon on a number of occasions. Denison Mines was fined $7,699 in 2010 and $2,628 in 2011 for a total of 11 violations associated with protection of workers from radon. Reliance Resources was fined $10,744 in 2011 for 5 violations associated with protection of workers from radon. Will anyone follow the health of those workers over their lifetimes?	The FEIS has been revised to reflect language in Chapter 3.16 to indicate that all mine operations are required to comply with stringent safety and health standards administered by the MSHA. NEPA impact analyses are not done under the assumption that a mining company--or any other entity--would operate in violation of existing laws. NEPA analysis is conducted on the actions authorized by the agency. It is the responsibility of those federal, state, and municipal agencies having regulatory authority to ensure operations are monitored and to enforce existing law where necessary.
Uranium Watch	225262	89	The DEIS should discuss the fact that the ore of the breccia pipes is richer than that of most conventional uranium mining operations, so that the potential for worker over exposure to radon is greater.	The legacy and source of increased cancers is more likely exposure to radon without adequate inhalation protection and not exposure to uranium. This can be seen with reports that mill worker did not develop the increased levels of cancer associated with the mining process. In addition, mine workers are required to wear dosimeter badges that detect the limits of safe radiation exposure. The FEIS has been revised to further clarify the differences between the legacy of mining practices in terms of health impacts.
Uranium Watch	225262	90	The discussion of Radon (page 4-227) does not mention the exposure to the public from radon from the underground mine workings. Radon and radon progeny is emitted from the underground mine at the portals and mine vents. Since the uranium mines in the withdrawal area will mine less	The Arizona 1 mine and others in the withdrawal area have been required to acquire air quality permits from the ADEQ; the EPA has delegated authority to the ADEQ to administer and enforce the Clean Air Act. Per

Table 5.6-4. Response to Comments (Continued)

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			than 100,000 tons over the life of the mines, the radon emissions will not have to be monitored, and the mine owner will not have to submit an application to the EPA and receive approval of their plan to construct or modify the mine as a radon source, will not have to calculate the exposure to the nearest receptor, will not have to comply with the EPA radon emission standard, and will not have to submit annual compliance reports.14	CFR Part 61 Subpart B, if a mine exceeds 100,000 tons of ore production per year or over the life of the mine, the mine is required to comply with radon emission regulations. However, they are still required to apply for an air quality permit, which would require review of the project plan. The legacy and source of increased cancers is more likely exposure to radon without adequate inhalation protection and not exposure to uranium. This can be seen with reports that mill worker did not develop the increased levels of cancer associated with the mining process. The FEIS has been revised to further clarify the differences between the legacy of mining practices in terms of health impacts.
Uranium Watch	225262	91	The DEIS should have discussed the emission of radon from the vents and the potential for members of the public to be exposed to radon in the vicinity of the mining operation. Normally, mine vents are not fenced or marked with a sign warning the public that radon, a federally regulated hazardous air pollutant, is being emitted. Near the La Sal mines, there is a vent that does not have a diffuser. A member of the public can sit or stand on the vent and be exposed to radon, without any warning. Members of the public can approach other vent, which are on public land, and be exposed to radon without their knowledge	The vents associated with breccia pipe mines are typically within the mine area proper, fenced from public access and far enough from the fence for radon to disperse to safe levels before reaching the fence. Since the EIS is not intended to analyze or authorize any particular mine but rather to estimate the effects of withdrawal from mining, impacts are based on typical mine design. When a new mine is proposed, a NEPA analysis will be conducted on the site specific design in a Mine Plan of Operations.
Uranium Watch	225262	92	The discussion of Ingestion of Wildlife Exposed to Uranium (page 4-238) should have included an assessment of the possible exposure of wildlife to other radionuclides from the mining operation in addition to uranium. Wildlife would be exposed to radon and radon progeny from the emission of radon and radon progeny and the decay of radon that is emitted from the mines. Radon and radon progeny would be dispersed over a large area, though concentrated near the mine and mine vents, providing a potential for wildlife to ingest and inhale radon progeny. If humans and other animals ingest exposed animals, there would be an additional impact.	Section 4.7 has been updated to add more depth to the discussion on emission of radon and radon progeny,
Uranium Watch	225262	93	The discussion of Environmental Justice (page 4-239) fails to include the White Mesa Band of the Ute Mountain Ute Tribe. The White Mesa tribal community bears the brunt of the impacts from the processing of the ore from the withdrawal area. If the mill did not exist, the ore would not be mined, because there is no other operating uranium mill in the vicinity of the withdrawal area and the currently operating and proposed mines are owned by Denison Mines, the owner of the Mill. There is a direct relationship between the mining or the uranium ore in the withdrawal area and the processing of the ore and disposal of the tailings on White Mesa. There has never been a consideration of the disproportionate impacts from	An environmental report was required by the State of Utah for licensing of the White Mesa Mill. To the extent the analysis of these impacts may have been required in the permitting process, they would have been addressed. Because the mill is expected to remain within the existing permitted capacity under all of the alternatives analyzed in this EIS, operations at the mill are not considered a connected action to the proposed withdrawal, so are beyond the scope of this EIS. Any proposed expansion of the Mill onto federal

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			uranium mining and milling to that community. There are no communities that are similarly impacted by the operation of the White Mesa Mill. The health risks, exposure to chemical and radioactive emissions from the Mill, and impact to water, wildlife, domestic animals, and plant life all fall disproportionately on the White Mesa Ute community.	lands would require environmental documentation compliance with NEPA.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	57	The DEIS is deficient when it fails to take into account the legacy of harm and cumulative impacts caused by past uranium activities near Navajo communities in its assessment of environmental injustice impacts. DEIS at 4-239. It concludes that there are other non-environmental justice communities within the study area that could be exposed to the same health risks; therefore, these effects are not expected to be disproportionate to tribal environmental justice communities. Non-tribal communities, such as St. George, Orderville, and Hildale cited in the DEIS, and non-environmental justice communities have been unaffected by several decades of uranium mining that occurred on Navajo lands, beginning in the 1950s. Unlike Navajo communities, they are not currently suffering from the preexisting cumulative impacts of past uranium activities. Navajo people will therefore be disproportionately affected by the cumulative impacts of new uranium mining. NEPA requires the consideration of "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other activities." 40 CFR 1508.7. The DEIS should acknowledge that implementing Alternative A will cause significant impacts to Navajo people because it will result in *disproportionately high and adverse environmental health impacts to an identified minority or low-income population that appreciably exceed those to the general population around the project area.* DEIS at 4-232.	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology; the revised analysis in the FEIS no longer includes a comparison to non environmental justice communities. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder Values (see Section 3.15 of the DEIS). The revised environmental justice analysis in the FEIS thoroughly addresses cumulative impacts to the Navajo Tribe, and other low-income or minority communities in or near the area proposed for withdrawal, as required by law and the Executive Order.
Ted Jensen	225282	12	It seems wrong that Fredonia did not qualify for Environmental Justice status (pg 3-248). The town is in a state of near total welfare. Those with jobs have to travel to Las Vegas, Page, and other areas.	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology. However, Fredonia does not meet the criteria for an Environmental Justice Community. A statement of clarity has been added to Section 3.16 in the FEIS.
		15	The comparison to the Blanding uranium processing to mining impacts on the Arizona Strip is very misleading (see page 3-242). They are very different and the mining process has much less radiation impacts if any as compared to downwinder impacts already in the area.	The public health and safety discussion in the DEIS (see Section 3.15) discusses the differences between mining and milling.
Quaterra Alaska Inc.	225288	2	Some of the indicators of an investigator letting his anti-industry bias influence his findings are: Introducing irrelevant issues. An example of this is on page 3-242 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	The EIS does mention depleted uranium related to health effects. This is not to imply that miners would be exposed to depleted uranium but rather since more is known about health effects from exposure to depleted uranium it is used here to help fill in gaps of knowledge

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			uranium to be toxic. Depleted uranium is in a chemical form different from natural uranium. Another example is describing in detail a plant or animal which does not exist in the withdrawal area. Someone merely skimming the document might miss that the plant or animal does not exist in the withdrawal area; is this intentional?	related to expected adverse health outcomes in miners from exposure to natural uranium. As discussed in the FEIS, natural uranium is more radioactive and may cause more health effects that DU.
Quaterra Alaska Inc.	225288	3	Some of the indicators of an investigator letting his anti-industry bias influence his findings are: Inferring that something out of the past is representative of the situation today. An example of this is inferring that modern uranium mining is the same as it was 50+ years ago 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.	The EIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Quaterra Alaska Inc.	225288	4	Some of the indicators of an investigator letting his anti-industry bias influence his findings are: Contriving impossible or extremely unlikely situations and presenting them as the norm. An example of this is the investigator describing 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. This is just an example of impossible or extremely unlikely events described in the EIS.	The DEIS discusses this possibility based on the wildlife analysis (see Sections 3.7 and 4.7), and documented human health risks (see Sections 3.15 and 4.15).
Quaterra Alaska Inc.	225288	8	Traffic resulting from ore hauling should be directly compared to overall traffic on various highways	Because the actual locations of possible mines is unknown, changes in traffic on any particular roadway are also unknown. An estimate of traffic effects based on possible mine locations is discussed in EIS Section 4.16. The Transportation Conflicts section of the FEIS has been updated (see Sections 3.16 and 4.16) to provide further context for changes in traffic.
Maren Mahoney	226214	4	The EIS conclusion that there will be no disproportionate health or environmental impacts to the communities that fall under the environmental justice criteria is inadequately supported.The EIS Chapt 4 p 239 provides that there "are numerous other non–environmental justice communities within the study area that could be exposed to the same health risks." The EIS fails to identify these communities and to adequately explore the potential disproportionate health impacts to the EJ-identified communities. For example, the EIS fails to analyze or explain how potential impacts to the Havasupai could possibly be the same as to other communities.	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology; the revised analysis in the FEIS no longer includes a comparison to non environmental justice communities. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder Values (see Section 3.15 of the DEIS). The revised environmental justice analysis in the FEIS thoroughly addresses cumulative impacts to the Havasupai, and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				other low-income or minority communities in or near the area proposed for withdrawal, as required by law and the Executive Order.
Kate Johnston	226267	3	The number of employees per mine is vastly understated, leading to the DEIS underestimate the impacts of sewage, transportation and housing infrastructure required by a 200-unit, rather than 75-unit workforce.	The DEIS analysis is based on estimates provided by the mining industry (see Sections 3.16 and 4.16). Additionally, the 75 employees are considered a direct impact, while indirect employment (also discussed in the DEIS), would include jobs used to support mining, such as sewage, transportation, etc. However, please note the employment analysis in the FEIS has been revised based on the revised IMPLAN analysis (see Sections 3.17 and 4.17).
Central Arizona Project	242648	1	The DEIS for the Northern Arizona Proposed Withdrawal Project indicates that all of the alternatives evaluated would result in a negligible increase in uranium concentrations in the Colorado River over historical background levels. It should be noted, however, that the effects of increased mining within the subject area may affect consumer confidence over the safety and reliability of the Colorado River for its use as a municipal drinking water supply, irrespective of any definitive public health impacts. Considering the tragic aftermath of the recent earthquake and tsunami in Japan, the public has a heightened concern over the potential for even minute amounts of radiation in water supplies. As such, it is critical that a comprehensive water quality monitoring program be in place to inform stakeholders and ensure long-term protection of the Colorado River from threats of uranium and other regulated constituents impacted by mining operations for all alternatives being investigated.	The “Stakeholder Values” section of the FEIS (see Sections 3.16 and 4.16) has been updated to reflect perceptions about water quality safety.
VANE Minerals	242650	9	The above comment also pertains to the Impacts on Social Conditions presented on page ES-15. The DEIS states, *Alternative A could result in minor long-term impacts* ...We disagree with this conclusion because Alternative A "will" result in long-term impacts and it can be argued that those impacts "Would" be moderate and "could" be major. However, more important is that the DEIS ignores the impacts on Social Conditions should Alternatives B, C, or D be implemented. The implementation of Alternative B will result in immediate, as well as eventual, longterm impacts on employees of the industry through job loss. Alternatives B, C, and D, will also result in long-term impact on those directly benefiting from mining. The immediate impacts will be from employees losing jobs that were being retained in anticipation of the area not being withdrawn. Eventual impacts will be the loss of jobs when the existing mines are mines out. One cannot put a price on the permanent impacts on a family due to the loss of a job, especially one due to a political action.	The DEIS analyzes impacts to stakeholder values in terms of job loss (see "Mineral Activity Support" in Section 4.15) for all alternatives. Additionally, impacts under Alternative A are considered minor because these would be a continuance of existing conditions. The analysis explains the change will not be major. Finally, the analysis does not use “will” when discussing impacts as no alternative has been selected.
Janet Remington	244004	1	If uranium mining is allowed in or near the Grand Canyon, which carcinogens will be released into the air and water?	As discussed in Section 4.16 of the FEIS, with appropriate mining practices, no carcinogens should

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				be released during mining or if they are, they should be at levels below which no adverse health effects are seen. As to compounds that would be encountered during the mining, the International Agency for Research on Cancer (IARC) has listed radon as a human carcinogen. It has not classified imbedded depleted uranium (DU) and it has not classified uranium specifically as a carcinogen. Uranium does emit alpha particles and IARC classifies alpha particles as a known human carcinogen."
U.S. Geological Survey	242871	4	Given the complexity of radiation toxicity, we think that it would be unwise to speculate on risks to human health. Questions like these should be deferred to EPA or state health agencies.	The issue of radiation toxicity was determined to be an issue for analysis in the EIS due to concerns by the public and the project interdisciplinary team. The EIS analyzes impacts to public health and safety based on the best available science. Any future site specific analyses would also be required to analyze impacts to human health.
Jaina Moan	54353	3	The Draft Environmental Impact Statement on the proposed withdrawal understates the negative impacts of not withdrawing this land (Alternatives A, C, and D). The negative impacts of mineral exploration and mining are understated because of 1) factors that are not considered in the DEIS, and 2) factors whose negative impacts are understated in the DEIS. The most significant factors not considered in the DEIS are the economic, safety, and environmental impacts of the transport of uranium ore from the 30 mines proposed if no lands are withdrawn (DEIS Alternative A). SEDI's analysis indicates that the DEIS calculation of 300,165 round trips from mines in the north, east, and south parcels to the White Mesa Mill would require ore hauling trucks to travel a total of 184,435,893 miles over life of the mines. According to US Department of Transportation accident data, these trips would be expected to result in 367 accidents, causing 151 injuries and 4 deaths. (See the attached spreadsheet for this analysis of US Department of Transportation data) * **Attached Table "SEDI Comments- Transportation Impact of Grand Canyon Uranium Mining-Alternative A**	The Transportation Conflicts discussion in Section 3.15 and 4.15 of the FEIS has been updated based on new information provided by the public and using a more refined methodology based on risk frequency calculations for hazardous material transportation (USDOT 2007).
Cynthia Pardo	104133	1	The socioeconomic conditions do not appear to assess fully the impact on communities around the proposed withdrawal, in particular the tribal and low income and minority populations. Please address the environmental justice impact and acknowledge that certain communities will be disproportionately affected by uranium mining and by all alternatives. The health and livelihoods of the communities, including wildlife, depend on a thorough assessment of environmental justice impact based on a thorough, true, broad, definition of environmental justice.	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology; the revised analysis in the FEIS no longer includes a comparison to non environmental justice communities. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Values (see Section 3.15 of the DEIS). The revised environmental justice analysis in the FEIS thoroughly addresses cumulative impacts to the tribes in the study area, and other low-income or minority communities in or near the area proposed for withdrawal, as required by law and the Executive Order.
Cynthia Pardo	104125	2	Contamination by uranium and other trace element should be analyzed in residential areas, including the tribal lands around and in the Grand Canyon. The legacy and contamination must be assessed on quantitative assessments and not estimates or just historical events.	The DEIS includes a discussion of how past uranium mining has impacted tribal lands in terms of stakeholder values (see Sections 3.15 and 4.15). Contamination by uranium or other trace elements from uranium mining operations within the proposed withdrawal area would not be expected to occur in residential areas, including tribal lands, because of the relative scarcity of such areas within the Withdrawal Area and the limited aerial dispersion potential for trace elements from mine sites (typically a few hundred feet). Additionally, any future mining operations would undergo site specific NEPA analysis for air and water quality, as well as socioeconomics.
Cynthia Pardo	104125	3	These sections on social and economic, and environmental justice do seem to reflect the true costs of uranium contamination and legacy effects- Please include data from tribal agencies and tribal consultations for these sections.	The DEIS includes a discussion of how past uranium mining has impacted tribal lands in terms of stakeholder values (see Sections 3.15 and 4.15).
Cynthia Pardo	104125	4	The impact on poor populations does not seem to be developed enough and is lacking assessment in all Alternatives.	The Environmental Justice discussion in the FEIS has been updated based on new information provided by the public and using a more refined methodology; the revised analysis in the FEIS no longer includes a comparison to non environmental justice communities. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The history of adverse health outcomes and increased cancers in the Navajo miners are beyond the scope of the EIS, as discussed in Stakeholder Values (see Section 3.15 of the DEIS). The revised environmental justice analysis in the FEIS thoroughly addresses cumulative impacts to the tribes in the study area, and other low-income or minority communities in or near the area proposed for withdrawal, as required by law and the Executive Order.
Albert Hale	213921	3	The DEIS should acknowledge that implementing Alternative A will cause significant impacts to Navajo people because it will result in " Disproportionately high and adverse environmental health impacts to an identified minority or low-income population that appreciably exceed those	The Environmental Justice discussions in the FEIS in Sections 3.16 and 4.16 have been updated based on new information provided by the public and using a more refined methodology. The legacy of mining on

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			to the general population around the project area" (DEIS, p. 4-232).	the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The revised environmental justice analysis thoroughly addresses cumulative impacts to the Navajo Tribe and other low-income or minority communities in or near the area proposed for withdrawal as required by law and the Executive Order.
Albert Hale	213921	4	The DEIS is deficent when it fails to take into account the legacy of harm and cumulative impacts caused by past uranium activities near Navajo communities in its assessment of environmental injustice impacts (DEIS, p. 4-239). It concludes that *"there are other non-environment justice communities within the study area that could be exposed to the same healh risks; therefor, these effects are not expected to be disproportionate. To tribal environmental justice communities.*" Non-tribal communities, such as St. George, Ordervill, and Hildale cited in th DEIS, and non-environmental justice communities have been unaffected by serverall decades of uranium mining that occurred on Navajo lands, beginning in the 1950s. Unlike Navajo communities, thar are not currently suffering from the pre-existing cumulative impacts of past uranium activiies. Navajo people will therefore be disproportionally affected by the cumulative impacts of new uranium mining. The National Environmental Policy Act requires the consideration of "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other activities" [40 CFR 1508.7]	The Environmental Justice discussions in the FEIS in Sections 3.16 and 4.16 have been updated based on new information provided by the public and using a more refined methodology. The legacy of mining on the Navajo Nation is discussed in Section 3.15 of the DEIS in “Stakeholder Values.” The revised environmental justice analysis thoroughly addresses cumulative impacts to the Navajo Tribe and other low-income or minority communities in or near the area proposed for withdrawal as required by law and the Executive Order.
Soils				
American Clean Energy Resources Trust (ACERT)	225256	34	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.	The two anomalously high sample results (68 and 79.1 ppm for uranium and 377 and 407 ppm for arsenic) were reported in Otton and others (2010) as likely representing "soil contaminated by partly exposed waste material." This statement was based on field observations of deposits present on site. Sampling of surface soils in the perimeter of the mineralized pipe area prior to mining indicated a uranium concentration of the soils ranging from 2.2 to 5.6 ppm (Hopkins et al. 1984b). A much more extensive soil sampling program of breccia pipes and collapse features in the region is provided in Van Gosen and Wenrich (1991). Out of 43 breccia pipes and collapse features studied, the maximum reported uranium concentration was 24.9 ppm and the maximum reported arsenic concentration was 96.8 ppm. Thus, the Pigeon sample concentrations referenced above are anomalously high, and the source of the elevated trace elements is

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				not likely to be naturally occurring parent material containing elevated concentrations of uranium and/or arsenic.
American Clean Energy Resources Trust (ACERT)	225256	35	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.	This detail regarding the origin of Hack Canyon mine has been added to the FEIS in Section 3.5.4 under the sub-heading “Effects From Historic (1980s) Mining” and in the bullet “Hack Canyon Mine Complex.”
American Clean Energy Resources Trust (ACERT)	225256	36	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.	The field MicroR survey results reported in Otton et al. (2010) are the only published radiometric survey results for background conditions in the study area. In addition to the survey of the Jumpup Canyon area (page 63), the Otton el al. (2010) study included surveys of the Kanab South drill site (page 112) and areas adjacent to the Hermit mine (page 113). The information in Otton et al. (2010) regarding background radioactivity levels in the area has been added to the FEIS in Section 3.5.4 under the sub-heading “Effects From Historic (1980s) Mining” and in the bullet for “MicroR Meter Surveys.”
American Clean Energy Resources Trust (ACERT)	225256	87	Pages 4-101- 4-108, 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	The purpose of this EIS is to assess the impacts of the Proposed Action and Alternatives. Comparisons of impacts with activities other than reasonably foreseeable uranium mining are not relevant to the purpose of this EIS, but were used only as a method of

Table 5.6-4. Response to Comments (Continued)

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			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.	assessing the incremental effect of foreseeable uranium mining to the overall cumulative impact and not as a means of determining significance of impact. The cumulative impacts of mining and other activities have been estimated in EIS Section 4.5.3. A reference to this section has been added to Table 2.8-1 in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	88	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.	Although it is true that there is little private land within the North Parcel, the text refers to potential impacts from development in general on private property within and adjacent to the withdrawal area. This is clarified in FEIS Section 4.5.3 (Subsection Cumulative Impacts).
Uranium Watch	225262	36	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The DEIS discussion of Impacts Common to All Alternatives (Section 4.2.4, page 4-16) manages to totally ignore the radioactive and hazardous constituents of any fugitive dust from the mining operation. The EIS must identify all hazardous radioactive and non-radioactive constituents of fugitive dust from the uranium mining operations and assess their impact on the environment. This would include an evaluation of potential exposure pathways and impacts to the public, workers, ground and surface water, soils, vegetation, and native and domestic animals over the short and long term.	The justification for analyzing impacts from uranium and arsenic dispersion in fugitive dust is provided in EIS Section 4.5.1, Subsection Assumptions for Impact Analysis. Impact to soils from fugitive dust are discussed in the EIS in Section 3.5.4 (Subsection Effects From Historic (1980s) Mining) for effects at previously mined sites and in Section 4.5.3 (Subsection Soil Contamination) for projected impacts related to future mining. In addition, the EIS also discusses fugitive dust in Section 4.6, 4.7 and 4.8. When a Mine Plan of Operations is proposed for a new mine, site specific NEPA analysis would be conducted to address site-specific conditions before the new mine could be authorized.
Uranium Watch	225262	62	The discussion of Soil Contamination (Section 4.5.1, page 4-96) should have included the potential for soil contamination from the release and dispersion of radon and radon progeny from the mine vents, mine portal, evaporation and containment ponds, water treatment facility, ore, waste rock, equipment, discharge of mine water, leaks, spills, drilling mud	There is relatively little potential for radon that might be released from the cited sources to contaminate soils. Most soils naturally release radon into the atmosphere, and it is unlikely that radon emissions from mine-related sources would result in accumulation of radon

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			disposal, and ore handling operations.	in soils because it is a gas, not a particulate.
Uranium Watch	225262	63	The discussion of Assumptions for Impact Analysis (Section 4.5.1, page 4-99) should have included the impacts of mine vent installation. Mine vents can be installed at various locations, often some distance from the mine portal. Surface impacts include access roads, vent installation area, removal of topsoil prior to the construction of the shaft and installation of the vent, and disposal of waste rock from the vent shaft construction. Vents must be accessible during their lifetime. The more mines, the more vents, which are used to provide fresh air to the mines and exhaust radon.	Mine vents are part of the mine facilities and are included in the estimated surface disturbance per mine site, as discussed in Appendix B. Review of Plans of Operations for the Pinenut, Hermit, and Arizona 1 mines indicates that only one vent is typically installed and it is usually located within the mine site perimeter or disturbed area (Energy Fuels Nuclear, Inc. 1986, 1987, 1988b). In unusual cases where the mine vents are not located within the mine perimeter, the vent represents a small area of surface disturbance (< 0.1 acre to 1 acre) (Energy Fuels Nuclear, Inc. 1982; JBR Environmental Consultants 2010). The positioning of the vent depends on the relative location of the ore body to the main shaft. Activities listed in the comment relate to surface disturbance except disposal of waste rock, which would be governed by an approved Plan of Operations and would be expected to be consistent with disposal of waste rock generated during installation of the main shaft and mine workings. When a Mine Plan of Operations is proposed for a new mine, site specific NEPA analysis would be conducted to address site-specific conditions before the new mine could be authorized. Energy Fuels Nuclear, Inc. 1982. *Plan of Operations, Kanab North Project.* June.
Uranium Watch	225262	64	The discussion of Soil Contamination (Section 4.5.3, page 104) should include an evaluation of the potential of soil contamination from the release and dispersion of radon and radon progeny from the mine vents, mine portal, evaporation and containment ponds, water treatment facility, ore, waste rock, equipment, discharge of mine water, leaks, spills, drilling mud disposal, and ore handling operations.	Same response as comment 225262-62 (Uranium Watch).
Uranium Watch	225262	65 & 66	The discussion of Soil Contamination (Section 4.5.3, page 104) only discusses the amount of uranium and arsenic found at historic uranium mine sites. There is no discussion of the amount of radium-226 in the soil at these sites, nor is there a discussion of a cleanup standard for radium at historic, current, or foreseeable uranium mine sites. The cleanup standard for uranium mill sites after closure is 5 pico Curies per gram (pCi/g) of radium-226 (above background) in the first 15 cm below ground and 15 pCi/g of radium-226 (above background) below 15 cm, averaged over 100 square meters. 4 The EIS must compare the standard for the cleanup of uranium on the surface of uranium mine sites in Arizona with the EPA standard for the cleanup of the contaminated soils at uranium mills.	The standard cited by the commenter applies only to cleanup of specific mill sites under the Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (40 CFR 192). Because radium is present in only very small amounts in uranium ore (http://periodic.lanl.gov/88.shtml), and all uranium ore will be processed off site, radium-226 is unlikely to be present in significant quantities at the mine sites. Comparison of cleanup standards for radium and uranium at concentrating mills vs. standards at mine sites where only waste materials may be present at

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			The discussion of Soil Contamination (Section 4.5.3, page 104) refers to a cleanup standard for uranium. That ADEQ standard is given in parts per million. The EIS should also give that standard in pCi/g. The standard of 200 ppm of uranium is equivalent to 136.65 pCi/g, which is far higher than the standard for the cleanup of radium at uranium mill sites.	closure is not appropriate to this NEPA document. In addition, no data are available to assess radium-226 in terms of area background concentrations and concentrations at former uranium mine sites in Northern Arizona. Thus, it is neither essential nor feasible to incorporate Radium-226 into the impact analysis in order to form a basis for Agency decision. It is not appropriate to reference a standard for uranium in terms of activity (i.e., picocuries per gram) because uranium standards are based on its chemical toxicity, which represents a much greater risk than its relatively weak radioactive properties (http://www.epa.gov/rpdweb00/radionuclides/uranium.html). Radium-226 is strongly radioactive and emits gamma radiation, which represents a direct exposure risk. Thus, the rate of decay for uranium does not represent the same risk as an equal rate of decay for radium.
Uranium Watch	225262	68	The EIS must evaluate the impacts from the long-term presence of mine waste and contaminated soils associated with historic, current, and foreseeable uranium mining operations in the withdrawal area. The EIS must discuss their plans for long-term care and inspection of the mine sites.	The soils impact analysis presented in Section 4.5 of the EIS does indicate that contamination has the potential to be present long term and could disperse off site where it will likely be diluted with native sediments (see EIS Section 3.5.4 (Subsection Effects From Historic (1980s) Mining) and in Section 4.5.3 (Subsection Soil Contamination). Plans for long-term closure are provided in the Plan of Operations approved for each mine. Methods for reclamation and monitoring of existing and previous mines typically employed are described in EIS Section 4.5.2. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Uranium Watch	225262	69	The BLM or USFS must explain why the Kanab North site has not been reclaimed (Section 4.5.3, page 104). No additional mining should be	The Kanab North Mine was approved in the late 1980s and mining was conducted there until the collapse of

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			approved by the BLM or USFS until all non-operating uranium mine sites in the withdrawal area have been fully reclaimed.	the Soviet Union caused uranium prices to plummet. The regulations under which the mine was approved allowed for the mine to be managed under Interim Management until the company could economically reopen the mine. There was no time limit for operating under Interim Management in the regulations when the Kanab North Mine was approved. The Kanab North mine remained under interim management for over 20 years because the mine owner believed it might be feasible to re-start active mining operations. Recently, the mine owner has reconsidered the feasibility of reopening the Kanab North and they are preparing to close the mine and reclaim the site. The mine owner is working with BLM to develop a timeline for implementation of the reclamation plan, and is coordinating with ADEQ to determine if additional requirements must be met for closure.
Uranium Watch	225262	71	The long-term impacts to the soils in the area from additional uranium mine operations under alternatives A, C. and D will be greater than anticipated because there will be no long-term surveillance and monitoring of the sites. There will be no signs warning people that the sites are contaminated, and uranium, radium, arsenic and other radioactive and non-radioactive contaminants will continue to disperse into the environment. The long-term impacts to the surface and other aspects of the environment under alternatives A, C. and D are unacceptable.	Please see response for 225262-68 (Uranium Watch)
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	22	Relative to Otton et al. (2010), the DEIS creates a new category for characterizing naturally occurring uranium and arsenic in undisturbed soil and sediment called "study area maximum." Study area maximum is additional to "regional average values" defined by Otton et al (2010). DEIS at 3-102. If the purpose of adding an additional category is to better describe past and potential future mining impacts relative to undisturbed soil conditions, then it is curious why the DEIS fails to also add a "study area minimum" category, or a "minimum" value for undisturbed soil samples collected at breccia pipes. Adding only maximum values to average values described by Otton et al. (2010) has the effect of downplaying past and potential mining impacts to soil uranium concentrations and accordingly skewing effects analyses. An objective characterization of conditions and effects would either just rely on an average value, as did Otton et al. (2010), or include minimum, average and maximum values.	The discussion of the maximum concentration for naturally occurring uranium provides context for the potential site-specific concentrations that could be present at a given site and does not replace the average concentration definition of background for the region. The minimum naturally occurring concentration does not provide a particularly meaningful context for impacts when considering individual sample results because a concentration in a specific location that is at or above the minimum and below the maximum for naturally occurring concentrations may not represent an impact, whereas a concentration above the maximum clearly represents a potential impact. The minimum naturally occurring uranium and arsenic concentrations are discussed in the text. However, to provide a clear and complete description of the affected environment, the range of reported concentrations has been added to Table 3.5-2 in the FEIS. Regardless of the entries listed in Table 3.4-2, it

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				is clear from review of Section 3.5.4 (Subsection Effects From Historic (1980s) Mining) that concentrations at and/or adjacent to former mine sites are at least several ppm above background concentrations described for the region and at unmined uranium-bearing breccia pipes (when comparing averages to averages and maximums to maximums). Thus, providing a characterization of naturally occurring concentrations of uranium and arsenic that includes a maximum potential value does not result in a "skewed" impact analysis (as provided in Chapter 4). However, excluding mention of the maximum concentrations would suggest any value in excess of the average represents an impact, which is not necessarily true.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	23	The study area maximum value is derived from a single sample collected by Hopkins et al. (1984) at the Pigeon breccia pipe, the location of the Pigeon uranium mine. The Pigeon pipe is located in a drainage; the sample relied on in the DEIS, which measures 5.6 ppm uranium, is one of 40 samples collected from stream alluvium. All other 39 samples measured 2.6 ppm or less; the DEIS relies on a single high outlier sample to establish "study area maximum" soil uranium concentration for the entire analysis of effects. But it is not even clear that the Pigeon pipe samples collected by Hopkins et al. (1984) were collected prior to exploratory drilling or therefore reflect undisturbed natural background soil conditions. Hopkins et al. report samples were collected in 1982. Otton et al. (1984) state: *The pipe was discovered in 1980. The site was prepared and developed from 1982 to 1984, and mining began in December 1984.* Otton et al. (1984) at 63. In mining parlance, "discovered" typically marks the confirmation of a viable ore body after exploratory drilling. The LR2000 database shows that the first application received for the Pigeon pipe, serialized as AZA025967, was received on March 16, 1981. Both dates, 1980 and 1981, precede sampling in 1982 by Hopkins et al. (1984); this suggests that the Pigeon pipe in 1982 had already been subject to exploratory drilling and was not “"undisturbed soil." In fact, Hopkins et al. (1984) state that rocks had been altered at the time of sampling, indicating that some activity had occurred at sample sites, and that those altered rocks were included in samples: *We collected rock samples from outcrops or exposures in the vicinity of the plotted site location. Most samples were collected from unaltered rock. Rock samples provide information on elements in rocks that have not been affected by alteration or mineralization. In addition, some altered rocks were collected.* Hopkins et al. (1984) at 3. Unless BLM can demonstrate that Hopkins et al.’s (1984) Pigeon pipe sample was not measuring drilling residue, the DEIS cannot rely on that value to characterize a "study area maximum" of "naturally	The 5.6 ppm value cited in the DEIS is not an unrealistic representation for the potential maximum concentration of naturally occurring uranium in soils in the region. For example, concentrations of uranium in excess of 5.6 ppm were detected in many soil samples collected at several different collapse features in the study area (Van Gosen and Wenrich 1991) (features 474, 249, 491, 1102, 1108, 1152, and 1173). The maximum reported uranium concentration in soils sampled at and around these features was 24.9 ppm. These features were not drilled at the time of sampling and, thus were not disturbed. Otton and others (2010) (page 56) conclude that there is little difference between concentrations of trace elements, particularly uranium, in soils within the surface expression of mineralized breccia pipes and those adjacent to pipes. Thus, soil conditions at collapse features of unknown mineral potential are appropriate to compare to conditions at mineralized pipes because geologic conditions are similar. An additional description of the Pigeon pipe samples collected in 1982 was provided in Billingsley et al. (1983). USGS staff collected the samples in fresh surface cuts in the perimeter of the pipe before the mineralized area had been exposed. Results from those samples were said to indicate weakly anomalous concentrations of several elements, but not uranium. The surface area typically disturbed by drilling operations is comparatively small relative to the pipe surface expression and soil samples could only really be contaminated if collected at a former

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			occurring uranium in undisturbed soil."	mud pit or cuttings pile, which would have been avoided by USGS scientists. There is no reason to believe that one of the three Pigeon samples was contaminated with drill cuttings; clearly the USGS did not suspect sample contamination. The "alteration" that Hopkins et al. (1984b) refer to is alteration from natural geochemical mineralization processes; the objective of the Hopkins et al (1984) study was to determine the extent and degree of such mineralization in the Snake Gulch area.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	24	After relying on a single, high outlier value to characterize natural background uranium concentrations in soil, the DEIS then excludes high outlier values in its characterization of post-mining "reclaimed" soil conditions at the Pigeon mine. In its discussion of the Pigeon mine, the DEIS states: *The average concentration of 15 soil samples obtained in the vicinity of the operations area was about 11.9 ppm for uranium and about 29 ppm for arsenic (excluding one anomalously high sample result with a uranium concentration of 206 ppm, and an arsenic concentration of 455 ppm). Several isolated deposits of mine waste remaining on-site, primarily in the operations area, were sampled; uranium concentrations as high as 1,230 ppm and arsenic concentrations as high as 1,980 ppm were detected in these samples.* DEIS at 3-103. In addition to excluding the 206 ppm uranium sample, the DEIS then also excludes the 1230 ppm uranium sample from reporting of "outliers" in Table 3.5.3.; it instead reports as high outlier values of 68 and 79.1 ppm. The effect of excluding both values, 206 and 1230 ppm, is to downplay and misrepresent the impact of past mining.	Refer to response for 225279-22 and -23 (CBD) regarding maximum concentrations for naturally occurring uranium and arsenic. The table entry for the Pigeon mine in Table 3.5.3 only provides a summary of the reclaimed pipe surface, referred to as the "Mine Site" in Otton et al. (2010). This was because Otton et al. (2010) do not provide summary statistics for the Pigeon Mine “operations area;” rather it only discusses results along two traverses made across the site. Thus, to the extent that this section of the EIS is a summary of the results of Otton Et al. (2010), results for the Pigeon Mine operations area do not readily lend themselves to inclusion into the summary table (i.e., Table 3.5-3). Table 3.5-3 has been updated in the FEIS to note this distinction. The sample results for the operations area are not excluded simply because they were not listed in the summary table; it is sufficient to discuss the data in the body of the text. The concentration value of 1,230 ppm for uranium is from mine waste material, not soil and so should not be included in the summary table in any event.
The NAU Project, LLC	242913	78	Degradation of soil productivity is of low probability, and areas within this erosion hazard class generally stabilize under natural conditions. Areas rated moderate exhibit PSL rates that exceed TSL rates, and loss of soil productivity is probable; reasonable and economically feasible mitigation measures are required to prevent significant losses in productivity. Severe hazard ratings are assigned to areas where PSL rates exceed TSL rates and where loss of productivity is inevitable. Areas with severe erosion hazards require significant mitigation measures to be applied to prevent irreversible loss in soil productivity, and there is a high probability of some productivity loss before mitigation can be applied. What might these mitigating measures be? Are they well established ones or new ones? What mitigating measure could be developed such that mitigating measures would be applied before productivity loss occurred?	Because the Proposed Action and Alternatives being analyzed in this EIS are various configurations of withdrawal from the Mining Law of 1872, mitigations to withdrawal are not appropriate. Mitigation measures will be incorporated into any future site-specific NEPA analyses conducted to approve specific Mine Plans of Operations.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
		86	Impacts to soil chemical quality page 4-105 Data collected by the USGS in 2009 (Otton et al. 2010) at the reclaimed Pigeon and Hermit mines support this conclusion; at the Pigeon Mine, only localized areas of soil were detected containing higher levels of trace elements than elsewhere on-site. These higher levels of mine-related constituents were likely related to the presence of mine-waste materials remaining on-site, possibly uncovered by erosion. These residual impacts are an example of reclamation efforts that were not completely successful; such impacts are minor because of their limited extent and could be mitigated through more aggressive remedial action and monitoring after closure. So what aggressive remedial actions would you make as mitigating measures, NEPA wants to know!! The reclaimation efforts were not completely successful, so now what?	Because the Proposed Action and Alternatives being analyzed in this EIS are various configurations of withdrawal from the Mining Law of 1872, mitigations to withdrawal are not appropriate. Mitigation measures will be incorporated into any future site-specific NEPA analyses conducted to approve specific Mine Plans of Operations.
Cynthia Pardo	104125	2	Contamination by uranium and other trace element should be analyzed in residential areas, including the tribal lands around and in the Grand Canyon. The legacy and contamination must be assessed on quantitative assessments and not estimates or just historical events.	Contamination by uranium or other trace elements from uranium mining operations within the proposed withdrawal area would not be expected to occur in residential areas, including tribal lands, because of the relative scarcity of such areas within the Withdrawal Area and the limited aerial dispersion potential for trace elements from mine sites (typically a few hundred feet).
Noel Poe	106647	3	Reclamation of roads and site development. The discussion made about reclamation of surface disturbing mining activities on pages 3-245, 4-103, 4-223, etc. gloss over the difficulty of reclaiming man-made disturbances in the desert. There are statements that disturbed areas would be returned to a natural condition or such areas would be reclaimed to insure ground surface integrity is not compromised. The former is not possible and the latter is not sufficient. In addition on page 4-222, mine roads are listed as having a short term impact because they exist less than 5 years. However elsewhere in the document a statement is made that the average life of mining activities at a site is 6 years. If one looks at the figures in the USGS Legacy Report it is obvious that 10 or even 20 years of reclamation efforts have not reclaimed roads or mine sites. See Figures 5, 8, 18, and others.	The average life span of a breccia pipe uranium mine is about 5 years, not including 2 years for planning and permitting (Section B.8.1, Subsection Interim Management). Impacts to soils are discussed as potentially long-term (more than 5 years) in terms of loss of productivity (Section 4.5.3, Subsections Soil Disturbance; Increased Soil Erosion), whereas impacts related to increased soil erosion are short term (5 years or less) because reclamation efforts would be expected to reduce rates of soil loss in disturbed areas. However, the appearance of disturbance may be long-term (more than 5 years), particularly when viewed from aerial images such as those in Otton et al (2010).
Arizona State Land Department	225280	11	In Subsection B.1.3, Study Area, Tables B-1 and B-2 on page B-3 include seven or so uranium mines that were active, primarily during the 1980's. Were there any problems or issues with any of these mines that would justify the present level of concern necessary for the proposed withdrawal?	Discussion of effects on soils and stream sediments from these historic mines is given in the EIS Section 3.5.4 (Subsection Effects from Historic (1980s) Mining). This discussion draws primarily from Otton et al (2010). No definitive impacts to water resources have been determined from these (1980s-era) historic mines. However, Appendix H discusses impacts to groundwater and surface waters associated with the Orphan Lode mine.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Arizona State Land Department	225280	14	The last two sentences in Subsection B.4.5 on page B-15 are either confusing or meaningless. Are levels of uranium above background unacceptable or not since they are below levels for which ADEQ requires remediation? If the levels are acceptable, what is the point of mentioning this?	The DEIS text cited does not establish acceptability regarding levels of uranium that are in excess of background. The ADEQ remediation standard applies to non-residential areas and is used to quantify impacts in EIS Section 4.5. Levels of uranium in excess of background, but less than 200 ppm, may have specific consequences for other resources, such as wildlife. The sentences referred to in this comment have been removed in the FEIS.
Coconino County Board of Supervisors	225238	14 / 15	There is apparently no required monitoring of soils along all of the haul routes for any potential increase in radioactivity levels. The haul route from each of the three areas to Blanding involves a trip of hundreds of miles, in most cases involving trucking through established communities such as Fredonia, Kanab, Flagstaff, Page, Cameron, Tuba City and Kayenta. Monitoring of soils along the roadsides over all of the haul routes would be a daunting task, but one that should be required as part of the ongoing mining process by the companies or by the Arizona Department of Environmental Quality.	Recent hauling operations for ore produced from the Arizona 1 Mine have included some monitoring of the haul routes using dosimeters. The haul trucks are designed such that the material being transported is covered in such a way that the ore being hauled is controlled/mitigated and not allowed to escape the vehicle as a fugitive source. Ore hauling is not expected to represent a radiation risk to the public or to soils along the haul routes.
Coconino County Board of Supervisors	225238	16 / 17	Long term cumulative impacts on soil quality and radioactivity levels in soils are also typically not monitored over the long term. At the Pigeon Mine reclamation site, which from casual observation appears to have been extremely well done by the mining company, USGS tests at the site uncovered hot spots that had surfaced since the reclamation effort, demonstrating that there is certainly the possibility of the impacts of radioactivity at mine sites being carried off site in a downstream direction years after reclamation.	Please refer to the response for comment 225262-68 (Uranium Watch).
Soundscapes				
American Clean Energy Resources Trust (ACERT)	225256	102	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	The development and operation of each individual mine would require an evaluation of its impacts on the surrounding soundscapes. This evaluation would include those parameters identified by the commenter. Mine impacts would determine the location and mitigation measures that would be required. It is beyond the scope of this EIS to evaluate the other activities and their impacts on the Park.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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?	
Uranium Watch	225262	77	Section 4.10 Soundscapes. Pages 4-190 to 4-201. The BLM and USFS must consider the noise from the intake and exhaust vents at the uranium mines. Some vents have fans at the top of the vent on the surface, some at the bottom in the underground workings. The fans operate up to 24 hours a day to move fresh air into the mine and to exhaust contaminated air from the mine. The noise from an operating fan on the surface is aloud roar, which can be heard over a mile away. Standing next to a vent with an operating surface fan, it sounds like one is standing next to a major freeway or on an airport tarmac. This is a major problem with the uranium mines in La Sal. There is no evidence that the federal government has done an assessment of the noise level from the vent fans or the impacts to wildlife in the vicinity of the vents.	Section 4.10.3 - *Impact Assessment Methodology and Assumptions*, Table 4.10-3. *Noise Levels (dBA) for equipment used at the Arizona 1 Mine (at 15 m)* (page 4-193), lists a calculated noise level of 78 dBA at 50 feet for the Mineshaft Vent Fan. 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. Effects of noise from the mine operations on wildlife were assessed in Chapter 4, Section 4.7, Fish and Wildlife. Future Mine Plans of Operation will be required to undergo site specific NEPA analysis prior to their approval. The NEPA process will require a determination of direct, indirect, and cumulative impacts specific to each mine location. Without specific information regarding the location and duration of the operation of these sources, no substantive estimates of the addition of cumulative noise can be presented in this level of evaluation.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	46	**Potential Noise Impacts to Wilderness Areas Must Be Evaluated and Disclosed** The DEIS's assessment of noise impacts is limited. The DEIS identifies noise sensitive areas (NSAs) as places: *[w]here excessive noise interferes with the normal use of the location. Typical NSAs include parks and wilderness areas.* DEIS at 3-197. The DEIS ignores noise impacts to wilderness areas. Wilderness areas proximate to the proposed withdrawal include Kanab Creek Wilderness, Mt. Trumbull Wilderness, Mt. Logan Wilderness, Paria Canyon-Vermilion Cliffs Wilderness, and Saddle Mountain Wilderness.	Impacts of mineral development on Wilderness, including noise, has been addressed in Chapter 4, Section 4.13 in a general way, Other than the 4 current mines, which are far enough away from any wilderness area that they have no effect, locations of the rest of the mines projected in the RFD are unknown. For this reason, detailed analysis of noise on any particular wilderness area is not possible. Future Mine Plans of Operation will be required to undergo site specific NEPA analysis prior to their approval. The NEPA process will require a determination of direct, indirect, and cumulative impacts specific to each mine location. Without specific information regarding the location, duration, and schedule of the operation of these

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				sources, no substantive estimates of the addition of cumulative noise can be presented in this level of evaluation.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	47	Soundscapes should not only be protected for people, they should also protect wildlife. According to the Organic Act [16 USC 1], the purpose of the National Park Service includes conserving "the wild life therein". Sound studies and modeling for the DEIS are weighted to represent human hearing. The DEIS should consider that wildlife can be harmed by sound disturbances. According to a recent sound study, humans will perceive an approximately 100-fold sound increase in some areas of Grand Canyon National Park, due to mining activities, but the actual measured sound in these locations will be 2000 times ambient sound (Ambrose 2010). This, for example, could impact bats, of which there are at least 20 species in Grand Canyon National Park, 10 being species of concern to one of the wildlife governing agencies (NPS 2010, pp. 22-24). Bats rely on sound to navigate and feed. If hibernating creatures are disturbed, they could expend more energy than they have reserved for the winter season, leading to mortality.	Effects of noise from the mine operations on wildlife were assessed in Chapter 4, Section 4.7, Fish and Wildlife. Future Mine Plans of Operation will be required to undergo site specific NEPA analysis prior to their approval. The NEPA process will require a determination of direct, indirect, and cumulative impacts specific to each mine location. Without specific information regarding the location and duration of the operation of these sources, no substantive estimates of the addition of cumulative noise can be presented in this level of evaluation.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	49	When combined with other sources of soundscape impairment in Grand Canyon National Park (i.e., aircraft), mining activities will unreasonably increase impairment of the park's soundscape. Low-level aerial surveys for mineral exploration have to be considered with the cumulative impacts from other aircraft flying over the Grand Canyon. (p. 4-197). Aircraft noise travels outward from the flight path and permeates deep within canyon environments, destroying wilderness character. Prospecting flights will spend extended time periods circling over or repeatedly passing a limited area, destroying recreational experiences for people who may be visiting the area only once in their lifetime.	Effects of noise on recreation activities was assessed in Chapter 4, Section 4.15. The cumulative effect of impacts of mining on soundscapes was assessed in Chapter 4, Section 4.10. Other than the 4 current mines, which are far enough away from the National Park boundary that they have no effect, locations of the rest of the mines projected in the RFD are unknown. For this reason, detailed analysis of noise on any particular area within the park is not possible. Future Mine Plans of Operation will be required to undergo site specific NEPA analysis prior to their approval The NEPA process will require a determination of direct, indirect, and cumulative impacts specific to each mine location. Without specific information regarding the location and duration of the operation of these sources, no substantive estimates of the addition of cumulative noise can be presented in this level of evaluation.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological	225279	50	The number of mines predicted under Section 4.10.9 Cumulative Impacts (p. 4-200) is far less than what is predicted in the Reasonably Foreseeable Future Activity (pp. 2-11 to 2-28). These numbers should be reconciled. When the true cumulative impact potential is recognized, Alternative B clearly emerges as the only alternative that will meet the DEIS needs.	Section 4.10.9 - Cumulative Impacts of the FEIS states "It is anticipated that a maximum of two mines would operate simultaneously in the North Parcel and that no more than one mine each would operate within the East and South parcels." This statement is meant to provide the reader with an "at any one time basis" of noise generation, which is different than the total proposed mine activities over the 20-year span of the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Diversity				proposed withdrawal. Please refer to Table 2.4-2 through 2.4-12, each of these tables provides an average number of mines operating on an annual basis.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	51	Nearly all activities recorded or modeled fail to meet EPA and Title 36 guidelines for maximum allowed sound levels. All activities reported on in Table 4.10-3 except the ore bucket and electric transformer exceed 69 dBA at 50 feet; all activities in Table 4.10-4 exceed 73 dBA at 50 feet; all activities in Table 4.10-5 except the transformer exceed 72 dBA at 50 feet. According to Table 4.10-4, the distance from exploration and development activities to achieve attenuation to ambient sound levels will be 0.9 to 2.3 miles (1.4 to 3.7 km) from the source of sound; according to Table 4.10-5, the distance from mining operation activities to achieve attenuation to ambient sound levels will be 0.4 to 1.5 miles (0.7 to 2.4 km), and the distance from ore hauling activities to achieve attenuation to ambient sound levels will be 1.4 miles (2.2 km). Therefore, several mines within a parcel could create an industrialized landscape where, after leaving the sounds of one mine, a visitor rapidly enters the soundscape of another mine. Networks of roads could distribute sound impacts throughout the North, East, and South Parcels. Since many people only visit the area once in their lifetime, this is an unreasonable impact, regardless of the total time that the impact persists. Table 4.10-6 identifies 72 percent of Grand Canyon National Park as being within an area where mining noise could be audible. Mining noise could be clearly audible (>6 dBA above ambient sound levels) in 39% of the park. Alternatives C and D could concentrate exploration and mining activities, but would not eliminate them. By moving exploration and development activities further from improved roadways, these alternatives could increase the distance travelled by every vehicle associated with exploration and mining activities, increasing the area receiving noise impacts from ore hauling and roadway improvement activities. This would spread noise impacts around a network of roads spanning the parcels.	The sound attenuation values provided in the EIS assume site conditions lack vegetation, elevated terrain or vertical structure that would have significant impacts on the distance noise would travel. The values associated with a specific mine development and operation would be modeled or measured based on the site specific conditions. The development and operation of each individual mine would require an evaluation of its impacts on the surrounding soundscapes. This evaluation would include parameters such as vegetative cover, terrain height, proximate vertical structures, etc. Haul truck and roadways would also be included in the site specific evaluation of impacts to the soundscapes. Impacts determined by this evaluation would be the basis for the establishment of mitigation measures imposed on the project to achieve levels consistent with regulation and policy. The individual mine seeking a permit to operate would be required to account for other background sources in the vicinity to determine the cumulative impacts on the soundscape. Figure 4.10-1 was added to Chapter 4 to further illustrate the area of influence when predicting potential impacts on the soundscape.
Quaterra Alaska Inc.	225288	12	The Perrin Ranch wind farm north of Williams AZ will be within full sight of route 64, the major route to the South Rim. It will consist of 62 wind generators which will be 480 feet high at the tip of the windmill blades. The blades will be moving and will presumably be white, which will enhance their visibility. It would be interesting to compare this to a single mine headframe 90 feet high which will be stationary and painted a color to blend in with the landscape, and would be a considerable distance from route 64. It would also be interesting to compare the noise of the windmill blades with the noise of a mining operation.	The purpose of this EIS is to estimate the environmental effects of the Proposed Action and Alternatives, mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. While comparison of the visual effects of a mining head frame to a windmill may be interesting, it is not relevant to the analysis being conducted. Visual impacts anticipated from the Proposed Action and Alternatives are analyzed in the EIS in Section 4.9.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Special Status Species				
American Clean Energy Resources Trust (ACERT)	225256	37	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.	The BLM is required by federal law to address federally listed threatened and endangered species as part of this NEPA analysis. Occurrence of T & E species is recorded at the county level. The project-specific NEPA analysis must therefore consider all listed species that occur in the county, although only those that may be affected by the project (both directly and indirectly) are analyzed in detail. The NEPA analysis must also study agency special status species and general wildlife as part of NEPA for the BLM, NPS, and Forest Service.
American Clean Energy Resources Trust (ACERT)	225256	39	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.	BLM Manual Section 6840 provides policy and guidance, consistent with appropriate laws, for the conservation of special status species of plants and animals, and the ecosystems upon which they depend. These are species which are proposed for listing, officially listed as threatened or endangered, or are candidates for listing as threatened or endangered under the provisions of the Endangered Species Act (ESA); those listed by a State in a category such as threatened or endangered implying potential endangerment or extinction; and those designated by each State Director as sensitive. Conservation of special status species means the use of all methods

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				and procedures which are necessary to improve the condition of special status species and their habitats to a point where their special status recognition is no longer warranted.
American Clean Energy Resources Trust (ACERT)	225256	95	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 replanted 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.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
American Clean Energy Resources Trust (ACERT)	225256	97	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.	The DEIS contains discussions on direct and indirect impacts to aquatic habitat in Section 4.8.3. It also references the reader back to Section 4.7 to previous discussions on the topic.
American Clean Energy Resources Trust (ACERT)	225256	98	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: 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 BLM is required by federal law to address federally listed threatened and endangered species as part of this NEPA analysis. Occurrence of T & E species is recorded at the county level. The project-specific NEPA analysis must therefore consider all listed species that occur in the county, although only those that may be affected by the project (both directly and indirectly) are analyzed in detail. The NEPA analysis must also study agency special status species and general wildlife as part of NEPA for the BLM, NPS, and Forest Service. The species associated with the virgin river have been included in the analysis because they occur on the USFWS Mohave County list and because the North parcel does have a hydrologic connect and impacts, no matter how minor, may occur and required to be discussed.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	99	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 BIM. Upon such a sighting, no employee will harass, harm or injure the species." In fact, if these are sighted the BIM 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 sitespecific 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.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plan.
Energy Fuels Resources	225260	11	I disagree that a major long-term impact could occur to special status species under Alternative A. I could not find any mention of a "major long-term impact" in Section 4.8, which provides the detailed analyses for these species.	Section 4.8.3 of the DEIS contain discussions regarding the magnitude of these impacts. In some instances the language used in the definition the other terms minor, moderate, or major were used. The Executive Summary states that alternative A will have potential minor to major long term impacts. Because we couldn't fully gauge where the mine locations would be in relation to springs and seeps, we chose to include impacts to include 'major' in the Executive Summary.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon	225279	26	The cumulative effects analysis in the DEIS for threatened, endangered and candidate species is inconsistent with its analysis of direct and indirect effects. In its discussion of Alternative A, the DEIS cites potential impacts to amphibians and aquatic invertebrate species: *Impacts to riparian habitats and water quality could affect several amphibian species and an aquatic-dependent invertebrate. These species include the relict leopard*	The DEIS contains a discussion on aquatic habitats and special status species in Section 4.8.3. Section 4.8.3 also references "For a more detailed discussion on aquatic and terrestrial habitat impacts, see Sections 4.7 and 4.7.4."

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Chapter, Center for Biological Diversity			*frog, northern leopard frog, lowland leopard frog, and Kanab ambersnail. The location of the mine facility and the influence of the mine on the quantity and quality of groundwater and surface flows at seeps and springs could influence the magnitude of these impacts on these amphibian and invertebrate species*. DEIS at 4-145. It also cites potential impacts to birds under Alternative A: *Birds may be injured or killed by collisions with vehicles traveling on the road system. Birds of prey, including bald eagle, California condor, Mexican spotted owl, and American peregrine falcon, may be impacted by physical land disturbances associated with mining and increased risk of injury as a result of traffic power lines. Impacts to riparian habitats and water quality anywhere within the proposed withdrawal area could impact these bird species, as well as the southwestern willow flycatcher, found along Kanab Creek (North Parcel), and Yuma clapper rail, found along the Virgin River* DEIS at 4-145. The DEIS does not discuss the potential for uranium mining to impact endemic aquatic species by depleting or contaminating water feeding springs. Instead, the BLM simply references its own Resource Management Plan. *Actions that degrade riparian habitat or reduce the potential of the area to support riparian vegetation will be modified, restricted, or prohibited (BLM 2008b). No net oss will occur in the quality and quantity of suitable habitat for endemic fish, amphibians, and aquatic invertebrate species (BLM 2008b).* DEIS at 4-119. Because BLM cannot guarantee that uranium mining will not contaminate or deplete springs feeding springs that are sources for endemism, BLM cannot simply conclude that the existence of its Land and Resource Management Plan precludes impacts to endemism. To the contrary, the depletion or contamination of seeps and springs has the potential to impact endemic species. Seeps, springs and caves whose water uranium mining could impact could harbor endemic species not yet known to science. Long-term changes in water quality and quantity feeding springs has the potential to extirpate or retard the persistence and continued evolution of endemic species	
	242652	4	If proposed mines impact T&E species, and consultation is initiated with the US Fish and Wildlife Service, how will you ensure that the wildlife agency addresses cumulative impacts to a given species from multiple mines? The Service is not required to look at reasonably foreseeable events so could ignore mines that are planned, but not yet constructed. The agency also has been known to limit its analysis to a subpopulation that it renders as "expendable" in order to arrive at a non-jeopardy opinion for a particular proposed project while ignoring cumulative impacts across the range of a species.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
The NAU	242913	92	Conservation Measures page 147. The following general measures must	The purpose of the EIS is to analyze the effects of the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Project, LLC			be applied to federally listed species in the proposed withdrawal area: All surface-disturbing activities would include conservation to reduce impacts to special status species and their habitat. Conservation measures developed for each listed or proposed species would be applied to any proposed project within the habitat of that species. Analysis of impacts and determinations of effects would include any and all mitigation and conservation measures. What might these be? An example list? Are they effective? Are they SOP?	Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Fish and Wildlife Service	242660	6	Page 2-39, Table 2.8-1, Special Status Species: In addition to the impacts listed, there may also be direct impacts to these species resulting in disturbance, injury, or death of individuals, particularly plants, from exploration and mine-development activities.	Section 2.8 of the EIS has been updated to include discussions of magnitude of impacts in relation to location of mines and special status species, including vegetation under this category.
U.S. Fish and Wildlife Service	242660	8	Page 3-7, Table 3.1-1: The table does not consider potential effects to special status plants. These may include mortality or injury to individual plants from crushing or removal, and loss or modification of habitat through actions such as clearing and road construction. The proportion of habitat modified or lost is an additional indicator for the special status species population section; the number of special status plants lost as a result of mine development is an indicator for the special status species mortality section.	Section 3.1.7 of the EIS has been updated to include discussions regarding direct impacts from physical alterations and crushing.
U.S. Fish and Wildlife Service	242660	9	Page 3-130, Table 3.8-1: The only designated critical habitat for California condor is in California; there is no critical habitat in the project area. There is no conservation agreement for this species. The California condor in the project area is designated as a nonessential experimental population under section 1 O(j) of the Endangered Species Act (ESA).	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	10	Page 3-130,3-132, Table 3.8-1: Yellow-billed cuckoo and Fickeisen plains cactus are listed in the table as "Candidate w/o CH". Critical habitat is not designated until a species becomes federally-listed as threatened or endangered, so the reference to critical habitat for these candidate species should be removed.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	11	Page 3-135, Table 3.8-1: The Virgin River chub co-exists with woundfin and Virgin River spinedace, and therefore, for consistency with these species, should also be listed as being in close proximity to the parcels.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	12	Page 3-136, Table 3.8-1: The Mojave desert tortoise does not occur in close proximity to any of the withdrawal parcels.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	13	Page 3-137, Table 3.8-1; Page 3-158: The Niobrara ambersnail (Oxyloma haydeni haydeni) is included as a federally-listed species in the table and the text in this section. The federally endangered entity is the Kanab ambersnail (Oxyloma hyadeni kanabensis). The Niobrara ambersnail is not	Section 3.8.1 has been updated to include this species information.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			federally-listed and is not a federal candidate for listing.	
U.S. Fish and Wildlife Service	242660	14	Page 3-139, Table 3.8-2: The northern leopard frog should be included as "Possible" for the East Parcel. Populations occur near the boundary of the East Parcel in the House Rock Wildlife Area.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	15	Page 3-140, Sentry milk-vetch: The species description contains a number of inaccuracies. Please refer to our recent 5-year status review of this species for more accurate information (http://www.fws.gov/southwest/es/arizonaiDocuments/SpeciesDocs/SentryiSentry%20MilkVetch%205-Year%20Review.pdf).	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	16	Page 3-143, Paradine (Kaibab) plains cactus: We recommend obtaining more recent monitoring information than what is provided here (2000), which is available from Barb Phillips, U.S. Forest Service.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	17	Page 3-144-147, California condor: To update the information provided here, as of March 31, 2011, there are a total of 193 condors in the wild population, 73 of them in Arizona. Birds have only been released at Vermillion Cliffs (no releases at Hurricane Cliffs). Breeding activity has occurred at the locations mentioned, but not all these nests have been successful. Lead contamination from hunter-killed carcasses continues to be a major factor affecting the reintroduction program.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	18	Page 3-147, Yuma clapper rail: The Yuma clapper rail has been found in the Virgin River above Lake Mead since 1998.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	19	Page 3-150, Mexican spotted owl: The discussion of critical habitat should cite the 2004 Final Rule (Federal Register 69:53182-53298). The description in this section should include canyon type critical habitat, which constitutes most of the critical habitat in Critical Habitat Unit CP-1 0, as well as in the vicinity of the proposed withdrawal.	Section 3.8.1 of the DEIS contains discussions of these habitat types.
U.S. Fish and Wildlife Service	242660	20	Page 3-151, Bald eagle: The last sentence is incorrect. The bald eagle is no longer listed as a threatened species under the ESA, Federal agencies do not manage it as if it is a proposed species, and it is not afforded protection under the ESA. However, the bald eagle remains protected under the BGEPA.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	21	Page 3-151, Peregrine falcon: Similar to the comment above, the peregrine falcon is not afforded protection under the ESA as a listed species. It remains protected under the MBTA.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	22	Page 3-153, Desert tortoise (Mojave population): Ernst and Lovich (2009) contains a comprehensive overview of the diet of the desert tortoise. Desert annuals, particularly forbs, are the primary food source for Mojave desert tortoise, and grasses are considered to be secondary in importance.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and	242660	23	Page 3-154, Northern leopard frog: The email cited was from Shaula	Section 3.8.1 has been updated to include these

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Wildlife Service			Hedwall, not "Durst". The citation provided in that email is "Drost 2010". Furthermore, this paper describes the northern leopard frog as occurring along the Colorado River at Horseshoe Bend (River Mile 9) until 2002.	changes.
U.S. Fish and Wildlife Service	242660	24	Page 3-155, Humpback chub: Within the Lower Colorado River Basin, critical habitat has been designated in the Little Colorado River from river mile 8 to its confluence with the Colorado River, and in the Colorado River from Nautiloid Canyon to Granite Park.	Section 3.8.1 of the DEIS contains discussions of this information.
U.S. Fish and Wildlife Service	242660	25	Brian Healy is a National Park Service biologist, not a U.S. Fish and Wildlife Service employee.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	26	Page 3-155, Razorback sucker: Critical habitat for this species has also been designated in the Colorado River from the Paria River to Hoover Dam.	Section 3.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	27	Page 3-156, Virgin River chub: Based on sampling conducted in 2010, the Virgin River chub currently occurs in the Virgin River in Utah and Arizona. It is occasionally documented in the river in Nevada.	Section 3.8.1 of the DEIS contains discussions of this information.
U.S. Fish and Wildlife Service	242660	28	Page 3-181, Resource condition indicators: Please see our comment above for page 3-7.	Section 3.8.6 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	44	Pages 4-139 to 141, Table 4.8-1: For species with designated critical habitat, the rationale for exclusion should state that no critical habitat would be affected and include the reason(s). In addition, on December 14, 2010, FWS published a 12-month "warranted but precluded" finding for the Sonoran population of the desert tortoise. This subspecies is now a candidate for listing under the ESA.	Section 4.8.1 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	45	Page 4-143, Section 4.8.3, Threatened, endangered, and candidate species: This paragraph implies that ACECs fully protect the species that are located within them. Although ACEC designation provides certain protections, mining activities can still occur within ACECs and result in impacts to these species.	Section 4.8.3 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	46	Page 4-144, Impacts of Alternative A: Siler pincushion cactus could be affected in a manner similar to the other plants listed here.	Section 4.8.3 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	47	Page 4-145, Impacts of Alternative A: Northern leopard frog and lowland leopard frog are not currently threatened, endangered, or candidate species and should be included with the description of impacts to sensitive species instead of in this section.	Section 4.8.3 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	48	Page 4-147, Cumulative impacts: In the sentence regarding critical habitat for the Mexican spotted owl, please clarify that this habitat is withdrawn from mineral entry due to other withdrawals (such as wilderness designation). Critical habitat designation itself does not withdraw these areas from mineral entry.	Section 4.8.3 has been updated to include this species information.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
U.S. Fish and Wildlife Service	242660	49	Page 4-147, The ESA requires consultation for Federal actions that may affect listed species or designated critical habitat and is intended to avoid or minimize adverse effects. However, the ESA does not require that effects result in "minor and less than significant cumulative impacts." The ESA does prohibit Federal agencies from implementing actions that would result in jeopardizing the continued existence of a listed species or adversely modifying or destroying critical habitat.	Section 4.8.3 has been updated to include this species information.
U.S. Fish and Wildlife Service	242660	51	Page 4-148 to 149, California condor: We recommend adding a conservation measure that requires covering truckloads, bins, and/or piles of wet or dry uranium ore or bypro ducts while on site and not actively being used or monitored. The purposes would be to reduce contamination off-site from blowing dust as well as discourage perching/roosting by condors and other avian specles.	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Fish and Wildlife Service	242660	53	Page 4-149, Mexican spotted owl standards: We recommend also conducting surveys in canyon type habitat that may support Mexican spotted owls within 0.5 mile of proposed mining activity.	Section 4.8.1 of the DEIS contains discussions of this information.
Havasupai Tribal Council	54408	2	Given the presence of endangered and threatened plant and animal species, how would Alternatives C, D, and the "no action" Alternative adequately protect the endangered and threaten species that occupy the proposed withdrawal area?	Section 4.8 of the DEIS contains discussions that disclose potential impacts on threatened and endangered species of all the proposed alternatives, including Alternatives A, C and D.
Vegetation Resources				
Donald Begalke	225254	7	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.	The potential impacts of the proposed project alternatives on vegetation resources is quantified in the Draft EIS in terms of acres of vegetation cover type that would be removed. This is a more accurate measure to assess the context of the impacts to vegetation because quantifying numbers of trees or individual grass plants is impossible at this scale due to the high variability between different areas, combined with the fact that the specific locations of future mining locations are unknown. Presenting impacts in acres disturbed also extrapolates better for the analysis of impacts to wildlife habitat. The number of individual plants disturbed is only meaningful in a discussion on special status plants, within the analysis of a particular mining plan of operations, rather than in

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				this analysis of the impacts of the proposed withdrawal.
	225254	8	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.	Section 4.6.2 discusses site specific operational requirements and conditions. The federal agencies require reclamation plans and bonding for each mining or exploration project.
Energy Fuels Resources	225260	9	I disagree that a major long-term impact could occur to aquatic and terrestrial habitats under Alternative A. I could not find any mention of a "major long-term impact" in Sections 4.6 and 4.7, which provide the detailed analyses for vegetation and fish and wildlife.	Sections 4.6 and 4.7 of the Draft EIS describe the rationale and background for the impacts descriptions. Section 4.6 describes impacts ranging from minor to moderate. Section 4.7 describes impacts ranging from minor to major.
Uranium Watch	225262	37	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The DEIS discussion of Impacts Common to All Alternatives (Section 4.2.4, page 4-16) manages to totally ignore the radioactive and hazardous constituents of any fugitive dust from the mining operation. The EIS must identify all hazardous radioactive and non-radioactive constituents of fugitive dust from the uranium mining operations and assess their impact on the environment. This would include an evaluation of potential exposure pathways and impacts to the public, workers, ground and surface water, soils, vegetation, and native and domestic animals over the short and long term.	Section 4.6.1 of the Draft EIS discloses the impacts of fugitive dust, including potential radio-active and non-radioactive issues.
Uranium Watch	225262	72	Section 4.6.2 Compliance with Environmental Regulations and Permitting (page 4- 115) assumes that appropriate construction and conservation measures will be taken during mine development and operation. This is an unsupported assumption because the state and federal agencies do not regularly inspect construction operations and do not enforce their regulations.	The BLM does monitor mining activities that occur on BLM-administered lands. The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within the BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to initiate formal talks with ADEQ so that all four agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
Uranium Watch	225262	73	Section 4.6.2 assumes that revegetation of disturbed areas will take place in a timely manner. Again, this has not been the experience on BLM land in La Sal. Disturbed areas have not been reclaimed as indicated in the plans of operation, and there is un-remediated erosion from access road construction that has not been addressed for many years. In some areas no attempt has been made to control or eliminate erosion on the access roads that are no longer in use. This erosion prevents the reestablishment	The BLM does monitor mining activities that occur on BLM administered lands. The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			of vegetation in disturbed areas.	initiate formal talks with ADEQ so that all four agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
Uranium Watch	225262	74	Section 4.6 should discuss the impacts to vegetation from the uptake of radon progeny from the emission of radon from the mine portal and mine vents. Radon progeny are scavenged by water and vegetation, particularly in the immediate vicinity of the portals and vents.	Section 4.6.1 of the FEIS has been revised to include a more detailed discussion on impacts to vegetation from the uptake of radon progeny from the emissions of radon from the mine facilities.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	33	The DEIS fails to acknowledge the link between increased public and industrial access to wildlands resulting from road construction for exploration and mining, and resulting increased incidence of invasive weed spread, fire, and synergies thereof. Roads for exploration and mining would facilitate vehicle and off-road vehicle access into wildlands thus providing new vectors for weed spread. Increased public and industrial access will also facilitate increased incidence of human-caused fires. The DEIS also fails to acknowledge the strong link between the spread of invasive species, particularly cheatgrass, and fire, and the consequence of continued spread and eventual type conversion resulting from the cheatgrass fire cycle.	Section 4.6.1 has been updated to include more detailed discussion regarding cheatgrass and other invasive species and the potential increase for fire from these invasive species communities when compared to more natural vegetation communities.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	34	The DEIS states: *Impacts to the vegetation resource could result in reduced biological productivity, weed invasion, and unwanted changes in the composition and structure of vegetation communities. These changes, in turn, could influence forage availability for wildlife and livestock. Where actions result in loss or reduction of vegetative cover and/or soil erosion or compaction, cultural, wildlife, water, soil, and air resources could be impacted. DEIS 4-113.* Loss of forage availability is not the only consequence of impacts to vegetation resources. Wildlife also use vegetation for habitat cover and may depend on vertical structure to evade predation. For example, this would be important for pronghorn antelope in the North and East parcels. Perhaps more importantly, the analysis neglects to acknowledge the influence of non-native species such as bromes, Russian thistle, and medusahead on fire regimes. Spread of these species increases the probability of fire, which will likely lead to additional spread and additional fire.	Section 4.7 of the FEIS has been revised to provide additional information regarding the potential indirect impacts of changes in vegetation composition on cover and other factors affecting wildlife species. Sections 3.6.2 and 4.6.1 discuss invasive species impacts associated with the proposed project.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	35	The DEIS states: *The time required for successful reclamation would depend on soil, topography, rainfall, vegetation type, and the reclamation method used. DEIS 4-114.* This statement assumes that it is possible to successfully reclaim areas. This is not necessarily the case, particularly in the most arid regions of the withdrawal area and over the large acreages where surface disturbance would occur. Reseeding arid lands is extremely difficult. The EIS should include an assessment of the viability of reclamation in arid lands to more accurately determine whether reclamation to established benchmarks is truly possible. Beyond this	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. However, as a result of this EIS and interest in developing protections for the environment, a comprehensive Best Management Practices and Monitoring Plan to address

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			invasive species such as cheatgrass, Russian thistle, Russian knapweed, medusahead, and others are extremely difficult to control and an assessment of the viability of controlling these species should also be conducted to identify the probability of successful reclamation. Also, mining companies should be held accountable for providing resources to continue reclamation activities until benchmarks for success are achieved.	impacts of future uranium mining in the withdrawal area is being prepared. This plan will be developed by involved federal and state agency experts and address pertinent environmental concerns and outline a long-term monitoring strategy for the area. The plan will be implemented through current BLM and Forest Service procedures. The BLM does monitor mining activities that occur on BLM administered lands. The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to initiate formal talks with ADEQ so that all four agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	36	The DEIS states: *Preventive measures, such as power washing of all construction vehicles prior to their entry onto construction sites and monitoring reclamation sites, would minimize establishment and spread of invasive species as part of reclamation activities.* DEIS 4-116. If that's true, these activities should be included in the list in 4.6.2. in the section titled "Compliance with Environmental Regulations and Permitting." Also, while these activities could potentially reduce spread, they would not "minimize" it because powerwashing immediately off-site would simply deposit seeds on public land adjacent to said sites (in wash-water that could facilitate weed establishment); this does not preclude establishment and subsequent spread of invasive plants. Moreover, monitoring does nothing to minimize establishment and spread.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to initiate formal talks with ADEQ so that all four agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park. Power washing to remove plant and see materials from equipment will occur at an offsite washing facility and not on adjacent lands. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Grand Canyon Wildlands	225279	37	As indicated above, this analysis does not acknowledge the strong linkages between spread of invasive species, particularly cheatgrass, and	Section 4.6.1 discusses invasive species. Vegetation impacts were calculated for more than the physical

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity			fire, and the consequences of continued spread and eventual type conversion that are part of the cheatgrass fire cycle. Thus, the cumulative impacts to vegetation are underestimated, as they are unlikely to be solely limited to areas where surface disturbance has occurred in the instances where they facilitate the spread of fire to adjacent parts of the landscape.	footprint of the mine and roadways. In addition a 0.5 mile impact zone for indirect vegetation and wildlife habitat impacts are discussed in Section 4.7.4. Section 4.6.1 of the FEIS has been updated to include more detailed discussion regarding cheat grass and other invasive species and the potential increase for fire from these invasive species communities when compared to more natural vegetation communities.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	38	The following citations speak to the strong connection between fire risk and cheatgrass. (see submittal #225279 for complete citation list.)	References were reviewed. Section 4.6.1 discusses invasive species. Section 4.6.1 has been updated to include more detailed discussion regarding cheat grass and other invasive species and the potential increase for fire from these invasive species communities when compared to more natural vegetation communities.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	39	The DEIS analysis omits several narrowly-endemic plant species of the Grand Canyon region or plant species whose genetics are poorly understood. All of these species may occur in the withdrawal area and could be impacted by ground disturbing activities relating to mining or exploration (Table 1). (see submittal #225279 for complete list.)	The commenter provided a list of species classified as “narrowly endemic plant species” but does not provide a reference for this list. The EIS utilizes the most current list from the USFWS, AGFD, BLM, Forest Service, and NPS for analysis. No updates required.
American Clean Energy Resources Trust (ACERT)	225256	90	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.S, Special Status Species. Some reference to this would be appropriate in Section 4.6. Vegetation Resources.	1) Table 2.8.1 is a summary table. Full impacts discussions are contained in Section 4.6, 4.7 and 4.8. 2) Cumulative impacts are addressed in Section 4.6.7. In addition, the land use items discussed in are discussed in the Agency land use management plans and associated NEPA documents. 3) The reference that this comment is requesting is actually in Section 3.6. Section 4.6 has been revised to include a reference to where discussion on vegetative special status species are discussed.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
American Clean Energy Resources Trust (ACERT)	225256	91	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.	1) Table 2.8.1 is a summary table. Full impacts discussions are contained in Section 4.6, 4.7 and 4.8. 2) Cumulative impacts are addressed in Section 4.6.7. In addition, the land use items discussed in are discussed in the Agency land use management plans and associated NEPA documents. 3) The reference that this comment is requesting is actually in Section 3.6.
Groundwater Awareness League, Inc	242658	2	While the BLM comprehensive report includes a surprising amount of data on the water in this isolated region, it does not explain how the trees and vegetation are sustained. With water levels at 2,000 ft. obviously, it is not from groundwater. Therefore, it must be from rain and snow, that is, surface water. Exactly what is the number of valuble trees that will be destroyed by the proposed mining operations? If in-situ mining methods are used, how will that effect the surrounding habitat.	This comment is beyond the scope of this analysis. Unable to calculate the specific numbers of trees removed because specific mine locations are not known.
		4	It is impossible to keep a stable solution in the dissolved radiation in the in-situ wells. Therefore, the uranium that was mostly bound up in pipes is now released. What will be the effect on the surronding trees and vegetation?	Section 4.6.1 has been revised to provide additional information on direct impacts from mine portals and vents include possible emissions of radon in the general vicinity of these mining features. The mining process is underground ore removal mining, not “in-situ” solution mining, there are no “in-situ” wells associated with this EIS.
The NAU Project, LLC	242913	88	Compliance with Environmental Regulations and Permitting page 4-115 *2. All new temporary or existing upgraded roads on BLM lands may require mitigation to reduce the potential adverse impact of fugitive dust as specified by the authorized officer.* What might these be?	Section 4. 2 (Air Quality and Climate) includes examples of standard mitigation measures to reduce impacts associated with dust from hauling ore under the subsection titled Compliance with Environmental Regulations and Permitting.
U.S. Fish and Wildlife Service	242660	7	Page 3-2, Section 3.1.2: The scientific name for Siler pincushion cactus is Pediocactus sileri. The scientific name for southwestern willow flycatcher is incorrect; the correct name is Empidonax traillii extimus.	Section 3.1.2 has been updated to address this comment. Main body text was correct. Change in text was made from (*Strix occidentalis lucida*) to (*Empidonax traillii extimus*).
U.S. Fish and Wildlife Service	242660	29	Page 4-116, Impacts of Alternative A: Although individually fairly small areas would be disturbed under this alternative, the number of exploration (504) and mining projects (21) anticipated for the North Parcel could result	Section 4.6.3 has been updated to discuss long term impacts for the North Parcel in more detail.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			in long-term and apparent differences between the disturbed then reclaimed areas and the surrounding vegetation. Impacts are more likely to be apparent to the vegetation community overall in this parcel because of the total number and acreage of disturbances that could be distributed throughout the parcel, and because successful reclamation to the pre-disturbance community and condition is unlikely, due to the highly variable precipitation, invasive plants species, and existing land uses.	
U.S. Fish and Wildlife Service	242660	30	Page 4-118, Impacts of Alternative D: Similar to our comment above, impacts to vegetation within the North Parcel in this alternative would likely be similar to those in Alternative A, due to the relatively high number of exploration action (290) and mines (20) that would be concentrated across a smaller area.	Section 4.6.6 has been updated to discuss long term impacts for the North Parcel in more detail.
U.S. Fish and Wildlife Service	242660	32	Page 4-118-119, Cumulative impacts: Livestock grazing can also slow recovery of vegetation after disturbance and impact the success of reclamation, especially at sites that are near stock tanks or corrals where cattle congregate. We recommend protecting disturbed sites from grazing to improve the opportunity for successful revegetation to the pre-disturbance conditions.	Section 4.6.7, Cumulative Impacts, includes a discussion on livestock grazing. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
U.S. Fish and Wildlife Service	242660	34	Page 4-127, first full paragraph: An additional effect at mines under interim management, as well as active mines, is exposure of birds and bats to contaminated water that periodically occurs from rainfall events at mine collection ponds. Requiring netting or other protection over these ponds would reduce the chance of contamination and potential injury to migratory birds and bats.	Section 4.7.3 has been updated to include discussion of rain events.
Arizona Game and Fish Department	242655	3	The Department is concerned that increased activity in the area may lead to the proliferation of invasive plants which in turn leads to reduction in habitat quality. An example of invasive plants spreading in remote areas comes from Tyser and Worley (1992) who found that although invasive plants were more common along primary roads, they were also prevalent along secondary roads and trails in remote grasslands. The Department is particularly concerned about large scale infestations of species like cheat grass. Cheat grass and other Bromus spp are already established within all three parcels and proliferation of these non-native grasses has the	Section 4.6.2 has been updated to include more detailed discussion regarding cheat grass and other invasive species and the potential increase for fire from these invasive species communities when compared to more natural vegetation communities.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			potential to influence fire regimes and drastically reduce important wildlife forage such as cliffrose, sagebrush, and four-wing saltbush.	
Hualapai Tribe-Office of the Chairman	225270	30	Vegetation Species of Concern Kaibab Agave. Kaibab agave (Agave utahensis var. kaibabensis) is found in proximity to the three proposed sites, is a Grand Canyon National Park Service species of concern and is a species of cultural significance to Hualapai. Damage to Kaibab agave species is a threat to Hualapai cultural integrity and perseverance. The persistence of healthy agave communities ensures a continuation of harvesting practices and uses evidenced as in recorded pre-colonial and contemporary practices.	Section 3.8.4 includes discussion on this species and it is discussed in a group in Section 4.8.6.
Visual Resources				
Derek Holmgren	4622	3	Was light pollution examined using National Park Service (NPS) criteria? I recommend checking with the NPS. A good place to start: http://www.nature.nps.gov/air/lightscapes/	National Park Service data was used in describing existing Night Sky conditions in the National Park (Night Sky Quality Monitoring Report [2006a]). The website the commenter references provides general parameters the NPS uses to monitor night skies and attempt to differentiate between existing natural and human-created light in the night skies. However, it does not provide methodology or criteria for quantitatively predicting the impacts of development on sky glow. The potential impacts on night skies from the proposed project were evaluated qualitatively and took into account factors recognized by the NPS and other agencies as contributing to light pollution. See the night sky discussion in Sections 3.9.5 and 4.9.2.
Derek Holmgren	4622	8	I disagree with the following: Page 4-177, Regional Haze and Dust states: *Under Alternative A, these impacts would be moderate to major and short term.* These impacts would be caused by mining operations and truck traffic. These activities would occur during the lifespan of the project and, therefore, the impacts should be considered long term as there will always be casual observers, persons traveling along area roads, recreationists, etc. in the area to view these impacts. Although mining operations and truck traffic may not occur every hour of every day, the fugitive dust will linger long enough for there to be long term impacts.	Section 4.9 of the EIS has been edited to address the duration of impacts to reflect the commenter's concern that the duration of impact is long term.
Derek Holmgren	4622	9	Page 4-177, Night Sky states: *Under Alternative A, these impacts are classified as short-term and moderate.* These impacts would be caused by lights on mining equipment and truck traffic. The lights associated with these activities would be present during the lifespan of the project and, therefore, the impacts should be considered long term as there will always be casual observers, persons traveling along area roads, recreationists, etc. in the area to view these impacts. Also, these activities would occur in areas that currently have no sources of artificial light. Introducing this much	The definition of long-term impacts for Visual Resources is provided in Table 4.9-2. Breccia pipe uranium mines, as analyzed in this EIS, operate for 5 years. Using the definitions given, night lighting duration is considered "short-term." The magnitude definition of moderate is included in Table 4.9-1. The impact assessment remains moderate, given the magnitude definition and the night lighting design

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			light to areas with no light would have a major impact, not a moderate impact. A moderate impact would occur if lights from mining activities were introduced to an area that already had some sources of artificial light, or if the introduced light was negligible in terms of quantity, intensity, and visibility.	currently used on uranium mines in the area.
American Clean Energy Resources Trust (ACERT)	225256	101	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 anyone 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.	The visual resource impact analysis takes into account the factors of unknown precise mining operation locations and the probability of operations located within a particular visual resource management class. It does not take into account visitation to particular Key Observation Points (KOPs) because that visitation is highly variable and impossible to accurately predict into the future. Accordingly, the analysis is based on impacts to key sensitive viewsheds seen from KOPs, not on the numbers of visitors that could be impacted if they visit those KOPs. Additionally, the extent of area that mining exploration and operations are visible from KOPs in visually sensitive areas is provided in Figures 4.9.1 through 4.9.6 of the Draft EIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	43	The DEIS Should Acknowledge Its Underestimation of Impacts. Effects on Visual Resources are based on consideration of the viewshed from roadways, popular scenic viewpoints (Key Observation Points), and trailheads. While the viewsheds from these locations are an integral part of the regional visitor experience, they fail to protect those who pursue backcountry experiences. Those who venture away from major roadways in pursuit of untrammeled landscapes are the most likely to be perturbed by visual intrusions from mining and exploration activities. Power lines and roadways are linear impacts that span great distances and are difficult to mask. They change the form, line, color, and texture in the viewshed as they bisect the landscape; dust rising from roadways can increase their detectability; lights, even if they point downward, will be more visible to those participating in backcountry camping away from other developments, or night hikes.	The analysis of Conformance with Visual Resource Designations in Sections 4.9.2, 4.9.3, 4.9.4, and 4.9.5 analyzes the withdrawal area landscape, including backcountry areas mentioned in the comment, based on Forest Service and BLM visual objectives in their respective land use plans. The Visual Resource Management (VRM) allocations and objectives in the Arizona Strip RMP accounts for sensitive backcountry visual settings in the VRM classifications. For example, all Wilderness and other backcountry areas are classified as Class I, the most sensitive and restrictive visual designation. VRM Class II, the next level of sensitivity and protection, includes other backcountry areas, including all ACECs. Forest Service lands designated SMS Moderate and High in Forest Plans include National Forest backcountry areas within the withdrawal area. All future mining operations will undergo site-specific NEPA analysis to determine visual impact and must conform to land use plan decisions. See the Recreation Sections 3.14 and 4.14 for more detailed information on impacts to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				backcountry recreation users.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	44	Future Conditions Must be Considered. The DEIS assumes that dense ponderosa pine forests will mask visual intrusions in the North and South Parcels. Vegetation thinning, as part of the Four Forests Restoration Initiative on the South Parcel, or as part of individual ecological restoration projects on the North Parcel, will greatly increase visibility through ponderosa pine forest. Also, fires can open large swaths of land, and fire occurrence can increase when there is increased vehicle access through road building or social trails.	Although sight distances will increase as a result of forest thinning, it is not expected to alter the analysis in the Visual Resources section. Wildfires may result in making cultural modifications more visible within the burn area for some duration after the fire; however, the locations and burning intensity of future fire events is not reasonably foreseeable and thus are not considered in the Visual Resources analysis. There is no evidence that development to support mining activity in this region has had any effect on fire occurrence.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	45	Absent a withdrawal under Alternative B, protection of visual resources is left to BLM and USFS visual resource management systems (Visual Resource Management, Scenery Management System, and Visual Management System) and this permits the impairment of national park, national monument, and wilderness area viewsheds. Potentials for impairment include: East Parcel: The viewshed from Vermilion Cliffs National Monument includes most or all of the East Parcel. The East Parcel has no tall vegetation or topographic features capable of masking mine operations, exploration activities, roads, or power lines. Alternatives C and D may encourage highly concentrated exploration in a smaller area, and will not prevent mine development. Roads and power lines associated with exploration and mine development will be visible under these alternatives, impairing the viewshed of Vermilion Cliffs National Monument, Paria Canyon-Vermilion Cliffs Wilderness, and Saddle Mountain Wilderness. Highway 89A north of the East Parcel is a popular travel corridor that is an integral part of the visitor experience for many tourists. It provides access to the North Rim of Grand Canyon National Park and other regional national parks and monuments, as well as the Lees Ferry river access, wilderness areas, popular hiking trails, hunting areas, and local businesses. Any mines would alter the existing character, be highly visible, and would not meet Class II objectives. Much of the East Parcel is visible from the House Rock Valley Overlook on Highway 89A (Fig. 3.9-2) and from Point Imperial within Grand Canyon National Park (Fig. 4.9-6). Alternative D leaves an area open to exploration and mining that is considered visually valuable (Fig. 2.4-6). South Parcel: Some areas on the South Parcel rated as "Low" are adjacent to the SR 64 through Grand Canyon National Park, and will be visible from the road and/or Grandview Point (Figs. 3.9-3, 4.9-4). Other "Low" areas are visible from several Key Observation Points in Grand Canyon National Park (Figs. 3.9-3, 4.9-1, 4.9-3, 4.9-4, 4.9-5, 4.9-6). Night lighting impacts are possible at all Grand Canyon National Park Key Observation Points (Table 4.9-4). Alternatives C and D may encourage highly concentrated exploration in a smaller area,	Visual resources are managed by both the Forest Service and BLM to protect visually sensitive areas as identified through land use planning. The analysis in the EIS assumes that these agencies will continue to manage visual resources under their regulatory framework. A range of alternatives were analyzed and Alternatives C and D leave portions of the landscape out of the withdrawn lands. The analysis described in EIS section 4.9 does indicate that visual impacts will vary depending on alternative.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			and will not prevent mine development. Alternatives C and D both leave areas open to exploration and mining that are considered visually valuable (Figs. 2.4-4, 2.4-7). North Parcel: Portions of the North Parcel are visible from Sowats Point (Fig. 4.9-1). More of this parcel is likely to be visible from high points in Grand Canyon-Parashant National Monument, including Mt. Logan Wilderness and Mt. Trumbull Wilderness. Linear features such as roads and power lines will alter the form, line, color, and texture of ponderosa pine forests; dust will decrease the visibility on roads. There is a high probability of mines in Class II areas, in "high use and visually sensitive areas [where they] could be difficult to mitigate to meet the Class II objectives" (p. 4-166). Alternatives C and D may encourage highly concentrated exploration in a smaller area, and will not prevent mine development. Alternatives C and D both leave areas open to exploration and mining that are considered visually valuable (Figs. 2.4-2 and 2.4-5).	
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	55	Visual impacts from exploration and mine operations will also harm Wilderness Areas. In remote Wilderness Areas with truly dark skies, such as the five that are proximal to the Withdrawal Area, isolated lights on mine structures will draw visitors' attention, ruining the untrammeled and undeveloped character of the landscape. As mentioned under the Visual Resources section of these comments, elevated topographic features within Wilderness such as cliff faces and hills enable views far across the landscape. Linear features such as roads and power lines are difficult to mask and will damage the wilderness character of designated and proposed wilderness areas.	Although viewers in Wilderness Areas from high overlooks can see long distances, it is not within the purview of either the BLM or Forest Service to manage those views strictly for the benefit of the wilderness user. Cultural modifications on these broad landscapes are not a part of the wilderness characteristics within designated or proposed wilderness. The effects of the night lights at mines are discussed in EIS Section 4.9. Impacts to the visual resources of any particular feature would be analyzed in the site-specific environmental analysis required for authorizing a mine Plan of Operation.
Quaterra Alaska Inc.	225288	11	The Perrin Ranch wind farm north of Williams AZ will be within full sight of route 64, the major route to the South Rim. It will consist of 62 wind generators which will be 480 feet high at the tip of the windmill blades. The blades will be moving and will presumably be white, which will enhance their visibility. It would be interesting to compare this to a single mine headframe 90 feet high which will be stationary and painted a color to blend in with the landscape, and would be a considerable distance from route 64. It would also be interesting to compare the noise of the windmill blades with the noise of a mining operation.	Although the development of a wind generation facility may have a greater visual effect than a single mine headframe, the purpose of this EIS is not to compare one development with another, but to estimate the impacts of the Proposed Action and Alternatives for this EIS. The estimates of impacts to Visual Resources can be found in Sections 4.9.2, 4.9.3, 4.9.4, and 4.9.5 of the EIS.
The NAU Project, LLC	242913	94	Page 166 *Typically, on-site evaluations and visual contrast ratings would be required prior to any mine development in Class II areas to determine appropriate mitigation measures.* .....However, mining operation visual impacts (described in Section 4.9.2) in high use and visually sensitive areas could be difficult to mitigate to meet the Class II objectives. Do you have any ideas for mitigating measures that might overcome these difficulties?	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as

Table 5.6-4. Response to Comments (Continued)

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				part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
The NAU Project, LLC	242913	95	South Parcel One mine is projected for the South Parcel under Alternative B. This mine is expected to be located in the existing Canyon Mine area, which is designated SMS Moderate. With applicable visual mitigation, this mine can conform to the SMS Moderate visual objectives. This likely conformance would result in minor impacts to visual resources. What might these mitigating measures be?	The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring, that could potentially be considered, as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Water Resources				
Rita Jay	18056	2	Recent studies released by the US Geological Survey show elevated uranium levels in wells, springs and soil in and around Uranium exploration and mining sites within the water shed feeding the Grand Canyon and Colorado River.	The USGS data were incorporated into the EIS, and used to characterize the existing environmental conditions in Sections 3.4 and 3.5, and in some cases to project impacts in Sections 4.4 and 4.5.
Mark Losleben	22060	1	Water-borne pathogens have great and as yet not fully understood health ramifications, human and ecological, and thus should certainly not be allowed into public lands, much less gems such as the Grand Canyon and the Colorado River. (Are pathogens covered in the DEIS?)	Water borne pathogens are not covered in the EIS because they are not considered to be a concern for environmental impact from breccia pipe uranium mines. The only potential source of pathogens from these mines would be the onsite septic systems regulated by ADEQ and the counties to protect water resources pursuant to Aquifer Protection Permits; the septic systems would not be expected to represent a threat to water resources.
Robert E. Grossman	54251	4	The DEIS mentions water to control dust. What is the estimate for such water use and what is the source of such water?	Section B.8.1 of FEIS Appendix B, it is estimated that the average rate of water use to suppress dust at each mine site is 3 gpm for an average 4-year mine life span. Source of the water is mine drainage collected in the mine sump and, when necessary, groundwater from deep R-aquifer water supply wells.
Kaibab Band of Paiute Indians	246166	4	As the composition of the subsurface geology is apparently unknown, assurances that aquifers will be protected are baseless. This site-specific characterization of groundwater must be completed before any conclusions can be reached.	Uncertainty in available water resources information is addressed in the EIS in Section 4.4.2. Although uncertainty is in some cases substantial and cannot be eliminated, the use of conservative assumptions allows meaningful, though not precise, assessments of potential for impacts to occur. Incomplete and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				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. 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. Site-specific characterizations are not feasible or appropriate for this EIS, which analyzes the effect of the proposed withdrawal on projected potential resource impacts.
American Whitewater	54357	3	Your analysis seeks to quantify the risks of allowing uranium mining near the Grand Canyon. The results of your analysis confirm that the risks of long term water quality and quantity impacts exist that could impact iconic tributaries to the Grand Canyon. We believe that by excluding the Grand Canyon paddling experience from your analysis, including hiking along, swimming in, and drinking from the tributaries, you have miscalculated the risks of allowing future uranium mining. Radiation and other pollution in these streams would directly impact human health and perceptions of wildness. Even very small reductions in flow in tributaries and springs would impact the experience of these places.	Potential water quality impacts to R-aquifer springs, which feed perennial streams flowing in the Grand Canyon, are discussed in EIS Section 4.4.4 (Subsection R-aquifer Springs Quality) and summarized in Table 4.4-5. With the exception of small South Rim springs, which do not typically support significant stream flow, potential concentrations of arsenic and uranium are projected to range from ambient levels to below EPA MCLs. Therefore, assuming a few days of water consumption or exposure at spring-fed streams by Colorado River paddlers would represent a negligible risk to human health. Please see EIS Section 4.4.1 (Subsections Chemical Quality of Regional R-Aquifer Springs and Wells – Springs) for discussion of EPA MCLs. Potential water quantity impacts to R-aquifer springs, which feed perennial streams flowing in the Grand Canyon are discussed in EIS Section 4.4.4 (Subsection R-aquifer Springs Quantity). With the exception of small South Rim springs, which do not typically support significant stream flow, potential impacts on spring flow are projected to be less than 5% of the total flow, which is less than typical measurement accuracy. This small level of change in

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				stream flow would not likely be perceptible to the casual observer or discernible beyond typical seasonal variations.
Don Lipmanson	96015	1	I know from the posted warning signs that groundwater at Salt Creek cannot be consumed on account of radioactivity from former mining. Likewise, uranium mining in national forests nearby Grand Canyon NP could seriously threaten air safety in the region.	Concentrations of uranium detected in water samples obtained from Salt Creek range from about 29 to 31 ug/L (see EIS Appendix F, Table F-1, Project Site ID 393), which is near the EPA drinking water maximum contaminant level (MCL) of 30 ug/L. Elevated uranium concentrations in groundwater and surface water along this section of the South Rim of Grand Canyon may be associated with natural sources. No mines are located in the Salt Creek surface water drainage basin.
Greg Webb	103019	2	The hydrology section of the report is based, in many cases, on conceptual models of how water movement occurs throughout this region. The report is full of language that uses words like 'expected', 'likely', and 'may' to describe water movements, impacts, etc. It is clear, then, that the hydrology of this region is not clearly understood, and it is threfore alarming that you are able to claim that Alternatives C and D, and even A, ae likely to have little impact from uranium mining in regards to water quality.	Uncertainty is addressed in the EIS in Section 4.4.2. Although uncertainty is in some cases substantial and cannot be eliminated, the use of conservative assumptions allows meaningful, though not precise, assessments of potential for impacts to occur. 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. 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.
Cynthia Pando	104125	1	Please improve the DEIS by doing a more extensive study on the impact in the ground water, aquifer, and watersheds. The DEIS does not seem to corroborate or use sources that have shown significant and different impact datat on groun water, aquifer , and watersheds from sources such as Dr. Abe Springer, Dr. Ingram and others at NAU.	The DEIS uses the best available science in its formulation. The DEIS represents an exhaustive compilation of available data for these resources and, to our knowledge, does not omit any significant data sources. Dr. Springer was consulted regarding data sources that might be included or considered in the analysis. Work by Drs. Springer and Ingram was evaluated and used in the USGS SIR 2010-5025, which is a frequently cited reference in the DEIS.
	104132	1	Please be advise that there has not been enough research and examination documented that can prove that uranium mining will not affect	Incomplete or unavailable information and the resulting uncertainty are discussed in EIS Section 4.4.2 for

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			not only the air but also the groundwaters and aquifers that flow throughout the area within Grand Canyon.	water resources. The effect of data uncertainty on impact assessments is addressed throughout the discussion of impacts to surface and groundwater resources in EIS Section 4.4.4.
Rich Csenge	221984	3	A final question is this: Has consideration been given during the EIS to what degree a reduction in the flow of water in Kanab Creek resulting from the Jackson Flat Reservoir, currently being constructed in Kanab to impound the flow of Kanab Creek.	Jackson Flat Reservoir does not impound the flow of Kanab Creek; it is an off-stream storage reservoir supplied by an existing diversion dam and irrigation piping system. The FEIS has been revised to include discussion of Jackson Flat Reservoir in the cumulative analysis section for water resources (Section 4.4.4, Subsection Cumulative Impacts).
Donna Brown	225253	6	With climate change, there are projections of even more violent or unpredictable storm events that could make these retention ponds more vulnerable.	Design of the mine water retention/evaporation ponds is reviewed and approved by the BLM, Forest Service, and the ADEQ on a case-by case, site-specific basis. If hydrologic data indicate that potential flood flows at these mines are increasing, these agencies have the authority to upgrade pond designs to prevent breaching.
Donald Begalke	225254	13	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?	The EIS addresses water quality issues in Sections 3.4 and 4.4 and soil contamination in Sections 3.5 and 4.5.
Donald Begalke	225254	14	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?	Due to long residence times, difficult identification of appropriate dye entry and exit points, and the limited duration of this EIS analysis, and other reasons, dye testing was not a feasible option for the scope of this EIS. The EIS relied on the best available science, including USGS SIR 2010-5025.
Donald Begalke	225254	15	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.	Only a small fraction of the mining claims would eventually become operating mines. The projected number of mines that might go into operation under each alternative during the next 20 years is given in EIS Appendix B (Table B-43). This table also gives the projected water usage. Potential impacts from this water usage are discussed in EIS Chapter 4 Section 4.4.4 (Subsections R-aquifer Springs Quantity, and R-aquifer Wells Quantity).
American Clean Energy Resources Trust (ACERT)	225256	13 & 14	WATER RESOURCES Page ES-12 Statement: *Resource condition indicators for water resources likely to be affected 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*	Although there are numerous studies cited and interpretive statements made in the EIS that indicate potential impacts to water resources may be none or negligible, there are other instances where the lack of

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			*from perched groundwater zones that may be affected by operations at nearby mine sites, quantity and quality of water discharge at springs that issue from the regional R-aquifer system that may be depleted 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 wellcemented, 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.(2 of 2) attached to previous comment 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).*	sufficient data and associated uncertainty require conservative assumptions to be made to project impacts (see Table 4.4-3). Some of those potential impacts range up to moderate to major even though the probability of such impacts might be low or unknown.
			Continued...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	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 groundwaterchemistry 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 ~g/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.	
American Clean Energy Resources Trust (ACERT)	225256	22	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 Raquifer 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.	The citations from Table 2.8-1 made in this comment are confused. The remainder of the comment appears to re-express the results given in Table 2.8-1 into the relative impact categories defined in Table 4.4-1 and assigned for each parcel and alternative in Table 4.4-3. The range of spring flow impact defined for a negligible impact on R-aquifer springs (between 0% and 5%) is reasonable and is based on the minimum probable uncertainty in typical stream flow measurements reported by Harmel et al. (2006), as discussed in Section 4.4.1 (Discharge from Regional R-aquifer Springs and Wells). For the FEIS, actual calculated percentages are included in Table 2.8-1 together with the generic range for the category.
			Continued...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	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 Raquifer 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 Raquifer 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	
American Clean Energy Resources Trust (ACERT)	225256	27	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 Dine Natural Resources Protection Act (DNRPA) of 2005. Therefore, some mention of this in the DEIS appears appropriate	1. The FEIS contains an expanded discussion of the range of potential hydrogeologic conditions at breccia pipes in Section 3.4.4, including breccia pipes that are exposed. 2. The Dine Natural Resources Protection Act (DNRPA) of 2005 is law enacted by the Navajo Nation that bans uranium mining, milling, and processing on tribal lands. Because this law and the concerns that may have led to its passage do not apply to the withdrawal area, it is not appropriate to discuss it in the EIS.
American Clean Energy Resources Trust (ACERT)	225256	29	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	The cited text is in EIS Section 3.4.7. The DEIS statement is true as written and does not imply what has actually occurred in the past or what will happen in the future. The EIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			penalties for non-compliance, abandoned mineslwaste are not an issue.	the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
American Clean Energy Resources Trust (ACERT)	225256	30	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?	These “buffers” were used only to aid in characterization of the Water Resources Study area and are not part of the proposed withdrawal area. The FEIS provides additional clarification on these “buffers” in Section 3.4.7.
American Clean Energy Resources Trust (ACERT)	225256	31	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.	The breccia pipe dataset has been added to the figures suggested in the FEIS.
American Clean Energy Resources Trust (ACERT)	225256	32	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 1/2 mile or less north of the Orphan Lode Mine, have high concentrations of dissolved uranium (>30 pg/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 andlor disturbed ore deposits to generate*	The fact that the Orphan Lode Mine is a singularly poor example of post-mining practices is acknowledged in EIS Section 3.4.4. In addition, the fact that none of the R-aquifer studies regarding long-term monitoring at deep mine wells have concluded that uranium mining activities have affected the R-aquifer is acknowledged in Section 3.4.4. However, data for the Orphan Lode Mine provide the best available information on concentrations of uranium in mine drainage that is believed to have migrated to the R-aquifer and discharged at a nearby spring, as well as the only data in the Grand Canyon region exhibiting anthropogenic characteristics (as described in EIS Section 3.4.7 (Subsection Legacy Impacts to Water from Uranium Mining) and Appendix H). Please refer to FEIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells, Springs) for discussion of assumptions used to project potential impacts. This section describes the range of reasonably foreseeable impacts, not worst-case impacts.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	33	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.	Although there may be other potential sources of uranium in the area of the Orphan Lode Mine, the combined occurrence of elevated uranium concentrations and an isotopic activity ratio of $^{234}U/^{238}U$ near 1 in the samples from Horn Creek springs is strongly indicative of an anthropogenic source, not a source from natural erosion (see Figures H-1 and H-2 in EIS Appendix H). The amount of surface area exposed to migrating waters is likely insufficient under natural conditions to generate both an elevated uranium concentration and an isotopic activity ratio of 234U/238U near 1, as is associated with disturbance by mining. If the opposite were true, there should be more evidence than this single instance in the Grand Canyon region of elevated uranium concentration coupled with an activity ratio near 1, but there is none (see Table H-1 in EIS Appendix H). In addition, the Liebe (2003) water samples were collected directly from the spring at the base of the Redwall-Muav limestone contact directly downslope from the Orphan Lode Mine workings. Therefore, other explanations for the sampling results are not as likely as the interpretation given in the EIS. As discussed in EIS Section 3.4.4, the location of the Orphan Lode Mine at the canyon rim increases the risk of mine drainage via enhanced secondary permeability of faults or flexure fractures; therefore, the fracture pathway alluded to in the comment could very well have decreased travel time for mine drainage to the R-aquifer.
American Clean Energy Resources Trust	225256	69	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	Table 4.4-3 describes the potential impacts to perched aquifer springs quantity and quality. The methodology for deriving these impacts is described in Section 4.4.1

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
(ACERT)			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?	(Quantity of Discharge from Perched Aquifer Springs and Wells – Springs). The calculation is applied equally for each alternative and is designed to provide a consistent method to compare alternatives. It is not intended to be predictive, but to capture uncertainty.
American Clean Energy Resources Trust (ACERT)	225256	70	Pages 4-71 to 4-74 Comment: North Parcel: Under Alternative A the volume of water withdrawn from the mine-related Raquifer 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 Raquifer 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	Table 2.8-1 has been revised in FEIS to include actual calculated percentages together with the generic range for the category.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Rim Springs In Table 2.8-1, under Alternative A the volume of water withdrawn from the mine-related Raquifer 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.	
American Clean Energy Resources Trust (ACERT)	225256	71 & 72	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 400µg/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 Raquifer springs undiminished (Kanab and Showerbath springs). 2. The average ambient concentration of dissolved uranium in the aggregate discharge (470 gpm) from these springs is 4.9µg/L and the concentration of dissolved arsenic is about 2µg/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 90µg/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). This would raise the projected concentrations from 4.9µg/L to 11µg/L for uranium and 2µg/L to 3µg/L or 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 2. It should be noted that the impacts under both altematives range from none to moderate. 3. Each mine would have to undergo rigorous scrutiny for a site-specific EIS. Page 4-75 Comment: Under Alternative A at least one mine might contribute impacted water to the Raquifer; 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 400µg/L of dissolved uranium and 90µg/Lof 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	EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells) provides the basis for the assumptions and calculations used to project R-aquifer impacts to water quality. This discussion has been expanded and clarified in the FEIS. As stated in EIS Section 4.4.1, sufficient data are not available for the aquifer system or the potential locations for future mines to adequately characterize all the possible flow paths and dilution/attenuation rates for groundwater movement in the R-aquifer; therefore, conservative assumptions were made in an attempt to account for this uncertainty. The statements made in items 2 and 3 of this comment are addressed in several locations in the EIS (e.g., Table 4.4-3 and Section 4.4.2).

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 400µg/L of dissolved uranium and 90µg/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)." 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.	
American Clean Energy Resources Trust (ACERT)	225256	73	Pages 4-75 to 4-78 Comment: East Parcel: Under Alternative A, zero to two mines might contribute impacted water to the Raquifer; 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 400µg/L of dissolved uranium and 90µg/L 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 400µg/Lof dissolved uranium and 90µg/L 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	Please refer to comment 225256-71 (ACERT) for response regarding assumptions for projection of R-aquifer spring impacts. The statements made in items 1, 2 and 3 of this comment are addressed in several locations in the EIS (e.g., Table 4.4-3, Table 4.4-5, and Section 4.4.2).

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	74	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.	Potential impacts to the Colorado River are discussed in EIS Section 4.4.4 (Subsection Surface Waters).
American Clean Energy Resources Trust (ACERT)	225256	75	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	Impacts to perched aquifer quality were not quantified, but were classified as either no impact if a mine would not be located with the groundwater drainage area for the perched aquifer, to major impact if a mine would be located within the drainage area. As described in EIS Sections 3.4.4 and 4.4.1 (Subsections Quantity of Discharge from Perched Aquifer Springs and Wells

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	and Chemical Quality of Perched Aquifer Springs and Wells), during mining, the perched aquifer adjacent to the breccia pipe will drain toward the pipe and contamination would not be expected to springs that discharge from the perched aquifer, if any. After mining ceases, if the perching layer is not re-established, the mine openings could continue to drain the perched aquifer and might impact the quantity of discharge at springs that rely on the perched aquifer as a source. If the perching layer is re-established, although the quantity impact could be reduced or eliminated, perched groundwater has the potential to move through mine openings above the perching layer where contaminants might mobilize and travel toward the spring. The analysis is based on data for perched aquifers that suggest the volume of perched groundwater available for dilution is generally insufficient to significantly reduce potential contaminant concentrations.
American Clean Energy Resources Trust (ACERT)	225256	76	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.	Waste rock materials may not contain enough uranium to warrant processing, but still may contain concentrations of trace elements that exceed concentrations in native soil/sediment/rock in the area, as discussed in EIS Chapter 3 Section 3.5.4 (Subsection Existing Soil Contamination). Thus, fugitive dust does represent a potential impact to surface waters, as discussed in EIS Section 4.4.4 (Subsection Surface Water Quality). Specific mitigation measures will be developed on a case-by-case basis during NEPA analysis for any new or proposed mineral exploration and development projects.
American Clean Energy Resources Trust (ACERT)	225256	78	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 at 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	There are no places in EIS Sections 3.4 and 4.4 where an impact on a spring is inferred to be definitely from mining activities simply because of proximity to the spring. These sections clearly characterize ambient concentrations detected in the proposed withdrawal area.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	79	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/Labove 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.	The DEIS text cited clearly states in Section 4.4.4 (Subsections Cumulative Impacts, R-aquifer Springs and Wells, South Parcel) that the anomalous arsenic concentrations detected at Miner's Spring cannot be confirmed to be a result of mining activities at the nearby Grandview Mine without pre-mining data. The FEIS more clearly states that the detected arsenic concentrations at Miner's Spring are not readily distinguishable from ambient levels.
American Clean Energy Resources Trust (ACERT)	225256	80	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	Please refer to the response to comment 225256-69 (ACERT).

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			impacted. With Alternative 8 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 8 compared to Alternative A.	
American Clean Energy Resources Trust (ACERT)	225256	81	Pages 4-87 to 4-88 Comment: North Parcel: Under Alternative A the volume of water withdrawn from the mine-related Raquifer 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 Raquifer 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 Raquifer 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.	Please refer to response to comment 225256-22 (ACERT).

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
American Clean Energy Resources Trust (ACERT)	225256	82	Pages 4-88 to 4-89 Comment: Under Alternative B at least one mine might contribute impacted water to the Raquifer; 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/Lof 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/Lto 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.	Please refer to the response to comment 225256-71 (ACERT).
American Clean Energy Resources Trust (ACERT)	225256	83	Pages 4-88 to 4-89 Comment: East Parcel: Under Alternative A, zero to two mines might contribute impacted water to the Raquifer; 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 400µg/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 400µg/L of dissolved uranium and 90µg 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	Please refer to the response to comment 225256-71 (ACERT).

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
American Clean Energy Resources Trust (ACERT)	225256	84	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.	Please refer to the response to comment 225256-75 (ACERT).
American Clean Energy Resources Trust (ACERT)	225256	85	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.	Please refer to the response to comment 225256-76 (ACERT).
American Clean Energy Resources Trust (ACERT)	225256	136	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.	The potential water quality impact to the Colorado River is discussed in EIS Section 4.4.4 (Subsections Surface Waters, Water Quality). Although Spencer and Wenrich (2011) was not relied upon in conducting the EIS analysis of impacts to the Colorado River, the results of the analysis in this EIS are consistent with their findings.
Energy Fuels Resources	225260	22 & 23	Section 4.4.1, Springs: The assumption on page 4-49 that perched water in and around breccia pipes has any connection with the water that feeds	The conditions described in this comment are discussed in EIS Section 3.4.4, and conditions at the

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the springs is not based on actual data but on theory. Based on my experience working in the mines, due to the inward dipping beds that surround a breccia pipe in the immediate vicinity of the breccia pipe, a perched aquifer is typically limited in area to the circumference of the pipe. Water that is encountered during mine development is generally minor and tends to flow into the workings through nearly vertical, concentric fractures that surround the pipe. The structural affects of the breccia pipes creates an aquifer boundary as described in the Manual of Applied Field Hydrogeology by Weight and Sonderegger, 2001, that has not been adequately studied in the preparation of the DEIS. Hydrostratigraphy, structural changes, and adjacent earth materials all affect groundwater flow and the separation of saturated materials into individual aquifer units. I believe that the perched water around the pipe falls into an individual aquifer unit and is not connected to the aquifer units that feed the individual springs. The perched water that is found around breccia pipes is trapped between the concentric fractures and the edge of the pipe. The interior of the pipes are dry. The initial inflow into the mine through the mine drifts that intersect the concentric fractures is relatively high, but rapidly diminishes as there is very little recharge through the fractures to this perched water and there is very little storage capacity, other than in the fractures. In most of the mines the perched water dries up completely due to ventilation of the mine and very little recharge. In the Pigeon Mine, there was some recharge at the end of mine life that was measured at about 0.8 gpm, which could be accounted for due to the close proximity of the Pigeon breccia pipe to the edge of Snake Gulch. It has been my observation, that due to the removal of gypsum and dissolution (karsting) of the limestone that occurs in the Kaibab and the Toroweap Limestone Formations when they are exposed along the canyons, the formations tilt into the canyons forming large open fractures that parallel the edge of the canyons. These open fractures account for the majority of water that feeds the various springs and just like in the mines, the only perched water storage is in the vertical fractures and along formational bedding planes and not in a horizontal lithologic horizon, which means the assumed watershed areas projected in the DEIS for the springs is excessive, based on theory and not supported by actual data. The DEIS also suggests that water flow into the mine workings, following reclamation, could affect the water flow to the springs in the area. First of all, even if there were a total of 30 mines opened up the actual volume of open mine workings in relation to the 1.1 million acres to be withdrawn is negligible and would have little to no impact on the flow to the springs.	few historic and existing breccia pipe uranium mines support these concepts. In addition, the conditions and processes at perched aquifers adjacent to breccia pipes described in this comment may occur at some fraction of the breccia pipes in the proposed withdrawal area. However, the location, conditions, and configurations of perched aquifers in the large study area for this EIS are not known with certainty. It is entirely possible that some perched aquifers may extend outside the immediate vicinity of a breccia pipe and may discharge at one or more perched springs. At these locations, the associated springs might be impacted if the breccia pipe would be mined. It is important to note that the site-specific NEPA analysis that would be required for a mine site would likely address and characterize this issue on a case-by-case basis. In the context of the current EIS for the proposed withdrawal, it must be assumed that hydraulic connections can occur between perched aquifers at breccia pipe and nearby perched aquifer springs. The perched springs in the study area are small, thin, and discontinuous; therefore, they rely on local recharge to relatively small groundwater drainage areas. The size of the EIS study area in relation to these small drainage areas is irrelevant. A single breccia pipe mine located in one such perched aquifer drainage area might impact the flow to any perched springs associated with that groundwater drainage area and aquifer.
Energy Fuels Resources	225260	24	On page 4-60, the use of data from and around the Orphan Lode Mine is inconsistent with the deposit's geomorphology and the mine's history. The Orphan Mine was on a single, patented lode mining claim located in 1893 for copper. There were three drifts driven in mineralized outcrops near the	The results of sampling Horn Creek springs below the Orphan Lode Mine are not used in the EIS to be representative of actual conditions at other past or current breccia pipe uranium mines in the proposed

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			north end line of the claim. In 1953, the USGS noted uranium in the old workings, which means the waste rock from the original mining operations that was dumped over the edge of the Grand Canyon contained uranium. In addition, the Orphan breccia pipe is eroded down into the Hermit Formation along the northeast edge of the canyon and undoubtedly uranium was eroded and was washed down the side of the Grand Canyon and into nearby drainages from on-going erosion. Therefore, it is probable that surface water running through the mine waste into the fractures that are parallel to the canyon and into the R-aquifer resulted in the anomalous uranium values; accordingly, it is unlikely that the reported uranium contamination is from water inside of the mine. Based on the USGS report, The Orphan Lode Mine, Grand Canyon, Arizona, A Case History of a Mineralized Collapse-Breccia Pipe, by William L. Chenoweth, Open-File Report 86-510, personal discussions with Mr. Chenoweth and personal observations in the eight Energy Fuels Nuclear mines I worked in, it appears that erosion over the Orphan Pipe resulted in the dissolution and transportation of secondary uranium mineralization occurred in and around the Orphan Mine. In addition, the mine was never reclaimed or sealed in; it was still accessible during the 1980's (based on personal experience). Storm water and runoff were allowed to further erode and transport the mine waste rock containing uranium into nearby drainages and down the side of the Grand Canyon. From a scientific standpoint, any data derived from spring samples or drainage samples in the area of the Orphan Mine cannot be relied upon to be valid or representative, or used for any assumptions as to exploration and mining impacts that occurred during the 1980's or any present or future exploration or mining activities.	withdrawal area; to the contrary, strong distinctions between this mine and 1980s and later mining are described in EIS Section 3.4.4. The sampling results are used as the best available data for the effects of mine drainage that has moved through breccia pipe mine workings and reached the R-aquifer at a location not far from the mine itself. The upper end of the range of uranium concentrations detected by Liebe (2003) at the "Horn up" location (400 ug/L) was used in the EIS to provide conservative analysis. The description given in the comment for redistribution of some of the waste rock and uranium into the tributary canyon is a reasonable account of what likely occurred. However, the conclusion that surface water runoff was the likely mechanism for migration of uranium into the R-aquifer that was measured by Liebe (2003) is not as supportable as other interpretations. After the mine was established, waste rock was also exposed to erosion and runoff. Storm water and runoff is of short duration, is subject to large and rapid evaporation losses, and only a small fraction infiltrates to provide groundwater recharge; therefore, the residence time of this water with the waste rock is short, limiting the opportunity for dissolution of the uranium. Thus, it is more likely that the water samples collected by Liebe (2003) directly from the spring at the base of the Redwall-Muav limestone contact ("Horn up" location) are derived chiefly from longer term contact of subsurface water moving through the mine workings, including surface water runoff that enters shafts and adits of the mine. Hom (1986) reported a uranium concentration of 620 ug/L in a sample of water collected in May 1985 in an adit from the base of the Coconino Sandstone, which may be related to a local perched aquifer. Please refer to Appendix H for a detailed discussion of the Orphan Lode Mine and isotopic data collected at Horn Creek.
Energy Fuels Resources	225260	25	At the bottom of page 4-60 the assumptions regarding mine drainage reaching the R-aquifer appear to be unrealistic as stated above. For example, the second bullet assumes a very high uranium concentration of 400µg/L reaching the Raquifer, even though most breccia pipes are separated from the R-aquifer by many hundreds of feet of Hermit Shale and other confining layers. It needs to be emphasized that the Orphan Mine is a unique situation where the mine is actually located on the edge	The EIS emphasize the unique characteristics of the Orphan Lode Mine in Section 3.4.4. Please refer to the responses to comments 225256-71 (ACERT) and 225260-24 (EFR).

Table 5.6-4. Response to Comments (Continued)

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			of the Grand Canyon and was operated during a time when minimal government regulations were implemented to mitigate potential contamination. The last bullet assumes that there is no attenuation or dilution occurring, although they would occur and can be added to the model. It is recommended that the model be revised to more closely reflect the characteristics of the breccia pipes that were mined during the 1980's under Plans of Operation approved by federal and state regulators and include the hydrogeology of the area and the natural processes that tend to reduce environmental impacts.	
Energy Fuels Resources	225260	26	On page 4-63 paragraph under "Wells" the following statement is made "Although possible, these impacts are not considered likely because of the removal of contaminated sump water during mining, reclamation of the mines, monitoring, and the low permeability conditions that typically occur in the breccia pipe and in the hundreds of feet of intervening rock formation between the aquifer and the mine openings. Because data are insufficient to estimate the specific flow paths and dilution in the aquifer at future mines, it is not possible to quantitatively project the potential impacts to chemical quality at non-mine Raquifer wells, if such impact were to occur. Therefore, it is assumed that the potential impact would range from none to major." Without knowledge that this can even occur, how can it be considered a potential major impact? Similarly, projected moderate to major impacts to surface water quantity and quality are equally flawed by the assumption that if a mine is close to a water source, that water source will inevitably be negatively impacted. Simply put, the regulations require baseline characterization of surface water and do not allow for these types of impacts to occur.	As inferred in the text cited in this comment, due to the uncertainty regarding the range of subsurface conditions over the large study area and the location of future mines and wells, it is assumed that an impact is possible to groundwater quality at wells. If an impact is possible, but cannot be quantified, it must be assumed that the impact might or might not exceed thresholds for drinking water, which would constitute as much as a major impact. Impacts are not characterized in the EIS as being "inevitable", but are analyzed with respect to specific conditions, including hydrologic boundaries, etc,., within each parcel. The basis for the impact categories is given in EIS Section 4.4.1 and defined in Table 4.4-1; the categories assigned to each parcel under each alternative are given in Table 4.4-3 and explained in the corresponding text. The methodology and analysis are consistent and reasonable for the purposes of the EIS. The regulations provide the mechanism for prevention and mitigation of impacts; implementation of the regulations must fit each site on a case-by-case basis as determined from site-specific analysis during the NEPA process.
Energy Fuels Resources	225260	27	Section 4.4.4: The method for determining degree of impact on perched aquifer springs is based on the probability of a mine occurring in the vicinity of a perched aquifer spring. Based on the number of mines assumed in the North Parcel, a moderate impact is projected in the second paragraph of page 4-68 for Alternative A. However, this methodology does not take into account the groundwater and surface water characterizations that are performed as part of state and federal permitting process and the mitigation measures that would be included in a plan of operations located in close vicinity to a spring. Furthermore, most springs that are connected with mineralized areas tend to have naturally poor water quality prior to the advent of any mining.	Please see the response to comment 225260-26 (EFR). In addition, in EIS Section 3.4.7, it is acknowledged that the ambient quality of perched groundwater near mines is generally poor as a result of mineralization from the ore bodies. However, this condition does not mean that perched springs fed by such groundwater are not an important source of water to wildlife and vegetation, or occasionally to humans. The EIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities, and Appendix B, Reasonably Foreseeable

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Energy Fuels Resources	225260	28	The method for determining impacts to wells located within a perched water system relies on similar assumptions (i.e., probability that such a well might be located near a mineralized breccia pipe). And, as discussed on page 4-71, the risk of impacting such a shallow well in the North Parcel was stated as 'no impact to major impact." As discussed above, permit conditions and mitigation measures are designed to limit and mitigate impacts; accordingly, projecting a moderate or major impact to existing wells is inconsistent with the regulatory requirements.	Please see the response to comment 225260-26 (EFR).
Energy Fuels Resources	225260	29	The assumption that up to half the mines might contribute 1 gpm of water containing elevated metal concentrations to the R aquifer (see pages 4-60 and 4- 75) are not justified given the presence of thick aquicludes (hundreds of feet of Hermit Shale and other shale units) between the breccia pipe deposits and the aquifer. Accordingly, predictions of moderate impacts to the water quality of the R aquifer are not technically supportable.	EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-aquifer Springs and Wells) addresses the low risk of impacts to the R-aquifer water quality. However, due to the potential variability of subsurface conditions over the large study area for which available data are limited, we cannot assume that this risk is zero at all potential mine locations. The assumptions, methodology, and analysis given in EIS Section 4.4.1 were used in an effort to quantify the potential impact, if such contamination were to occur. The impact analysis accounts for a range of potential conditions, not just the upper end projection. Please see the response to comment 225269-3 (ADEQ) regarding the assumption of 1 gpm.
Uranium Watch	225262	16	Section 2.8, Comparison of Alternatives; Table 2.8-1, Summary of Potential Environmental Impacts by Alternative; Water Resources. Page 2-33. There is no discussion of the extent to which existing and potential uranium mines would be in areas where water would enter the mine, requiring the mines to be dewatered during the life of the mining operation. Therefore, there is no assessment of the potential for contaminated mine water that is held in evaporation ponds or discharged offsite to impact the quality and quantity of water resources. Mine dewatering and the need to remove radium and uranium from mine water prior to discharge under a state or federal Pollutant Discharge Elimination System permit is an essential part of the operation of a uranium mine that is subject to drainage and flooding. There is no basis for the assumption that contaminated mine water would not be discharge off site. Offsite discharge has the potential to adversely impact ephemeral and permanent watercourses, riparian vegetation, and animals that drink from those water sources and consume the vegetation.	EIS Section 4.4.1 addresses the probability of mines being located in areas of perched groundwater (Subsection Quantity of Discharge from Perched Aquifer Springs and Wells), as well as the amount of drainage assumed to enter a mine (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells). In effect, the analysis assumes that any mine might be subject to a small amount of groundwater drainage from perched aquifers. As described in EIS Section 4.4.3, off-site discharges are not permitted under the Aquifer Protection Permit program administered by ADEQ. Because no discharges are permitted, there is no federal Pollutant Discharge Elimination System permit required for the breccia pipe uranium mines in northern Arizona.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Uranium Watch	225262	19	Section 3.1.7 Resource Condition Indicators; Table 3.1-1; 3.2 Water Resources; Dewatering or contamination of shallow perched aquifers; Description of Relevant Issues. Page 3-4.This section fails to discuss the potential impacts of the discharge of mine water on the surface.	As described in EIS Section 4.4.3, off-site discharges are not permitted under the Aquifer Protection Permit program administered by ADEQ. Because no discharges are permitted, there is no federal Pollutant Discharge Elimination System permit required for the breccia pipe uranium mines in northern Arizona.
Uranium Watch	225262	25	Section 4.1.1 Foreseeable Activity Assumptions. Pages 4-1 to 4-2. The DEIS does not provide information regarding how hydraulic gradients will be reestablished and how mine drainage over time will be prevented. This information should be included in the EIS.	EIS Section 3.4.4 and Section B.4.5, Appendix B, address sealing of the mines to prevent mine drainage.
Uranium Watch	225262	35	Section 4.2. Air Quality and Climate. Pages 4-4 to 4-36. The DEIS discussion of Impacts Common to All Alternatives (Section 4.2.4, page 4-16) manages to totally ignore the radioactive and hazardous constituents of any fugitive dust from the mining operation. The EIS must identify all hazardous radioactive and non-radioactive constituents of fugitive dust from the uranium mining operations and assess their impact on the environment. This would include an evaluation of potential exposure pathways and impacts to the public, workers, ground and surface water, soils, vegetation, and native and domestic animals over the short and long term.	Impacts to water from fugitive dust are discussed in the EIS in Section 4.4.4, under the sub-heading “Surface Waters – Water Quality”, for projected potential impacts related to future mining. The composition of the particulate matter in fugitive dust would be expected to vary based on many factors that cannot be reasonably estimated. Thus, the EIS uses uranium and arsenic concentrations detected in soil samples collected around previous mine sites as a proxy for overall contamination impacts from fugitive dust. This approach is supported by the findings of Otton et al 2010, which concluded that uranium and arsenic "were consistently the most abundant trace elements of concern at mined sites." In addition, data for other constituents, particularly background values in the area, are sparse and thus it is not feasible to incorporate them into the analysis.
Uranium Watch	225262	54	Section 4.4.3 Compliance with Environmental Regulations and Permitting (page 4-66) states, "*Active mine sites are routinely audited for compliance with their approved plans of operation and other permits.*" This section should state who does the auditing, what constitutes an "audit," how often "audits" occur, what happens when the mine owner or operator in not in compliance. This section should also introduce the concept of mine inspections and provide information about mine inspections, including who inspects the mine operations, how often, the extent of the inspection, and the regulations that must be complied with. The history of the Arizona 1 Mine is indicative of the compliance audits at uranium mines in Arizona. The ADEQ did not inspect the mine until it had been operating for 9 months. The ADEQ only inspect the surface operation and found 1) There were no pumps in the mine to eliminate any water there, 2) a test measuring the permeability of the rock in the mine hadn't been done, 3) a pipe was sticking through a lined pond that is intended to prevent groundwater contamination from ore or water pumped out of the mine, and 4) plans for the mine didn't match what inspectors found when they visited.	This EIS is an analysis of a mineral withdrawal proposed by the Secretary of Interior and two alternative withdrawals. No specific mine operations are being addressed, nor will any be authorized as a result of this analysis. The description of mine inspections and other techniques (mitigations) to reduce environmental impacts and assure compliance to laws and regulations would be established at the time of the site-specific NEPA analysis of a new Mine Plan of Operations. The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM’s jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to initiate formal talks with ADEQ

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			2 Also, the ADEQ had unfilled requests for documents and inspections by engineers that it sought before the mine opened.	so that all four agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park. In the specific instance cited in this comment regarding the Arizona 1 mine, ADEQ has responded and is addressing the situation (see: http://www.azdeq.gov/environ/air/permits/download/denison/response.pdf)
Uranium Watch	225262	55	Section 4.4.3 fails to describe the BLM and USFS inspection and regulatory program for operating uranium mines on the north and south rims of the Grand Canyon. The EIS should fully describe the BLM and USFS current inspection and regulatory program for the Arizona 1 Mine. The EIS should fully describe the BLM and USFS inspection and regulatory program for future uranium mining activity in the withdrawal area.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. The BLM and Forest Service regularly inspect mining operations. The BLM, under the 3809 Surface Management Regulations, inspects active operations two times per year, at a minimum, and conducts more frequent inspections when necessary. The minimum number of inspections for active operations on Forest Service lands is one time per year with more frequent inspections when necessary.
Uranium Watch	225262	56	The information in Section 4.4.3 related to the ADEQ's regulation of uranium mines is invalid without a full assessment of how the ADEQ has monitored the Arizona 1 Mine and fulfilled their regulatory commitments and the implemented the practices listed in this section at pages 4-66 and 4-67.	Please refer to the response to comment 225262-54 (Uranium Watch).
Uranium Watch	225262	57	The EIS should provide information regarding Pollutant Discharge Elimination System permitting and ground water discharge permitting under federal and state regulatory programs at uranium mines in Arizona	As described in EIS Section 4.4.3, off-site discharges are not permitted under the Aquifer Protection Permit program administered by ADEQ. Because no discharges are permitted, there is no federal Pollutant Discharge Elimination System permit required for the breccia pipe uranium mines in northern Arizona.
Uranium Watch	225262	58	The EIS should provide information on the types of groundwater treatment facilities, the potential for ground and surface water contamination from such facilities, the radioactive emissions to the atmosphere from such facilities, the disposal of radioactive waste from such facilities, the impacts to ground and surface of water from the release of treated mine off site from water treatment facilities, and an evaluation of all environmental impacts from the water treatment facilities and the release mine water containing uranium and radium into the environment.	As described in EIS Section 4.4.3, off-site discharges are not permitted under the Aquifer Protection Permit program administered by ADEQ. Uranium mines do not have groundwater treatment facilities; all discharges are contained in on-site evaporation ponds.
Uranium Watch	225262	59	This section only considers the impacts on water quality from uranium operation for constituents of uranium and arsenic. The EIS must also address the amount of and impacts from radium and other pollutants in the mine water discharge. The EPA has established a standard for effluent	As described in EIS Section 4.4.3, off-site discharges are not permitted under the Aquifer Protection Permit program administered by ADEQ. Because no discharges are permitted, there is no federal Pollutant

Table 5.6-4. Response to Comments (Continued)

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			from uranium ores.3 This applies to following pollutants discharged in mine drainage: uranium, zinc, radium-226 (dissolved), radium- 226 (total), total suspended solids (TSS), pH, and chemical oxygen demand (COD). The EIS must evaluate mine drainage from the uranium mines in the withdrawal area for these constituents.	Discharge Elimination System permit required for the breccia pipe uranium mines in northern Arizona. Please refer to the response to comment 225262-35 (Uranium Watch).
Uranium Watch	225262	60	The discussion of Surface Waters (Section 4.4.4, page 4-78 to 4-79) lists potential impacts to surface waters. There is no basis for the assumption in the DEIS that no mine water will be discharged off site. This section should include the potential impacts to surface waters from the discharge of treated mine water off site under a Pollutant Discharge Elimination System permit. This assessment must also include an assessment of the impacts from uranium, zinc, radium-226 (dissolved), radium-226 (total), TSS, pH, and COD, pursuant to 40 C.F.R. Part 440, Subpart C. This assessment must include an assessment of the discharged water on stream function, sediments, riparian habitat, wildlife, and livestock.	As described in EIS Section 4.4.3, off-site discharges are not permitted under the Aquifer Protection Permit program administered by ADEQ. Because no discharges are permitted, there is no federal Pollutant Discharge Elimination System permit required for the breccia pipe uranium mines in northern Arizona. Please refer to the response to comment 225262-35 (Uranium Watch).
Uranium Watch	225262	61	This section should include the potential impacts to surface water from the emission of radon and radioactive particulates from the mine. The dispersion of uranium, radon, and other radionuclides in the air from the mine will result in the uptake of those radionuclides in soil and ground and surface water. The impacts of that dispersal on surface and ground water must be evaluated.	Please refer to the response to comment 225262-35 (Uranium Watch). There is relatively little potential for radon that might be released from the cited sources to contaminate soils and water. Most soils naturally release radon into the atmosphere, and it is unlikely that radon emissions from mine-related sources would result in accumulation of radon in soil or surface water because it is a gas, not a particulate.
Arizona Mining Association	225266	7	Section 1.3.1 The Purpose of the Proposed Action is described as *to protect the natural, cultural and social resources in the Grand Canyon watershed from the possible adverse effect of the reasonably foreseeable locatable mineral exploration and development that could occur in the segregated area.* The Need for Action is described as *concerns that future hardrock mining activities in the Grand Canyon watershed, particularly for uranium, could result in adverse effects on resources.* However, this section acknowledges that environmental impacts were from historic mines, namely the Orphan Mine on the south rim of the Grand Canyon, that date back to the 1860's that were operated prior to the adoption of new regulations and permitting requirements that govern mining on federal lands. As noted in ARPA's comments, the United States Geologic Survey (USGS) and the Arizona Geologic Survey (AGS) have noted that the amount of uranium naturally eroding into the watershed from exposed breccia pipes far exceeds both the historic releases of uranium from past mining operations and any reasonably anticipated releases of uranium from future mining activity.	The comment misrepresents what has been noted by USGS and AZGS. The total contribution of uranium to the Grand Canyon region watersheds from natural erosion of exposed breccia pipes is large and causes an average ambient concentration in water and soils. This average ambient concentration might be exceeded at specific mine sites. Although current regulations are generally effective for mitigating impacts, there is no guarantee that all potential impacts can be eliminated. Please refer to response for 225280-13 (ASLD).
Pew Environment	225274	4	While we understand that the Department cannot predict precisely which springs might be at risk, we believe that the DEIS should recognize that	The DEIS does recognize that potential impacts to many small springs and seeps in the area, even if

Table 5.6-4. Response to Comments (Continued)

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Group			even temporary loss of an individual spring could have serious repercussions for the Park area's species diversity. Even if spring flows are eventually restored, species loss could be permanent.	small in magnitude and temporary, represents up to major potential consequences. See Section 4.4.1 (Subsection Chemical Quality of Perched Aquifer Springs and Wells) and Section 4.4.4 (Subsection R-aquifer Springs Quality) in the EIS.
Pew Environment Group	225274	6	The assessment should also evaluate the impact that groundwater pumping from multiple mines over many years could have on future demands for groundwater supplies, considering those demands along with potential demands from further population growth.	The potential impact from pumping R-aquifer mine wells on other R-aquifer wells is analyzed in Section 4.4.4 (Subsection R-aquifer Wells Quantity and R-aquifer Wells Quality) in the EIS. Potential cumulative impacts are addressed in Section 4.4.4 (Subsection Cumulative Impacts – Groundwater).
Pew Environment Group	225274	7	On the issue of water quality, we understand that local factors affecting fate and transport of contaminants into the environment differ from some other areas that have experienced long term water contamination problems, but we were disappointed to see that the study gives little consideration to the role of flash flooding or the potential for cross-contamination of shallow and deeper aquifers via existing, abandoned or future wells. We were also disappointed with the broad assumption that contamination may be acceptable because of high volume flows in and to the R-aquifer, and with what we believe may be a misinterpretation of the USGS water quality studies in the area.	It is assumed that this comment is referring to surface seals that prevent surface waters from passing down wells. The Arizona Department of Water Resources (ADWR) regulates well drilling practices in Arizona and requires proper surface seals. This issue is discussed in EIS Section 4.4.1 (Subsection Quantity of Discharge from Perched Aquifer Springs and Wells – Wells). The EIS makes no assumptions regarding the acceptability of any projected potential impacts. As a Cooperating Agency in the EIS process, USGS has been an active participant, reviewing all draft versions of the EIS and analysis to assure their data has been appropriately represented and used.
Pew Environment Group	225274	8	USGS carried out research and field work, dealing with time limitations and weather constraints that kept them from taking new surface water samples. Their investigation does not, as some industry representatives state and the DEIS implies, offer solid evidence that past mining has not resulted in contamination. To the contrary, their results show elevated radioactivity at all of the sites investigated, with the exception of Jumpup Canyon, which was selected as a background comparison site. The USGS scientists are careful to point out, however, that these limited investigations are not conclusive and that additional data as well as a more complete understanding of groundwater flow patterns in the area would be required to draw solid conclusions.	The DEIS makes no assertions, implied or otherwise, that the USGS report offered conclusive evidence that past mining resulted in no impacts.
Pew Environment Group	225274	18	Two reports produced by mining engineer Jim Kuipers and geochemist Ann Maest and reviewed by mining experts emphasize the inherent difficulties of predicting "and therefore preventing" water quality impacts at hardrock mines. In their study of predicted and actual water quality impacts at 25 hardrock mines, the scientists found that mining-related exceedences of surface water quality standards occurred at 60% or 15 of the 25 mines. Of those, nearly three-quarters predicted that exceedences could be avoided with appropriate mitigation; others actually predicted that	It should be emphasized that the conditions at many mining districts are unique and it can be misleading to make generalizations among such areas. This concern is especially valid for the breccia pipe uranium mines in the Grand Canyon region because they are truly unique compared to the locations discussed in the papers cited in this comment. It is not appropriate to lump concerns for those other areas into potential

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			mitigation would not be necessary. Only one mine correctly predicted a moderate potential for exceedences. The results for groundwater impact predictions were similar, with 64% or 16 mines experiencing exceedences of groundwater quality standards. Of these mines, 77% or 10 mines had predicted low potential for groundwater impacts. While these reports were not specifically focused on uranium mines per se, these findings are relevant to the mining operations in the Grand Canyon region, where each mine will likely encounter a number of different minerals as well as radionuclides, and in some cases, present a potential for creation of acid mine drainage. The studies are particularly pertinent, given the considerable uncertainties in the mechanics of groundwater flows through the region and the lack of information on the extent of contamination from past operations on the Arizona Strip. See Predicting Water Quality at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art, the direct yearly employment associated with Grand Canyon National Park travel http://www.swrcb.ca.gov/academy/courses/acid/supporting_material/predictwaterqualityhardrockmines1.pdf and Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements, http://www.earthworksaction.org/pubs/ComparisonsReportFinal.pdf.	concerns for this area of northern Arizona without carefully analyzing the significant differences in the ore deposits, methods of mining, permitting, and hydrogeological conditions.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	5	The DEIS fails to analyze a worst-case scenario for aquifer contamination. The U.S. Geological Survey (USGS) Hydrology report noted that, "The Hermit Mine sump concentrations ranged from 3,310 to 36,600 µg/L (the highest reported value of any sample type in this study) in 1989-90 (figs. 9A, 13)" and "These high concentration mine shaft and sump waters may be sources of dissolved uranium for nearby sites if mine water is capable of entering the regional groundwater flow system." Hydrology report at 184. Rather than evaluating such a scenario, the DEIS relies on much lower dissolved uranium concentrations observed at the Orphan Mine to predict ground water pollution. The DEIS altogether ignores the potential impact of rapid recharge events flushing water through mined pipes into ground water flow systems.	NEPA does not require development of worst-case scenarios. The worst case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios. The justification for the uranium concentration used in projections of potential impacts is given in EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells – Springs). The operational and reclamation procedures required under state and federal permits are designed to prevent the entrance of surface water into breccia pipe uranium mines; therefore, a rapid recharge event that would flush water through such a mine is not a reasonably foreseeable event. There are no accounts of rapid recharge events flushing water through mined breccia pipe uranium deposits in the proposed withdrawal area. In addition, as stated in EIS Section 3.4.4, subsurface conditions at these sites are not favorable for the downward migration of leached minerals and other constituents from the mine openings.
Grand Canyon	225279	6	The DEIS rejects high "outlier" samples of legacy pollution in its	The "outlier" water sample referred to in this comment

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Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity			assessment of potential future impacts to ground water but then relies on a single high outlier sample to double natural background soil uranium concentrations over USGS definitions. This methodology (discarding outliers in one case, relying on them in others) downplays potential mining impacts by reducing foreseeable pollution and the amount of that pollution that can be attributed to anthropogenic rather than natural sources.	is not legacy pollution, but simply a sample of water collected from the sump of an operating mine (Hermit Mine), which was routinely pumped to the land surface for evaporation in the lined surface impoundment, per the mine permit requirements. See the response to comment 225279-5 (CBD and others) for reference to the pertinent section where this sump water sample is discussed. Refer to the response to comments 225279-22 (CBD and others) and 225279-23 (CBD and others) regarding reported soils background data.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	7	The DEIS employs small, fixed capture radii to assess the potential impact of mines to perched aquifers; fixed radii ignore the potential for much larger capture zones resulting from groundwater moving greater distances along fractures, fissures and impermeable strata prior to discharging at seeps and springs. This is especially true of rapid recharge events.	The buffer areas were not utilized directly in the calculation of impact probability. Rather, the buffer areas were used in development of the alternative withdrawal areas (Alternatives C and D), which are factored into the calculation of impact probability, and to assess potential impacts at existing mines. Text in DEIS Section 4.4.1 (Subsection Quantity of Discharge from Perched Aquifer Springs and Wells, Springs) on pages 4-51 and 4-52 indicating that buffer areas were used for calculating probability of impact is incorrect and was modified in the FEIS. The radii of the buffer areas are not fixed except for springs with a reported discharge of 1 gpm or less (in such cases the discharge is assumed to be 1 gpm) or are only the same for perched springs having the same reported discharge. As described in Section 4.4.1, the estimated groundwater drainage areas are conservatively large. This overestimates the potential area of impact, and therefore reasonably accounts for the potential extent of unknown recharge pathways.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	11	Grand Canyon's Black Swan: Worst-case Pollution Scenarios The DEIS fails to anticipate system failure "regulatory, engineering or otherwise" relating to uranium mines around Grand Canyon. It naively presumes that existing regulatory mechanisms are adequate, compliance with existing regulatory mechanisms will occur, that compliance can or will be monitored or enforced, and it presumes that the existing regulatory mechanisms themselves are adequate. As we discuss later, none of those assumptions are true. The DEIS presumes that the maximum possible discharge of uranium-contaminated water into deep aquifers is one gallon per minute of 400 micrograms per liter uranium concentrations. This ignores the possibility of much higher dissolved uranium concentrations moving into ground water systems (like the Hermit Mine sump's concentrations of	NEPA does not require development of worst-case scenarios. The worst case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios. Regarding concentrations of uranium and recharge events refer to the response to comment 225279-5 (CBD and others).

Table 5.6-4. Response to Comments (Continued)

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			36,000 micrograms per liter) and it ignores the possibility of a rapid aquifer recharge event flushing much higher volumes of water though mined or explored ore bodies and into ground water flow systems in very short time periods	
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	12	Grand Canyon's Black Swan: Worst-case Pollution Scenarios. The DEIS also avoids discussion of the monumental tasks and hundreds of millions or billions of dollars required to clean up deep aquifer contamination, assuming it is even possible. Commenting organizations raised this issue in scoping. Neither the federal government nor industry can guarantee that uranium mining would not deplete or contaminate aquifers. The failure of industry and federal clean-up efforts to remediate shallow uranium-contaminated aquifers in the Four Corners region casts significant doubt on their ability to remove uranium pollution in aquifers thousands of feet below the Grand Canyon region's rock strata. The failure of past cleanup attempts and the almost certain impossibility of remedy in Grand Canyon's aquifers warrants caution to preclude any mining or exploration that carries with it even the most remote potential for aquifer damage.	NEPA does not require development of worst-case scenarios. The worst case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	16	Nor are ADEQ Aquifer Protection Permits for existing uranium mines in the withdrawal area adequate to protect ground water resources because: (1) Mine shaft water monitoring is required only quarterly, thereby precluding detection of pollution problems for up to three months following pollution events; (2) Permits do not require down-gradient aquifer monitoring to detect contamination plumes in perched and deep aquifers; (3) Permits do not require remediation plans to determine the measures, resources and procedures needed to correct perched or deep aquifer contamination; (4) Permits lack sufficient bonding to ensure that resources exist to implement nonexistent remediation plans upon detection of perched or deep aquifer contamination. Long monitoring intervals preclude immediate pollution detection; lack of aquifer monitoring precludes aquifer pollution detection; lack of remediation plans and bonding preclude pre-planning and resource availability for aquifer remediation. Remediation of deep aquifers is likely impossible in the event of uranium pollution; remediation of perched aquifers is likely cost-prohibitive, particularly absent bonding. BLM's assertion that ADEQ's administration of Aquifer Protection Permits precludes the possibility of pollution of aquifers and receiving surface waters is, like its other claims of regulatory adequacy and compliance, dubious at best.	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to initiate formal talks with ADEQ so that all four agencies may come to agreement as to how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center	225279	17	The DEIS established a principle for hazard avoidance in its discussion of impacts to American Indian resources. It states: Since damage to traditional cultural and sacred place is irreversible, the preferred mitigation measure is avoidance. DEIS at 4-210. The DEIS should apply the hazard avoidance principle to aquifer contamination. Aquifer contamination, if it did occur, would be irreversible. It would be impossible to clean up. State and federal agencies cannot guarantee against such a result if mining is	The way the Arizona Department of Environmental Quality monitors compliance with the laws and regulations they administer is not within BLM's jurisdiction. In an effort to address this concern, however, the BLM, Forest Service, and National Park Service have agreed to initiate formal talks with ADEQ so that all four agencies may come to agreement as to

Table 5.6-4. Response to Comments (Continued)

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for Biological Diversity			allowed to continue. Here too the preferred mitigation measure should be avoidance.	how to best coordinate their monitoring and enforcement efforts in and around Grand Canyon National Park. Hydrogeologic conditions in the perched aquifers or the R-aquifer in the proposed withdrawal area would not preclude effective remedial actions to mitigate groundwater contamination.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	18	The DEIS contradicts the 2010 USGS hydrology report prepared for the proposed withdrawal; the DEIS fails to reconcile that contradiction. The 2010 USGS report states that breccia pipes are conduits for downward movement of water through ore bodies and into groundwater. Fractures, faults, sinkholes, and breccia pipes occur throughout the study area and are pathways for downward migration of surface water and groundwater. Collapse features and breccia pipes in particular can intercept precipitation, runoff, and groundwater in perched water-bearing zones and can direct that water deeper into the subsurface. In areas containing mineralized pipes, this process can dissolve trace elements and radionuclides in the deposits and transport them to groundwater deeper in the subsurface. USGS 2010 Hydrology Report at 147. These findings are consistent with generally accepted principles of groundwater recharge in the region. Conversely, relying predominantly on unpublished industry reports and personal communications with uranium industry personnel, the DEIS claims that breccia pipes are impermeable. DEIS at 3-57. In making this pronouncement, the DEIS fails to acknowledge contradictory information or explain the differing propositions. The DEIS then relies on a notion of impermeable breccia pipes to downplay the potential for aquifer contamination by uranium mining. This in turn downplays the potential impacts from uranium mining to receiving surface water and associated species and ecosystems throughout several analyses set forth in Chapter 4 of the DEIS. Worse, the DEIS (BLM, we presume) fails to discuss the discrepancy in breccia pipe permeability or disclose the industry reports upon which it relies in its contradiction of USGS. BLM further fails to discuss the discrepancy between industry claims about breccia pipe permeability and congressional testimony by Dr. David Kreamer and Dr. Abe Springer cited in commenting organizations' scoping comments.	The EIS relies on the best data available and the data used is cited in Chapter 6. Because mining industries have conducted most of the research and exploration on breccia pipe uranium deposits in northern Arizona and their consultants have investigated conditions in operating mines, it is necessary and appropriate to incorporate and rely on data and reports available from the mining industries and their consultants, as well as more publicly available publications by USGS and other agencies. As a Cooperating Agency in the EIS process, USGS has been an active participant reviewing all draft versions of the EIS and analysis to assure their data has been appropriately represented and used. The testimony cited in the comment by university professors Drs. Springer and Kreamer was considered during the preparation of the EIS, but did not contain new or additional information pertinent to the analysis. EIS Section 3.4.4 discusses conditions associated with economically viable breccia pipe uranium deposits. The EIS does not characterize breccia pipes as "impermeable" and, in fact, makes the conservative and unlikely assumption to project potential impacts that continuous drainage of uranium-containing water occurs at up to half of the mines projected in the RFD.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological	225279	19	The DEIS excludes the highest dissolved uranium samples compiled by USGS from consideration of pollution that could contribute to groundwater contamination: Based on their 2009 water quality sampling study, which included sampling of the Pinenut and Canyon mine wells, Bills et al. (2010) concluded that relationships between the occurrence of dissolved uranium and 13 other trace elements and mining activities were few and inconclusive. Therefore, the concentrations in the Hermit Mine sump were not considered representative for post-mining drainage at mines in the	Regarding concentrations of uranium used in the analysis, refer to the response to comment 225279-5 (CBD and others) and 225260-24 (EFR). The appropriate methodology for the EIS is to use the best available data to project reasonably foreseeable impacts. Use of the Hermit Mine sump data would not be a reasonable and foreseeable impact and would not meet these criteria because: 1) concentrations in the

Table 5.6-4. Response to Comments (Continued)

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Diversity			proposed withdrawal area, nor would similar concentrations be expected in Raquifer groundwater. DEIS at 4-61. The purpose of the DEIS is to anticipate effects that could attend future mining, not to constrain that analysis to documentation of past effects in the face of admitted uncertainty and inadequate past monitoring. The DEIS narrative rejects the Hermit Mine sump data despite the USGS' characterization of contaminated sump water at Hermit Mine and the threat of it moving into groundwater flow systems: The Hermit Mine sump concentrations ranged from 3,310 to 36,600 µg/L (the highest reported value of any sample type in this study) in 1989-90 (figs. 9A, 13). These high concentration mine shaft and sump waters may be sources of dissolved uranium for nearby sites if mine water is capable of entering the regional groundwater flow system. USGS hydrology report at 184. The USGS clearly contemplates the possibility for water to move through breccia pipes, like the Hermit Sump, into ground water flow systems: Fractures, faults, sinkholes, and breccia pipes occur throughout the study area and are pathways for downward migration of surface water and groundwater. Collapse features and breccia pipes in particular can intercept precipitation, runoff, and groundwater in perched water-bearing zones and can direct that water deeper into the subsurface. In areas containing mineralized pipes, this process can dissolve trace elements and radionuclides in the deposits and transport them to groundwater deeper in the subsurface. USGS 2010 Hydrology Report at 147. After rejecting contamination values from the Hermit Mine sump from the analysis, the DEIS narrative then relies on contamination values detected at the Orphan mine to characterize the potential for groundwater contamination. Those values are 400 µg/L; the 36,600 µg/L value recorded at the Hermit Mine sump is excluded from analysis. Again, the effect of the DEIS' methodology is to downplay the potential for uranium mining related pollution, thereby downplaying the potential for that pollution to impact receiving surface waters and related species and ecosystems in Grand Canyon National Park.	sump would be expected to be higher during mining than after mining is complete; and 2) if there is mine drainage, the sump water is pumped to the evaporation pond during mining. There is no evidence that the sump water migrated downward through the low permeable rock to the R-aquifer. None of the studies of groundwater impacts for breccia pipe uranium mines, including long-term monitoring data for onsite mine wells, in the proposed withdrawal area have concluded that mine operations have impacted the R-aquifer. Therefore, the independent clause ("if" statement) in the USGS sentence cited from page 184 is not likely to occur during mining operations and is not reasonable and foreseeable. Regarding groundwater movement through economically viable uranium deposits, refer to the response to comment 225279-18 (CBD and others) and EIS Section 3.4.4.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	20	In order to serve and inform the purpose and need of the withdrawal EIS, which is *"to protect the Grand Canyon watershed from adverse effects of locatable hard-rock mineral exploration and mining,* the EIS must reasonably define and analyze a worstcase scenario for those adverse effects. In order to do so, the EIS must reasonably identify maximum dissolved uranium concentrations that could be expected to enter ground water flow systems, and it should reasonably identify maximum flow rates in addition to a fixed flow rate at which contaminated water might enter those systems (such as that which could result from a rapid recharge event). Taken together, maximum concentrations and flow rates form a basis for establishing the outer limits of potential adverse impacts from uranium mining. For purposes of identifying maximum dissolved uranium concentrations that could enter ground water flow systems, the DEIS cannot rely on Liebe's (2003) Orphan mine samples. Although breccia pipe	NEPA does not require development of worst-case scenarios. The worst case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios. Please refer to the response to comment 225279-19 (CBD and others) and EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells). As stated in EIS Section 3.4.4, subsurface conditions at the former and existing mine sites within the proposed withdrawal area are not favorable for the downward migration of leached minerals and other constituents from the mine openings. However, since

Table 5.6-4. Response to Comments (Continued)

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			mining at the Orphan Mine has contaminated deep aquifers, it is unreasonable to assume that values recorded there represent a worst-case scenario for potential contamination that could result from future mining. The EIS should instead rely on maximum values measured in mine wells or sumps and assume, for the sake of a worst-case pollution scenario, that such water is able to enter the ground water system. USGS reported uranium concentrations at the Hermit mine sump far exceeding values recorded at Orphan Mine. The Hermit Mine sump concentrations ranged from 3,310 to 36,600 µg/L (the highest reported value of any sample type in this study) in 1989-90 (figs. 9A, 13). These high concentration mine shaft and sump waters may be sources of dissolved uranium for nearby sites if mine water is capable of entering the regional groundwater flow system. USGS hydrology report at 184. Thus, for purposes of a worst-case pollution scenario, and in order to best inform which alternative best serves the purpose and need of the proposed mineral withdrawal, the EIS should employ a maximum contamination value of 36,600 µg/L The DEIS assumes a constant flow rate of one gallon per minute from mines into deep aquifers. For purposes of defining a maximum flow rate, the EIS must evaluate a rapid recharge event moving through a contaminated mine sump and moving that water into the ground water flow system. In his 2008 testimony before Congress, Dr. Abe Springer described rapid recharge events: Although there are multiple and very deep (over 3,000 foot deep) aquifers in the vicinity of the Grand Canyon, recharge to these aquifers tends to be mostly focused and very rapid through faults, fractures, and sinkholes. Recharge to these deep aquifers can be on the order of hours and days, not weeks or years. The faults, fractures, and sinkholes can be pervasive and any enhancement of them can lead to enhanced recharge to the aquifer. Springer congressional testimony at 1. In addition to assuming a constant flow rate of one gallon per minute, the EIS should also anticipate the potential impacts of a rapid recharge event moving through a mined ore body and into regional ground water flow systems. The analysis should consider increases in uranium dissolution that would attend spikes in flows entering mined ore bodies that encounter oxidized uranium normally above water.	site specific conditions in future mine sites are not known, the uncertainty resulting from those conditions is addressed in the EIS with conservative assumptions. Therefore, the analysis of impacts in Section 4.4 assumes it is possible for some mine drainage to occur. The EIS identifies the reasonably foreseeable concentration in mine drainage reaching the R-aquifer as being the highest concentration detected from the R-aquifer at the Orphan Lode Mine (Section 4.4.1, Subsection Chemical Quality of Regional R-Aquifer Springs and Wells). Another conservative assumption used in the impact analyses is that there are no effects of attenuation and dilution of uranium and arsenic concentrations along the potential transport pathways. Please refer to EIS Section 3.4.4 for the existing data that indicate a constant inflow rate of 1 gpm is a conservatively high assumption. Because the assumed rate of 1 gpm used in the DEIS to project potential impacts to water quality in the R-aquifer is continuous, it more than accounts for instantaneous or short-term higher rates from storm events and overestimates longer-term lower rates during dry periods. There are no accounts of rapid recharge events flushing water through mined breccia pipe uranium deposits in the proposed withdrawal area. The permeability conditions that control groundwater recharge and groundwater movement in the regional aquifer, as well as flow to springs, are unlike conditions that control the location and preservation of economically viable breccia pipe uranium deposits. Overall, the methodology given in EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells) provides a conservative analysis of the impacts to the R-aquifer.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon	225279	21	Analysis of potential impacts to surface water quality at seeps, springs, creeks and caves should reflect a worst-case pollution scenario In the proposed withdrawal area, seeps and springs issue from fractures, bedding planes, or sandstone strata in perched aquifers in the Chinle, Moenkopi, Kaibab, and Toroweap formations, Coconino Sandstone, and Supai Group along the walls and channels of canyons or from outcrops on	NEPA does not require development of worst-case scenarios. The worst case analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618 (Apr. 25, 1986). CEQ Regulations require analysis of reasonably foreseeable impacts, not worst-case scenarios.

Table 5.6-4. Response to Comments (Continued)

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Chapter, Center for Biological Diversity			the plateaus. The DEIS acknowledges that uranium mining can drain and thus deplete perched aquifers that can feed seeps and springs. It also acknowledges that water from perched aquifers can move downward through breccia pipes and mined ore bodies. DEIS at 3-59. The DEIS also acknowledges that water feeding perched aquifers can travel laterally along confining rock layers. DEIS at 3-69. The DEIS further acknowledges that recharge can happen rapidly. DEIS at 3-69. Even though the DEIS acknowledges uranium mines drain perched aquifers, and even though the water recharging those aquifers can result from surface and ground water traveling long distances along confining layers (i.e., flash flood sinking into "swallow holes"), the DEIS applies small buffers around springs to assess potential impact zones. While the DEIS argues that its buffers are conservatively large (DEIS at 4-51), there is no evidence to indicate that those buffers are large enough or of an appropriate shape to capture the origin points of recharge water. For example, they are clearly not large enough to capture the spatial extent of watersheds from which "swallowed" flash floods could originate. Because we know that surface water and flash floods can recharge perched and deep aquifers, the DEIS should employ the boundaries of sub-watersheds within which springs occur as potential spring impact zones. (see comment #225279 for detailed DEIS Quotes.)	"Swallow holes" are typically located along structural features such as large fault zones (e.g., Markham Dam fracture zone on the Coconino Plateau) in combination with karstic or solution-enhanced features of the Kaibab Formation (see EIS Section 3.4.6, Subsection Recharge), which is a limestone unit present at land surface over much of the proposed withdrawal area. These combined features may provide nearly direct pathways that cut through perching layers to deep aquifer zones, including the R-aquifer, and represent hydrologic sinks for downward drainage of perched aquifer units. Perched aquifers are expected to be drained along these high permeability features. These conditions are very different from those that occur at economically viable breccia pipe uranium deposits or mines. EIS Sections 3.4.4 and 4.4.1 describe the small discharge from perched aquifers at these locations and how the discharge decreases rapidly; none of the accounts of mine drainage at former mines indicate anything more than slight, short-term increases, if any, of drainage to the mines from these zones in response to storm events. Mine operations would be seriously impeded by excessive inflow of water, but there are no accounts of such events occurring. Most accounts refer to how dry the conditions are in the mines. The EIS clearly states at many locations in Sections 3.4 and 4.4 that the perched aquifers are small, thin, and discontinuous. The conditions described in EIS Section 3.4.6 (Subsection Recharge) for perched aquifers limit the extent of the perched aquifers; Please refer to the response to comment 225279-7 (CBD and others) for further discussion of perched spring drainage areas.
Abe Springer	225286	1	The Supai Formation is a very leaky confining layer, hence the absence of many perched aquifers on top of it. The Supai Formation is not a barrier to downward leakage to the Redwall- Muav aquifer. In fact, if it was a very tight confining layer, there would be significant perched aquifers above it, and the Redwall-Muav aquifer wouldn't receive recharge. Because of the leaky nature of the Supai Formation and the extensive faulting and fracturing within the regional groundwater flow systems, recharge is actually very fast, but episodic. Recharge at sinkholes or along faults or	Where the Supai Group is not breached by faults and interconnected open fractures, or where these features have been filled and healed, the fine-grained units of the Group have low permeability and impede the downward of movement of water from overlying formations and upward movement of water from underlying formations. Pool and others (2011, page 25) states that "The Redwall-Muav aquifer is mostly

Table 5.6-4. Response to Comments (Continued)

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			fractures can go from land surface to the Redwall-Muav within hours. A large storm event, which exceeds the capacity of retention basins around or adjacent to mining areas has the potential for rapid recharge to the deep regional aquifer. The EIS omits a significant discussion of the rapid, episodic nature of focused recharge to the Redwall-Muav aquifer. Therefore, the related analyses and assumptions about contaminant transport are flawed within the EIS. The rapid, episodic, and focused nature of recharge should be included in the EIS analyses.	confined by fine-grained sediments in the overlying Lower Supai Formation…" These conditions have been observed at breccia pipe uranium mines. Permeability measured for core samples of the breccia pipe and Supai Group at the Canyon Mine were very small (Canyon Mine APP, Montgomery 1993b as cited in the EIS) and fractures in the core were observed to be healed by cementation and fine-grained material. The DEIS adequately discusses the wide range of recharge conditions in Section 3.4.6 (Subsection Recharge); however, additional clarification is provided in this section in the FEIS. As described in EIS Section 3.4.4, rapid recharge of the R-aquifer is not an important mechanism at economically viable breccia pipe uranium mines due to the local hydrogeologic conditions. There are no accounts of rapid recharge through underground mine workings at breccia pipe uranium deposits even after significant storm water runoff at land surface. Rapid deep groundwater recharge could only represent a potential mechanism for transport of contaminants to the R-aquifer if the mine is located along an open fracture or fault system, which is unlikely because high-grade ore targeted for mining would not be preserved in such highly oxidizing conditions (see EIS Section 3.4.4). Also refer to the response to comments 225279-20 (CBD and others), 225279-21 (CBD and others), and 225280-13 (ASLD).
Abe Springer	225286	2	A significant "Water Resource Issue" is missing from the EIS, as listed in Table 3.1-1. This missing issue is the Contamination or loss of the Havasupai Nation water supply. For completeness in the analysis of the EIS, any water supplies which could be contaminated, such as the aquifer at Tusayan or the Colorado River, should be included in the analysis. The omission of the Havasupai Nation water supply is a critical omission. This issue should be specifically listed as a Water Resource Issue and should be analyzed in the EIS. This omission may be due to the fact that the EIS did not include all existing, relevant literature to conduct the analysis of the impacts to the water supply of the Havasupai, as expressed at Havasu Springs.	The Resource Category/Issues listed in Table 3.1-1 were derived from the public scoping process and include potential impacts to Havasu Creek. Impacts to the Colorado River and the groundwater system that feeds Havasu Creek are discussed in detail for each alternative in DEIS Section 4.4.
Abe Springer	225286	3	The EIS omits the peer reviewed publication of Crossey and others, 2009. This manuscript was published in the peerreviewed journal GSA Bulletin on April 24, 2009 and should have been used in the EIS analyses. The attached figure from this manuscript clearly shows the groundwater flow paths from the South Parcel to Havasu Springs. Crossey, L.J., K.E.	EIS Figure 3.4-14 (after Bills et al. 2010) is a conceptual diagram showing similar directions of groundwater movement in the R-aquifer system of the Coconino Plateau as the figure cited in this comment. The figure cited in this comment is actually based on

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			Karlstrom, A.E. Springer, D. Newell, D.R. Hilton, T. Fischer. 2009. Degassing of mantle-derived CO2 and He from springs in the southern Colorado Plateau region neotectonic connections and implications for groundwater system, Geological Society of America Bulletin., 121:1034-1053, doi: 10.1130/B26394.1	work by Kessler (2002, Figure 26), which is cited in the EIS, and corroborates the conceptual model used in the EIS to project potential impacts. Figure 3.4-14 clearly shows that the direction of groundwater movement from most of the South Parcel is toward the Havasu Creek drainage and the associated text further discusses the hydrologic connection of this area with springs in Havasu Creek. In addition, Crossey et al. (2009) is cited in Bills et al. (2010), which is cited numerous times in the EIS.
Abe Springer	225286	4	The EIS omits another important publication, by Pool and others 2011. Although this was not published until April 2011, it was in draft form in review by December 2009 and could have been used for analysis in the EIS. I served as a member of a technical committee which advised the construction of this model and as a technical reviewer for the published report of the model. The second figure attached to this letter is the regional hydraulic head map from this model, which is more complete and accurate than Figures 3.4-14 and 3.4-15 in the EIS. Figure 3.4-15 is from a study published in 1974 and is very outdated. Figure 3.4-14 deliberately does not show flow arrows continuing from the South Parcel to Havasu Springs or to Blue Springs to give the perception of uncertainty in the directions and magnitude of groundwater flow. The directions and magnitude of flow are clearly shown on the attached figures from Crossey and others 2009 and Pool and others 2011. The authors of the EIS should have had the USGS conduct a flowpath analysis on the Northern Arizona Regional Groundwater flow model of Pool and others 2011, as is shown with the flow model published in Crossey and others 2009. The flow model of the USGS could be used to calculate travel times and velocities of groundwater. Pool, D.R., K.W. Blasch, J.B. Callegary, S.A. Leake, and L.F. Graser. 2011. Regional groundwater-flow model of the Redwall-Muav, Coconino, and alluvial basin aquifer systems of northern and central Arizona. U.S. Geological Survey Scientific Investigations Report 2010-5180, 101 p.	As indicated in this comment, Pool and others (2011) was not publicly available during the preparation of the DEIS. Pool and others (2011) is a USGS publication. The USGS indicates that its review and publication policy does not allow for the limited release of findings before publication. Pool and others (2011) has been considered for the FEIS; however, it does not change any of the EIS analyses. The regional flow model by Pool and others (2011) poorly represents conditions in the proposed withdrawal area and is not based on any new information that was not already accounted for in USGS SIR 2010-5025 to determine the hydrogeologic framework both north and south of the Colorado River. In addition to the lack of sufficient data for groundwater level, local flow paths, and locations of future mines, the calculation of travel times and velocities using the Pool and other (2011) model would not provide information that would improve the EIS analysis, remove any uncertainty, or change the conclusions. EIS Figure 3.4-14 presents a conceptual model that is similar to figures provided by commenter. In any event, groundwater flow arrows are at best general indications of flow direction, especially in flow systems dominated by fracture flow, such as the R-aquifer. It is widely accepted and acknowledged that Havasu springs is a regional drain for the R-aquifer south of the Colorado River. The impact analysis in the EIS assumes a connection between the South Parcel and both Havasu and Blue Springs, and these relations are clearly shown on Figure 3.4-14.
Abe Springer	225286	5	For the groundwater flow systems underlying the North and East parcels, regional flow models don't exist. But, both of these regions have well developed karst systems with sinkholes that extend from land surface to	Please refer to the responses to comments 225279-20 (CBD and others), 225279-21 (CBD and others), 225280-13 (ASLD), 225286-1 (A. Springer), and

Table 5.6-4. Response to Comments (Continued)

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			the water table. Recharge through these sinkholes is rapid when conditions exist for runoff. Because of the rapid recharge to the aquifers of the regions in the North and East parcels and the lack of scientific tools to predict impacts from mining activities, it would be prudent to apply the precautionary principle and allow no mining till these tools are developed.	225286-4 (A. Springer). Sinkholes are karst features that have been observed in the Kaibab Formation. As described in EIS Section 3.4.6 (Subsection Recharge), open, extensive, interconnected vertical fractures and solution openings can convey recharge at some locations directly to the deep aquifer system. However, by definition, it is unlikely that the surficial sinkholes extend below the Kaibab Formation, and certainly not to either the perched water table in the Coconino Sandstone or the regional water table in the R-aquifer. As described in the responses to other comments cited above, such conditions have no relation to economically viable breccia pipe uranium deposits.
Abe Springer	225286	6	For the above stated reasons, the analyses in the EIS are not complete and are flawed. The tools and techniques used in the EIS do not represent the best available science to show the impacts of potential groundwater contamination from the South Parcel on Blue Springs or Havasu Springs. The simple dilution calculations in Chapter 4 of the EIS are not the best available science for conducting an impact analysis. The regional groundwater flow model of the USGS should be used to conduct a particle tracking analysis and potentially a contaminant transport model. The Havasupai rely upon water supplied from springs, not wells, so the water supply, as delivered by springs to the Havasupai, should be tracked and analyzed as a "Water Resource Issue".	The EIS use the best available science in its formulation. The EIS represents an exhaustive compilation of pertinent available data for the resources, citations for which can be found in Chapter 6. Please refer to the responses to comments 225286-1 through 225286-5 (A. Springer).
Patrick Hillard	225288	1	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. An example of this is on page 4-85 of the EIS where the investigator states that elevated levels of arsenic in Miner's Spring are due to the Grandview Mine. The only known connection between the mine and the spring is their proximity. There is no other evidence to indicate that the elevated arsenic is due to the mine. It is possible that the elevated arsenic is present because of the copper and associated mineralization independent of the mine, or that the arsenic originated from some source other than the mine.	Please see response to comment 225256-79 (ACERT).
Patrick Hillard	225288	7	Water consumption at a typical mine should be compared to water consumption at the South Rim, various cities in the surrounding area, and local industries.	This topic is discussed in the EIS Section 4.4.4 (Subsection Cumulative Impacts).
Maren Mahoney	226214	6	The EIS failed to take the required hard look to the threats to water quality and quantity. This is particularly crucial in our desert climate and our current multi-year drought, as well as expanding population.	Water quantity and quality have been thoroughly addressed in the EIS in Section 3.4 and Section 4.4.
Kay M. Hawklee	241505	1	1.Will a baseline of surface and groundwater quality be required prior to drilling? 2. Will the drillers be required to use a "closed-loop" fluid circulation system so that ground and surface water quality will be	Rules regarding drilling and abandonment of exploration wells are discussed in EIS Section 4.4.1 (Subsections Quantity of Discharge from Perched

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			protected from drill cuttings and core samples begin buried in pits? 3. If #1 is not followed, and BLM allows mud-circulation pits, will they be required to be lined? 4. What is the "Mil" strength that should be required for that liner? 5. What are the requirements for placement of that liner material; e.g. 2 feet overhang over the lip of the mud pit? (See the Michigan State requirements for good examples of pit requirements.) 6. What will be the bore-hole abandonment procedures that will protect cross-contamination down-hole during and after completion of the bore holes? 7. Will there be a requirement that the holes are filled with cement or bentonite? 8. Will all drill cuttings and core samples be required to be removed to a hazardous waste facility? 9. What is the source for water necessary for the drilling procedures? 10. Will water rights be granted for drilling? 11. Will downstream water rights be infringed upon?	Aquifer Springs and Wells — Wells). Water rights for groundwater are not required in the area of Arizona covered by the proposed withdrawal. This EIS is an analysis of a mineral withdrawal proposed by the Secretary of Interior and two alternative withdrawals. No specific mine operations are being addressed, nor will any be authorized as a result of this analysis. The description of mine inspections and other techniques (mitigations) to reduce environmental impacts and assure compliance to laws and regulations would be established at the time of site-specific NEPA analysis of any new Mine Plan of Operations.
Central Arizona Project	242648	2	The DEIS for the Northern Arizona Proposed Withdrawal Project indicates that all of the alternatives evaluated would result in a negligible increase in uranium concentrations in the Colorado River over historical background levels. It should be noted, however, that the effects of increased mining within the subject area may affect consumer confidence over the safety and reliability of the Colorado River for its use as a municipal drinking water supply, irrespective of any definitive public health impacts. Considering the tragic aftermath of the recent earthquake and tsunami in Japan, the public has a heightened concern over the potential for even minute amounts of radiation in water supplies. As such, it is critical that a comprehensive water quality monitoring program be in place to inform stakeholders and ensure long-term protection of the Colorado River from threats of uranium and other regulated constituents impacted by mining operations for all alternatives being investigated.	Public perception is subject to many real or perceived conditions and analysis of such would be speculative in an EIS. The purpose of the EIS is to analyze the effects of the Proposed Action and Alternatives, which is mineral withdrawal from the Mining Law of 1872 subject to valid existing rights. Appropriate mitigation for mining would be developed when site-specific NEPA analysis is undertaken for a particular mine proposal. State and Federal agency experts are currently reviewing various mitigation measures, Best Management Practices, and monitoring that could potentially be considered as part of these site-specific analyses and, if appropriate, could be considered for incorporation into relevant land use plans.
Central Arizona Project	242648	4	Exploration and mining within the subject area may also lead to increased erosion and sediment loading along the tributaries to the Colorado River, potentially affecting salinity levels. CAP, Metropolitan, and SNWA participate on the Colorado River Basin Salinity Control Forum and are committed to efforts to control salinity inputs along the Colorado River. We request that the Final EIS clearly identify the potential impacts of large-scale exploration and mining activities in the subject area on salinity loading to the Colorado River.	This issue is discussed in the cumulative impact analysis for Alternative A, No Withdrawal in the EIS Section 4.4.4 (Subsection Cumulative Impacts) for surface water and Section 4.5.3 (Subsection Cumulative Impacts) for soils. Reasonably foreseeable uranium mining in the withdrawal area is not anticipated to result in large increases in sediment loads in stream channels. The total area of temporary surface disturbance anticipated under Alternative A is 1,364 acres out of the total proposed withdrawal of about 1 million acres (Table 2.7-3).
Central Arizona Project	242648	5	It is not clear whether the DEIS evaluated worst-case scenarios for each of the alternatives should the mitigation measures designed to prevent downstream transport of uranium-bearing material fail. Given the uncertainty in the location and number of mines to be operated under each	NEPA does not require a worst-case scenario analysis (this analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618, Apr. 25, 1986), only analysis of circumstances that are reasonably foreseeable is

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			alternative, the Partnership requests that worst-case scenarios be fully evaluated in the Final EIS in terms of the water quality effects on the Colorado River and its tributaries.	required. Appendix B provides this reasonably foreseeable development scenario and provides a rationale to why this scenario is used.
Arizona Rock Products Association	242654	11	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. Hundreds of mineralized pipes exposed within the canyon are gradually eroding, oxidizing and leaching uranium into the environment. In fact, the USGS and AGS note 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 in addition to any reasonably-anticipated releases of uranium from future mining activity. Consequently, any withdrawal based on the assumption that the cessation or prevention of uranium mining activity will somehow preclude the introduction of uranium into the Grand Canyon watershed is seriously flawed.	Please refer to response to comment 225266-7 (AZ Mining Assoc.) and 225280-13 (ASLD).
Arizona Rock Products Association	242654	12	With regards to groundwater impacts ' occurring from recent (modern) and future anticipated mining, the DEIS describes in 3.4.4 that several regulatory and independent consultant reports indicated that conditions are not favorable for migration of leached minerals and regulated constituents from modem mining operations to regional aquifer systems. Further, there is little evidence that the impact of mine well pumping could ever impact any regional wells.	Potential impacts to the R-aquifer from projected pumping from mine supply wells and mine drainage are addressed for each alternative in EIS Sections 4.4.4 through 4.4.7.
Arizona Rock Products Association	242654	13	the DEIS assumes that these discharges will migrate more than 1,000 feet (the average distance between modern breccia pipe mining operations and the regional aquifer system) through low permeability sedimentary units and subsequently discharge into the regional aquifer/springs with no dilution or dispersion. Why does the DEIS fail to use standard industry hydraulic and geochemical models to 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?	The EIS represents an exhaustive compilation of pertinent available data for the resources. Many assumptions are required for a contaminant transport model. Because no data are available for most of the proposed withdrawal area, the modeling exercise proposed in this comment would not necessarily provide better results than the conceptual method used in the EIS or remove the uncertainties. The parameters used in the impact projections were based on reasonable assumptions and developed from existing data. For discussion of why impacts from the Orphan Lode Mine were used to characterize possible impacts in the proposed withdrawal area, refer to response to comment 225256-32 (ACERT).
Arizona Rock Products	242654	14	Because the DEIS is charged with scientifically evaluating possible Environmental Consequences, it seems irresponsible to use arbitrarily	The EIS represents an exhaustive compilation of pertinent available data for the resources. Many

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Association			selected discharge volumes, constituent concentrations and downstream impacts that are derived from data that is clearly not representative of modem mining conditions and could easily be more accurately predicted if the process employed scientifically-based and defensible groundwater and geochemical models.	assumptions are required for a contaminant transport model. Because no data are available for most of the proposed withdrawal area, the modeling exercise proposed in this comment would not necessarily provide better results than the conceptual method used in the EIS or remove the uncertainties. The parameters used in the impact projections were based on reasonable assumptions and developed from existing data.
Arizona Rock Products Association	242654	17	Although there has been no incident in the 30-year history of modem breccia pipe development that would appear to justify a withdrawal, the DEIS purposefully biases the Environmental Consequences and the RFD by using pre-reclamation environmental data from the Orphan Mine which was originally developed in 1947. Even though the DEIS states that the conditions evaluated are not accurately determined and are contrived from data that is clearly not representative of modem mining conditions, the DEIS consistently fails to use scientifically-based and defensible groundwater and geochemical models to estimate potential impacts to the environment.	For discussion of why impacts from the Orphan Lode Mine were used to characterize possible impacts in the proposed withdrawal area, refer to response to comment 225256-32 (ACERT).
Quaterra Resources, Inc.	242664	8	The DEIS is strangely silent on a number of issues germane to a decision on whether to withdraw these lands from mineral exploration and development, and more importantly would give an uninformed reader a sense of perspective and balance. These issues include 3) the safe and successful exploration, mining and reclamation of seven pipes by Energy Fuels from 1980-1989 which demonstrated conclusively that uranium mining does not represent a threat to the environment.	The legacy mining of the 1980s and known associated impacts are discussed in EIS Sections 3.4.4 and 3.5.4 (Subsection Effects from Historic (1980s) Mining). Typical reclamation practices at 1980s mine sites are discussed in EIS Section 4.5.2.
Quaterra Resources, Inc.	242664	16	Although there has been no incident in the 30-year history of modem breccia pipe development that would appear to justify a withdrawal, the DEIS purposefully biases the Environmental Consequences and the RFD by using pre-reclamation environmental data from the Orphan Mine which was originally developed in 1947. Even though the DEIS states that the conditions evaluated are not accurately determined and are contrived from data that is clearly not representative of modem mining conditions, the DEIS consistently fails to use scientifically-based and defensible groundwater and geochemical models to estimate potential impacts to the environment.	Please refer to the responses to comments 225256-32 (ACERT) regarding the use of the Orphan Mine to estimate potential impacts to the R-aquifer. Regarding groundwater modeling, please refer to the responses to comments 242654-13, 14, and 17 (AZ Rock Prod. Assoc.) and 225286-4 (A. Springer) regarding the use of numerical or geochemical models.
Quaterra Resources, Inc.	242664	22	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,	Please refer to responses to comments 225266-7 (AZ Mining Assoc.); 242654-13, 14, and 17 (AZ Rock Prod. Assoc.); 225280-13 (ASLD); and 225256-32 (ACERT). The EIS acknowledges the extensive framework of existing regulations applicable to hard-rock mining in the area (see Chapter 1, Section 1.4.3, Authorities,

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 inconclusiveAlthough there has been no incident in the 30-year history of modem breccia pipe development that would appear to justify a withdrawal, the DEIS purposefully biases the Environmental Consequences and the RFD by using pre-reclamation environmental data from the Orphan Mine which was originally developed in 1947. Even though the DEIS states that the conditions evaluated are not accurately determined and are contrived from data that is clearly not representative of modem mining conditions, the DEIS consistently fails to use scientifically-based and defensible groundwater and geochemical models to estimate potential impacts to the environment. 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.	and Appendix B, Reasonably Foreseeable Development Scenarios, Section B.3, Regulatory Framework). However, the purpose and need for the action, as stated in Chapter 1, Section 1.3, is not altered by the fact these regulatory controls are in place.
Quaterra Resources, Inc.	242664	23, 24, 25 & 26	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 and no impact to the Grand Canyon Watershed.* 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	Please see the response to comment 225269-3 (ADEQ) regarding the assumption of 1 gpm. Please see the response to comment 225260-29 (EFR) regarding the assumption of the number of mines that may contribute drainage to the R-aquifer. Please see the response to comment 225260-24 (EFR) regarding the use of data from Horn Creek to project impacts from mine drainage. Please see the responses to comments 242654-13, 14, and 17 (AZ Rock Prod. Assoc.) and 225286-4 (A. Springer) regarding the use of numerical and geochemical models.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 in the study area (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), 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.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 Raquifer 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.*	
Quaterra Resources, Inc.	242664	23, 24, 25 & 26	Continued...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 nonmine 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 drawdown 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. There are several consolidated and unconsolidated perched	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	
Quaterra Resources, Inc.	242664	23, 24, 25 & 26	Continued... 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	
Quaterra Resources, Inc.	242664	23, 24, 25 & 26	*Continued:* 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-	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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 Raquifer 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 credible 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.	
Quaterra Resources, Inc.	242664	42	Chapter 4 does not analyze the issue of naturally occurring uranium contamination in the Grand Canyon Park with regards to natural sources of uranium contamination from ore-grade breccia pipes that are currently eroding within the Canyon and where the uranium is being transported into the Colorado river. There are approximately 30 such ore-grade breccia pipes that are naturally exposed in the Grand Canyon in which the ore body is being eroded by wind and water. These natural sources of uranium contamination should be discussed in Chapter 3 and analyzed in Chapter	Please refer to the response to comment 242913-27 (NAU Project), as the content is identical to this comment.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			4. The effects from these natural breccia pipe contamination sources on the Grand Canyon water and ecosystems should be analyzed and compared to the possible contamination contribution of the projected uranium mines determined in Appendix B to determine what the cumulative effect the projected mines might have. The BLM should have undertaken this particular research and analysis along with the Park Service at the beginning of this DEIS process in order to determine the cumulative effects of proposed uranium mining outside the GCNP and the naturally occurring source of uranium contamination (eroding ore-grade breccia pipes) on the park itself. The NEPA process requires that this type of information be gathered and analyzed if the costs are not prohibitive. This research should be conducted and the cumulative effects analyzed as required by NEPA and a supplemental DEIS published for comment.	
The NAU Project, LLC	242913	15	Page ES-12 Water Resources This section of this DEIS is inadequate and needs a total rewrite. Most of the assumptions are absurd and the conceptual modeling and analysis is biased toward creating "major impact" determinations. More disclosure of the actual calculations made and the specific data sets used is in order. A separate appendix for these would be appropriate.	EIS Section 4.4.1 provides detailed example calculations. Actual calculations are included in the project file for the EIS and are available upon request.
The NAU Project, LLC	242913	27	Chapter 3 does not address the issue of the current state of the Grand Canyon Park with regards to natural sources of uranium contamination from ore-grade breccia pipes that are currently eroding within the Canyon and where the uranium is being transported into the Colorado river. There are approximately 30 such ore-grade breccia pipes that are naturally exposed in the Grand Canyon in which the ore body is being eroded by wind and water. These natural source of uranium contamination should be discussed in Chapter 3 and analyzed in Chapter 4. The effects from these natural breccia pipe contamination sources on the Grand Canyon water and ecosystems should be analyzed and compared to the possible contamination contribution of the projected uranium mines determined in Appendix B to determine what the cumulative effect the projected mines might have. The BLM should have undertaken this particular research and analysis along with the Park Service at the beginning of this DEIS process in order to determine the cumulative effects of proposed uranium mining outside the GCNP and the naturally occurring source of uranium contamination (eroding ore-grade breccia pipes) on the park itself. The NEPA process requires that this type of information be gathered and analyzed if the costs are not prohibitive. This research should be conducted and the cumulative effects analyzed as required by NEPA and a supplemental DEIS published for comment.	The FEIS contains an expanded discussion of the range of potential hydrogeologic conditions at breccia pipes in Section 3.4.4, including breccia pipes that are exposed. Please refer to the response to comment 225280-13 (ASLD) for a detailed discussion of these conditions. Natural sources of uranium that might exist in the region represent a contribution to ambient conditions, and thus, should not be analyzed separately as a potential cumulative impact in Chapter 4. Because the EIS contains an exhaustive compilation of water sample data for the region in Appendices D through G, which is summarized in Section 3.4.7, the contribution from these natural sources of uranium are reflected in the EIS and its impact analysis in Section 4.4.4.
The NAU Project, LLC	242913	48	Page 4-51 Item number 6 of the method for groundwater drainage area for a perched aquifer spring: 6. Because the directional orientation of the assumed local fracture system is not known, all directions of the compass were addressed by **drawing a circle with a radius equal to the**	The buffer areas were not utilized in the calculation of impact probability. Rather, the buffer areas were used in development of the alternative withdrawal areas (Alternatives C and D). Text in DEIS Section 4.4.1

Table 5.6-4. Response to Comments (Continued)

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			calculated length of groundwater drainage area, centered on each spring. This circle establishes the estimated potential impact area around each of the perched aquifer springs. It was assumed that mine sites within this radius of the springs might impact the quantity of discharge from the springs. **Using a circle with a diameter equal to the largest dimension of the rectangle** described above results in a **calculated area 7.8 times the actual area of the rectangle**; therefore, the area of potential impact is overestimated by the same amount. An exception is where the circle includes areas where the perched aquifer does not occur, such as beyond canyon walls that completely cut the aquifer. The two bolded parts of this paragraph are incompatible. For example, based on the 1 gpm perched spring aquifer, the groundwater drainage area is .2 sqmi and the elongated drainage length is 1.4 mi. The estimate potential impact area is a circle whose radius is a line 1.4 miles long for which one of its end points is centered on the spring. Thus the diameter of the circle is 2.8miles and the midpoint of the diameter is centered on the spring. All the figures that show the estimated potential impact area show a 2.8 mile diameter for the 1 gpm perched aquifer spring. Thusly, the expansion of area from the calculated groundwater drainage area to the potential impact area is ~30 times and not 7.8 as was described above. This is an understatement of 384%. The actual over-estimation is more than 30 times the actual area of the rectangle. Soooo, Now I am not so sure that your binomial distribution formula was used correctly as you did not show your work. Please add an appendix and do so! Also, I think that you should show two different probabilities, one is the potential impact probability as described and the other is a probability based on the calculated perched spring drainage area itself. The fact that you don't know the orientation of the ground water drainage area at this time does not mean that they are unknowable. They are, for the most part, fixed, and any proposed mine would have to determine if it is located in a perched aquifer drainage area (including the orientation and extent) and address that in its Individual EIS before a Plan of Operations would be approved and a mine permit issued. The area of the perched spring drainage may be unknown, but it is not random. I think this may make a difference in probability theory and calculation. For random events, the probability is based on multiplying the randomness of each event by the other random events. I think that there is a lot of probability inflation going on. In other words, the method that you have chosen to calculate the potential impact area has exponentially increased the impact probability and greatly exaggerates the potential impacts. I think a comparison between the two calculated areas and the calculated impact probabilities is in order.	(Subsection Quantity of Discharge from Perched Aquifer Springs and Wells, Springs) on pages 4-51 and 4-52 indicating that buffer areas were used for calculating probability of impact is incorrect. The FEIS has been revised in Section 4.4.1 to correct this error. An example calculation for the binomial distribution formula is also provided.
The NAU Project, LLC	242913	49	Page 4-60 It is important to acknowledge that the travel time for some impacts to wells and springs may be longer than the time that has passed since uranium mining began in the North Parcel. Longer is rather vague in its usage here. The residence times for the majority of the withdrawal	Figure 26 cited in this comment depicts theoretical age of water samples, not necessarily the retention time in the R-aquifer and definitely not the travel time to springs. Such age dating studies are fraught with

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			areas is on the order thousands of years. For most mines, that would mean any affect that they might have on the other wells and springs could be, if detectable at all, undetectable for thousands of years into the future. The Retention Time Figure was taken from Figure 26 of the DIR Inc. Draft EA page 104 and modified to show the withdrawal boundary for the Southern Parcel. The contour lines were plotted from data in tables from USGS reports SIR2005-5222 and SIR 2004-5146. The Southern parcel is used as an example to illustrate my comments. As can be seen from the figure, the retention times in the southern withdrawal area range from about 5000 to 12000 years. This indicates that the transport time from the Raquifer in the southern parcel to springs at the Havasu and Blue Spring complexes is a very "long" time. Please clarify what a "Long Time" is. *** see submittal #242913 for detailed figure information**	uncertainty related to mixing of waters from various sources. Some groundwater in the R-aquifer moves very slowly and some moves rapidly, some is from recent recharge and some slowly seeps from pore spaces and poorly connected fractures in the rock. DEIS and FEIS Section 3.4.6 (Subsection Groundwater Occurrence and Movement in the R-Aquifer) contains a detailed description of groundwater movement in the R-aquifer. Water sampled at any one point in the aquifer reflects an age that is a composite of possibly multiple ages, some very recent. It makes sense that the theoretical age of groundwater nearer the discharge area of the aquifer (nearer the canyons) is less because that water has had much more opportunity to mix with more recent recharge along faults and fracture systems as it moved from the upgradient parts of the groundwater sub-basin toward the springs. The comment is correct that it might take as many as thousands of years for mine drainage to reach the R-aquifer at economically feasible breccia pipe uranium deposits and move toward springs, but the uncertainty of conditions over the entire proposed withdrawal area requires the conceptual model to allow for faster travel times. Recharge and movement of groundwater in other areas that are more fractured can be relatively rapid and these areas may comprise part of the pathway that mine drainage would take to points of groundwater discharge. It is likely that the route for contaminant transport would be composed of multiple segments having different travel times within the aquifer.
The NAU Project, LLC	242913	50	Page 4-60 These conditions result in low risk of impacts to the R-aquifer and support the assumption that it is entirely possible for there to be no impact to R-aquifer water quality. If an impact were to occur, the potential magnitude is addressed by the methodology and assumptions given below. The methodology and the assumptions made to measure the magnitude of the impact are faulty and don't conform to the requirements of NEPA.	The EIS describes existing conditions that are not favorable for mine drainage to occur to the R-aquifer from economically viable breccia pipe uranium deposits (Section 3.4.4). However, uncertainties require that conservative assumptions be made and that the reasonably foreseeable impact include more than the possibility of no impact. These two concepts necessarily may generate projected potential impacts that seem to be contradictory to the description of existing conditions. Please refer to the response to comment 225260-29 (EFR) for more discussion.
The NAU Project, LLC	242913	51, 52, & 53	Page 4-60 Second Paragraph The methodology and assumptions used to determine impact risk is based on the work of a graduate student (Liebe	These comments were very thorough and require multi-part responses, many of which have already

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			2003) and the measurements of uranium and its isotope activities at Horn Creek. The Liebe Master's Thesis is not available on the internet and a reviewer would have to go to NAU library to find a copy of it. It would have been nice if the major document cited for developing the assessment technique had been made available on the internet. However, the Appendix G analysis uses both the Fitzgerald data and the Liebe data and they are in agreement with regards to the U234/U238 Activity Ratio at Horn Creek. The AR for Salt Creek (if one is available) from the Liebe study was omitted in Appendix G. The Liebe data for uranium concentrations are the highest documented by some 1000% above what other credible researchers have found in this area. This leads to the conclusion that the Liebe data set was obtained quite differently than other researchers doing similar work. I obtained by email, a copy of the Fitzgerald thesis and noted that the sample locations for Horn Creek are all taken from the alluvium in the Horn Creek drainage basin. (The sample location data for Fitzgerald is shown on the next page.) The comments for Horn Creek place the sample locations where water, issuing from the Bright Angle shale - Muav limestone, would have flowed through the alluvium in the Horn Creek basin to the collection points. The Salt Creek sample location appears to be from a seep in the Tapeats Sandstone below the issue of the spring at bedding planes in the Muav Limestone. The water thus flows through the channel alluvium to the collection point for Salt Creek as well. From the SIR 2004-5146 a description of the sample locations for Salt and Horn Creeks are as follows: Salt Creek Spring. "Salt Creek Spring is at a headwall in the main Salt Creek drainage about 800 m upstream from the Tonto Trail crossing (pl. 1). Water discharges from bedding planes in the Muav Limestone and drips down an 8-m high cliff face of Muav Limestone onto a small talus slope on the west side of the canyon. The point of issuance of water is inaccessible; therefore, water samples were collected at the talus slope using a Visqueen sheet to funnel the flow into a Teflon holding bottle. All water enters the channel alluvium immediately downstream from the talus slope. During all site visits there was no evidence of flowing water in the stream channel from the talus slope to the Tonto Trail crossing. Discharge was measured where water flows over exposed Tapeats Sandstone (fig. 2) surfaces near the Tonto Trail (pl. 1). Water flows intermittently downstream from the Tonto Trail crossing to the Colorado River. No large-scale geologic structures have been identified near the spring. Recent flooding has removed large vegetation from the Salt Creek drainage. Horn Creek." Horn Creek consists of two primary branches.	been provided in response to comments by others. For a detailed response regarding the use of Liebe (2003) data in the EIS analysis of projected potential impacts, please refer to the response to comment 225260-24 (EFR). The permeability of the ring fractures at economically viable breccia pipe uranium deposits in the proposed withdrawal area is addressed in EIS Section 3.4.4. The EIS describes existing conditions that are not favorable for mine drainage to occur to the R-aquifer from economically viable breccia pipe uranium deposits in Section 3.4.4. However, uncertainties require that conservative assumptions be made and that the reasonably foreseeable impact include more than the possibility of no impact than zero. These two concepts necessarily may generate projected potential impacts that seem to be contradictory to the description of existing conditions. Please refer to the response to comment 225260-29 (EFR) regarding this issue. Regarding references in the comment to age of the groundwater, please refer to the response to comment 242913-49 (NAU Project). Regarding groundwater modeling, please refer to the responses to comments 242654-13, 14, and 17 (AZ Rock Prod. Assoc.) and 225286-4 (A. Springer) regarding the use of numerical or geochemical models. In response to comment 242913-55 (NAU Project) and 242913-56 (NAU Project), it is important to emphasize that all of the analyses for projected potential impacts to the R-aquifer include the potential for no or negligible impact to water resources (see Table 4.4-3). Many alternative contaminant pathway scenarios can be contemplated making different assumptions; however, the assumptions made for the EIS account for a wide range of pathways and flow mechanisms resulting in a wide range of projected potential impacts. The methodology offered in this comment simply is a subset within the range of conditions accounted for in the EIS, but this subset neglects the conditions that

Table 5.6-4. Response to Comments (Continued)

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				could result in the higher end potential impacts described in the EIS. Regarding the difference in uranium concentrations detected along Horn Creek: It is entirely possible, and even suspected by Liebe, that downstream water sampling locations on Horn Creek ("Horn east alluvium" and/or the USGS sites) may not have the same source as the "Horn up" location where the 400 ug/L uranium was detected. Liebe based his interpretation on differences in general water chemistry, including sulfur content, and structural features. Nevertheless, significant dilution/attenuation appears to have occurred after only 100 feet of flow downstream from Liebe's "Horn up" site to his "Horn down" site (reduction from 400 ug/L to 322 ug/L). Liebe (2003) did not include water sample results from the Salk Creek drainage. For a discussion of uranium detected in Salt Creek, please refer to response for 96015-1 (D. Lipmanson).
The NAU Project, LLC	242913		Continued...The west branch is usually dry, and the east branch has perennial flow in places. The sample site is in the east tributary about 500 m upstream from the Tonto Trail crossing (pl. 1) where water discharges from the channel alluvium that overlies the Bright Angel Shale (fig. 2). Water samples were collected at a small waterfall that was formed by boulders in the stream channel. Discharge was measured volumetrically at a small waterfall near the sample site. The spring flow emerges on the downthrown side of the northwest-striking Salt Fault (pl. 1) and flows intermittently to the Colorado River. At the head of the drainage is a breccia pipe and a historic uranium mine. Recent flooding has removed most of the vegetation at the site, leaving a few Fremont cottonwood trees in the nearby channel reach. Appendix G and the analysis on page 4-60 both contend that the AR calculated for Horn Creek indicate an anthropogenic cause, i.e., that water has entered the Orphan mine and mobilized uranium into solution and has gone through the intervening rock units and is causing the high levels of uranium in the waters in Horn Creek. While this conclusion may be true, there is an equally and more plausible explanation for the higher uranium content in Horn Creek and also satisfies the noted AR of ~ 1 calculated for Horn Creek. A diagram of the Orphan mine is shown below and will help demonstrate my proposition. My basic argument is that a great deal of the ore bearing zone from the Orphan pipe collapsed/eroded from the wall of the Grand Canyon and is an integral part of the channel alluvium in Horn Creek. The nature of the broken rock from the ore bodies would act like mine tailings and thus account for the existing AR at Horn Creek. This hypothesis is testable, and I am open to being	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			provided funds to do so. The Orphan Mine was discovered due to copper mineralization being exposed on the wall of the Grand Canyon at the Hermit Shale level. Note that the red line mirrors the pipe contact that exists within the standing wall of the cliff face and approximates what the missing part of the pipe might look like. The volume of the pipe that is missing is what eroded/fell from the cliff face and exposed the ore body of the Orphan Mine. The dark area extending down from the adit level is the A-zone ore body and reached grades of 1.5% U3O8. It could be extrapolated that this ore pod extended up into that volume of the pipe that has fallen from the face of the cliff. Indeed, the existing pipe above the adit level is mineralized with uranium, but at a grade not worth mining. This could be due to weathering and leaching actions which acted to strip mineralization from this exposed part of the pipe. The diameter of the pipe at the adit level is about 220 feet and the pipe can be traced upwards 350feet. The pipe would probably have flared out to a diameter of about 320 feet at the Coconino Sandstone unit. Using an average value for the pipe diameter above the adit level of 270 feet, the volume of the pipe that has been sent down into the canyon from the ore zone can be approximated. Volume of a cylinder = ((pi(3.14) x 270ft^2)/4)*350ft divide by 27 to get Cubic Yards. Volume = 741,825 cubic yards, but about 2/3 of the upper part of the pipe is missing, so about 500,000 cubic yards of material from the ore zone above the pipe has been sent down into the Horn Creek channel basin. Some of this material likely resides there still, and acts in the same way that mine tailings would.	
The NAU Project, LLC	242913		Continued... Sulfide ores in this material or perhaps gypsum dissolution from other rock units could account for the higher sulfate content of the waters in Horn Creek. This argument presents a valid non anthropogenic explanation for the water chemistry at Horn Creek and the higher levels of uranium in the creek water. It is very likely that the water coming from the spring at Horn Creek is elevated in uranium. The uranium mineralization in the Orphan ore body extends down into the Redwall limestone substantially and probably does contribute to the ground water activity in the vicinity of the mine. However, it would be a mistake to characterize the uranium content of the waters in Horn Creek to the mining activities at this time and to further extrapolate that this water is representative of attenuated mine waters that have passed through the intervening rock layers to the spring. The low volume of water that exits the rock face at the spring is sure to have deposited uranium enriched evaporates on the rock face and down the flow path both subsurface and on the surface from the spring over time. These evaporates could be remobilized under varying conditions of flow at the spring and the drainage basin and thus carry greater amounts of uranium into the Horn Creek water flow. Having put forth a reasonable argument that the higher concentrations of uranium in Horn Creek may not be from the Orphan mining operations per se, an impact analysis must be made for the possibility that uranium from actual	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			breccia pipe mine operations could find their way down to the roots of the breccia pipe in the Redwall Limestone via unconsolidated breccia or along the ring fracture zone that are still permeable to water flow. I don't have a problem with investigating this issue, I just don't believe that the evidence at the Orphan Mine is definitive and provides an actual scientific basis for the water quality analysis, given the age of the water at Horn Creek and the probable long transport time for the water through the rock strata. So the question is this, is 400 micrograms of uranium per liter an OK number to use? Given that around 600 µ-g/l was sampled inside the Orphan Mine in pooled water, 400 µ-g/l at a 1 gpm inflow, assumed to be directly injected, into the Redwall aquifer from a perched aquifer water source via mine openings is a good place to start. Now comes the sticky part. Some of the assumptions used in the water impact analysis are logically incompatible with known conditions in the R-Aquifers. Reductio ad absurdum arguments are made to disprove a proposition (correctly) and then the same argument is used to prove the same argument elsewhere (incorrectly). ***see submitall #242913 for table info	
The NAU Project, LLC	242913		Continued... Page 4-61 The water samples obtained by Liebe (2003) below the Orphan Lode Mine provide the only example available of water that has been demonstrated to be affected by mine drainage (see isotope evaluation in subsection of Section 3.4 titled Legacy Impacts to Water from Uranium Mining) and that has been exposed to attenuating processes of dilution and adsorption/absorption in the fine-grained rock units between the mine openings and the R-aquifer but has likely not experienced significant attenuation and dilution during transport in the aquifer as a result of the relatively close proximity of the mine to the spring system. Obviously, I disagree that the Liebe(2003) study shows conclusive evidence that the Horn Creek water has been demonstrated to be affected by mine drainage. The age of the water in Horn Creek does not support a transport time consistent with mine affected water showing up in the creek water as of yet. The author's above statement continues and asserts that this mine water has been exposed to the attenuating processes of dilution and adsorption/absorption in the fine-grained rock units between the bottom of the mine and the R-aquifer, I find this claim and assumption to be highly unlikely. I think it more likely that mine waters would move rather quickly or very slowly to the R-aquifer from openings within a mine. If the rather quickly option is true, then very little attenuation via dilution or ad/absorption would be occurring. For the Orphan case to be true, and mine waters are indeed affecting the creek waters below the mine, then a rapid transport to the R-aquifer via fractures and connected voids in the breccia is indicated. Thus very little attenuation is occurring to the waters from the mine. On the other hand, should the breccia and pipe be fairly impermeable at the Orphan Mine, then due to the age of the waters in Horn Creek, the effects from the Orphan Mine are yet to come in the far future. That said, all this is besides the point, but I cannot just let	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			speculation and assumptions be set forth as if they were facts. The bottom line is this: for whatever reason, and by whatever means, if 400 µg/L at 1gpm enters the R-Aquifer below a breccia pipe what are the consequences?	
The NAU Project, LLC	242913	55 & 56	Page 4-61 The potential mine drainage is not affected by attenuation or dilution in the aquifer during transport and is only modified by instantaneous mixing with the volume of water discharging at the R-aquifer spring system for the basin analyzed. 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. The above assumption does not constitute the basis for a credible impact model. I don't think anyone is asking for a perfect R- Aquifer subsurface transport and flow model for each location that a breccia pipe mine might be located (although I am sure the USGS would not turn down funds to do so over the next 20 years), but I really expected that the most important section in the EIS would have more going for it. This assumption is absurd on the face of it and is contrary to all of the sections regarding the geology of the R-Aquifer geological units. Conservatively high is really absurdly high! (Which is OK, if you are making a Reductio ad Absurdum argument!) The above assumption could, and appears to, be used in an reductio ad absurdum argument for the Havasu Springs calculation and it showed that due to the high volume of flow at the Springs that there could be no effect on the waters at Havasu Springs. However, this argument can only be used at springs where sufficient flow is available to disprove the proposition and cannot be used at low flow rate springs to prove the proposition. My basic comment here, is that you cannot posit transport of affected mine water over long distances and no mixing/dilution/attenuation with out stating that the assumption is absurd and that you will prove your proposition using that absurd assumption. Saying that it is conservative makes it seem like this assumption has some validity. It does not. The Liebe thesis itself actually provides the knife through the heart killing blow to the assumption for no dilution or attenuation. Taken at face value, the high levels of uranium contaminated water issuing (and measured) from the rock face above Horn creek of about 400µ-g/L was diluted and attenuated in just hundreds of feet to around 30µ-g/L or less by passing through the channel alluvium at a couple of gpm to locations measured and documented by USGS scientists. Clearly, the above cited portions of Chapter 3 indicate that there are two basic types of processes happening: water is moving slowly through permeable rock structures that include maze cave systems with gentle groundwater hydrological gradients and then moving into flow-through systems that rapidly move through the subsurface and have high flow rates. The flow-through systems occur near the spring outlets and the slow movement water occurs away from the outlets.	Please see responses to comments 242913, numbers 51, 52, and 53 directly above.

Table 5.6-4. Response to Comments (Continued)

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The NAU Project, LLC	242913		Continued... Looking at the 'residence time graphic above' gives a definite feel to where these events are taking place. It is most likely, that in most locations where a breccia pipe mine might inject 400 µ-g/l at 1 gpm into the R-Aquifer, a plume of elevated U containing water will be created that will move slowly down the hydrolic gradient, mixing with other water over thousands of years in the pores and inter-grain voids of the R-Aquifer rock until part or all of that decreasingly concentrated plume enters the maze cave systems (that are huge reservoirs of water) where it will be diluted even further for several more thousand years until it then enters the fast moving flow-through systems, where it will be thoroughly mixed and and further diluted. The above statement describing the most likely scenario for "contaminated" water from a breccia pipe mine is totally missing from the Chapter 4 analysis and leaves an uninformed reader believing that perhaps the ridiculous assumptions presented are possible and true. I think we deserve a better analysis that this. A realistic statement of the transport time and probable dilution of any uranium contaminated water from a breccia pipe mine needs to be formulated and included in this EIS. Something on the order of what I proposed above. Consult the USGS hydrology experts for something they can all agree on! NEPA requires a better analysis than what is provided in Chapter 4. I think the major item to be determine is, how far from a breccia pipe does the U enriched plume have to travel to be diluted down to the ambient levels of the RAquifer. I think there is probably an APP for that! This could be modeled several ways, by looking at three separate cases of transport in the R-Aquifer, i.e., slow diffusion through the saturated zone, injection directly into a cave maze system, and then injection into a flow through system. Combinations of these transport models would also be modeled. Remember, these would be simplifies models to get an idea of how far or what volume of water is required to dilute the 400 µ-g/L at 1 gpm down to ambient levels. I think such models are within the capabilities of modern man to make and analyze and should be included in this EIS. For example, if the models indicate that the 400 µ-g/L@1gpm of uranium water will be diluted to ambient levels at a distance of 1 to 2 miles from a pipe and this process might take 100 to 5 thousand years, then a more reasoned analysis of the impacts could be made. The direction affected will be the hydrolic down-grade and the probable impacts to springs and wells could be more correctly determined. Afterall, by a review of the Liebe data and the USGS data taken at Horn creek, it can be seen that the uranium contaminated water was diluted in just a few hundred feet from around 400 µ-g/L to around 30 µ-g/L in a low flow situation and over a very short time period. NEPA requires an analysis based on credible scientific evidence and not one based on pure conjecture or not grounded in the rule of reason. A supplemental DIES should be prepared and issued to correct the failure to create and analyze simple models that would give a reality based idea of the the possible affects of elevated U leakage from a breccia pipe mine	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			into the R-Aquifer or it could simply be concluded that the South Rim springs are so poorly connected to the R-Aquifer away from the South rim, that due to dilution and attenuation no contamination of these springs is reasonably possible and so the impacts are none or negligible.	
The NAU Project, LLC	242913	57	Page 4-62 The Havasupai impact calculation should be identified in some way that it is a Reductio Ad Absurdum argument and for each such case where this argument is used.	The EIS describes existing conditions that are not favorable for mine drainage to occur to the R-aquifer from economically viable breccia pipe uranium deposits. However, uncertainties require that conservative assumptions be made and that the reasonably foreseeable impact include more than the possibility of no impact. These two concepts necessarily generate projected potential impacts that seem to be contradictory to existing conditions (including the assumption of no dilution or attenuation, except at the spring itself). Please refer to the response to comment 225260-29 (EFR) regarding this issue.
The NAU Project, LLC	242913	58	Page 4-63 The section on wells should ideally be based on one or more of the R-Aquifer models for determining the distance that a plume would probably travel before being diluted to ambient levels, then determine the possibility that a mine could be developed within that distance to the R-Aquifer well and then determine impacts. The section as it now stands, is wholly speculative and does not meet the requirements set forth in NEPA at section 1502.22.	There are no groundwater rights or well impact criteria regulated by the Arizona Department of Water Resources in this part of Arizona; therefore, it must be assumed that a mine site could be located in close proximity to an existing R-aquifer well or a future R-aquifer well where water demand is anticipated to grow and cause a need for such wells. Thus, it is not feasible to conduct the type of site-specific analysis suggested by this comment. The potential impact to water quality at such a well could range from none to major, as shown in Table 4.4-3 and the associated text in Section 4.4.4 (Subsection R-aquifer Wells Quality). Regarding groundwater modeling, please refer to the responses to comments 242654-13, 14, 17 (AZ Rock Prod. Assoc.) and 225286-4 (A. Springer) regarding the use of numerical or geochemical models. Regarding the methodology in DEIS and FEIS Section 4.4.1, refer to the response to comment 242913-57 (NAU Project).
The NAU Project, LLC	242913	59	Page 4-68 Therefore, it is assumed that any mine located within the potential impact area calculated for a spring might cause an impact ranging from none to major to that spring. However, the probability that a spring might be impacted by implementation of an alternative was evaluated for each parcel using the methods and assumptions described in Section 4.4.1. Results of this evaluation are summarized in Table 4.4-4. Estimated probability of an impact to quantity or quality of discharge at a perched aquifer spring in the North Parcel is 13.2%, which is classified as	There are no groundwater rights or well impact criteria regulated by the Arizona Department of Water Resources in this part of Arizona; therefore, it must be assumed that a mine site could be located in close proximity to an existing R-aquifer well or a future R-aquifer well where water demand is anticipated to grow and cause a need for such wells. Thus, it is not feasible to conduct the type of site-specific analysis

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			a moderate impact according to the definitions given in Table 4.4-1. Duration of this impact would likely range from short term to long term (defined in Table 4.4-2). It is unclear that the math was done correctly to calculate these probabilities. See comments above for PAGE 4-51. I think a statement about the amount of probability inflation is warranted. To say conservative does not give a correct assessment, judging from the errors identified above.	suggested by this comment. The potential impact to water quality at such a well could range from none to major, as shown in Table 4.4-3 and the associated text in Section 4.4.4 (Subsection R-aquifer Wells Quality). Regarding groundwater modeling, please refer to the responses to comments 242654-13, 14, 17 (AZ Rock Prod. Assoc.) and 225286-4 (A. Springer) regarding the use of numerical or geochemical models. Regarding the methodology in DEIS and FEIS Section 4.4.1, refer to the response to comment 242913-57 (NAU Project).
The NAU Project, LLC	242913	60	Page 4-75 The analysis of this section can be used insofar as a Reductio Ad Absurdum (RAA) argument can be applied, given that the assumptions made are absurd. Where the argument is used to prove the proposition of elevated contamination, the RAA cannot be used and another more meaningful and realistic level of analysis must be employed. See previous comments on this issue.	Regarding groundwater modeling, please refer to the responses to comments 242654-13, 14, 17 (AZ Rock Prod. Assoc.) and 225286-4 (A. Springer) regarding the use of numerical or geochemical models. Regarding the methodology in DEIS and FEIS Section 4.4.1, refer to the response to comment 242913-57 (NAU Project).
The NAU Project, LLC	242913	61	Page 4-76 Table 4.4-5 I tried to duplicate the ambient concentration for small south rim springs by using the description of method in the notes and was unable to come up with the number 4µg/L as put forth in Table 4.5-5. I got 18.11µg/L . I think a spread sheet showing the calculations should be provided or at a minimum which specific records were used in the calculations. The calculations and records used could be made a part of Appendix F.	These calculations are in the project file and available upon request.
The NAU Project, LLC	242913	62	Page 4-77 The resulting projected total concentration of dissolved uranium at the springs ranges from 1.7 to1.8 µg/L, and the projected concentration of dissolved arsenic is 10 µg/L (see Table 4.4-5). The smaller uranium value and the arsenic value equal the ambient concentrations. The uranium concentrations do not exceed the EPA MCL for drinking water (30 µg/L) for humans, but the larger value does represent an increase from the ambient concentration. The analytical precision for an assay is anywhere from 5 to 10%, thus the difference of 0.1 µ-g/Lis hardly significant given the scenario of instantaneous mixing of 400 µ-g/L at the spring issuance. To apply a moderate impact rating for such a small deviation for an absurd calculation is ridiculous. Due to the absurd assumptions of transport with no dilution or attenuation, the above impact should be down graded to none to negligible.	Please refer to EIS Section 4.4.1 and Table 4.4-1 for definitions of impact categories. Where thresholds are used, it does not matter how close to the threshold the projected potential impact is as long as it exceeds the threshold. In addition, the 1.7 µg/L ambient concentration cited in this comment is an arithmetic average of several analyses, as are all the ambient concentrations listed in Table 4.4-1; thus, variation because of analytical precision is reduced in these calculations. The uncertainties are acknowledged in EIS Section 4.4.1.
The NAU Project, LLC	242913	63, 64, & 65	South Parcel Analysis Does not correctly apply a RAA argument for all cases. A better model and assumptions are required to determine the probable impact at low flow springs. An excerpt from the Grand Canyon National Park Water Supply Appraisal Study says: A number of other seeps and small springs issue from the Redwall-Muav aquifer within the	Although the conclusion stated in the cited excerpt from the Grand Canyon National Park Water Supply Appraisal Study (U.S. Bureau of Reclamation 2002) is based on sound, logical analysis of hydrogeologic conditions and is addressed under existing conditions

Table 5.6-4. Response to Comments (Continued)

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			Grand Canyon. The seasonal nature and unsteady base flow of many of these seeps and small springs compared to the steady flow of Havasu, Hermit, and Indian Garden Springs support the conclusion that discharge from these seeps and small springs result mainly or solely from local near-rim recharge. Therefore, applying the 400µg/L of Uranium at 1gpm makes no since at all because the low volume springs are not connected to the South Rim aquifer system in any meaningful way. A review of the spring flow data for the South Rim shows two distinct flow rate groups. One group has 17 members and all have flow rates less than 9 gpm and have an average flow rate of 3.2 gpm. The other group has 7 members and have flow rates from 45 to 359 gpm. The Grand Canyon National Park in its Water Supply Appraisal Study indicated that the low flow springs and seeps were not connected or so poorly connected to the RAquifer that their water was concluded to come from near-rim recharge. I agree with this assessment. I also strongly disagree with the concept of applying a 1 gpm flow of Uranium enriched water at 400µg/L into an average 3.2 gpm flow from a non-rim source. Suggesting that your contamination source be 1/4 of your total mixed flow is unrealistic (Not in compliance with NEPA) given the geologic setting and the probable location of any breccia pipe mine. Therefore, all such low flow springs and seeps should be excluded from contamination considerations and calculations, because they are simply not connected sufficiently to the R-Aquifer to begin with. However, if you simply cannot be content with this, then I propose the following. From Section 3.4.6 and page 3-76: The results of isotope studies reported by Monroe et al. (2005) and Bills et al. (2007) suggest that a fraction of the water from several of the springs may have slowly percolated downward from land surface and/or flowed from more distant parts of the aquifer, and that the small, local drainage basins at the Canyon rim may not be the only source of water for these springs. Note the use of the words: suggests, fraction, several, and may. This word usage indicates a high degree of uncertainty and thus speculation and really only apply to a handful of springs anyway, which by the way are unidentified as well. In addition, the more "distant parts of the aquifer" are most likely parts of the aquifer North of the ground water divide.	in EIS Section 3.4.6 (Subsection Discharge from R-Aquifer Springs), it does not preclude the possibility of recharge from more distant parts of the aquifer or quantify the relative proportion of such recharge. Therefore, the EIS necessarily uses the same methodology for these small seeps and springs as for larger springs. Because of the relative volumes of projected potential mine drainage and the discharge rates of the small seeps and springs, it is not necessary to conduct additional analyses to justify the potential for a major impact. Since EIS Table 4.4-3 gives potential impacts to South Rim springs ranging from none to major, the possibility of no impact is included in the analysis. Please refer to response to 242913-58 (NAU Project) regarding R-aquifer well impacts. The analysis of potential impacts on R-aquifer wells is given in EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells - Wells) and results are given under each alternative. Section 4.4.4 of the FEIS refers to the location of the analysis (in the Methodology section).
The NAU Project, LLC	242913		Continued... I propose using a fraction of the 1 gpm at 400 µ-g/L uranium concentration for instantaneous mixing at the outlet of the low flow springs. Please note that due to the low flow conditions considered, any additional concentrations of uranium will cause a moderate impact given the impact descriptions defined in Chapter 4 and so what we are determining is the possibility of a major impact. I calculate the average flow for Low flow springs from Appendix D to be about 3.2gpm and the average ambient uranium concentration in these springs to be about 5.4µg/L. The uranium contaminated water is 400µg/L at 0.0 to 0.15 gpm corresponding to 0 to 15% of the stated assumed 1gpm attributable to breccia pipe mining. Doing the math you find that at 0% contribution there is no impact, and at	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			15% contribution the projected concentration increases from 5.2 to 23.1µg/L , which is below the EPS MCL for drinking water (30 µg/L). This puts all impacts, from an absurd assumption scenario, at no impact to moderate impact for a long term duration for the low flow springs of the South withdrawal parcel. As noted in the DEIS, where the U concentration are greater than the EPS limit, those sites continue to have major impacts, but there is no increase in effective impact. However, since the above impacts are based solely on an absurd assumption of no dilution or attenuation over long transport distances and time, these impacts should be downgraded to none and negligible given the very low probability of these springs being actually connected to the regional aquifer north or south of the groundwater divide. The following list of springs from Appendix D are the higher flow rate springs and make up the second group of South rim Springs mentioned above. I will used the data for each exclusive of the Havasu Springs, Blue Springs, Hermit Springs, and Garden Springs which were calculated in the DEIS. For 1 mine contributing to the flow of: Two Tree Springs(221 gpm, 2.33 µ-g/l U), A-31-0313 (180gpm, assumed 3 µ-g/l U), Pipe Creek(104 gpm, 3.31 µ-g/l U), Hawaii Springs(359 gpm, 2.44 µ-g/l U) and A-31-0216(44.8gpm, 7.2 µ-g/l U) The DEIS did not specifically call out which springs were included in the small South Rim springs calculation, so I included all that had higher flow rates and were not calculated separately in the DEIS. The increase in uranium concentration is as follows for these springs, using the same method as in Section 4.4.1.	
The NAU Project, LLC	242913		Continued... Projected Concentration Two Trees: 4.12 µ-g/L A-31-0314 5.19 µ-g/L Pipe Creek 7.09 µ-g/L Hawaii Spring 3.54 µ-g/L A-31-0216 15.78 µ-g/L As can be seen from the above list, each spring had an increase in projected uranium concentration, but none were above the EPS MCL for drinking water (30 µ-g/l). This redefines all impacts, from an absurd assumption scenario, at no impact to moderate impact for a long term duration for the South withdrawal parcel. However, since the above impacts are based solely on an absurd assumption of no dilution or attenuation over long transport distances and time, these impacts should be downgraded to none and negligible. The impacts for the Havasu Springs and Blue Springs should be downgraded to no impact. The impact for Hermit Springs and Garden Springs should be downgraded to none and negligible.Page 4-78 R-Aquifer Wells Quality South Parcel: Based on the description given in Section 4.4.1 of potential impacts to R-aquifer quantity and quality, together with the description given in the present discussion for R-aquifer quantity, it is considered unlikely but possible that water quality at R-aquifer wells at Tusayan or Valle could be impacted by anticipated mining operations in the South Parcel for the 20-year period of this analysis. This result would be considered to represent a range from no impact to major impact, according to the criteria given in Table 4.4-1. Duration of the impact would likely be long term (defined in Table 4.4-2).	

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			This section provides no analysis whatsoever for the determination of the impacts of mine related water uranium contamination on R-Aquifer wells. On page 4-63 of the DEIS it is stated: Because data are insufficient to estimate the specific flow paths and dilution in the aquifer at future mines, it is not possible to quantitatively project the potential impacts to chemical quality at non-mine R-aquifer wells, if such impact were to occur. Therefore, it is assumed that the potential impact would range from none to major. Duration of the impact would likely be long term (defined in Table 4.4-2).	
The NAU Project, LLC	242913		Continued... These two statements of impact are counter to the requirements of NEPA, as no credible scientific evidence is offered and is based purely on conjecture. However, insufficient data did not stop the authors from creating a contamination scenario, complete with absurd assumptions, for R-Aquifer Springs, so what's the issue here? So, what you are going to say instead is, lets make something up because we have no clue? If you're gonna posit 400 µ-g/L U at 1 gpm undiluted and unattenuated to the outlet of a Spring, you might as well do it for the wells too! There are three wells at Tusayan and two wells at Valle. I propose that they be consider the same as a Spring Complex and thus the GPM flow for Tusayan is 3 time 65 gpm(for each well) or 195gpm and similarly, the Valle well complex would have a flow rate of 130 gpm. Using 4 µ-g/l U concentration for both well sites (assumed, as I have not been able to find true values) the Projected values for Uranium concentrations at Tusayan Well Complex is 6.0 µ-g/l and at Valle 7.0 µ-g/L Both of these projected concentrations are an increase over ambient conditions, but none were above the EPS MCL for drinking water (30 µ-g/l). This then puts all impacts, from an absurd assumption scenario at, no impact to moderate impact, for a long term duration in regards to R-Aquifer well affected by mining in the South withdrawal parcel. However, since the above impacts are based solely on an absurd assumption of no dilution or attenuation over long transport distances and time, these impacts should be downgraded to none and negligible. NEPA requires that the determination of impacts be based on credible scientific evidence and not upon pure conjecture and that analyses used be within the rule of reason. Therefor, the analytical models used must be more substantial than are offered in this DEIS. The entire Water Quality section needs a re-write to conform to the analytical requirements of NEPA.	
The NAU Project, LLC	242913	76	The Water Resources Impact section is totally devoid of any suggestions for mitigating measures, even though this section is one that claims many higher level impacts to water resources. That no mitigating measures are proposed, is not in compliance with NEPA. A possible mitigation measure that could be investigated, and would address one of the central issues of water resource impacts is the issue of the possibility that some breccia pipes might be permeable and allow mine tainted water to seep down into	This EIS is an analysis of a mineral withdrawal proposed by the Secretary of Interior and two alternative withdrawals. No specific mine operations are being addressed, nor will any be authorized as a result of this analysis. The description of mine inspections and other techniques (mitigations) to reduce environmental impacts and assure compliance

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			the RAquifer. I would propose the following mitigating measures for reclaimed mines: Apply a sealant to the exposed low grade ore that will be left in place such that water flowing over the surface will not come into actual contact with the rock surface. In addition, the bottom of the mine could have a granulated filter media containing minerals that would have an extremely large surface area within the media that would act like sinks for any uranium that had become soluble in water. As the uranium enriched water passed through the media at the bottom of the mine, the uranium would be precipitated out and tightly sequestered such that it would be unlikely to be remobilized at a later time. Modeling could be done to determine the depth to which the media should be infilled and the amount of uranium in solution that it could capture. This kind of media could also be put in the mine sump, when the mine is in operation. These are the kinds of mitigating measures that should be generated to address many of the impacts that this EIS has come up with. I find it quite disturbing that the most popular mitigating measure proposed is just the Alternatives that reduce the area available for mineral entry. A greater effort is required by NEPA than the one that has been made so far in the writing of this DEIS.	to laws and regulations would be established at the time of the site-specific NEPA analysis of a new Mine Plan of Operations.
The NAU Project, LLC	242913	82	If mine drainage were to occur from a breccia pipe uranium mine within this capture zone and, although it is unlikely, if the mine drainage were to reach the R-aquifer and not be mitigated, it would be possible for the mine drainage to eventually become part of the groundwater yielded to the Tusayan wells at a highly diluted concentration. So what is your mitigating measure that you think might work?	This EIS is an analysis of a mineral withdrawal proposed by the Secretary of Interior and two alternative withdrawals. No specific mine operations are being addressed, nor will any be authorized as a result of this analysis. The description of mine inspections and other techniques (mitigations) to reduce environmental impacts and assure compliance to laws and regulations would be established at the time of the site-specific NEPA analysis of a new Mine Plan of Operations.
The NAU Project, LLC	242913	84	Water Resources Section page 4-65 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). This does not relieve you from offering mitigating measure for this EIS.	This EIS is an analysis of a mineral withdrawal proposed by the Secretary of Interior and two alternative withdrawals. No specific mine operations are being addressed, nor will any be authorized as a result of this analysis. The description of mine inspections and other techniques (mitigations) to reduce environmental impacts and assure compliance to laws and regulations would be established at the time of the site-specific NEPA analysis of a new Mine Plan of Operations.
Robert Grossman	242968	1	You state that water for dust ccontrol would come from an aquifer. Define the impact of such water withdrawal on the aquifer and other users of the aquifer water.	The potential impacts under Alternative A (no withdrawal) for all mine water withdrawals, including those for dust control, are discussed for springs and wells in EIS Section 4.4.4 (Subsection R-aquifer Springs Quantity). In addition, it should be noted that

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				seepage from perched aquifers penetrated by mine openings is collected in the mine sump and used for dust control; potential impacts to perched aquifer springs and wells under Alternative A are discussed in EIS Section 4.4.4 (Subsection Perched Aquifer Springs and Wells Quantity and Quality).
VANE Minerals	242650	15	Nowhere in the DEIS does it state that a direct positive impact of mining uranium from breccia pipes is that it removes the uranium that is the source of concern in the first place.	The fact that the high-grade ore at economically viable breccia pipe uranium deposits is preserved indicates that the hydrogeologic conditions at these sites are not favorable for groundwater to move naturally through the deposits. However, mining operations create openings that may be exposed to oxidation and drainage of perched groundwater. At the end of mining operations at such a site, it is not reasonable to assume that ore removal was 100% efficient or that there is no uranium-bearing rock remaining exposed in the openings or backfilled into the mine during reclamation as waste rock.
Sustainable Economic Development Initiative of Northern Arizona	54353	10	Examples of other effects not considered in the DEIS include significant weather changes over the next 20 years, including Black Swan effects - refers to the disproportionate role of very high-impact, hard to predict, and rare events in history and science. (Taleb, Nassim Nicholas, 2007: The Black Swan, Random House, New York.) A recent example is the impact of the 9.0 earthquake and tsunami on several nuclear reactors in Japan. Apparently, to save money both the design and operation of these nuclear reactors were based on more probable disturbances. Last year's BP oil spill in the Gulf provides another example of cost-cutting shortcuts when a full scale blow-out was deemed to be improbable. When an improbable event could be catastrophic, with long-term impacts, however decision-making based only on probabilities is inadequate. In the case of chemical water pollution by mining wastes or uranium, for example, the DEIS claims the overall cumulative risk for perched aquifer springs is moderate for the north parcel and negligible for the east and south parcels. (DEIS, p 4-84) Other DEIS comments, however, do not support this conclusion. For example: the DEIS acknowledges the estimated pollution impact probability to north parcel springs as 13.2% under Alternative A, (DEIS, p 4-70) at the same time noting that "incomplete and unavailable information adds to the uncertainty of analysis. (DEIS, p 4-65) The DEIS also notes that "there is currently no conclusive evidence from well and spring sampling data that breccia pipe uranium mining operations in the North Parcel have impacted the chemical quality of groundwater in the regional R-aquifer," but acknowledges that "the travel time for some impacts to wells and springs may be longer than the time that has passed since uranium mining began in the North Parcel." (DEIS, p 4-60)	NEPA does not require a worst-case scenario analysis (this analysis was withdrawn by final rule issued at 51 Fed. Reg. 15618, Apr. 25, 1986), only analysis of circumstances that are reasonably foreseeable is required. Appendix B provides this reasonably foreseeable development scenario and provides a rationale to why this scenario is used. The description of existing conditions in EIS Section 3.4 together with the conservative methodology described in Section 4.4.1 to project potential impacts to water resources lead to conclusions that are unlikely to be affected by changes in average weather conditions in the region over the next 20 years. As described in EIS Section 4.4.3, environmental regulations and permitting require mine site design to account for certain levels of extreme weather. However, if extreme weather or other events would cause violations of the mine permits, the responsible oversight agency would require specific mitigation measures to be developed on a case-by-case basis to correct the violations. There is nothing inconsistent with the EIS citations made in the first half of this comment. The EIS characterizes potential impacts to water resources according to the methodologies and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				definitions in Section 4.4.1. Lacking established standards, the EIS does not make judgments about the acceptability of projected potential impacts or risk of impacts.
Sustainable Economic Development Initiative of Northern Arizona	54353		*#10, continued....* The DEIS comes close to acknowledging the potential impact of current level drought conditions when it notes that "impacts to R-aquifer springs range from negligible impact (concentrations of uranium and arsenic remain at ambient levels) where spring flow is large (East and South parcels), there might be a major impact (exceedances of drinking water quality standards) where spring flow is small (South Rim springs north of South Parcel)." (DEIS, p 4-80) Increasing drought conditions would likely make increase the impact because of reduced flows in all springs. These comments do not support the precision implied in an impact probability of 13.2%, or a conclusion that impact effects are "negligible". Even a characterization of the potential impact of uranium contamination of the Colorado River as 13.2% or as "negligible" creates an unacceptable risk given the significant consequences of an event characterized as "improbable". One way of dealing with the possibility of black swan events is use a Failure Mode and Effects Analysis (FMEA) customized to the uranium ore mining and transportation process on a full life cycle basis, i.e., covering the full life cycle of uranium ore's pollution potency. This approach provides a way to incorporate low probability but high impact outcomes into the decision making process. We were not able to identify any consideration of this important analytical approach in the DEIS.	
Arizona Department of Environmental Quality	225269	2	The DEIS makes a number of assumptions regarding water quality and recharge of the R-aquifer at current and potential mines that are not consistent with actual conditions or permits issued for operation and reclamation of new mines. Specifically: The DEIS states that the potential for impacts to local perched aquifers is dependent on the presence and location with respect to uranium ore within a particular breccia pipe. Under the DEIS assumption that future mines would be evenly spaced and that perched aquifers are notcontinuous, BLM estimates that impacts would range from "none" to "major" and such impacts would occur due to mobilization of· chemical constituents and handling of waste rock. ADEQ has not observed a wide-spread presence. Of perched aquifers at any of the ADEQ permitted mining sites ininearthe DEIS study area. Only one minor perched aquifer has been identified, and its presence can be attributed to an overlying stock watering pond. In all known cases; ore bodies have been located far below the elevation of any potential perched aquifer, rendering any potential perched aquifer impacts negligible.	<u>PERCHED AQUIFERS:</u> The assumptions and methodology for projecting potential impacts to perched aquifers are given in EIS Section 4.4.1 (Subsection Quantity of Discharge from Perched Aquifer Springs and Wells). Potential impacts are discussed under each alternative in EIS Sections 4.4.4 through 4.4.7. In addition, please refer to EIS Section 3.4.6, Subsections Recharge, Groundwater Occurrence in Perched Aquifers, and Discharge from Perched Aquifer Springs. Data are insufficient in the large study area to determine where perched aquifers occur and the location of future mines is not known. Therefore, a random distribution was used to evaluate the probability of a mine impacting a perched aquifer. The recharge assumptions were based on infiltration of a fraction of the natural precipitation in the region. Perched aquifers are not uncommon and, in fact, were

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				encountered in the base of the Coconino Sandstone (underlain by the Hermit Formation perching layer) at most of the former and existing breccia pipe uranium mine sites in the study area. If a perched aquifer is penetrated by mine openings, perched groundwater can drain into the mine openings, thus depleting the aquifer. Unless the perching layer is re-established during mine reclamation, the perched aquifer will continue to drain into the mine openings and will not be replenished. If the perched aquifer discharges at a perched spring, the spring could be impacted. If there is any residual ore in the mine openings at the perched aquifer horizon, or if waste rock that contains residual mineralization is placed in this horizon, additional migration of recharge water through this horizon could mobilize uranium and other minerals. Even if the perching layer is re-established during mine reclamation, perched groundwater moving laterally through this horizon could still mobilize uranium and other minerals, if present. In Table 4.4-3 potential impacts to perched aquifer springs are characterized as ranging from none to moderate, based on the location of springs and the projected recharge areas. Potential impacts to perched aquifer wells are characterized in Table 4.4-3 as ranging from none to major because such a well may or may not tap an aquifer that could be penetrated by a future mine. <u>R-AQUIFER:</u> The assumptions and methodology for projecting potential impacts to the R-aquifer are given in EIS Section 4.4.1 (Subsections Discharge from Regional R-Aquifer Springs and Wells; and Chemical Quality of Regional R-Aquifer Springs and Wells). Potential impacts are discussed under each alternative in EIS Sections 4.4.4 through 4.4.7. In addition, please refer to EIS Section 3.4.6, Subsections Recharge, Groundwater Occurrence and Movement in the R-Aquifer, and Discharge from R-Aquifer Springs.
Arizona Department of Environmental Quality	225269	3	The DEIS makes a number of assumptions regarding water quality and recharge of the R-aquifer at current and potential mines that are not consistent with actual conditions·or permits issued for operation and reclamation of new mines. Specifically: The DEIS assumes that one gallon per minute (gpm) of drainage containing 400 mg/l of uranium would be passing through each mine and would eventually reach the R-aquifer. 400	Please refer to the responses to comments 225269-2 (ADEQ) and 225260-24 (EFR). Water quality data for concentrations of uranium in groundwater that passes through a breccia pipe uranium mine to the R-aquifer are very limited; therefore, conservative assumptions must be made using the best data available. The basis

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			mg/l described as the highest concentration detected in water from below the historic (un unreclaimed) Orphan Lode Mine.This theoretical concentration of uranium in water was then applied to all potertial mines in the area for purposes of estimating potential impacts to R-Aquifer water quality. These assumptions grossly overestimate potential impacts to the R-aquifer as: all mines would need to be continually exposed to percolating groundwater (an unrealistic assumption); each mine would need to contribute one gpm (or about 650,000 gallons per year) of high uranium drainage to the R-aquifer; and, no mines are assumed subject to dewatering or reclamation (sealing) to prevent water percolation during or subsequent to operation as is required by current permits.	for the assumption of a concentration of 400 mg/L is given in EIS Section 4.4.1 (Subsection Chemical Quality of Regional R-Aquifer Springs and Wells). As described therein, chemical analyses reported by Liebe (2003) are the only data available for water that moved through an unreclaimed breccia pipe uranium mine (Orphan Lode Mine) after mining operations had ceased. The projected potential impacts are not based on an assumption that all of the mines would continue draining 1 gpm; only as many as half of the mines estimated in the RFD are assumed to continue draining, including zero mines. A cumulative inflow of 1 gpm seeping from potentially several surfaces of a horizon penetrated by mine openings would not appear to be significant visually and is, in fact, the same magnitude of discharge reported for many of the perched aquifer springs in the North Parcel, which are supported by recharge to perched aquifers (Figure 3.4-11). The 1 gpm rate is also approximately equal to the maximum average flow of perched groundwater into mine openings for former breccia pipe uranium mines in the North Parcel (see EIS Section 3.3.4). One of the most significant uncertainties is the pathway by which mine drainage might reach the R-aquifer. Although, as stated in Section 3.4.4, low permeable conditions at economically viable uranium ore deposits in breccia pipes are not favorable for downward migration of leached minerals, there are insufficient data to preclude this possibility at all locations. Due to uncertainties, it is prudent to make conservative assumptions, even if they may overestimate the potential impacts.
Arizona Department of Environmental Quality	225269	4	The DEIS makes a number of assumptions regarding water quality and recharge of the R-aquifer at current and potential mines that are not consistent with actual conditions· or permits issued for operation and reclamation of new mines. Specifically: The DEIS acknowledges that "It is assumed for the purposes of this impact analysis that the impact to surface streams is equivalent to the impact on the springs supplying discharge. This assumption could lead to a conservative overestimation of impacts if a stream is fed by multiple springs that are not all impacted and because in "stream attenuation is ignored". In addition to this acknowledged overestimation of surface water impacts, the analysis of potential impacts to surface waters would be further overestimated due to the overly conservative assumptions made during the assessment of R-aquifer water quality discussed above.	Data for field water quality samples and spring flow are limited in the study area; therefore, conservative assumptions must be made using the best data available. Although the assumptions used to analyze impacts to perennial surface streams in the study area may result in overestimation of potential impacts, they are appropriate given that: 1) even if the stream is fed by multiple springs, at least one segment of the stream would experience an impact equivalent to that at the source spring and, because this EIS is not site-specific, it is not possible to determine which springs/streams might be impacted; and 2) in-stream attenuation is likely to be negligible because, on

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				average, the perennial surface water reaches are very short and fed only by a single nearby spring or closely arranged spring complex.
Arizona Department of Environmental Quality	225269	5	The DEIS makes a number of assumptions regarding water quality and recharge of the R-aquifer at current and potential mines that are not consistent with actual conditions·or permits issued for operation and reclamation of new mines. Specifically: The DEIS cites United States Geological Survey, in its 2010 publication Hydrological, Geological; and Biological Site Characterization of Breccia Pipe Uranium Deposits in Northern Arizona: *Water migrating from the surface to the subsurface is an important trarisport mechanism for the remobilization oftrace and radiochemical elements. Since most of the orebodies associated with breccia·pipes are located several hundred to more than 1,000 ft above the regional groundwater flow systems of northern Arizona, natural recharge of water from the surface through these orebdies is one of the few ways of riaturay adding to the radiochemistry of the regional groundwater flow systems.* (Page 9) Though the USGS believes natural recharge occurs through breccia pipes and adds radionuclides to the R-aquifer, the DEIS does not appear to differentiate between such natural recharge and potential recharge through mining activity. .	Please refer to the response to comment 225280-13 (ASLD).
Arizona Department of Environmental Quality	225269	6	The DEIS makes a number of assumptions regarding water quality and recharge of the R-aquifer at current and potential mines that are not consistent with actual conditions·or permits issued for operation and reclamation of new mines. Specifically: In addition, the Arizona Geological Survey (AGS), who worked with the BLM as a cooperathig agency during development of the DEIS, has completed a study of the amount of naturally-occurring uranium in the Colorado River and the possible impacts of additional uranium entering the river as a result of accidental discharge from current and potential uranium mining in Northern Arizona (attached). The AGS concluded that even under hypothetical worst-case scenarios of releases of uranium ore directly to the Colorado River, uranium concentrations would not exceed applicable regulatory standards.	The potential water quality impact to the Colorado River is discussed in EIS Section 4.4.4 (Subsections Surface Waters, Water Quality). Although Spencer and Wenrich (2011) was not relied upon in conducting the EIS analysis of impacts to the Colorado River, the results of the analysis in this EIS are consistent with their findings.
Coconino County Board of Supervisors	225238	10	According to the DEIS (Appendix B, page B-37), the estimated water use for each mine is estimated at 10.5 million gallons over a four-year mining period. While this is tiny compared to water use in Phoenix or Flagstaff, it is still a substantial amount of water. It is about 15% of the amount of water used in the community of Tusayan on an annual basis, for example. While small, the potential for impacts on seeps and springs in the Grand Canyon is considerable.	Potential impacts to seeps and springs in the Grand Canyon from mine well use are discussed under each alternative in EIS Sections 4.4.4 through 4.4.7 (Subsection R-aquifer Springs Quantity).
Coconino County Board of Supervisors	225238	11 / 12	County staff also was told by BLM officials at one of the cooperating agency meetings that there is no requirement for the timely reclamation of mothballed mine sites. The Kanab North mine site has been mothballed since the late 1980's. Unlike a mine that proceeds totally according to plan,	The Kanab North Mine was approved in the late 1980s and mining was conducted there until the collapse of the Soviet Union caused uranium prices to plummet. The regulations under which the mine was approved

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			with exploration, planning, permitting, mining, and reclamation all occurring within a seven-year window, if the price of uranium declines and companies walk away from mines because they are no longer economically feasible to operate, reclamation could wait 50 or 100 years after a mine site is mothballed. Several years ago the Board of Supervisors toured the Kanab North mine site and there was water in the retention ponds, and the liner appeared to have significantly deteriorated over time, potentially allowing contaminated water to leak into underlying aquifers and affecting spring water quality, possibly decades later. This begins to suggest that the very long-term cumulative impacts on water quality are not very well understood.	allowed for the mine to be managed under Interim Management until the company could economically reopen the mine. There was no time limit for operating under Interim Management in the regulations when the Kanab North Mine was approved. The Kanab North mine remained under interim management for over 20 years because the mine owner believed it might be feasible to re-start active mining operations. Recently, the mine owner has reconsidered the feasibility of reopening the Kanab North and they are preparing to close the mine and reclaim the site. The mine owner is working with BLM to develop a timeline for implementation of the reclamation plan, and is coordinating with ADEQ to determine if additional requirements must be met for closure. Please refer to EIS Section 4.4.3 regarding monitoring, mitigation, and financial guarantees that may be required by ADEQ and/or BLM for re-activation and closure of existing mines operating under interim management plans.
Washington County Commission	225251	4	A recent study completed by the Arizona Geological Survey, conducted by Drs. Spencer and Wenrich using data published by the U.S. Geological Survey, concluded that 40 to 80 tons of dissolved uranium (not uranium ore) are currently being carried by the Colorado River through northern Arizona and the Grand Canyon every year. According to their study, the proposed withdrawal area has one of the highest concentrations of naturally-occurring uranium in the world with many deposits exposed in the walls of the canyons across the area. Uranium has been eroding from these naturally-occurring deposits for millions of years and will continue to do so for millions more. In the study, they considered a hypothetical, worst-case transportation accident in which a truck hauling thirty metric tons (66,000 pounds) of ore containing one-percent uranium 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 and thereby becomes part of the dissolved uranium content of the river (a highly implausible, if not impossible scenario). The addition of 300 kilograms (660 pounds) of uranium over a one year period would increase uranium in river water from 4.00 ppb to 4.02 ppb, an increase of one-half of one percent - an amount they concluded would be undetectable against much larger natural variations in river-water uranium content.	The potential water quality impact to the Colorado River is discussed in EIS Section 4.4.4 (Subsections Surface Waters, Water Quality). Although Spencer and Wenrich (2011) was not relied upon in conducting the EIS analysis of impacts to the Colorado River, the results of the analysis in this EIS are consistent with their findings. Please refer to the response to comment 225280-13 (ASLD) for additional discussion.
San Juan County Commission	243250	7	Uranium contamination of the Colorado River was one of the primary concerns raised by former Arizona State Governor Janet Napolitano and Secretary of Interior Ken Salazar in implementing the temporary federal	The potential water quality impact to the Colorado River is discussed in EIS Section 4.4.4 (Subsections Surface Waters, Water Quality). Although Spencer and

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			segregation on the Arizona Strip Area. A recent study completed by the Arizona Geological Survey conducted by Dr. Spencer and Dr. Wenrich using data that was produced by the USGS concluded that forty to eighty tons of dissolved uranium (not uranium ore) are currently being carried by the Colorado River through northern Arizona and the Grand County every year. This study indicated that the proposed withdrawal area has one of the highest concentrations of naturally-occurring uranium in the world with manyofthe deposits exposed in the walls ofthe canyons across the area. Uranium has been eroding from these naturally-occurring deposits for millions of years and will continue to do so for millions more. There is no action that can be done through the DEIS to change this fact of nature.	Wenrich (2011) was not relied upon in conducting the EIS analysis of impacts to the Colorado River, the results of the analysis in this EIS are consistent with their findings. Please refer to the response to comment 225280-13 (ASLD) for additional discussion.
U.S. Fish and Wildlife Service	242660	35	Also, please clarify the effects to perched aquifers from mines that are in interim management mode. Water quantity (see page 4-71) and presumably water quality in these aquifers would continue to be affected during this period, while mines are not being actively operated, but have not been reclaimed.	The decision to not analyze impacts during periods of non-operation (i.e., interim management) was made for two reasons: first, that reasonably foreseeable demand for uranium is not expected to lead to mines on stand-by and, secondly, mines operating under interim management are operating according to an approved interim management plan that defines how the site will be managed, allowing the BLM and Forest Service to determine what activities will be allowed on the site during those periods, if they should occur. Mining operations must still comply with environmental regulations and laws even while under interim management.
Arizona State Land Department	225280	13	In Subsection B.4.1 on page B-11 , the RFD notes that the first breccia pipes were originally discovered as a result of their exposures in the walls of the canyons. However, there is no discussion anywhere within the RFD or the DEIS of how many pipes are naturally exposed within, and how much uranium is consequently being naturally eroded and released into, the Colorado River watershed. The Arizona Geological Survey (AGS) did a recent study of these naturally exposed breccia pipes, and found that the amount of uranium naturally eroding into the watershed from these exposed breccia pipes would greatly exceed any accidental release of uranium from mining activity.	EIS Section 3.4.4 provides some discussion of natural release of uranium into the environment from breccia-pipe ore bodies. The number of known breccia pipes exposed is discussed in this section and these pipes are shown on Figure 3.4-5. Breccia pipe uranium deposits appear to be the source of widespread low to moderate concentrations of dissolved uranium in groundwater throughout the region. The article referenced by the commenter (Spencer and Wenrich 2011) discusses background concentrations of dissolved uranium in the Colorado River. Although some influx of dissolved uranium to the river likely occurs in the study area as a result of natural erosion of uranium deposits in the Grand Canyon region, based on available data there has been no increase in dissolved uranium concentrations in the river within the study area (see Section 3.4.7). Data for uranium-bearing sediment loads in the Colorado River upstream and downstream of the study area are not available.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
Wilderness				
Denison Mines Corp	104145	7	Further, the lands in question have already undergone evaluation and decision for withdrawal. In the 1980's, the uranium industry, federal government and environmental groups agreed on the terms of the Arizona Strip Wilderness Protection Act of 1983, which became law in 1984. The act, drafted by Arizona lawmakers Mo Udall, Barry Goldwater, Bob Stump, Jake Gam, and John McCain, sought to keep open for multiple use, including mineral entry, much of the acreage being targeted by this proposal. The operations of the uranium industry on the Arizona Strip have been a testament to this having been the right decision. This withdrawal proposal ignores that history.	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses. The Secretary of the Interior, under the authority of Section 204 of FLPMA, may implement a withdrawal of over 5,000 acres of public lands for a period of up to 20 years.
American Clean Energy Resources Trust (ACERT)	225256	20	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.* 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.	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses. The Secretary of the Interior, under the authority of Section 204 of FLPMA, may implement a withdrawal of over 5,000 acres of public lands for a period of up to 20 years.
American Clean Energy Resources Trust (ACERT)	225256	105	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.	Impacts to wilderness have been analyzed according to the definitions of the characteristics that constitute a wilderness, as specified in the Wilderness Act, in Section 4.13, Wilderness. The FEIS has been updated to include existing conditions and analysis of impacts to BLM, Forest and NPS wilderness characteristics in

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			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.	Section 3.14 and 4.14, Wilderness Characteristics.
Northwest Mining Association	225275	6	Importantly, the lands in question have already undergone evaluation and decision for withdrawal. In the 1980's, the uranium industry, government and environmental groups agreed on the terms of the Arizona Strip Wilderness Protection Act of 1983, which became law in 1984.	The purpose of this FEIS is not to rescind, re-evaluate or interpret the 1984 Arizona Wilderness Act. The FEIS analyzes the potential impacts a 20-year withdrawal would have on the natural and human environment to enable the Secretary to make a decision. The FEIS includes information on the 1984 Arizona Wilderness Act in Sections 1.4.3, Authorities, and 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.
Arizona Rock Products Association	242654	6	In 1984, Arizona's Congressman Morris Udall, as Chairman of this Committee, directed the uranium mining industry, native Americans, environmentalists, cattlemen and other stakeholder groups to negotiate an agreement on which lands should be left open for mining and other multiple use activities and which lands should be designated wilderness. Those groups met and negotiated a compromise which formed the basis for designating Arizona's first wilderness areas as buffer zones around the Grand Canyon National Park. Chairman Udall together with Arizona's Senator Barry Goldwater, Senator Dennis Deconcini, and his House colleagues John McCain, and Bob Stump honored the negotiated	The text of the FEIS has been changed in response to this concern. The FEIS includes information on the 1984 Arizona Wilderness Act in Sections 1.4.3, Authorities, and 3.13, Wilderness. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			agreement and released these very same lands now proposed for withdrawal from Wilderness Study classification with the specific understanding and expectation that uranium mining would occur on them under the strict environmental laws of both the State of Arizona and federal government.	
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	52	The DEIS assumes that any disturbance to the Designated Wilderness and NPS Wilderness areas would be limited to only 1-5 years. This is based on a false model of a limited number of mining sites where the site was mined and remediated in a limited time period. In fact, most of the uranium mine sites in the Grand Canyon ecoregion and Arizona Strip have a record of extended mining of over 20 years with on and off periods of activity. In the meantime, the mining equipment, facility and access roads exist without any remediation. Secondly, by opening any area up to more exploration, there will be continuous activity of equipment, drilling, and road/access building with substantial impairment of the wilderness characteristics of the area forever. Additionally, exploration of an area will not likely be limited to a 1-5 year period. Past experience has demonstrated that exploration will come in waves and be both in the form of land-based travel and helicopter transport of equipment and personnel.	The text of the FEIS has been changed in response to this concern by revising the text in Section 4.13.3 to state. In addition, clarifying language has been added to Section 4.13, Wilderness which directs the reader that impacts to wilderness characteristics are analyzed in detail in another Section of the FEIS: 4.14 Wilderness Characteristics. The assumptions included in Section 4.14, Wilderness Characteristics state that new mines would be subject to their own site-specific NEPA analysis in support of a Mining Plan of Operation, and further NEPA and revised Mining Plans of Operations would be required if the mine exceeds the 1-5 year limitation. The RFD-scenarios presented in Appendix B of the DEIS describe the assumptions for analysis for mining and mining-related activities, including identifying the anticipated timeframes of facilities.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	53	The DEIS assumes that any disturbance to the Designated Wilderness and NPS Wilderness areas would be limited. However, each 20 acres of mine footprint would negatively impact the wilderness characteristics of many square miles of land. These impacts from the activities associated with uranium mining include noise, visual impairment, dust, truck traffic, secondary traffic and OHV use resulting from new road access, low flying aircraft and disturbance to wildlife. All of these would seriously detract from the outstanding opportunities for solitude and enjoyment of a primitive area over a broad landscape.	The FEIS has been revised in Section 4.13.3, Wilderness Direct and Indirect Impacts to state, “Mining activities that would occur under a no-withdrawal scenario that are far from designated or proposed wilderness would have a minor short-term impact to wilderness resources. Mining activities in close proximity to designated or proposed wilderness boundaries would have a moderate short-term impact to the wilderness resources of naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation.” The ASFO RMP identifies 12,848 acres of lands managed to maintain wilderness characteristics within the Proposed Withdrawal area; the FEIS has been updated to include existing conditions and analysis of impacts to BLM, Forest and NPS wilderness characteristics in Section 3.14 and 4.14, Wilderness Characteristics. New mines would be subject to their own site-specific NEPA analysis in support of a Mining Plan of Operation. BLM lands allocated in the Arizona Strip RMP of 2008 that are managed to maintain wilderness characteristics are not withdrawn lands nor are they

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
				managed the same as Congressionally designated wilderness (see EIS Section 4.14 for further detail.) The RFD-scenarios presented in Appendix B of the DEIS describe the assumptions for analysis for mining and mining-related activities, including identifying the anticipated timeframes of facilities.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	54	Since noise and visual impacts cross political boundaries, all wilderness areas in close proximity to the Parcels can be impacted by mine noise. Table 4.10-6 identifies the distance that mining operations are audible as 30 km (18.6 miles) from the sound source. Mt. Trumbull Wilderness and Mt. Logan Wilderness are approximately 5 and 10 miles from the North Parcel and may be subject to noise impacts just as Saddle Mountain Wilderness, Kanab Creek Wilderness, and Paria Canyon-Vermilion Cliffs Wilderness are. Aerial exploration will harass visitors to Wilderness areas. As mentioned under the Soundscapes section of this document, potential noise impacts to Wilderness Areas must be acknowledged.	Sound and visual impacts to wilderness areas would be minimized in a Mining Plan of Operations for mines within proximity to wilderness areas or lands managed to maintain wilderness characteristics, as discussed in Section 4.10, Soundscapes, of the DEIS. Mount Trumbull and Mount Logan Wilderness areas are included in the wilderness resources analysis as an indirect impact in the FEIS in Section 4.13, Wilderness Resources; in addition, potential noise impacts area discussed in Section 4.13.3, Direct and Indirect Impacts.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	55	Visual impacts from exploration and mine operations will also harm Wilderness Areas. In remote Wilderness Areas with truly dark skies, such as the five that are proximal to the Withdrawal Area, isolated lights on mine structures will draw visitors' attention, ruining the untrammeled and undeveloped character of the landscape. As mentioned under the Visual Resources section of these comments, elevated topographic features within Wilderness such as cliff faces and hills enable views far across the landscape. Linear features such as roads and power lines are difficult to mask and will damage the wilderness character of designated and proposed wilderness areas.	Sound and visual impacts to wilderness areas would be minimized in a Mining Plan of Operations for mines within proximity to wilderness areas or lands managed to maintain wilderness characteristics, as discussed in Section 4.10, Soundscapes, and 4.9, Visual Resources, of the DEIS.
Grand Canyon Wildlands Council, Grand Canyon Trust, Sierra Club - Grand Canyon Chapter, Center for Biological Diversity	225279	56	Anthropogenic activities involving manipulation of vegetation and soils, such as mining and road building, leave a permanent reminder of human influence in otherwise untrammeled and undeveloped areas. Arizona soils tend to be covered by thin topsoil layers and/or biological soil crusts, which concentrate in the top 3 mm of soils and take decades to begin recovery after disturbance (Belnap and Gillette 1997, Belnap and Gillette 1998). Once soil crusts or topsoil are damaged, site productivity is reduced and erosion is enhanced, inhibiting a return to a natural state. The DEIS states that the Wilderness Areas proximal to the Withdrawal Area, protected as designated Wilderness for 26 years, *contain little to no evidence of surface disturbance, other than former vehicle ways and scattered prospects*(DEIS p. 3-214, emphasis added). This is evidence that temporary roads, overland routes, exploratory activities, and mines leave permanent scars on the landscape and should be considered incompatible with proposed Wilderness and viewsheds from proposed and designated Wilderness.	The Arizona Wilderness Act of 1984 precludes management of a buffer zone or viewshed buffer of any type for the wilderness areas within the Arizona Strip and Kaibab National Forest. NPS Management Policies developed in 2006 (NPS Management Policies, August 31, 2006, Section 1.6) address wilderness management as well as management of outside threats to park resources. Any new Mining Plan of Operations within the lands open to mineral entry would require site-specific NEPA analysis prior to approval.
Frank Bain	242677	3	The issue of the newly proposed area for withdrawal was supposedly	The text of the FEIS has been changed in response to

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			settled back in the 1984 when the Arizona Strip Wilderness Act was passed, an agreement with the USFS, BLM, mining companies, and other interested groups where a large portion of land on the North Rim was withdrawn from mineral entry and that the remaining lands outside of this withdrawal would remain open for exploration and mining. Why is government attempting to renege on this agreement? Why was this agreement and issue not mentioned in the EIS?	this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.
Quaterra Resources, Inc.	242664	7	The EIS is strangely silent on a number of issues germane to a decision on whether to withdraw these lands from mineral exploration and development, and more importantly would give an uninformed reader a sense of perspective and balance. These issues include the 1984 Wilderness act which set aside this area for multiple use activities based on the best science of the day and participation by both industry and environmental groups	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.
The NAU Project, LLC	242913	23	*Designated wilderness is already withdrawn. However, mining adjacent to Wilderness Areas could affect the wilderness characteristics of these lands, including lands managed as wilderness in Grand Canyon National Park.* The Arizona wilderness Act of 1984 section (d) allows mining and other multiple use activities right up to the boundary of the wilderness and does not allow buffers to be created due to the effects of these activities. SEE comments and annotations in various other places in my commentary. The whole concept of the effects on wilderness needs to be re-thought in light of the AWA of 1984 section (d) and a justification provided for including a wilderness section if that is what is finally decided.	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.
The NAU Project, LLC	242913	29	Page 3-9 Table 3.1-1 3.13 Wilderness Resources This resource category should not be used in this EIS. The Arizona Wilderness Act of 1984 at part (d) says: *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.* This section of the law indicates that activities outside the wilderness area are not to be used as affects on the wilderness area that requires some protective act. This DEIS is supposing that there might be effects from the mining of uranium for which the wilderness area will need to be protected from. This is in opposition to the Arizona Wilderness Act of 1984 and the sections and references in this DEIS and final EIS that pertain to Wilderness affects should be deleted in whole.	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
The NAU Project, LLC	242913	34	Section 3.13.1 Wilderness The introduction to this section should include the Arizona Wilderness Act of 1984 Public Law 98-406 and state the pertinent special management instructions that Congress included: *(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.* The withdrawal areas on the North and East parcels would be the buffer zones created should these areas be withdrawn. If the affects on the wilderness areas were a part of the decision making process for the withdrawal then that would be against the intent and will of Congress which has specifically prohibited this consideration by an act of Law.	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities, of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses. The Northern Arizona Proposed Withdrawal only pertains to locatable minerals. This withdrawal would still allow for other development such as roads, timber sales, leasable minerals, right of ways, etc.
The NAU Project, LLC	242913	71	Section 4.13 Wilderness The introduction to this section should include the Arizona Wilderness Act of 1984 Public Law 98-406 and state the pertinent special management instructions that Congress included: *(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.* The withdrawal areas on the North and East parcels would be the buffer zones created should these areas be withdrawn. If the affects on the wilderness areas were a part of the decision making process for the withdrawal then that would be against the intent and will of Congress which has specifically prohibited this consideration by an act of Law.	The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses.
Navajo Nation Department of Justice	225264	2	The Navajo Nation would like to also state its Fundamental Position remains that there will be no uranium mining or processing within the Navajo Nation, until our expressed concerns have been adequately addressed. The Navajo Nation concerns regarding Uranium Mining and Processing have been codified in the Dine' Natural Resources Protection Act of 20 OS, CAP-18-05; and have been provided in testimony to the U.S. House of Representatives, Committee on Oversight and Government Reform, Hearing on the Legacy of Uranium Mining Impacts on the Navajo Nation," October 2007.	The DEIS includes a discussion of stakeholder values, including the position of the Navajo Nation (see pages 3-241-3-242). Additionally, the 2007 Hearing testimony is cited in this text. The EIS analyzes the Proposed Action and Alternatives of withdrawal from the Mining Law of 1872 on BLM and National Forest Lands. Actions on the Navajo Nation are outside the scope of this EIS.
Washington County Commission	225251	2	Arizona Strip Wilderness Act of 1983 - This landmark legislation defined areas that were to be put into the National Wilderness Preservation System. It also included areas that were to remain open to mineral entry for uranium mining in the Grand Canyon area. The Wilderness Act is not included or referenced anywhere in the DEIS. Washington County was one of the local governments that, together with mining companies, environmental groups, grazers, local businesses, regulatory agencies and Congress, forged the compromise which led to its ultimate passage. The	The Proposed Withdrawal does not supersede the purpose of the 1984 Arizona Wilderness Act. The "release" component of the 1984 Act also does not preclude mineral entry to non-wilderness lands, it "releases certain lands not designated as wilderness for such management as is determined appropriate throughout the land management planning process of the administering agency." The intent of Congress

Table 5.6-4. Response to Comments (Continued)

Organization	Letter Submittal No.	Comment No.	Comment Text	Response
			wilderness bill created 387,000 acres of BLM/USFS wilderness and released 540,000 acres. Most of the acres that were released are now within the 1 million-acre proposed withdrawal area. The unilateral withdrawal by the secretary would undermine the intent of the Congress and the legislation they passed which was signed into law by then President Ronald Reagan.	would not be undermined as the Proposed Withdrawal would not redesignate any Wilderness areas. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses. The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources.
San Juan County Commission	243250	8	The Arizona Strip Wilderness Act of 1983 was important legislation in which specific areas were put into the National Wilderness Preservation System. At the same time, other specific areas within the Arizona Strip were to remain open to mineral mining. Nowhere in the DEIS is this mentioned or included in the document. The Act was approved by the Congress of the United State of America, not by a burecratic federal agency. The aspects of uranium and its industry were studied and considered at the time that Congress acted and approved the Wilderness Act of 1983 in which Congress felt strong enough to release these lands to mining activities.	The Proposed Withdrawal does not supersede the purpose of the 1984 Arizona Wilderness Act. The "release" component of the 1984 Act also does not preclude mineral entry to non-wilderness lands, it "releases certain lands not designated as wilderness for such management as is determined appropriate throughout the land management planning process of the administering agency." The intent of Congress would not be undermined as the Proposed Withdrawal would not redesignate any Wilderness areas. The language in the 1984 Arizona Wilderness Act releasing lands in the Arizona Strip BLM and the Kaibab National Forest from wilderness review by Congress did not preclude future reviews for wilderness or other conservation uses. The text of the FEIS has been changed in response to this concern. The 1984 Arizona Wilderness Act is included in Section 1.4.3, Authorities of the FEIS. The FEIS also includes information on the 1984 Arizona Wilderness Act in Section 3.13, Wilderness Resources.

5.7 LIST OF PREPARERS

This EIS was prepared and reviewed by a team from the BLM and Forest Service. A team associated with SWCA Environmental Consultants (SWCA) assisted the BLM and Forest Service in conducting research, gathering data, and preparing the EIS and supporting documents. Table 5.7-1 identifies team members and their roles.

5.7.1 Interdisciplinary Team Members

Table 5.7-1. List of Preparers

Organization	Name	Qualifications	Project Role
BLM	Chris Horyza	B.S. Forestry and Range Management	Project Manager/Arizona State Office Planning and Environmental Coordinator
BLM	Scott Haight	B.S. Geology	Project Manager
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BLM	Rody Cox	B.A. Molecular, Cellular, and Developmental Biology M.S. Earth Sciences	Geologist/Mineral Specialist
BLM	Jim Fogg	M.S. Watershed Science	Hydrologist
BLM	Jeff Garrett	B.S. Geology	Mining Law Program Lead
BLM	Diana Hawks	B.S. Archaeology M.S. Archaeology	District Recreation, Wilderness, and Cultural Resources Team Lead
BLM	John Herron	B.A. Archaeology (minor in Ecology and Evolutionary Biology)	Archaeologist
BLM	Lee Hughes	B.S. Fisheries and Range Management	Ecologist
BLM	Tim Hughes	B.S. Wildlife Biology	Threatened and Endangered Species Program Lead, Arizona State Office
BLM	Jon Jasper	M.S. Geosciences	Outdoor Recreation Planner
BLM	Michael Johnson	B.S. Anthropology M.S. Anthropology	Deputy Preservation Officer
BLM	Joel Larson	B.A. Geography M.P.P. Master of Public Policy	Social Science Program Analyst
BLM	Brent Lewis	B.A. Geology B.S. Environmental Science M.S. Geology	Human Toxicologist
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BLM	Craig Nicholls	B.S. Atmospheric Sciences M.S. Atmospheric Sciences	National Air Quality Modeler
BLM	Darla Pindell	B.A. Economics and Accounting M.B.A. Business Administration	Socioeconomist
BLM	Jeff Simms	M.S. Wildlife and Fisheries Science B.S. Fisheries Science	Fisheries Biologist
BLM	Bob Smith	B.S. Plant, Soil, and Water Science Graduate Certificate, Hazardous Waste Land Management	Soil, Water and Air Specialist

Table 5.7-1. List of Preparers (Continued)

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Forest Service	Mark Schwab	B.A. Geological Sciences	Certified Mineral Examiner, Southwestern Region of the Forest Service
Forest Service	Diane Tafoya	B.A. Geology	Zone Geologist and Certified Mineral Examiner, Cibola/Kaibab National Forests
Forest Service	Richard Periman	B.A. Anthropology/History M.S. Anthropology Ph.D. Environmental Science and Technology	Social Science Coordinator, Southwestern Region of the Forest Service
Forest Service	Michael Linden	B.S. Geology M.S. Economic Geology	Certified Mineral Examiner, Regional Liaison for Centralized National Operations, Minerals and Geology Management
Forest Service	Jessica Lopez-Pearce	B.S. Geosciences M.S. Earth and Planetary Sciences	Geologist, Kaibab National Forest
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SWCA	Molly Thrash	B.A. Anthropology	NEPA Planner
SWCA	Chris Garrett	B.S. Hydrology	Geology and Minerals Specialist
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SWCA	Ken Kertell	M.S. Wildlife Biology	Wildlife Biologist
SWCA	Mark Turner	M.S. Biology	Wildlife Biologist
SWCA	Amanda Kuenzi	M.S. Forestry	Vegetation Specialist
SWCA	Greg Seymour	M.A. Archaeology	Archaeologist
SWCA	Adrienne Tremblay	Ph.D. Anthropology	Archaeologist
SWCA	Annmarie Kmetz	M.A. Heritage Resources	Archaeologist
SWCA	Victor Villagran	B.A. Anthropology	Archaeologist
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Table 5.7-1. List of Preparers (Continued)

Organization	Name	Qualifications	Project Role
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SWCA	Jeff Connell	M.A. Public Administration	Socioeconomics Specialist
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SWCA	Glenn Dunno	M.A. Geography	GIS Coordinator
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SWCA	Peggy Ford	B.A. English and Chemistry	Technical Editor
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SWCA	Camille Ensle	B.A. Studio Art (in progress)	Publication Specialist
SWCA	Jessica Maggio	B.A. Anthropology/Photography	Publication Specialist
SWCA	Elizabeth Slocum	B.A. Sociology	Publication Specialist
SWCA	Michelle Weigman	B.S. Art	Graphic Design Specialist
SWCA	Benjamin Gaddis	M.A.T. General Science M.E.M. Water and Air Resources	NEPAPublic Facilitation Specialist
SWCA	Ryan Van Wormer	N/A	Public Involvement Specialist
SWCA	Donna Morey	B.I.S. Urban Planning (in progress)	Project Administrator
SWCA	Kimberly Proa	A.A. Anthropology	Project Administrator
SWCA	David Reinhart	B.A. Anthropology	Website Developer
SWCA	Sarah Wilcox	B.A. Anthropology	Database Specialist
Rozelle Group	Marty Rozelle	Ph.D. Community Education	Public Involvement
Montgomery & Associates	William Victor, P.G.	M.S. Hydrology	Water Resources / Soil Resources
Montgomery & Associates	Andrew Scott, P.G.	M.S. Geology	Water Resources / Soil Resources
Ninyo & Moore	Bill Jamieson	B.S. Zoology	Air Quality / Soundscapes
Ninyo & Moore	Al Ridley	M.S. Geology	Air Quality / Soundscapes
Ninyo & Moore	Bradley Sohm	B.S. Chemical Engineering	Air Quality / Soundscapes
Ninyo & Moore	Sandra Ripplinger	B.S. Occupational and Environmental Health and Safety	Air Quality / Soundscapes
Ninyo & Moore	Mark A. Williams	B.S. Environmental Science and Biology	Air Quality / Soundscapes
BBC Research and Consulting	Doug Jeavons	M.A. Economics	Economic Analysis
BBC Research and Consulting	Mollie Fitzpatrick	M.A. Economics	Economic Analysis
N/A	Clark Lantz	Ph.D. Physiology and Biophysics	Environmental Toxicology
N/A	John Loomis	Ph.D. Economics	Economic Valuation of Non-Market Natural Resources

5.8 COOPERATING AGENCY TEAM

In addition to the specialists identified in Table 5.6-1, 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 5.8-1.

Table 5.8-1. 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
U.S. Fish and Wildlife Service			
Brenda Smith	Brian Wooldridge	Bill Austin	
U.S. Geological Survey			
John Hoffman	Andrea Alpine	Don Bills	Jim Otton
Jo Ellen Hinck			
Arizona Game and Fish Department			
Andi Rogers	Ron Sieg		
Arizona Geological Survey			
Lee Allison	Jon Spencer	Jeri Young	
Arizona State Land Department			
Joe Dixon			
Arizona Department of Mines and Mineral Resources			
Madan M. Singh			
Arizona Department of Environmental Quality			
Debra Duerr			
Kaibab-Paiute Tribe			
LeAnn Skrzynski	Glendora Homer		
Hualapai Tribe			
Peter Bungart	Alex Cabilla	Loretta Jackson-Kelly	
Mohave County, Arizona			
Cindy Levesque	Cullin Pattillo	Gary Watson	
Coconino County, Arizona			
Bill Towler			

Table 5.8-1. Cooperating Agency Reviewers (Continued)

San Juan County, Utah			
Rick Bailey	David Gallegos	Jerry McNeely	Bruce Adams
Kane County, Utah			
Daniel Hulet			
Washington County, Utah			
Alan Gardner	Ron Whitehead	Dean Cox	

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