

Kayenta Permit Renewal EA

Responses to Public Comment

December 13, 2011

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Consistent with the National Environmental Policy Act, 40 C.F.R. 1503.4(b), responses included in this report address the substantive comments on the Kayenta Mine Permit Renewal Environmental Assessment (EA). Substantive comments include those which challenge the information in the EA as being inadequate or inaccurate, develop and evaluate alternatives not considered by the agency, or offer specific information that may have a bearing on the decision. Non-substantive comments are those that express opinions or position statements without any accompanying factual basis or rationale to support the opinion. All comments and responses are part of the administrative record for this EA, and have been considered during the decision-making process.

Comments that express an opinion for or against the project are not considered substantive. Non-substantive comments simply state a position in favor of, or against, an alternative; agree or disagree with OSM regulatory requirements; or otherwise express an unsupported personal preference or opinion. Table 1 provides a list of the people who responded during the public review period.

Comment Analysis Process

A standardized content analysis process was conducted to analyze the public comments on the EA. Each comment letter, email, fax or transcript received was read by OSM and members of the planning team to ensure that all substantive comments were identified and coded to the appropriate subject category.

Each substantive comment was assigned a unique identification number and coded (associated) on the context of the comment. Once identified, each substantive comment was entered into a database to allow sorting based on topic. Comments are included both as verbatim either as they were submitted, or as recorded during telephone calls. In some cases, several persons offered a comment that was similar or identical to another substantive comment. These similar comments were grouped and paraphrased into a comment summary, and a summary response was prepared.

The comments were not weighted by organizational affiliation or status of respondents, and the number of duplicate comments did not add more bias to one comment than another. The process was not one of counting votes, and no effort was made to tabulate the exact number of people for, or against, any given aspect of the EA. Rather, emphasis was placed on the content of a comment.

Comment Overview

All comments were reviewed for occurrences of similarity or replication. Where different commenters provided comments that were similar in theme or a repeat of the same comment, a summary was developed. These comment summaries were each assigned a unique identification number (e.g., NEPA Adequacy and Scope of the Analysis, SR23). This indicates it is a summary response (SR) addressing similar comments about the NEPA Adequacy and Scope of the Analysis in the EA.

Commenter Index

The following table displays the names of the individuals, organization, businesses and governmental agencies who commented on the EA and the corresponding comment codes (shown following the names). Comments from the public and agencies that did not require a response are not included in Table 1.

Table 1 Comment Index

Commenter	Organization	Submission ID	Location of Comments/Responses
Alex, Darrell		11	Cultural Resources (17)
Bartlett, Brad	Energy Minerals Law Center	3	Public Involvement (SR6)
Benally, John	Black Mesa Representative	10	NEPA Adequacy and Scope of the Analysis (SR51) Hydrology (10), (12), and (SR24) Vegetation (20), (22) Climate (SR42) Relocation (7), (21), and (SR39) Environmental Justice (SR45) Public Health and Safety (SR33), (SR35), and (SR37) Coordination and Consultation (SR58) Comment Period (SR5) Reclamation (19)
Bessler, Andy	Sierra Club	6	Comment Period (SR5)
Bessler, Andy	Sierra Club	13	NEPA Adequacy and Scope of the Analysis (SR23) and (SR25)
Frazier, Anna M.	Dine' CARE		Alternatives (SR36) Support Facilities (SR52)
Gearon, Jihan	Black Mesa Water Coalition		Cultural Resources (SR46) Hydrology (63), (64), (65), (66), (67), (68), (69), (70), (71), (72), (73), (SR24), (SR40), and (SR53)
Johnson, Marshall	To' Nizhoni Ani		Relocation (SR39)
McKinnon, Taylor	Center for Biological Diversity		Social and Economic Conditions (28), and (48) Environmental Justice (SR45) Public Health and Safety (60) and (SR35) Coordination and Consultation (SR50), (SR58),

Commenter	Organization	Submission ID	Location of Comments/Responses
			and (SR62) Permit Application and Public Notice (SR59) Connected and Cumulative Actions (SR31) Reclamation (SR32)
Boyd, Michael E. Lynne, Brown	CALifornians for Renewable Energy	20	NEPA Adequacy and Scope of the Analysis (SR25), and (SR51) Hydrology (SR40), and (SR53) Reclamation (SR32) Public Health and Safety (SR37) Connected and Cumulative Actions (SR31)
Gilmore, Mary		5	NEPA Adequacy and Scope of the Analysis (SR25)
Harrison, Mick Knorr, Lucy	Forgotten People	7	Public Involvement (SR6)
Harrison, Mike	The Forgotten People	15	NEPA Adequacy and Scope of the Analysis (SR25) and (SR26) Alternatives (SR36) and (SR41) Support Facilities (34) Cultural Resources (SR46), Hydrology (76), (77), (78), (SR24), and (SR53) Air Quality (SR43) Noise and Vibration (29) Geology and Minerals (47) Climate (SR42) Relocation (SR39) Social and Economic Conditions (44) Environmental Justice (SR45) Public Health and Safety (SR33), (SR35), (SR37), and (SR57)
Heuslein, Amy	Bureau of Indian Affairs Western Regional Office	4	Public Involvement (SR6)
Honie, Norman, Jr.	Hopi Tribe; Office of Mining &	12	Support Facilities (4), (8), (SR52), (SR55), and (SR56) Hydrology (11) Coordination and Consultation (SR50)

Commenter	Organization	Submission ID	Location of Comments/Responses
	Mineral Resources		Public Involvement (SR49) Reclamation (SR54)
		19	Support Facilities (SR52), (SR55), (SR56) Cultural Resources (SR46) Coordination and Consultation (SR50) Public Involvement (SR49) Reclamation (SR54)
Masayesva, Vernon	Black Mesa Trust	14	NEPA Adequacy and Scope of the Analysis (SR23), and (SR25) Hydrology (74), (SR24), and (75) Permit Application and Public Notice (SR59) Reclamation (SR32)

Response to Comments

NEPA Adequacy and Scope of the Analysis

(SR23)

Summary Comment: An EA is not the appropriate tool pursuant to NEPA to assess the environmental impacts of the Kayenta Mine permit renewal. NEPA requires the preparation of an EIS if a proposed action has the potential to significantly affect the quality of the human environment. 42 U.S.C. § 4332(2)(C); 40 C.F.R. §. 1501.4. An agency must analyze alternatives to the proposed action as well as the direct, indirect, and cumulative impacts associated with the proposed action. 42 U.S.C. § 4332(C)(iii) & (E); 40 C.F.R. §. 1502.14. NEPA also requires agencies to provide environmental documents and shall make the finding of no significant impact available as so to inform those persons or agencies who may be interested or affected.

Summary Response: An EIS is required if a proposed major federal action significantly affects the human environment (42 U.S.C. 4332; see EA Section 102, paragraph c). As directed in Sections 1501.2 and 1501.3 of the NEPA regulations, as part of OSMs responsibilities as the lead agency, OSM has determined that an Environmental Assessment (EA) is the appropriate level of environmental documentation to assist agency planning and decision making for this permit renewal. The completed environmental studies, evaluations, and public outreach conducted by OSM have not identified impacts resulting from the federal action that are significant according to 40 C.F.R. 1508.27.

For the Kayenta Mine Permit Renewal EA, the public was notified according to 30 C.F.R. 773.6(a)(b), 30 C.F.R. 774.15(b)(2)(iv), and 30 C.F.R. 778.21, and OSM published an announcement regarding the EA and unsigned Finding of No Significant Impact (FONSI) availability, contact information and the mailing address, email, fax and phone numbers to facilitate the public's ability to comment. The information

regarding the availability of the EA and unsigned FONSI for public review was published in the following four newspapers: the Navajo Times, Navajo Hopi Observer, Arizona Daily Sun, and the Gallup Independent. Additionally, OSM issued a public service announcement including translation to Navajo and Hopi languages for use on three radio stations: KUYI Hopi Radio 88.1 FM, KTNN Radio 660 AM, and KFXR 107.3 FM and 1190 AM. OSM also sent information to the 31 people who commented during the two informal conferences held at Second Mesa and Kayenta. This letter provided information on where to send written comments and provided the mailing address, email, fax, and phone numbers to facilitate the public's ability to comment.

(SR25)

Summary Comment: Once a federal action triggers the NEPA process, an agency cannot define the project's purpose in terms so unreasonably narrow as to make the NEPA analysis a foreordained formality. *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991), cert. denied 502 U.S. 994 (1991). To properly comply with NEPA the agency must examine the relevant data and articulate a satisfactory explanation for its action, including a rational connection between the facts found and the choice made. *Motor Vehicles Mfrs. Assn v. State Farm*, 463 U.S. 29, 43 (1983) (internal quotation marks omitted). The EA is inadequate because OSM improperly limited its analysis to the three coal resource areas.

OSMs approval of permit renewal will affect all mining operations; it will not be limited to the individual resource areas. OSMs analysis must evaluate all reasonably foreseeable project impacts regardless of whether they are intentional. *Utahns for Better Transp.v. U.S. Dept. of Transp.*, 305 F.3d 1152, 1175 (10th Cir. 2002) (citing 40 C.F.R.§§ 1502.16(b), 1508.8(b)).

Under NEPA, OSM's decisions regarding federal coal leases must be based on an understanding of environmental consequences, and [OSM must] take actions that protect, restore, and enhance the environment *City of Williams v. Dombeck*, 151 F. Supp. 2d 9, 17 (D. D.C. 2001) (citing 40 C.F.R.§ 1500.1(c)). By defining the area of potential effects narrowly, OSM avoids addressing the cumulative impacts resulting from the Kayenta Mine. 40 C.F.R.§ 1508.7. Further, when considering the impact of the Permit Renewal under NEPA, OSM must consider the cumulative cultural impacts of water extraction and coal fired power plants, which are present actions that are dependent on the Kayenta Mine and significantly impact both Navajo and Hopi cultures. See 40 C.F.R.§ 1508.7.

In addition to considering the environmental consequences, the EA uses a new, never-before-used term "the Kayenta Complex." How the Kayenta Complex is different and unique from the Kayenta Mine or the Black Mesa Complex is never addressed. OSMRE has failed its duty to adequately divulge this conflation of the two mining operations to the public in this EA. When examining the Permit Renewal, other actions such as burning coal at the Navajo Generating Station for electricity or pumping water for the Mine to function must be considered because the cumulative impacts of these actions result in significant impact. See *Thomas v. Peterson*, 753 F.2d 754, 760 (9th Cir. 1985). Because the Generating Station uses only Kayenta Mine coal, its continued existence is contingent on the Permit Renewal; therefore, the effects of each are cumulative.

Summary Response: As the lead agency under NEPA, OSM is required to evaluate the environmental impacts of the proposed action and alternatives. (40 C.F.R. 1508.9(b)). Environmental impacts include the direct effects which are caused by the action and occur at the same time and place, the indirect effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, and the cumulative impacts which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions. (40 C.F.R. 1508.8 & 1508.7.). The direct and indirect effects which are caused by the proposed action and alternatives are presented in Section E.1 of the EA (which includes the area of potential effects that applies specifically for cultural resources) in Section D.2.1. Cumulative impacts of the action and alternatives are presented in Section E.2 of the EA.

NEPA focuses on the environmental effects that are caused by the proposed action. The proposed action (Alternative 1) is the renewal of permit AZ-0001D which would authorize continued mining in coal resource areas N-9, J-19 and J-21 of the Kayenta Mine permit area in accordance with the existing approved life-of-mine mining plan. See Section C.1. The proposed action does not include any revisions to the mining plan or the existing permit application package.

An applications for a mine permit renewal that does not include any proposed revisions to the permit is governed exclusively by 30 C.F.R. 774.15. Pursuant to that statutory process, a valid permit, issued pursuant to an approved regulatory program, carries with it the right of successive renewal within the approved boundaries of the existing permit. OSM may deny the permittee's application for renewal only if one of the following six specific criteria is present:

- 1) The terms and conditions of the existing permit are not being satisfactorily met;
- 2) The present surface coal mining and reclamation operations are not in compliance with the environmental protections of the Act and the regulatory program;
- 3) The requested renewal substantially jeopardized the operator's continuing ability to comply with the Act and the regulatory program on existing permit areas;
- 4) The operator has not provided evidence of having liability insurance or self-insurance as required in [30 C.F.R. 800.60];
- 5) The operator has not provided evidence that any performance bond required to be in effect for the operation will continue in full force and effect for the proposed period of renewal, as well as any additional bond the regulatory authority might require pursuant to subchapter J of [Title 30, Volume 3, Chapter VII of the Code of Federal Regulations]; or
- 6) Additional revised or updated information required by the regulatory authority has not been provided by the applicant.

Consequently, OSM's statutory authority to deny the renewal request is limited to the criteria listed above. Similarly, OSM's discretion to condition the renewal application is limited to conditions which would be necessary to ensure compliance with the criteria. Preliminary review by OSM has not identified

that any of the six criteria has been met for denial or that a condition on the approval of the renewal is warranted.

Where an action is taken pursuant to a specific statutory mandate, the statutory objectives determine the reasonableness of the purpose and need for the proposed action and the range of alternatives analyzed under NEPA. Moreover, where a federal agency has limited statutory authority over the proposed action, the proposed action is not the legally relevant cause of effects that occur by other activities where the agency has no ability to prevent those effects. Neither SMCRA nor its implementing regulations permit OSM to consider the effects of burning the coal at Navajo Generating Station, or impose measures to remedy those effects, in deciding whether to renew or deny renewal of the Kayenta permit. Consequently, OSM's decision under the proposed action is limited to authorizing continued mining in coal resource areas N-9, J-19 and J-21 in accordance with the existing mine plan, and the direct and indirect effects caused by that proposed action are evaluated in Section E.1 of the EA. Cumulative effects, including the combined effects of the Navajo Generating Station where there are incremental and overlapping impacts are evaluated in Section E.2 of the EA.

The Black Mesa Mine permit area is separately designated and separately regulated. Although mining operations at Black Mesa have ceased, PWCC continues to use facilities and to conduct reclamation operations at the Black Mesa Mine, and OSM continues to regulate these operations separately under the initial regulatory program or applicable provisions of the permanent program pursuant to 30 CFR 710.11 (e). The EA addresses the potential effects from the use of these facilities as described in Section C.1 and Appendix A describes the facilities in detail. Reclamation of the approximately 19,500 acres of disturbed lands within the vegetation study area which includes the Black Mesa mine was described in the EA (see Section D.2.3).

As explained in Section A.1 of the EA, facilities necessary for the Kayenta mining operations are located within the PWCC lease area but some are located outside the boundaries of the Kayenta Mine permit area. The term 'Kayenta Complex' is used to describe the Kayenta Mine permit area and those facilities located adjacent to the permit area that are used for mining operations in N-9, J-19 and J-21. The facilities are described in detail in Appendix A to the EA. Alternative 1 under the EA analyzes effects from all of the mine facilities, within and outside the permit area, to the extent such facilities are necessary to the mining operations in N-9, J-19 and J-21 that will be authorized under the proposed action (See Section C.1 of the EA). The EA analyzes the potential direct and indirect effects of reclamation in Sections E.1.1 through E.1.18.

Cumulative effects of reclamation where there is potential overlap are analyzed in Sections E.2.1 through E.2.13. The cumulative effects of water extraction and the NGS coal fired power plant are analyzed in Section E.2.1 of the EA. The EA notes that not all actions have a combined effect on all resources; the cumulative impact analysis looks at those resources where the impacts from the alternatives of the project would overlap and combine with the effects of other past, present or reasonably foreseeable future actions (identified in Table E-9).

With regard to the comments and alleged cumulative impacts from water extraction on cultural resources, as discussed in Section D.2.2.2 of the EA, the N aquifer is confined within the coal resource areas, but

discharges where the aquifer is unconfined and near the boundary of the unconfined portions. The EA analyzes cumulative impacts on groundwater in Section E.2.1. In that section, the EA finds that water levels in the N aquifer are expected to increase near the PWCC lease area by 20 to 30 feet through 2015, and more than 30 feet through 2026. The EA specifically notes, at page 112, that “the Kayenta mining operation is not predicted to decrease flows in seeps and springs associated with the N aquifer.”

With regard to the comments and alleged cumulative impacts from coal fired power plants on cultural resources, Section E.2.5 of the EA considers air emissions from the Navajo Generating Station when analyzing cumulative impacts to air quality. The EA finds that the region is in attainment for all criteria pollutants and does not find any significant impact related to mercury or selenium deposition. The EA concludes that the proposed project would not result in any cumulative impacts to air quality.

Commenters do not identify how groundwater extraction or air emissions from coal fired power plants could combine with the effects of the proposed action to result in adverse effects on cultural resources.

(SR26)

Summary Comment: The EA does not address the real issue regarding the coal slurry line and there is no assessment of the effects this still has in the community and on the environment, including the visual effects. The coal slurry pipeline is referred to in the EA, only in passing: Groundwater levels are recovering because less groundwater has been used by PWCC since the coal slurry pipeline was discontinued in 2005. Kayenta Mine Permit (AZ-0001D) Renewal Environmental Assessment, August 2011, Page 105. However, there is no discussion of why Peabody Coal has not committed to shutting down the slurry line even though they do not need it anymore, nor the effects of the coal slurry on the people and environment, even if it is no longer in use.

The coal slurry pipeline is not yet connected to the Kayenta mine, but Peabody Coal has reportedly been talking about building a conveyer from Black Mesa to the Kayenta mine, and if this is the case, then Peabody Coal and OSM need to analyze this activity and the effects.

Summary Response: The Black Mesa Pipeline, Inc. (BMPI), which owns the coal slurry pipeline, ceased operation of the coal-slurry pipeline in 2005 (see EA Section D.2.2.3 page 35). PWCC does not own the coal-slurry pipeline. The coal-slurry pipeline is owned and operated by BMPI.

BMPI has dismantled part of the plant. As discussed in the EA in Section A.1, the proposed permit renewal does not include any revisions to the mining and operations plan the use of new equipment, or the addition of any new mining areas. For the proposed five-year renewal period, coal-mining operations are assumed to continue at the recent historical pace using existing facilities for ongoing operations (see SR25 regarding NEPA adequacy, Scope of the Analysis, and SR36 regarding Alternatives).

The EA includes a discussion regarding how the existing structures such as the coal-slurry pipeline were considered. See page 84 of the EA which states “Human alterations can sometimes raise, maintain, or lower scenic integrity. In general, the landscapes are vast and expansive, permitting extensive views of undisturbed landscapes with rolling piñon-juniper woodlands and rock outcroppings. Often, these same views contain evidence of existing man-made structures or existing coal mining activity.”

(SR51)

Summary Comment: Another thing to keep in mind is that normally when you create these earthen embankment or impoundments you have to have a permit from the army corps of engineers [sic]. It's called a 404 permit. The NPDES needs to address the lack of Section 404 permits for the hundreds of impound ponds. Peabody doesn't have any of these permits here.

Summary Response: As stated in the comment, the U.S. Army Corps of Engineers (ACOE) has jurisdiction over Clean Water Act Section 404 permitting. PWCC has previously obtained coverage under Nationwide Permit #21 for prior activities at the Kayenta Mine that involved discharges of dredged or fill material into waters of the United States. (Also see SR 31 and Response 8).

Alternatives**(SR36)**

Summary Comment: Pursuant to SMCRA's implementing regulations, upon receipt of Peabody's Permit Renewal Application, OSM may: approve, approve with conditions, or disapprove the request. 30 C.F.R. § 773.7; see also *Save Our Cumberland Mountains v. Kempthorne*, 453 F.3d 334, 346 (6th Cir. 2006); *Dine CARE v. Klein*, 747 F. Supp. 2d. 1234 (D. Colo. 2010). In this case however, OSM considered only alternatives that would approve or disapprove the Permit Renewal in their EA.

Summary Response: Based on the CEQ regulations, Federal agencies must include a reasonable range of alternatives to accomplish the purpose and need of the proposed Federal action. The two alternatives in the EA are reasonable alternatives to achieve the purpose and need of the Federal action considering OSM's statutory mandate and OSM's objective's for considering renewal of the Kayenta Mine Permit. As stated in section C.3 on page 11 of the EA, NEPA limits the range of reasonable alternatives to those that fall within the agency's statutory mandate and those that at least partially serve the agency's objectives. OSM has considered the applicant's needs and OSM's limited authority in developing reasonable alternatives.

In accordance with 30 C.F.R. Part 750, OSM considers additional conditions during the permit renewal evaluation and process. OSM considered incorporating additional conditions to the permit renewal. The EA did consider several conditions as alternatives, but eliminated them from further consideration (See Section C.3 of the EA). OSM's authority for denying a request for renewal is limited under 30 C.F.R. 774.15, and thus any conditions to the renewal must be warranted as necessary to ensure compliance with the six criteria listed at 30 C.F.R. 774.15(c) (see also SR25 and SR41). Review by OSM has not identified that any of the six criteria has been met for denial or necessary to warrant additional conditions.

(SR41)

Summary Comment: Comments indicated OSM should require additional permit conditions for the following situations:

- make dust suppression a priority using uncontaminated water from a source other than the N aquifer;

- require Peabody to assist in States of Emergency on Black Mesa to ensure roads are graded to ensure emergency access and the delivery of food and emergency supplies; and
- provide coal to Black Mesa area residents and Chapter Houses without charge.

Summary Response: OSM has not identified any additional conditions that would be warranted under the six statutory criteria. Moreover, based on the analysis of the environmental effects of the proposed action in this EA, OSM has not identified any conditions that would be necessary to reduce or eliminate any significant effects of the proposed action. (See also SR36.)

The Permit Application Package includes dust control practices in Volume 8, Chapter 12, page 5, and in accordance with SMCRA requirements PWCC has operated a network of PM₁₀ ambient air monitors at the Kayenta Mine permit area for just under two decades. The purpose of the monitoring program is to facilitate assessment of the effectiveness of existing fugitive dust control measures at the Kayenta Mine permit area. PWCC operates its PM₁₀ monitoring network in accordance with applicable EPA requirements, including a quality assurance program; although the network is designed primarily for the purpose of providing data OSM can use to evaluate the effectiveness of the fugitive dust control plan. Quarterly monitoring reports are submitted to OSM and NNEPA. Regarding a condition on the permit that dust suppression becomes a priority as indicated in the EA in Section D.2.7, concentrations of PM₁₀ have exceeded the NAAQS on only six days in the past three years. During 2010, three samples exceeded the 24-hour PM₁₀ standard. See also SR35 for further information regarding public health. Thus, no such condition is warranted.

As indicated in the EA in Section D.2.18 Health and Safety, along Navajo Route 41, PWCC assists with maintenance of the road surface and slopes, provides snow removal and coordinates maintenance with the Navajo Nation Department of Transportation for repaving, seal coating the road, striping, or through their own roadway maintenance contract to maintain roadway shoulders and drainage. To ensure public safety along the mine roads, public traffic is excluded from active mine areas by security gates. Roads are signed, maintained by grading, watered for dust suppression, plowed and sanded for snow removal, and school buses and deliveries are escorted by PWCC security vehicles. Therefore the condition proposed in the comment is not warranted.

As indicated in Section D.2.12 of the EA, coal from Kayenta Mine is provided to the Navajo and Hopi people on Black Mesa for home heating, thus an explicit permit condition to provide coal to Black Mesa area residents and Chapter Houses without charge is not warranted.

Connected and Cumulative Actions

(SR31)

Summary Comment: Comments allege that multiple federal actions relate to the permit renewals such that an EIS is necessary to analyze the cumulative significant effects of the combined actions. Specifically, comments refer to the following actions as being sufficiently “related” to require further analysis: (1) 10-year royalty reopener agreement between Navajo Nation and Peabody; (2) U.S. EPA’s NPDES permit approval for Kayenta Mine and OSM’s technical review of Peabody’s Sediment Control

Plan; (3) permitting actions by the U.S. Army Corps of Engineers, EPA, Navajo Nation and/or Hopi Nation authorizing construction of water impoundments; (4) tribal approvals related to relocation of households and disturbance of cultural resources; (5) January 2010 decision by Administrative Law Judge to vacate the Significant Permit Revisions for the Black Mesa Complex; (6) federal approvals for the Navajo Generating Station including EPA's Best Available Retrofit Technology (BART) process and U.S. Bureau of Reclamation's (Bureau) renewal of a water service contract with the Salt River Project for use of water from Lake Powell; and (7) the Northeastern Arizona Indian Water Rights Settlement Agreement (NAIW RSA).

Summary Response: The scope of environmental review under NEPA is addressed in 40 CFR 1508.25. Comments have suggested that the specific actions listed above are either connected actions or cumulative actions. Pursuant to 40 CFR 1508.25(a)(1), actions are connected if they:

- automatically trigger other actions which may require environmental impact statements;
- cannot or will not proceed unless other actions are taken previously or simultaneously;
- are interdependent parts of a larger action and depend on the larger action for their justification.

Pursuant to 40 CFR 1508.25(a)(2), cumulative actions are those which when viewed with other proposed actions have cumulatively significant impacts.

(1) 10-Year Royalty Reopener Agreement: Negotiations between PWCC and Navajo Nation have occurred in accordance with an automatic provision in the mining lease as it has existed since 1987. The existing lease sets the minimum royalty rate and provides that following each successive ten year period the parties may begin good faith negotiations to reach agreement on a royalty rate for the next 10-year period. Approval by the Department of Interior occurs as trustee to ensure that the agreed royalty payments meet the statutory minimum requirements. The EA does include adequate and sufficient information on royalty payments, bonus payments and scholarships to tribes in Section D.2.12 Social and Economic Conditions, and Appendix F, Table F-7, Coal Royalties and Bonuses Paid by PWCC (1987 to 2009).

(2) EPA's NPDES Approval and OSM's Technical Review of Sediment Control Plan: The NPDES permit for Kayenta Mine was renewed by U.S. EPA in September 2010, subject to a categorical exclusion under Section 511(c)(1) of the Clean Water Act, and was upheld by the Environmental Appeals Board of U.S. EPA including grounds for the categorical exclusion. OSM's final technical evaluation and approval of PWCC's sediment control plan permit revision occurred on June 16, 2009. The sediment control plan was incorporated into the final NPDES permit dated and signed on September 16, 2010. Consequently, there are no pending actions within the meaning of connected actions or cumulative actions. In any event, comments have failed to identify specific combined effects related to these prior actions that are not adequately addressed in the EA. Direct and indirect effects of the proposed mine permit renewal related to surface water quality and sedimentation are addressed in Section E.1.2, and cumulative effects of surface water quality and sedimentation are addressed in Section E.2.1.

(3) Permitting actions authorizing construction of water impoundments: As noted above, U.S. EPA renewed the NPDES permit for the Kayenta Mine in September 2010. No additional approval is required from U.S. EPA for Peabody to construct the impoundments. The EA identifies the temporary impoundments that would be constructed during the five year renewal period to reduce sediment transport from disturbed areas prior to discharge into receiving waters. The EA describes and evaluates the potential impacts that could result from the impoundments on riparian areas, wetlands, wildlife, and water quality. As discussed in the EA on page 111 in Section E.1.3.1 “Settling ponds, impoundments, and other erosion control measures would prevent sediments from moving to riparian vegetation stands within or downstream of Dinnebito Wash, Moenkopi Wash and Coal Mine Wash drainages. Impoundments developed in association with the N-9, J-19, and J-21 coal resource areas and reclamation sites could augment the small number of wetland areas present at impoundments in previously mined areas in the Kayenta Mine permit area. The impacts to riparian vegetation from the various water impoundments would be negligible and would not be considered significant.” For additional discussion regarding potential effects from impoundments in the EA see Sections E.1.2.1, E.1.3.1, E.1.3.2, E.1.4.1, E.1.4.2., E.1.5.1, E.1.9.3, and E.1.12.1. To the extent that construction of an impoundment would result in the discharge of dredged or fill material to waters of the United States, PWCC would update permit coverage under ACOE Nationwide Permit 21, which applies to discharges of dredged or fill material into waters of the United States associated with surface coal mining and reclamation operations provided the activities are already authorized, or are currently being processed as part of an integrated permit processing procedure, by OSM (also see SR51).

(4) Tribal approvals related to relocation of households and disturbance of cultural resources: All direct and indirect effects of the proposed renewal related to the relocation of households are addressed in Section E.1.13.1 and cumulative effects related to relocations are addressed in Section E.2.11 (see also response 7. All direct and indirect effects of the renewal related to disturbance of cultural resources are addressed in Section E.1.1 (see also response 17). Comments have failed to identify specific effects that are not adequately analyzed in the EA.

(5) January 2010 decision by Administrative Law Judge (ALJ) to vacate approval of Significant Permit Revision (Project AZ-001-E-P-01): The ALJ’s decision to vacate approval of Project AZ-001-E-P-01 did not revoke authorization for continued mining at Kayenta Mine under Permit AZ-0001D. The vacation of the permit revision nullified any significant changes to the existing mine permit, which means the EA accurately reflects the result of the ALJ decision as the existing environmental conditions under Section D. There are no cumulative effects of the ALJ decision to consider in the EA, and there is no new application for permit revision being considered by the agency.

(6) Federal approvals for Navajo Generating Station: In accordance with 15 USCS 793(c)(1), any action by EPA with regard to BART at NGS is not considered a major Federal action within the meaning of NEPA. Moreover, EPA is currently investigating BART technologies and has solicited public comments on BART for NGS. At this time, EPA has not issued a BART Determination for NGS or even a proposed rulemaking for BART at NGS, and any analysis of required retrofit technology beyond existing facilities at NGS would be speculative. Comments have failed to identify specific cumulative air quality or other combined effects that would purportedly occur as a result of BART implementation. The

EA has considered cumulative regional impacts on air quality at Section E.2.5 and concluded that existing concentrations of criteria pollutants as measured in the region remain well below National Ambient Air Quality Standards.

Renewal of a water service contract by the Bureau for NGS is not necessary to be described or analyzed in this EA. An action by the Bureau on a water service contract renewal would not meet the criteria for a connected action because it has independent utility apart from the proposed permit renewal for the Kayenta Mine. Moreover, the water service contract renewal will not be a discretionary action on the part of the Bureau. Finally, as one commenter noted, Bureau negotiations for water rights would relate to water from Lake Powell. Since Kayenta Mine uses water from a confined portion of the N aquifer (see Section E.2 of the EA) there would be no combined effects.

(7) Northeastern Arizona Indian Water Rights Settlement Agreement: Various attempts at a Northeastern Arizona Indian Water Rights Settlement Agreement have been negotiated for many years and the parties are continuing to meet, but there is no consensus on terms at this time. No final agreement has been proposed and there is no pending action at this time. Details of any agreement are too premature to analyze, and any combined effects between a future agreement and the proposed mining permit renewal would be speculative.

Support Facilities

(4)

Comment: Is this a misprint? Review of 30 C.F.R., there is no 77.216(a).

Response: The reference to 30 C.F.R. 77.216(a) is not a misprint. This is a reference to Title 30 C.F.R. 77.216 Water, sediment or slurry impoundments and impounding structures. A complete reference to this section of 30 C.F.R. Parts 1-199 Mineral Resources, Department of Labor, Mine Safety and Health Administration which can be found online at <http://www.msha.gov/30cfr/77.216.htm>.

(8)

Comment: Is this the total of 19 existing permanent ponds, 10 proposed for construction during the 5 year renewal, 1 proposed permanent impoundment in J-19 and 31 existing or proposed temporary sediment control impoundments that would be converted to permanent impoundments as mentioned in page 10, C1.1.4 Water Control Facilities?

Response: As of July 2010 the total number of permanent internally-draining impoundments that exist is 19 including 11 pre-law permanent impoundments. One additional internally draining impoundment that is currently operating as a sediment control pond is proposed to be left as a permanent impoundment in the J-19 area. During the permit renewal period, 10 sediment control ponds will be constructed; nine of these ponds will be temporary. One of the 10 ponds (J21-I) is proposed to be left in the post-mining landscape as a permanent pond. Pond J21-I would become one of the 31 sediment control ponds that are proposed as permanent ponds on the post-mining landscape (see also SR55).

(34)

Comment: Peabody must return use of the wells that rely on the N Aquifer to the Forgotten People.

Response: As per the existing lease agreements, PWCC must return wells to the Navajo Nation and the Hopi Tribe, (see Section D.2.15). PWCCs existing leases with the tribes require N aquifer wells to be transferred to the tribes fully cased for their use once PWCC successfully completes reclamation and relinquishes the leases. How the Tribes use these wells will be up to their discretion.

(SR52)

Summary Comment: The EA states that Kayenta Mine uses “about 1,236 acre feet per year (af/yr) from the N aquifer.” (EA at 9). In order for the public to evaluate the impacts of this use, the EA should clarify how much of that water is used by the mining operation and how much is used by residents of the area.

Summary Response: Section C.1.11 in the EA discloses approximately 1,236 af/yr of water will continue to be used from the N aquifer during the permit renewal period. The mine permit application package (PAP) includes this information in the Probable Hydrologic Consequences (PHC) in Table 14; the analysis is based on modeling the potential effects of using 1,236 af/yr on average. Table 14 in Chapter 18, Probable Hydrologic Consequences of the Kayenta Mine Permit AZ-0001D (PWCC, 2005b reference in the EA) shows a breakdown of uses for the 1,236 af/yr average annual pumping amount from the N-Aquifer. The breakdown is 928 af/yr for Kayenta Mine use, 247 af/yr for well maintenance, and 61 af/yr for public supply. The analysis in the EA is based on the use of 1,236 af/yr and the resulting potential direct, indirect and cumulative effects on groundwater, public water supply, cultural resources, wildlife, vegetation and livestock grazing. This analysis provides adequate relevant information for OSM’s planning and decisionmaking in relation to the potential environmental effects from renewing the Kayenta Mine Permit (see also SR 40).

(SR55)

Summary Comment: Peabody should identify how many of the 31 existing or proposed temporary sediment control structures that will be converted to permanent impoundments will be located in the NPL and how many on exclusive Navajo and where these will be located.

Summary Response: The temporary sediment control structures described in Section C. 1.1.4 Water Control Facilities in the EA are located on both Navajo Nation lands and Navajo Partition Lands. Sixteen of the sediment control structures would be located on Navajo Nation Lands and 15 would be located on Navajo Partition Lands. The analysis in the EA is based on the 29 existing and 2 proposed temporary sediment control structures that would be converted to permanent ponds and the potential direct, indirect and cumulative effects on groundwater, public water supply, cultural resources, wildlife, vegetation and livestock grazing. This analysis provides adequate relevant information for OSM’s planning and decisionmaking in relation to the potential environmental effects from renewing the Kayenta Mine Permit.

(SR56)

Summary Comment: As stated, there are 156 sediment impoundments and additional (10) to be constructed through 2015, which would bring the total sediment ponds constructed to 166. In addition, 51 ponds will remain as permanent structures. What is not stated is the number of MSHA size ponds that will remain and their freeboard holding capacity.

Summary Response: The information on the number of MSHA sized ponds, and as-built storage capacities in acre-feet are contained in the PAP in Chapter 6, Drawing #85406, Siltation & Impoundment Structures Data in the Kayenta Mine Permit (PWCC, 2005b reference in EA). As stated in Section C.1.1.4 Water Control Facility of the EA, nine MSHA structures are proposed as permanent.

Cultural Resources**(17)**

Comment: Please quit digging ancestors' graves up and people's homes.

Response: Based on Federal and tribal laws, policies, and procedures, and at the direction of OSM, and in consultation with the State Historic Preservation Office, Tribal Preservation Officers and tribal cultural resources offices, PWCC protects cultural resources sites from disturbance or records them prior to disturbance in accordance with the cultural resource discovery process described in Chapter 13 of the Kayenta Mine Permit AZ-0001D (PWCC 2005b reference in EA). In addition, PWCC interviews persons residing on leasehold to identify any cultural concerns, including attempting to ascertain the locations of historic burials. In accordance with NAGPRA, PWCC reports to OSM, Navajo Nation Historic Preservation Department (NNHPD), Hopi Tribe Cultural Preservation Office (HTCPO), the Black Mesa Review Board, the representative Chapter, and/or local residents previously-unidentified finds of historic or prehistoric resources, burials and other cultural sites when they are discovered. In all cases PWCC avoids disturbing any identified, reported and/or discovered burials. For burials of Navajo origin and/or located on Navajo Nation lands, they are treated under the Navajo Nation policy for the Protection of Jishchaá: Gravesites, Human Remains, and Funerary Items which ensures compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) considerations for the Navajo Nation. The Navajo Nation Jishchaá Policy covers both prehistoric and historic human remain and cultural affiliations. In accordance with Kayenta Mine Permit Condition No. 9, if prehistoric human remains are located, PWCC secures the area from disturbance and contacts their cultural resource consultant and the NNHPD for identification and evaluation. When field evaluations are completed, PWCC contacts the Hopi Tribe for assistance from their religious practitioners in officiating on the reburial of the prehistoric remains and associated grave goods. Whenever a Hopi burial is located on Navajo Nation lands that are threatened by mining operations, the relocation will be conducted in accordance with Hopi Tribal (family) wishes or procedures and under the direction of HTCPO. Whenever a Navajo burial located on Hopi controlled surface is threatened by mining disturbance, relocation will be in accordance with NAGPRA and Jishchaá policy. PWCC will contact and work with both the HTCPO and NNHPD regarding the relocation. For prehistoric and historic period Hopi burials located on Hopi controlled lands that are threatened by

disturbance, relocation will be conducted in accordance with Hopi burial procedures and in consideration of Hopi tribal (family) wishes per the direction of HTCPO. See SR 39 regarding the relocation of households.

(SR46)

Summary Comment: The cultural resource analysis in the EA is insufficient and does not satisfy NEPA because OSM's cultural resources analysis focused only on mitigation of impacts on archaeological and historical resources pursuant to Section 106. The overreliance on the Black Mesa Archeological Project (BMAP) satisfies the National Historic Preservation Act (NHPA), satisfying NHPA under a narrow archaeological definition of cultural resources does not satisfy NEPA and does not consider Executive Order on Indian Sacred Sites. E.O. 13007, 61 Fed. Reg. 26, 771 (1996). OSM's reliance on BMAP now is improper as it was completed almost twenty-five years ago, in 1987 and is now outdated.

In order to make an informed decision, OSM must consider other important cultural issues relevant to the Navajo Nation and Hopi Tribe. The analysis in the EA did not adequately consider traditional cultural resources as a component of the cultural environment and compliance with Section 106 was not current. Furthermore, the EA analysis is inadequate because and when evaluating alternatives, OSM considered only impacts on National Register eligible sites to determine the intensity of the impact. OSM missed a broader understanding of cultural resources that must be considered under NEPA. OSM should have considered that Black Mesa is a traditional cultural property which is eligible for inclusion in the National Register as an historic district. As OSM has previously recognized, traditional Hopi and Navajo consider Black Mesa ... to be a significant traditional cultural resource because of its role in traditional stories and ceremonial and clan traditions, and because it is an area where traditional resources are obtained.

The Kayenta Mine Permit Renewal may adversely impact the spiritual, historic, and traditional use values of Black Mesa. Areas that have been recently identified as culturally significant are not properly addressed in the EA. The EA states that two prehistorical archaeological sites have been identified within the J- 19 area, five ceremonial sites have recently been found within the N-9 area, and two additional potential sacred and ceremonial sites found within the J-21 area. The EA fails to consider, however, whether continued and expanded mining will adversely affect these sites, either by cutting off access, perhaps permanently or by forcing relocation of resources.

OSM has inappropriately delegated NEPA responsibility for evaluating cultural resources and assessing impacts to PWCC through permit stipulations. Peabody's permit requires compliance with the Native American Grave Protection and Repatriation Act (NAGPRA); however, the permit requirements fail to satisfy NEPA.

Summary Response: OSM oversees PWCC's compliance with permit stipulations and retains responsibility for evaluation and treatment of discovered resources. Operation of the Kayenta Mine has been ongoing since 1973, and when initiated, OSM addressed applicable laws and regulations protecting cultural resources, including the National Environmental Policy Act (NEPA) and Section 106.

As stated in EA Section D.2.1, PWCC (and its predecessor Peabody Coal Company) funded the Black Mesa Archaeological Project for 20 years to comply with Section 106. These studies documented the

archaeological and historical resource within the coal lease areas, although not all required mitigation. OSM, in consultation with the State Historic Preservation Office and the Hopi Tribe and Navajo Nation, deemed the studied sample to be adequate mitigation for the impacts of coal mining and completion of the Black Mesa Archaeological Project was accepted as compliance with Section 106 for the life of the project.

Over the course of 38 years of mining, other laws and regulatory requirements regarding cultural resources have been enacted, including NAGPRA, which relates to human remains, funerary objects, sacred objects, and objects of cultural patrimony that are associated with some archaeological sites. In addition, new National Park Service guidelines have expanded the types of cultural resources that can be considered as eligible for listing in the National Register of Historic Places (National Register), including traditional cultural resources. Because PWCC had complied with Section 106, OSM addressed those new requirements and new discoveries of cultural resources through permit conditions.

The PWCC permit application package, Chapter 13 includes procedures for addressing cultural resource discoveries, burial recoveries, and traditional cultural property assessments, and Condition No. 9 of the Kayenta Mine permit requires PWCC to report to OSM previously unidentified historic or prehistoric cultural resources when they are discovered or are reported to PWCC by local residents, the respective Chapter, Black Mesa Review Board, OSM, or representatives of the Hopi Tribe or Navajo Nation governments. OSM then evaluates the resources and works with PWCC and the Hopi Tribe and Navajo Nation to develop and implement appropriate treatment. Further studies of the traditional cultural values of the Black Mesa landform or determination that all of Black Mesa is eligible for the National Register would not alter the executed coal leases, which reflect decisions of the Hopi Tribe and Navajo Nation governments.

The permit conditions ensure that impacts on specific identified traditional cultural resources are addressed, in consultation with the Hopi Tribe and Navajo Nation government members who protect those resources, through avoidance, documentation and recovery, or other measures to mitigate impacts. Section D.2.1 of the EA specifically recognized traditional cultural lifeways, identified various types of traditional Hopi Tribe and Navajo Nation cultural resources, and acknowledged that traditional Hopi Tribe and Navajo Nation individuals consider the Black Mesa landform to be a significant traditional cultural resource. Sections D.2.1 and E.1.1.1 provide substantive information about the types and numbers of cultural resources that could be disturbed, including 36 prehistoric archaeological sites and 20 historic Navajo sites (for which mitigation studies were previously completed pursuant to Section 106); 2 prehistoric sites in the J-19 coal resource area that have been identified as having potential for associated human burials); 2 possible sacred and ceremonial sites in the J-21 coal resource area that PWCC was recently informed of (in addition to 5 sacred and ceremonial sites in the N-9 coal resource area that PWCC has arranged to avoid disturbing); 4 households that need to be relocated, but those residents have not identified any concerns about impacts on traditional cultural resources; and perhaps 1 or 2 unanticipated discoveries of archaeological, historical, or traditional cultural resource that might be made in the areas to be mined during the next 5 years (based on prior experience).

NAGPRA was enacted in 1990 to protect human remains, associated funerary objects, and sacred objects, and objects of cultural patrimony. For burials found on tribal lands, NAGPRA stipulates that lineal descendants have first priority for custody of human remains and funerary objects and if none are identified, which is typically the case, the Navajo Nation or Hopi Tribe has right of custody. Because the J-19, J-21, and N-9 coal resource areas are on the Navajo Nation tribal land, OSM complies with NAGPRA by working with the Navajo Nation Historic Preservation Department and PWCC to implement the Navajo Nation policy for the Protection of Jishchaá Gravesites, Human Remains, and Funerary Items (refer to EA Section D.2.1). PWCC has successfully completed a number of burial recovery projects pursuant to NAGPRA on unexcavated archaeological sites threatened by mining by conducting additional investigation of sites with characteristics that indicate they might contain human burials, such as the middens. Similar procedures would be implemented at the two archaeological sites identified in the J-19 coal resource area as having potential burials, if they cannot be avoided by mining (refer to EA Section D.2.1). If prehistoric human remains are inadvertently discovered, PWCC, in accordance with permit Condition No. 9 and as a matter of practice, secures the area from disturbance and contacts OSM, the Navajo Nation Historic Preservation Department, and PWCC's cultural resource consultant for identification and evaluation. Once field evaluations are completed, PWCC contacts the Hopi Tribe for assistance from their religious practitioners in officiating on the reburial of the prehistoric remains and associated grave goods.

Hydrology

(10)

Comment: Wastewater from the mine contains heavy metals that could end up in drinking water supplies.

Response: The N aquifer is a regional source of drinking water beneath the Kayenta Mine permit area that is separated from the shallow geologic formations and streams by several hundred feet of impermeable Mancos shale (see Figure D-1 in the EA). Due to this impermeable layer of Mancos shale there is no potential for wastewater discharges from the Kayenta Mine Complex to mix with the N aquifer. In addition, wastewater discharges are only authorized under the NPDES permit, which requires wastewater discharges to meet effluent limitations and water quality standards established by the Navajo Nation and Hopi Tribe, for receiving streams.

(11)

Comment: Ground modeling predicted impact on Wepo aquifer water level was as much as 65 feet; however as stated, pit water and Wepo wells suggest differences of inflow value. Can this be further explained to show which is reliable?

Response: Chapter 18, Probable Hydrologic Consequences of the Kayenta Mine Permit (reference PWCC 2005b in the EA) provides a discussion of model-predicted drawdown in the Wepo formation as a result of mining, including a comparison of model-predicted drawdown with water levels measured in monitoring wells. The EA analysis in Section E.1.2 uses this information and analyzes the potential effects on water levels.

(12)

Comment: Water discharge-Kayenta mine the discharge of wastewater primarily stormwater to surface water more than 18 discharge from impoundment in lease area that currently are not compliant with one or more water quality standards. A lot of these are pretty heavily contaminated with arsenic, cadmium, chromium, lead, mercury, and selenium.

Response: As discussed in the EA in Section D.2.2.1, comparisons of water quality monitored between 1986 and 2008, and in 2009 at proposed permanent impoundments located within or adjacent to reclaimed areas with livestock-watering standards and aquatic and wildlife habitat standards established by the Navajo Nation (2008), and Hopi Tribe (2008) where applicable, indicate more than 95 percent of the analytical results met the livestock standards, and more than 98 percent of the analytical results met the aquatic and wildlife habitat standards. The quality of water in these impoundments is similar to the water quality of stormwater collected from natural drainages, however TDS, sulfate (SO₄), calcium (Ca), magnesium (Mg), sodium (Na), and chloride (Cl) concentrations are typically lower in the impoundments than natural drainages (see Table D-3 of the EA). In addition, wastewater discharges are only authorized under the NPDES Permit, which requires wastewater discharges to meet effluent limitations and water quality standards established by the Navajo Nation and Hopi Tribe for receiving streams.

(SR24)

Summary Comment: Peabody is required by law to replenish the Navajo aquifer in equal quantity and quality to what was lost due to drawdown effects from Peabody's prolonged uses, including Peabody's use of an unpermitted coal slurry pipeline.

Peabody mining activities have depleted the locally-owned water sources, and local water sources are capped, there is no water left to drink, and residents are now dependent on the Peabody water supply. The EA does not describe the impacts that mining has as a consequence of the use of this precious ground water source on local residents, the most important of which is the lost access of local resident to a water source close to their homes, and the opportunity and right to raise livestock according to their traditions. These impacts include drainage of usable water from shallow aquifers; lowering of water levels in adjacent areas and changes in flow directions within aquifers, contamination of usable aquifers below mining operations due to infiltration or percolation of poor quality mine water; and increased infiltration of precipitation on spoil piles. This may contaminate both ground water and nearby streams for long period.

Summary Response: As indicated in the comment, Surface Mining Control and Reclamation Act of 1977 (SMCRA) regulation requires that any person who conducts surface mining activities shall replace the water supply of an owner of interest in real property who obtains all or part of his or her supply of water for domestic, agricultural, or other legitimate use from an underground or surface source, where the water supply has been adversely impacted by contamination, diminution, or interruption proximately resulting from the surface mining activities (Title 30 Code of Federal Regulations Part 816.41(h)).

PWCC's right to use water from the N aquifer for mining-related purposes is codified under the mining leases. The leases require Peabody to replace the N aquifer with a similar source of water only if pumping

for mining-related purposes damages the aquifer. As noted, 30 C.F.R. Part 816.41 (h) requires replacement of the water supply only where the water supply has been adversely impacted by contamination, diminution, or interruption as a result of surface mining activities. To date, no credible evidence has been identified to indicate PWCC's pumping of the N aquifer has created adverse contamination, diminution, or interruption of this source of water. The potential effects on groundwater from PWCC pumping do not result in contamination, diminution or interruption as a result of surface mining activities (see pages 104 through 108 of the EA). Further, as discussed on page 107 of the EA, there are no significant predicted changes in the saturated thickness of the D and N aquifers from PWCC's pumping and monitoring data shows that PWCC pumping to date has not measurably reduced the monitored amount of N aquifer spring flow. Page 108 of the EA mentions the negligible increase in sulfate concentration in the N aquifer by 2038, if it occurred, would be limited to the immediate area of the PWCC well field and would not change the drinking-water use designation of the N aquifer (see also responses to Hydrology, SR 31, SR 37 SR 53 and response 10). Kayenta Mine does not use water from the Wepo, Toreva or alluvial aquifers and in accordance with Public Water Supply (PWS) permit ID # NN0400287, all of PWCC's wells are properly sealed at the wellhead which prevents potential contamination from the surface.

As discussed in Section D.2.2.3, on page 30 of the EA, the USGS groundwater monitoring also indicated that although drawdown has occurred in the N aquifer, measured water levels have not dropped below the top of the N aquifer near the PWCC leasehold (see Map D-2). The saturated thickness of the confined portion of the N aquifer is unchanged at the monitored locations because water levels remain above the top of the aquifer. The analysis of PWCC use of water from the N aquifer on water supplies is found in Section E.1.2.1 on pages 104 through 107 of the EA. The potential impact of continued pumping at the mine site was evaluated by simulating future water level changes in the D and N aquifers within and adjacent to the permit area for the permit period through 2038. The permit renewal period is through 2015 and cumulative effects analyzed in the EA included both PWCC and community pumping through 2026. As indicated in Appendix B on page B-20 of the EA, the 3-D model was used to assess the impacts of pumping. In the simulations, actual pumping rates were used for the PWCC well field through June 2010. From July 2010 through June 2025 (which includes the 5-year period that is the subject of this EA), the pumping rate was assumed to average 1,236 af/yr. This period was followed by three years of pumping at 505 af/yr (to 2028), and an additional 10 years at 444 af/yr (to 2038). Modeling is extended through 2038 to account for water use during reclamation activities. The detailed numerical model results are provided in Appendix B of the EA. The model predicts that groundwater levels would rise (i.e., recover) beneath the PWCC lease area during the permit period. Groundwater levels are recovering because less groundwater has been used by PWCC since the coal slurry pipeline was discontinued in 2005. In 2015, the simulated recovery in groundwater levels near the PWCC lease area is between 20 and 30 feet (see Figure E-1 of the EA). The simulated recovery at some of the PWCC's production wells is greater. The simulated groundwater level recovery is relatively small near the boundary between confined and unconfined conditions in the N aquifer, as the total drawdown prior to 2005 was also small near this boundary. The greatest differences in groundwater levels occur near communities, where local pumping is

predicted to cause continued drawdown. Therefore, PWCC remains in compliance with the terms and conditions of the leases and requirements of SMCRA.

As indicated in Section E.1.2.1 on page 107 of the EA, compliance with these regulations resulted in PWCC's commitment to replace three windmill wells that have or would be removed by mining. Any other water supply that could be adversely impacted by mining during the five-year permit term would be replaced by PWCC. The replacement of water supplies was analyzed in the EA in Sections E.1.2 Hydrology, page 109, E.1.12 Land Use, page 137 and E.1.15 Indian Trust Assets, page 144.

(SR53)

Summary Comment: The EA does admit to the fact that 5 out of the 12 seeps sampled in 2009 (NPDES impoundments) had one or more constituent concentrations (cadmium, nitrate/nitrite, selenium, aluminum, and copper) test at greater than the standards: Kayenta Mine Permit (AZ-0001D) Renewal Environmental Assessment, August 2011, Page 23.

Summary Response: In the EA, Section D.2.2 discusses the presence of seeps, water quality and PWCC's EPA approved Seepage Management Plan for seeps below National Pollutant Discharge Elimination System (NPDES)-permitted sediment-control structures. Peabody routinely inspects NPDES sediment ponds that have seeps, conducts monitoring at the seeps for flow and water quality at least annually and in some cases more frequently, and assesses the data with respect to livestock water-quality standards and potential impacts on the hydrologic balance.

PWCC submits an annual Seepage Monitoring and Management Report to USEPA and other agencies (Hopi Tribe, Navajo Nation, and OSM) that incorporates seep-inspection summaries, flow and water-quality data, assessments of the data with respect to livestock water-quality standards, and impacts on the hydrologic balance, and summaries of management activities that have been conducted during the year. The purpose of the Seepage Management Plan is to ensure that surface water quality is not degraded.

There is no indication that seepages from the ponds are affecting the quality of ground water. Section D.2.2.3 Water Supply discusses the water quality of the N aquifer including Total Dissolved Solids (TDS) and fluoride concentrations. As discussed in Section D.2.2.1 on page 24 of the EA, water samples from five seeps did not meet water quality standards; these were likely caused by either analytical methods, land use practices such as livestock grazing or other naturally occurring geologic processes. Reclamation in the fall of 2009 removed the sediment control structure at Pond N6-F, which removed Seep N6-F-S1 permanently. At the remaining eight NPDES sediment ponds, seeps met all standards established for livestock drinking water and aquatic and wildlife habitat established by the Navajo Nation (2008) and Hopi Tribe (2008) where applicable. Therefore, there is no significant water quality impact from existing seeps.

(63)

Comment: Currently, mining operations use immense quantities of water and contaminate more. The EA indicates that the Kayenta Mine will use 1,236 acre-feet per year from the N aquifer (402,754,704.37 gallons). OSM assumes that this extraction will not result in a significant effect because it is seventy percent less than was used prior to 2006. Although the slurry line is no longer operational and water use

has decreased, Peabody's continued use of water is significant because North-Eastern Arizona frequently receives no more than ten inches of rain per year.

Response: The EA indicates the Kayenta Mine will use 1,236 acre-feet per year **on average**) which is approximately a 70 percent reduction in pumping since 2005. OSM's analysis of the effects of the average pumping during the 5-year permit term and beyond is based on predictive analyses using the 3-D numerical groundwater model. The modeling results indicate the overall effects of continued pumping will result in negligible impacts on water levels and spring flow in the unconfined portion of the aquifer, water level recovery within the confined portion of the aquifer near the Kayenta Mine, negligible cost increases for pumping at community wells, minor depletions of stream discharge, negligible changes in water quality and no change to the drinking water use designation for the N aquifer.

(64)

Comment: Peabody continued to submit updated permit information to OSM following the close of public commenting on the Peabody permit renewal of June of 2010. None of these documents have been made public. In particular, Peabody has continued to provide information related to its Probable Hydrologic Consequences which has not been made public and which is likely to form the basis of OSM's Cumulative Hydrologic Impact Analysis.

Response: Although this comment is unrelated to OSM's evaluation of the Kayenta Mine permit renewal, OSM has no regulatory requirements that prohibit PWCC from submitting updated information for the Kayenta Mine Permit AZ-0001D. Revised permit materials to the PHC were submitted to OSM in order to update impact assessments for the N aquifer and surface water based on the most recent data available. The updated permit materials were submitted to OSM's Denver offices and two area offices (Farmington and Albuquerque, New Mexico), and offices of the Navajo Nation, Hopi Tribe, BIA, BLM and the Forest Lake Chapter House. Current copies of the complete Permit Application Package (PAP) for the Kayenta Mine Permit No. AZ-0001D reside at the three OSM office locations, offices for the other agencies, and the Forest Lake Chapter House. Following approval by OSM of the revised permit information for the PHC in December 2010, the revised permit materials were inserted into each copy located at the agency locations. All copies of the Kayenta Mine PAP are available to the public for review, including the revised permit materials related to the PHC approved by OSM in December 2010.

(65)

Comment: This report [Higgins] demonstrates declining trends in the N-aquifer's water-level, spring discharge, and water-quality at rates that exceed OSM's 1989 criteria for material damage.

Response: OSM's 1989 criteria for material damage are outdated and have been revised based on an additional 20 years of important and relevant information. The 1989 CHIA is no longer applicable. Substantial advances in knowledge about the N aquifer and in simulation tools since the 1989 CHIA was written clearly warranted OSM's revising the material damage criteria. The SMCRA regulations at 30 CFR 780.21 (g) (2) requires the regulatory authority to review permit revisions and determine whether a new or updated CHIA is required. OSM executed its authority and regulatory obligations properly when the 1989 CHIA was updated in 2008 and again in 2011.

The statistical regression techniques that Higgins used to demonstrate Peabody pumping is responsible for declining trends in N Aquifer water levels, spring discharge, and water quality, ignored scientifically based principles including significant hydrologic processes that are well established in the science. For example, Higgins' analysis assumes an instantaneous response at certain wells and springs resulting from Peabody's pumping. In fact, the response lags years behind the annual pumping due to distance from the Kayenta Mine pumping center, hydrologic properties of the aquifer, and the time it takes for the impacts (assuming there are any) to reach distant wells and springs. Higgins did not account for the properties of the N aquifer groundwater system, or the effects of pumping in confined aquifers. Regression approaches can be used to determine whether there is a correlation between two variables, but Higgins' statistical relationships between PWCC's pumping and declining water levels, spring discharge and water quality incorrectly present statistical correlations and do not necessarily indicate there are valid cause-and-effect relationships. Other important information including all valid PWCC pumping data, the effects of local community pumping and significant variations in aquifer characteristics such as permeabilities and storage have not been appropriately accounted for using the regression techniques applied by Higgins, nor did he perform any validation of his work with data available beyond the term he used in his analysis. As a result, these conclusions are not valid.

(66)

Comment: It [Higgins report] also demonstrates strong, statistically significant relationships between the rate of Peabody's withdrawals and the declining trends in water-level, spring discharge, and water quality.

Response: See responses 65, 67, 70 and 73.

(67)

Comment: It [Higgins Report] demonstrates that there are no statistically significant relationships between either the rate of municipal groundwater withdrawals or the rate of local precipitation with any of these declining trends.

Response: Higgins' demonstrations of no statistical relationships between either the rate of municipal groundwater withdrawals or the rate of local precipitation, ignore significant hydrologic processes that refute the validity of the statistical relationships and conclusions drawn from them. The cumulative effect of local community pumping, not the year to year changes in pumping, is the cause of the decline in spring flow and water levels in the vicinity of Tuba City. The statistical analysis also ignores the time lag between the pumping and the effects shown by the declining trends. Given the sporadic nature of precipitation in the area, the water that is recharged must travel through the unsaturated zone requiring several years for changes in water levels or spring discharge to be transmitted depending on distance from the pumping center.

(68)

Comment: By the standards developed by OSM in 1989, material damage to the Naquifer (sic), in response to Peabody's coal mining activities on Black Mesa, has occurred.

Response: When the 1989 material damage criteria designed to prevent structural damage to the N aquifer (the criterion related to maintaining a hydraulic head at least 100 feet above the top of the aquifer) was developed, OSM did not have information on the compressibility of the geologic formations that comprise the aquifer, or information on the absence of damage to the Peabody wells, and the logical initial point where subsidence would be evident. Further, OSM did not recognize, at that time, that the hydraulic head was already at or less than the criterion they set in parts of the aquifer at the time PWCC (Peabody) started pumping, without structural damage having occurred. Thus, in 2008 OSM determined that the criterion was not appropriate. See also response 65.

(69)

Comment: The report [Higgins] demonstrates that in 2008, OSM attempted to impermissibly terminated [sic] all four of its original 1989 material damage criteria (per its revised 2008 CHIA for the, now vacated, Black Mesa Complex), and implemented three new criteria. The agency explained that there have been and will be no adverse impacts to the N-aquifer in response to Peabody's groundwater pumping and, given OSM's reduced rate of withdrawals beginning in 2006, the mine could no longer effect N-aquifer water-level, spring discharge, and water quality outside of the mine's leasehold. As a consequence of termination of material damage criteria, OSM proposes to no longer evaluate the mine's impact on the groundwater resources near the tribal communities, despite the statistical evidence in this report (which was submitted to OSM in July 2011) that counter OSM's conclusions.

Response: OSM's 2008 CHIA was not an attempt to impermissibly terminate material damage criteria that were previously established in the 1989 CHIA. The CHIA was updated in 2008 because of substantial advances in knowledge about the N aquifer and in simulation tools after the 1989 CHIA was written. These advances resulted in OSM's decision to revise the material damage criteria to better reflect potential impacts outside of the permit area pursuant to 30 CFR 780.21 (g) (2). See also response 65.

(70)

Comment: This report [Higgins] also demonstrates and explains why, due to the time-lag effect, many of the mine-related impacts identified in this study continue to decline, have not expressed any recovery to date, and thus have yet to express the mine's maximum impact. OSM has neither acknowledged the mine's cumulative impacts nor asserted realistic recovery periods for any of these groundwater parameters. Rather, OSM maintains (without the support of monitoring data) that water-levels are rising and that the N-aquifer is recovering. There is no factual basis for OSM's determination.

Response: Higgins' report relies on analyzing the relationships between PWCC's annual pumping and distant locations where water-level, spring discharge and water-quality data have been collected for decades, but does not take into account well known hydrogeologic principals that incorporate, among other important processes, how long over time and how far the effects of pumping propagate. Yet, Higgins introduces the concept of "time-lag effect" when it conveniently supports his conclusion that the effects of PWCC's withdrawals have not yet been realized. Eventually, the effects of PWCC's reduction in pumping will be manifested at distant wells. Results from the 3-D model presented in the EA show recovery of water-levels in the vicinity of PWCC's wellfield located in the center of the confined aquifer,

continued drawdown at distant locations within the confined portion of the aquifer, and continued drawdown at communities located in the unconfined portion of the aquifer as a result of continued community pumping. Cumulative impacts to the N aquifer due to combined community and PWCC pumping have been taken into account based on the modeling conducted and are explicitly discussed in the EA (see Sections E.2.1.1, pages 152 and 153 and Appendix B). Specifically Appendix B, Figure B-6 on page B-13 clearly includes monitoring data from the USGS observation well BM6 through the end of 2009. This data is consistent with the analysis provided in the USGS' 2010 report (Open-File Report 2010-1008) which is included as a reference in the EA on page 184 as U.S. Geological Survey. 2010. Groundwater, Surface Water, and Water Chemistry Data, Black Mesa Area, Northeastern Arizona, 2008-2009. The EA on page 107 also presents that recent monitoring data collected by the USGS in N aquifer observation well BM6, located approximately 14 miles south of the Kayenta Mine, indicates water-level recovery began in 2007 and continues through 2009 (see also Figure B-6, page B-13 in Appendix B). Page 107 of the EA also references USGS' 2010 report (Open-File Report 2010-1008) regarding spring discharges at Burro Spring not showing a decreasing trend. Additionally page 107 of the EA disclosed that "Discharge measurements measured at both Moenkopi School Spring and Pasture Canyon are strongly influenced by local community pumping stresses."

(71)

Comment: OSM has elected to instead evaluate discharge and flow from one spring (Burro) as well as streams in the unconfined areas for material damage caused by mining; however, the new criteria for material damage have insurmountable damage-thresholds and, moreover, actual monitoring data will not be used to determine their condition. Rather, the simulation results of a groundwater model—which are generated by the company being regulated and are incapable of simulating discharge from springs or discharge to streams—will be used to determine the mine's impact on Burro Spring and N-aquifer streams until Peabody's new mining permit expires in 2026. OSM's modification of material damage criteria violates SMCRA and must be analyzed in an EIS.

Response: OSM provides adequate hydrologic information and analyses in CHIA documents that support the definition of material damage, establishing cumulative hydrologic impact areas, developing material damage criteria and analyzing whether material damage has occurred. As mentioned in response 65, OSM acted in accordance with the SMCRA-based regulatory requirement for reviewing permit revisions and CHIAs when the CHIA was updated in 2008. OSM's decisions to update CHIAs from time to time is consistent with the authority under 30 CFR 780.21 (g) (2), and is appropriate when new, valid information becomes available to make better decisions.

(72)

Comment: Since 1988, OSM has impermissibly equated the simulation of two groundwater models with the actual condition of the N-aquifer, despite the fact that (1) monitoring data consistently diverged from and conflicted with the model simulations; (2) two of OSM's original four thresholds for material damage had been crossed; and (3) the other two criteria had never been evaluated as intended. Concurrently, OSM (1) disregarded the conflicting monitoring data; (2) attributed the adverse trends to municipal withdrawals or drought (and continues to do so); and (3) has rejected any further consideration that these declining

trends could be associated with mine operations (Klein 2011; EA 2011; OSM-EIS 2008, 2006, 1990; OSM-CHIA 2008, 1989; OSM, 2006, 2005, 2004, 2000, 1998).

Response: SMCRA regulations at 30 CFR 780.21 (d) allow the use of models in permit applications, and OSM recognizes the limitations of groundwater models to simulate actual conditions in the N aquifer. However, OSM also recognizes the use of groundwater models to simulate responses to pumping stresses in large complex aquifer systems is appropriate absent costly and labor intensive monitoring as long as the models are developed using sound methods and honor valid available geologic and hydrogeologic information. Water level data collected by the USGS showed divergence over time from values predicted back in the late 1980's by the USGS 2-dimensional groundwater model. However, recent water levels in USGS observation wells continue to match values predicted by the 3-dimensional model through 2009 reasonably well as discussed in Appendix B of the EA. Monitoring data including water quantity and quality collected by the USGS in wells, streams and springs continue to indicate negligible impacts to the N aquifer have occurred as a result of PWCC's pumping which was substantially reduced after 2005. Allegations that contend OSM has disregarded "conflicting" monitoring data are unfounded.

As mentioned previously, statistics presented in Higgins' report rely on subjective data selection for analyzing data in order to support conclusions of declining trends that are caused by PWCC's pumping. These statistical analyses fail to take into account well known hydrogeologic principles that refute the validity of the statistical relationships and conclusions drawn from them, and ignore important pumping data.

(73)

Comment: Throughout the mining period, this report [Higgins] finds OSM consistently rationalizing the negation of new, valuable information about the mine's impact via the argument that the current data set is better than prior data sets, as well as their corollary predictions, and thus there is no need to evaluate OSM's prior predictions. Further, this report demonstrates that throughout the period of 1984-2011, OSM has never modified any of its mine-related impact-predictions in association with new information about the N-aquifer.

Response: As mentioned in response 65, substantial advances in knowledge about the N aquifer and in simulation tools have occurred since the 1989 CHIA was written, and warranted OSM's revisions of the material damage criteria. The statistical regression techniques that Higgins used and touts as valid evidence about the mine's impacts ignored significant hydrologic processes, arbitrarily ignores significant and relevant pumping data and cannot account for the properties of the N aquifer groundwater system. As mentioned in response 71, OSM provides adequate hydrologic information and analyses in CHIA documents that support the definition of material damage, setting cumulative hydrologic impact areas, developing material damage criteria and analyzing whether material damage has occurred. OSM developed the original CHIA in 1989, and modified the 1989 CHIA in 2008 because additional hydrologic information had been collected over time to warrant OSM's decision to revise the CHIA including material damage criteria to better reflect potential impacts to the N aquifer outside of the permit area.

(74)

Comment: A FONSI for the N-aquifer in this EA is impossible without consideration being given to Black Mesa activities. The confined portion of the N-aquifer is one hydrological unit which is shared by both the Black Mesa mine operation and the Kayenta mine operation. In layman's terms, each has a straw in the opposite end of the lake. Separating the environmental consequences is simply not possible.

Response: The 3-D model takes into account all pumping from the N aquifer at PWCC's wellfield from the eight production wells, including the past amounts used by the Black Mesa Mine for transporting coal to the Mohave Generating Station using the Black Mesa Pipeline Inc. coal slurry pipeline that ceased operation December 2005.

(75)

Comment: The cumulative impacts, including Black Mesa Mine and hydrologic impacts, are significant. The EA does not consider these cumulative impacts as required under NEPA.

Response: Cumulative impacts related to hydrology are discussed in the EA in Section E.2.1 beginning on page 152 through 154. The analyses show these impacts are negligible (not significant).

(76)

Comment: Although recognizing the danger, the EA fails to assess the impacts to water quality and hydrology from acid mine draining, waste piles, coal storage piles related to Peabody mining activities.

Response: There is little potential for acid mine drainage to occur as explained on pages 103 and 104 of the EA. There are no "waste" piles in the Kayenta Mine permit area if the commenter is referring to "waste" piles in the context of coal refuse. Disturbed area runoff from mining activities, including runoff that comes into contact with overburden and interburden piles or coal storage piles, is treated in downstream sediment ponds and must meet specific effluent limitations and applicable water quality standards for receiving streams prior to discharge in accordance with the terms and conditions of the NPDES permit NN0022179.

(77)

Comment: The coal slurry is a devastatingly harmful and inappropriate way to transport coal, due to misuse of millions of gallons of clean groundwater from N Aquifer. It intentionally does what most laws are intended to prevent, which is to put clean water into contact with contamination (coal, coal dust, and related toxic and acidic waste). The Navajo aquifer likely has been materially damaged from use of the slurry line. See, e.g., report by Daniel Higgins, Hydrologist. The Forgotten people request a commitment from OSM and Peabody on the record that no effort will be made to transport Kayenta mined coal (or Black Mesa coal) by way of this coal slurry pipeline. We would like an assurance that the OSM will require the decommissioning and dismantling of the coal slurry line, and related coal processing facilities and infrastructure.

Response: Shipments of coal to Mohave Generation Station via the slurry pipeline ceased in December 2005. The owners of the coal slurry pipeline, Black Mesa Pipeline, Inc. (BMPI), have no plans to

transport any coal mined at the Kayenta Mine using the coal slurry pipeline. The 2008 CHIA concludes no material damage to the N aquifer has occurred as result of mining at the Kayenta Complex, including the shipment of coal via the slurry pipeline that ended in December 2005. BMPI is currently working with OSM and the Navajo Nation to reclaim the facilities that OSM has jurisdiction over. See also SR25 and SR 26.

(78)

Comment: Vague plan for recovering lost water from the N Aquifer. In Appendix B (B-8 and B-9) of the EA, Peabody promises that the water level in the N Aquifer is recovering, and surmises then that continuing drawdowns will not cause significant adverse effects. The EA treats this groundwater as a renewable resource, based on the OSM's assumption that the amount of water pumped out would not be more than that of the recharge. The conclusion is therefore, the continued pumping of N Aquifer for Peabody uses would have negligible or minor impacts. However, SMCRA prohibits diminution of ground water supplies, notwithstanding that nature might be able to replenish some of the removed water over time.

Response: Pages B-8 and B-9 in the EA show drawdown measured and simulated through 2009 using the 3-D model at USGS monitoring wells BM-1 and BM-2, respectively. Modeling results provided in the EA indicate the overall effects of continued pumping from the N aquifer will result in negligible impacts on water levels and spring flow in the unconfined portion of the aquifer, water level recovery within the confined portion of the aquifer near the Kayenta Mine, negligible cost increases for pumping at community wells, minor depletions of stream discharge, negligible changes in water quality and no change to the drinking water use designation for the N aquifer. PWCC derives its authorization to use water from the N aquifer for mining related purposes from valid leases with both the Navajo Nation and the Hopi Tribe.

Vegetation

(20)

Comment: A lot of piñon and juniper woodlands are not replaceable so is woodland vegetation, medicinal, ceremonial plants.

Response: SMCRA defines reclamation as “those actions taken to restore mined land to meet post mining land use approved by the regulatory authority” As indicated in Chapter 23 of the Kayenta Mine Permit, Section E.1.3 of the EA, and Appendix A, PWCC's revegetation practices to restore wildlife habitat include the overall rangeland-seeding program, cultural plant and piñon/juniper woodland restoration, and additional woody species plantings around ponds and small depressions to achieve the approved post-mining land uses. The revegetation program is designed to establish diverse vegetation capable of meeting wildlife nutritional needs and other habitat factors such as cover or nesting. High-density shrub areas (greater than 800 stems per acre) are interspersed within the reclaimed landscape. Cultural plant/woodland/wildlife habitat sites also are interspersed within the reclaimed landscape.

(22)

Comment: Waste of woods for home, firewood, could be use our resources.

Response: As indicated in the EA in Appendix A, Section C.1.1, immediately prior to topsoil removal the area to be mined is cleared of large vegetation consisting primarily of piñon and juniper trees to facilitate topsoil recovery. The vegetation debris removed is placed at locations that would not interfere with mining operations. A majority of this material is made available to local residents as firewood and the remainder is either piled at the edges of the mining area to provide cover and nesting habitat for wildlife or buried in the pit during mining operations. Furthermore, as indicated in the EA in Section D.2.12, coal from Kayenta Mine is provided to the Navajo and Hopi people on Black Mesa for home heating.

Reclamation

(19)

Comment: Only 4" topsoil not 4'.

Response: For the permanent program reclaimed areas, the requirement of the approved Kayenta Mine Permit AZ-0001D, Chapter 22, Minesoil Reconstruction (PWCC, 2005b referenced in the EA) is to replace an average minimum of 6 to 12 inches of topsoil over the graded spoil, depending on how much topsoil was available on each mine area before disturbance, i.e. in some areas more topsoil is available for salvage and later redistribution than on other areas. As indicated in the EA, Section E.1.3.1 discusses reclamation areas. In reclamation areas, 4 feet of soil and suitable plant growth media are replaced. As described in Section D.2.5, the 4 feet of soil and suitable plant growth medium includes topsoil, subsoil and weathered rock overburden.

(SR32)

Summary Comment: OSM failed to identify what stage of reclamation (I, II, or III) has been achieved within the three coal resource areas. It must address this question for those three areas. According to OSM, the Federal agency charged with implementing SMCRA, contemporaneous reclamation provides an overall perspective of how successfully reclamation is staying current with mining in the State. OSM Directive REG-8, Oversight of State Regulatory Programs (December 21, 2006) at A-17. Achievement of post-mining land uses will be measured by the acreage of each land use type released from Phase III bond liability, i.e., cropland, pasture, forest, etc., and the acreage will be documented and reported. Id.; see also, 30 C.F.R. § 800.40(c) (outlining requirements for three phased bond release).

Furthermore, the Permit Application also fails to provide an adequate general reclamation plan required under 30 C.F.R. §. 780.18 and other sections of Part 780. The vegetation and landscape of the mining area are unique and the proposed reclamation does not adequately provide for revegetation involving the return of native plants over a reasonable timetable or for redistribution of the soils in an adequate manner to restore the landscape to as close as possible to its original character. The permit application shall be submitted in a manner satisfactory to the regulatory authority and shall contain, among other things a

determination of the probable hydrologic consequences of the mining and reclamation operations, both on and off the mine site 30 U.S.C. § 1257(b)(11).

SMCRA directs that a hydrologic reclamation plan shall include a detailed description of the measures to be taken to assure the protection of the rights of present water users. To the extent that the rights of present users cannot be assured, the hydrologic reclamation plan should include a description of alternative sources of water. 30 U.S.C. § 1258(a)(13). The bond in support of the hydrologic reclamation plan shall be sufficient to assure completion of the reclamation plan. 30 U.S.C. § 1259(a). Here, Peabody has not established a program that satisfies these requirements. First, Peabody failed to submit a hydrologic reclamation plan that assures protection or replacement of the ground and surface water resources relied on by the Hopi and Navajo and is sufficient to meet SMCRA's requirements. Second, Peabody has provided no bond funding to support a hydrologic reclamation plan even if one existed. This is a violation of the statute and regulations because Peabody is required to provide a bond that is adequate to support a meaningful plan. 30 U.S.C. § 1259(a); 30 C.F.R. § 800.14(b) (The amount of the bond shall be sufficient to assure the completion of the reclamation plan.). Peabody cannot avoid the requirement of posting a meaningful hydrologic reclamation bond by simply failing to create a meaningful plan.

SMCRA requires the operator to restore the affected land to a condition capable of supporting pre-mining uses or higher or better uses, this is typically satisfied through reclamation completed as contemporaneous as possible. 30 U.S.C. § 1202(e). However, contemporaneous reclamation is not happening at the Kayenta Mine. The rate of tribal lands being reclaimed by Peabody compared to the rate of disturbance is unknown. Ideally the ratio should be 1 to 1.

Summary Response: Table C-1 in Section C of the EA identifies the reclamation status within the three coal resources areas through the permit renewal period. As of July 2010, active mining and reclamation was on 8,013 acres in the three coal resource areas, and 4,238 acres have been reclaimed. (i.e. topsoiled and seeded).

The regulation at 30 C.F.R. 816.100 requires that reclamation efforts occur as contemporaneously as practicable with mining operations. The acre-for-acre ratio of reclamation as suggested in the comment would not reduce the environmental effects compared to 30 C.F.R. 816.100 requirements. However, as shown in Table C-1 in Section C of the EA, while 1,159 acres are estimated to be disturbed in the three coal resource areas during the permit renewal period, 1,692 acres are projected to be reclaimed.

PWCC's approved permit application for the Kayenta Mine contains a hydrologic reclamation plan as required by 30 C.F.R. 780.21(h). According to SMCRA 30 C.F.R. 816.41(h) and 30 C.F.R.715.17(i) the "permittee shall replace the water supply of an owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source where such supply has been affected by contamination, diminution, or interruption proximately resulting from surface coal mine operation by the permittee." The regulation at 30 C.F.R. 816.41 (a) specifically requires surface mining and reclamation activities to be conducted in order to minimize disturbances of the hydrologic balance within the permit area and adjacent areas, and to prevent material damage to the hydrologic balance outside of the permit area. Chapter 19 of the PAP presents PWCC's Hydrologic Reclamation Plan which is complete and thorough as it addresses all requirements

of 30 C.F.R. 816. As indicated in the EA in Section E.1.2.1, pages 104 through 107 analyzed the potential effects on water supply including monitored N aquifer spring flow. Impacts to the N aquifer, water supplies, and pumping cost from renewing the Kayenta Mine permit would not be significant. As indicated in SMCRA 30 C.F.R Section 800.14 (a) (b), the amount of the bond shall be sufficient to assure the completion of the reclamation plan if the work had to be performed by the regulatory authority. OSM reviewed PWCC's reclamation plan and determined the amount of the bond required was sufficient as discussed in the following paragraphs.

PWCC submitted a reclamation cost estimate, and OSM calculated the amount of bond needed if it would have to complete reclamation. PWCC has posted bonds that are consistent with the regulatory program. OSMs bond cost analyses, using the Bond Cost Estimation Handbook, resulted in a reclamation cost estimate, for the Kayenta Mine, to be \$216,158,000.00. OSM currently has a posted bond amount, from PWCC, of \$245,192,000.00, for the Kayenta Mine which exceeds the cost estimate by \$29,034,000.00.

PWCC's Kayenta Mine Permit AZ-0001D includes a detailed, thorough, and complete Reclamation Plan as required by 30 C.F.R. 780.18 (PWCC, 2005b reference in EA). Once mining operations end, the disturbed areas are reclaimed to meet pre-mine conditions as per the permit. Reclamation includes re-grading the land to its approximate original contours, replacing topsoil, and replanting vegetation according to the approved post-mining land uses of livestock grazing, wildlife habitat, and cultural plant use (see EA, Appendix A, Section D).

PWCC's reclamation plan requires replacing the areas mined during the permit renewal period to premining land uses including livestock grazing, wildlife habitat and cultural plant utilization. The reclamation vegetation will be dominated by grasses and shrubs and scattered groupings of trees. As indicated in the EA in Section D.2.12 numerous plant species have cultural significance to the Hopi and Navajo people on Black Mesa. In the PAP, Chapter 23 Revegetation Plan, Chapter 9 Vegetation Resources and Chapter 14 Land Use are targeted towards cultural plant restoration and piñon - juniper reestablishment. Fundamental to development of the reclamation plan was consideration of the unique physical, biological, climate and cultural conditions within the Kayenta Mine permit area. Culturally important plants also are present in reclaimed areas where cultural plant sites have been established and where natural recolonization has occurred.

(SR54)

Summary Comment: Reclamation of mined out areas should include geomorphic reclamation along with approximate original contour. The EA implies that reclamation activities will be conducted using an "approximate original contour" method. (e.g. EA at 137.) Geomorphic reclamation is preferred to avoid negative impacts on the environment as these changes affect water flows, risk the creation of unnatural gullies for water runoff, affect vegetation and otherwise alter the natural landscape.

Summary Response: Restoration of mining sites to the approximate original contour is required by SMCRA. Mined areas are backfilled and graded to approximate the original topographic relief. The approximate original contour restoration is designed to reestablish the drainage patterns to blend in with the surrounding undisturbed areas. As discussed in Section E.1.2.1, reclaimed watersheds would be

constructed using similar ranges of naturally occurring geomorphic features such as drainage density, hillslope lengths and slopes, and channel gradients.

Air Quality

(SR43)

Summary Comment: The EA acknowledges the potential for adverse effects from mercury pollution resulting from Peabody mining activities but does not adequately assess the cumulative impacts of the mercury pollution released by Peabody activities and the ultimate combustion of the coal mined. The problem with mercury, as with dioxin and PCBs, is the cumulative impact of mercury releases over time from one source and from multiple sources combined. This cumulative impact from coal mining and combustion has already resulted in such extensive mercury contamination of many waters of the U.S. that fish in those waters are unsafe for human consumption. The EA should have acknowledged the extent of existing mercury contamination and that until the current levels of mercury contamination are somehow reduced to safe levels, that any additional mercury releases from Peabody operations and the combustion of the coal mined will cause additional harm to human health and wildlife.

Summary Response: The EA does address the effects of mercury. See Section E.1.7.1 which states: “Additionally, an analysis was conducted of the long-range atmospheric deposition of mercury and selenium contained in particulate matter emissions from operations at Kayenta Mine.” As discussed in section D.12.4 of Appendix D of the EA, AERMOD dispersion modeling was performed to predict the atmospheric deposition of particulate mercury and selenium from coal and overburden operations for seven different drainage basins at Lake Powell and the Colorado River. As shown in Table D-11 in Appendix D, annual deposition rates for selenium are on the order of a few nanograms per square meter per year, and rates for particulate-phase mercury yet a hundred times less than for selenium across all seven drainage areas. Compared to ecological benchmarks identified by ENVIRON International, these rates of deposition from Kayenta Mine are below ecological screening levels and do not pose a significant risk to aquatic receptors (see Appendix E of the EA). Furthermore, Section E.2.3.1 analyzes the potential cumulative effects as indicated on page 157.

With regard to atmospheric deposition of metals, ENVIRON conducted an analysis of the emissions, environmental transport, transformation, and aquatic impacts of mercury and selenium emissions from the NGS facility (see Appendix E of the EA). The conservative modeling analysis Modeled Se, Hg and MeHg concentrations in sediment are below ecological screening levels. Modeled Se, Hg and MeHg concentrations in surface water are below ecological screening with the exception of Se (VI) in Lake Segment 4 where concentrations slightly exceeded only the most conservative screening benchmark. All calculated critical body residues resulted in hazard quotients (HQ) well below one suggesting *de minimis* risk to aquatic receptors including fish and piscivorous birds and mammals. To correspond with the ENVIRON analysis, PWCC performed atmospheric model runs for TSP emissions from Mine operations handling coal and for TSP emissions from Mine operations handling overburden (see Appendix D).

As shown in the EA, Appendix D, Table D-11, modeling of trace concentrations of metals found in the overburden and coal at the Kayenta Mine are shown to be on the order of a few nanograms per square meter per year for selenium and roughly one hundred times less for particulate-phase mercury. In contrast even to the miniscule metals emissions from the NGS facility, the deposition rates of mercury and selenium from the Kayenta Mine are at least two (2) orders of magnitude lower than those attributable to NGS. Therefore, the cumulative effects of mercury and selenium deposition over time are still below ecological screening levels and do not pose a significant risk to aquatic receptors in the region.

Noise and Vibration

(29)

Comment: Blasting is frequent and frightening and ground tremors are felt in Big Mountain, about 15 miles south of the mining operations.

Response: As indicated in the EA in Section E.1.8, 30 C.F.R. 816.67 establishes standards for noise and vibration below which ground vibration are not considered capable of producing injury or property damage. Furthermore, as discussed in Sections D.2.8 and E.1.8.1 of the EA, vibration impacts were determined by using the Blasting Guidance Manual that was developed by OSM to prevent injury and damage to public and private property outside the mine permit area. In support of mining activities carried out at the Kayenta Mine permit area and compliance with the Blasting Guidance Manual, PWCC provides blasting reports to OSM that contain seismographic data, including all ground-motion and air-overpressure records. Monitoring levels for ground movement and air overpressure from the mining operation have not exceeded established OSM limits outside the permit boundary. As indicated in Section D.2.18.3, under OSMs permitting requirements, a resident or owner of a dwelling or structure within 0.5 mile of any part of the permit area may request that a pre-blasting survey be conducted on their dwelling or structure. Upon receipt of this request, PWCC conducts the survey by analyzing the conditions of the dwelling or structure prior to blasting activities and documenting any pre-blasting damage and other physical factors that could be affected by the blasting. A written report is prepared and a signed copy provided to the regulatory authority and the person requesting the survey (OSM 1983). As per these requirements all structures have had pre-blast surveys and these structures are subject to re-inspection. Based on reports and monitoring to date, no structures have required replacement or repairs.

Geology and Minerals

(47)

Comment: The EA dismisses the removal of millions of tons of coal via surface mining as not significant in terms of minerals and geologic impacts including impacts on fossils. See Kayenta Mine Permit (AZ-0001D) Renewal Environmental Assessment, August 2011, Page 161. However, the EA does not disclose the past experience of how many fossils (or analogously how many archeologically significant artifacts or burial sites) have been discovered or destroyed in Peabody's prior mining activities and to what extent Peabody can be trusted to report the discovery of fossils (or archeological artifacts and burial sites). The

experience and observations of the Forgotten People is that Peabody cannot be relied on to timely and consistently report such findings. OSM's offhand assertion that removal of tens or hundreds of millions of tons of coal from the earth in the lands of the Dine' is not significant shows a complete disregard for and is completely contrary to the spiritual beliefs of the traditional Navajo who are dedicated to protecting their lands and believe that such extensive destruction of the earth, on the surface and below, is a very significant violation of their most fundamental religious principles.

Response: As indicated in Sections D.2.10.1 and D.2.10.2, the coal seams that are mined at the Kayenta Mine are contained within the Wepo formation. Through 2009, 259 million tons of coal had been mined at Kayenta Mine and 153 million tons at the neighboring Black Mesa Mine. The USGS' inferred total coal resource in the Wepo formation exceeds 4.8 billion tons (Nations, Swift and Haven 2000). The analysis in the EA in Section E.2.8 reveals there are no unique or valuable geologic resources within the permit renewal period areas mined. Furthermore, the cumulative analysis in the EA in Section E.2.8.1 Geology and Minerals includes the context for the removal of coal during mining. As stated in the EA on page 161:

The removal of overburden from N-9, J-19, and J-21 would reduce the existing geologic orientation from 4,238 acres (see Table C-1 total acres disturbed over the next 5 years, 1,159 acres, and in the future 3,079 acres) of the approximately 1.8 million-acre Black Mesa coal field. Disturbing less than 1 percent of the geologic orientation within the CIAA would not be considered significant. When combined with future mining operations, PWCC could potentially remove an additional 131.2 million tons of coal by 2026, about 6.5 percent of the estimated 2 billion tons that are considered suitable for mining. The removal of overburden during the permit renewal period and future coal mining could remove fossils from 4,238 acres (see Table C-1), within the 1.8 million acres of the CIAA.

Regarding fossils, field surveys in N-9, J-19, and J-21 coal resource areas will be conducted to document important fossils (see Section D.2.10.3 in the EA). The analysis in the EA discusses the potential that mining activities during the permit renewal period and future coal mining could expose areas that contain fossils, which otherwise would have been undetected. In the event mining would cause impacts on important fossils not detected prior to mining, work in the area would cease and a qualified professional would evaluate the area. PWCC will work with OSM for the recovery of important fossils prior to resuming mining operations. PWCC will recover any important fossils discovered during mining operations. Regarding effects on cultural resources, please refer to SR 46.

Climate

(SR42)

Summary Comment: The EA fails to address climate change and the indirect consequences on human health effects caused by the emission of greenhouse gases, such as carbon dioxide, from combustion of coal. The OSM EA makes scientific conclusions contrary to prevailing science and contrary to the federal

environmental agencies' own stated positions and conclusions regarding climate change and blatantly violates NEPA by considering the climate change impacts of the Peabody mining without assessing the cumulative impacts of coal mining (or all Peabody coal mining) and of the burning of the Peabody coal in the NGS together with burning of other coal in other coal fired power plants which collectively have significant adverse impacts on climate change.

Whether or not the GHG emissions and climate impacts from this proposed action taken in isolation are too small to allow calculation of any measurable change, NEPA still requires a cumulative impacts assessment. In this case such an evaluation, given the complexity of the issue and the severity of the harm threatened from climate change, which has been credibly estimated by numerous scientific course as potentially catastrophic, requires a full EIS, not just an EA. Black Mesa is a microcosm of the global problem. In addition, their traditional lifestyle hangs at the edge of survival in an arid climate, and scientists predict that global warming, which is exacerbated by the burning of the coal mined by Peabody, will cause a permanent drought and dust bowl in the American Southwest, making this life impossible.

OSM attempts to put off the day of reckoning on GHG climate change impacts by quoting EPA noting (2 years ago) some scientific uncertainty regarding how much of the climate change that is occurring, admittedly from GHG emissions, results from human GHG emissions. Even assuming that EPA uncertainty reference is not now superseded by more recent data and studies, the mere fact that there is scientific uncertainty, and in this case scientific controversy, means that NEPA requires an EIS to address the issue. The EA further asserts that there is too much scientific uncertainty to predict the local effects of climate change. Substantially greater uncertainty exists when trying to disaggregate, or spatially downscale global models into regional or local predictions (Bureau of Reclamation 2011). Kayenta Mine Permit (AZ-0001D) Renewal Environmental Assessment, August 2011, Page 65.

Summary Response: The direct and indirect effects of climate change are analyzed in Section E.1.11 Climate of the EA. Based on the information in the EA, Section D.2.11 which discloses PWCC estimated GHG emissions from all emission sources (including coal mining activities) at Kayenta Mine is 163,000 metric tons total CO₂e for all of 2009 using USEPAs tailoring rule calculation method.

As the EA discusses, climate change must be viewed in the context of global conditions, and the magnitude of the emissions potentially contributed by the proposed action needs to be viewed in that context. Globally, CO₂ emissions in 2008 from all sources were estimated to be 29,000,000,000 metric tons (IEA 2010). Cumulative effects of climate change analyzed in Section E.9.9 of the EA included annual CO₂, CH₄ and N₂O emissions from NGS in 2009 of 17,175,167 metric tons, 209 metric tons and 258 metric tons, respectively, which total approximately 17,259,639 metric tons of CO₂e. There would be no additional increase in NGS greenhouse gas emissions as a result of renewal of the Kayenta Mine permit. However, continued combustion of coal at NGS will result in a relatively small continued contribution to the global cumulative greenhouse gas emissions.

As noted in the comment and in the EA there is uncertainty regarding how much climate change is occurring. Relying on the work of the International Panel on Climate Change, EPA concluded that the warming that occurred during the 20th century is evidence that GHG emissions affect global climate change (EPA 2009a, Intergovernmental Panel on Climate Change 2007). EPA, however, also emphasized

the uncertainties involved in attempting to attribute specific amounts of warming to human GHG emissions.

Attempts to disaggregate global climate models in order to predict the future of local or regional weather patterns is highly uncertain and speculative, particularly as it might apply to the five-year proposed renewal. Many scientific sources agree that it is not possible to attribute complex global climate change reactions within a local region to a particular source of GHG emissions. As discussed in the EA, substantially greater uncertainty exists when trying to disaggregate, or spatially downscale, the global models into regional or local predictions, even among those who believe some climate change is likely (Bureau of Reclamation 2011). Although it warns about the uncertainties from spatial downscaling, the Bureau of Reclamation has attempted to forecast future changes in climate and hydrology in the Colorado River Basin. The Bureau of Reclamations findings about the region, which are identified in the EA, apply to an area approximately 250,000 square miles with varying terrain and habitat; therefore, the general predictions cannot be extrapolated to the Kayenta Mine Permit Area.

Relocation

(7)

Comment: Lack of notice to directly affected peoples and those families facing relocation.

Response: PWCC and the Navajo Nation notify households of relocation and assigns an independent contractor to appraise the values for those families that are to be relocated; refer to Section D.2.12 of the EA. The notice and relocation process is conducted pursuant to rights of ingress and egress presented in the mining lease agreements. PWCC would attempt to relocate these families within the residents customary use areas. Relocated residents are compensated for the replacement of all structures including houses, corals, and sheds and for lost grazing acreage. After reclamation is considered completed the land is returned to tribal control (see also SR39).

Relocations of people based on the Navajo Hopi Land Settlement Act of 1974, PL93-531 are conducted by the U.S. Government in consultation with the Navajo Nation and Hopi Tribe. PWCC and OSM have no involvement in these relocations.

(21)

Comment: Reclamation long-term impact lost of woodland, disturb 1,159 acres or more of land used for grazing and traditional land uses.

Response: Revegetation success standards and their evaluation are structured to meet the criteria of 30 C.F.R. 816.111 and 816.116. Standards are based on a combination of native reference areas and approved technical standards that reflect environmental site conditions, ecological considerations, and post-mining land uses. The criteria for evaluation follow both 30 C.F.R. 816 requirements and other Federal guidelines and address the parameters of cover, production, woody density, and diversity. (See EA, Appendix A, Sections D.5 and D.6). No specific collection areas have been identified in the Kayenta Mine permit area, and many of the species are widely distributed within their habitats, including the

Kayenta Mine permit area. Culturally important plants also are present in reclaimed areas where cultural plant sites have been established and where natural recolonization has occurred. The postmine shrub grassland community will increase the livestock carrying capacity and will improve the potential for grazing management (EA Section E.1.12).

A primary post mining land use identified by stakeholders during previous OSM outreach efforts is grazing with wildlife and cultural plant use as identified additional uses. These reflect the traditional land uses and represent the focus of the revegetation plan in the PAP. The revegetation plan contained in Chapter 23 of the PAP takes into consideration the unique physical, vegetation and climate conditions of Black Mesa and the need to improve both the quantity and quality of the grazing resource on reclaimed lands. This plan has been implemented successfully for a number of years at the Kayenta Mine and annual monitoring has demonstrated that the annual forage production is up to three times more productive than native lands in and around the Kayenta Mine. The monitoring also shows that the composition, quality and nutritional levels of the reclaimed area vegetation far exceeds that of the piñon-juniper and sagebrush communities on site. Thus, the grazing potential on the 1,159 acres which will be reclaimed will far exceed the current grazing potential of the lands affected by mining.

Also requested by stakeholders was establishing cultural plant sites in reclaimed areas. This plan, also contained in Chapter 23, has been implemented for over 15 years at the Kayenta mine. Cultural plant sites containing a number of cultural plants, piñon and juniper are interspersed within the reclaimed landscape. Specific procedures within the reclamation plan are targeted towards cultural plant restoration and piñon-juniper reestablishment. Fundamental to development of these, was consideration of the unique physical, biological, climate and cultural conditions of the lease area. Additionally, many cultural plant sites exist both within and adjacent to the undisturbed portions of the Kayenta Mine permit area. The extensive presence of these sites has allowed PWCC to make appropriate seed collections for continued implementation of the cultural plant establishment component of the reclamation plan. PWCC has worked with local residents over the years to insure that identified cultural plants are included in the list of potential species.

(SR39)

Summary Comment: OSM failed to analyze the direct, indirect, and cumulative impacts to relocated tribal members or consider alternatives to relocation. For example, there must be an analysis of how relocation would be accomplished, what constitutes just compensation for this private/regulatory take of tribal property, and what tribal property interests are at stake. OSM could have considered, for example: mining in unoccupied areas only, or establishing relocation and just compensation programs operated by OSM and/or the Navajo Nation or Hopi Tribe with unambiguous procedures for compensation and relocation. Such procedures are critical where, as here, over eighty-three families continue to live in the mine permit area. OSM's alternatives analysis is inadequate because it leaves relocation and compensation within the sole discretion of Peabody.

Furthermore, there needs to be an explicit permit condition that Peabody not exercise, threaten to exercise, or purport to exercise powers of eminent domain or eviction against residents whose lands are

desired by Peabody for mining purposes, and to preclude any government party including any tribal government from exercising eminent domain or eviction authority without proper notice and due process.

Summary Response: PWCC and the Navajo Nation notify households of relocation and assigns an independent contractor to appraise the values for those families that are to be relocated; refer to Section D.2.12 of the EA. The notice and relocation process is conducted pursuant to rights of ingress and egress presented in the mining lease agreements. PWCC would attempt to relocate these families within the residents customary use areas. Relocated residents are compensated for the replacement of all structures including houses, corals, and sheds and for lost grazing acreage. As discussed in the EA in Section E.1.12.1, the residents of the four occupied houses have not indicated that they have concerns about impacts on traditional cultural resources. During the past 2 years, PWCC has been coordinating with the four Navajo households that would be relocated during the permit renewal period to discuss relocation arrangements and a mutually acceptable relocation site has been identified within the customary use areas of those households in the southern part of the J-21 coal resource area that will not be mined. The relocation sites are selected by the households, which may result in no residual effects on each household's existing social network and activities. An alternative to mine only from areas that would not require relocations would therefore not reduce the environmental effects compared with the proposed action. After reclamation is considered completed, the land is returned to tribal control. See also SR 25 regarding permit conditions.

The mined area would be reclaimed with the goal of increasing its grazing productivity. Chapter 23 of the PAP takes into consideration the unique physical, vegetation and climate conditions of Black Mesa and the need to improve both the quantity and quality of the grazing resource on reclaimed lands. This plan has been implemented successfully for a number of years at the Kayenta Mine and annual monitoring has demonstrated that the annual forage production is up to three times more productive than native lands in and around the Kayenta Mine. The monitoring also shows that the composition, quality and nutritional levels of the reclaimed area vegetation far exceeds that of the piñon-juniper and sagebrush communities on site. Thus, the grazing potential on the 1,159 acres which will be reclaimed will far exceed the current grazing potential of the lands affected by mining.

Social and Economic Conditions

(44)

Comment: The EA only values the benefits of the jobs coal mining brings to the area (even going so far as to say that the areas with these jobs are prosperous), but they fail to look at the costs. There is no cost-benefit analysis. There is no attempt, even though mandated by NEPA, to maximize net social benefits. The EA considers the socioeconomic impacts as positive (see page 140) because of revenue and jobs, but no costs of the mining, including the costs of health care for mining induced health problems were calculated.

Response: A cost-benefit analysis is not required by NEPA unless it is relevant to the choice among environmentally different alternatives being considered for the proposed action. Further, 40 C.F.R.

Section 1502.23 states weighing 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. As indicated in the EA, the evaluation did consider revenues and income as wells as qualitative considerations. The EA also addressed social and cultural effects in Sections E.1.1 Cultural Resources, E.1.6 Recreation, E.1.8 Noise and Vibration, E.1.12 Land Use (which includes livestock grazing), E.1.14 Environmental Justice, E.1.16 Visual Resources, and E.1.17 Transportation. See SR 35 regarding public health and potential mine induced health problems.

(48)

Comment: OSM must provide an analysis of the permittee's social and economic condition as part of the agency's environmental analysis and for comparative purposes. The EA's analysis of the social and economic conditions of the study area does not provide any information on the most significant economic or social conditions in the permit area, Peabody's. The EA fails to address: (1) Peabody Western Coal Company's (PWCC) contract agreement(s) with the Navajo Generating Station (NGS); (2) profits or revenues to PWCC from such contracts; (3) employee compensation and in particular, executive compensation; (4) demographics and ethnic makeup of PWCC and in particular, PWCC's executives; (5) Peabody's relation to its corporate parents or affiliates, all of which is relevant to understanding Peabody's economic and social condition.

Response: NEPA does not require the analysis of the proponent's social and economic conditions in order for OSM to evaluate the environmental effects of renewing the Kayenta Mine Permit. The EA fully describes social and economic conditions in Section D.2.13 and discloses potential direct and indirect social and economic effects in Sections E.1.13. Cumulative social and economic conditions are disclosed in Section E.2.11 (see also SR 22).

(28)

Comment: Some families that live on the mountain subsist purely from firewood collected from Black Mesa's pinyon-juniper woodland.

Response: As discussed in the EA in Section D.2.3, Table D-5 provides an estimate of the acres of the vegetation communities and land cover types within the study area derived from USGS Southwest ReGAP data. Piñon-juniper woodlands comprise 950,400 acres, which is approximately 51 percent of the 1,849,950 acre study area. The analysis in the EA in Section E.1.3.1 including Table E-2, Acres of Vegetation Communities Disturbed during the Permit Period (2010 to 2015) indicates that approximately 0.1 percent or less of existing vegetation in the study area would be removed. Additionally, as described in the EA in Appendix A, Section C.1.1 Clearing and Grubbing, the vegetation removed is placed at locations that would not interfere with mining operations and this material is made available to local residents as firewood (see also SR22).

Environmental Justice

(SR45)

Summary Comment: It is not clear to the Forgotten People why the EA is describing employment in the section on Environmental Justice. In accordance with Executive Order 12898, this section is supposed to focus attention of Federal agencies on the human health and environmental conditions in minority and low-income communities with the goal of achieving environmental health. Again, we fail to see how employment in a Peabody Coal facility achieves this goal. We also fail to see how employment somehow makes up for the (unreported) fact that the Forgotten People are being poisoned, their sacred sites are being destroyed, and they are being forcibly relocated. The statements in this section of the EA goes against many eye witness testimonies of damage from Peabody mining in the past (destruction of sacred ceremonial and burial sites, air pollution/coal dust, fires, poisoned animals, blasting damage).

Summary Response: As described in Section D.2.14 of the EA, Environmental Justice, in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, the EA identifies and addresses disproportionately high and adverse human health or environmental effects of its activities on minority populations and low-income populations.

Section D.2.14 of the EA describes the percent of the population in the study area that meet either of these two criteria based on race and ethnicity and income. Section E.1.14 of the EA evaluated whether the Alternatives being considered could result in a disproportionately adverse impacts on minority and/or low-income groups, including Native Americans, as a result of physical location, perception, design, noise, or public health and safety. Employment is included in the analysis to address potential indirect economic effects on environmental justice populations from either changes in income or tribal revenues. Also see Summary Responses to Public Health and Safety (SR 33, SR 35, SR 37 and SR 57).

Public Health and Safety**(60)**

Comment: At least eighty-three indigenous families living in the Kayenta Mine Permit Area will be directly impacted by Peabody's operations (e.g. blasting, mining, noise, large scale industrial machinery operation, etc.), indirectly impacted by Peabody's operation (e.g. diminished air and water quality, impacts to livestock and grazing, impacts to cultural lifeways, etc.), and cumulatively impacted by Peabody's operation (e.g. diminished health of individual tribal members and families, impairment of cultural and religious practices, etc). The EA does not identify, let alone address, the cumulative impacts to indigenous communities outside the permit area beyond identifying places of employment.

Response: Section D.2.1 of the EA includes consideration of traditional cultural lifeways and traditional cultural resources, including impacts on the indigenous families living in the Kayenta Mine Permit Area. Residential uses, livestock grazing, and traditional uses (such as hunting, gathering, and ceremonial use) are described in Section D.2.12 and were considered in the direct, indirect and cumulative impact analyses. In addition to addressing social and economic concerns (see Section E.1.13 and E.2.11) the EA analyzes potential direct, indirect and cumulative effects of renewing the Kayenta Mine permit as addressed in the EA in-sections E.1.1 through E.1.18, this analysis includes

consideration of effects that could occur on cultural resources, traditional life ways of residents, water and air quality, and livestock grazing. Cumulative effects are addressed in Section E.2.1 through E.2.13. Also see Hydrology SR24 and SR53, Public Health and Safety SR35, Relocation SR39 and Air Quality SR43.

(SR33)

Summary Comment: The lack of remediation for underground coal fires and chemical emissions of sulfur and other hazardous fumes into the atmosphere. The EA downplays the adverse impacts from fires and underground fires are becoming more frequent and are believed a result of water drawdown. These fires may be responsible for some cracks in the foundation of the Navajo Housing Authority, Joint Use Area homes and the Coal Mine Canyon Chapter House.

The EA states Spoil and coal fires are suppressed and extinguished as soon as reasonably and safely possible. Kayenta Mine Permit (AZ-0001D) Renewal Environmental Assessment, August 2011, Page D-24. The EA fails to assess the nature and extent of adverse impacts from such fires. Peabody needs to control the fires in the coal seams and stockpiles. There are fires in the pits and spoil piles. There are fires in the highwall and if unattended for over 6 months creates a fire. The spoil fires always have fires in them because it forms combustion when a highwall is unattended and not active and air goes in there that starts a fire.

Summary Response: Coal fires can be caused by anthropogenic means as well as by lightning or forest fires. Coal fires in the unmined coal resource areas are a natural phenomenon and are not influenced by the N aquifer that is more than 1,000 feet below ground surface. These natural coal fires have been burning for 100's of years and have formed natural fissures in the topography. PWCC has assisted the Navajo Nation and BLM with control of the fires by offering equipment and manpower support.

Figure D-1 in the EA shows a stratigraphic section of the geology of Black Mesa including the coal bearing rocks of the Wepo formation within the Mesa Verde Group that is mined by PWCC at the Kayenta Mine. These coal bearing rocks are less than 400 feet below ground surface within the Kayenta Mine permit area. The N-aquifer water level is 1,000 feet or more below the coal mining activity in the Wepo formation. As shown on Map D-2 in the EA, the N aquifer is confined under Black Mesa and the Kayenta Mine permit area. In the confined portion of the N aquifer water levels cannot be higher than the top of the aquifer unless open to a well where pressure pushes water up the well bore. Apart from the N aquifer water levels in wells, the water level remains at the top of the N aquifer which is more than 1,000 feet below the Wepo formation.

As indicated in the Appendix D, page D-24 of the EA, PWCC extinguishes fires in coal seams exposed in highwalls, and coal fires burning in spoil and coal stockpiles as per procedures in Chapter 5 of Kayenta Mine Permit AZ-0001D. See SR35 regarding air quality and public health.

(SR35)

Summary Comment: The EA does not adequately address potential effects from fugitive dust, coal mining and burning of the coal on public health. The EA does not take this dust threat seriously and there is no real study of the cumulative, long-term health effects of this dust on the Forgotten People, including

death from Black Lung disease. OSM is required to take a hard look, not only at regional impacts, but also at the direct, indirect and cumulative impacts to the local community who live daily with the impacts of Peabody mine operation. OSM must consider the impact that blasting, air emissions, water degradation, a lack of human services, and living in an industrialized mine zone has on the residents and livestock of the Permit Area. The statements in the EA indicate that such risks are minimized and adequately controlled by mining permit conditions and inspections are in direct contradiction to the experiences of residents.

Summary Response: Air pollution is regulated by the U.S. EPA and Navajo Nation EPA, and are subject to Federal air quality standards which ensure that proposed actions like coal mining comply with all associated air quality regulations and criteria, and protect public health. In accordance with SMCRA requirements, Peabody has operated a network of PM₁₀ ambient air monitors at the Kayenta Mine permit area for just under two decades. The purpose of the monitoring program is to facilitate assessment of the effectiveness of existing fugitive dust control measures at the Kayenta Mine permit area in order to ensure continued satisfaction of the NAAQS for PM₁₀. PWCC operates its PM₁₀ monitoring network in accordance with applicable EPA requirements, including a quality assurance program. Quarterly monitoring reports are submitted to OSM and NNEPA. As indicated in the Table D-6 in the EA, concentrations of PM₁₀ have exceeded the NAAQS on only six days in the past three years. During 2010, three samples exceeded the 24-hour PM₁₀ standard (see SR43 for further information regarding air quality and responses to Hydrology, Social and Economic Considerations and Cultural Resources).

As required by the Mine Safety and Health Administration, PWCC investigates all miners complaints of health related issues. As required under the Black Lung Benefits Revenue Act of 1977 and the Black Lung Benefits Reform Act of 1977, as amended in 1981, PWCC pays federal black lung benefits and medical expenses to claimants who are current and former employees and last worked for the operator after July 1, 1973. PWCC has investigated all health related concerns by miners who believe they may have black lung disease. There have been no confirmed cases of black lung based on these investigations.

(SR37)

Summary Comment: The drinking water situation is further exacerbated by the recent (September 2011) discovery of arsenic contaminated wells on the Hopi Partition Land (HPL). According to Clayton Honyumtewa, Director of Hopi Department of Natural Resources, "The capping of water wells on the HPL was due to the fact that they were contaminated with uranium and arsenic, an obvious threat to anyone who was to drink it." (Hopi Tribe Continues Restoration Efforts on Hopi Partitioned Lands, September 30, 2011, Press Release). The testimonies of people and animals getting sick from contaminated water is absent in the EA. The EA is lacking analysis of what types of health effects the people and animals may be suffering as a result of these poisons being present in their water, nor any plan to remediate the situation or provide safe alternatives.

According to the original lease, lease amendments and newspapers there is uranium in the mining area and ground. United States Department of the Interior Bureau of Indian Affairs Mining Lease Contract No. 14-20-0603-8580 between Sentry Royalty Company and the Navajo Tribe State of Arizona dated June 6, 1966 (Original Lease). PWCC shall report promptly to the Navajo Nation and Hopi Tribe the location and

nature of any mineral deposits other than coal encountered on the leased land. The EA does not address the cumulative effects of Peabody Coal mining activities hitting deposits of uranium when Peabody mines for coal in areas with a legacy of abandoned uranium mines.

Summary Response: The comment is correct that wells in the Hopi Partition Lands were closed September 30, 2011 by the Hopi Department of Natural Resources. As indicated in the historical and current water quality data, arsenic and uranium is found in soil and rocks and is present in a large portion of groundwater in northern Arizona and southern Utah, which includes the Navajo Nation and Hopi Tribe lands. Laboratory results for arsenic and uranium in samples collected from PWCC's N aquifer wells have never been found greater than the maximum contaminant levels (MCLs) established by USEPA for these two drinking water supply constituents. Based on data collected between 1973 and 2005 by the Arizona Department of Water Quality for 237 wells in the Little Colorado River Plateau Basin in northeastern Arizona, uranium in 50 of the wells sampled equaled or exceeded drinking water standards, and arsenic equaled or exceeded drinking water standards in 85 wells.

As stated in the comment, uranium deposits have been found within the Navajo Nation and the original Lease Contract No. 14-20-0603-8580 between Sentry Royalty Company and the Navajo Tribe State of Arizona dated June 6, 1966 (Original Lease) does include a requirement to promptly notify the Lessor of the location and nature of any mineral deposits other than coal encountered on the leased land. As of this time, PWCC has not located any uranium deposits sufficient for mining within the Kayenta Mine permit area or other lease areas.

As indicated in the PAP in Chapter 8 Soils Resources and Overburden, since 1982, PWCC has recorded the naturally occurring concentrations of radioactive minerals in the overburden and coal resource. With over 6,000 drill holes recorded within the Wepo formation, the gamma ray log fluctuates from less than 1 count per second for coal and sandstones to 80 to 120 counts per second for mudstones and shales. These values are far below the 5,000 counts per second for low grade uranium mineralization. The potential for PWCC mining activities to uncover uranium deposits based on the information collected from the 6,000 drill holes is remote and unlikely.

(SR57)

Summary Comment: As an ex-coal miner, I have witnessed on numerous occasions when company [PWCC] personnel would dispose of scrap metal, used batteries, big and small tires, used oil, trash and chemicals of various types into the pit area where the coal seam has been removed. I remember these pits in N-8, N6, N-14, J-16, J-21 J-3. Some of these pits were like 200 to 300 feet deep.

PWCC has contaminated our top soil and ground as deep as 200' to 300' down and covered it with dirt where it will be hard to detect exactly where all the contaminates are located at. I have seen dragline crew members under supervision shovel various types of grease and oil onto the ground. When they deadhead a dragline, they would leave behind a trail of grease and oil on the road. After a repair on the dragline, they would leave puddles [puddles] of used oil and grease where the repair had took [sic] place. I have seen truck shop personnel pour used oil on the ground outside the truck shop to keep the dust down around the shop area.

Summary Response: Section D.2.18.2 of the EA and Chapter 6, Solid Waste Disposal section of the PAP discuss waste management, handling and disposal on the entire Kayenta Mine site. The procedures and requirements for handling hazardous and solid wastes comply with NNEPA and USEPA-approved waste disposal plans. As indicated in the EA in Section D.2.18, Kayenta Mine as with all mining operations is in compliance with regulations promulgated under the Resource Conservation and Recovery Act, Federal Water Pollution Control Act (Clean Water Act), Safe Drinking Water Act, Toxic Substances Control Act, Mine Safety and Health Act, Department of Transportation, and the Federal Clean Air Act. In addition, the Kayenta mining operations comply with all attendant federal and tribal rules and regulations relating to hazardous material reporting, transportation, management, and disposal. Wastes produced by current mining activities at the Kayenta Mine are handled according to the procedures, as described in the approved mine permit (PWCC 2005b reference in EA).

The Kayenta Mine has in place a current Spill Prevention Control Countermeasure (SPCC) Plan that meets the requirements of the Oil Pollution Prevention regulations at 40 C.F.R. 112. The Kayenta Mine SPCC Plan was recertified on October 3, 2011. Contractors must meet the requirements of the Kayenta Mine SPCC Plan but may also have their own SPCC Plan that would be in addition to the Kayenta Mine SPCC Plan.

The Kayenta Mine operates according to the 2008 Multi-Sector General Permit for Stormwater Discharges (MSGP2008) under Permit Tracking Number AZR05FI2I. The MSGP2008 requires operators to comply with specific non-numeric effluent limitations including implementing good housekeeping practices, which involve among other actions, removing trash and debris and keeping all exposed areas clean that are potential sources of pollutants. In addition, the MSGP2008 requires operators minimize the potential for leaks, spills and other releases and develop plans for effective response to such spills if or when they occur. The Kayenta Mine incorporates the SPCC Plan in the SWPP by reference as the effective response plan for spills that may occur during the permit term.

All contractors are required to meet the specifications of a Master Performance Agreement (MPA) as a requirement of the contract agreement to perform work on site. The contractor must comply with all required rules and regulations while on site. Specifically, Section 13 of the MPA specifies compliance with all applicable federal, state, local, and tribal laws, rules and regulations including but not limited to safety, labor and environmental laws. Contractors are required to perform good housekeeping practices at all times including keeping the premises free from accumulation of waste material and rubbish and in full compliance with any applicable law or regulations.

Hazardous Waste Minimization (HAZMIN) and Hazard Communication (HAZCOM) training is provided during annual retraining of the PWCC work force. Furthermore, HAZMIN and HAZCOM recognition is provided to all contractors and visitors during required hazard recognition training when they enter the mine site.

Coordination and Consultation

(SR50)

Summary Comment: OSMRE and PWCC must fully and responsibly consult with the Hopi Tribe (and specifically the Hopi Cultural Preservation Office) regarding any archaeological discoveries or potential artifacts in the mine area (e.g. EA at 97).

Summary Response: OSM provided the HTCPO and Hopi Mining and Minerals Department with copies of the approved 38-volume permit for the Kayenta Mine in 2010 and has coordinated with the Hopi Tribe in review of the permit. Copies of the EA and unsigned FONSI were also provided to the HTCPO. This coordination included OSM advising the HTCPO of PWCC's Permit Renewal Application and requested to be provided with any comments these agencies may have to this proposed permitting action (see also SR46 and response 17).

(SR58)

Summary Comment: The EA is deficient because it does not identify any cooperative agencies or governments. An explanation of participating parties is necessary to properly analyze the impact of actions connected to the Kayenta Mine Permit Renewal. OSM should work with the U.S. Bureau of Reclamation because they are the largest shareholder of the Navajo Generating Station and the U.S. EPA because of nitrous oxides because they contribute to formations of ozone, raise human health and environmental concerns that bring them under the purview of the Clean Air Act.

Summary Response: NEPA does indicate that more than one agency can be involved in the preparation of a NEPA document (40 C.F.R. § 1508.5 and § 1501.6). NEPA further indicates that cooperating agencies have special knowledge regarding the environmental effects of the proposed action or jurisdiction through law over some aspect of the project (see 40 C.F.R. § 1503.1). The CEQ regulations also encourage (1) the reduction of paperwork and delay, (2) the elimination of duplication with Federal, State and local procedures and environmental documents, and (3) the integration of National Environmental Policy Act (NEPA) requirements and other Federal environmental review and consultation requirements.

The cooperating agency concept is most readily applicable to the preparation of EISs. As indicated in 43 C.F.R. § 46.225(d), the procedures for cooperating agencies may be used for an environmental assessment if needed (see also SR 59 and response 30).

(SR62)

Comment: It is not clear from the EA whether OSM has consulted with U.S. Fish and Wildlife Service (FWS). 16 U.S.C. §1536(a)(2)(Section 7 consultation). This needs to occur prior to any final authorization. See BMWC's June 4, 2010 comment letter.

Response: As indicated in Section F of the EA, potential effects on federally listed species also have been analyzed in a supplemental biological assessment. This technical document was prepared as part of a Section 7 consultations with the USFWS. The findings were consistent with the conclusions reached for the same species in this EA.

Public Involvement

(SR6)

Summary Comment: Please send a copy of the EA and unsigned FONSI.

Summary Response: OSM has provided copies of the EA and unsigned FONSI as requested.

(SR49)

Summary Comment: To avoid any unnecessary confusion, if this renewal application is approved, the permit's official designation should remain AZ-0001D.

Summary Response: If the Kayenta Mine permit is renewed, the new permit number is AZ-0001E which corresponds to OSM's records for the permit.

Permit Application Public Notice

(SR59)

Summary Comment: Under SMCRA's public participation requirements, after an administratively complete application is submitted, the agency must provide: (1) public notice; (2) public availability of any completed application; and, (3) notification to local governments/other agencies. See e.g. 30 C.F.R. § 776. These regulations require that, before OSM can close a public comment period on a surface coal mining permit application, an applicant must have submitted an administratively complete application and, after doing so, have met specified public notice requirements. With respect to the PAP submitted by Peabody here, OSM has determined that the public comment period will close on November 3, 2011. However, not all of the regulatory requirements for closing the comment period have been met with respect to the PAP. As a result, the deadline for closing the public comment period on the Permit Application that OSM has imposed is not grounded on any statutory or regulatory requirements, and it is therefore not only premature, but also arbitrary and capricious. To remedy this clear error, OSM should extend the public comment period until the requirements of Chapter VII of Title 30 of the Code of Federal Regulations for closing public comment periods on surface coal mining permit applications have been met.

Summary Response: The Kayenta Renewal application was deemed administratively complete March 5, 2010. Public notification of the Kayenta Renewal application was conducted in accordance with 30 CFR § 773.6 through publication in local newspapers once a week for four consecutive weeks beginning March 17, 2010 and ending April 8, 2010. OSM accepted comments on the Kayenta Renewal application beginning March 17, 2010 until June 4, 2010. In response to public request, OSM held two informal conferences; one held at Second Mesa Veterans Center on May 26, 2010 and one held at the Kayenta Chapter House on May 27, 2010. Additionally, OSM has chosen to complete an Environmental Assessment (EA) to assist the renewal decision process. The Kayenta Renewal EA was published for comment for 49 days beginning September 15, 2011 and ending November 3, 2011. OSM will consider all comments submitted during the Kayenta Renewal application public notice and comment period,

during informal conferences and during the Kayenta Renewal EA public notice and comment period. OSM is in compliance with the public participation requirements of 30 CFR § 773.6, permit renewal requirements of 30 CFR § 774.15 and the regulations for implementing the National Environmental Policy Act described in 40 CFR Parts 1500-1508.

Comment Period

(SR5)

Summary Comment: OSM should extend the comment period to allow for the affected communities which include environmental justice populations adequate time to review the document.

Summary Response: In response to requests from the public, OSM extended the public review and comment period for the EA from October 22, 2011 to November 3, 2011. This extended the comment period from 37 days to 49 days.