

CHAPTER 7

COMMENTS AND RESPONSES

7.1 THE PUBLIC REVIEW PROCESS FOR THE DEIS

7.1.1 Notice of Availability, Distribution of the DEIS, and Public Comment Period(s)

BLM published its Notice of Availability (NOA) for the DEIS in the *Federal Register* on September 24, 1998 (Volume 63, No. 185, pp. 51091-51092). The NOA briefly described the project, provided due dates for public comments on the DEIS, and informed the public of dates, locations, and times for three public open house meetings to be held by BLM at which written or oral comments on the DEIS could be made. EPA published its NOA for the DEIS on September 25, 1998 (Volume 63, No. 186, pp. 51349-51350), under the specific authority of Section 309 of the Clean Air Act, which authorizes the agency to conduct reviews of all EISs, comment in writing, and make those comments available to the public. The COE issued its public notice in early November 1998 notifying the public of a 30-day comment period on PD's application for a Department of the Army permit and the availability of the DEIS. Additional notification of the DEIS's availability was made through mailing a BLM news release to individuals, media representatives, organizations/special interest groups, and governmental entities. One thousand copies of the two-volume DEIS were printed and distributed to the mailing list for this project, attendees at open house meetings who requested copies, and other entities who requested copies.

A notice published in the *Federal Register* on September 24, 1998, and the "Dear Reader" letter in the DEIS informed readers that a 60-day comment period would end on November 25, 1998. During this period, BLM received three requests by electronic or regular mail for an extension of the comment period. BLM notified these three requesters via electronic mail and the public at large by a notice published in the *Federal Register* on November 30, 1998, that the comment period was being extended until December 18, 1998. The public was notified of a second extension of the comment period until January 29, 1999, through a notice printed in the *Federal Register* on December 18, 1998. Thus, the public comment period on the Dos Pobres/San Juan Project DEIS lasted a total of 127 days.

Since publication of the DEIS, BLM, COE, and EPA have made significant efforts to address the comments received, in particular, those on the groundwater model and 3M Program. Although several changes in the MPO have also been made in the interim to improve efficiency and reduce resource use and impacts (see Table 2-1 for a summary of these changes), the Project and its alternatives remain essentially the same as those described in the DEIS.

7.1.2 Public Open House Meetings and Public Outreach

Three public open house meetings lasting four hours each were held at BLM field offices in Safford, Tucson, and Phoenix on, respectively, October 27, 28, and 29, 1998. Representatives from the BLM, COE, and EPA were present in each meeting. A total of 212 members of the public attended the three meetings. A tribal open house meeting was held on December 4, 1998, on the San Carlos Apache Reservation in which 23 persons representing the tribe attended. Graphic depictions of the mine layout and selected and offered lands, a summary of the impacts of the project, and self-addressed comment sheets were available to the public at these meetings.

7.2 COMMENT SUMMARY

Chapter 7

Within the comment period, BLM received 269 letters on the DEIS including two letters originally sent to the COE. Of the total, 127 letters were from private individuals and 142 were from persons representing organizations, groups, businesses, or agencies. The ID Team identified 650 comments in these letters.

7.3 LETTERS RECEIVED OUTSIDE OF THE COMMENT PERIOD

In addition to the 269 letters received during the comment period, 24 letters were received after the close of the extended comment period on January 29, 1999. These letters are not included in the official administrative record for this project; however, all were read by the ID Team and analyzed for comments. The ID Team determined that all the issues and comments raised in the late letters had already been raised by other commentors and were being considered in the preparation of the FEIS.

Another series of letters was received outside the comment period. These letters were from the BIA to the BLM and covered an approximately two-year period beginning in May 1998 (prior to publication of the DEIS) to June 2000, when BIA formally withdrew from this EIS process as a cooperating agency. Originally submitted by BIA in their role as a cooperating agency, these five letters comprise primarily data requests and comments regarding the groundwater model, but include some comments on the DEIS as well. All five letters were read and considered by the ID Team but are not included individually in Section 7.6.2. Instead, we have summarized the BIA's comments about the groundwater modeling effort and prepared General Response No. 16, Groundwater Model Review, wherein these comments are addressed. Other comments within these letters pertain to the adequacy of the Environmental Justice and cumulative impacts analyses in the DEIS and BIA's disagreement with BLM's position that foreseeable uses are not caused by the proposed exchange. All of these comments are issues that were already raised in a letter submitted by BIA during the initial comment period (Letter 237) or by other commentors; therefore BIA and the reader are directed to responses to Letter 237.

7.4 ANALYSIS AND CATEGORIZATION OF COMMENTS

NEPA requires the responsible federal agency to respond to all substantive comments received on the DEIS. After the close of the extended comment period, the ID Team analyzed all comments received on the DEIS. The BLM's National Environmental Policy Act Handbook (H-1790-1) (BLM 1988) provides guidelines for categorizing comments into five common types. These are: (A) comments on inaccuracies and discrepancies; (B) comments on the adequacy of the environmental analysis; (C) comments which identify new impacts, alternatives, or mitigation measures; (D) disagreements with significance determinations; and (E) expressions of personal preferences. The ID Team developed one additional comment type: (X), requests for extension of the comment period. Statements that reiterated or restated data, analyses, or conclusions presented in the DEIS were not considered substantive comments.

All 269 letters and 650 comments identified by the ID Team were logged into an electronic database. Each letter received within the comment period was assigned a number. Specific comments within each letter were also assigned a number, such that any given comment could be uniquely identified (e.g., the third comment in Letter 12 would be identified as "12-3", and so on). Comments were categorized in two ways: by comment type (A, B, C, D, E, or X) and by a topic that generally corresponded to a resource topic addressed in the EIS (e.g., 100-year floodplains, public lands management, access and recreation, biodiversity, etc.). This categorization allowed the ID Team to group comments into two categories for the purpose of developing responses: 1) comments which reflect similar concerns that could be addressed with a general response and 2) comments requiring specific responses.

7.5 TRACKING RESPONSES TO COMMENTS

To comply with the Council on Environmental Quality (CEQ) regulations on page limits for EISs (40 CFR 1502.7), BLM has modified the traditional “Comments and Responses” format, which usually incorporates copies of actual comment letters. Instead, comments identified by the ID Team were excerpted *verbatim* and are presented by letter number. All excerpted comments, including expressions of personal preferences or opinions, have been addressed by either a general or a specific response in this chapter and/or by a revision of the EIS. For specific queries about how the BLM addressed any given comment letter, copies of the original comment letters and the comment/response database are maintained at the BLM Safford Field Office and are available for inspection by the public during normal business hours.

7.6 RESPONSES TO COMMENTS

BLM addressed all 650 comments with either a specific response or a general response. The following 16 general responses were developed by ID Team members to address issues for which multiple comments were received. Each general response briefly summarizes the nature and scope of the comments received on that topic before providing the response. General responses are followed by specific responses (Section 7.6.2), which are presented numerically by comment letter number (Letter No. 1 through Letter No. 269). To find the letter number corresponding to a specific commentor, please see the Letter Index in Table 7-1 in Section 7.6.2, which alphabetically lists commentors’ by last name.

7.6.1. General Responses

No. 1. Expressions of Personal Preferences or Opinions

The majority of comment letters received on the DEIS (about 85 percent) expressed the writer’s personal preference for one or more of the alternatives or expressed opinions about the adequacy of the EIS and its analyses. BLM received letters that both supported or objected to the proposed mine project and/or the land exchange. Although the agencies’ decisions regarding the Dos Pobres/San Juan Project are not based on a “majority vote,” personal preferences or opinions expressed by the public constitute one of many considerations in the final selection of the agencies’ preferred action(s). Additionally, factual information regarding agency requirements or procedures were considered as comments. BLM and its cooperators thank the public and other agencies for their comments and appreciate the public’s efforts to participate in the NEPA process and to make their opinions and concerns known.

No. 2. Milestones in the NEPA Process

Comments in the form of questions were received about two major milestones in the Project’s environmental review process under NEPA: an extension of the comment period and when the agencies’ Records of Decision (RODs) would be issued.

Regarding the public comment period, a notice published in the *Federal Register* on September 24, 1998, and the “Dear Reader” letter in the DEIS notified readers that the 60-day comment period would end on November 25, 1998. During this period, BLM received three requests by electronic or regular mail for an extension of the comment period. BLM notified these three requesters via electronic mail and the public at large by a notice published in the *Federal Register* on November 30, 1998, that the comment period was being extended until December 18, 1998. The public was notified of a second extension of the comment period until January 29, 1999, through a notice printed in the *Federal Register* on December 18, 1998. Thus, the public comment period on the Dos Pobres/San Juan Project DEIS was extended to a total of 127 days from the original 60 days.

Regarding the sequence of the agencies’ decisions, the BLM and COE will each follow their internal agency guidelines in issuing their respective decisions on the proposed Project (see Section 1.4.1 and Figure 1-3). After this Final EIS (FEIS) is published, BLM must wait 30 days before issuing its ROD. The actual BLM process will depend upon which alternative is selected under the ROD. If the Mining Plan of

Chapter 7

Operation alternative is approved, a 30-day period ensues during which the BLM's Authorized Officer's decision would be appealable to BLM's Arizona State Director. If the State Director's decision is adverse to the appellant, the decision is appealable to the Interior Board of Land Appeals (IBLA), pursuant to 43 CFR Part 4.

If BLM selects the Land Exchange alternative, a Notice of Decision (NOD) will be published upon approval of the ROD. The NOD will provide for 45-day protest period. If a protest is filed during that period, BLM has two options to address protests. Protests of the NOD would be evaluated by the BLM's Arizona State Director who, in most cases, would issue a formal decision on the protests. In accordance with 43 CFR Part 4, this protest decision is appealable to IBLA within 30 days of receipt of the decision by the appellant. Alternatively, protests to the NOD may be evaluated by the Department of the Interior's Assistant Secretary for Lands and Minerals Management. Protest decisions issued by the Assistant Secretary constitute the final administrative determination of the Department of the Interior and are not appealable under 43 CFR Part 4.

Assuming that the COE decides to issue their permit, it will follow a different schedule and process. The COE will issue a ROD on its Section 404 permit simultaneous with, or just after, issuance of the BLM's ROD/NOD. The COE has no public appeal period on its ROD, and the COE's Section 404 permit would remain in effect should BLM's ROD/NOD be appealed/protested.

Each of the three cooperating agencies makes an independent decision regarding its respective authorization of the Dos Pobres/San Juan Project. Because it has no jurisdiction to do so, BLM cannot require PDSI to have all state and federal permits in place prior to issuing its decision; however, no mining could occur, even if BLM approved the MPO or the exchange, until PDSI secures all necessary permits to implement mining activities (including those listed in Table 1-1, among others).

No. 3. Scope of Analysis of the EIS

BLM received comments expressing disagreement with the impact analysis assumption (EIS Section 4.2) that the land exchange alternative would not cause the foreseeable mining uses of the selected lands, and therefore, would not cause direct or indirect impacts associated with those uses. This assumption underlies BLM's decision not to analyze potential impacts of foreseeable mining uses related to possible future development of the Dos Pobres sulfide and Lone Star ore deposits to the same level as that for the MPO. Some commentors strongly objected to this conclusion and advocated a detailed analysis of all such impacts, including the effects of production operations, tailing piles, and acid-generating waste associated with these possible future operations on environmental resources.

The BLM stands by its original position. Support for this decision is provided by the judgment of the Interior Board of Land Appeals (IBLA) of the U.S. Department of the Interior's Office of Hearing and Appeals in the appeal filed by San Carlos Apache Tribe *et al.* to the ROD for the Morenci Land Exchange FEIS (IBLA 97-299, 97-311, 98-142, 98-173). In this judgment, decided on May 21, 1999, the IBLA found that:

Mining and/or mineral development on the selected lands, on which...mining claims exist, is not caused by, or a direct effect of, the land exchange. Similarly, indirect effects which BLM must analyze are limited to those "caused by the action," even though "later in time and farther removed in distance, "provided they "are still reasonably foreseeable." 40 CFR §1508.8(b). Because Morenci had every right to conduct mining operations consistent with its unpatented mining claims on the selected lands regardless of whether the exchange is approved or not, BLM was not required to analyze as an indirect effect that which would occur independent of its decision to approve the land exchange. The same rationale applies with regard to cumulative impacts. (149 IBLA 47).

The land exchange alternative in the Dos Pobres/San Juan EIS is directly parallel to the Morenci land exchange. Existing mining laws and federal land use regulations authorize PD to develop its mining

claims on the selected lands whether the land exchange is approved or not, and such development cannot proceed until PDSI obtains all required federal and other permits—again, whether the land exchange is approved or not. Therefore, neither the proposed nor the foreseeable future mining activities on the selected lands would be caused by the land exchange, nor would any impacts resulting from such activities. Therefore, it is outside of the scope of analysis for the Dos Pobres/San Juan Project EIS to analyze in detail the potential impacts on the selected lands related to possible future development of the Dos Pobres sulfide and Lone Star orebodies. These potential future projects have, however, been considered in the Cumulative Effects discussion, to the degree that information exists on the nature and extent of these projects.

No. 4. Alternatives

Comments about the alternatives varied greatly. A majority of commentors expressed a personal preference for one of the alternatives, but some commentors asked for additional consideration of off-site alternatives or questioned why the Partial Backfill alternative was considered an alternative rather than as mitigation, why purchase of the offered lands was not being pursued as an alternative, why a smaller selected lands package was not considered, or whether it is legal to exchange lands for which no economic orebody has been demonstrated. Each of these comments is addressed in this general response.

- < **Off-Site Alternatives.** Consideration of off-site alternatives was described in Section 2.1.5.2.3. The COE's 404(b)(1) Alternatives Analysis (see Appendix A) examined two off-site mine alternatives: development of the Sanchez orebody and development of the Lone Star deposit, both of which are within PD's control and within the Safford Mining District. These alternatives were eliminated from further consideration for the reasons stated in Table 4 of Appendix A and furthermore, do not meet the purpose and need for the project.

The purpose of the Project is not, as some commentors suggested, the production of copper to meet a continuing demand. Meeting this purpose would require programmatic consideration of any copper mining project, at off-site or even international locations, and for deposits not controlled by PD. Clearly, such alternatives are not reasonable, practical, or feasible (see CEQ Forty Questions). Rather, the purpose of the Project, as stated in Section 1.4.1, is the development of PD's mineral resources at the Dos Pobres and San Juan deposits, as authorized under the General Mining Law and BLM's surface management regulations at 43 CFR 3809 (see revised Section 1.4, Purpose of and Need for Action). Reasonable alternatives for this project, then, would include alternative configurations of the mine plan or alternative locations for mine plan facilities but not development of alternative orebodies within the Safford Mining District or elsewhere, even those controlled by PD (e.g., Sanchez or Lone Star). As nine other alternative mine configurations at Dos Pobres/San Juan and two off-site alternatives were considered and rejected in the COE's 404(b)(1) Alternatives Analysis, no further consideration is given to off-site alternatives in this EIS.

- < **Partial Backfill Alternative.** Whenever possible, the BLM seeks to incorporate mitigation measures into an alternative. For example, measures to avoid impacting three sacred sites and to provide Native American access to these sites were specifically incorporated into both the Proposed Action and the Partial Backfill alternatives to resolve tribal concerns with those alternatives. These measures were not proposed as a separate alternative because they do not constitute a different approach to fulfilling the purpose and need. In contrast, the Partial Backfill alternative represents a different approach (i.e., an alternative way to store development rock), involving different logistical, technical, and cost factors. Either approach, the Proposed Action or the Partial Backfill alternative, may be preferable to the other for different reasons and, thus, each constitutes a reasonable, practical, and feasible alternative action.

- < **Acquisition Using the Land and Water Conservation Fund.** BLM addressed this issue earlier

Chapter 7

in Section 2.2.4.2 of the DEIS, Alternatives Eliminated from Further Consideration. In addition to the several reasons explained in Section 2.2.4.2, acquisition of private lands via a land sale requires a willing seller. At this time, PD has proposed to BLM an exchange, and not a sale, of the offered lands. Even if BLM were eventually to succeed in securing congressional approval and monies to buy the offered lands using the Land and Water Conservation Fund, there is no guarantee these lands would be available for sale to the BLM or the NPS. Therefore, while use of the Land and Water Conservation Fund could be an option to achieve some of BLM's land tenure adjustment goals, it is not a viable alternative to the currently proposed land exchange without a willing seller.

- < **Size and Configuration of the Selected Lands.** Consideration of alternative configurations of the selected lands, such as a smaller acreage of selected lands covering only the public lands involved in the MPO (about 2,000 acres instead of the approximately 16,297 acres currently proposed), was discussed in the DEIS in Sections 2.2.1.3.1 and 2.2.4.1 and eliminated for the following reasons. As described in Section 2.2.2.1.1, nearly all the public lands proposed for exchange are legally encumbered by PD-owned lode claims, which restricts their availability for public use and management. Furthermore, as consistent with the goals outlined in the Safford District Resource Management Plan, the BLM seeks to use land exchanges as a means to dispose of public lands that are difficult to manage (for a variety of reasons such as legal encumbrances, lack of access, or irregular land boundaries, among others) and acquire private lands that provide high resource values and help to consolidate BLM-administered lands. The package of selected and offered lands considered in this proposal meets the BLM's land tenure adjustment goals.

PD proposed a land exchange for more acres than identified in the MPO for the Dos Pobres/San Juan Project partly to support possible future development of their adjacent Lone Star orebody. To reiterate the explanation provided in Section 1.4 of the EIS, Purpose of and Need for Action, the Lone Star deposit, as currently defined, lies entirely on PD-owned land and is not included as part of the MPO for the Dos Pobres/San Juan Project or the land exchange. It is a factor, however, in identifying the foreseeable uses of some of the selected (public) lands being proposed for acquisition by PD. PD has indicated to the BLM and the EIS cooperators that it foresees development of the Lone Star deposit at some point in the future and that some of the public lands adjacent to the deposit, if acquired in the exchange, would likely be used for mining-support operations, such as rock stockpiling, stormwater management, support facilities, access, safety buffers, etc. At this time, only limited exploratory and geological data have been collected, and the feasibility of developing the Lone Star orebody is still under study. This uncertainty led a commentor to question the legality of BLM's considering an "MPO or an exchange when an economical ore body may not exist at this time." The BLM is not concerned with the economic feasibility of the Lone Star copper deposit because, first, that feasibility is entirely unrelated to the proposed MPO, which concerns only development of the Dos Pobres/San Juan orebodies, and, second, a mining proponent is not required under the federal land exchange regulations to demonstrate the economic viability of developing a mineral deposit on its private lands. Thus, there is no question of the legality of the BLM's consideration of this project. By initiating the land exchange, PD has assumed the risk and costs of acquiring the public lands adjacent to the Lone Star deposit, including any losses that may be incurred should Lone Star prove not to be an economical orebody.

No. 5. Loss of Federal Oversight for Mining on Private Lands under the Land Exchange Alternative

This response addresses commentors' concern that PD and its proposed mining operations at Dos Pobres/San Juan will avoid public review or become exempt from compliance with environmental regulations if the land exchange scenario takes place.

It is a misconception that loss of BLM administration and public ownership of the selected lands means

loss of federal and/or state jurisdiction over mining or mining-related activities on those lands. Whether mining activities occur on public or private lands, any mining proponent, including PDSI, must obtain a number of federal and state authorizations to implement the foreseeable mining uses as described in Chapter 2 of this EIS. These authorizations are summarized in Table 1-1. Furthermore, many of these permits (such as Title V air quality permit, the Army Corps of Engineers Section 404 permit, and the state Aquifer Protection Permit (APP) and the Arizona state reclamation rules provide for public notification and review prior to issuance of the permits (see Section 1.6.2.2.4). The state rules, under which PDSI would operate if the exchange occurs, also require review and reauthorization for any proposed major modifications of the mine activities for which a permit has been issued. The following discussion clarifies the specific regulatory responsibilities of the BLM and other federal and state agencies in regard to mining and mine-related activities on public versus private lands.

Mining on public lands is authorized under the General Mining Law of 1872 (as amended) (30 USC 2111-42), the Mining and Minerals Policy Act of 1970 (30 USC 21a), the Federal Land Policy and Management Act (FLPMA) of 1976 (as amended) (43 USC 1701-84), and the National Materials and Minerals Policy, Research and Development Act of 1980 (30 USC 1601-05). The BLM's regulatory responsibilities for oversight of mining activities on federal lands are set forth in 43 CFR 3809, which established "procedures to prevent unnecessary or undue degradation of federal lands which may result from operations authorized by the mining laws." On BLM-administered lands, a claimant may file a Mining Plan of Operations (MPO) with the BLM to develop their claims. The BLM is responsible for federal review and authorization for the MPO, which includes environmental analysis under the National Environmental Policy Act (NEPA) and its implementing regulations (43 CFR 3809.1-6). For other specific regulatory programs, however, BLM defers to state and other federal regulatory agencies to ensure that the activities described in the MPO are in compliance with applicable environmental laws, including, but not limited to, the Clean Water Act (COE), Federal Water Pollution Control Act (ADEQ), Clean Air Act (ADEQ), Solid Waste Disposal Act (ADEQ), and the ADEQ's Arizona State APP Program and AZPDES Program, and 43 CFR 3809.1-6 and 3809.2-2. These compliance responsibilities are summarized in Table 1-1. As part of their primary oversight responsibilities for mining on public lands, the BLM requires that federal reclamation requirements be addressed in the MPO and that adequate bonding or insurance is provided by the proponent to ensure that post-closure reclamation will be completed as proposed. The 43 CFR 3809 regulations require that an applicant disclose the sources used to develop their reclamation costs.

As one alternative to mine development under an MPO, claim holders to public lands may submit a patent application to the BLM to acquire title to public lands for which they hold mining claims. (Note: Congress currently has imposed a temporary moratorium on acceptance of new mineral patent applications.) Another alternative is to complete a land exchange, as PD has elected to do in this case. Upon completion of a patent or land exchange, the encumbered federal lands become privately-owned and the owners can proceed with their mine plans without BLM authorization. However, mine operators on private lands must obtain exactly the same federal and state environmental permits that are required for mining on public lands—those previously listed in Table 1-1. While the BLM no longer provides federal oversight of reclamation in such circumstances, a mine on private lands in Arizona is still subject to state reclamation requirements, including the closure and monitoring requirements of the state's APP Program.

Thus, the two major distinctions between regulatory requirements of mining activities on public versus private lands are: 1) NEPA analysis of an MPO *by the BLM* applies in the first instance but not in the second; and 2) federal reclamation requirements apply in the first instance and state reclamation requirements apply in the second. Both of these distinctions is discussed further below.

Once BLM-administered public lands pass into private ownership, BLM is no longer responsible for NEPA analysis of the mine plan. However, to implement mining on public lands, specific activities in a proponent's mining plan must be authorized by the federal agencies listed in Table 1-1. Federal approvals such as the COE's Section 404 permit would constitute federal actions subject to environmental analysis under NEPA. In those instances, a federal agency other than the BLM would be required to conduct NEPA review of the proposed mine activity subject to its jurisdiction. Therefore, it is the loss of BLM authority in particular, and not federal authority in general, that is the consequence of the proposed

Chapter 7

exchange alternative.

Table 4-27 briefly compares the requirements of the State of Arizona and federal mine reclamation requirements. The Arizona Mined Land Reclamation Rules would apply to the mining activities proposed by PD if it acquires the selected lands. Should the exchange be denied, federal reclamation standards that would apply have been established in several pieces of legislation, including the Mining and Mineral Policy Act, FLPMA, and 43 CFR 3809. In general, the state's policy tends to be more site-specific, for example, applying different reclamation standards to exploration activities than to mineral recovery activities, whereas the federal policy makes no such distinction.

It is important to note that under either federal or state jurisdiction, all mining operations must be conducted in compliance with the laws that substantively protect environmental quality, such as the Clean Water Act, Clean Air Act, Resource Conservation and Recovery Act, and the APP Program under Arizona Revised Statutes (ARS) Title 49 and Arizona Administrative Code (AAC) Title 18. These laws require a mining proponent to reclaim and/or mitigate in some manner disturbances to the land and natural resources resulting from their activities.

It is also important to note that, in this particular case, PDSI's mining and reclamation plans have been developed to meet both state and federal mining regulations, thus loss of federal oversight for mine reclamation would not result in any reduced or different requirements for reclamation under the land exchange alternative.

No. 6. Endangered Species Act Compliance and Section 7 Consultation

Commentors voiced concerns about BLM's efforts to consult with the U.S. Fish and Wildlife Service as required by the Endangered Species Act (ESA) regarding potential impacts of the Project on listed species and requested consultation documents. The BLM, as lead agency, with the COE as a cooperator, initiated Section 7 consultation just prior to publication of the DEIS with the USFWS to ensure compliance with the Endangered Species Act and its implementing regulations. This process started on October 16, 1998, with the submission of a biological assessment to the USFWS. Since then, BLM has met several times with USFWS to clarify and/or add more data to the biological assessment. Six species were the subject of formal consultation: Arizona hedgehog cactus, within the project area, and southwestern willow flycatcher, razorback sucker, Gila topminnow, spikedace, and loach minnow, outside the project area.

A biological opinion on the effects of the Project was issued by the USFWS on June 11, 2002. Regarding the Arizona hedgehog cactus, it was determined that the Project will not affect this species because the hedgehog cacti found in the project area are a different species (USFWS 2002). Regarding southwestern willow flycatcher, "it is the Service's biological opinion that the Dos Pobres/San Juan Project, as proposed, is not likely to jeopardize the continued existence of the southwestern willow flycatcher" (ibid.). This opinion includes consideration of the habitat enhancement and creation activities undertaken at the Pima and Thatcher mitigation sites as well. Regarding critical habitat for either species, none is designated for the cactus and none for willow flycatcher is present in the action area, therefore, no critical habitat for either species will be affected by the Project (ibid.). The Service also provided concurrence "with BLM's determination that the Dos Pobres/San Juan Project may affect, but is not likely to adversely affect the Gila topminnow, razorback sucker, spikedace, loach minnow and designated critical habitat for the razorback sucker, spikedace, and loach minnow..." (ibid.).

No. 7. Appraisals

Commentors raised concerns about the appraisal process that BLM undertook to establish the monetary values of the selected and offered lands. The Federal Land Exchange Facilitation Act of 1988 (FLEFA) and the Federal Land Policy and Management Act of 1976 (FLPMA) require that standardized appraisal methods be used in determining the value of proposed exchange lands. The specific methods and standards by which the values of the offered and selected lands are computed must follow the Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA) (Department of Justice 1992). These

standards stem from eminent domain court cases and provide strict guidance for all federal appraisals. All appraisals for this project were completed by professional, state-certified appraisers, either on BLM staff or contract fee appraisers working for BLM. A BLM review appraiser then reviewed all appraisals for compliance with the UASFLA.

All federal land exchanges are based on a dollar-for-dollar exchange; that is, the dollar values of the selected and the offered lands must be within 25 percent of each other, regardless of acreage discrepancies. Differences in dollar value of up to 25 percent of the value of the public land between selected and offered lands that cannot be balanced with acreage adjustments may be addressed with a cash equalization payment by the agency or proponent. This guarantees that the exchange is economically fair, regardless of acreage differences.

In determining the dollar value of both selected and offered lands, it is important to note that not all acres of land are of equal value. As an example, an acre in downtown Phoenix is not of the same monetary value as an acre in downtown Safford. The appraisals consider the current and potential uses of the lands; the arms' length value of similar land; and, in cases involving the mineral estate, the mineral potential of the lands.

The appraisal method used for the lands in this project is the "comparable sales" approach, which is the most commonly used and defensible method. In this method, the property being appraised is compared to other similar land that has recently been sold. The comparable sales approach considers comparisons between the properties for location, time of sale, access, amenities, physical features, water, terms, current and potential uses, etc., in determining a property's fair market value.

The highest and best use of a property must be determined to complete an appraisal. This is defined as the most financially productive, physically possible, and legally permissible use to which the property is suited. Determining physical and legal uses is usually relatively straightforward, whereas determining the most financially productive use requires more study. A use must be probable, since any given use is unlikely to be financially productive if such a use is unlikely to occur. In the case of the selected lands, the most likely, legally permissible, physically possible use of the lands would be incorporation into the proposed Dos Pobres/San Juan Project as mine support lands. In the case of the offered lands, highest and best use would be recreational or rural home site development.

The mineral potentials of the selected and offered lands were reviewed and considered during the appraisal process. Mineral potential reports independently prepared for this land exchange and reviewed by BLM addressed the mineral potentials of both the offered and selected lands. It was determined that the offered lands held no mineral value that would warrant consideration in the appraisal. The mineral potential report (Wahl 1997a) identified approximately 190 acres of selected lands (near the San Juan deposit) as having high open pit mineral potential at a high level of certainty. As a result of this finding, the mineral value of these acres was included in the selected lands appraisal. With the exception of these 190 acres, the remaining approximately 16,097 acres of selected lands were found to be lacking in mineral potential that warrants consideration in the appraisal.

Information provided by PDSI in their Mining Plan of Operation as to foreseeable uses, in conjunction with the mineral report, support these findings and demonstrate that all but approximately 190 acres of the selected lands will be used solely for mine support activities, such as leach or development stockpiles, shops and ancillary facilities, and safety and security buffers.

With all of these factors to consider, the final appraised values of the selected and offered lands were calculated, reviewed, and approved by the BLM, and are provided in Table 2-11. All appraisal documents, except those portions containing legally designated proprietary data, are available for public review at the BLM Arizona State Office during normal business hours.

Before the ROD is issued, the appraisals for the selected and offered lands will be revisited by the BLM through a market analysis to determine if a reappraisal is warranted. The current appraised values are in

Chapter 7

PD's favor and based on the current appraisals, PD has elected to donate the discrepancy in dollar values to BLM.

No. 8. Public Lands Management

Some commentors indicated that the Draft EIS failed to make clear how the exchange alternatives would improve public land management, while other commentors offered the opinion that the exchange would not improve public land management at all. Some commentors expressed the opinion that as few as three of the offered land parcels hold values worthy of acquiring. Other commentors encouraged the BLM to select different optional parcels to be included in the land exchange action alternative.

As described in Section 2.2.4.1 of the FEIS, the BLM ID Team chose from PD's list of offered optional properties to formulate the package of offered lands presented in the Land Exchange alternative. After considering public comments on this matter, the ID Team continues to support the selection of optional properties as presented in the EIS. It is true that each parcel of offered land differs in the quantity and quality of its resources. Notwithstanding these differences, the BLM finds that the collective values of the offered parcels in the Land Exchange alternative far exceed the values and management objectives served by the selected lands. The BLM will and must consider the exchange proposal in light of its clear potential to serve the public interest. The foreseeable uses of the offered lands, their resource values, the management objectives to be served by their acquisition, and a wealth of other pertinent information to be considered in the BLM's decision are described in Chapters 2 and 3 of the EIS.

No. 9. Cultural Resources Mitigation

Commentors voiced concern about BLM's efforts to consult with Indian tribes regarding the treatment of archaeological sites and traditional cultural properties that would be adversely impacted by the proposed mining and/or land exchange. A treatment plan for the mitigation of impacts on cultural resources, including archaeological sites, cultural properties, and traditional cultural places, has been prepared and is being reviewed by the State Historic Preservation Officer (SWCA 2003b). This plan addresses both the mine plan and land exchange action alternatives, as some sites would be affected by the land exchange, some would be affected by mining operations, and some sites would be affected by both actions. Information received from Native Americans during tribal consultations was used to develop the initial draft treatment plan, which was then submitted to all interested tribes for review. Their comments were considered in preparing the final plan, which is available to interested tribes and agencies, including BIA..

Every attempt has been made during this process to acquire from the consulting tribes the information and recommendations needed to determine significance and the appropriate treatment of cultural sites in the project area. The initial treatment recommendation received from most of the tribes was to not complete the land exchange and to not authorize the mining operations, thereby preserving the sites in place. Alternatives to this action, however, have been identified by BLM through consultations with tribes and PDSI and have been incorporated into the treatment plan. This plan (SWCA 2003b) includes the following provisions:

- < Data recovery is planned for the majority of archaeological sites because they are eligible for inclusion in the National Register of Historic Places under criterion D, direct physical impacts are expected at some of these sites, and the tribes recommend (or do not oppose) data recovery in these cases.
- < In the case of sacred sites, the BLM has determined that archaeological data recovery would not be appropriate. Specifically, provisions have been made for avoidance/protection of three sacred sites (AZ CC:2:200 ASM, AZ CC:2:211 ASM, and AZ CC:2:234 ASM). PDSI modified the mine plan design and agreed to provide a buffer zone and/or fence to avoid impacts on the first two of these sites, which are of primary concern to some tribes. Additionally, PDSI has agreed to provide access to these two sites to tribes under either the land exchange alternative or the MPO alternative. Site AZ CC:2:234 (ASM) will be avoided by mining operations.
- < Mitigation of impacts on the project area's petroglyph sites was discussed with tribes to determine the most appropriate treatment. Relocation of boulders bearing petroglyphs has been recommended and is included in the treatment plan.

The treatment plan also includes ethnohistoric and ethnographic studies to determine the significance and use of sites, particularly traditional cultural places. When possible, treatment is based on use; however, mitigation of impacts on values other than use or information is not always feasible. For example, the impact of visual intrusions from mining facilities may not be mitigable. Likewise, in the opinion of some commentors, mitigation of impacts on traditional cultural places is not possible in some instances.

Under the land exchange alternative, the transfer of cultural resources out of federal ownership is considered an adverse impact. Such impacts will be mitigated by recovering or protecting the values and uses ascribed to individual properties in the same manner used to mitigate impacts to cultural resources from mining operations.

Chapter 7

No. 10. Indian Trust Resources

Indian trust resources or assets are defined by the BLM as legal interests in property held in trust by the United States for Indian tribes or individuals (Departmental Manual: Intergovernmental Relations-- Departmental Responsibilities for Indian Trust Resources, Department of the Interior 1995b). Trust assets are further defined as “anything owned that has monetary value...[such as] real property, physical assets or intangible property rights” (ibid). Comments received relative to Indian trust resources include several stating the belief that groundwater beneath the San Carlos Apache Reservation is the property of the Tribe and a federal Indian trust asset, and as such, should not be impacted by the proposed federal undertakings. Concern was also expressed about potential impacts to tribal water rights to the Gila River owned by the Gila River Indian Community and the San Carlos Apache Tribe. Some commentors stated that no mitigation had been proposed for impacts to Indian trust resources or assets.

BLM agrees that groundwater under the San Carlos Apache Reservation is an Indian trust asset (see revised Section 1.5.3, Section 3.2.6, and Section 4.3.6 in the FEIS), as are Indian surface water rights to the Gila River. Current model predictions show a slight increase in the rate of groundwater flow southward from the Reservation due to the proposed mining activities (maximum increase in this rate is predicted to peak at 0.2 af/yr in Year 50 [URS 2002]). This increase is only about 0.07 percent of the estimated pre-mining flow. The predicted decline of the groundwater table elevation under the Reservation is nearly zero, with the 1-ft drawdown contour never reaching the Reservation’s southern boundary. The model also predicts a potential reduction in groundwater and surface water flows to the Gila River, which, if unmitigated, could affect downstream holders of water rights, including the Gila River Indian Community and the San Carlos Apache Tribe.

Neither the BLM nor the COE control or regulate water rights to groundwater or the Gila River. These agencies do, however, have legal responsibilities, including trust responsibilities in the case of BLM, pertaining to protection of surface water quantity and quality. Mitigation measures have been incorporated into the proposed Project to ensure that these responsibilities are carried out. See revised Section 4.3.6.1 in the FEIS for details. Proposed mitigation for potential impacts on Gila River flows and Reservation groundwater involve following agricultural acreage in the Safford Valley (see the Mitigation and Monitoring Plan in Appendix F) to reduce consumptive use of Gila River water. The proposed mitigation program includes feedback mechanisms (recalibration triggers) to adjust mitigation measures, if necessary, should monitoring indicate that maximum impacts to water resources will exceed the current mitigation volume of 480 af/yr (see Appendix F and General Response No. 16 below for details).

One commentor recommended that further analysis of impacts must be conducted regarding their claim that the exchange will “negatively affect the San Carlos Apache tribal and the BIA trust resources” but does not provide lands to the BIA to hold in trust for the San Carlos Apache Tribe. BLM is not aware of any trust resources held by BIA in the project area. PDSI will mitigate for predicted physical impacts to surface flows in the Gila River. Therefore, impacts to downstream surface water rights holders of the Gila River, including the San Carlos Apache Tribe and Gila River Indian Community, are not expected and neither tribe’s Indian trust assets in the form of surface water rights are expected to be adversely impacted. The predicted drawdown of groundwater under the San Carlos Apache Reservation, another Indian trust asset, is unmeasurable. Therefore, no measurable impacts to this trust asset are expected.

No. 11. Water Rights Authority

Comments were received about the accuracy of BLM’s discussion and interpretation of the water rights authority(s) as it applies to the proposed action and alternatives. BLM has revised Section 1.5.3 in light of these comments and consideration of additional information that has been developed since publication of the DEIS.

No. 12. Nighttime Lighting

Comments were received about the BLM’s analysis of the effects of the proposed mine’s nighttime lighting

on existing astronomical activities in the Gila Valley. The purpose of Chapter 3 in the EIS is to present a description of the existing environment, including nighttime lighting, at the project location. We believe that the description of the existing nighttime lighting is accurately presented in Section 3.2.1.8.5 in Chapter 3. BLM was not attempting to minimize the presence of the lights at Site No. 2 by comparing them to lighting at the nearby prison. Instead, it was simply stated that the presence of existing lights in the valley, including those of the prison, may make it difficult for some viewers to discern the presence of the existing lighting at Site No. 2 in the project area.

It is difficult to create a mental picture for the reader of what the Project will look like at night, but text has been added to Chapter 4 to further describe how the nighttime scene would change with development of a mining operation. This analysis is a discussion of the effects on residents in the Gila Valley. We believe it is an adequate assessment of the potential impacts to nighttime lighting conditions associated with the proposed mine.

No comments were received during the DEIS comment period from officials at the Mt. Graham observatories, Discovery Park, or Eastern Arizona College regarding potential impacts of the project on their respective astronomical observations. However, early in the EIS process, the University of Arizona, which operates the Mt. Graham observatories, adopted a neutral position regarding the proposed land trade between the BLM and PD. The University requested that the Project comply with the local Graham County Lighting Ordinance to control light pollution. As stated in the EIS, PD will comply with this ordinance under both the MPO or land exchange alternatives.

The distance from the Gila Valley to the Project location (between 6 to 9 miles depending on the viewer's location in the valley) will reduce the effect of lighting on the nighttime scene, to some degree, however, it is impossible to prevent light from the project area from being visible off the Project site. It should be noted that the proposed use of conveyors and stackers to deliver agglomerated ore to the leach pad (instead of haul trucks as originally stated in the DEIS) will also reduce nighttime lighting impacts. Light plants will only be needed when run-of-mine (ROM) ore is deposited at night on the pad by trucks. Because the majority of leach material will be conveyed and stacked, only low vapor sodium lighting, and not the focused lighting provided by light plants, will be necessary. Additionally, since ROM ore will primarily comprise the face of the pad, and light plants will be located behind the southward face of the pad, the light plants will be out of view for most viewers in Safford. According to PD, the use of motion sensors to turn light plants on and off as trucks enter and leave a stockpile area cannot be employed for safety reasons. To mitigate the impacts of fugitive dust on air quality and on visibility (safety), dust abatement measures (water trucks, etc.) would be implemented. See also revised Section 4.3.1.8 on nighttime lighting impacts.

No. 13. 100-year Floodplains

Comments about impacts to 100-year floodplains focused on compliance with Section 3(d) of Executive Order 11988 on Floodplain Management. Section 3(d) of Executive Order 11988 requires that a federal agency, when disposing of lands to a private or non-federal public entity, "...(1) reference in the conveyance those uses that are restricted under identified federal, state or local floodplain regulations; and (2) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successors, except where prohibited by law; or (3) withhold such properties from conveyance." In Graham County, applicable regulations and restrictions pertaining to protection of all or portions of floodplains include, but are not limited to, Flood Disaster Protection Act and the Graham County Flood Damage Preventions Ordinance (No. 1998-100). If the land exchange alternative is selected, reference to the use restrictions in these regulations will be made in the applicable conveyance documents in compliance with Executive Order 11988.

There are no 100-year floodplains with determined base flow elevations within the project area and construction of stormwater diversions upstream of the two mine pits is expected to reduce the amount of flow in several washes (i.e., Watson, Talley, Cottonwood, Peterson, and Lone Star washes) within the project area, thereby significantly reducing the flood potential of these washes within the project

Chapter 7

operations area. None of the proposed mine facilities is located within regulated 100-year floodplains.

No. 14. Hazardous Materials

Comments about hazardous materials focused on the increased potential for spills affecting Reservation lands and the Gila River flows, and mitigation measures for potential spills.

As discussed in Section 2.1.2.3.5 (Hazardous Materials Storage, Handling, and Transport), the proposed Dos Pobres/San Juan Project will require delivery of chemicals (sulfuric acid, diluent, reagent, and fuel) by tanker trucks, 90 percent of which will be 3,500-gallon capacity acid trucks (projected at about 70 acid trucks per day). The most likely source of the acid is from smelters located in central Arizona and western New Mexico. The following safety precautions and procedures that would be enforced for the Project reduce the chances of a hazardous spill in general and into the Gila River in particular: 1) the truck route avoids Safford's 8th Avenue Bridge, a narrow, substandard bridge over the Gila River with the highest vehicle traffic volume; 2) truck speeds when approaching and crossing bridges are restricted to 35 miles per hour, 10 miles per hour below the county road speed limit; 3) trucking company managers randomly monitor truck speeds using radar guns and drivers are disciplined for exceedances; 4) new tanker design has been engineered to withstand both full pressure and full vacuum conditions to minimize potential for ruptures if a truck is involved in an accident; 5) the pressure release valve design used on acid trucks exceeds the Department of Transportation's recommended valve design by using a corrosion-resistant pressure release valve made from teflon-lined stainless steel; and 6) required Department of Transportation driver safety training and additional training required by the trucking company.

PDSI intends to contract a trucking firm with a sound safety record. For example, a major acid carrier in southeast Arizona who has been providing these services to PD and other mining companies maintains an excellent safety record. Between 1997 and 1999, this firm logged 14,582,582 miles in Arizona and New Mexico in acid shipments, with only three accidents (a rate of one accident per 4,860,861 miles). None of the accidents occurred on a bridge. No acid was released in one of the accidents; a second accident occurred on a mining company's private property and the acid was intentionally drained from the tanker for use in the leaching process system; at the third accident, the acid was intentionally released and neutralized at the accident site.

The trucking company that will be selected for this project will be required by PD to have a 24-hour emergency response unit that keeps lime and other neutralizing agents, as well as containment structures, on hand for rapid deployment. ADEQ, Arizona Department of Public Safety, and frequently, local jurisdictions, also maintain hazmat emergency response units that could be called on in the case of a spill. Local emergency response units such as fire departments could also be used if needed. It is beyond the authority of the BLM to require communities to increase their fire, police, or hazmat response capabilities, or require improved highway conditions.

In addition, the probability of a spill large enough to affect the Gila River or its riparian vegetation or wildlife is extremely small. While it is possible an acid spill could happen at any point along the delivery route, the bridge segments make up an extremely small portion of the total miles driven (about 0.16 of one percent of the total projected acid truck miles driven during the 16-year life of the mine). Furthermore, the chances that an accidental acid spill on a bridge will directly contact the waters of the Gila River are even smaller, given the narrowness of the channel and low flow of the river during the majority of the year. The highest probability of an acid spill into the river occurs when the river is at its widest—that is, when the river is at its highest flow. This is also when the river has the highest potential to neutralize the acid (waters in the Gila River are alkaline [USGS Water-Data Report AZ-95-1]) and dilute the acid by sheer volume. Based on the extremely low probability of a spill large enough to have any measurable effect on the Gila River or riparian habitats, BLM has concluded that the increased risk of spill into the river from the increased truck traffic associated with the proposed project is negligible. The June 2002 Biological Opinion issued by U.S. Fish and Wildlife Service concurs with this determination, stating that "the probability of a hazardous spill large enough to affect the [endangered southwestern willow] flycatcher or its habitat on the Gila River is

extremely small and discountable" (USFWS 2002).

Like the Gila River water, the soils in the area from the base of the Gila Mountains to the Gila River are alkaline, with pH values ranging from about 7.4 to 9 (SCS 1981). Caliche is common, and many of the soils are weakly consolidated by a naturally occurring calcareous cement. This alkalinity will also contribute to neutralizing an acid spill in the project area or along the transport route on Highway 77, including the segment through the San Carlos Apache Reservation.

No. 15. Conflict of Interest

Some commentors felt that PD's payment of some of BLM's costs, including portions of BLM salaries and third-party NEPA contractor costs, appeared to create a conflict of interest in BLM preparing a fair and accurate analysis of the Project.

Federal agencies such as the BLM are encouraged and authorized to recover costs from applicants for "products and services provided to the public..." such as the processing of rights-of-way applications, MPOs, land exchanges, special use permits, etc. (OMB Circular A-130; BLM Manual 1270-2). Additionally, as provided for in 43 CFR 2201.1-3 (Exchanges: General Procedures, Subpart 2201, Specific Requirements), "one or more of the parties [to a land exchange] may assume, without compensation, all or part of the costs or other responsibilities or requirements that the authorized officer determines would ordinarily be borne by the other parties." Cost recovery occurs through a BLM-administered contributed funds account; at BLM's request, PD periodically deposits funds into this account from which the BLM can draw to cover the costs of staff time and expenses spent in processing PD's proposal, in this case, both the land exchange and the MPO.

This comment presupposes that BLM personnel and/or NEPA contractors would bias the analysis in favor of the applicant, in this case PD, who is paying, in part, their wages. While cost recovery may appear to provide the basis for a conflict of interest, in fact, it is clearly in the interest of all parties that the Project be consistent with the agency's goals and mission, meet the agency's criteria for approval of such projects, and that the NEPA process, documentation, and administrative record demonstrate this in an accurate and defensible manner should the ROD be appealed. It is also important to note that the NEPA process is a dynamic planning process, so that mitigative measures that are developed during the analysis to address identified impacts often become incorporated into a Project such that the final analysis may show little or no significant impact. This effort does not reflect a bias on the part of the agency but rather an effective functioning of the NEPA process "to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts" (40 CFR 1501.2).

The basis for authorizing an exchange or an MPO is clearly spelled out in the various authorities that govern these activities (see Table 1-1, Federal and State Regulatory Requirements Applicable to the Dos Pobres/San Juan Project and Alternatives). With several opportunities for public input and review of the document, and legal recourse available to the participating public (i.e., those with standing) if the document is deficient, it is highly unlikely that a land exchange or an MPO that does not clearly meet the agency's approval criteria would be authorized, regardless of who is paying for preparation of the NEPA document.

No. 16. Groundwater Model Review

The model developed to predict groundwater impacts resulting from pumping has undergone numerous intensive and technical reviews, most significantly by Dr. Robert Mac Nish, BLM's hydrological consultant, Mr. Tom Olsen, BLM hydrologist; and BIA's consultant, Stetson Engineers (Stetson). In addition, James Brown and Stan Leake, U.S. Geological Survey, provided technical comments and suggestions on particular aspects of the model. This general response summarizes for the reader, in a non-technical manner, BLM's efforts to address the technical questions raised by Stetson about the groundwater model in their comment letter on the DEIS (see Comment Letter 237), and in a series of letters and meetings with

Chapter 7

BLM from May 1998 to October 2002.

Early in the EIS process, the ID Team identified the potential for groundwater and surface water impacts from the proposed mining as a significant concern to be addressed. Soon thereafter, PD proposed that a groundwater model be developed to estimate the potential impacts of groundwater pumping and hired a hydrologic contractor, Dames & Moore (now URS Corporation). PD then started to collect data from wells installed as part of its APP studies and implemented a rigorous pump testing program. Recognizing the necessity of an independent reviewer of the model, BLM contracted with Dr. Robert Mac Nish, former USGS District Chief for Arizona and currently Co-Director of the University of Arizona's Arizona Research Laboratory for Riparian Studies, to assist URS in the review and fine-tuning of the model (see Section 4.3.2.5.1, Groundwater Quantity, for a description of the groundwater model development process).

In all, five phases of model calibration and refinement have been completed to this point (URS 2002a). Phases I-III preceded publication of the DEIS, while Phases IV-V occurred after the DEIS, largely in response to concerns expressed by the BIA and its consultants.

- < **Phase I:** Model developed and calibrated by Dames & Moore and reviewed by Dr. Mac Nish and Hana West (former BLM hydrologist). This comprehensive review of the preliminary model included, but was not limited to, re-evaluating model assumptions on inflow and outflow parameters, reviewing well and pump test data, and examining the values used to represent hydraulic properties in the aquifers.
- < **Phase II:** Refinement and recalibration by Dames & Moore based on the review comments of Dr. Mac Nish and Hana West. Dr. Mac Nish and Hana West participated briefly in refining the model, and additional research was conducted to better define material properties and boundary conditions. Phase II focused mainly on material properties and the role of faults in the regional groundwater flow system rather than boundary conditions. The model was rerun for both steady-state (pre-stress) and transient (a 500-year simulation of mine pumping and recovery) conditions.
- < **Phase III:** Refinement and recalibration by Dames & Moore and Dr. Mac Nish based on review of the Phase II model. Dr. Mac Nish participated fully during this phase of model refinement, and the overall and specific components of the water balance were the main focus of the refinements to the model. Impacts on Bonita Creek were also added to the modeling scope. The Phase III model's projections on the behavior of groundwater in the 500-square mile model area, which includes portions of the San Carlos Apache Reservation, and on Gila River and Bonita Creek surface flows under transient conditions, were reported in the DEIS in Section 4.3.2.5.1. As noted in the DEIS, "the model represents hydrogeologists' current understanding of the regional groundwater system and *is but one of many unique solutions that match computed and observed values with equal precision*" (emphasis added).
- < **Phase IV:** Refinement by URS (2001) and Dr. Mac Nish to better simulate decline and subsequent rise of the water table during and after mining. This iteration of the model included a "rewetting" package; reduced the modeled peak pumping rate per the revised MPO; included more realistic pit bottom areas and mine depths; contained one transient simulation stage rather than two; simulated a 3,000-year period rather than a 516-year period; and used time steps of shorter duration. No re-calibration was needed.
- < **Phase V:** Refinements documented in the 2002 report were made to reduce small errors in the water balance of the Phase IV 2001 model. These small errors are apparent only when calculating small changes in the water balance or in water levels, however, they caused the 2001 model to over predict impacts by as much as a factor of 65 percent. No recalibration of the 2002 model was needed.

To address mitigation requirements and in recognition that "the model is not the 'real world,'" Dr. Mac Nish

developed the “3M Program” (**M**odel, **M**onitor, and **M**itigate) as an integral part of the groundwater model application. The 3M Program requires an iterative process of modeling the system response, then monitoring actual system response to pumping, then comparing model projections to actual system response, and finally recalibrating the model when comparison criteria are exceeded. The 3M Program ties mitigation requirements to any subsequent predictions made after model recalibration (see Appendix F).

The BIA, on behalf of Indian tribes potentially affected by the Project, requested that their consultant, Stetson, review the model and its projections prior to publication of the DEIS. Stetson, Dr. Mac Nish, and URS hydrologists initiated a nearly four-year-long dialogue regarding the groundwater model application. In addition to technical questions about the model, Stetson requested to review some of the hydrological data and computer code and to have BLM run model projections under different scenarios. In the meantime, BIA formally submitted its comments on the DEIS and Stetson’s comments on the model in a letter to BLM dated December 17, 1998 (Comment Letter 237). After the close of the comment period, Stetson, Dr. Mac Nish, and URS hydrologists continued their dialogue regarding the groundwater model through a series of letters, meetings, and phone conversations. In spring of 2002, USGS became involved in the review of the groundwater model and the 3M Program.

Stetson’s comments about the model application can be grouped into three general categories. These categories and the manner in which BLM responded to the three categories are described below.

(1) Requests for more information (graphs, maps, etc.) supporting model assumptions.

Stetson requested, and was sent, a variety of materials pertaining to the modeling effort, including, but not limited to, copies of model (MODFLOW) input and output files; maps showing the model grid, geological faults, springs, well locations, etc.; hydrographs showing simulated vs. historical water elevations in wells within the model area; maps of evapotranspiration rates for the model area; detailed steady-state and transient water budgets; tables of initial and final model parameters for aquifer and streambed properties, etc. Below are summarized Stetson’s technical questions, descriptions of how or whether its concerns pertain to the evaluation of the model or model results, and summaries of BLM’s response. Also, additional or revised figures, tables, or charts that were developed as part of the model reviews to clarify projected groundwater impacts have been included or replace earlier versions in Volume 2. For interested members of the public, Stetson’s technical questions and comments and BLM’s responses have been documented and compiled in the BLM’s case file for this project, which is available for public review at the BLM Safford Field Office during regular business hours.

Written responses to a large number of the questions/issues raised by BIA and Stetson were provided by Dr. Mac Nish and URS hydrologists. Most of these items were related to assumptions, data sources, and model performance in simulating both the steady state (pre-stress) condition of the hydrologic system, as well as to the model’s simulation of a six-month aquifer test conducted in the last half of 1996.

The principal assumptions in the model relate primarily to the amounts of water entering and leaving the area of the model and to the data sources upon which these assumptions are based. Water entering the model consisted of areal recharge in the Gila Mountains and along the Gila Mountain front on the northeast side of the Gila River, groundwater inflow from the Peloncillo and Pinaleno Mountains and the San Simon Valley, as well as surface water inflow from Bonita Creek and the Gila River. Stream gauges operated by USGS on the Gila River at the head of the Safford Valley and on Bonita Creek provided data on average stream inflows, not including storm runoff to provide background or baseline stream data. Inflows from the San Simon Valley, and the Pinaleno and Peloncillo Mountains were based on USGS reports, and the amount of recharge coming from the Gila Mountains was limited to conform to total groundwater inflows to the Safford Valley as listed in the same USGS reports. Outflows from the model included surface flows in the Gila River and groundwater, as well as the consumptive use by crops grown in the model area. Crop acreages from public records and consumptive use rates for the principal crops from the literature were used to estimate the total consumptive use of water by crops. The amount of

Chapter 7

water so used was assumed to come from a combination of surface diversions from the Gila River and groundwater pumping in the Safford Valley. The downvalley outflow of groundwater and surface water was constrained by the USGS-measured inflow and outflow from the San Carlos Reservoir, as all water leaving the Safford Valley is assumed to pass through this reservoir. The effects of extensive areas of salt cedar (*Tamarix* sp.) and other plants that can extract and use groundwater between the western model boundary and the San Carlos Reservoir were estimated from values in the literature, and together with the flow through the reservoir, constrained the downstream outflow of groundwater. Additionally, the downstream outflow of surface water was constrained by data from the USGS stream gauge near the Calva Bridge.

Other important assumptions relate to the values assigned to the hydraulic properties (the ability to store and transmit water) of the various formations through which the groundwater moves, and to the sources of data from which these values were obtained. Published reports of prior investigations provide values for these properties for most of the formations in the Safford Valley, and the values used in this model were generally near the midpoint of reported ranges. In the vicinity of the mine, the six-month aquifer test conducted by PD yielded estimated values for the hydraulic properties of geological formations. These values were used for similar formations in the Gila Mountains; otherwise, where non-similar formations were present, values reported in the literature for such formations were used. All requested information of this type was provided to Stetson, either in reports documenting model construction or in response to specific requests.

A model's performance can be assessed in several ways. During model construction and testing, sensitivity analyses are useful in determining which hydraulic properties have the greatest effects on model behavior. Such analyses are done by varying values for hydraulic properties, usually by some percentage, and observing the effects on model-simulated water levels, gradients, and fluxes. Sensitivity analyses of this kind have been performed on the groundwater model, and a discussion of the results has been provided to BIA.

Another means of assessing model performance is to statistically compare the model-predicted water levels in model cells with actual water levels measured in wells in those same model cells. Using data from existing wells in the vicinity of the planned pumping wells, these statistical comparisons were completed after the six-month aquifer test and provided to Stetson for the entire model as well as for selected groups of wells.

Stetson Engineers also requested four additional model runs¹ with different levels of pumping stress. As none of the requested scenarios were realistic in view of the project's water requirements, these requests were rejected by BLM as unwarranted. Stetson Engineers withdrew an earlier request for transient calibration statistics for individual well groups during a conference call with BLM on February 2, 2000.

(2) Comments reflecting differences of professional judgment (e.g., regarding the nature of the model grid, the effects of pumping on springs, pit lake evaporation, etc.).

A hydrologic modeler develops a model based on a set of guiding hydrological principles; only one set of professional judgments can be accommodated in any given model. Several of Stetson's comments on the model reflected a difference in professional judgments with URS hydrologists and Dr. Mac Nish regarding the nature of the model grid, the effects of pumping on springs, the effects of pit lake evaporation, etc. Data and/or pertinent information supporting the professional judgments made by URS and Dr. Mac Nish

¹ The four model runs requested by BIA were: (1) a model run with pumping stress reduced to the point that drawdown at the San Carlos Apache Reservation boundary would not exceed one foot. This would require multiple model runs in a "trial and error" process to achieve, and thus would be a very expensive effort; (2) a model run with mine pumpage reduced by one half; (3) a model run with the mine pumpage increased by a factor of two; and (4) a model run with mine pumpage increased above the mining needs and the excess water recharged into wells north of the Butte Fault.

in developing the model were provided to Stetson, except in two instances. In these cases, BLM determined that a full response to the comment would be more complete and appropriate after the first recalibration of the model.

The two comments that will be addressed at the first model recalibration include: a) that pit lake evaporation was not simulated in the model; and b) that the nature of the simulation of interaction between the groundwater system and Bonita Creek could lead to error if drawdown caused by mine pumping was large in the vicinity of Bonita Creek. The rationale for addressing each after model recalibration is that a significant recalibration of the model will be required before mining begins, primarily because the Group 4 well data will lead to model parameter changes very close to the mine well field, and the long term mitigation requirements must include pit lake evaporation effects. The reason for delaying this recalibration is to allow the Group 1 wells to be drilled before recalibration as these wells are the key monitoring wells to assess the accuracy of model projected impacts on the Gila River. More detail on these two comments is provided below.

- < **a) Pit lake evaporation.** Neither current evaporation from the present San Juan pit lake nor future evaporation from the eventual pit lakes at Dos Pobres and San Juan were simulated in the model. In early model runs, the rate of pit lake evaporation was thought to be minuscule in comparison to the pumping rates the mine will use, therefore its effect on the Gila River was anticipated to be negligible. However, after the calibrated model predictions showed the mine pumping impacts on the Gila River would be spread out over centuries, the model predicted that the effects of pit lake evaporation would be larger than those of the mine pumping, though it may be hundreds of years before the full effects are felt at the river. Pit lake evaporation becomes a factor after mining ends and the system starts to recover, however, the effect of pit lake evaporation will be to slow the recovery by some small but finite amount. Presently estimated at approximately 21 af/yr, pit lake evaporation will continue in perpetuity, with effects of similar magnitude on Gila River flows.
- < **b) Drawdown near Bonita Creek causing error.** The model's projected drawdowns in the vicinity of Bonita Creek are far too small to introduce error, suggesting the nature of the simulation of stream-aquifer interaction is not a critical factor. For error to be introduced, the model would have to predict water levels dropping below the level of Bonita Creek. Nonetheless, at the first recalibration of the model before mining begins, the same computer code to simulate the stream-aquifer interaction on the Gila River will be included in the model for Bonita Creek.

The two Stetson comments for which BLM decided to not change the model included: a) the effects of groundwater pumping on springs was not modeled; and b) the model grid resolution was unnecessarily fine. BLM's rationales for not changing the model in response to these comments are provided below.

- < **a) Effects on springs.** Field visits during March and December 1998 by Dr. Mac Nish to the four springs located between the mine and the San Carlos Apache Reservation revealed dramatic differences in flow, as would be expected for springs that are fed from local sources (perched aquifers of limited areal extent, rather than hydrological connection to the regional groundwater aquifers) that wax and wane with the size and frequency of storms. The steep hydraulic gradients between the springs and the graben aquifer, which is the proposed groundwater source for the mine, argue against a direct and highly transmissive connection between the two. Regardless, the 3M Program includes monitoring of Groups 4 and 5 wells located between the pits and the San Carlos Apache Reservation boundary to provide 'advance warning' of potential drawdown on the Reservation.
- < **b) Model grid resolution.** The model grid resolution has no bearing on model results beyond the complexity it imposes on data handling requirements. The model has 17 layers and the degree of connection between layers is governed by the same equations that govern horizontal connections between adjacent cells in each layer. The model resolution is appropriate for the type

Chapter 7

of impact predictions made (i.e., the model cell dimensions are small enough and the number of significant digits used in calculations is large enough to reduce error).

(3) Comments related to the approach in dealing with model uncertainties.

All models have uncertainties associated with their outcomes. BIA/Stetson and BLM/Dr. Mac Nish have different, but equally valid, philosophical approaches to dealing with model uncertainties. Stetson's approach to model uncertainty is to do extensive sensitivity analyses to identify ranges of uncertainty in various model projections. The culmination of this approach would be a set of ranges for model-predicted values for storage change, drawdowns, etc. In contrast, the approach BLM has taken to address uncertainties of the model is to conduct a limited sensitivity analysis before mining begins and annual 'reality checks' (monitoring) to see if the model has predicted accurately what the real world is experiencing. At the end of pumping, an exhaustive sensitivity analysis of the final calibration of the model will be undertaken. If the 'reality checks' show the model is deviating from the real world, the model is recalibrated using the monitoring data until it acceptably replicates the behavior of the hydrologic system. The culmination of this approach is a systematic reduction of model uncertainties over time as the model's accuracy improves. While either approach is acceptable from a modeling perspective, BLM's approach allows for more accurate mitigation for actual impacts and more accurate prediction of recovery of the groundwater system once mine pumping ceases.

In response to Stetson's request to assess the uncertainty associated with model projections into the future, BLM indicated that such an analysis was most useful at the end of pumping, when the model's utility will be to make long-term projections into the future (i.e., in perpetuity) for mitigation purposes. Until then, any evaluation of model uncertainty will only be valid until the next model recalibration is triggered. The model is considered a "work in progress" and the 3M Program has been designed to evaluate model performance by comparing model predictions with water level observations on an annual basis as mining progresses. The 3M Program triggers a recalibration of the model whenever the observed responses of the hydrologic system to the mine pumping deviate from model-projected responses in excess of specified criteria. The criteria are specified differences between observed and projected water level changes in wells and changes in water level gradients between wells. At the end of mining, the model calibration process will be complete and the model will accurately replicate the response of the aquifer systems to the entire period of pumping stress. At that time, the calibrated model will then be used to predict the effects of 16 years of groundwater pumping on the hydrologic system for a long period into the future as the aquifer system slowly returns to its pre-stress conditions. It will be appropriate at that time to conduct a thorough analysis of the uncertainty in model projections into the future.

During Phase V of the modeling effort, the USGS became involved in the model review process and identified a need to consolidate all model documentation into a single report. In the process of compiling this report (URS 2002a), URS completed several sensitivity runs of the type requested earlier by Stetson Engineers (see category (1) above). While not an exhaustive suite as will be developed at the end of mining using the final calibration of the model, these runs tested "worst case" scenarios that would tend to exacerbate water resource impacts on the Gila River and the San Carlos Apache Reservation. The sensitivity runs that were made did show changes in these predicted impacts, but the changes were of a minor nature. The combination of this suite of sensitivity runs on the model and the 3M Program allows the analysis of the Project to move forward with confidence that any impacts to the Gila River or the San Carlos Apache Reservation will be identified and quantified and can be mitigated before they occur.

7.6.2 Specific Responses

This section consists of 650 excerpted comments followed by the specific responses developed by ID Team members to address them. Comments are presented numerically by letter numbers randomly assigned to commentors. To assist readers in locating a specific letter(s), Table 7-1 provides an index of each of the 269 commentors listed alphabetically by last name and lists their corresponding letter number.

Table 7-1. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter	Number
ADAMS	DAN			226
ALDER	TIM E.	GMI INSURANCE GROUP		137
ALLEN	SYLVIA	PEOPLE FOR THE USA		4
ARMSTRONG	DALE G.			27
ASTON	THOMAS & CAROLE	GOLD TOOTH MINE		261
BAKER	DONNA L.			189
BALENTINE	MARION E.	BALENTINE OFFICE PRODUCTS		201
BALENTINE	CHERRILL	BALENTINE OFFICE PRODUCTS		202
BARNES JR.	STAN	COPPER STATE CONSULTING GROUP		196
BARNEY	JERALD A.			223
BEAL	LAURENCE H.			26
BEGAY	RICHARD	THE NAVAJO NATION		259
BENGSON	STU	ARIZONA MINING ASSOCIATION		41
BEJARANO	BRENDA			130

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter	Number
BENNETT	NATHAN	PHELPS DODGE		43
BERMUDEZ	MARY ANN			153
BERRY	RAYMOND R.	PEOPLE FOR THE USA, PIKES PEAK CHAPTER		28
BINGHAM	TERRY J.	GRAHAM COUNTY BOARD OF SUPERVISORS		74
BLACK	JODI B.			167
BLAELOCH	JANINE	WESTERN LAND EXCHANGE PROJECT		141
BONEFAS	JOHN			246
BOWERS	MELVILLE S.	PEOPLE FOR THE USA, RIM CHAPTER		3
BOWLING	MICHAEL			179
BOWLING	MARK			172
BOWLING	KENNETH G.			193
BRAUN	TERRY	SRK CONSULTING		40
BRIAN SEGEE	JANINE BLAELOCH	SOUTHWEST CENTER & WESTERN LAND EXCHANGE		252
BRINEY	PEG			98
BRINEY	WILLIAM F.			99
BRODERICK	A.J.			233
BROWN	KATHY			186
BROWN	MARNIE			50
BRUNSSSEN	BARBARA L.	ZENECA SPECIALTIES		78
BRYCE	RICHARD A.			160
BRYCE	SCOTT			42
BUSBY	DONDRE			94
BUSBY	MALCOLM			93
BUSH	JAMES M.	FENNEMORE CRAIG		222
BUTTLER	GUY A.	PHOENIX FUEL COMPANIES		58
CALLEN	BRENT			154
CAMPBELL	DOLAN			232
CAMPER	JOHN C.	TUCSON METROPOLITAN CHAMBER OF COMMERCE		225

Chapter 7

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter	Number
CAUTHEN	RUBY			108
CAUTHEN	GEORGE A.			91
CHANDLER	RANDY			134
CHICAGO	AL	PURCELL WESTERN STATES TIRE		21
CHRISTENSEN	GARY			9
CLUFF	ELSIE R.			101
CLUFF	E.			100
COGGIN	H. MASON	ARIZONA DEPARTMENT OF MINES AND MINERAL		30
COLEMAN	REBECCA			133
COMMENTOR	ANONYMOUS	UNITED STEEL WORKERS OF AMERICA		206
COMMENTOR	ANONYMOUS			188
CONGER	H.M.			242
CORN	RUSSELL M.			145
CORTE	ELENA N.			6
COUTTS	GEORGE	APPLIED INDUSTRIAL TECHNOLOGIES		29
COWELL	GARY			110
COX	BRIAN			12
COX	A. D.			97
CRAMER	KEITH A.	ZENECA SPECIALTIES		59
CRANDELL	TIMAREE K.			48
CURTIS	GARY D.	COLDWELL BANKER/CURTIS REAL ESTATE		120
CURTIS	JANET E.	TROPHIES 'N TEES		185
CURTIS-JUNION	DIANE			84
DEAN	KAY			144
DEMPSEY	DANIEL J.			244
DEVINE	JAMES F.	U.S. GEOLOGICAL SURVEY		230
DOHERTY	JOHN R.	J & K INVESTMENTS		104
DOWNING	PHILLIP H.	PROJECTS WEST, INC.		266
DUHAMEL	JONATHAN	PEOPLE FOR THE USA, TUCSON CHAPTER		2
DUNN	TOBY			45
DWYER	MIKE	QUADNA INC.		25
EADY	CHARLES S.			157
ELIAS	WILLIAM	PHELPS DODGE		34
EVANS	RANDALL C.			168
FANELLO	R. PAT	COUNTRYWIDE HOMES		114
FARRAN, P.E.	YUSEF E.	INT'L BOUNDARY & WATER COMMISSION U.S.& MEXICO		8
FARREL	DAVID J.	U.S. ENVIRONMENTAL PROTECTION AGENCY		250
FERREE	DAVID			39
FILIPPONE	COLLEEN			195
FINES	L. ANTHONY	GILA VALLEY AND FRANKLIN IRRIGATION DISTRICTS		268
FOREMAN	RICHARD L.	SOUTHWEST GAS CORPORATION		215
FOWLER	R. GENE	EASTERN ARIZONA COMPUTERS		136
FUNK	CORY	PHOENIX FUEL COMPANIES		56
GABLE	GLENN			121
GARDNER	LORRAINE N.	GARDNER ACCOUNTING SERVICE		102

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter Number
GIBBS	RON		231
GIEBEL	ROB	P&H MINEPRO SERVICES	1
GODWIN	DAVID		35
GOODMAN	HENRY W.		22
GRAY	KIRK		106
GRAY	CATHARINE L.		107
GREEN	THOMAS D.		151
GREEN	HARVEY	QUADNA PSI	111
HANCOCK	ERIC	HANCOCK EMBROIDERY CO./HANCOCK ENTERPRISES,	177
HANCOCK	IVAN & KATHRYN	IVAN F. HANCOCK ENTERPRISES, LLC	178
HANSON	PAUL	QUADNA PSI	147
HANSOUS	GAIL	FUTURE SAN CARLOS CHAMBER COMMERCE	258
HARLOW	DAVID L.	U.S. FISH AND WILDLIFE SERVICE	251
HARRINGTON	RONALD W.		143
HARRINGTON	BARBARA A.		155
HARRIS	JEFFRY	PEOPLE FOR THE USA	5
HARTUNG	MARY	THATCHER BUILDING SUPPLY	146
HARTUNG, MARY	JOHNSON, KARL	MOUNT GRAHAM COMMUNITY HOSPITAL	165
HATCH	CHARLIE	HATCH BROTHERS AUTO CENTER	139
HAWKINS	BEN	DESERT GLEN INC.	204
HAYWORTH	J.D.	CONGRESS OF THE UNITED STATES	164
HAZELL	BETTYANN		86
HEATHINGTON	CAROL	STATE HISTORIC PRESERVATION OFFICE	216
HEINRICHS	WALTER	HEINRICHS GEOEXPLORATION CO.	76
HENDERSON	GLEN	NPS, MONTEZUMA CASTLE & TUZIGOOT NAT'L	203
HENLINE	C. H.		44
HENRY	JACK A.		263
HERBERT	RONALD		128
HIBL	HARVEY	QUADNA PSI	148
HIGGINS	DON		269
HOAG	COROLLA		32
HOFF HAY	SYDNEY	AMIGOS (AZ MINING & INDUS. GET OUR SUPPORT)	47
HOWELL	EUGENIA F.	PEOPLE FOR THE USA	176
HOWELL	JACK	PEOPLE FOR THE USA, CAPITOL CHAPTER	171
HUNSAKER	LEORA	QUICK-DRAW SIGNS LLC	181
HUNT	JENA		49
HUNT	BRET	PHELPS DODGE	37
HURT	AMY J.	INGERSOLL-DRESSER PUMP COMPANY	260
JACOBSON	NANCY E.		212
JACOBSON	RONALD J.	CITY OF SAFFORD	83
JAKSICH	DEE		113
JOHNSON	TOM	JOHNSON MOTORS CORP.	89
JOHNSON	TOM	JOHNSON MOTORS CORP.	169
JONES	STUART H.		150
JORDAN	J. DARRELL	ARIZONA DEPARTMENT OF WATER RESOURCES	63

Chapter 7

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter Number
JUDAY	JAMES R.	SOUTHWEST ENERGY INC.	235
JUDD	BART	ROADRUNNER REHAB	221
JUNION	STEVE	VALLEY FURNITURE	85
KELLER	JACK	PHOENIX FUEL COMPANIES	57
KEMPTON	KYLE	GRAHAM COUNTY CHAMBER OF COMMERCE	80
KEMPTON	KYLE	KEMPTON CHEVROLET BUICK, LTD.	77
KENNEDY	GLENDA	PEOPLE FOR THE USA, GREENLEE CHAPTER	117
KENNEDY	JIM & GLENDA		118
KENNEDY	JOHN	ARIZONA GAME AND FISH DEPARTMENT	220
KENNEDY	JOHN	ARIZONA GAME AND FISH DEPARTMENT	219
KIMBALL	DONALD W.	ARIZONA ELECTRIC POWER COOPERATIVE, INC.	182
KIMBALL, III	DAVID P.		264
KINSALL	KEVIN R.		214
KLINE	ROBERT J.		68
KOHL	SCOTT	SUPERFAST LABEL SERVICE, INC.	187
KORDOSKY	GARY	HENKEL CORPORATION	17
KRIEG	DEAN G. & MARY	RAMADA INN	119
KRIEG	MARY L.		129
KRIEG	DEAN G.		127
LAHM	PETER	USDA, FOREST SERVICE	256
LAWSON	KERRY B.		175
LECOCQ	JOE		180
LEMEN	CARLA		46
LEVICK	LAINIE	SIERRA CLUB, RINCON GROUP	210
LEVICK	LAINIE	SIERRA CLUB, RINCON GROUP	96
LEWIS	ROY GLEN	HENKEL CORPORATION	19
LIGON	JOHN		70
LINDSAY, SR.	DOUG	LINDCO EQUIPMENT AND SUPPLY, INC.	13
LINES, D.D.S.	RICHARD		72
LOMBARD	C. ALLISON	ARIZONA BUILDERS' ALLIANCE	248
LUCE	DALE		90
LUZANIA	MARY ANN		122
MACDONALD	ROBBIN		170
MADSON	JAMES L.		218
MAES	CHARLES J.	ZENECA SPECIALTIES	60
MALISEWSKI	JOE	SUNDT CONSTRUCTION, INC.	205
MARDIAN, JR.	SAM		224
MARTIN	DAVID M.	ARIZONA CHAPTER ASSOCIATED GENERAL	247
MARTIN	JOHN W.	QUAIL RIDGE CONSTRUCTION	75
MAYHEW	TAMMY		126
MAYHEW	ERIC		124
MCCLAIN	STEVE	ACM EQUIPMENT RENTAL	234
MCDONALD	LOU		208
MCELWAIN	ROD		191
MCNAMARA	JOAN		18

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter Number
MEMBRILA	EMILIO M.		138
MERRICK	JODI		125
METZ	ROBERT A.		194
MILLER	BLAIR M.	QUADNA PSI	152
MINTER	MARK	ARIZONA BUILDERS' ALLIANCE	228
MUNCY, M.D.	GARY L.		105
MUNKITTRICK	JARRETT		65
NAVARRETE	ANA A.		123
NELSON	DAVID		135
NICHOLS	LYNDALL		131
NORDWALL	WAYNE C.	BUREAU OF INDIAN AFFAIRS, PHOENIX AREA OFFICE	237
NORTHUP	REN	ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY	62
NUVAMSA	BEN	BUREAU OF INDIAN AFFAIRS, FORT APACHE AGENCY	51
O'BRIEN	CAROLE A.	ARIZONA DEPARTMENT OF REVENUE	15
OLAFSON	STEPHAN M.	HENKEL CORPORATION	67
OLDAKER	M. E.	BALENTINE OFFICE PRODUCTS	199
PARLETT	RICK	INDUSTRIAL TOOL AND SUPPLY CO.	161
PERLICH	RUSS	QUADNA PSI	71
PHILLIPS	KEN A.	ARIZONA DEPARTMENT OF MINES AND MINERAL	207
PLASENCIO	NELLIE E.		156
QUARTERMAIN	KEN	ARIZONA ROCK PRODUCTS ASSOCIATION	227
RASEY	T. SHAWN	COBRE TIRE COMPANY	7
RATJE	JOHN R.		184
RICHARDSON	BILL		245
RIVERA	ROSIE		132
ROBINSON	EBEN		173
RYLEY	JOHN H.	SAN CARLOS APACHE TRIBE	236
SANDERS	CHARLES M.		158
SAULTERS	RODNEY		174
SAWAY	STEVE		198
SCARTACCINI	T.E.		95
SCHADE	MARGARET		116
SCHAHAN	WILLIAM	BALENTINE OFFICE PRODUCTS	200
SCHERN	E. MICHAEL	PHELPS DODGE SAFFORD, INC.	267
SCHLAUTMAN	FLORIN & SALLY		87
SCHMELLING	MIKE	PHOENIX FUEL COMPANIES	54
SCHNEBLY	F. DWIGHT	TREASURES AND TRINKETS	183
SEGEE	BRIAN	SOUTHWEST CENTER FOR BIOLOGICAL DIVERSITY	140
SHASTRI	ROGER	BEST WESTERN DESERT INN MOTOR HOTEL	88
SHERLOCK	WILLIAM T.	COLLINS PRECISION MANUFACTURING, INC.	31
SHIPLEY	CHUCK	ARIZONA MINING ASSOCIATION	197
SHUMWAY	PETER D.		265
SLAWSON	JIM	NATIONAL MARINE FISHERIES SERVICE	262
SMITH	MICHAEL	BUREAU OF INDIAN AFFAIRS, SAN CARLOS AGENCY	238
SMITH	DANNY	GILA OUTDOOR, L.L.C.	73

Chapter 7

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter Number
SMITH	DAVID L.	KVAERNER METALS CONSTRUCTORS	24
SMITH	IVAN J.	SMITH AND BELL CONSTRUCTION CO.	81
SOBISEK	AUDREY		53
SOSNOSKIE	FRANK		166
SPARKS	JOE	SPARKS, TEHAN & RYLEY, P.C.	239
SPEHAR	JAY W.	CYPRUS MIAMI MINING	82
SPENCE	JOHN R.	ZENECA SPECIALTIES	23
STACY	DENNIS E.		213
STACY	DONALD R.	GREENLEE COUNTY BOARD OF SUPERVISORS	109
STEUTER	DON	SIERRA CLUB, PALO VERDE GROUP	240
STEVENS	JEFF	PHOENIX FUEL COMPANIES	55
SUGGS	MIKE		52
TALLEY	VAN	CITY OF SAFFORD	92
TALLEY	VAN	CITY OF SAFFORD	249
TAYLOR	LYLE	GEOTEMPS	33
TENNEY	J.L.		10
TENNY SR.	LEWIS N.		20
TETLOW	PETER	ZENECA SPECIALTIES	61
THOMAS	MARY	GILA RIVER INDIAN COMMUNITY	25
THOMAS	RACHEL	PEOPLE FOR THE USA	209
THOMPSON	MICHAEL H.	PHELPS DODGE MORENCI, INC.	112
TINKLER	OWEN	ZENECA SPECIALTIES	79
TOOLE	JAMES D.		11
TOOLE	THOMAS D.		115
TRAVIS	DAVID		14
TRAVOUS	KENNETH E.	ARIZONA STATE PARKS	254
TRUEBE	HENRY	ALPEX - GEOLOGIC MAPPING	38
TYLER	CRAIG R.		64
UHRIE	JOHN L.		211
VARGAS	CHARLES	FUTURE SAN CARLOS CHAMBER COMMERCE	257
VOTH	HERMAN	KOMATSU MINING SYSTEMS, INC.	16
WALISH	ROBERT C.		162
WARREN	JAMES V.		190
WARREN	JUDITH		192
WEESNER	DON L.	GILA WATER COMMISSIONER	241
WHITE	CLIFF	SUNSTATE EQUIPMENT	36
WILKENING	LEE		243
WILLIAMS	TONYA L.	TOWN OF CLIFTON	163
WILSON	MAX & HELEN		142
WOLFE	GEORGE A.	HENKEL CORPORATION	66
WOODMAN	DONALD H.		159
WOODMAN	DONALD H.		217
WOOLSEY	ROBERT S.		103
WRIGHT	JEFF	QUADNA PSI	149
WYMAN	GLEN		69

Table 7-1, continued. Index of Letter Numbers by Commentor's Last Name

Last Name	First Name	Organization	Letter	Number
YOUNT	ROBERT E.	ARIZONA STATE LAND DEPARTMENT, NAT'L RES.		253
ZAMAR	JOHN			229

Chapter 7

- Letter 1 Commentor Rob Giebel of P&H MinePro Services
Comment 1 *As an avid outdoorsman, I would encourage you to take advantage of the land exchange proposal before you. Giving up desert wasteland in exchange for more valuable real estate seems to make a lot of sense.*
Response: See General Response No. 1.
- Letter 2 Commentor Jonathan DuHamel of People for the USA, Tucson Chapter
Comment 1 *On behalf of the 150 Tucson area members and nearly 4,000 Arizona members of People for the USA, I am writing in support of the proposed land exchange.*
Response: See General Response No. 1.
- Letter 3 Commentor Melville S. Bowers of People for the USA, Rim Chapter
Comment 1 *I strongly support the Phelps Dodge Dos Pobres/San Juan Mine near Safford.*
Response: See General Response No. 1.
- Letter 4 Commentor Sylvia Allen of People for the USA
Comment 1 *We whole heartedly support this project, and urge that any obstacles, which hinder speedy completion for operation, be removed without delay for the best good of the many interests already mentioned.*
Response: See General Response No. 1.
- Letter 5 Commentor Jeffrey Harris of People for the USA
Comment 1 *I would like to add to the official record our support of the Dos Pobres/San Juan Mine near Safford.*
Response: See General Response No. 1.
- Letter 6 Commentor Elena N. Corte
Comment 1 *I would like to state on that record that I am in full agreement with the proposed Mine Plan of Operations which will allow Phelps Dodge to operate upon all lands it has lawfully obtained access to through the mineral claims process.*
Response: See General Response No. 1.
- Letter 7 Commentor T. Shawn Rasey of Cobre Tire Company
Comment 1 *...Cobre Tire Company would like to extend our support to the Phelps Dodge Corporation regarding the development of the Dos Pobres and San Juan Mines near Safford.*
Response: See General Response No. 1.
- Letter 8 Commentor Yusef E. Farran, P.E. of Int'l Boundary & Water Commission U.S.& Mexico
Comment 1 *We have reviewed the EIS and have determined that there would be no adverse impacts to United States Section, International Boundary and Water Commission ((USIBWC) property because there is none in the vicinity of the proposed project.*
Response: Thank you for this information.
- Letter 9 Commentor Gary Christensen
Comment 1 *Finally, it seems like a good deal, for PD, to trade 3,858 acres for 17,000 acres of public land. Even though you state the exchange is based on equal land values it seems pretty one-sided to me. The proposed land exchange seems to be considerably more "equal" to PD than it is to the citizens.*
Response: See General Response No. 7, Appraisals
Comment 2 *I believe they (PD) should be required to restore the plunderized land (tailings, waste, etc.) to some semblance of natural beauty and productivity.*
Response: PD's proposed reclamation plan, which has been developed to meet both federal and state standards, provides for several types of reclamation activities. Revegetation of portions of roads, leach pad, and development rock stockpiles and debris and waste removal will meet several reclamation objectives including stabilizing slopes, reducing erosion potential, providing wildlife habitat, increasing primary productivity of soils, and reducing visual impacts, among others.

By far the most visible features of the proposed mine would be the side slopes of the leach pad and development rock stockpiles (see Figure 4-4). As discussed in Section 2.1.2.4, Closure and Reclamation Measures, and in the Summary, basin-fill sediments or a comparable growth medium about one foot thick are to be placed on the side slopes of these structures and then seeded. As also discussed, reclamation will also occur on the tops of these piles for the enhancement of wildlife habitat; see Section 2.1.2.4 for other proposed reclamation activities. As there are no plans for milling operations for the Dos Pobres/San Juan Project, there will be no tailings.
- Letter 10 Commentor J.L. Tenney
Comment 1 *I feel that the BLM has provided adequate and good information.*
Response: See General Response No. 1.
Comment 2 *This should go forward without further delay.*
Response: See General Response No. 1.

- Letter 11 Commentor James D. Toole
 Comment 1 *This project is positive for Arizona and the nation.*
 Response: See General Response No. 1.
- Letter 12 Commentor Brian Cox
 Comment 1 *I think the BLM should approve the proposed land exchange.*
 Response: See General Response No. 1.
- Letter 13 Commentor Doug Lindsay, Sr. of Lindco Equipment and Supply, Inc.
 Comment 1 *I urge you to quickly approve this EIS so that work can begin within at least the next 18 months. Much sooner would be much better.*
 Response: See General Response No. 1.
- Letter 14 Commentor David Travis
 Comment 1 *Environmental compliance for this project is mandatory and adequately addressed in the draft document.*
 Response: See General Response No. 1.
 Comment 2 *Federal agencies involved with these types of projects in the future should mitigate lost job opportunities, lost business revenues and lost taxes with the "no action alternative."*
 Response: NEPA requires an analysis of environmental impacts associated with a No Action alternative (40 CFR 1502.14(d)), even if it does not meet or address the project's purpose and need. Mitigation of impacts such as lost potential job opportunities and tax revenues that may result from selection of the No Action alternative is neither required nor authorized by law.
 Comment 3 *And further more, appellants to the "Record of Decision" should provide mitigating measures for lost or delayed opportunities before the appeals are heard. Using this method will provide the judge or Internal Board of Land Appeals with a balance of cause-and-affect information, and the intent of the appellant.*
 Response: Appellants of the BLM's decision are not required by law or BLM regulations to mitigate for potential or real lost or delayed opportunities resulting from the appeal. See also response 14-2.
 Comment 4 *As a citizen of southeastern Arizona, I recommend that the BLM's "preferred action alternative" be adopted.*
 Response: See General Response No. 1.
- Letter 15 Commentor Carole A. O'Brien of Arizona Department of Revenue
 Comment 1 *In Table 4-7, Summary of Air Quality Model Results at the Process Boundary, you give a column of Ambient concentration levels of the criteria pollutants taken from a station at Montezuma Castle. It seems to me that Montezuma Castle is so far removed from the site of the project and even the special receptor sites referenced in Section 4.3.2.2.1 as to render it a very contentious issue for those who might oppose this project.*
 Response: Use of data from the Montezuma Castle site to represent rural ambient background concentrations was limited to PM10 measurements. As part of the Final Air Impact Analysis (AEC 1999a), a review of available data (Air Quality Data for Arizona, published annually by the ADEQ) showed that PM10 is collected at a site in Safford. Further review of the Safford PM10 data, however, indicated that the measured PM10 concentrations are not characteristic of the background levels that would be expected near the rural Dos Pobres/San Juan (DP/SJ) Project location. This is due to the suburban monitoring site being affected by Safford residential and business activities and being located in close proximity to a major highway and an agricultural field. Because PM10 concentrations from the suburban Safford site are not representative of the rural Dos Pobres/San Juan Project location, which is devoid of population and agricultural activities, PM10 data from the rural Montezuma Castle monitoring site, located in the Verde Valley of Yavapai County, were used. Specifically, the average of the first-maximum highest 24-hour PM10 concentrations and the average of the annual concentrations, measured at the Montezuma Castle site over three years of data (1995-1997) were used to represent background concentrations.
 Although the Montezuma Castle and Dos Pobres/San Juan Project locations are far apart, both sites are very similar with respect to their rural settings and general elevation. As a result, PM10 concentrations from the Montezuma Castle site are representative of background concentrations at the Dos Pobres/San Juan Project location. Additionally, the ADEQ approved the use of the Montezuma Castle data for the modeling conducted as part of the Dos Pobres/San Juan Project Class II permit application. Data from the Montezuma Castle site were also previously used to represent background concentrations in the ADEQ-approved air impact analysis conducted for the Sanchez Copper Project, which is located approximately 12 kilometers (about 7.2 miles) southeast of the Dos Pobres/San Juan Project location in similar terrain and at a similar elevation. See also 256-1.
- Letter 16 Commentor Herman Voth of Komatsu Mining Systems, Inc.
 Comment 1 *I would like to express my support in regards to the proposed Phelps Dodge Mining Company Dos Pobres and San Juan Copper Project.*
 Response: See General Response No. 1.

Chapter 7

- Letter 17 Commentor Gary Kordosky of Henkel Corporation
Comment 1 *I favor the land exchange alternative for one major reason. It will allow PD to fully develop all of the copper reserves in the area in a fully comprehensive manner that can best meet the needs of PD and the regulatory agencies.*
Response: See General Response No. 1.
- Letter 18 Commentor Joan McNamara
Comment 1 *I am writing in support of the Phelps Dodge project to develop a copper mine in the Safford area. ...I urge approval of any permits necessary and of the land exchange.*
Response: See General Response No. 1.
- Letter 19 Commentor Roy Glen Lewis of Henkel Corporation
Comment 1 *I feel this is a proper use of the land.*
Response: See General Response No. 1.
- Letter 20 Commentor Lewis N. Tenny Sr.
Comment 1 *We support the Dos Pobres/San Juan Project without reservation for the economic benefits to Graham County, the State of Arizona, and national consumers and thank you for all your efforts.*
Response: See General Response No. 1.
- Letter 21 Commentor Al Chicago of Purcell Western States Tire
Comment 1 *...I am pleased with the positive social and economic impact this new Phelps Dodge facility will have on not only on our business but on the entire southeast Arizona area as well.*
Response: See General Response No. 1.
- Letter 22 Commentor Henry W. Goodman
Comment 1 *The idea that the industry should pay for the use of the land which is mineable is specious, considering the expenses involved in development of a viable mining property. More power to the mining industry!*
Response: See General Response No. 1.
- Letter 23 Commentor John R. Spence of Zeneca Specialties
Comment 1 *Our business solely depends on supplying the mining industries, but also in view of Phelps Dodge concern for the community and diligence in preparing the EIS urge issue of permitting for the Safford project.*
Response: See General Response No. 1.
- Letter 24 Commentor David L. Smith of Kvaerner Metals Constructors
Comment 1 *...Kvaerner supports the Phelps Dodge Safford Project and urges a swift approval process so that benefits will not be delayed.*
Response: See General Response No. 1.
- Letter 25 Commentor Mike Dwyer of Quadna Inc.
Comment 1 *I fully support Phelps Dodge in it's effort to establish a new mine in the Safford Arizona area.*
Response: See General Response No. 1.
- Letter 26 Commentor Laurence H. Beal
Comment 1 *I strongly recommend continued development of and the subsequent production from the Dos Pobres/San Juan Mine north of Safford, Arizona as it is imperative that the United States has a continuing future supply of domestic copper.*
Response: See General Response No. 1.
- Letter 27 Commentor Dale G. Armstrong
Comment 1 *I would like to take this opportunity to voice my support for the planned Safford project of the Phelps Dodge Mining Corporation.*
Response: See General Response No. 1.
Comment 2 *I would suggest that the potential risks of inaction or of denial on the part of the government to approve the land exchange and to issue the EIS will have injurious consequences to the city of Safford, it's citizens, and the state of Arizona as a whole.*
Response: See General Response No. 1.
- Letter 28 Commentor Raymond R. Berry of People for the USA, Pikes Peak Chapter
Comment 1 *I am in favor of the mine.*
Response: See General Response No. 1.

- Letter 29 Commentor George Couatts of Applied Industrial Technologies
 Comment 1 *On behalf of the ten employees of Applied Industrial Technologies, Tucson, AZ, I wish to express our support for the development of subject mine.*
 Response: See General Response No. 1.
- Letter 30 Commentor H. Mason Coggin of Arizona Department of Mines and Mineral Resources
 Comment 1 *The Draft Environmental Impact Statement should be accepted so that we can provide the raw materials for our future generations.*
 Response: See General Response No. 1.
- Letter 31 Commentor William T. Sherlock of Collins Precision Manufacturing, Inc.
 Comment 1 *This project is very important to my business.*
 Response: See General Response No. 1.
- Letter 32 Commentor Corolla Hoag
 Comment 1 *I am writing to support the development of the Dos Pobres/San Juan Mine north of Safford, Arizona.*
 Response: See General Response No. 1.
- Letter 33 Commentor Lyle Taylor of Geotemps
 Comment 1 *I am pleased to write to you in support of the Environmental Impact Statement issued for comment on the Phelps Dodge Dos Pobres/San Juan Mine.*
 Response: See General Response No. 1.
- Letter 34 Commentor William Elias of Phelps Dodge
 Comment 1 *I strongly support the Safford project, which includes the Dos Pobres and San Juan deposits.*
 Response: See General Response No. 1.
- Letter 35 Commentor David Godwin
 Comment 1 *I have reviewed the subject project draft and I have no concerns. It's a viable project that needs to happen.*
 Response: See General Response No. 1.
 Comment 2 *Everything in the study seems to be covered and nothing missed.*
 Response: See General Response No. 1.
- Letter 36 Commentor Cliff White of Sunstate Equipment
 Comment 1 *...I feel P.D. Safford will be a definite benefit to the Safford, Graham County areas.*
 Response: See General Response No. 1.
- Letter 37 Commentor Bret Hunt of Phelps Dodge
 Comment 1 *The economical impacts on the Gila Valley will be a great benefit to the residents there. Added tax revenues will also be a great help to local governments and schools.*
 Response: See General Response No. 1.
- Letter 38 Commentor Henry Truebe of AlpEx - geologic mapping
 Comment 1 *I would like to offer this letter in support of Phelps Dodge's Safford Project.*
 Response: See General Response No. 1.
- Letter 39 Commentor David Ferree
 Comment 1 *I believe the proposed mine would benefit both the local community and the state of Arizona.*
 Response: See General Response No. 1.
- Letter 40 Commentor Terry Braun of SRK Consulting
 Comment 1 *SRK Consulting supports the development of the PD Safford Project.*
 Response: See General Response No. 1.
- Letter 41 Commentor Stu Bengson of Arizona Mining Association
 Comment 1 *My concerns focus on providing the mineral resources (in this case Cu) that our nation depends upon. We must find ways to mine minerals and ensure environmental protection. This project (the proposed plan) accomplishes this.*
 Response: See General Response No. 1.
 Comment 2 *This project has not missed any aspect of the site specific conditions. It meets all requirements of NEPA and all environmental issues.*
 Response: See General Response No. 1.

Chapter 7

- Letter 42 Commentor Scott Bryce
Comment 1 *I fully support Phelps Dodge's new mining operation.*
Response: See General Response No. 1.
- Letter 43 Commentor Nathan Bennett of Phelps Dodge
Comment 1 *The depth of research into possible contingencies was impressive.*
Response: See General Response No. 1.
- Letter 44 Commentor C. H. Henline
Comment 1 *I urge you to approve this potential copper project, as it is apparent to me that we will urgently need new sources of copper in the coming century, as currently operating copper operations will have depleted their viable ore bodies.*
Response: See General Response No. 1.
- Letter 45 Commentor Toby Dunn
Comment 1 *The project I believe is essential to the growth and well being of the Gila Valley.*
Response: See General Response No. 1.
- Letter 46 Commentor Carla Lemen
Comment 1 *I am very much in favor of the Land Exchange.*
Response: See General Response No. 1.
- Letter 47 Commentor Sydney Hoff Hay of AMIGOS (AZ Mining & Indus. Get Our Support)
Comment 1 *We support this project because of the jobs it represents--not just direct employment--but the indirect employment that benefits the entire economy of state of Arizona. We believe that this project effectively balances environmental concerns with economic benefits.*
Response: See General Response No. 1.
- Letter 48 Commentor Timaree K. Crandell
Comment 1 *I support the Phelps Dodge Dos Pobres/San Juan Mine north of Safford.*
Response: See General Response No. 1.
- Letter 49 Commentor Jena Hunt
Comment 1 *I support the Phelps Dodge Dos Pobres/San Juan Mine north of Safford.*
Response: See General Response No. 1.
- Letter 50 Commentor Marnie Brown
Comment 1 *I support the Phelps Dodge Dos Pobres/San Juan Mine north of Safford.*
Response: See General Response No. 1.
- Letter 51 Commentor Ben Nuvamsa of Bureau of Indian Affairs, Fort Apache Agency
Comment 1 *While the analysis of impacts to the cultural and archaeological resources found within the area of potential effect is adequate, the document does not indicate any mitigation efforts being taken to protect these sites. Is there a plan for mitigating the impacts? Were Indian tribes consulted about the mitigation plan? Are cultural sites to be protected as well as archaeological sites?*
Response: See General Response No. 9, Cultural Resources Mitigation.
Comment 2 *There does not appear to be any discussion of the fact that the cultural resources that are to be impacted or destroyed are primarily Indian or that the Indian tribes associated with these sites are uniquely opposed to the traumatized by the destruction of these sites. Along the same lines, the only cultural impacts considered are site specific and do not discuss the harmful effects of the destruction of aboriginal lands even those there lands may not be under the direct control of the Indian tribes that claim aboriginal ties to the area.*
Response: BLM agrees that the majority of cultural properties in the project area are of Indian origin. The assumption was made during preparation of the EIS that readers would know that prehistoric archaeological sites in southeast Arizona are Indian in affiliation. In addition, the following statement was included in the DEIS on pp. 3-47 and 3-48: "Most of the tribes consulted consider the lands in the project area to be part of their historic aboriginal territory, or they claim ancestry to the prehistoric peoples who occupied these lands (SWCA 1997k)." Regarding the opposition of Indian tribes to, and trauma caused by destruction of, these sites during consultations with the 11 interested tribes, the majority stated that they opposed the proposed undertakings because of the expected impact to resources and the transfer of land out of federal management. The tribes also offered recommendations for avoidance and mitigation of expected impacts in the event the undertakings would proceed. A statement has been added to Section 4.3.4.2 to the effect that tribes consulted were generally opposed to the proposed undertakings, and a discussion of the cumulative impacts to cultural resources has been added to Section 4.5.3. This discussion addresses the development of aboriginal lands currently under non-Indian ownership by stating that approval of the MPO would have a cumulative impact on Native Americans by permanently decreasing the amount of undisturbed aboriginal lands, and the land exchange would have a cumulative effect on Native Americans

by decreasing the amount of aboriginal lands under federal management.

Comment 3 *If or when a mitigation plan for the archaeological and cultural resources becomes available, I would appreciate it if you would forward a copy to me.*

Response: This commentor was sent a copy of the draft archaeological data recovery and mitigation plan on June 16, 1999.

Letter 52 Commentor Mike Suggs

Comment 1 *I fully support this project!!!*

Response: See General Response No. 1.

Letter 53 Commentor Audrey Sobisek

Comment 1 *Please do not let Phelps Dodge get any more land from us the people.*

Response: See General Response No. 1.

Letter 54 Commentor Mike Schmelling of Phoenix Fuel Companies

Comment 1 *I am writing you in support of Phelps Dodge Corporation as they pursue the development of the Dos Pobres/San Juan Mine north of Safford.*

Response: See General Response No. 1.

Letter 55 Commentor Jeff Stevens of Phoenix Fuel Companies

Comment 1 *I am writing you in support of Phelps Dodge Corporation as they pursue the development of the Dos Pobres/San Juan Mine north of Safford.*

Response: See General Response No. 1.

Letter 56 Commentor Cory Funk of Phoenix Fuel Companies

Comment 1 *I am writing you in support of Phelps Dodge Corporation as they pursue the development of the Dos Pobres/San Juan Mine north of Safford.*

Response: See General Response No. 1.

Letter 57 Commentor Jack Keller of Phoenix Fuel Companies

Comment 1 *I am writing you in support of Phelps Dodge Corporation as they pursue the development of the Dos Pobres/San Juan Mine north of Safford.*

Response: See General Response No. 1.

Letter 58 Commentor Guy A. Buttler of Phoenix Fuel Companies

Comment 1 *...I strongly support the efforts of Phelps Dodge to develop the mineral resources of the Dos Pobres and San Juan Deposits near Safford.*

Response: See General Response No. 1.

Letter 59 Commentor Keith A. Cramer of Zeneca Specialties

Comment 1 *Our business solely depends on supplying the mining industries, but also in view of Phelps Dodge concern for the community and diligence in preparing the EIS urge issue of permitting for the Safford project.*

Response: See General Response No. 1.

Letter 60 Commentor Charles J. Maes of Zeneca Specialties

Comment 1 *Our business solely depends on supplying the mining industries, but also in view of Phelps Dodge concern for the community and diligence in preparing the EIS urge issue of permitting for the Safford project.*

Response: See General Response No. 1.

Letter 61 Commentor Peter Tetlow of Zeneca Specialties

Comment 1 *Our business solely depends on supplying the mining industries, but also in view of Phelps Dodge concern for the community and diligence in preparing the EIS urge issue of permitting for the Safford project.*

Response: See General Response No. 1.

Letter 62 Commentor Ren Northup of Arizona Department of Environmental Quality

Comment 1 *The Gila River and Eagle Creek (HUCs 15040005--022 and 15040005--025) are stressed by turbidity.*

Response: Thank you for this information.

Comment 2 *Where applicable the Management Agency and or Owner/Operator should over-see any construction to ensure that discharges from the watershed or to all Waters of the State/Waters of the U.S. shall meet all applicable Water Quality Standards.*

Response: Thank you for this information. Section 401 State Water Quality Certification is mandatory for any activity that requires a Section 404 Permit. For this project, PD will secure this certification from ADEQ (see Table 1-1). This certification is required prior to discharging any dredged or fill material into a Water of the United States.

Comment 3 *Best Management Practices should be implemented during and after all construction phases to protect watershed condition and riparian areas, to maintain adequate vegetative cover, and to minimize the*

Chapter 7

discharge of sediment, petroleum, nutrients, bacteria and other pollutants to the watershed or to all Waters of the State/Waters of the U.S.

- Response: PD will prepare a Stormwater Pollution Prevention Plan as required under CWA Section 402 and will employ Best Management Practices for all construction and operations phases.
- Comment 4 *Best Management Practices should be implemented for construction activities for mechanical equipment to minimize ground disturbance.*
- Response: Thank you for this information. See response 62-3.
- Comment 5 *Be aware that portable sources of air pollution i.e., rock, sand, gravel and asphaltic concrete plants are required to be permitted by ADEQ prior to commencing operations. Contractors and subcontractors working on this project may be required to comply with these regulations. Contact Mr. Prabhat Bhargava at (602) 207-2329 with the Arizona Department of Environmental Quality, Air Quality Permits Section.*
- Response: Thank you for this information; PD is aware of this requirement.
- Comment 6 *A monitoring program should be implemented to evaluate the effectiveness of Best Management Practices in protecting watershed condition and Waters of the State.*
- Response: Compliance with EPA and ADEQ requirements for general stormwater and point-source discharges and for state water quality authorizations, respectively, is required to implement the proposed mining and will ensure protection of watershed and water quality conditions.
- Comment 7 *Where applicable the Management Agency and or Owner/Operator should demonstrate a knowledge of waste streams, permits and hazardous materials handling as well as indicate the destination of each hazardous waste being disposed off-site.*
- Response: At the Dos Pobres/San Juan Project, as with its other mining operations in the U.S., PD must abide by all state, county, and federal laws applicable to mining operations, including the handling, storage, and disposal of hazardous materials.
- Comment 8 *Public or semi-public water supply systems shall be developed to comply with "Public and Semi-Public Water Supply Systems Rules." Contact Mr. Dale Ohnmeiss at (602) 207-4648 with the Arizona Department of Environmental Quality, Program Development & Outreach Unit, regarding assistance.*
- Response: Thank you for this information.
- Comment 9 *All underground storage tanks must be registered with ADEQ. Contact Mr. Ian Bingham at (602) 207-4315 with the Arizona Department of Environmental Quality, Inspection and Compliance Unit, regarding assistance in registration.*
- Response: Thank you for this information; PD is aware of this requirement.
- Comment 10 *All solid wastes generated by the activity shall be transported to an ADEQ approved facility. Waste stored on site for more than 90 days, or will be treated or disposed of on-site, may require facility approval. Contact Mr. David Phillips at (602) 207-4122 with the Arizona Department of Environmental Quality, Solid Waste Plan Review Unit, regarding assistance in applying for this permit.*
- Response: Thank you for this information; PD is aware of this requirement.
- Comment 11 *Sewage treatment facilities for human waste shall be planned and developed in such a manner to ensure protection of both surface and groundwater resources. An Aquifer Protection Permit (APP) may be required for such facilities. Contact Mr. Troy Day at (602) 207-4661 with the Arizona Department of Environmental Quality, Aquifer Protection Program Section, regarding assistance in applying for this permit.*
- Response: Thank you for this information. PD submitted its APP application to ADEQ in October 1998. That application is in final technical review.
- Comment 12 *Sanitary waste facilities provided during construction phases shall be planned and developed in such a manner to ensure protection of both surface and groundwater resources.*
- Response: PD will comply with all regulations pertaining to the operation of sanitary waste facilities provided during the construction phase of the Project.
- Comment 13 *An Aquifer Protection Permit (APP) will be required, as noted on page 2-18. Contact Mr. Troy Day at (602) 207-4661 with the Arizona Department of Environmental Quality, Aquifer Protection Program Section, if you have questions about this permit application.*
- Response: See response 62-11.
- Comment 14 *A Clean Water Act, Section 402, NPDES Permit is required for all ground disturbing activities which exceed 5 acres in impact. Contact Mr. Robert Wilson at (602) 207-4574 with the Arizona Department of Environmental Quality, regarding assistance in applying for this federal permit.*
- Response: PD will be submitting its Notice of Intent to EPA and to ADEQ as part of compliance with Section 402, NPDES, for general construction. Thank you for this information.
- Comment 15 *A Clean Water Act, Section 404 permit may be required to discharge dredged or fill material into navigable waters. Contact the US Army Corp of Engineers at (602) 640-5385 to learn more about the Section 404 requirements. A Section 401 Certification from ADEQ may also be required. Contact the Arizona Department of Environmental Quality, Engineering Review and Permits at (602) 207-4502 for assistance in obtaining certification.*
- Response: The COE, as a cooperator in the preparation of this EIS, will make a decision on whether to issue or deny PD a Section 404 permit for activities subject to COE jurisdiction. PD will also be applying for its Section 401 State Water Quality Certification from ADEQ. Thank you for this information.

Responses to Comments

Comment 16 *Numeric water quality standards listed in A.A.C. R18-11-109.G. and A.A.C. R-18-11-406 must be complied with, as well as narrative water quality standards in A.A.C. R-18-11-405. To obtain a copy of the A.A.C. R18-11-107, 108, 109, 405 and 406 water quality standards, call the Arizona Department of Environmental Quality, Water Quality Division Compliance Section at (602) 207-4466*

Response: Thank you for this information.

Letter 63

Commentor J. Darrell Jordan of Arizona Department of Water Resources

Comment 1 *It appears that groundwater will be utilized to meet the project's water supply needs (see eg. Pages S-4 and 2-10). Accordingly, Phelps Dodge will be required to file Notices of Intent to drill the proposed wells, and otherwise comply with the Groundwater Management Act of 1980.*

Response: Thank you for this information; PD is aware of this requirement.

Comment 2 *The DEIS discusses a series of stormwater diversion and retention structures, some which appear to include a diversion of public water from a natural channel. To the extent that appropriable waters, as defined in A.R.S. § 45-141, are diverted from or impounded in natural channels, a permit to appropriate public water must be obtained from ADWR. Specifically, those diversions listed on pages 2-15 and 2-16 (South Diversion, West Diversion, Site No. 1 Diversion and Peterson Wash Diversion) appear to divert waters from their natural channels in an effort to redistribute the flows of that water. Such activity requires a permit to appropriate public water. In contrast, however, retention of the sheet flows discussed on page 3-26 "within the footprints of the development rock" does not require a permit to appropriate as those waters fall outside the definition of "appropriable waters".*

Response: Thank you for this information; PD is aware of this requirement.

Comment 3 *The discussion on page 4-54 indicates that water right holders will not be affected by the land exchange and will retain water rights on land no longer owned by them. Surface water rights are appurtenant to the lands upon which the water is beneficially used, and the holder of a water right must own or possess the land to which the right is appurtenant. When land is conveyed, the water right remains appurtenant and passes to the new owner unless reserved by the conveyor and severed and transferred for use elsewhere. Those water rights subject to the exchange should be assigned to the new land owner.*

Response: This information has been used to revise Section 4.4.1.6.1.

Comment 4 *The main stormwater impoundment dam and certain retention dams described elsewhere in the DEIS appear to be of jurisdictional size. The stormwater impoundment dam described on page 2-17 is listed as having a capacity of 332 acre feet and a height of "about 25 feet." In addition, the DEIS describes a number of additional retention dams on page 2-19, at least three of which appear to be over 25 feet in height. Any dams that are more than 25 feet high or that store more than 15 acre feet of water are subject to review by ADWR's Safety of Dams Section and must comply with Arizona law regarding Dam Safety. These laws also apply to a series of retention structures that cumulatively exceed the jurisdictional limit if the series is part of a common retention operation and one structure poses a risk of cascading failure of other structures.*

Response: Thank you for this information.

Comment 5 *On page 1-8, the DEIS states that the Gila River is "over-appropriated." Neither ADWR, nor the Maricopa County Superior Court has made this legal determination, although it does appear that there is no unappropriated water available at or near the proposed site.*

Response: Comment noted. Please see revised Section 1.5.3.

Comment 6 *The discussions regarding the project's impact on surface water flows in the Gila River (see e.g. pages 1-8 and 4-6) assumes that wells proposed for use in the mining operation will be pumping some amount of appropriable subflow of the Gila River. The legal distinction between groundwater and appropriable subflow remains unclear and the issue is currently on interlocutory appeal to the Arizona Supreme Court. The mitigation measures discussed in the DEIS may be impacted by resolution of this issue. In addition, accounting for the impacts of pumping appropriable subflow of the mainstem of the Gila River is an issue before the Globe Equity No. 59 Court.*

Response: Comment noted; please see revised Section 1.5.3.

Comment 7 *The issue of ownership of water rights on state and federal lands is also currently pending before the Arizona Supreme Court and its resolution may potentially affect the issue of compensation for lost water rights discussed on page 4-6.*

Response: The pendency of the issue of ownership of water rights on federal and state lands before the Supreme Court of Arizona is likely a reference to the so-called interlocutory issues number 4 and 5, which were decided by that Court on November 19, 1999, under the caption *In Re The General Adjudication of all Rights to use Water in the Gila River System and Source*, 195 Ariz. 411. There the Court held that federal reserved rights extend to groundwater to the extent that groundwater is necessary to accomplish the purpose of the federal (Indian) reservation, and for this same purpose holders of federal reserved rights enjoy greater protection from groundwater pumping than do holders of state law rights. Interlocutory issue number 3, regarding the appropriate standard to be applied in determining the amount of these Federal reserved rights is still pending before the Court.

Comment 8 *The discussion of issues related to the Globe Equity No. 59 Decree (see e.g. Page 1-8 and 1-9), is accurate. We note, however, that the continuing jurisdiction of the Globe Equity No. 59 Court is limited to decreed lands specified in the 1935 Consent Order, as modified with approval of the Gila River Water Commissioner and the Court. Aside from use or a change in beneficial use on decreed lands, or a severance and transfer of water rights from decreed lands to new lands, issues of surface water rights and*

Chapter 7

responsibilities for this project are subject to the jurisdiction of the State of Arizona.

Response: Comment noted. Section 1.5.3 has been revised.

Letter 64

Commentor Craig R. Tyler

Comment 1 *I support the development of the Safford Mine, and hope you will do your best to facilitate Phelps Dodge in their efforts.*

Response: See General Response No. 1.

Letter 65

Commentor Jarrett Munkittrick

Comment 1 *I am writing to express my SUPPORT for the proposed Phelps Dodge open-pit mine and related plants near Safford Arizona.*

Response: See General Response No. 1.

Letter 66

Commentor George A. Wolfe of Henkel Corporation

Comment 1 *I support this final EIS.*

Response: See General Response No. 1.

Letter 67

Commentor Stephan M. Olafson of Henkel Corporation

Comment 1 *I support the Land Exchange Alternative.*

Response: See General Response No. 1.

Letter 68

Commentor Robert J. Kline

Comment 1 *I am in full support of this project.*

Response: See General Response No. 1.

Letter 69

Commentor Glen Wyman

Comment 1 *I would like to go on record as supporting the proposed mining operations of the Dos Pobres and San Juan deposits.*

Response: See General Response No. 1.

Comment 2 *My request would be for the BLM to hold PD to best mining practices, but not excessively delay the project with suspect studies of questionable environmental concerns.*

Response: See General Response No. 1.

Letter 70

Commentor John Ligon

Comment 1 *I like the proposed Dos Pobres/San Juan Mine project as proposed by Phelps Dodge. I liked the things I read in the EIS. I especially like the land swaps that Phelps Dodge has offered in exchange for the BLM land on which a substantial portion of the mine would be located. I think the whole idea is good. Please log me as one high-dollar taxpayer who is totally in favor of the whole operation.*

Response: See General Response No. 1.

Letter 71

Commentor Russ Perlich of Quadna PSI

Comment 1 *I am writing to express my support for the BLM's granting of permits to Phelps Dodge Corp. for the planned Safford project.*

Response: See General Response No. 1.

Letter 72

Commentor Richard Lines, D.D.S.

Comment 1 *This letter is one of support for the proposed project and the accompanying environmental impact that will accompany the mineral development.*

Response: See General Response No. 1.

Letter 73

Commentor Danny Smith of Gila Outdoor, L.L.C.

Comment 1 *...I support the Dos Pobres/San Juan Project.*

Response: See General Response No. 1.

Comment 2 *The lands Phelps Dodge would like to exchange as identified on pages 2-38 through 2-40 of the EIS are at a glance, worth more money, have more environmental value, and offer more recreational value to residents of Arizona than the mine site property.*

Response: See General Response No. 1.

Letter 74

Commentor Terry J. Bingham of Graham County Board of Supervisors

Comment 1 *On behalf of the Graham County Board of Supervisors, as well as the vast majority of citizens in Graham County, I am writing this letter of support for the proposed Phelps-Dodge Safford Mine.*

Response: See General Response No. 1.

Comment 2 *After reviewing the EIS and discussing the plans that officials of Phelps-Dodge propose with respect to this mining operation and given their outstanding record at the Morenci mine, we concur with BLM's preferred alternative and fully support the land exchange alternative as outlined in this report. We feel that BLM's*

Responses to Comments

policy 'that identify land exchanges as the preferred method of disposing of unwanted federal lands and acquiring desirable private lands' (see 1.6.2.2.1 of the EIS) is a win-win approach in this case.

Response: See General Response No. 1.

Comment 3 *It should be pointed out that the land exchange alternative will not minimize the governments regulatory oversight for this project, while providing valuable private lands to the public lands' repository. In fact, the federal government will offer their preferred alternative with regard to the proposed mine with the Corps of Engineers (COE) determining 'the least environmentally damaging and practicable alternative', while the Environmental Protection Agency (EPA) selects 'the alternative which causes the least damage to the biological and physical environment, and which best protects, preserves, and enhances historic, cultural, and natural resources' (see 2.3 of the EIS).*

Further the State Mine Inspector's Office has some oversight responsibility over the reclamation of mines on private lands, while the Arizona Department Environmental Quality will also monitor this operation through their various permits related to the Clean Air and Clean Water regulations.

Response: See General Response No. 1.

Comment 4 *Graham County concurs with BLM's position that the issue surrounding the disputed southern boundary with the San Carlos Apache Tribe 'has been reviewed and addressed adequately by BLM and other federal entities; the Tribe accepted fair compensation for all disputed aboriginal lands' (see 1.6.2.2.1). We believe that BLM's decision not to carry this issue forward in review of this project is appropriate and one the County fully supports.*

Response: See General Response No. 1.

Comment 5 *I would also point out that the mining activity proposed by the Phelps-Dodge Safford Mine supports the Graham County Land Use and Resource Policy Plan and Implementation Plan (LURRP), which was adopted in July 1996. The policy statement for mining reads, 'Graham County will work cooperatively with Federal and State Agencies regarding private and public land and resource issues related to mining.' It further states that these agencies 'recognize the county's support and encouragement of beneficial mining efforts, recognizes the economic benefits it provides, and encourages mining efforts on public and private lands.'*

Response: This information was incorporated into revised Section 4.3.1.1.1 of the EIS.

Comment 6 *... I would hope that you would carefully consider this project's importance to our community as you review this request.*

Response: See General Response No. 1.

Letter 75 Commentor John W. Martin of Quail Ridge Construction

Comment 1 *... I have concluded that the Land Exchange Alternative is the most practical option available.*

Response: See General Response No. 1.

Letter 76 Commentor Walter Heinrichs of Heinrichs Geoexploration Co.

Comment 1 *Your desire to avoid, prevent or reduce potential and realistic impacts have been well addressed by the DEIS.*

Response: See General Response No. 1.

Letter 77 Commentor Kyle Kempton of Kempton Chevrolet Buick, LTD.

Comment 1 *As a local businessman, I want to go on record in support of the Phelps Dodge Safford Project.*

Response: See General Response No. 1.

Letter 78 Commentor Barbara L. Brunssen of Zeneca Specialties

Comment 1 *Our business solely depends on supplying the mining industries, but also in view of Phelps Dodge concern for the community and diligence in preparing the EIS urge issue of permitting for the Safford project.*

Response: See General Response No. 1.

Letter 79 Commentor Owen Tinkler of Zeneca Specialties

Comment 1 *Our business solely depends on supplying the mining industries, but also in view of Phelps Dodge concern for the community and diligence in preparing the EIS urge issue of permitting for the Safford project.*

Response: See General Response No. 1.

Letter 80 Commentor Kyle Kempton of Graham County Chamber of Commerce

Comment 1 *...We support BLM's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Comment 2 *The Dos Pobres/San Juan Project will provide a needed compliment to the existing agricultural, tourism, education and government mix in the Gila Valley. Section 4.3.5 of the EIS documents this very positive impact of the project quite well.*

Response: See General Response No. 1.

Comment 3 *The Graham County Chamber of Commerce feels that BLM has done a more than adequate job of evaluating the issue of the boundary between BLM land and land owned by the San Carlos Apache Tribe.*

Chapter 7

Businesses need to be able to count on government to stand behind their businesses. Your review of this matter on page 1-16 is a clear and convincing discussion of the history of this issue, and we support your decision to not carry the matter forth for further consideration in the EIS.

Response: See General Response No. 1.

Comment 4 *We understand that the nearly thirty laws/regulations, which are applicable to the Dos Pobres/San Juan Project and are shown in Table 1.1 of volume 1 of the EIS, apply whether the land exchange alternative is selected or rejected. Therefore, the Graham County Chamber of Commerce is comfortable with the environmental protection checks and balances that will be employed in this project and support the Land Exchange alternative.*

Response: See General Response No. 1.

Letter 81 Commentor Ivan J. Smith of Smith and Bell Construction Co.

Comment 1 *We are writing to ask that you go forward with the planned development of the Safford Mine.*

Response: See General Response No. 1.

Letter 82 Commentor Jay W. Spehar of Cyprus Miami Mining

Comment 1 *Upon review of the DEIS it is clear that the preferred alternative for a land exchange is the best alternative under consideration by the Bureau of Land Management (BLM).*

Response: See General Response No. 1.

Comment 2 *BLM should complete the National Environmental Policy Act (NEPA) process and consummate this land exchange as soon as possible.*

Response: See General Response No. 1.

Comment 3 *Chapter 1, section 1.5.3 of the DEIS identifies and discusses "the regulatory authority governing water use of the Gila River and the relationship of decisions to be made by BLM, COE and EPA with regard to that regulatory authority." "Postulated" impacts to the Gila River are identified as a deficit amount of water in the Gila River approximating 74.5 acre feet per year (af/yr), including 40 af/yr related to storm water runoff management and 35.4 af/yr related to ground water pumping. The proposed mitigation measures, which includes monitoring, modeling and mitigation, together with the actual fallowing of deeded lands and their attendant decreed water rights, more than adequately compensate for these "postulated" impacts. The Water Resources Mitigation Plan is clearly excessive when compared to the "postulated" impacts.*

Response: *The amount of decreed agricultural lands to be fallowed (and subsequently, the amount of water not being diverted and consumed from the river to irrigate these lands) is tied to the results of the groundwater monitoring program (3M Program) described in Appendix F. Initial mitigation amounts calculated based on the current groundwater model results may indeed overcompensate for actual and postulated impacts by three times, but if recalibration is triggered, the amount of mitigation actually required could either increase or decrease.*

Comment 4 *Notwithstanding the controversial legal status of these water rights, the DEIS implies that that BLM and other federal agencies may have jurisdictional authority over water rights within the Gila River Basin as administered by Globe Equity No. 59 Decree and the laws of the State of Arizona. The DEIS appears to proffer the legal opinion that the project proponent is limited in implementing certain portions of its mine plan due to Article XIII of the Globe Equity No. 59 Decree. The DEIS states correctly that BLM has the authority to approve mining related uses of public land and the authority to approve the proposed land exchange. However, the DEIS implies incorrectly that BLM and other agencies have jurisdictional authority to approve title and rights to water sources and uses for the proposed operation.*

BLM and other cooperating or coordinating agencies have no jurisdictional authority to adjudicate, interpret or apply the terms and conditions of Globe Equity No. 59 Decree or other water rights administered under the laws of the State of Arizona. Nor do the respective agencies have any jurisdictional authority over the delineation of ground and surface water under the laws of the State of Arizona. Approval of the project by BLM and other agencies through the NEPA process, including analysis of the project's water sources and uses, does not constitute a "grant" of water rights nor an infringement on any water right claimant, including claimants for whom the Department of Interior may have trust responsibilities.

Response: Comment noted. Please see revised Section 1.5.3.

Comment 5 *The project proponent is not required to procure approval of its title or rights to sources and uses of water through the NEPA process. The NEPA process is intended to focus on impact and alternative analysis and not to interpret, apply or adjudicate title to water rights. The issue of water rights must be left to the appropriate legal processes such as the legislative and judicial branches of state and federal government.*

Response: *The commentor is correct that water rights cannot be and are not being adjudicated under this NEPA process. NEPA simply requires that effects of the proposed action and alternatives on water rights, including the ability of holders of water rights to exercise those rights, must be identified and disclosed. Mining or implementation of mining-related activities is subject to compliance with all of the applicable federal, state, and local laws and regulations pertaining to such actions; BLM's authorization of the MPO or land exchange is but one such requirement. Rights to surface flows in the Gila River are currently subject to ongoing adjudication in federal and county courts. Please see revised Section 1.5.3.*

Responses to Comments

- Letter 83 Commentor Ronald J. Jacobson of City of Safford
Comment 1 *The City of Safford strongly supports the development of Phelps Dodge's Safford Project. ... we support the land exchange between the Bureau of Land Management and Phelps Dodge.*
Response: See General Response No. 1.
- Letter 84 Commentor Diane Curtis-Junion
Comment 1 *I would like to write this letter in support of the Land Exchange with BLM and Phelps Dodge.*
Response: See General Response No. 1.
- Letter 85 Commentor Steve Junion of Valley Furniture
Comment 1 *I am a private businessman, thus the writing of this letter in support of the Land Exchange with BLM and Phelps Dodge.*
Response: See General Response No. 1.
- Letter 86 Commentor Bettyann Hazell
Comment 1 *... I wish to convey my support for the Land Exchange Alternative and The Dos Pobres/San Juan Project proposed by the Phelps Dodge Mining Company.*
Response: See General Response No. 1.
- Letter 87 Commentor Florin & Sally Schlautman
Comment 1 *We are in favor of the development of the proposed Safford Mine by Phelps Dodge. ... The Land Exchange Alternative as selected by the Bureau of Land Management is a good choice for this project.*
Response: See General Response No. 1.
- Letter 88 Commentor Roger Shastri of Best Western Desert Inn Motor Hotel
Comment 1 *I am in favor of the BLM's preferred alternative of the land exchange to support the proposed project By Phelps Dodge Mining Company.*
Response: See General Response No. 1.
- Letter 89 Commentor Tom Johnson of Johnson Motors Corp.
Comment 1 *I am writing to support the Dos Pobres/San Juan Project. ... I would appreciate the Bureau of Land Management approving the Dos Pobres/San Juan Project.*
Response: See General Response No. 1.
- Letter 90 Commentor Dale Luce
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 91 Commentor George A. Cauthen
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 92 Commentor Van Talley of City of Safford
Comment 1 *On behalf of the City Council, I am writing this letter in support of Phelps Dodge Dos Pobres San Juan Project. We also support the agency's preferred alternative of the land exchange as found in the EIS draft.*
Response: See General Response No. 1.
- Letter 93 Commentor Malcolm Busby
Comment 1 *I am writing this letter to express my support for the proposed action set forth by the BLM on the Mine Plan Alternative Set along with the Land Exchange Alternative Set for the Safford Mine.*
Response: See General Response No. 1.
- Letter 94 Commentor Dondre Busby
Comment 1 *I support the Proposed Action of the BLM in reference to the new Safford Mine project.*
Response: See General Response No. 1.
- Letter 95 Commentor T.E. Scartaccini
Comment 1 *The purpose and need for proposed action (a Land Exchange) is well covered.*
Response: See General Response No. 1.
Comment 2 *The alternative study for impact covers the range very well. The project design address the impacts to a very acceptable level.*
Response: See General Response No. 1.
Comment 3 *The preferred alternative action should be carried out.*

Chapter 7

- Response: See General Response No. 1.
- Letter 96 Commentor Lainie Levick of Sierra Club, Rincon Group
Comment 1 *The Rincon Group of the Sierra Club respectfully requests a 30 day extension of the comment period on the DEIS for the Dos Pobres/San Juan Project until December 28, 1998.*
- Response: This request was granted; see General Response No. 2, NEPA Process.
- Letter 97 Commentor A. D. Cox
Comment 1 *I think BLM should approve the proposed land exchange because they would gain some good land for the state.*
- Response: See General Response No. 1.
- Letter 98 Commentor Peg Briney
Comment 1 *Now that the opportunity [for the land exchange] has presented itself to obtain these lands, I fervently hope nothing, no one or anything will decrease or destroy this opportunity.*
- Response: See General Response No. 1.
- Letter 99 Commentor William F. Briney
Comment 1 *I am writing to you to support the land exchange alternative (the BLM's preferred alternative) as outlined in the Draft Environmental Impact Statement for the Dos Pobres/San Juan Project.*
- Response: See General Response No. 1.
- Letter 100 Commentor E. Cluff
Comment 1 *I am in favor of the land swap alternative because it will add many riparian areas to BLM control.*
- Response: See General Response No. 1.
- Letter 101 Commentor Elsie R. Cluff
Comment 1 *I support the draft EIS for Dos Pobres/San Juan project.*
- Response: See General Response No. 1.
- Letter 102 Commentor Lorraine N. Gardner of Gardner Accounting Service
Comment 1 *I am writing to express my strong desire to have the Safford Mine developed.*
- Response: See General Response No. 1.
- Letter 103 Commentor Robert S. Woolsey
Comment 1 *I certainly support the new copper mine project....*
- Response: See General Response No. 1.
- Letter 104 Commentor John R. Doherty of J & K Investments
Comment 1 *...I support the BLM preferred alternative of the land exchange.*
- Response: See General Response No. 1.
- Letter 105 Commentor Gary L. Muncy, M.D.
Comment 1 *Now we are asked to give up use of the San Juan Mine Road. The draft EIS states that this will only increase the time to reach the Johnny Creek loop by 15 - 30 minutes. I have been in that area many times from both directions and by experience I know that it will be more like 1 - 1.5 hrs in extra time to reach what now can be reached in about 30 minutes.*
- Response: BLM re-evaluated the driving time that would be required to reach the Johnny Creek area assuming the closure of the San Juan Mine Road. To determine the time needed to reach the Johnny Creek area via the San Juan Mine Road vs. the Solomon Pass Road, both routes were driven under comparable conditions. Leaving Safford (from the intersection of 8th Avenue and Highway 70), it took 34 minutes via the San Juan Mine Road to reach the junction with the West Ranch Road (see Figure 1-2). This junction was chosen as the destination representing the beginning of the Johnny Creek area as accessed by the San Juan Mine Road. If the San Juan Mine Road is closed, the Johnny Creek Loop can be reached via the Solomon Pass, Salt Trap, and West Ranch Roads. Using this alternative route, it took 70 minutes to reach the junction of the San Juan Mine Road and West Ranch Road, a difference of 36 minutes to be exact. The FEIS has been revised to reflect the exact additional difference in driving time.
- Comment 2 *I don't think that it would be too much to ask to have PD maintain access for thru traffic on the San Juan Mine road to reach the country surrounding the Johnny Creek area. This should be negotiated as part of the land exchange.*
- Response: It will not be possible to keep the San Juan Mine Road open to the public as a means of access to the Gila Mountains north of the project area. As the San Juan Mine pit grows, it will eventually consume a portion of the existing road. Also, to provide for safety and security, PD is proposing to gate the San Juan Mine Road at the property line between their private property and public lands. Initially, PD and the BLM explored construction of other routes around the mining operation to replace this road. Because of public safety and security concerns, no feasible alternative was found. Access to public lands north of the project area, however, is still available by using the existing Solomon Pass Road. Thus PD and BLM evaluated the feasibility of upgrading portions of the Solomon Pass Road to mitigate the loss of the San Juan Mine

Responses to Comments

Road. BLM recreation planners are working with PD to develop this proposed mitigation measure.

Comment 3 *In general I support the land exchange proposal but only if it does not allow PD to close off ready public access to this beautiful public land.*

Response: See response 105-2.

Letter 106 Commentor Kirk Gray

Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Letter 107 Commentor Catharine L. Gray

Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Letter 108 Commentor Ruby Cauthen

Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Letter 109 Commentor Donald R. Stacy of Greenlee County Board of Supervisors

Comment 1 *Greenlee County enjoys a very good working relationship with both BLM and Phelps Dodge Corporation. BLM Safford District staff demonstrates professionalism as it works to accomplish the myriad tasks necessary to manage federal lands in our area. We find the local office is willing to meet with County officials and solicit our concerns regarding public land management impacts to our area. We have not always achieved a consensus, but we maintain an ongoing working dialog.*

Response: See General Response No. 1.

Comment 2 *We support the proposed land exchange as described in the EIS. It is our belief that this proposal will benefit both the public and private parties. The lands that BLM will acquire are areas that are environmental valuable and sensitive. Lands acquired by Phelps Dodge will benefit their operations and provide a buffer to public lands. Federal regulation dictates the appropriate manner to trade these properties and we feel it treats both private and public concerns fairly.*

Response: See General Response No. 1.

Comment 3 *Greenlee County fully supports the BLM preferred land exchange alternate.*

Response: See General Response No. 1.

Letter 110 Commentor Gary Cowell

Comment 1 *I am writing this letter in support of the above referenced project (Dos Pobres/San Juan Project).*

Response: See General Response No. 1.

Letter 111 Commentor Harvey Green of Quadna PSI

Comment 1 *I would like to express my support for the BLM granting a permit to Phelps Dodge Mining Company for the planned Safford Project.*

Response: See General Response No. 1.

Letter 112 Commentor Michael H. Thompson of Phelps Dodge Morenci, Inc.

Comment 1 *...I am in full support of the implementation of this project. ... I also like the proposal of the PD/BLM land exchange.*

Response: See General Response No. 1.

Letter 113 Commentor Dee Jaksich

Comment 1 *I am in support of the Land Exchange Alternative.*

Response: See General Response No. 1.

Letter 114 Commentor R. Pat Fanello of Countrywide Homes

Comment 1 *I am writing this letter to express my support for the Dos Pobres/San Juan Project in the Safford area.*

Response: See General Response No. 1.

Letter 115 Commentor Thomas D. Toole

Comment 1 *I am writing this letter to support the development of the Dos Pobres/San Juan mine.*

Response: See General Response No. 1.

Letter 116 Commentor Margaret Schade

Comment 1 *I support BLM's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Chapter 7

- Letter 117 Commentor Glenda Kennedy of People for the USA, Greenlee Chapter
Comment 1 *The Greenlee Chapter of People For The USA is in support of the Dos Pobres/San Juan Mine north of Safford.*
Response: See General Response No. 1.
- Letter 118 Commentor Jim & Glenda Kennedy
Comment 1 *We strongly support the Dos Pobres/San Juan Mine north of Safford.*
Response: See General Response No. 1.
- Letter 119 Commentor Dean G. & Mary Krieg of Ramada Inn
Comment 1 *... I as well as my wife would like to offer our full support of the Dos Pobres/San Juan Project proposed by the Phelps Dodge Mining Company and BLM's preferred alternative of the land exchange found on pages 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 120 Commentor Gary D. Curtis of Coldwell Banker/Curtis Real Estate
Comment 1 *I fully support the land exchange pertaining to Phelps Dodge, so they may open Dos Pobres and San Juan mines.*
Response: See General Response No. 1.
- Letter 121 Commentor Glenn Gable
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 122 Commentor Mary Ann Luzania
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 123 Commentor Ana A. Navarrete
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 124 Commentor Eric Mayhew
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 125 Commentor Jodi Merrick
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 126 Commentor Tammy Mayhew
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 127 Commentor Dean G. Krieg
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 128 Commentor Ronald Herbert
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 129 Commentor Mary L. Krieg
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.

Responses to Comments

- Letter 130 Commentor Brenda Bejarano
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 131 Commentor Lyndall Nichols
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 132 Commentor Rosie Rivera
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 133 Commentor Rebecca Coleman
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 134 Commentor Randy Chandler
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 135 Commentor David Nelson
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 136 Commentor R. Gene Fowler of Eastern Arizona Computers
Comment 1 *I would like to go on record as favoring the land exchange referenced above (BLM/Phelps Dodge Land Exchange).*
Response: See General Response No. 1.
- Letter 137 Commentor Tim E. Alder of GMI Insurance Group
Comment 1 *We are writing in support of the Dos Pobres/San Juan Project proposed by Phelps Dodge Mining Company. We also support the Bureau of Land Management's preferred land exchange alternative as proposed in the draft EIS.*
Response: See General Response No. 1.
- Letter 138 Commentor Emilio M. Membrila
Comment 1 *I am in full support of the Land Exchange Alternative being considered for the Safford Mine Project.*
Response: See General Response No. 1.
- Letter 139 Commentor Charlie Hatch of Hatch Brothers Auto Center
Comment 1 *I am writing in support of the Dos Pobres/ San Juan project.*
Response: See General Response No. 1.
- Letter 140 Commentor Brian Segee of Southwest Center for Biological Diversity
Comment 1 *We are requesting that the Safford BLM office extend the comment period for the Dos Pobres/San Jaun Project for 30 days to December 28, 1998.*
Response: This request was granted; see General Response No. 2, NEPA Process.
- Letter 141 Commentor Janine Blaeloch of Western Land Exchange Project
Comment 1 *We are requesting that your office extend the comment period on the Draft EIS for the Dos Pobres/San Juan Project to December 28, 1998.*
Response: This request was granted; see General Response No. 2, NEPA Process.
- Letter 142 Commentor Max & Helen Wilson
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres / San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.

Chapter 7

- Letter 143 Commentor Ronald W. Harrington
Comment 1 *It is my judgment that the location is in an area, which is ideal for mining because it would not cause a big impact on any other uses in the area, such as the closure of the Johnny Creek road. It is my experience, this road does not have the use as suggested on page 4-3 and if it's allowed to remain open, it would create a potential public safety issue.*
Response: The number of backcountry drivers using the general project area was estimated by the following calculations: an average of 18 - 20 vehicles/week times the average of 3 people/vehicle times 52 weeks/year equals 2,808 to 3,120 visitors/year. The DEIS stated that this would be the maximum number of backcountry drivers affected by the closure of the San Juan Mine Road. If all vehicles/users drove that road, that would be the maximum number of visitors affected. The reader should remember, however, that not all visitors individually drive a vehicle (thus the assumption of 3 people/vehicle on average), and not all vehicles drive only on the San Juan Mine Road. The number of visitors that are estimated to participate in this activity (2,800 - 3,100 visitors) includes use by any type of motorized vehicle driving on all existing backcountry roads on selected public lands. It is acknowledged that most of the backcountry driving use occurs on the Solomon Pass, San Juan Mine, West Ranch, and Johnny Creek Loop roads. In the absence of actual visitor use counts, we believe this is still a reasonable estimate of the amount of backcountry visitation that occurs in the project area, and appropriate for this analysis.
Comment 2 *The Solomon Pass road provides ample access to the ranchers, recreational hunters and others who might travel in the area. I do not believe the Solomon Pass road needs to be improved but if so, with the tax dollars which will be generated by Phelps Dodge, it should be done by the County.*
Response: See General Response No. 1.
Comment 3 *Therefore it is my wish the BLM will expedite the approval of all actions and permits required so the project can become a reality.*
Response: See General Response No. 1.
- Letter 144 Commentor Kay Dean
Comment 1 *This letter is in support of the Phelps Dodge Dos Pobres/San Juan Mining Project.*
Response: See General Response No. 1.
- Letter 145 Commentor Russell M. Corn
Comment 1 *I support the Dos Pobres/San Juan Mine project. ... I support the proposed land exchange....*
Response: See General Response No. 1.
- Letter 146 Commentor Mary Hartung of Thatcher Building Supply
Comment 1 *Please move as quickly as you can to make the new environmentally compatible mine a reality for the valley.*
Response: See General Response No. 1.
- Letter 147 Commentor Paul Hanson of Quadna PSI
Comment 1 *I am writing to express my support for the BLM's granting of permits to Phelps Dodge Corp. for the planned Safford Project.*
Response: See General Response No. 1.
- Letter 148 Commentor Harvey Hibel of Quadna PSI
Comment 1 *I am writing to express my support for the BLM's granting of permits to Phelps Dodge Corp. for the planned Safford Project.*
Response: See General Response No. 1.
- Letter 149 Commentor Jeff Wright of Quadna PSI
Comment 1 *I am writing to express my support for the BLM's granting of permits to Phelps Dodge Corp. for the planned Safford Project.*
Response: See General Response No. 1.
- Letter 150 Commentor Stuart H. Jones
Comment 1 *But with only 13% of Arizona land area as private property, exchanging another 17,000 acres of private land for 3,858 acres of environmentally valuable public land is moving in the wrong direction. If this land is environmentally valuable, perhaps it should be purchased by the environmental groups concerned.*
Response: The commentor has incorrectly identified the selected lands as private and the offered lands as public. Selection of the land exchange alternative would result in a net increase in the amount of private land in the State of Arizona.
- Letter 151 Commentor Thomas D. Green
Comment 1 *The proposed land exchange looks to be a beneficial arrangement for all parties concerned.*
Response: See General Response No. 1.

- Letter 152 Commentor Blair M. Miller of Quadna PSI
 Comment 1 *The purpose of this letter is to ask for a favorable recommendation regarding the permitting of the Phelps Dodge Safford Project.*
 Response: See General Response No. 1.
- Letter 153 Commentor Mary Ann Bermudez
 Comment 1 *I am writing this letter to show my support for the Dos Pobres/San Juan Project proposed by Phelps Dodge Mining Company.*
 Response: See General Response No. 1.
- Letter 154 Commentor Brent Callen
 Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I support the BLM's preferred alternative of the Land Exchange. ... This operation will greatly benefit the local and surrounding economies.*
 Response: See General Response No. 1.
 Comment 2 *The closure of the San Juan road and its effect on 3000 back country drivers seems to be overstated. I have seldom seen anyone but the occasional rancher or hunter on this access. I do not think it would be easy to miss 60 travelers a week on this road. The same areas can be reached from the Solomon Pass Road.*
 Response: See response 143-1.
- Letter 155 Commentor Barbara A. Harrington
 Comment 1 *It is my judgment that the location is in an area, which is ideal for mining because it would not cause a big impact on any other uses in the area, such as the closure of the Johnny Creek road. It is my experience, this road does not have the use as suggested on page 4-3 and if it's allowed to remain open, it would create a potential public safety issue.*
 Response: See response 143-1.
 Comment 2 *The Solomon Pass road provides ample access to the ranchers, recreational hunters and others who might travel in the area.*
 Response: See General Response No. 1.
 Comment 3 *Therefore it is my wish the BLM will expedite the approval of all actions and permits required so the project can become a reality.*
 Response: See General Response No. 1.
- Letter 156 Commentor Nellie E. Plasencio
 Comment 1 *... I whole heartily support the land exchange and do support the Dos Pobres/San Juan Project proposed by Phelps-Dodge.*
 Response: See General Response No. 1.
- Letter 157 Commentor Charles S. Eady
 Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres / San Juan Project. I also support the BLM's preferred alternative of the land exchange found on page 2-44 of the DEIS.*
 Response: See General Response No. 1.
 Comment 2 *... if you can get the good quality land exchanged for the lesser quality land and still have the environment protected, the exchange should be the alternative to choose.*
 Response: See General Response No. 1.
- Letter 158 Commentor Charles M. Sanders
 Comment 1 *I support this project because the mining phase only affects the area to be mined for minerals.*
 Response: See General Response No. 1.
- Letter 159 Commentor Donald H. Woodman
 Comment 1 *I am in favor of these mines being developed if for no other reason than national security.*
 Response: See General Response No. 1.
 Comment 2 *Contrarily, it is inconceivable that the BLM Safford District and the BLM State Office would knowingly and willingly contribute and/or condone untruths, omissions-of-import, blatant inferences and suppositions v.s. factual information and/or an admission of simply not being knowledgeable. BLM has not represented the public in their best interest.*
 Response: See General Response No. 1.
 Comment 3 *Contrary to the DEIS, the RMP and subsequent amendments of 1991 and 1994 do not cite any field investigations/narratives that the lands offered by PD were of such significant value whereby these lands were "targeted for acquisition" (finally conceded to be the case by Tom Terry on 10/21/98). This false inference should be deleted. Whereas, the BLM never got permission from the landowners of the offered parcels to conduct Visual Resource Evaluations, formal archeological transects, factual on-the-ground*

wildlife determinations the credibility of these lands significance is seriously questionable. Of the 14 separate parcels of offered lands (the DEIS cites 11 in error) only 3 parcels have significant public value (Amado, Curtis, and Travasci Marsh (wetlands)); the balance have little to offer above millions of acres BLM now administers.

Response: The Safford District RMP, as amended, specifies 24 Long-Term Management Areas (LTMA)s, defined as areas in which the BLM seeks to retain or acquire lands. With the exception of the Tavasci Marsh property, the offered lands proposed for this exchange are located within these LTMA)s and are therefore "high priority acquisition targets." The Tavasci Marsh property is a high priority acquisition target because it is within the boundaries of the area approved as the Tuzigoot National Monument by Congress. Permission to conduct baseline studies of the offered lands in order to characterize their resources was given to BLM by the land owner, Phelps Dodge Mining Company. Only 11 of the 14 offered properties are included in the proposed Land Exchange alternative; the remaining 3 properties are optional parcels that were not selected by the ID Team to be included in the offered lands package for acquisition the Land Exchange alternative.

Comment 4 *Because BLM assumed the "passive role", SWCA was not caused to conduct any Visual Resource Evaluations (aesthetics (no formal archeological/cultural transects were demanded with a narrative and map for each parcel. SWCA made cursory "walk-overs" thence made the inference(s) cultural findings of significant value may be found on the offered lands when factually only common shards and lithics were found on 3 three parcels and redereferences/inferences that findings on area lands quantifies even greater discoveries. Unfounded suppositions.*

Response: This comment cites the fact that intensive field inventories were not conducted on the offered lands and concludes that evaluations of the parcels' potential for the presence of cultural resources are consequently unfounded. BLM did not require intensive inventories of the offered lands because they are not required by law, regulation, or BLM policy. This is because it is assumed that the transfer of land into federal ownership generally has a beneficial effect. Concerning the predictions on the potential for the various parcels to contain significant cultural resources, such predictions were based on more than just the reconnaissance surveys. They were also based on the professional archaeologists' knowledge of the archaeology of the region, a review of the archaeological sites and inventory files for the region, and comparisons of the terrain and environment of the area with neighboring areas where sites are known to occur. The purpose of the evaluations was to characterize the properties for acquisition purposes, not to fully inventory their resources.

Comment 5 *SWCA used the U.S.W.S. sensitive species list that applies to each Arizona Counties list is not absolute in accuracy. Albeit the parcels are seperated by significant distances 13 parcels listed the Perigrin Falcon and two bat species (only) as species that often occupy the lands (165); 50-70% may occupy the lands on interim basis; 14% do not occur at all. The list(s) were not the result of field observations, and BLM did not cause SWCA to verify them.*

Response: The species list maintained and provided by the U.S. Fish and Wildlife Service (USFWS) is accurate and up-to-date. The USFWS makes these lists available upon request as part of the Section 7 consultation process and posts them on the Internet. Species are listed by county, and the database used to generate the lists includes AGFD heritage data, as well as data from historical records and current literature. The potential for occurrence of the listed species on the offered lands is based on the presence of potentially suitable habitat for a specific species. The offered lands were field checked for the presence of suitable habitat, and each species' potential for occurrence was subsequently evaluated and reported in the EIS, and updated for the FEIS.

Comment 6 *Why isn't the terms "physical access; legal public access; negotiated access, condemnation-for-access" defined in the DEIS Glossary.*

Response: The term "access" has been added to the glossary. The terms "negotiated access" and "condemnation-for-access" have not been used in this document and therefore are not defined.

Comment 7 *Why isn't the status of the physical and legal public access for each parcel of offered land given in the DEIS? Note: 9 parcels do not have legal public access out of the total of 14.*

Response: Physical access to each of the 11 offered parcels in the land exchange alternative was described in the DEIS. The FEIS also describes the status of legal access to each parcel.

Comment 8 *Why has the BLM signed their approval of SWCA's having directed and encouraged the public to trespass on private lands, and cross private fences as well, and further trespass across State lands (which require a USE PERMIT for any activities thereon)?*

Response: The EIS neither directs nor encourages the public to trespass private or state lands. It simply describes the physical access to each offered parcel. Many of the offered lands have vehicular access. While the current physical access in all cases may not be legal access, landowners may allow use of the roads leading to the offered lands or adjacent public lands. In other cases, access to the offered lands may be by foot from adjacent public lands.

Comment 9 *In what timeframe will BLM initiate acquisition of legal and physical access to these purported high-value recreational lands?*

Response: The BLM does not have a timetable in which to acquire legal and physical access to every offered parcel of land. Due to limited staff and budget, and competing work items, the BLM does not plan to pursue acquisition of legal and physical access to every parcel. If problems or conflicts develop that prevent public or administrative access to these parcels and adjacent public lands, those issues will determine BLM's priority for acquisition of access. Furthermore, the type of access (motorized, non-motorized, or no access) allowed also depends on the management objectives for a particular parcel of land. It may, or

Responses to Comments

may not, include development of access, whether motorized or by foot. The BLM has no plans to condemn for access to the offered lands.

Comment 10 *If access negotiations fail, will BLM initiate condemnation proceedings for legal public access?*

Response: The BLM has no plans to condemn for access to the offered lands. The BLM is interested in acquiring the offered parcels for a variety of resource values and public uses, not just recreational uses that necessitate acquisition of legal and public access, whether motorized or non-motorized. The value of some of these lands may also lie in other resource values not directly related to recreation or other uses that require access for people (wildlife habitat, watershed protection, or cultural resource values). The EIS describes at some length the natural and cultural resource values and land uses present on the offered lands, how the lands would be managed if acquired, and the current status of physical access to the parcels.

Comment 11 *BLM allowed itself to be "locked in" re: base parcels; what precluded the BLM from breaking the 17,000 acres into smaller parcels for appraisal purposes whereby the public would thence realize more value per acre?*

Response: The ID Team reviewed the resources of the base properties and determined that this package was desirable as a "base package" to which additional, optional properties could be added to equalize the exchange values. Regarding breaking up the selected lands into smaller parcels for appraisal purposes, the appraisal process did account for two groups of selected lands: those with high mineral potential, about 190 acres near the San Juan deposit, and those without (the remainder of the selected lands). The per-acre value of the mineralized lands was appraised much higher than that of the non-/low mineralized lands. There would be no advantage to breaking up the non-mineralized selected lands into smaller parcels for appraisal purposes, as the factors considered in the appraisals would be the same and a per-acre value applied.

Letter 160 Commentor Richard A. Bryce

Comment 1 *The stockpile lining measures are among the best that I have seen. The double protection offered by both the clay layer and the 60-mil liner should be adequate protection for this project.*

Response: See General Response No. 1.

Comment 2 *The 100 year rainfall storage facilities for process solutions are more than adequate for this facility.*

Response: See General Response No. 1.

Comment 3 *The DEIS and MPO are well done.*

Response: See General Response No. 1.

Letter 161 Commentor Rick Parlett of Industrial Tool and Supply Co.

Comment 1 *I urge you to allow the permitting of the Dos Pobres / San Juan Mine.*

Response: See General Response No. 1.

Letter 162 Commentor Robert C. Walsh

Comment 1 *I urge the BLM to accept the Land Exchange Alternative. If this does not occur, I then urge the BLM to adopt the Proposed Action from the Mine Plans Alternatives Set.*

Response: See General Response No. 1.

Comment 2 *It is important that a decision on the Land Exchange be made as soon as possible. What is the schedule for a decision?*

Response: This comment has been addressed in General Response No. 2, NEPA Process.

Letter 163 Commentor Tonya L. Williams of Town of Clifton

Comment 1 *The Town of Clifton has reviewed the Draft EIS and favors approval of the proposed land exchanges, which appear to be in the best interest of both the public and Phelps Dodge. ...we strongly support approval of this project.*

Response: See General Response No. 1.

Letter 164 Commentor J.D. Hayworth of Congress of the United States

Comment 1 *In accordance with all applicable federal laws and agency regulations, I would urge approval of this project.*

Response: See General Response No. 1.

Letter 165 Commentor Johnson, Karl Hartung, Mary of Mount Graham Community Hospital

Comment 1 *Mt. Graham Community Hospital supports the development of the proposed Phelps Dodge Safford mine. ...Please convey our support for the Land Exchange Alternative to the development of the Dos Pobres/San Juan Project by the Phelps Dodge Mining Company to the appropriate parties and agencies.*

Response: See General Response No. 1.

Letter 166 Commentor Frank Sosnoskie

Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Chapter 7

- Letter 167 Commentor Jodi B. Black
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 168 Commentor Randall C. Evans
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I also support your agency's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.
- Letter 169 Commentor Tom Johnson of Johnson Motors Corp.
Comment 1 *As employees of Johnson Motors Corporation we support the Dos Pobres/San Juan Project in the Safford area.*
Response: See General Response No. 1.
- Letter 170 Commentor Robbin MacDonald
Comment 1 *I urge BLM to cooperate with Phelps Dodge representatives to bring safe, clean, environmentally-wide mining to Graham County.*
Response: See General Response No. 1.
- Letter 171 Commentor Jack Howell of People for the USA, Capitol Chapter
Comment 1 *The BLM should accept the land trades...*
Response: See General Response No. 1.
- Letter 172 Commentor Mark Bowling
Comment 1 *...I'm writing to support the Phelps Dodge Dos Pobres/San Juan project located north of Safford, Arizona.*
Response: See General Response No. 1.
- Letter 173 Commentor Eben Robinson
Comment 1 *I support the mine.*
Response: See General Response No. 1.
- Letter 174 Commentor Rodney Saulters
Comment 1 *I'd like to take the opportunity to express my support for the Safford Project.*
Response: See General Response No. 1.
- Letter 175 Commentor Kerry B. Lawson
Comment 1 *Please consider my comments in support of the Dos Pobres/San Juan Project.*
Response: See General Response No. 1.
- Letter 176 Commentor Eugenia F. Howell of People for the USA
Comment 1 *I support the proposed Dos Pobres-San Juan mines north of Safford...*
Response: See General Response No. 1.
- Letter 177 Commentor Eric Hancock of Hancock Embroidery Co./Hancock Enterprises, LLC
Comment 1 *I am writing this letter to express my STRONG SUPPORT for the proposed land exchange and Safford Mine Project.*
Response: See General Response No. 1.
- Letter 178 Commentor Ivan & Kathryn Hancock of Ivan F. Hancock Enterprises, LLC
Comment 1 *We are sending this email to you to express our support for the Land Exchange Alternative.*
Response: See General Response No. 1.
- Letter 179 Commentor Michael Bowling
Comment 1 *I feel this project would be a great benefit to the people of Safford.*
Response: See General Response No. 1.
- Letter 180 Commentor Joe Lecocq
Comment 1 *After studying the Safford Project, my feelings are as long as they meet all requirements, why shouldn't they be allowed to mine.*
Response: See General Response No. 1.
- Letter 181 Commentor Leora Hunsaker of Quick-Draw Signs LLC
Comment 1 *I support the Land Exchange Alternative which will allow this much needed mine to open.*
Response: See General Response No. 1.

Responses to Comments

<u>Letter 182</u>	Commentor	Donald W. Kimball of Arizona Electric Power Cooperative, Inc.
	Comment 1	<i>AEPCO is writing this letter in support of the proposed Dos Pobres/San Juan copper mine and to enter this support into the official record for this project.</i>
	Response:	See General Response No. 1.
<u>Letter 183</u>	Commentor	F. Dwight Schnebly of Treasures and Trinkets
	Comment 1	<i>Let the new Safford mine open.</i>
	Response:	See General Response No. 1.
<u>Letter 184</u>	Commentor	John R. Ratje
	Comment 1	<i>I would like to express my strong support for the Phelps Dodge Safford Mine Project.</i>
	Response:	See General Response No. 1.
<u>Letter 185</u>	Commentor	Janet E. Curtis of Trophies 'N Tees
	Comment 1	<i>I would like to go on record as being in support of the Safford Mine Project.</i>
	Response:	See General Response No. 1.
<u>Letter 186</u>	Commentor	Kathy Brown
	Comment 1	<i>I am entirely in favor of the Safford mine being developed.</i>
	Response:	See General Response No. 1.
<u>Letter 187</u>	Commentor	Scott Kohls of Superfast Label Service, Inc.
	Comment 1	<i>I understand this means an economic boost to the area. I also have driven through Globe and the Clifton/Morenci area and find the destruction of the land appalling. What will the landscape look like years from now? Where is the proposed mine going in?</i>
	Response:	See Figure 4.4 for a visual simulation of the Dos Pobres/San Juan Mine with a 400-ft-tall leach pad. Revegetation and reclamation are likely to reduce some of the visual impacts of the pad, stockpiles, roadways, and other disturbed areas. The location of the proposed mine relative to the Town of Safford is depicted in Figure 1-1.
<u>Letter 188</u>	Commentor	Anonymous Commentor
	Comment 1	<i>This would be the most tragik thing that could hapen to our beautiful Safford.</i>
	Response:	See General Response No. 1.
<u>Letter 189</u>	Commentor	Donna L. Baker
	Comment 1	<i>I would like to give my letter of support to the Phelps Dodge Mining Company for the Safford mine project.</i>
	Response:	See General Response No. 1.
<u>Letter 190</u>	Commentor	James V. Warren
	Comment 1	<i>The amount of public land now accessed would be greatly diminished. Public access would be denied on all Phelps Dodge prop. and this would not allow access to many hunting and camping areas. This is change so it would outweigh the positives of a project such as this.</i>
	Response:	See General Response No. 1 and response 105-2.
<u>Letter 191</u>	Commentor	Rod McElwain
	Comment 1	<i>At this time, I support this project for your area; but I think the Arizona Eastern Railroad should build a spur to the mine from its main line so that sulfuric acid and copper anodes can be hauled to there individual consumption points.</i>
	Response:	This suggested alternative mode of transporting materials to and from the proposed mine has not been proposed by Arizona Eastern Railroad, is not under the control of PD, and is therefore outside the scope of analysis for this EIS. For these reasons, this issue is not considered further.
<u>Letter 192</u>	Commentor	Judith Warren
	Comment 1	<i>I am in favor of the Dos Pobres/San Juan mining project because of the positive impact it will have on our community, providing much needed jobs for our Gila Valley families.</i>
	Response:	See General Response No. 1.
	Comment 2	<i>The land exchange seems more than fair, although I don't see any particular benefit for the public.</i>
	Response:	See General Response No. 1.
<u>Letter 193</u>	Commentor	Kenneth G. Bowling
	Comment 1	<i>I like this mine project.</i>
	Response:	See General Response No. 1.

Chapter 7

- Letter 194 Commentor Robert A. Metz
Comment 1 *BLM and Phelps Dodge have done a very creditable job on preparation of the Draft EIS.*
Response: See General Response No. 1.
- Letter 195 Commentor Colleen Filippone
Comment 1 *I support the land exchange.*
Response: See General Response No. 1.
Comment 2 *It is clear from the EIS that the project design conforms to state of the art environmental protection standards at every opportunity. The zero-discharge approach provides maximum protection for water resource quality of the Safford Valley, providing for exclusion of surface runoff from the project area and for containment of impacted water within the area through liners and solution control methods that have been found to be effective at other similar facilities.*
Response: See General Response No. 1.
Comment 3 *The least desirable aspect of the project to me is the visual impact. If there were a cost effective way to reduce that impact after closure I think it would be desirable to do so, i.e., via more extensive (than 20%) vegetation after closure or returning more of the waste rock to the pits.*
Response: The reclamation plan has been revised to revegetate 100 percent of top surfaces of the rock stockpiles, as well as 100 percent of the more visible side slopes. The Partial Backfill alternative reduces the visual impact of the project somewhat by lowering the heights of both the West and East development rock stockpiles by about 50 feet relative to the Proposed Action alternative. See also response 9-2.
- Letter 196 Commentor Stan Barnes Jr. of Copper State Consulting Group
Comment 1 *...I wholeheartedly support the project.*
Response: See General Response No. 1.
- Letter 197 Commentor Chuck Shipley of Arizona Mining Association
Comment 1 *I would like to register our support in the official record for this project.*
Response: See General Response No. 1.
- Letter 198 Commentor Steve Saway
Comment 1 *I concur and support the Land Exchange alternative and believe it is in the public's best interest.*
Response: See General Response No. 1.
Comment 2 *After analyzing the various parcels of offered lands, I would urge BLM to consider adjusting the preferred alternative so as to include the Davison Property in the offered lands package. This property appears to offer distinct and important natural resource values that would benefit the Empire-Cienega RCA, including watershed, recreation, and presence of special interest wildlife species.*
Response: See General Response No. 1.
Comment 3 *As a consideration, the National Park Service (NPS) is authorized to acquire non-federal land with the congressionally approved boundary of the Tuzigoot National Monument. Since the Tavasci Marsh property lies within that boundary, BLM could delete that property from the offered lands package and let the NPS use their available options to pursue that acquisition.*
Response: PD has neither proposed an exchange with or sale to the NPS directly for the Tavasci Marsh property. However, as this property is included in the proposed land exchange package for this Project and lies within the congressionally approved boundaries of the NPS' Tuzigoot National Monument. If BLM selects the land exchange alternative, it will undertake a simple administrative action to convey the property to the NPS, a sister agency in the Department of the Interior.
- Letter 199 Commentor M. E. Oldaker of Balentine Office Products
Comment 1 *The Land Exchange is the Best choice for this project, I am in favor of the Land Exchange and the plan for the Mine Development.*
Response: See General Response No. 1.
- Letter 200 Commentor William Schahan of Balentine Office Products
Comment 1 *BLM should be applauded for selecting the land exchange alternative as the preferred alternative and I support this.*
Response: See General Response No. 1.
- Letter 201 Commentor Marion E. Balentine of Balentine Office Products
Comment 1 *I am in support of the Land Exchange Alternative.*
Response: See General Response No. 1.
- Letter 202 Commentor Cherrill Balentine of Balentine Office Products
Comment 1 *...I support BLM's preferred alternative of the land exchange found on page 2-44 of the Draft EIS.*
Response: See General Response No. 1.

- Letter 203 Commentor Glen Henderson of NPS, Montezuma Castle & Tuzigoot Nat'l Monuments
 Comment 1 *RE: Tavaschi Marsh. I have two concerns with Zenitech's analysis. First, Zenitech chose to compare sediment data in the marsh only to U.S. EPA Region 9 PRGs that predict the potential for the sediment to contaminate groundwater. To be consistent with Zenitech's comparison to Arizona ingestion levels, I compared the metal concentrations in the marsh sediment to U.S. EPA Region 9 PRGs for potential ingestion of sediment by humans. This comparison shows arsenic in the marsh exceeds the Region 9 PRG by two orders of magnitude (Table 2 in letter). All other metals are below the PRGs for soil ingestion. Second, Zenitech chose to compare the potential of the contaminated sediment to contaminate groundwater to a U.S. EPA Region 9 PRG that assumes a dilution and attenuation factor of 20. We believe it is more appropriate to assume no dilution or attenuation because, as I have observed at Shea Springs (within Tavaschi Marsh), groundwater is in direct contact with the sediments. This comparison shows that levels of arsenic, cadmium, and chromium exceed the Region 9 PRGs for migration to groundwater (Table 2 in letter).*
- Response: In response to these concerns, BLM had URS Greiner Woodward Clyde (now URS Corporation) conduct supplemental testing for the presence of metals and toxicity in sediment and surface waters on the Tavaschi Marsh property. Results of the tests were reported in "Tavaschi Marsh Supplemental Sampling Report" dated September 29, 1999. According to a letter dated October 7, 1999, from G. Henderson, then Superintendent of Tuzigoot N.M. (commentor), to W. Civish, BLM Safford Field Office, the results of the additional sampling "suggest that conditions in the Marsh are not adversely affecting aquatic life. Therefore, there would be no need for Tuzigoot National Monument to undertake clean up of the Marsh or to actively manage the habitat to prevent ecologic exposure."
- Comment 2 *The data analysis shows that soil-metal concentrations for arsenic, cadmium, and chromium exceed some commonly accepted benchmarks for protection of associated biota, human ingestion, and migration to groundwater. I have therefore concluded that BLM should require of Phelps Dodge a more thorough pre-acquisition site assessment. This will minimize the potential for Department liability for hazardous substances, or other environmental remediation or injury. Given foreseeable exposure pathways, my greatest concern is for ecologic risk. Therefore, I feel the pre-acquisition site assessment should include, as a component, a baseline ecologic risk assessment in accordance with U.S. EPA guidance (5). The baseline ecologic risk assessment should address contaminant fate and transport, potential receptors, exposure pathways, and assessment endpoints.*
- Response: See response 203-1.
- Letter 204 Commentor Ben Hawkins of Desert Glen Inc.
 Comment 1 *I hope you will support the Phelps Dodge Dos Pobres request.*
- Response: See General Response No. 1.
- Letter 205 Commentor Joe Malisewski of Sundt Construction, Inc.
 Comment 1 *I hope you'll support the development of the Dos Pobres/San Juan mines.*
- Response: See General Response No. 1.
- Letter 206 Commentor Anonymous Commentor of United Steel Workers of America
 Comment 1 *Because of conflicts of interest posed by Phelps Dodge payment of staff salaries, the BLM's regional staff must recuse itself from further deliberations on the San Juan/Dos Pobres land exchange.*
- Response: See General Response No. 15, Conflict of Interest.
- Comment 2 *The BLM should ensure the use of income based as well as comparable sales appraisal methods. This should include a detailed estimate of the financial value of all benefits to Phelps Dodge, including mineral extraction, regulatory exemptions and reduced regulatory requirements resulting from the exchange.*
- Response: See General Response No. 7, Appraisals, and General Response No. 5, Loss of Federal Oversight for Mining on Private Lands, wherein these comments are addressed.
- Comment 3 *The BLM and Phelps Dodge should be required to immediately disclose all data on which land valuation is based, including all existing mineralization studies, and all prior sales and transactions in the vicinity of Phelps Dodge mining operations.*
- Response: See General Response No. 7, Appraisals.
- Comment 4 *Federal rules state that the agencies "shall reserve such rights or retain such interests as are needed to protect the public interest or shall otherwise restrict the use of Federal lands to be exchanged, as appropriate" (36 CFR 254.3(h)). In the case of these land exchanges with Phelps Dodge federal authority would be lost over the sites, including resource management duties, national environmental policy act compliance and federal hard rock mining rules. Any exchange should include restrictions on the deeds to protect groundwater and ecology by maintaining the applicability of such federal regulations and duties on the mining on the traded federal lands (such a proposal is detailed in the Coalition to Save Kneeling Nun Mountain's Proposal to Preserve and Defend Kneeling Nun Mountain).*
- Response: See General Response No. 5, Loss of Federal Oversight/Regulatory Requirements.
- Letter 207 Commentor Ken A. Phillips of Arizona Department of Mines and Mineral Resources
 Comment 1 *The Arizona Department of Mines and Mineral Resources supports the development of the Dos Pobres/San Juan copper mine.*
- Response: See General Response No. 1.

Chapter 7

- Letter 208 Commentor Lou McDonald
Comment 1 *I Recommend that the project for Phelps Dodge Mining Company Dos Pobres/San Juan Project be approved.*
Response: See General Response No. 1.
- Letter 209 Commentor Rachel Thomas of People for the USA
Comment 1 *Recommend approval of the Phelps Dodge Mining Company Dos Pobres/San Juan Project.*
Response: See General Response No. 1.
- Letter 210 Commentor Lainie Levick of Sierra Club, Rincon Group
Comment 1 *We support the No Action Alternative because it is the least environmentally damaging alternative. However, since the Mining Law of 1872 does not allow the BLM that option, we prefer the Partial Backfill of the San Juan pit alternative as the least environmentally damaging per Chapter 11 of the BLM Handbook H-3042-1.*
Response: See General Response No. 1.
Comment 2 *We believe that the BLM should still select one of the Mine Plan alternatives in the EIS process because mining is a known, foreseeable use of these lands (even though the DEIS states that if the BLM approves the land exchange there would be no need to select an alternative from the Mine Plan Alternatives Set).*
Response: See General Response No. 1.
Comment 3 *Section 1.5 of the DEIS, Regulatory Framework and authorizing actions, lists the federal, state, and local laws under which this project must conform and under which it was analyzed. But the BLM's Solid Minerals Reclamation Handbook (BLM Manual H-3042-1) was not listed as one of the Federal Requirements. Table 1-1 does not include BLM reclamation requirements for mining on public lands, but lists the Arizona Mined Land Reclamation Act as being applicable to the Land Exchange (mining on private lands). This makes the DEIS a flawed and biased document.*
Response: The Solid Minerals Reclamation Handbook is not a required permit or authorization, so it is not included in Table 1-1. The table has been revised to list regulations at 43 CFR 3809, which detail procedures that must be followed for BLM to approve an MPO. In the DEIS, the 3809 regulations were not listed but were implied by the first five laws listed in Table 1-1 (the authorities for the regulations). Furthermore, BLM reclamation requirements under 43 CFR 3809 are discussed in the second paragraph of Section 1.5.1, before any reference is made to Table 1-1. Table 1-1 is then introduced to summarize necessary permits and authorizations. See also General Response No. 5, Loss of Federal Oversight.
Comment 4 *The final EIS should more thoroughly examine the reclamation requirements for this project under BLM guidelines.*
Response: The reclamation measures described in Section 2.1.2.4 meet both federal and state reclamation requirements, regardless of whether the land exchange or an MPO scenario is selected by BLM. A general comparison of the State of Arizona and BLM's reclamation requirements is provided in Table 4-27.
Comment 5 *PD is offering some very beautiful and desirable properties in the land exchange. However, the end result of this land exchange will be to relinquish public and BLM review and oversight of the environmental impacts and reclamation of future mining activities on these 17,000 acres. The Rincon Group is very much opposed to the prospect of the mine reclamation, in particular, being regulated under the Arizona Mined Land Reclamation Act.*
Response: See General Response No. 1 and General Response No. 5, Loss of Federal Oversight.
Comment 6 *We strongly feel that Section 4.4 Land Exchange Alternative Impact Analysis is intentionally misleading regarding the transfer of oversight from the BLM to the State with regards to mining and reclamation. Page 4-48 and Table 4-27 imply that this change will be insignificant; i.e. "State reclamation requirements are similar to federal requirements." They are "similar" but definitely not the same. Table 4-27 leaves out some glaring differences that would show how much weaker the state standards are than the federal standards. For example:*
 - 1) *Federal standards give the Approving Officer (BLM) the discretion to approve the post-closure reclamation objective, while the state standards pre-approve a variety of measures that will not result in reclamation (scenic overlooks for tourism, re-mining, etc.).*
 - 2) *Federal standards have stronger, more secure bonding and insurance requirements to ensure that costs for reclamation are covered by the mining company and not left for the public. State standards allow difficult to recover and weak mechanisms such as certificates of self-insurance. Federal standards require a bond or cash be placed in a Federal depository account.*
 - 3) *the State standards include a section that allows a variance from any rule or requirement of the standards providing that public safety is not endangered. The state standards are thus mainly "safety" standards, not reclamation standards. In fact, the definition in the state standards for "reclamation" refers to site safety and stability, not land restoration.*
 - 4) *There is no opportunity for public review or comment on the mining plan or reclamation plan with state oversight.**The DEIS did not bring out these very important differences in the text or in Table 4-27, leading the public to incorrectly think that there would be little difference in the future restoration of these lands if the land exchange was approved.*
Response: While there are certainly differences between the federal and state reclamation requirements, the EIS does not seek to speculate or make a value judgment as to whether one is "weaker" or "stronger" than the other;

instead, BLM's intention in providing Table 4-27 is to disclose these differences. Please note that the commentor's statement that state reclamation requirements do not provide an opportunity for public review and comment is incorrect. For example, Section 27-929 of the Arizona Mined Land Reclamation Rules and Statutes states that the State Mine Inspector "shall give notice of a proposed reclamation plan or a substantial change to an approved reclamation plan once each week for two consecutive weeks in a newspaper of general circulation in the county or counties in which the exploration operation or mining unit is or will be located. . . . The notice shall . . . state that any person who may be adversely affected by the plan or substantial change may . . . [r]equest a public hearing." See this section and Section 27-931 of the Arizona Mined Land Reclamation Rules and Statutes for further information on public hearings. Note also that because the reclamation plan submitted to the BLM by PD has been prepared to meet both federal and state standards, there is no difference between the proposed reclamation activities that would be implemented under either the land exchange or MPO alternatives, despite any meaningful differences between federal and state standards.

Comment 7 *According to the DEIS, the development stockpiles are not expected to become saturated to the point that there is water flow through them (page 2-18), therefore the retention dams below were not designed to handle rainfall volume as well as surface runoff volume. This optimism is not appropriate in mine design, especially one adjacent to an important river system and an agricultural community dependent on that river system. The retention dams below the stockpiles should be designed to control rainfall volume in addition to runoff volumes for best protection of the local ecology.*

Response: The stormwater retention dams below the development rock stockpiles are designed to retain stormwater runoff from the 100-year, 10-day storm (which is greater than the 100-year, 24-hour storm) from the tributary watershed between the face of the stockpiles and the dams. Stormwater runoff from the tops of the development rock stockpiles is not included in the calculated required capacities of the dams since the top surfaces of the stockpiles will be sloped away from the crest and because the thickness of the stockpile lifts will provide a sufficient amount of absorption capacity to preclude stormwater from infiltrating completely through the stockpiles. Additionally, based on extensive characterization testing of the development rock, stormwater collected in the retention dams below the stockpiles is expected to be of good quality. The purpose of the retention dams is to ensure compliance with turbidity standards for surface water. See also response 237-4.

Comment 8 *Although PD will be relinquishing their right to mine on the offered properties, several of the properties will remain open to mineral entry. The Rincon Group insists that the BLM remove all of these lands from mineral entry if they are acquired.*

Response: Whether the offered lands are open to mineral entry after acquisition by BLM is determined by the directives for that area as specified in BLM's applicable management plan(s). In the case of the Amado, Tavasci Marsh, Schock, Feulner, Clyne I, Clyne II, and all but 80 acres of the Curtis properties, mineral entry will be prohibited.

Comment 9 *What would be the point of this exchange if the offered lands were not protected from future mining and degradation? Furthermore, the value of the offered lands should be much less if their future uses included mining than if they were protected from mining degradation.*

Response: See response 210-8.

Comment 10 *Can PD demonstrate their good intentions to the community by making all environmental permits readily available to the public, and voluntarily strengthening the standards by which they agree to comply?*

Response: All environmental permits issued by state or federal agencies are a matter of public record and are available for public review through the issuing agency. Whether PD chooses to provide access to their permits is outside the scope of this EIS. PD must meet all pertinent federal and state regulatory standards to receive the environmental permits required for their proposed mining-related activities. They may voluntarily take measures to exceed those standards, as they have done to meet 'zero-discharge' criteria for the Section 402 AZPDES permit.

Comment 11 *Despite PD's best intentions with respect to control of drainage and development of a zero discharge facility, there will probably be accidental leaks and spills across this land (land between the mine site and Gila River). Whether or not the land exchange is approved, we suggest that PD set up a permanent fund specifically to be used to clean up these lands when spills/leaks occur.*

Response: The mine has been designed as a zero discharge facility. Extensive run-on control measures have been designed to route clean water around the mine and onsite components of the stormwater management system have been designed to meet or exceed generally accepted engineering design standards. To further reduce discharge potential, the capacity of the primary stormwater impoundment has been increased to account for 24-hour power failure despite the ready availability of portable electric generators that would satisfy power demand for system pumps integrated into the stormwater containment system. The specific details of the stormwater management system are provided in the EIS and mine plan of operations in Section 2.1.2.3.2. Exceeding the design capacity of the impoundment (i.e. a "discharge") requires that the discharges associated with the 100-year, 24-hour storm event occur simultaneously with a 24-hour power outage. Because of the buffering capacities of the leach stockpile relative to the discharge of stormwater and the general rarity of the design storm event, the inadvertent discharge of stormwater is improbable, therefore no permanent clean up fund is warranted or required.

Comment 12 *With regards to the Habitat Mitigation and Monitoring Plan (HMMP), we strongly believe that the 15 year limit for monitoring is insufficient time to observe any significant changes in the locations downstream of the proposed mine (Appendix F, page 19). Monitoring should continue for at least 15 years after the life of the mine, for a total of 30 years.*

Chapter 7

Response: The 15-year monitoring period should be more than adequate to ascertain the nature and extent of impacts to downstream resources as a result of the stormwater management program implemented at the mine. While it is certainly possible that a significant storm event will not occur during the monitoring period, this does not detract from the efficacy of the monitoring effort nor does it argue for a longer monitoring period. The xeroriparian systems that provide much of the functional value of the downstream jurisdictional areas are dependent upon more frequent rainfall and runoff intervals than would be represented by lower return-frequency storm events. We believe that the systems in question are in fact primarily dependent upon local runoff from adjacent hillsides and not upon the less frequent storm events that cause these normally dry washes to flow all the way to the Gila River. The plant species that dominate these arroyos are quick to respond to drought; it is one of their key adaptive mechanisms that has allowed them to survive in the arid Southwest. The response of vegetation to reduced availability of water because of reductions in watershed size, if it is a factor determining the nature and character of xeroriparian habitats, will be reductions in the size and density (=biomass or vegetation volume) of plants within these habitats. As many of the plant species within the xeroriparian habitats potentially affected are also common upland species in the area, significant shifts in species composition will not be as apparent, though some species, such as canyon ragweed, may become less common. The detailed measurement of vegetation and habitat characteristics within these systems will allow for the detection of any significant impact or trends.

Comment 13 *How will PD guarantee no adverse impacts will happen to the Gila River and these washes when the 100 year flood comes? What flood control devices or structures are included in the plan, and what is the contingency plan if these devices fail? Who will maintain these (flood control) structures and developments after PD is through mining?*

Response: See Section 2.1.2.3.2 for discussion of proposed stormwater management facilities. It is the ADEQ, with additional review by EPA, through their AZPDES permit that regulates discharges to surface waters and requires design and operation of stormwater management facilities to minimize the potential for impacts from flooding on surface water quality and floodplains. The stormwater management facilities have been designed to be self-scouring to minimize the need for post-closure maintenance by PD.

Comment 14 *The DEIS states that the diversion channels around the site for clean stormwater runoff will reach equilibrium with respect to sediment transport within the site boundaries. However, these channels could convey several times their normal flow volumes during extreme events. How will the channels react to increased flows off-site and where the waters enter the Gila River channel, specifically at Butler Wash where a 9.5% average annual increase in flow is predicted (Table 4-9)? Increased flow volumes normally cause degradation and erosion in river channels. These issues were not adequately addressed in the DEIS and should be investigated more thoroughly in the final EIS.*

Response: The projected 9.5% increase in flow to the Gila River in Butler Wash is a result of upstream diversions (West Diversions) which outfall in Coyote Wash, a tributary to Butler Wash (see Figure 4-15). As depicted in Figure 4-15, the recovery point for sediment transport as result of the increased flow in Coyote Wash is less than 0.5 mile downstream of the outfall, meaning that the sediment transport characteristics of the wash return to their original character at that point. Washes in the project area, such as Butler, are ephemeral and only flow in response to extreme events, especially at their downstream ends. The projected 9.5% increase in flows in Butler Wash is not expected to result in any significant off-site degradation in Butler Wash near the Gila River because the main cause of scouring (the flows' increased capacity to carry sediment due to absence of sediment in flows) is expected to recover well upstream of the confluence of Butler and Coyote Washes.

Letter 211 Commentor John L. Uhrie

Comment 1 *I strongly support the Phelps Dodge Safford mining project. Additionally, I support the proposed land exchange as is preferred by the BLM and is outlined on pages 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Letter 212 Commentor Nancy E. Jacobson

Comment 1 *I hope they (PD) will be permitted to bring this expertise and this contribution, to Safford, Graham County, and the State of Arizona.*

Response: See General Response No. 1.

Letter 213 Commentor Dennis E. Stacy

Comment 1 *I am writing you today to voice my support on approving the EIS on the Dos Pobres and San Juan proposed mine.*

Response: See General Response No. 1.

Letter 214 Commentor Kevin R. Kinsall

Comment 1 *I would like to register my strong support in the official record for this project.*

Response: See General Response No. 1.

Letter 215 Commentor Richard L. Foreman of Southwest Gas Corporation

Comment 1 *I would like to register my support in the official record for this project.*

Response: See General Response No. 1.

- Letter 216 Commentor Carol Heathington of State Historic Preservation Office
- Comment 1 *EPA and USACE must consult with this office under the National Historic Preservation Act (NHPA), by virtue of their permitting responsibilities. Has either agency requested that BLM consult on its behalf under the NHPA?*
- Response: Yes, COE requested that BLM, on their behalf, take the lead in conducting consultations with the SHPO and with tribes for compliance with the NHPA. With delegation of permitting authority to ADEQ for Clean Water Act Section 402 in December 2002, EPA no longer has the responsibility for consultation under NHPA for issuance of this permit and so has not requested that BLM consult with tribes or SHPO on their behalf.
- Comment 2 *Resolving the eligibility issue is a critical part of assessing impacts, because places that are eligible for reasons other than their information potential (criterion d) may be adversely affected by factors other than direct physical disturbance.*
- Response: The BLM agrees with this comment and is concerned with determining eligibility and with identifying, assessing, and mitigating potential non-physical impacts. Some archaeological sites in the project area may be eligible for listing on the National Register of Historic Places as Traditional Cultural Properties (TCPs) because of values under criteria A or B assigned by tribes claiming cultural affiliation with the sites. Four of these sites also have been determined by the BLM to be sacred according to the eligibility requirements of the American Indian Religious Freedom Act and Executive Order 13007. We agree that consideration of indirect and non-physical impacts to these properties is crucial, as mitigation measures other than data recovery must be considered. Indirect non-physical impacts have been identified and consist of visual intrusions, modification of the surrounding environment, and potential termination of access. The BLM has consulted with the tribes and PD to develop a treatment plan that addresses tribal concerns to the extent possible; for example, expected impacts from visual intrusions and modification of the surrounding environment have been mitigated at the two sites of primary concern to tribes (AZ CC:2:200 ASM and AZ CC:2:211 ASM) through redesign of mining operations and fencing. A third sacred site (AZ CC:2:234 ASM) will be avoided as well. The BLM realizes, however, that some direct and indirect impacts cannot be mitigated; the FEIS contains a statement to this effect. See also response 216-3 and General Response 9, Cultural Resources Mitigation.
- Comment 3 *Your Table 4-41 summarizes "Irretrievable and Irreversible Commitments of Public Resources Associated with the Proposed Action Alternative;" however, in my opinion, this analysis is premature.*
- Response: Analysis of irretrievable and irreversible commitments of resources in an EIS is required by 40 CFR 1502.16, the Council on Environmental Quality regulations for implementing NEPA. The BLM has included archaeological resources as resources that would be irreversibly and irretrievably impacted by the Proposed Action, regardless of whether these resources are deemed significant or not, because some resources, one possible example being traditional cultural places, cannot be fully mitigated.
- Comment 4 *Please be advised that the loss of cultural resources is not always amenable to mitigation. ...while the loss of certain traditional cultural places can be mitigated, in other instances, no mitigation is possible. Evaluating the significance of these resources should be completed as a part of this analysis.*
- Response: See responses 216-2 and 216-3.
- Letter 217 Commentor Donald H. Woodman
- Comment 1 *Three- at the most four- of the Offered lands have public values worthy of acquiring; the balance is solely an "accommodation" with Phelps-Dodge.*
- Response: See General Response No. 8, Public Lands Management.
- Letter 218 Commentor James L. Madson
- Comment 1 *I strongly support this Land Exchange as the preferred alternative.*
- Response: See General Response No. 1.
- Letter 219 Commentor John Kennedy of Arizona Game and Fish Department
- Comment 1 *We are pleased that some of our earlier comments and concerns have been addressed in this latest version of the draft Mitigation Plan. The Department requests the opportunity to review the final Mitigation Plan prior to acceptance by the Army Corps of Engineers (ACOE).*
- Response: Thank you for your comment. A draft of the final MMP (see Appendix F) was provided to the commentor for review and comment prior to acceptance by the COE and publication in this FEIS.
- Comment 2 *It is not clear whether the mechanisms which are to be placed on Preserved Habitats are to remain in place for perpetuity. Likewise, there is some indication that Enhanced and Restored Habitats will also benefit from a conservation mechanism, but only under condition of a transfer of title (See draft Mitigation Plan, page 12). The Department prefers that conservation mechanisms be in place for perpetuity and that implementation of a conservation mechanism is appropriate even if the applicant retains title to the mitigation lands.*
- Response: The properties incorporated into the mitigation plan for habitat preservation, enhancement, or creation and for the Alternate Year Fallowing Program will be protected in perpetuity. This will be accomplished through establishment of appropriate restrictive covenants, such as deed restrictions, tied to the land in perpetuity. These restrictions will be established and recorded with the appropriate jurisdiction prior to initiation of mine construction for the Dos Pobres/San Juan Project.
- Comment 3 *RE: Success Criteria for Exotic Control. ...there is no documentation or discussion that a 15% tamarisk*

basal area reduces the threat of non-natives to a level of non-significance. The success criteria for Enhanced Habitats should be limited to the allowable percentage of tamarisk by basal area. The only enhancement activities addressed in the draft Mitigation Plan are to occur on the Thatcher site and are to entail removal of exotic species from the existing wetland habitats. Therefore, Section 2.4.2 seems to be extraneous and probably could be omitted.

Response: The establishment of a control standard is based upon balancing the desire to provide opportunities for establishment of a native-dominated riparian habitat and the need to provide for an attainable level of control. We are aware of no data that suggest or document a specific target for the relative dominance of tamarisk within a small patch of riparian habitat, such as the enhancement area at the Pima Mitigation Site, that would reduce the risk from non-natives to a level of "non-significance." In fact, the risk to riparian systems from non-natives is a regional issue. The site selected for this effort is bounded by mature riparian habitats that are in fact dominated by non-natives. This site, in the early stages of development, is dominated by natives and provides good opportunity for long-term, sustainable habitat enhancement at a very local level. The establishment of a target goal for the relative dominance of non-natives at 15% of the total stand basal area provides a reasonable expectation that the community will remain dominated by natives, thus significantly enhancing the overall quality of habitats within the enhancement area. Because the site has existing habitat value and because the risk from non-natives cannot be reduced to levels of non-significance (that is, invasion of exotics is a regional issue), the COE has determined that the mitigation credit ratio for the property should be less than 1:1. The established mitigation credit ratio for the enhancement site is 3:1; that is, three acres of high value hydroriparian habitat must be enhanced to compensate for one acre of impact to relatively low value xeroriparian habitats affected by the proposed mine project.

Comment 4 *The success criteria applied to Restored Habitats should answer the question "did the restored area achieve the desired condition?"*

Response: We agree. The success criteria provided within the MMP (see Appendix F) have been established based upon the desired future condition. This condition will be achieved over time; however, it is not necessary to wait for these communities to achieve their mature structural and species composition to determine success. Rather the criteria were established to ensure that these communities become established and not dependent upon external inputs for their maintenance and growth to achieve desired future conditions. Riparian communities are, by their nature, dynamic and controlled by disturbance regimes beyond the control of the applicant. The establishment of each community on a course to achieve the desired future condition or their establishment at that condition will not guarantee that they achieve or maintain that condition in perpetuity; in fact, no native plant community can be expected to maintain its present or climax condition in perpetuity. The mitigation program establishes the course of recovery of these disturbed areas in a manner that is consistent with their historic, natural climax condition. The establishment of the native-dominated riparian habitats will affect the response of these habitats to future disturbance regimes, including exotic species invasion, fire, and flood. The establishment of deed restrictions removes/reduces the risk that anthropogenic activities will affect their response to future natural disturbance regimes.

Comment 5 *The Department believes that the scope of success criteria should be broadened to reflect the distinguishing characteristics of riparian communities (e.g., canopy cover, structural diversity, vegetation density, etc.). Although we are not prepared at this time to offer quantitative thresholds, we encourage the ACOE and the applicant to further evaluate this issue.*

Response: Comment noted. The final MMP (Appendix F) includes discussion regarding the distinguishing characteristics of riparian communities targeted for preservation, enhancement, or creation at each of the mitigation sites.

Comment 6 *The draft Mitigation Plan does not offer any detail regarding the methodologies to be used in this monitoring program (monitoring downstream impacts).*

Response: Comment noted. The final MMP (Appendix F) includes the detailed methodology and monitoring triggers that will be used to determine change within downstream waters of the United States that are potentially impacted by proposed stormwater control measures.

Comment 7 *Discussion of Contingency Measures should acknowledge the measured uncertainty associated with this (Groundwater) model and its relationship to the proposed mitigation for impacts to WUS. Additionally, the effects and ramifications of a catastrophic event (s) should be specifically addressed here.*

Response: A detailed contingency plan has been established regarding the groundwater model predictions and associated impacts to waters of the U.S. The 3M Program in the MMP (see Appendix F) addresses model uncertainties and outlines the specific criteria that will be used to monitor model predictions and actual impacts to the groundwater system. Should measured or updated model results indicate greater impact, additional mitigation will be required pursuant to the MMP.

The effects of catastrophic events relative to the groundwater modeling effort have not and will not be considered. The groundwater model and its outputs are dependent upon geologic properties of the region; dramatic or significant changes in these features are not predictable and cannot be reasonably nor rationally considered. Regardless, the Model, Monitor, and Mitigate program would document the consequences of such a catastrophic event on the groundwater system near the mine.

Letter 220 Commentor John Kennedy of Arizona Game and Fish Department

Comment 1 *Overall, the studies used to model the potential impacts of the proposed project on the groundwater and surface water regimes is commendable.*

Response: See General Response No. 1.

Responses to Comments

- Comment 2 *Several species of bats could be using the Dos Pobres/San Juan project area for roosting (old mine features). Section 4.4.3.3.4 explains that of the features of the Dos Pobres Sulfide and Lone Star projects, four mine features are considered "potentially suitable" for bats. For this reason, the Department recommends inspection of these sites and, if necessary, implementation of measures to exclude bats from these areas prior to project-related disturbances.*
- Response: See revisions to Section 4.4.3.3.4 regarding measures to protect any bats potentially using these features.
- Comment 3 *If monitoring results indicate any problems associated with wildlife exposure to PLS (pregnant leach solution ponds), the Department would like to be involved in the development of measures to minimize or eliminate these problems.*
- Response: Comment noted.
- Comment 4 *The Draft EIS should explain the potential for, and possible impacts resulting from, an accidental spill of sulfuric acid at the Gila River. A contingency plan should be prepared to respond to accidental spills.*
- Response: See General Response 14, Hazardous Materials. Note also that in their Biological Opinion (USFWS 2002), USFWS concurred with the BLM's determination that the probability of a hazardous materials spill large enough to adversely affect the aquatic ecosystem of the Gila River was insignificant and discountable due to the safety precautions and procedures that will be taken by the selected trucking company.
- Comment 5 *...monitoring of pit lake water quality is not addressed in the Draft EIS. Predicted toxicity levels are based on modeling which should be validated with actual water quality measurements for a specified period after mine closure. Additionally, the party who will be responsible for the monitoring and mitigation should be specified.*
- Response: Pit lakes will consist of natural groundwater inflow and captured precipitation. It is expected that pit lake water quality will actually exceed that of the Gila River. Based on extensive review of the available scientific evidence, pit lake water quality monitoring for Dos Pobres/San Juan is not warranted.
- The detailed results of a material characterization study for development rock were given to the ADEQ by PD as a requirement for obtaining their APP permit to operate the proposed mine. These results are summarized in Section 2.1.2.1.6.
- Comment 6 *...we are concerned about the loss of public access to the San Juan Mine Road which currently provides access to public land in the Johnny Creek area of the Gila Mountains. Approval of the Draft EIS would result in the closure of this route to the public. As mitigation, Phelps Dodge is evaluating the feasibility of upgrading portions of the Solomon Pass Road (Table 4-42). While we would support such an action, the West Ranch Road is currently passable only in a high-clearance 4-wheel drive vehicle and is in greater need of improvement than the Solomon Pass Road. We believe that minor improvements and annual maintenance of the West Ranch Road would be reasonable mitigation for closure of the San Juan Mine Road. The Department recommends that this mitigation measure be considered in the Final EIS.*
- Response: The BLM does not plan to require PD to upgrade the West Ranch Road as mitigation for the loss of the San Juan Mine Road because the current 2 WD/4 WD condition of the West Ranch Road meets the BLM's objectives for the type of recreation activities (hunting, back country/four-wheel driving, horseback riding, sightseeing, and mountain biking) and recreation experiences they wish to provide (challenging back country driving, quality big game hunting, challenging mountain biking, natural landscapes/scenes, and a moderate degree of solitude and isolation). Improvement of the Solomon Pass Road provides a reasonable alternative to the loss of the San Juan Mine Road. See response 105-2.
- Comment 7 *We are concerned about BLM's interpretation of the Globe Equity No. 59 Decree (pages 1-8 to 1-10) as it pertains to the rights of Phelps Dodge to change the point of diversion or the use of a decreed water right. However, this is a legal issue and we are aware that BLM's interpretation has been disputed. The Draft EIS indicates that Phelps Dodge must seek and obtain approval from the Gila Valley Water Commissioner and the U.S. District Court to mitigate reduced flows in the Gila River by using water that would otherwise flow in the river. "BLM will not take final action until it is determined whether and to what extent such action might be precluded by the Globe Equity Decree" (p 1-9, last paragraph). It is unclear whether "final action" would entail signing the Record of Decision (ROD) or the actual transference of property ownership. The Department recommends that all proposed mitigation measures be developed and enforceable before signing the ROD.*
- Response: Please see Section 1.5.3, which has been revised to clarify several issues and comments that were made about the discussion of water rights authorities in the DEIS. The BLM, in its Record of Decision, will specify mitigation measures to be implemented regarding potential impacts on surface water and groundwater resources that may result from its decision. Any mitigation measures specified in the ROD must be implemented as a condition of BLM's authorization of the selected alternative.
- Comment 8 *The groundwater model developed to predict impacts of pumping on water resources predicts a maximum net reduction in Bonita Creek flows of less than one acre-foot/year. While the predicted change in stream flow is probably too small to have any measurable impact on the fishery, actual reductions in stream flow may differ substantially from projected values. However, it is unclear if the number and location of monitoring wells to be used to test model accuracy will be sufficient to detect differences between model-projected values and actual values for Bonita Creek. The Draft EIS should include an assessment of potential risks to stream flows and native fish in Bonita Creek. We recommend that monitoring be designed to measure these risks and to provide an "early-warning" system to prevent negative impacts to Bonita Creek.*
- Response: The Mitigation and Monitoring Plan (Appendix F) of the EIS outlines the groundwater resource monitoring program that will drive recalibration of the model if observed water levels deviate from model-projected

Chapter 7

water levels beyond the levels specified in the MMP. The model does not project measurable impacts on Bonita Creek, and as long as the model accurately predicts the response of the groundwater system to mine-related pumping, no additional monitoring is required. While the Group 3 wells, a number of which are between the wellfield pumping center and Bonita Creek, are measured annually, they are not included in the evaluation that triggers model recalibration. Nevertheless, the data from the Group 3 wells will serve as an "early warning" of potential impacts on Bonita Creek, and will also be used in the recalibration of the model. It can be stated with a high degree of certainty that if the model projections are "off" on the Group 3 wells, the projections on the well groups that trigger recalibration will be "off" as well (i.e., recalibration will be triggered).

- Comment 9 *Potential impacts to surface water in Watson Wash due to groundwater pumping should also be considered.*
- Response: See Appendix F, Section 3.3.2 Watson Wash Flowing Well Monitoring System, for proposed mitigation should impacts of groundwater pumping be observed at the Watson Wash artesian well.
- Comment 10 *The Department recommends specific monitoring of potential impacts to the Gila topminnow and, if necessary, development of mitigation measures to address adverse impacts. The Department requests involvement in surface water monitoring efforts associated with this project.*
- Response: BLM is aware that the AGFD has and continues to monitor the Gila topminnow population potentially affected by the Project. See Appendix F for proposed mitigation measures to address potential adverse impacts from groundwater pumping on this population.
- Comment 11 *Transfer of this property (Tavasci Marsh) to public ownership would be desirable provided it is managed for fish and wildlife purposes.*
- Response: See General Response No. 1.
- Comment 12 *The fourth paragraph on pages 3-74 and 4-51 of the Draft EIS does not describe the Department's construction of two water control structures as improvements/facilities currently available on the Tavasci Marsh property. Also, the first full paragraph on page 3-77 describes Tavasci Marsh as "AGFD Resource Category I habitat". To explain the meaning of this habitat designation by the Department, the Draft EIS should include the following definition: Habitats in this category are of the highest value to Arizona wildlife species, and are unique and/or irreplaceable on a statewide or ecoregion basis. Table 3-36 on page 3-78 of the Draft EIS lists special status species potentially occurring on the Tavasci Marsh property. This list should include the osprey (Pandion haliaetus), WSCA, as a "Species Likely to Occur with Some Regularity".*
- Response: This information has been used to revise the EIS.
- Comment 13 *There is an issue of reimbursement or replacement for the loss of Commission-owned improvements at Tavasci Marsh that must be addressed.*
- Response: BLM is in the process of determining whether the improvements at Tavasci Marsh were paid for with public funds. It is BLM's position that since this offered property would be put into public ownership under the land exchange alternative and managed by a federal agency as a public resource, no reimbursement would be warranted for improvements funded by public monies. If improvements were funded with non-public funds, BLM will negotiate reimbursement with the appropriate entity.
- Letter 221 Commentor Bart Judd of Roadrunner Rehab
Comment 1 *This letter is to show my support for Phelps Dodge.*
Response: See General Response No. 1.
- Letter 222 Commentor James M. Bush of Fennemore Craig
Comment 1 *...I wholeheartedly support the Project.*
Response: See General Response No. 1.
- Letter 223 Commentor Jerald A. Barney
Comment 1 *Do the land exchange!*
Response: See General Response No. 1.
Comment 2 *The group is also opposed to any backfilling of the mine when the 16-year plan ends. This is a waste of natural resources if the material must be removed again for future mining.*
Response: See General Response No. 1.
- Letter 224 Commentor Sam Mardian, Jr.
Comment 1 *I am in strong support of this proposed new mining venture and urge favorable consideration.*
Response: See General Response No. 1.
- Letter 225 Commentor John C. Camper of Tucson Metropolitan Chamber of Commerce
Comment 1 *I would like to register the Chamber's support in the official record for this project.*
Response: See General Response No. 1.

<u>Letter 226</u>	Commentor	Dan Adams
	Comment 1	<i>I trust that you will take all of this (i.e., socioeconomic benefits to rural communities) into consideration as you make your momentuous decisions.</i>
	Response:	See General Response No. 1.
<u>Letter 227</u>	Commentor	Ken Quartermain of Arizona Rock Products Association
	Comment 1	<i>I would like to register my support in the official record for this project.</i>
	Response:	See General Response No. 1.
<u>Letter 228</u>	Commentor	Mark Minter of Arizona Builders' Alliance
	Comment 1	<i>...we wholeheartedly support the project.</i>
	Response:	See General Response No. 1.
<u>Letter 229</u>	Commentor	John Zamar
	Comment 1	<i>I support Phelps Dodge Dos Pobres / San Juan project located in the Safford area. In addition, I support BLM's position concerning the preferred alternative for the land exchange as presented in the draft EIS.</i>
	Response:	See General Response No. 1.
<u>Letter 230</u>	Commentor	James F. Devine of U.S. Geological Survey
	Comment 1	<i>Information is needed on ore mineralization chemistry; analysis of grab, composite or core samples; and possible by-product minerals in the ore i.e., molybdenum, silver, gold, etc., in order to evaluate the impact of leaching of stockpiles and other waste repositories.</i>
	Response:	The results of the material characterization study for development rock were given to ADEQ by PDSI as a requirement for obtaining their APP permit. Results of this study show that the development rock stockpiles will be inert and furthermore, these stockpiles will not be leached. A summary of these results is provided in Section 2.1.2.1.6.
		Detailed ore composition and mineralization is not relevant for evaluating the impact of leaching since that information does not describe the resultant leach solutions produced during the leaching process. Leach solutions used in mining were characterized as part of the APP application studies. The leach pad will be a lined facility designed to fully contain leach solutions. Only copper is recovered in the SX/EW process; no by-product minerals are recovered.
	Comment 2	<i>Chemical data on water quality and baseline water conditions (pre-mining) are needed in the EIS. Also needed is data on water chemistry in, around, and through the deposit, which is essential for the EIS discussion. For example, data on the geochemistry of springs (on faults) as compared to well chemistry is needed.</i>
	Response:	Baseline water quality conditions and chemical data for three springs and groundwater are discussed in Section 3.2.2.5.2 in the EIS. These data were collected as part of documenting baseline conditions for the Aquifer Protection Permit (APP), for which PD made an application to ADEQ in the fall of 1998. The MMP also includes chemical and isotope sampling of springs to assist in determining the water source of the springs.
	Comment 3	<i>The west diversion channel as drawn on figure 2-1 should be drawn as one (single) channel as discussed in the text, and not two, as shown in the diagram.</i>
	Response:	The West Diversion channel is one continuous channel; however, in places, the natural topography is used to direct flows. Figure 2-1 shows only where surface disturbances are needed to construct this channel. As indicated on Figures 2-1 and 2-11 and discussed on page 2-15 of the DEIS, the West Diversion channel is a continuous system with the stormwater ultimately entering Coyote Wash.
	Comment 4	<i>The (west) diversion channel seems to open into the head of a drainage that flows directly into the west development rock stockpile. The opening (as drawn) ultimately leads to an unnamed tributary that feeds into upper Watson Wash, which cuts through a soil stockpile and an aggregate borrow source. This design does not achieve the desired result of minimizing leaching of exposed materials into the surface or ground water.</i>
	Response:	The West Diversion channel is designed to divert stormwater runoff from the Watson Wash drainage around the West development rock stockpile and into the Coyote Wash basin, which drains in a southwesterly direction away from the stockpile. See Section 2.1.2.3.2 and Figure 2-11 in the EIS.
	Comment 5	<i>Because the topography is obscured, it is difficult to see where storm water is diverted; however, it appears that the topography forces the drainage close to or into upper Wilson Wash, which is not consistent with the statements in the text.</i>
	Response:	The statement in Section 2.1.2.3.2 regarding diversion of stormwater from the South Diversion channel into an unnamed tributary of Peterson Wash is correct. A more detailed map in the Stormwater Master Plan (Dames & Moore 1999a, 2nd revision) showing topography is available at the BLM's Safford Field Office for review. See also response 230-4.
	Comment 6	<i>Chapter 3, Section 3.2.2.3: Page 3-17. The statement, "All the rocks that will be exposed in walls of both the Dos Pobres and San Juan pits are high in carbonate minerals which are alkaline," is unsupported.</i>
	Response:	Your observation is correct; use of the term "carbonate" was inappropriate. The rocks in the pit walls will be primarily andesite, which has a calc-alkaline component but is not a carbonate in the geological sense.

Chapter 7

There are no limestones present in the Safford Mining District; however, andesite, which is present, is also acid-neutralizing as evidenced by data presented in Section 2.1.2.1.6. The statement in Section 3.2.2.3 has been reworded to reflect this information.

Comment 7 *Chapter 3, Section 3.2.2.3: Figure 3-6, Geologic map: You need to show the down-drop wall on the southwest side of Butte fault and northeast side of Valley fault to define the graben.*

Response: We did not want to further clutter Figure 3-6, so we clearly show the graben on the following figure, Figure 3-7, the geologic cross section. Furthermore, we discuss this graben in the text in Section 3.2.2.3.1.

Comment 8 *Do springs line up along Butte fault indicating artesian activity?*

Response: The springs in the project area lie north of the Butte Fault in the foothills of the Gila Mountains. Their locations relative to the Butte Fault do not indicate artesian activity.

Comment 9 *The presence of the fault suggests an increase in water that could fill the pits and produce runoff problems. A plan for pumping or other mitigation procedures to control any excess water that might occur should be included in the EIS.*

Response: Pumping of groundwater from production wells, in addition to pit dewatering, will control groundwater inflow to the pits during operations. At the end of operations/pumping, studies indicate that pit lake water levels will reach steady-state conditions at elevations well below the surface rim of the pits. See Section 4.3.2.6.3.

Comment 10 *Figure 3-10: The position of Butte fault in the figure is unclear.*

Response: The map scale in Figure 3-10 is adequate for showing its intended information, i.e., the location of wells and the water table within the project area. This level of detail does not allow for the Butte Fault to be clearly delineated; see Figure 3-6 for a larger scale view of the location of Butte Fault.

Letter 231 Commentor Ron Gibbs

Comment 1 *I support the Proposed Alternative, which would operate the Dos Pobres/San Juan Project as described in the Draft EIS.*

Response: See General Response No. 1.

Letter 232 Commentor Dolan Campbell

Comment 1 *My own feelings are that Phelps Dodge should not be forced to give up any land to the BLM to open this mine and that more land should be placed on the tax roles and out of your control. ...Now I have had time to talk with the folks at Phelps Dodge and they feel that this land swap is the best deal which they can cut. To me this is not the best deal, but the best one which they can come up with. I go on record as favoring this land swap, even though I don't feel it is fair to all concerned.*

Response: See General Response No. 1.

Letter 233 Commentor A.J. Broderick

Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres / San Jaun Project. I have reviewed the Draft EIS and concur with the Bureau of Land Management's preferred alternative of a land exchange (page 2-44).*

Response: See General Response No. 1.

Comment 2 *I concur with BLM's position that the issue concerning the disputed southern boundary with the San Carlos Apache Reservation 'has been reviewed and addressed adequately by BLM and other federal entities; the Tribe accepted fair compensation for all disputed aboriginal lands' (see 1.6.2.2.1). I agree that the BLM decision not to carry this issue forward as part of the project review is appropriate.*

Response: See General Response No. 1.

Letter 234 Commentor Steve McClain of ACM Equipment Rental

Comment 1 *I would like to go on record as supporting the Dos Pobres/San Juan Mining project proposed by the Phelps Dodge Corporation. ...I also support the related land exchange.*

Response: See General Response No. 1.

Letter 235 Commentor James R. Juday of Southwest Energy Inc.

Comment 1 *I am writing in support of the proposed Phelps Dodge Dos Pobres/San Juan Project, located north of Safford Arizona.*

Response: See General Response No. 1.

<u>Letter 236</u>	Commentor	John H. Ryley of San Carlos Apache Tribe
	Comment 1	<i>The Apache Tribe objects to both of the proposed Morenci and Safford Land Exchanges. The cumulative impacts from the Morenci and Safford copper mines, should have been evaluated together at the same time as part of a programmatic environmental approach by BLM, as required under both the National Environmental Policy Act and the Endangered Species Act.</i>
	Response:	<p>The DEIS addressed cumulative impacts of the proposed action and alternatives and considered in its analysis the cumulative effects of the land exchange and mine activities known to us at the time the DEIS was prepared. In addition, a detailed summary of the changes in public land ownership were summarized from available GAO reports, providing appropriate context for analysis of project effects and the making of an informed decision by BLM.</p> <p>Analysis of the relationship of the proposed land exchange alternative and the MPO to the other projects mentioned by the commentors clearly indicate that it they are an independent action, unconnected to the other mining-related land exchanges or MPOs currently or recently analyzed by the Forest Service and/or the BLM and that these projects are all appropriately analyzed as independent actions under NEPA. The rationale for this decision has been presented by the BLM in previous documents, but will be reiterated here. The rationale for this position, presented below, follows guidance for determining the scope of an Environmental Impact Statement found in 40 CFR 1508.25. Please also refer to General Response No. 3 in this chapter which pertains to the scope of analysis of the EIS for additional information and discussion.</p> <ol style="list-style-type: none"> 1. Completion of the Morenci and Safford Land Exchanges and the Dos Pobres/San Juan MPO or any of the other mine-related projects evaluated by BLM will not trigger other actions that may require an EIS. Selection of the land exchange alternative by BLM does not trigger or authorize additional actions, including implementation of the Dos Pobres/San Juan MPO, or development of any of the other ore bodies in the Safford District. Similarly, selection of the MPO alternative does not trigger or authorize subsequent development of the Lone Star, Dos Pobres Sulfide, or the Sanchez projects within the Safford Mining District. 2. The Morenci Land Exchange and Asarco Ray Unit Land Exchange were not necessary to authorize or approve either the Safford Land Exchange or the Dos Pobres/San Juan MPO. These projects are economically, technically, and geographically independent from one another. 3. The land exchange and mining actions identified by the commentor are not interdependent parts of a larger action that depend on the larger action for their justification. These actions are clearly independent of each other and may proceed and operate independently. 4. Although the activities identified by the commentor are independent and are being evaluated in separate NEPA documents, the cumulative impacts of all these actions are being considered in Section 4.5, the cumulative impacts analysis of the Dos Pobres/San Juan Project EIS. 5. The projects identified by the commentor have separate geographies and are on different time schedules. The Morenci Land Exchange, including resolution of appeal to the IBLA, has been completed and the ASARCO Ray Complex Land Exchange FEIS and ROD were published in 1999 and 2000, respectively. A similar demonstration of separate geography and timing could just as easily be made for the remaining projects identified by the proponent, providing further documentation of their independence. <p>Therefore, the BLM considers the mining-related land exchange activities recently or currently being reviewed by the agency to be separate and independent actions that appropriately should be addressed separately.</p>
	Comment 2	<i>The DEIS for the Dos Pobres/San Juan Project contains a section called "Water Rights Authority" at pages 1-10 through 1-12, Section 1.6.2, Vol. 1. The "Water Rights Section" generally discusses water rights under a federal decree, known as "Globe Equity No. 59" (herein the "Decree"; and how the proposed Safford Land Exchange and Phelps Dodge mining projects will impact those water rights. Because these mining projects will impact and violate the water rights of other parties, including the Apache Tribe, Phelps Dodge has proposed a mitigation plan. See Appendix F to Volume Two of the DEIS, "Draft Mitigation and Monitoring Plan." The Apache Tribe opposes the mitigation plan.</i>
	Response:	Both Water Rights Authority, Section 1.5.3, and Appendix F, Mitigation and Monitoring Plan, have been revised. The Apache Tribe's opposition to the mitigation plan has been noted; please see General Response No. 1.
	Comment 3	<i>The Apache Tribe does not agree with the mitigation plan of Phelps Dodge, because this "fallowing" theory violates the law of the Decree, and the common law of appropriation. Nor does the Apache Tribe agree with Phelps Dodge's predicted, but substantially and materially understated, amount of depletion of water from the Gila River that will result from its proposed mining operations, based upon the groundwater model that it has been preparing. The mitigation plan also is too general so that it is unknown how such plan would actually operate and what its effect would be. The Apache Tribe therefore objects to Phelps Dodge's mitigation plan.</i>
	Response:	Please see Section 1.5.3, Water Rights Authority, for a discussion of how the BLM is addressing the potential legal issues surrounding the proposed pumping and mitigation plan.
	Comment 4	<i>The Apache Tribe submits that BLM cannot approve the land exchange until, and if, Phelps Dodge obtains approval from the District Court for its mitigation plan to fallow its farmlands. While BLM can require</i>

Chapter 7

mitigation generally, it should not approve mitigation which violates the water and property rights of parties under the Decree, particularly Indian Tribes.

- Response: Please see revised Section 1.5.3 to clarify some of the issues surrounding the Globe Equity No. 59 Decree and the proposed mining and mitigation activities.
- Comment 5 *The Proposed Land Exchange and Phelps Dodge Mining Projects will Violate the Federal Reserved Water Rights of the Apache Tribe.*
- Response: See Section 1.5.3 for a discussion of water rights authorities under which this Project would be authorized; see also Section 4.3.6 for an analysis of impacts to Indian Trust Resources, including Indian water rights.
- Comment 6 *The Phelps Dodge Groundwater Model Projecting Adverse Impacts Upon the Apache Tribe's Water Rights Under the Globe Equity No. 59 Decree, and the Apache Tribe's Federal Reserved Water Rights, is Not Reliable and Substantially Underestimates Such Impacts.*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 7 *BLM Has Failed to Comply With The Endangered Species Act.*
- Response: See General Response No. 6, Endangered Species Act Compliance.
- Comment 8 *The Proposed Land Exchange is Not in the Public Interest.*
- Response: See General Response No. 1.
- Comment 9 *BLM Failed to Analyze and Consider Cumulative Adverse Environmental Impacts.*
- Response: See Section 4.5.3, Cumulative Impacts.
- Comment 10 *BLM Failed to Address Environmental Justice Concerns.*
- Response: See Section 5.2, Environmental Justice.
- Comment 11 *BLM Failed to Follow a Programmatic Approach Required By NEPA.*
- Response: NEPA does not require programmatic EISs; rather, CEQ regulations at 40 CFR 1502.4 (b)(c) provide for such analyses "for broad federal actions such as the adoption of new agency programs or regulations." The decision whether to prepare a programmatic EIS, in the absence of a regional plan or program, has largely been left to the agency of record by court decisions (notably *Kleppe v. Sierra Club*). The BLM determined that the Dos Pobres/San Juan Project does not fall within a group of actions that meets CEQ guidelines for a programmatic approach to NEPA compliance.
- Comment 12 *Part of the Selected Lands are Part of the San Carlos Apache Tribe Indian Reservation and Therefore Cannot be Exchanged with Phelps Dodge.*
- Response: This issue is addressed in Section 1.6.2.2.1 of the EIS. See also response 250-18.
- Comment 13 *The DEIS Improperly Avoids Any Environmental Analysis by Deferring Such Analysis to Environmental Permits to be Issued to Phelps Dodge Sometime in the Future.*
- Response: See General Response No. 3, Scope of Analysis.
- Comment 14 *BLM Has Failed to Conduct Any Environmental Analysis Regarding Degradation of the Water Quality of the Gila River From Groundwater Pollution.*
- Response: See Section 4.3.2.5.2, which states that no impacts to groundwater quality are expected at or beyond the points of compliance. We have revised Section 4.3.2.6.2, Surface Water Quality, to clarify that, since the Gila River is beyond the points of compliance identified in PD's APP permit, no impacts to its water quality are anticipated as a result of the Project.
- Comment 15 *BLM Inadequately Analyzes the No Land Exchange Alternative.*
- Response: See Section 4.4, in which the No Land Exchange alternative is analyzed throughout.
- Comment 16 *BLM Inadequately Analyzes the No Mining Alternative.*
- Response: BLM fully analyzed the No Action Alternative. As explained in Section 2.1.4, as a practical matter, No Action in this case does not necessarily mean 'no mining whatsoever' as BLM typically works with an applicant to develop an approved mine plan. Therefore, a No Mining alternative was not considered a reasonable alternative.
- Comment 17 *BLM Has Failed to Comply With 40 C.F.R. 1502.16 (analyze the environmental consequences of the proposed land exchange).*
- Response: See Section 4.4, in which the Land Exchange alternative is analyzed throughout.
- Comment 18 *Based on all of the above objections and reasons, the DEIS is inadequate, and BLM should not approve the Safford Land Exchange.*
- Response: See General Response No. 1.

- Letter 237 Commentor Wayne C. Nordwall of Bureau of Indian Affairs, Phoenix Area Office
- Comment 1 *It is the BIA's understanding that use of the groundwater source associated with the proposed federal action will result in the interception of mountain-front recharge to, and in the mining of, that groundwater source. As such, regardless of the timing of the underground flow of this groundwater source to the mainstream Gila River, it appears that Phelps Dodge's proposed use of this groundwater source will permanently remove it from the Gila River surface supply for use by decreed water rights holders under the Decree. As you know, the San Carlos Apache Tribe (Tribe) and the Gila River Indian Community are water users under this Decree. The information provided to the BIA indicates that approximately 8,000 acre-feet a year for sixteen years (life of the mine) will be pumped from this groundwater source and will never reach the Gila River. This number appears to be underestimated. In addition, it appears that the DEIS over-estimates recharge and underestimates the permeability of the Valley Fault.*
- Response: The volume of water necessary to operate the mine was calculated by PD based on the water needs of similar mine operations. The volume of 8,000 acre-feet per year (af/yr) in water use for the life of the mine as cited in this comment is incorrect and probably derives from the Dames & Moore estimates that the aquifer is capable of a sustained yield of 8,065 af/yr as stated in paragraph 1 of Section 2.1.2.2.1 in the DEIS. In paragraph 2 of the DEIS, the average expected water use was stated to be 6,891 af/yr. Changes to the MPO submitted by PD since publication of the DEIS have reduced the anticipated groundwater use by nearly 20%, to an average volume of 5,532 af/yr (see Table 2-4 in FEIS). BLM has no reason to consider this volume an underestimation.
- Regarding estimates of recharge and permeability, the model structure and input values are compatible with the suggested concept that water "will never reach the river." Estimates of recharge and the permeability of the Valley Fault cannot be resolved with existing data. However, more accurate estimates will be possible only after sufficient stress from mine pumping has perturbed the hydrologic system, and sufficient data have been collected on which to base the new estimates, as is proposed in the 3M Program.
- Comment 2 *It is the BIA's position that groundwater beneath this Reservation is the property of the Tribe, held in trust by the United States. As such, the BIA does not believe it is acceptable to approve a federal action which will de-water the groundwater storage on this Reservation and deprive the Tribe of this federal Indian trust asset.*
- Response: See General Response No. 10, Indian Trust Resources. See also revised Section 1.5.3, Section 3.2.6, and Section 4.3.6.1 in the FEIS.
- Comment 3 *The BIA is concerned about the adverse impacts to mountain-front springs and seeps on the San Carlos Apache Reservation which might result from the groundwater pumping associated with the proposed federal action. Apparently, technical conclusions were reached by the BLM that these mountain-front springs and seeps will not be affected. The BIA's technical experts are continuing to evaluate the BLM's conclusion on this matter. At a minimum, it may be advisable to monitor at least one mountain-front spring off-reservation as a means of obtaining advance warning of potential impacts to on-reservation mountain-front springs.*
- Response: Group 5 wells located north of the Butte Fault below the Reservation boundary will provide 'early warning' of groundwater effects before they affect the Reservation. As for springs, the 3M Program includes isotope, water chemistry, and flow sampling of several springs to determine connectivity to the regional groundwater system and potential impacts from groundwater pumping.
- Comment 4 *The BIA is concerned about the extent to which surface water will be captured and used under the proposed action. The BIA has been advised that Phelps Dodge plans to increase the capacity of its retention facilities. If so, this modification of the DEIS needs to be evaluated thoroughly and the BIA will be discussing this matter with the BLM and its contractors.*
- Response: The larger stormwater impoundment referred to in this comment was analyzed as part of the Proposed Action alternative in the DEIS. Increasing the storage capacity of the stormwater impoundment enhances only the "zero discharge" capability of the Project's stormwater management system during design storm events; it does not increase the annual average volume of stormwater captured, which is dependent upon average annual precipitation.
- Comment 5 *...it is the BIA's position that the Decree enjoins the United States (including BLM) from diverting, taking or interfering with the use and enjoyment of other decreed water rights holders. The United States may presently be enjoined from taking an action which would enable another entity to so divert, take, or interfere. It is the BIA's position that approval by the BLM of the land exchange or the mining plan of operation described in the DEIS, without prior approval of the Federal Court, may result in a violation of the Decree's injunction.*
- Response: Refer to Section 1.5.3, which provides guidance from the BLM Field Solicitor and the Gila Water Commissioner regarding BLM's action with respect to the Globe Equity No. 59 Decree.
- Comment 6 *As proposed in the DEIS, this land following program fails to accomplish the stated purpose. The Gila River is over-appropriated and to the extent that Phelps Dodge foregoes use of decreed water on lands it owns in the Upper Gila Valley by following such lands, any "savings" in water would be distributed to other decreed water rights holders either in the Upper Gila Valley or downstream. In addition, the Decree does not permit a decreed water rights holder from changing the point of diversion or the purpose of the use of the decreed water right unless such change will not injure the rights of other decreed water rights holders. The BIA does not believe Phelps Dodge can meet this burden, but in order to do so, Phelps Dodges must petition the Federal Court which retains jurisdiction over the Decree.*
- Response: See revised Section 1.5.3 of the EIS, in which the Field Solicitor has provided guidance to BLM as to what

actions would be appropriate as they relate to water rights and conformance with the Globe Equity No. 59 Decree.

Regarding the effectiveness of the Alternate Year Following Program in mitigating for reduced river flow, the following program will not only mitigate more than three times the projected maximum impact (480 af/yr annually in perpetuity for a maximum annual impact of 149 af in Year 450), but the proposed mitigation will commence immediately upon groundwater pumping, ahead of any actual impact to the river, and extend indefinitely beyond the point in time when the effects of groundwater pumping are expected to return to nearly pre-mining conditions. That "the Gila River is over-appropriated" (i.e., that other decreed users may use Gila River water) does not negate the mitigation that will be achieved by PD through the Alternate Year Following Program; as a the result of their following, there will be a net reduction in consumptive use of Gila River water.

Comment 7 *The BIA does not believe that the DEIS accurately reflects the seriousness of Decree implications associated with the proposed federal action. The BIA's position is that the Decree's injunction provisions prohibit the BLM from taking any action to exchange lands or to approve a mining plan of operation unless and until Phelps Dodge receives from the Federal Court under the Decree a favorable ruling regarding the legal authority for Phelps Dodge to use the groundwater source and intercept the sheet flows which result in diminution of the flow of water to the Gila River. The Decree implications arising out of the DEIS and the proposed federal action are serious and complex. The BIA's comments highlight the issues, but a more detailed discussion of the Decree implications must be undertaken by the BIA, the BLM, the Solicitor's Office and the Department of Justice. The BIA looks forward to coordinating such a discussion early next year.*

Response: See Section 1.5.3, which has been revised with input from the BLM Field Solicitor, regarding the BLM's position on its action with respect to conformance with the Globe Equity No. 59 Decree.

Comment 8 *For purposes of these cumulative impacts, further discussion is necessary regarding future impacts of water usage associated with the Dos Pobres, San Juan, Dos Pobres Sulfide, Lone Star, and Sanchez projects, the Morenci Mine and proposed land exchange, community growth, and agricultural operations.*

Response: The analysis of cumulative impacts completed in Chapter 4 considers the potential effects of the reasonably foreseeable future actions in the region, including the Dos Pobres Sulfide, Lone Star, Sanchez, Morenci Mine, continued agriculture, etc. Analysis of cumulative impacts requires that the best available data be used; it does not allow BLM to speculate about the possible water usage of these potential future projects. To the degree that current conditions reflect the cumulative impacts of past projects, the cumulative impact analysis uses a trend analysis to project the cumulative future impacts of the Project in light of potential impacts from these reasonably foreseeable future projects. See also response 237-32.

Comment 9 *Contrary to the conclusion reached in the DEIS (Chapter 5.2, Environmental Justice), the BIA believes the establishment of mine development, by virtue of the location of the development and surrounding communities, will create a "high and adverse effect" to the surrounding communities. These effects include, but are not limited to: (1) increased probabilities of hazardous material spills and traffic accidents due to an average increase of 100 commercial trucks per day, which includes sulfuric acid tank trucks and other trucks carrying processing materials, not to include employee vehicles and, (2) depletion of available water resources for these communities. Mitigation measures should be identified and implemented to minimize impacts to hazardous materials spills and vehicle accidents to include additional police, fire, and hazardous materials response capabilities and improvement of highway conditions in these communities. Regarding depletion of water resources, this issue, if addressed as discussed previously, would satisfy this environmental justice mitigation requirement.*

Response: BLM has reviewed the impact analysis regarding the potential for spills, traffic accidents, and water usage and stands by its original determination of effects. While the Project would bring additional truck and employee traffic on Highway 70 through the Reservation, this increase is not limited to the Reservation and would also occur on the other roads and highways, such as US 191. This effect is not disproportionately high and adverse on the Reservation; none of the carrying capacities of the roadways are expected to be exceeded; acid spill potential is increased but still minimal; and mitigating factors such as tanker safety design, alkaline soils, avoidance of 8th Avenue Bridge, etc. all serve to minimize the potential for adverse impacts from spills. Regarding impacts to water resources used by the surrounding communities, no community on or off the Reservation currently uses the deep volcanic aquifer that PD proposes to pump as its water source and there are no anticipated unmitigated groundwater or surface water impacts. The mitigation alternatives for potential impacts on groundwater under the San Carlos Apache Reservation is discussed in the FEIS in Section 4.3.6.1. See also General Response No. 10, Indian Trust Resources.

Comment 10 *Cumulative impacts and the consequences to small disadvantaged communities in the area of the DEIS (reference Figure 3-15) must involve additional discussion. We believe this further analysis of cumulative impacts will require the establishment of mitigation measures in the areas of water usage and hazardous materials spills and vehicle accidents.*

Response: See response 237-9 and General Response No. 14, Hazardous Materials.

Comment 11 *Regarding the Land Exchange Alternatives Set, which involves the acquisition of approximately 17,000 acres, not including the existing acreage owned by Phelps Dodge (20,000 acres), in the Gila River Watershed, we believe this alternative is the least desirable since it maintains a greater potential for significant impacts to issues such as water resources, hazardous materials spills and vehicle accidents, and government-to-government relationships.*

Response: The proposed land exchange will not cause or in any way authorize the proposed or foreseeable mining uses of the selected lands (i.e., the proposed Dos Pobres/San Juan Project, or the future potential DP

Sulfide or Lone Star projects). Therefore, the potential impacts associated with the foreseeable mining uses of selected lands are not attributable to the land exchange. If the selected lands become private, government-to-government relationships and environmental analysis under NEPA will still be applicable to actions on those lands requiring federal funds or a federal permit/authorization, such as Clean Water Act or Clean Air Act permits necessary for mining activities. The only difference would be that BLM in particular would not be involved as the lead federal agency in government-to-government consultations or environmental analyses.

Comment 12 *Further analysis of impacts must be conducted regarding the following issues: (1) increased land to be used for the Dos Pobres Sulfide and Lone Star production operations, tailings piles, and support areas.*

Response: See General Response No. 3, Scope of Analysis.

Comment 13 *Further analysis of impacts must be conducted regarding the following issues: (2) increased water usage.*

Response: The analysis of impacts associated with proposed water usage (groundwater pumping) is addressed in Section 4.3.2.5.1. Regarding a cumulative analysis of potential future water usage, see Section 4.5.3.1.2, Groundwater Resources discussion. See also General Response No. 3, Scope of Analysis, as to BLM's approach to analyzing foreseeable uses, including potential future increases in water usage.

Comment 14 *Further analysis of impacts must be conducted regarding the following issues: (3) reduced involvement by the federal government and the Tribe, especially in the area of additional environmental analysis of all impacts associated with the Dos Pobres Sulfide and Lone Star development plans.*

Response: See General Response No. 5, Loss of Federal Oversight; see also response 237-11.

Comment 15 *Further analysis of impacts must be conducted regarding the following issues: (4) the acquisition costs of the Lone Star and San Juan properties and the appraised value of the property wherein the Melody Claims Group holds mineral rights is not explained.*

Response: The entire Lone Star deposit and a portion of the San Juan deposit already belong to PD and are not included in the selected lands; therefore, their costs were not included in the appraised value of the selected lands. Please note also that the public lands whose mineral rights are controlled by the Melody Claims Group have been excluded from the selected lands and would not be acquired by PD if the proposed exchange is approved.

Comment 16 *Further analysis of impacts must be conducted regarding the following issues: (5) the liability associated with the acquisition of property (Tavasci Marsh) located adjacent to a 120-acre area of mine tailings (reference Departmental Manual 602 DM 2.4B).*

Response: See response 203-1.

Comment 17 *Further analysis of impacts must be conducted regarding the following issues: (6) the exchange will provide a negative impact to San Carlos Apache Tribal and the BIA trust resources but does not provide lands to the BIA to hold in trust for the San Carlos Apache Tribe.*

Response: See General Response No. 10, Indian Trust Resources.

Comment 18 *The land exchange would affect all 41 sites identified by tribes and remove them from direct federal oversight responsibilities required by the National Historic Preservation Act (NHPA). It would also remove the consideration extended by the American Indian Religious Freedom Act (AIRFA) for two sites identified by tribes as sacred (4.4.4.2.1, pg. 4-73). Fourteen of the sites would be impacted by future mining. The BIA recommends that a legally enforceable covenant for tribal access to these sites be included in any land transfer and an access protocol or memorandum of agreement be executed among the federal government, Phelps Dodge, and the affected tribes.*

Response: The approved data recovery plan proposes protecting three sacred sites in perpetuity by providing a conservation easement for these sites, with interested tribes given access with reasonable notice and in compliance with Mine Safety and Health Administration safety regulations. PD has sent a letter to the Gila River Indian Community expressing concern for these sites and providing for protection of and access to these and other sites on the project area by Native American tribes.

Comment 19 *Both the Draft EIS and supporting ground-water model may underestimate the impact of the proposed project to flows of the Gila River. The DEIS fails to address the adverse impact to ground-water depletion and springs on the San Carlos Apache Reservation. Surface flows in local washes which are diverted and captured during the development of the mine may also be underestimated and are not adequately addressed in the DEIS. Long term water supply issues are also not addressed, resulting in a need for the DEIS to discuss alternative sources of water. Mitigation measures proposed in the DEIS and the Draft Mitigation and Monitoring Plan are inadequate and do not properly address the adverse impacts that may occur downstream of the proposed project.*

Response: For a discussion of the assumptions underlying the model used for predicting potential impacts of project groundwater pumping, see General Response No. 16, Groundwater Model Review. A discussion of potential impacts of pumping on groundwater under the San Carlos Apache Reservation and the proposed approaches for mitigating such impact are included in the FEIS. See also General Response No. 10, Indian Trust Resources. Hydrologic studies conducted to estimate surface flows in and around the project area are documented in both the DEIS and FEIS. The quantified results of those studies have been documented herein. Alternative sources of water are discussed in Section 2.1.5.2.2 of both the DEIS and the FEIS; see also response 237-22. A detailed plan for mitigating projected effects on surface flow in the Gila River (Alternate Year Following Program) is provided in Appendix F of the FEIS; see also response 237-6 regarding the effectiveness of the Alternate Year Following Program.

Comment 20 *A response (from BLM) to these comments (submitted by the BIA on November 25, 1998) is necessary in*

order to determine the accuracy, use, and limitations of the ground-water model. Based on the currently available data from the model, it is not possible to determine the accuracy of the predicted impacts due to ground-water pumping at the proposed project.

- Response: See General Response No. 16, Groundwater Model Review.
- Comment 21 *Revisions to the effect of ground-water pumping to surface flow of the Gila River and effects from diversion and retention of local water in the project area should be made to the DEIS document. Permanent loss of ground-water due to evaporation from pit lakes and reduction in subsurface outflow are not addressed in the DEIS. Furthermore, the proposed monitoring and mitigation plan lacks detailed mitigation measures and in some cases does not address all losses to the system due to the proposed project.*
- Response: See General Response No. 16, Groundwater Model Review. See also response 237-38 regarding pit lake evaporation. The MMP includes specific processes, thresholds, and criteria for implementing surface flow mitigation measures; the next recalibration of the groundwater model as required by the 3M Program will also include pit lake evaporation.
- Comment 22 *The Draft EIS assumes that the proposed production wells will be able to meet the water supply demands during the sixteen year life of the project. Based on the amount of drawdown expected and the uncertainty in hydrogeologic parameters that define aquifer properties in the ground-water model, water supply may be an issue in the future. The Draft EIS should discuss alternative sources of water if the local aquifer at the mine proves to be inadequate to meet future water supply demands.*
- Response: Based on extensive aquifer testing and water resource evaluations completed by PD, BLM believes that sufficient water supplies are available to meet the needs of the Project. A supplemental water source (City of Safford effluent) was discussed in Section 2.1.5.2.2 and remains a possible supplemental source for future consideration pending feasibility analysis. Please note that changes to the MPO made since publication of the DEIS have resulted in about a 20% reduction in projected water usage for the Project.
- Comment 23 *The size of the proposed stormwater impoundment facility has been increased from 322 acre-feet to approximately 400 acre-feet (personal communication with Phelps-Dodge, BLM, and Dames & Moore, November 12, 1998). The DEIS should include an updated section regarding stormwater impoundment and the reason why it was increased. The construction of this facility should include a gaging station to measure the impoundment of stormwater for mitigation. Two gages are necessary to record water levels in the impoundment facility and discharge to the SX/EW tankfarm. A mass balance of the impoundment facility using the information from these gages will provide the quantity of water that was diverted during storm events.*
- Response: The larger impoundment was included as part of the Proposed Action alternative analyzed in the DEIS. The final design capacity of the impoundment was increased as a result of PD using more conservative assumptions in the hydrologic modeling of stormwater and process solution runoff from the leach pad. The current design capacity of the impoundment also reflects the final engineering design of the leach pad and the addition of the excess process solution impoundment.
- The stormwater impoundment may periodically contain process solution overflow from the excess process solution impoundment resulting from power outages and other plant upsets. The stormwater impoundment may also periodically contain overflows of combined stormwater and precipitation resulting from extreme rainfall events. Even if there were a reason to quantify the amount of precipitation that falls within the contained leaching and SX/EW process facilities, that amount could not be determined by the use of gauges at the stormwater impoundment. Mitigation for impacts to surface flows from diversions, impoundments, or other project activities and facilities has been included in the calculation of acreage to be followed in the Alternate Year Following Program.
- Comment 24 *The retention dams listed in Table 2-7 may potentially impound 467.1 acre-feet of water that would normally flow to the Gila River or recharge the ground-water under no project conditions. This section of the report should describe that water impounded behind these dams are either lost to evaporation, recharged to the ground-water system, or used for mining operations.*
- Response: The 467.1 af cited in this comment is the total structural capacity of all the planned retention dams. As noted on Table 4-9 of the DEIS, the 94 af/yr that represents the average annual volume of stormwater runoff estimated to be captured as a result of the Project's stormwater management system is considerably less than 467.1 af. This figure is based on an average annual stormwater runoff estimate multiplied by the acreage of the tributary areas between the up-gradient stormwater diversion ditches and the impoundment structures located down-gradient of the various project facilities. Since the stormwater retention dams were sized for extreme storm events (the 100-year/10-day storm event), the total impoundment capacity of the individual dams is not representative of average annual stormwater runoff capture. With the retention dams, impounded water will either seep into the groundwater system or evaporate. PD has no current plans to use water impounded by the retention dams in mining operations. This explanation is also provided in the FEIS in Section 2.1.2.3.2.
- Comment 25 *The BLM's August 18, 1998 response to our original comment regarding a possible overestimate of recharge from Bonita and San Simon Basin indicates that their estimates of inflow are higher than Freethy and Anderson (USGS, 1986). It also appears that their estimate of inflow is higher than that suggested by Turner (1941). Based on the BLM's response and comparison to previously published data, estimated inflow to the study area is greater than that suggested by other studies. Overestimating inflow may potentially reduce the impact of ground-water pumping at the project site on surface flow of the Gila River.*
- Response: See General Response No. 16, Groundwater Model Review.

Comment 26 *Ground-water pumping in Safford Valley appears to be underestimated. The BLM's August 18, 1998 response to our original comment indicates that ground-water pumping was calculated based on the difference between surface flow diversion and consumptive use by crops. The DEIS's methodology allows for return flow from pumping, but not from surface diversions.*

Records of surface diversions provided by the Gila River Water Commissioner indicate that the average annual surface diversion was 97,500 acre-feet for the period 1946 through 1995. Annual ground-water pumping for the same period averaged 110,000 acre-feet (USGS Open File Report 94-476, and unpublished USGS data). Historical data indicates that ground-water pumping was greater than surface diversions for this 50 year period. This data should be reflected in the DEIS.

Groundwater discharge from phreatophytes occurs throughout the model domain, but is not described in this section of the report. Turner and others (1946) reported 70,000 acre-feet of evapotranspiration due to naturally occurring phreatophytes in Safford Valley. Personal communication with Phelps Dodge, Dames & Moore, and BLM (November 12, 1998) suggested that phreatophytes within the model domain in the Safford Valley have largely been eradicated since the 1946 report by Turner. Evidence of existing phreatophytes in the Safford Valley would suggest otherwise. This section of the DEIS, which discusses the affected environment, should address evapotranspiration by phreatophytes.

Response: See General Response No. 16, Groundwater Model Review.

Comment 27 *Estimates of average annual runoff presented in Table 3-15 do not agree with estimates of average annual runoff presented in Tables 4-4 and existing runoff presented in Table 4-9. These values should be consistent throughout the DEIS document.*

Response: The variation in existing runoff presented in Tables 3-15 and 4-9 in the DEIS was caused by re-evaluation of watershed boundaries or slight variations when the watershed areas were measured each time. The estimates in Table 4-9 are the more recent, and Table 3-15 has been corrected in the FEIS to conform to those estimates. Please note there was a typographical error in Table 4-9 in the DEIS; Talley Wash should have read 119 af/yr rather than 19 af/yr. This also has been corrected in the FEIS. Table 4-4 has significantly different values for existing runoff because areas capturing sheet flow (precipitation falling directly on mine facilities) were omitted.

Comment 28 *Although legal issues are outside the scope of these comments, the total impact to downstream water rights holders is estimated at 94 acre-feet per year, of which 54 acre-feet has been estimated to be sheet flow.*

Response: Comment noted. See Tables 4-4 and 4-9 and see Section 4.3.1.6.1, footnote no. 1 in the EIS.

Comment 29 *Changes to recharge and fault conductances are requested in order to substantiate the accuracy of predicting a streamflow reduction of 35.4 acre-feet/year. The following are specific comments to the Draft EIS regarding the ground-water model developed by Dames & Moore:*

1. The HFB package should be used to simulate faults in order to prevent inadvertent representation of excess storage in the model.

2. The use of the river package for Bonita Creek inadvertently established a constant head boundary which prevents representation of dry stream segments potentially caused by the project operation during dry hydrologic cycles.

Response: See General Response No. 16, Groundwater Model Review.

Comment 30 *The USGS estimates the average annual ground-water diversion in Safford Valley to be 110,000 acre-feet for the period 1946 to 1995. Based on reported values from the Water Commissioner, the average annual surface diversion for the same period was 97,500 acre-feet. Given a total consumptive water use of 153,000 acre-feet per year, the return flow value from both surface and groundwater use is estimated to be 26%. Considering the irrigation practice of flooding fields from diversion of storm flows, the return flow value for groundwater use may be somewhat less than the return flow value of surface water use.*

Response: See General Response No. 16, Groundwater Model Review.

Comment 31 *The DEIS should quantify the acceptable limits, as defined by the BLM, of observed versus simulated drawdown for the transient model. A correlation coefficient, similar to the methodology applied to quantify the accuracy of the steady-state model, should be provided for the steady-state model. Figure 4-11 provides little insight regarding the accuracy of the transient simulation.*

Response: See General Response No. 16, Groundwater Model Review.

Comment 32 *The model represents a maximum ground-water pumping of 5,000 gallons per minute, including water for mining, crushing and handling, SX/EW operations, potable and miscellaneous, dust suppression, and evaporation. The ground water model fails to account for cumulative effects from other possible wells in the area. Impacts from ground-water pumping for mining operations at the Dos Pobres Sulfide, Lone Star, and Sanchez deposits, or other existing or future mine sites, should be simulated in the model. ... Ground-water stresses to the aquifer from additional pumping at the Dos Pobres Sulfide, Lone Star, and Sanchez projects may have a detrimental impact to ground-water pumping at the Dos Pobres/San Juan project. Additional pumping at these other sites may impact the ability to meet water supply needs from the existing wells at the Dos Pobres/San Juan project. Whether or not water supply can be met from the existing wells on the Project site, the DEIS should discuss alternative water supplies.*

Response: The groundwater model was not used as a predictive tool for cumulative impacts for the reasons stated

below:

a) The Lone Star and Dos Pobres Sulfide projects have been identified as reasonably foreseeable future uses of the selected lands and the potential impacts of these uses have been analyzed in the EIS, both as part of the Land Exchange alternative and as reasonably foreseeable future actions in the Cumulative Effects section, using the best available data (see CEQ 40 Questions, No. 1.8).

B) BLM has disclosed that any possible future development of the Lone Star and Dos Pobres Sulfide projects on the selected lands would likely result in additional water usage for mining, but at this time, it would be pure speculation as to what this usage, or the source(s), may be. Therefore, BLM believes it is inappropriate to model future impacts (direct or cumulative) on such speculation, especially given that these reasonably foreseeable future actions (which would be of a scale that could potentially affect flows in the Gila River) would be subject to federal permit requirements (Section 404 of CWA) and environmental review under NEPA.

Regarding alternative water supplies, see response 237-22.

Comment 33 *The model predicts impact to the Gila River will be at a maximum of 35.4 acre-feet/year at year 416. Based on sensitivity analyses of recharge and fault conductance, the maximum impact to the river could be quantified as a range of values. A range of values would allow for flexibility of mitigation measures outlined in Appendix F.*

Response: See General Response No. 16, Groundwater Model Review. Please note that the 3M Program described in Appendix F is inherently flexible as mitigation measures will be indexed to model results from future recalibrations that may be triggered by actual well data collected as part of the required 3M Program.

Comment 34 *Figure 4-12 indicates that drawdown of the regional aquifer will extend beneath springs located north of Butte Fault. The DEIS states that these springs will not be impacted by the Project's drawdown of groundwater. The DEIS should contain more specific information why these springs will not be adversely affected by future pumping.*

Based on field reconnaissance with Phelps Dodge, Dames & Moore, Dr. McNish, BLM, BIA, and Stetson Engineers on December 15, 1998, it is inconclusive as to whether the springs in the area will be affected by ground-water pumping operations for the mine. Appendix F should contain a monitoring program for Bryce, Hackberry, Cottonwood, and Walnut springs so that any future impacts that may occur on the San Carlos Apache Reservation may be first observed in these areas.

Response: The four springs are in an elevation range of 4,200 to 4,300 feet, more than 1,100 feet higher than the water levels in the graben. In addition, the springs are on the northeast side of the Butte Fault, whose low permeability is indicated by the precipitous change in water levels that occurs at the fault. For the mine pumping to affect the springs, the hydrologic conditions required would be that (1) the springs have a direct hydrologic connection to the graben aquifer, and (2) the transmissive capabilities of the aquifer through which water escapes from the graben must be smaller than the transmissive capabilities of the hydraulic connection between the springs and the graben aquifer.

With the steep hydraulic gradients between the springs and the graben aquifer, and the gentle gradients in the area of outflow from the graben, it would appear that the second condition is highly unlikely. The existence of steep vertical gradients in the area northeast of the Butte Fault that is evident in wells drilled to different depths, and the expectation that horizontal hydraulic conductivities are greater than vertical hydraulic conductivities in these layered volcanic rocks, argues against there being a direct and highly transmissive connection between the springs and the graben.

Visits to the springs in March and December 1998 revealed dramatic differences in flow, as would be expected for springs that are fed from local sources that wax and wane with the size and frequency of storms. Separating mine pumping effects (which would be very subtle) from naturally occurring, strong fluctuations in flow would be impractical, if not impossible. However, the monitoring plan includes annual monitoring of Groups 4 and 5 wells, located between the pits and the San Carlos Apache Reservation boundary, to provide "advance warning" of potential drawdown on the Reservation as a result of groundwater pumping. The use of these wells for monitoring is a much more realistic method of assessing the effects of mine pumping to the northwest of the graben, as these wells are open to a substantial saturated section that includes much of the same elevation range as the graben aquifer. The monitoring program also includes annual isotope, water chemistry, and flow sampling of Hackberry, Bryce, Cottonwood, and Walnut springs to assist in determining whether or not the springs are tied to the regional groundwater system.

Comment 35 *The DEIS estimates that surface flow of the Gila River will be adversely impacted by 94 acre-feet/year, of which 50 acre-feet/year is incidental sheet flow. Although the DEIS is attempting to provide an annual average value, impacts to the Gila River may be greater during wet years and less during drier hydrologic cycles. The DEIS should provide the maximum and minimum impacts to surface flows so they may be accounted for in the Monitoring and Mitigation Plan (Appendix F). Maximum impact may occur during the 100 year - 24 hour event, the basis for sizing the diversion and impoundment facilities.*

Response: See General Response No. 16, Groundwater Model Review.

Comment 36 *Estimates of existing runoff presented in Table 4-9 do not agree with estimates of average annual runoff presented in Tables 3-15 and 4-4.*

Response: See response 237-27.

Responses to Comments

- Comment 37 *The DEIS does not adequately address the possibility of an accidental spill of process solution or sulfuric acid. The potential exists for the surface release of process solution, accidental spill of sulfuric acid during transport, and release of other hazardous materials from the mine and processing site. The monitoring and mitigation plan does not address any of these potential adverse impacts to the environment. The DEIS states that any release would be neutralized by the alkaline soils existing in the tributary washes.*
- The DEIS should provide the necessary data substantiating the ability of the soils to neutralize hazardous material during both storm events and non-storm events. The DEIS should also address the potential impacts due to the accidental spill of sulfuric acid during transport on or near the Gila River. If these data are included in either the 401 or 402 permits, proper references should be provided.*
- Response: Refer to General Response No. 14, Hazardous Materials, regarding the possibility of an accidental acid spill. Regarding accidental release of process solution or other hazardous materials from the mine site, see Section 2.1.2.3.5 regarding storage and containment of hazardous materials. The secondary containment systems for fuels, sulfuric acid, diluent, reagents and other petroleum products, in conjunction with the comprehensive stormwater management system designed to meet EPA's "zero-discharge" standards for Section 402 permitting (see Sections 2.1.2.3.2 through 2.1.2.3.8), will ensure that any such spills will be contained on-site. The statement that alkaline soils in the project vicinity have the capacity to neutralize potential spills refers only to sulfuric acid.
- Comment 38 *The DEIS fails to account for evaporation from the pit lakes, or use of the water from the pits, as loss from the system. The DEIS estimates that long-term inflow of groundwater into the San Juan Pit will average about 50 gallons per minute (gpm) and 150 gpm into the Dos Pobres pit. Given that these values of inflow balance evaporation from the lake surface, it can be estimated that approximately 80 acre-feet/year will be lost from the San Juan pit and 240 acre-feet/year will be lost from the Dos Pobres pit.*
- In order to account for, and mitigate evaporative losses from the pit lakes, surface area, precipitation, and evaporation rates should be calculated for each pit. Inflow of groundwater to these lakes represents a permanent loss of water that would have eventually added to, contributed, and supported streamflow of the Gila River.*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 39 *The stress on the aquifer from additional mine sites should be simulated in the model in order to estimate the cumulative impact of additional mining operations on water resources. See comments to 4-19 paragraph 2 (Comment # Stetson 14).*
- Response: See response 237-32.
- Comment 40 *The DEIS should contain analysis of cumulative impacts from the ground-water pumping at the Dos Pobres Sulfide, Lone Star, and Sanchez deposits. See comment 4-19 paragraph 2 (Comment # Stetson 14).*
- Response: See response 237-32.
- Comment 41 *The loss of groundwater that would normally add to, contribute, and support the flow of the Gila River, as well as potential impacts to springs, should be included in the subcategory Groundwater Quantity in Table 4-41. In addition, evaporation loss of groundwater discharge to the pit lakes should also be addressed in this section.*
- Response: As the loss of groundwater that would normally contribute to and support the flow of the Gila River is to be replaced by the Alternate Year Following Program, it is not applicable to Table 4-41. Potential impacts to the springs are discussed above in response 237-3. The effect of pit lakes has been included in subsequent model reruns, as discussed in Appendix F. See also response 237-38.
- Comment 42 *The reduced surface water flow may be greater than 94 acre-feet per year as defined by the subcategory Surface Water Quantity in Table 4-41.*
- Response: Comment noted. BLM considers the methodology used to calculate this volume to be adequate (see Dames & Moore 1998e).
- Comment 43 *The mitigation measures do not address the permanent evaporation loss of groundwater from the pit lakes.*
- Response: The effects of evaporation of water that accumulates in the pits after mine closure on Gila River surface flows were considered in the 2002 Rewetting Model run and are included in the revised surface flow mitigation amounts to be achieved through the Alternate Year Following Program.
- Comment 44 *The Groundwater Quantity subcategory should discuss permanent evaporative loss of groundwater from the pit lakes.*
- Response: See response 237-38 and 237-41.
- Comment 45 *RE: Draft Mitigation and Monitoring Plan. The model estimates a drawdown of over 35 feet on the San Carlos Apache Reservation, but does not provide for monitoring of springs between the Reservation and the mine supply wells. Additional monitoring wells may be needed near these springs to establish cause and effect relationships.*
- Response: In their review of the 3M Program, USGS recommended additional groundwater monitoring wells; subsequently, three new wells north of the Butte Fault and south of the San Carlos Apache Reservation Boundary (Group 5 wells) have been included in the 3M Program.
- Comment 46 *RE: Draft Mitigation and Monitoring Plan. The DMMP does not mitigate for decreased subsurface outflow from the model area towards the Reservation.*

Chapter 7

- Response: See General Response No. 10, Indian Trust Resources.
- Comment 47 *RE: Draft Mitigation and Monitoring Plan. The DMMP does not account for or allow monitoring or mitigation of evaporation losses from the pit lakes.*
- Response: See response 237-38 and 237-41. The amount of mitigation calculated in the current Alternate Year Follow Program includes 21 af/yr of pit lake evaporation, even though this impact will not occur until after mining stops. The next recalibration of the hydrological model under the 3M Program will also consider evaporation of pit lakes and, subsequently, the amount of required surface flow mitigation will account for this permanent loss to the system.
- Comment 48 *RE: Draft Mitigation and Monitoring Plan. The DMMP does not specify post mine monitoring, mitigation, or reclamation measures.*
- Response: Monitoring and post-mine mitigation for the Project's water resources impacts are described in the MMP (Appendix F); other post-mine monitoring and reclamation provisions are described in Section 2.1.2.4
- Comment 49 *The Pre-Mining Monitoring Well Calibration should record data for a minimum of two years in order to establish base-line conditions.*
- Response: Substantial water level and water quality baseline data have already been collected for many of the monitoring wells (in Groups 2-4) in the project area. A minimum of two additional years of water data will be collected prior to mine operation. Table 3.1 in the revised 3M Program includes USGS-recommended monitoring frequencies for the various wells that will provide actual data on the response of the groundwater system to pumping. Groundwater quality monitoring is addressed through the APP program.
- Comment 50 *Develop an Annual Hydrologic Report.*
- Response: The reporting component of the 3M Program includes an annual report of the well monitoring data to be collected, including actual pumpage and monitoring well water levels; see Appendix F.
- Comment 51 *Springs in the vicinity of the proposed project should be monitored on a quarterly basis.*
- Response: See Section 3.3.2 in Appendix F for a description of the monitoring program for Watson Wash flowing well and other springs.
- Comment 52 *Ground-water level, spring flow data, and other hydrologic data should be reported to the State of Arizona for public record.*
- Response: Results of the groundwater monitoring program, as outlined in the 3M Program, will be made part of the public record with annual reports filed as required by the Mitigation and Monitoring Plan as a condition of the CWA Section 404 permit, if issued. Additionally, groundwater monitoring data that PDSI will be required to report regularly to ADEQ under the Aquifer Protection Permit will also be available as public record.
- Comment 53 *A schedule regarding the recalibration of the ground-water model should be established prior to project start-up.*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 54 *The DMMP lacks specific schedules and timing of mitigation flows from fallowed lands.*
- Response: The 3M Program described in the MMP (see Appendix F) has been significantly revised since first proposed in the DEIS. Notable changes to the Alternate Year Following Program include using five years of actual annual consumptive use data to determine benefits and a significant increase in the acreage of lands encumbered by the Alternate Year Following Program.
- Comment 55 *The DMMP does not specify post mine monitoring, mitigation, or reclamation measures.*
- Response: Monitoring and post-mine mitigation for the Project's water resources impacts are described in the MMP (Appendix F); other post-mine monitoring and reclamation provisions are described in Section 2.1.2.4
- Comment 56 *Comments # 10 and # 11 of our November 25, 1998 submittal to the BLM requests that additional model runs be performed to determine the accuracy of the model. These model runs are required to evaluate the accuracy and sensitivity of mountain front recharge and fault conductance presently used in the existing model. A third model run is requested to show zero impact to ground-water depletion on the San Carlos Apache Reservation. This additional run would require adjusting ground-water pumping at the proposed project site so there was no ground-water storage depletion on the Reservation.*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 57 *Table 5-1 indicates that the river depth and river conductance are identical for both Bonita Creek and the Gila River. Considering that the sensitivity analysis suggests that these parameters are sensitive to the model, the choice of these parameters should be explained.*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 58 *Data from the model suggests that underflow to the Safford Valley is approximately 32,800 acre-feet/year. Turner (1941) suggests that in 1939 and 1940 underflow from all tributary washes was about 9,200 acre-feet/year. The methodology used to estimate underflow for the model should be discussed in detail.*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 59 *The model assumes constant hydrologic conditions over the next 500 years. The model should address and discuss possible variations in hydrology, such as prolonged drought periods, and how that variability may affect adverse impacts to groundwater and surface water.*
- Response: See General Response No. 16, Groundwater Model Review.

<u>Letter 238</u>	Commentor	Michael Smith of Bureau of Indian Affairs, San Carlos Agency
	Comment 1	<i>There is little data contained in the EIS which addresses the San Carlos Apache Indian Reservation, its human and natural resources; this should be addressed throughout the entire EIS, including affects to surface/subsurface water quality/quantity, soil, plants, air, animal and man; in other words, address what exists now and what would be affected.</i>
	Response:	The project area includes the private and federal lands proposed for exchange as well as the private and federal lands proposed for use in the Mine Plan of Operations. No part of the San Carlos Apache Reservation is included in the project area. Under the MPO alternatives, the EIS discloses the Project's potential impacts on surface and groundwater quality and quantity (Section 4.3.2.5 and 4.3.2.6), soils (Section 4.3.2.4), vegetation (Section 4.3.3.1), air quality (Section 4.3.2.2), wildlife and special interest species (Sections 4.3.3.2 and 4.3.3.3), and cultural and socioeconomic resources (Sections 4.3.4 and 4.3.5). The EIS also discloses the Project's impacts from the land exchange alternative on these resources (see Section 4.4 in its entirety). To the degree that these resource impacts for all alternatives extend on to the Reservation or may affect Indian Trust Assets (Sections 4.3.6 and 4.4.6) directly, indirectly, or cumulatively, such impacts have been disclosed in the EIS.
	Comment 2	<i>We note that the proposed alternative lies approximately one to two miles south of the southeastern Reservation Boundary, and that there exists several washes at the proposed alternative site that drain into the Gila River (see attached plats 1 & 2 in letter) which flows through Bylas, which lies within the San Carlos Apache Indian Reservation.</i> <i>The EIS should include base-line data of what contaminants if any, exist now, what they mean and their probable source. We would also like to see health data obtained on families residing within the Bylas area of the Reservation.</i>
	Response:	The issue of water quality in the Gila River was addressed in Section 4.5.2.4. Also, Table 4-40 in the Cumulative Impacts section provides a trend analysis of surface water quality at two locations along the Gila River, including at Calva about five miles downstream of Bylas, and at the San Francisco River near Clifton. Water quality constituents such as arsenic, chromium, copper, lead, and manganese are included in this table. As discussed in Section 4.5.2.4, the trend data reflect the cumulative effects on river water quality of historic activities in the entire Gila River watershed, including but not limited to, irrigation practices including return flows, ranching, historic and current mining activities, and urban runoff from land development and roadways. Collection of existing health data on residents of the Bylas area, which is 30 to 50 miles away from the project area, is beyond the scope of analysis for this project.
	Comment 3	<i>We recommend that an independent firm oversee monitoring the status of the existing and future environment, and that all data be provided to the Tribe and BIA. If contaminants increase, there should be a system in place to provide for immediate corrective action and reporting on a priority basis, by Phelps Dodge to the Tribe and BIA.</i>
	Response:	Compliance with myriad environmental laws applicable to the proposed mining operations (see Table 1-1), whether on public or on private lands, is the responsibility of the permitting agency. Any member of the public, including the Tribe or the BIA, can review the compliance status of agency authorizations and permits during normal business hours.
<u>Letter 239</u>	Commentor	Joe Sparks of Sparks, Tehan & Ryley, P.C.
	Comment 1	<i>What is the total amount of water, regardless of source, that operation of the San Juan and Dos Pobres Mines will require in a year?</i> <i>a) How was this amount be determined?</i> <i>b) If this amount is an underestimate, what will prevent Phelps Dodge from using two or three times this amount or whatever amount necessary to keep the mines operating?</i>
	Response:	The estimated water demand (total and by year) for the life of the Project is provided in Table 2-3. As stated in Section 2.1.2.2.1, these projections were determined based on production estimates given in Table 2-2 and from known water uses at other Phelps Dodge SX/EW operations. To a large degree, the capacity of the volcanic aquifer Phelps Dodge intends to use provides a limitation on the water available for use in mining.
	Comment 2	<i>Will water located under the boundaries of the San Carlos Apache Reservation be impacted at any time in the future as a result of the San Juan and Dos Pobres Mines?</i>
	Response:	The groundwater model currently predicts an impact of nearly zero on groundwater resources beneath the San Carlos Apache Reservation. See also Section 4.3.2.5.1 and General Response No. 10, Indian Trust Resources.
	Comment 3	<i>What is the cumulative impact of runoff from the San Juan and Dos Pobres Mines following closure when combined with runoff from all other copper mines upstream of the proposed mine, on the Gila River or any of its tributaries?</i>
	Response:	Compliance with the applicable water quality permit regulations and the post closure reclamation requirements of ADEQ and EPA will ensure that the Dos Pobres/San Juan Mine, and other active mine projects upstream of the proposed project will not result in significant adverse cumulative effects. This is supported by the ADEQ data presented in the cumulative effects analysis which summarize the water quality information and trends for the Gila River system, including the cumulative effects of mining operations within its watershed. See also Section 4.5.2.5.

Chapter 7

- Comment 4 *If the Arizona Supreme Court modifies the law regarding impacts of groundwater withdrawal on federal reservations, wouldn't a supplemental EIS for San Juan and Dos Pobres Mines be required?*
- Response: The U.S. District Court has stayed action on a lawsuit filed by the U.S. government, Gila River Indian Community, and the San Carlos Apache Tribe challenging whether certain wells in the Gila River basin are pumping waters of the Gila River (United States, et al. v. Gila Valley Irrigation District). If a decision is made on this lawsuit before the BLM issues its decision on this Project, the BLM would determine at that time whether a supplemental EIS is necessary.
- Comment 5 *What will be the impacts from the mining operations to the Gila River, Springs and Bonita Creek?*
- Response: This comment has been addressed in the summary of impacts to Surface Water in Table 2-14.
- Comment 6 *Are not some of the selected lands located within the boundaries of the San Carlos Apache Reservation as described in the Executive Order of November 9, 1871?*
- Response: See response 250-18.
- Comment 7 *Will the BLM expressly require Phelps Dodge to obtain an order from the Globe Equity Court approving the withdrawal of water from the Gila River prior to BLM approval?*
- Response: Section 1.5.3 of the EIS addresses this question.
- Comment 8 *Does a baseline finding for contaminants and heavy metals in the Gila River from Safford down to the Reservation exist? Will continued monitoring be required for water quality in the Gila River as required mitigation?*
- Response: See Table 4-40 which provides a trend analysis for a variety of water quality constituents for various segments of the Gila River. Under the ADEQ's Section 402 (AZPDES) permit authority, the Project will be constructed and operated as a zero-discharge facility. However, should a discharge from the site occur, ADEQ's Aquifer Protection Permit (APP) would require monitoring of surface water. The APP also requires monitoring of groundwater on a routine basis to ensure compliance with state water quality standards. Points of compliance for monitoring wells are located around the leach pad, solution collection pond, and at other site components defined by the APP as discharging facilities. These points of compliance are located several miles upstream of the Gila River. No water quality monitoring of the Gila River itself is included in the 3M Program or as part of ADEQ requirements.
- Comment 9 *Will Phelps Dodge be required to perform a yearly study detailing all impacts on groundwater and surface water on the San Carlos Reservation including withdrawal of hydrostatic groundwater support and interception of surface flows?*
- Response: No, no such studies are warranted by the results of the groundwater model nor are they legally required at this time.
- Comment 10 *Will BLM supply to the Tribe two copies of Phelps Dodge's Mining Plan of Operation for the San Juan and Dos Pobres Mines for review in conjunction with the Draft Environmental Impact Statements?*
- Response: BLM provided a copy of PD's MPO during tribal coordination efforts in 1996. The Dos Pobres/San Juan Project MPO that PD has filed with the BLM is available for public review during BLM's normal business hours. Also, a descriptive summary of the MPO is provided in the EIS in Section 2.1.2 in Chapter 2, under the Proposed Action alternative.
- Comment 11 *Are the BLM Safford Field office files regarding the Safford Land Exchange open for review by the Tribe and its representatives?*
- Response: The case file for Dos Pobres/San Juan Project is available for public review during BLM's normal business hours by any member of the public, including the Tribe and its representatives. Project records are kept in both the Safford Field Office and at the Arizona State Office (ASO) of the BLM. The documentation pertaining to the land exchange is maintained at the ASO, while the Safford Field Office keeps documents pertaining to the Mine Plan of Operations.
- Comment 12 *What is the accuracy of the Dames & Moore groundwater computer model used by Phelps Dodge to Predict Groundwater Impacts?*
- Response: See General Response No. 16, Groundwater Model Review.
- Comment 13 *Will BLM provide copies of all Section 7 Consultation Materials between BLM and U.S. Fish and Wildlife under the Endangered Species Act for Tribal review? When?*
- Response: See General Response No. 6, Endangered Species Act Compliance.
- Comment 14 *Isn't one alternative to the exchange retention by BLM and actual control over Phelps Dodge operations under the Section 3809 Mining Regulations?*
- Response: Yes. The Mine Plan Alternatives Set describes two alternatives under which the selected lands would remain under public ownership and within BLM administrative jurisdiction. Mining or mine-support activities on the public lands would be subject to provisions of a BLM-approved MPO and all pertinent federal and state statutes and regulations governing activities related to mining, including 43 CFR 3809 regulations.
- Comment 15 *Were any impacts to endangered species considered outside of the boundaries of the selected lands?*
- Response: Yes, see Section 4.3.3.3 and General Response No. 6, Endangered Species Act Compliance.
- Comment 16 *Does BLM intend to issue a record of decision on this proposed action, before Phelps Dodge obtains permits under Section 402 and Section 404 of the Clean Water Act?*
- Response: See General Response No. 2, NEPA Process, regarding the sequence of decision-making by the BLM and

COE relative to their respective authorizations and other permits required to implement the proposed mining activities.

Comment 17 *How many springs and at what locations will these springs be impacted?*

Response: See Section 4.3.2.5.1, Potential Impacts on Area Springs and Potential Impacts on the Watson Wash Artesian Well.

Comment 18 *Does the BLM understand that all springs are sacred to the San Carlos Apaches?*

Response: Through earlier consultations with the San Carlos Apache Tribe, BLM is aware that all springs are considered sacred to the Tribe. BLM followed up on this concern with tribal elders and tribal staff, but none of the consulted parties assigned any special values to springs on the project area or relayed that they considered them sacred. Consequently, BLM is not treating the springs in or near the project area as sacred. They are being considered as natural or physical resources and potential impacts to springs are addressed in the groundwater resources analysis in Section 4.3.2.5 and in mitigation measures described in Appendix F.

Comment 19 *Won't the Gila River suffer from groundwater contamination during mining operations and following closure of the mines for the next hundreds of years?*

Response: As a result of groundwater protection measures required by the ADEQ APP permit and both federal and state post-mining reclamation standards, no impacts to existing groundwater quality at or beyond the points of compliance are expected during or after mining operations. Therefore, the Gila River, which lies several miles beyond/downstream from the points of compliance, is not expected to suffer from groundwater contamination from the mine, either during operations or after closure. See Section 4.3.2.5.2, Groundwater Quality.

Comment 20 *Did BLM request any information from Phelps Dodge regarding probabilities of leakage from heap leach mining following closure?*

Response: With regard to protection of groundwater, BLM defers to ADEQ's APP program requirements. As documented in PD's APP application, the probability of leakage from the pad after closure is negligible for the following reasons: the leach pad will be rinsed and drained and the top surface of the pad will be compacted and sloped inward to route stormwater toward clay-lined impoundments, which will serve to collect and evaporate stormwater. These measures will inhibit infiltration of stormwater into the pad and thus eliminate potential for accumulation of water within the pad that could lead to leakage during a storm event. Additionally, post-closure monitoring required under ADEQ's APP program will include groundwater monitoring at points of compliance.

Comment 21 *What measures has BLM imposed to pay for remediation of impacts 20 years from the closure of the mines and thereafter?*

Response: Neither the reclamation bonding required by BLM under 3809 regulations nor the financial assurance mechanisms required by both ADEQ for the APP and by the Arizona State Mine Inspector's Office for post-mining reclamation can be released until the applicant has demonstrated that applicable closure or reclamation requirements have been met. Any remediation necessary after mining ceases would be included in that required demonstration.

Comment 22 *What measure of cumulative impacts did the BLM determine for the mining and mining related actions used in Table 4-37 of the San Juan and Dos Pobres Mines EIS? Was any cumulative impact actually measured and quantified? If so, how?*

Response: Where possible, baseline conditions or trends were established for each resource from existing sources of information. This information was then supplemented by input from the ID Team based upon their experience and expertise. These data were presented in both quantitative and qualitative formats, as available, within the cumulative effects discussion. Data were provided for the land tenure adjustments that have been completed historically in Arizona based upon published GAO documentation and for the Gila River water quality data which were based upon ADEQ information and reports. For some of the analyses, qualitative assessments of effect were used to bound cumulative effects. Determination of the specific methods and analysis techniques used followed CEQ and BLM guidelines and are provided in the text of the EIS. The cumulative effects analysis has provided BLM with sufficient information to make reasonable, informed decisions regarding the effects of the proposed action and alternatives.

Comment 23 *Did BLM do any independent analysis on the need for increased copper production versus the negative impacts on the San Carlos Apache Tribe as a minority community?*

Response: Analysis of the need for additional copper production is beyond the scope of analysis for this project; however, BLM is required by current laws to analyze the impacts of their actions on minority communities, including the San Carlos Apache Tribe; see Section 5.2, Environmental Justice, for this analysis.

Comment 24 *Has Phelps Dodge provided compensation or expense money for BLM employees or BLM consultants who worked on the San Juan/Dos Pobres Draft Environmental Impact Statement and, if so, under what authority?*

Response: Yes, see General Response No. 15, Conflict of Interest.

Comment 25 *Will the groundwater contamination from San Juan and Dos Pobres have an adverse impact on waters of the United States?*

Response: As explained in Section 4.3.2.5.2 of the EIS, both the Proposed Action and the Partial Backfill alternatives include groundwater protection measures designed to meet prescriptive BADCT standards (i.e., a zero-discharge facility); therefore, neither alternative is expected to impact groundwater quality at or beyond the points of compliance identified in PD's APP permit application. As a result, post-Project groundwater

quality is expected to continue to meet drinking water quality standards. No contamination of waters of the U.S. from groundwater sources is expected under either alternative either during or after mining.

Comment 26 *Does BLM intend to require Phelps Dodge to have all necessary Federal and State permits identified in the DEIS issued and in effect before BLM issues a record of decision?*

Response: No, see General Response No. 2, NEPA Process, regarding the sequence of decision-making by the BLM and COE relative to their respective authorizations and other permits required to implement the Project.

Comment 27 *Will Phelps Dodge be transporting hazardous, toxic or corrosive materials through the Reservation?*

Response: Approximately one-quarter of all tanker truck deliveries, about 18 trucks per day on average, will be routed on Highway 70, from Globe to Safford and will traverse that part of the San Carlos Apache Reservation. Some of these trucks will be transporting sulfuric acid, diluent, fuel, and other chemicals used in the mining operations. Note that all truck deliveries must meet federal regulations for the transport of such chemicals on public roadways.

Comment 28 *Did BLM consult with the San Carlos Apache Tribe concerning plans for water quality standards to be imposed on the Gila River by the San Carlos Apache Tribe and the impacts on the proposed mining activity?*

Response: See Chapter 5 for a discussion of coordination and consultation with the San Carlos Apache Tribe; see also General Response No. 10, Indian Trust Resources.

Comment 29 *Is BLM aware that the San Carlos Apache Tribe has determined that the efforts made by the BLM to identify cultural and religious sites important to the Tribe is inadequate?*

Response: BLM received similar comments during the Tribe's review of the cultural resources inventory report for the selected lands. Our response to the Tribe at that time was that BLM believed that the Tribe did not fully understand the procedures being followed to conduct the inventory and that BLM believes the inventory is in compliance with requirements of Section 106 of the National Historic Preservation Act. In addition to the cultural resources inventory, BLM also conducted extensive consultations with tribal staff and elders to identify places of traditional importance. BLM also requested to meet with the San Carlos Tribal Council on numerous occasions and was denied each request. Tribal representatives have said that tribal elders have pointed out traditional cultural places within the project area; however, no one from the Tribe has offered any specific information, such as location, concerning these places. In their review comments on the consultation report, the Elders' Cultural Advisory Council did not identify any places of traditional importance.

Comment 30 *Is BLM aware that the United States and Phelps Dodge are specifically enjoined under the Globe Equity 59 Decree from any activity interfering with or depleting surface water flow in the Gila River?*

Response: BLM is aware of this; see revised Section 1.5.3 of the EIS.

Comment 31 *What are the total impacts on the Gila River from all Phelps Dodge mining operations including the Morenci and the proposed Dos Pobres/San Juan Mines? Did BLM ever quantify the cumulative impacts of all Phelps Dodge mining activity on the Gila River?*

Response: The impacts of the Morenci Mine operation to the Gila River, if any, are reflected in the baseline conditions of the river as we see it today. As demonstrated in the MMP (see Appendix F), the Model, Monitor and Mitigate Program (3M Program), coupled with the mitigation commitment of the Alternate Year Following Program, ensure that at a minimum there will be no net negative impact to the river from the Dos Pobres San Juan Project. Based upon the modeled projections of mine effects to the groundwater system, implementation of the Alternate Year Following Program will have a net beneficial effect on the Gila River (see Figure 4-12). See also response to comment 239-32.

Comment 32 *What adverse impacts upon air quality on the San Carlos Apache Reservation will the proposed mining activity have? Is Phelps Dodge required to obtain a permit under the Clean Air Act?*

Response: Air dispersion modeling conducted for the Final Air Impact Analysis included evaluation of impacts at the San Carlos Apache Reservation (Table 4-8a). The results indicate that air quality impacts will be very low and well below applicable National Ambient Air Quality Standards (NAAQS).

In accordance with Clean Air Act requirements, PD must receive a Class II permit under Title 18 of the Arizona Administrative Code before construction and operations can begin. PD's application for a Class II permit is on file with the ADEQ ("Application for a Class II Permit, Phelps Dodge Safford, Inc., Dos Pobres/San Juan Facility, Safford, AZ, November 9, 1998"). Additionally, the facility will be subject to certain federal and Arizona standards that will be enforced through the Class II permit.

Finally, under requirements of the Federal Land Policy and Management Act, all BLM authorized activities must comply with all applicable local, state, tribal and federal air quality laws, statutes, regulations, standards, and implementation plans.

Comment 33 *Does the San Juan/Dos Pobres Draft Environmental Impact Statement include mine development and operation for the Lone Star ore bodies?*

Response: The EIS addresses the impacts of the foreseeable uses of the selected lands, which include potential future development of the Lone Star deposit, to the degree that information is available. Because the Lone Star project is conceptual only, the EIS does not speculate as the specific impacts that may occur. See also General Response No. 3, Scope of Analysis.

- Letter 240 Commentor Don Steuter of Sierra Club, Palo Verde Group
- Comment 1 *...we do not agree with the process of appraising land involved in these exchanges. Since no open bidding is conducted for minerals on our public lands, it is really impossible to assign these lands a proper monetary value. Mining lands, which are usually already degraded by previous mining activity, consequently have little or no potential for higher uses, and instead are appraised based on limited existing uses, usually grazing. As a result, the lands are appraised extremely low. ...If these 17,000 acres were exchanged or leased under competitive bidding circumstances (federal law allowing), in a period of high copper demand, the public could realize a far greater return than the 11 parcels of land it now stands to receive.*
- Response: See General Response No. 7, Appraisals.
- Comment 2 *The Final EIS should explain the appraisal process used for the selected lands and include how the value of known ore deposits were figured into the appraisal (note the limited description in Vol. 1, 1-17).*
- Response: See General Response No. 7, Appraisals.
- Comment 3 *The DEIS also fails to explain the need for such a large amount of land selected in the exchange by Phelps Dodge. Of the 17,000 acres, 13,000 would be for "intermittent uses for spatial, safety, and site security buffers." Only about 2,000 acres of BLM land would actually be used for mining. (Vol. 1, S-9)*
- Response: This issue was addressed in the EIS in Section 2.2.4.1, Alternative Configurations of Selected and Offered Lands, and in the purpose and need statement in Section 1.4. See also General Response No. 4, Alternatives.
- Comment 4 *The DEIS states that limited information is available to prepare a MPO and determine project feasibility for the Lone Star deposit--"the mine project is conceptual only" (Vol. 1, 2-33). If the economic feasibility of this deposit is unknown, why is the BLM looking to trade away these lands to Phelps Dodge? The FEIS should explain the relationship of the Lone Star deposit to the Dos Pobres / San Juan Project and the legality of the BLM to consider a MPO or an exchange when an economical orebody may not exist at this time.*
- Response: This comment has been addressed in General Response No. 4, Alternatives.
- Comment 5 *The DEIS states that the purpose and need for the proposed action is to "develop the mineral resources to meet a continuing demand for copper" (Vol. 1, S-1). Due to a weak global demand and overproduction, the world is currently experiencing a glut of copper, and prices for the mineral has dropped to near historic lows when adjusted for inflation. The FEIS should re-evaluate if a Land Exchange or consideration of a Mining Plan of Operations under current and predicted market conditions for copper satisfies the National Environmental Policy Act's intent as to Purpose and Need for Action.*
- Response: The Project's purpose and need is to enable PD to achieve its expressed interest in developing the mineral resources associated with the Dos Pobres and San Juan copper ore deposits to produce copper to meet a continuing national and worldwide demand. If BLM decides that an Action alternative best achieves the Project's purpose and need, BLM will choose the MPO, Partial Backfill, or the Land Exchange alternative. PD will then decide when to initiate the proposed operation and BLM is not in a position to speculate on what role market conditions at such time will play in PD's decision. Moreover, BLM is not authorized under any statute, regulation, or agency policy to automatically reject an MPO based solely on the market price of copper or any other resource.
- Comment 6 *The DEIS states that the Sanchez site does not suffice as an off-site alternative as that mine is "not practicable due to various technological considerations requiring the need for further evaluation of the current engineering design, metallurgical data, and economic potential" (Vol. 1, 2-33).*
- The FEIS should explain how this is possible when BLM issued its FEIS and Record of Decision which assumes an economically viable orebody exists and that technological and engineering considerations have been adequately resolved. It would seem that either the Sanchez orebody is a valid off-site alternative or the 1992 Sanchez FEIS is a flawed document and the Record of Decision and associated permits were issued in error. The Dos Pobres / San Juan FEIS should show why the Sanchez site presently does not constitute an ecologically safe and economical deposit to develop, and why a land exchange or approval of another MPO is necessary for Phelps Dodge to mine leachable copper ore in the Gila mountains.*
- Response: Developing the Sanchez orebody is not a practicable alternative for this project for the reasons stated in Appendix A and Section 2.1.5.2.3 of the EIS. Practicability is defined in terms of technical, logistic, and economic considerations. Therefore, a practicable alternative for one mining proponent (AZCO) is not necessarily practicable for another (PDSI). Assessing the validity of NEPA compliance for the Sanchez project and subsequent permitting is beyond the scope of this EIS.
- Comment 7 *The FEIS should also explore the alternative of diverting additional copper from the waste stream before it reaches landfills in order to increase the amount of recycled copper and reduce the need for destroying our natural landscapes.*
- Response: Diverting additional copper from the waste stream before it reaches landfills in order to increase the amount of recycled copper is not considered a reasonable alternative because it does not meet the project's Purpose and Need.
- Comment 8 *We appreciate the alternative to partially backfill the San Juan pit to slightly reduce the height of the waste rock dumps (Vol. 1, 2-30). It is difficult to understand, however, that with two pits only 2 miles apart, that a*

MPO could not be devised that would completely fill at least one pit. The visual impacts of this mine will be enormous, with mesa-like dumps and a leach pad 400 feet high some four miles across the base of the Gila Mountains (Vol. 1, 4-10). If an economical mine cannot be devised now that fully backfills at least one pit, perhaps mining this area is premature. The FEIS should elaborate as to why complete backfill of one pit is not feasible, and why mining could not be deferred until such time that it is.

- Response: Due to the economics of mine phasing (which is dependent upon the distribution of ore in the pit), completely backfilling the San Juan pit is not economically practicable because it would require hauling a large proportion of the development rock twice, first to a development rock stockpile for temporary storage while the San Juan pit was being excavated, then to the ultimate pit. Under the Partial Backfill alternative, mine phasing allows a portion of the development rock to be hauled to the upper benches in the mined-out west side of the San Juan pit directly from both the Dos Pobres pit and the eastern side of the San Juan pit. No legal basis exists to prevent PD or any other mining proponent from developing their mining claims or exercising their mineral rights until or unless they agree to completely backfill a pit.
- Comment 9 *Treated effluent from the city of Safford was considered but eliminated because necessary technical information was not available (Vol. 1, 2-33). This water source could be further explored as the only other source appears to be groundwater pumping which will lower water tables in the area for a prolonged period.*
- Response: As mentioned in Section 2.1.5.2.2, use of treated effluent from the City of Safford was considered but eliminated from further consideration in the EIS as an alternative source to supplement groundwater pumping. Although the City of Safford's wastewater treatment plant is now operational, the feasibility of delivering and using the treated effluent has not been determined (i.e., Is the quality of the water compatible with the SX/EW process? Is the volume of effluent available sufficient to make the cost of delivery feasible? Etc.). PD is continuing to evaluate this option pending receipt of more data on this potential supplemental water source.
- Comment 10 *The DEIS lacks discussion regarding a smaller exchange. As the viability of the Lone Star orebody is unknown, a smaller land exchange should have been analyzed that could eliminate this area until its potential is certain, as well as the possibility of eliminating some of the 17,000 acre "intermittent use" area.*
- Response: The factors contributing to the configuration of the selected lands in the Land Exchange Alternatives set were discussed in Section 2.2.4.1 of the DEIS. This comment has been also addressed in General Response No. 4, Alternatives.
- Comment 11 *The lack of a secured water supply and the uncertainty of resolving water rights issues on the Gila in the near future raises obvious questions that should be addressed in the FEIS: why are we considering a land exchange or a MPO if Phelps Dodge still is unable to mine once the lands are privatized or the plan of operations is approved? Is the land exchange in the public interest as defined by the Federal Land Management Policy Act (production of copper, jobs, etc. are a benefit) when the future of the mine is in doubt due to lack of water. In the arid southwest where we are spending taxpayers money to bank water underground, what is the value of existing groundwater for future generations compared to the production of copper today? What about the effects on tribal groundwater?*
- Response: Consideration of an exchange is a discretionary action by the BLM, and the ability of the exchange proponent to implement the foreseeable uses, whatever they might be (e.g., mining, recreation, grazing, etc.), is not one of the public interest criteria to be met under FLPMA. On the other hand, consideration of an MPO proposal is NOT a discretionary action for the BLM. BLM, therefore, must take action to evaluate an MPO regardless of mining proponent's ability to secure all the necessary local, state, and federal approvals and authorizations. Consideration of whether a proposed land exchange meets public interest criteria focuses on the foreseeable uses and benefits of acquiring the offered lands and disposing of the selected lands. The potential benefits of the foreseeable uses of the selected lands are not a consideration under FLPMA, as these uses are out of BLM's control once the land becomes privately owned.
- Regarding the effects of the proposed mining on tribal groundwater, please see discussions in Sections 1.5.3; 4.3.2.5.1; 4.3.6; and response 237-2.
- Comment 12 *Only 22 samples were obtained to analyze the acid generating potential of 861 acres of waste rock that will be piled 400 feet high (Vol. 1, 2-10). Acid generation from waste rock can be difficult to predict ("Golden Dreams, Poisoned Streams," Mineral Policy Center, 1997). Additional sampling should be considered and examined for the FEIS.*
- Response: The materials characterization study for development rock given to ADEQ by PD and summarized in Section 2.1.2.1.6 must and did satisfy requirements for obtaining an APP permit.
- Comment 13 *Mining of the deeper sulfide ore at the Dos Pobres pit and its potential impacts to the environment is not considered in this DEIS - Phelps Dodge is apparently deferring this for another project. NEPA, however, mandates a hard look be given to the impacts of a project and connected actions examined as well. The FEIS should speculate as to the impacts of an expanded Dos Pobres pit and the likelihood of acid generating waste and how that waste might be contained and monitored.*
- Response: The potential future mining of the Dos Pobres Sulfide orebody was considered in the Cumulative Effects analysis in Section 4.5. See also General Response No. 3, Scope of Analysis.
- Comment 14 *The DEIS makes no attempt to analyze the connected actions of eventual groundwater pumping for the sulfide deposits at Dos Pobres, and oxide ores at Lone Star and Sanchez and the cumulative effects of pumping on water tables and flows in the Gila.*
- Response: See response 237-32.

- Comment 15 *No analysis is found regarding existing shafts and adits under the leach pad site that might affect liner stability.*
- Response: There are no shafts or adits within the footprint of the proposed leach pad to potentially affect the stability of the leach pad liner.
- Comment 16 *No analysis regarding possible ground subsidence from extensive groundwater pumping is found in the DEIS, nor is information found regarding the likelihood of earthquakes affecting liners or dams.*
- Response: An analysis of geologic hazards, including seismicity, of project facilities was completed as part of the APP submittal (Dames & Moore 1998, APP, Appendix F of Report H). Pseudostatic stability analyses were performed to evaluate the performance of the leach pad under seismic conditions. The pseudostatic analysis simulates an equivalent horizontal acceleration directed out of the slope face. The leach pad facilities met these criteria by virtue of the fully drained conditions within the pad and the competent pad foundation conditions. Stability analyses (static and pseudostatic factors for safety) met minimum BADCT requirements. Considering the nature of the facilities and the very low probability of a major seismic event occurring nearby over the relatively short design life of the project, it can be concluded that seismic-induced failure within the surficial ore materials would be rare and any subsequent remedial action would be minimal (Dames & Moore 1998, September APP submittal). Furthermore, no significant subsidence has been known to result from groundwater pumping from consolidated fractured rock, such as planned by PD for the Dos Pobres/San Juan Project (D. Bartlett, Clear Creek Assoc., pers. comm. 1999).
- Comment 17 *Were the pump tests for the four wells conducted individually or concurrently (Vol. 1, 3-24)?*
- Response: The pump tests were run concurrently on the four wells, as well as individually.
- Comment 18 *Pit lake quality problems at San Juan is discussed but not for Dos Pobres (Vol. 1, 3-26). Pit lake quality after sulfide mining occurs should be examined.*
- Response: There is no existing pit lake at the Dos Pobres mine. Post-mining pit lake water quality after potential sulfide mining occurs would be examined as part of the scope of analysis for such a project if and when it is proposed.
- Comment 19 *The anticipated pH of the heap leach pad after closure is not discussed.*
- Response: The pH and chemical parameters of potential effluent from the leach pad after closure are expected to meet Aquifer Water Quality Standards (Dames & Moore October 2, 1998, APP application). Given that the leach material is acid-consuming and that any acid remaining in the leach circuit after mining is through would be consumed by the stockpile, copper and other metals are not expected to be mobilized after closure. Furthermore, as mentioned in the EIS, the proposed closure strategy for the leach pad as submitted to ADEQ for PD's APP permit consists of leaving the leach pad in place and taking actions to reduce the potential for discharge, such as installing an infiltration-control cap and/or detoxifying the facility (i.e., rinse the pad with fresh water). The top of the stockpile will be lightly graded and stormwater containment berms will be constructed along the outside perimeter of the top surface of the pad and benches to contain all stormwater and promote infiltration and the rinsing process.
- Comment 20 *The bottom of the pits are projected to be at about the same elevation as the Gila River, and can be expected to continually fill and evaporate as water table levels slowly recover after mining. Is this loss through evaporation included in modeling regarding surface flows in the Gila?*
- Response: See response 237-38.
- Comment 21 *Are there anticipated effects to wildlife using farmlands in the Gila River bottom if fields are left fallow on alternate years?*
- Response: Expected impacts to wildlife from fallowing fields on alternate years would be minimal since when one field is left fallow, the other one is being farmed. Therefore, farmland resources used by wildlife would still be available and it is expected that the benefits of reduced consumptive use of Gila River flows on wildlife will outweigh any potential, limited impacts to wildlife use from fallowing lands.
- Comment 22 *Noise from blasting is expected to be audible on Mt. Graham 15 air miles away. Are impacts to wildlife expected from blasting?*
- Response: Impacts to wildlife from noise vibrations due to blasting would be minimal. Few, if any, game and non-game wildlife species would be expected near the blasting or active mining areas due to the intensive human activity in these areas.
- Comment 23 *Just 20% of the leach pad surface is to be revegetated. What is the success rate of such revegetation efforts?*
- Response: PDSI has revised its reclamation plan to include revegetation of 100% of the top of the leach pad. Given use of a 12-inch growth media layer consisting of stockpiled topsoil native to the project site and a native seed mix, revegetation is expected to successfully re-establish upland plant communities typical of the area over time, providing wildlife habitat, some degree of mitigation for visual impacts, and erosion control.
- Comment 24 *Air quality impacts to people in the Safford area can be expected and possible impacts to Class 1 areas (Vol. 1, 4-13, Vol. 2, Fig. 3-5). Are any health effects anticipated?*
- Response: Air dispersion modeling conducted for the Final Air Impact Analysis included evaluation of impacts in the Safford area and mandatory Federal Class I areas within 100 kilometers of the project location (Table 4.4). The results indicate that air quality impacts will be minimal and well below applicable NAAQS. Since the NAAQS are health-based standards, no health effects are anticipated.
- Comment 25 *The FEIS should explain the list of financial assurance mechanisms used for bonding (Vol. 1, S-8) and provide further evidence that the bond amount of \$8 million is sufficient to reclaim the mine (Vol. 1, 2-29).*

Chapter 7

Response: It is beyond the scope of the EIS to fully explain the various possible financial assurance mechanisms, such as surety bonds, certificates of deposit, and trust funds with pay-in periods. There are any number of other sources, including banks, that can explain how these mechanisms work.

The final amount of the bond must conform to the 43 CFR 3809 regulations, which stipulate that the project proponent must furnish an estimate of the reclamation cost of its operation assuming that an independent third party contractor is hired to perform the work. The estimate must include the cost to perform all the elements of reclamation as they are stated in the approved reclamation plan, including the cost for mobilization and demobilization from the nearest population center where a contractor capable of doing the work can be located. The cost estimate must be based on industry standard operating cost indices such as those provided by Western Mine Engineering, the Caterpillar Performance Handbook, or the Contractor's Equipment Cost Guide. Labor wage rates must be the current wage rates paid to workers employed under federal contracts as required by the provisions of the Davis-Bacon Act. Complete bond amounts must contain sufficient funds to cover such items as profit, insurance premiums, performance, and payment bonds and the cost for BLM contract administration. In all instances BLM must be furnished the exact source of the data used in preparing the estimate together with all relevant maps, design specifications, and calculations.

Comment 26 *We appreciate Phelps Dodge's efforts to construct a virtual zero discharge facility using retention basins to accommodate 100 year, 24 hr. storm events.*

Response: See General Response No. 1.

Comment 27 *BLM's 3809 regulations governing hard rock mining are currently being revised which will likely include tougher standards that define "undue degradation." Implementation of these standards, however, have been delayed by Congress. Is it prudent to consider a such a large land exchange or MPO when regulations governing such mining are soon subject to change? Would the new standards apply if issued in the near future?*

Response: As discussed in Chapter 1, the regulations at 43 CFR 3809 were revised effective January 20, 2001, and effectively revised again. All phases of reclamation for this project, including post-mine closure, will be bonded in compliance with the current regulations as described in 3809.552 and 3809.400. All other aspects of the project are grandfathered under the 1980 regulations which are quite similar to the current regulations (see Chapter 1). It was recognized by the BLM in the revision of the regulations that if a draft EIS for an MPO had already been prepared and issued to the public by January 20, 2001, as in the case of the Dos Pobres/San Juan Project, then the MPO would not be subject to the new mining plan content requirements or performance standards. This provision is based on the practical consideration that both the BLM and the project proponent have expended substantial time and resources toward developing the MPO and satisfying legal requirements under the previous regulations. Section 1.5.1, Regulatory Framework and Authorizing Actions, has been updated accordingly to reflect this information.

Comment 28 *If the land exchange is approved, the DEIS argues that the mine operators will still need several permits from various agencies before mining can commence (Vol. 1, S-1, 1-3...1-7). It would be helpful if the FEIS could elaborate as to the public participation process allowed by law as to each permit issued by the different agencies.*

Response: Please see revised Section 1.5; also see General Response No. 2, NEPA Process.

Letter 241 Commentor Don L. Weesner of Gila Water Commissioner

Comment 1 *Section 1.5.3 of the draft EIS, entitled Water Rights Authority, contains several statements which are not considered to be accurate. First, the Gila River is characterized as an intermittent stream. This is not considered to be a correct characterization. It is true that the Gila River is over-appropriated and that, at times, in periods of low flow- usually during the summer months-- due to diversions in the Duncan-Virden and Safford valleys, the Gila River flows intermittently. But this is because of 'diversions' not because of natural flow in the river. It would be more accurate to characterize the Gila River as a perennial stream which, due to the, diversions during periods of low flow, becomes an intermittent stream.*

Response: Please see revised Section 1.5.3.

Comment 2 *...Section 1.5.3 states, on page 1-9, that Article XIII of the Gila Decree prohibits "all parties holding decreed rights from diverting, taking, or interfering with the use and enjoyment of 'other holders of decreed water rights to the Gila River'" (emphasis provided). The Gila Decree is such a complex document that it is important not to paraphrase it which is what the, above statement does.*

Article XIII of the Gila Decree, insofar as it is pertinent hereto, provides as follows:

"That each and all of the parties to whom rights to water are decreed in this cause their assigns and successors in interest are hereby perpetually restrained and enjoined from diverting, taking or interfering in any way 'with the waters of the Gila River or any part thereof,' (emphasis provided) so as in any manner to prevent or interfere with the diversion, use or, enjoyment of said waters (emphasis provided) by the owners of prior or superior rights therein as defined and established by this Decree"

Therefore, as can be seen from Article XIII, it is the 'waters' of the Gila River that are protected by the Gila Decree. Furthermore, the Gila Decree sets forth, in Article V thereof, the lands to which waters of the Gila River have been decreed and the priority diversion rights of such lands.

It has been the historical position of the Office of the Gila Water Commissioner that before the powers of enforcement can be exercised, it must be established 'that waters of the Gila River' are being interfered

with by someone holding a decreed water right under Article V of the Decree.

In accordance with this position, the Gila Water Commissioner has decided that it is not within the authority of his office to take action against persons diverting waters of a 'tributary' of the Gila River, even if that diversion might be by someone holding a water right under Article V of the Decree, at least until the United States District Court has ordered him to do so.

Response: Thank you for this information. Please see revised Section 1.5.3.

Comment 3 *The trial on the pumping issues raised by these complaints has not yet been held, and, in fact, has been stayed by the United States District Court until certain issues have been resolved by the courts of the State of Arizona. When the stay of the District Court will be lifted is not known at this time. In any event, it is clear to the Gila Water Commissioner that he does not, until the United States District Court has so ruled, have any jurisdiction over the pumping planned by Phelps Dodge in connection with its proposed mining project, and he would decline to approve or disapprove such proposed pumping. Furthermore, he does not believe he can take any action to restrict or regulate the use of surface waters that might flow into the Gila River, at least until the United States District Court has issued its order for him to do so.*

Response: This comment has been addressed by revising Section 1.5.3 of the EIS.

Letter 242

Commentor H.M. Conger

Comment 1 *My comments today are in support of the mining operations proposed. I strongly support the Land Exchange as the preferred alternative identified by the federal agencies.*

Response: See General Response No. 1.

Comment 2 *In Section 1.5.3, the BLM states that the Final EIS cannot be approved "until it is determined whether and to what extent such action might be precluded by the Globe Equity Decree." The Globe Equity Decree does not regulate the use of groundwater in the Safford Valley but rather regulates the use of surface water extracted from the Gila River and its use on agricultural lands established as part of the Decree. The BLM needs to correct the statement that it cannot approve the Final EIS without approval of the Court that has jurisdiction over the Globe Equity Decree.*

Response: This comment has been addressed by revising Section 1.5.3 of the EIS.

Comment 3 *Based upon the BLM's evaluation of the potential impacts to flow in the Gila River, it is estimated that groundwater flow to the Gila River could be reduced by up to 35.4 acre- feet per year. From input I received at the public meeting on the Draft EIS, it is my understanding that the projected reduction in groundwater flow to the river does not occur until 416 years after closure of the mining operations. A reduction in flow of 35.4 acre-feet per year is not measurable; therefore, the BLM should discuss the significance of this presumed reduction in flow within the river.*

Response: Please see revised Section 4.3.2.6.1, Surface Water Quantity, in which BLM discusses the total projected 149 af/yr of impact to surface flows of the Gila River as an extremely small proportion of the river's average annual flow. Although this volume, or the 34 af/yr portion of it that represents impacts from groundwater pumping, is not likely to be measurable, the significance of this projected impact is tied to the ongoing adjudication of water rights to the Gila River under the Globe Equity No. 59 Decree.

Comment 4 *The BLM also states that "it is incumbent on Phelps Dodge Inc. to obtain approval from the Gila Valley Water Commissioner, and the United States District Court, that the proposed mitigation plan of changes in point of diversion and changes in the use of that water from agricultural to mining use is permissible under the Globe Equity No. 59 Decree." The Draft EIS states that the proposed water source for the operations proposed by Phelps Dodge will be from groundwater wells developed at the mine site, which is outside of the Globe Equity Decree.*

Response: The quotation is in reference to the surface water involved in implementing the Alternate Year Fallowing Program. The reader is correct in stating that groundwater wells developed at the mine site are currently not subject to the Globe Equity No. 59 Decree.

Comment 5 *The Draft EIS incorrectly references that groundwater pumping cannot begin until it is assured that the proposed mitigation plan will be effective in resolving the complex legal questions regarding the proposed mining operations. The mitigation plan addresses direct and indirect impacts to jurisdictional waters and mitigates those impacts. The mitigation plan also provides for mitigation to any perceived impacts to threatened and endangered species habitat along the Gila River. The benefit from the mitigation plan on the issue of water rights and flow in the Gila River is a side benefit. The BLM should review this section of the Draft EIS and make the necessary corrections in the Final EIS.*

Response: This comment has been addressed by revising Section 1.5.3 of the EIS.

Comment 6 *...a true comparison of the reclamation regulations in Arizona requires a discussion on the criteria found in the Aquifer Protection Permit Program. The BLM states in Table 4-27 that "water management standards are covered the Aquifer Protection Permit Program" where in fact, the Program addresses closure and post closure monitoring requirements. Closure requirements address soil as well as water quality standards. Post closure monitoring criteria is can extend for several following completion of reclamation and closure requirements. This should be highlighted in the Final EIS informing the public that the mining industry is a highly regulated industry, especially with respect to environmental regulations.*

Response: See response 210-6.

Comment 7 *The partial backfill alternative does not appear to create significant benefits with reducing impacts associated with the Section 404 Permit process to warrant this alternative to be evaluated in further detail in the Final EIS.*

Chapter 7

Response: See General Response No. 1.

Comment 8 *The economic benefits of not backfilling the San Juan Pit allowing potential access to undefined copper reserves in the future appear to outweigh the potential benefits of the reduction in stockpile height of 50 feet. If further evaluation of the partial backfill alternative is made in the Final EIS, details regarding the benefits of maintaining access to mineral values compared to benefits of reduced impacts to jurisdictional waters under Section 404 of the Clean Water Act should be addressed.*

Response: See General Response No. 1.

Comment 9 *RE: Boundary Dispute. The BLM's evaluation of the boundary dispute with the San Carlos Apache Tribe adequately addresses the history of this issue. The federal government has reviewed this issue several times in the past and has consistently come to the same conclusion. In addition, the San Carlos Apache Tribe received significant payment from the United States for disputes over reservation boundary. This issue should not be carried forward in the Final EIS evaluation. The BLM cannot resolve the San Carlos Apache Tribe's continued dispute regarding this subject.*

Response: See General Response No. 1.

Comment 10 *For the future of Arizona and our children, the Dos Pobres Project should go forward as outlined in the draft EIS.*

Response: See General Response No. 1.

Letter 243 Commentor Lee Wilkening

Comment 1 *I am writing this letter in support of the Phelps Dodges' Dos Pobres/San Juan Mining Project. Furthermore, I support the BLM's preferred alternative for the proposed land exchange outlined in the Draft Environmental Impact Statement (DEIS).*

Response: See General Response No. 1.

Letter 244 Commentor Daniel J. Dempsey

Comment 1 *I am writing to express my support for the Land Exchange Alternative.*

Response: See General Response No. 1.

Letter 245 Commentor Bill Richardson

Comment 1 *I support Phelps Dodge's Dos Pobres / San Juan Project and the BLM's preferred alternative of the land exchange.*

Response: See General Response No. 1.

Letter 246 Commentor John Bonefas

Comment 1 *Please accept this letter of support of the Phelps Dodge Dos Pobres/San Juan Project. In addition I have reviewed, and fully support BLM's preferred alternative of the land exchange noted on page 2-44 of the Draft EIS.*

Response: See General Response No. 1.

Comment 2 *As a citizen, I feel the Bureau of Land Management has done an exceptional job relevant to boundary issues between BLM and the San Carlos Apache Tribe. The materials noted on 1-16 clarifies the history of the issue and I support the decision not to carry forth this topic.*

Response: See General Response No. 1.

Letter 247 Commentor David M. Martin of Arizona Chapter Associated General Contractors

Comment 1 *I would like to register my support in the official record for this project.*

Response: See General Response No. 1.

Letter 248 Commentor C. Allison Lombard of Arizona Builders' Alliance

Comment 1 *The Southern Division of the Arizona Builders' Alliance is in support of the Phelps Dodge Corporation Dos Pobres/San Juan mining project North of Safford.*

Response: See General Response No. 1.

Letter 249 Commentor Van Talley of City of Safford

Comment 1 *Safford believes the alternate year following program described in the EIS constitutes an innovative means of providing mitigation which strikes a proper balance between important environmental concerns and other important social and economic values in the Safford and Duncan-Virden Valleys. There are numerous water-related issues in the Upper Valleys, unrelated to the Project, solutions for which will require hard work, imagination and innovation on the part of all of us who live here. We view the mitigation measure described in the EIS as an example of how some of these issues can be addressed.*

Response: See General Response No. 1.

Comment 2 *Safford reiterates its support for the Project and for the Land Exchange alternative preferred by the BLM, and urges its expeditious approval. This support is further evidenced by the enclosed Council resolution.*

Response: See General Response No. 1.

<u>Letter 250</u>	Commentor	David J. Farrel of U.S. Environmental Protection Agency
	Comment 1	<i>We have rated this DEIS as EC-2--Environmental Concerns--Insufficient Information. (See the enclosed "Summary of Rating Definitions and Follow-up Action"). Our rating reflects concerns over potential impacts to air resources, water resources and quality, and water-related biologic resources. Some section of the DEIS do not provide sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment. We expect that additional mitigation measures or clarification of planned mitigation and monitoring, and inclusion of other additional requested information in the FEIS may alleviate or reduce these concerns.</i>
	Response:	Since publication of the DEIS, BLM has received information pertinent to PD's compliance with Title V of the Clean Air Act, clarified regulatory authority issues for water rights, and concluded Section 7 consultation with the USFWS regarding potential impacts from groundwater pumping on listed species and designated critical habitat. BLM has made an effort to address all comments and concerns expressed during the DEIS comment period and has revised the EIS accordingly.
	Comment 2	<i>We commend BLM for an overall job well done in integrating the various aspects and potential effects from the presented alternatives into one comprehensive document.</i>
	Response:	See General Response No. 1.
	Comment 3	<i>EPA has serious concerns about the proposed project based on its potential impacts to air quality, as predicted by the results of the air quality modeling. According to the DEIS (page 4-14), emissions from the project would result in maximum PM10 levels of 34.4 micrograms/m3 (24-hour average). This value exceeds the maximum allowable increase over the baseline concentration (increment) for Class II areas of 30 micrograms/m3 (24-hour average).</i>
	Response:	Since the DEIS was published, the emissions inventory for the Project has been revised to reflect refinements to the mining plan, as well as recently revised emission factors. The modeling analysis has also been revised to account for the new emission inventory and several modifications to the original modeling methodology. The results of the revised modeling analysis, along with a discussion addressing PSD increment consumption, are included in Section 4.3.2.2.1.
	Comment 4	<i>...BLM should provide assurances that with channel modification none of the proposed construction would be in a 100 year flood plain. Additionally, in the FEIS BLM should explain how the proposed land exchange alternative would be consistent with the requirements of Executive Order 11988, "Floodplain Management," and explain any potential use restrictions in the event of land disposal to private parties, as required by Section 3(d) of the Executive Order.</i>
	Response:	See General Response No.13, 100-year Floodplains.
	Comment 5	<i>...we recommend that BLM include maps and cross sections showing the distribution of potential sulfide zones, and locations of the samples. BLM should also present the data in terms of the ratio of Acid Neutralization Potential to the Acid Generation Potential (ANP:AGP) and explain the common conventions in determining whether a particular material presents a potential problem. While the samples collected may be representative of rock types, the large size of the proposed pits and the limited number of test samples poses the potential that "pockets" of material of higher sulfide contents could be found as excavation proceeds, particularly toward the latter project phases. In the FEIS, BLM should discuss whether any permit requirements include ongoing waste rock characterization (testing/monitoring) during mine life, and whether PDSI would develop a contingency plan to deal appropriately with any unexpected sulfidic material as part of any permit conditions, or otherwise.</i>
	Response:	Both the oxide and sulfide ore deposits are low pyrite systems which do not contain material classified as massive sulfides. Based on over 400,000 feet of drilling, PDSI has determined that zones containing significant non-copper bearing sulfide mineralization (pyrite) are extremely unlikely to be present in either ore deposit. Material containing secondary copper sulfide mineralization in appreciable amounts will be classified as ore and routed to the lined leach pad. PD expects to encounter minor amounts of primary sulfide copper mineralization near the bottom of the Dos Pobres pit; however, this material was accounted for in the characterization studies conducted for the development rock stockpiles. Based on those studies, the amount of material having high acid neutralization potential that will be placed in the stockpiles would likely negate any potential impacts, even if unexpected sulfidic material were to occasionally be placed in the stockpiles. Therefore, BLM does not believe that ongoing characterization or development of a contingency plan is necessary.
	Comment 6	<i>...we recommend that the water quality monitoring well network be designed to include sampling of groundwater downgradient of the waste rock piles. From conversations with ADEQ personnel, it is our understanding that because of potentially changing groundwater flow regimes due to de-watering activities it will be challenging to select a fixed set of monitoring wells that would effectively monitor groundwater quality over time. The FEIS should discuss the tentative locations of proposed monitoring wells, note whether potential leachate from the waste rock piles would be monitored, and include any available information from the required Aquifer Protection Program (APP) permit... ...we ask BLM to explain where these compliance points would be, and how the overall groundwater monitoring network would allow early detection of any unexpected adverse groundwater discharges, especially since a leak detection liner system is not required by Arizona or any Federal laws.</i>
	Response:	Based on extensive characterization studies, ADEQ has made a determination that the development rock stockpiles are inert and that groundwater quality monitoring is not necessary or required for those stockpiles .

During the APP permitting process, ADEQ agreed to specific proposed locations for monitoring wells

around the leach pad and ponds. A total of nine wells will be located around these facilities, three each on the northwest and southeast sides of the leach pad, and three more downgradient of the leach pad and ponds.

Alert levels are set below Aquifer Water Quality Standards and trigger contingency actions prior to exceedance of the AWQS, thereby serving as an early warning system.

Comment 7 *EPA is concerned about the long term water quality of the pit lakes, in part because of the degree to which the possible effect on the human environment involves unknown risks (CEQ Regulations at 40 CFR 1508.27(b)(6)). EPA has been working with BLM and PDSI in the investigation of potential adverse pit lake chemistry. We are agree with BLM that the expected water quality of the pit lake, in the near term, would most likely be good. However, very long term water quality (such as 400 to 2000 from now), at the least, will include high total dissolved solids (TDS) and possible exceedance of certain aquatic standards due to effects of evapoconcentration. In the FEIS, BLM should explain what agency would be responsible for overseeing potential water quality problems associated with the developing pit lakes, once mining has ceased and reclamation has been completed. As the DEIS states, there are uncertainties associated with long term modeling attempts. These uncertainties include such factors as climatic variability. We also suggest, based on our review of project data, that such variables as ultimate pit wall surface area (potential for increase in surface area due to landslides), amount of oxygen available in fractured wallrock, heterogeneities in the fracture-controlled aquifer, and potential warm water inputs--all contribute to uncertainties about the ultimate pit lake chemistry. For these reasons, EPA recommends that assumptions of the Pit Lake modeling be re-visited at the end of mine life, based on final pit configuration, water quality of groundwater entering the pit, etc., and be included as part of the Mitigation and Monitoring Plan. The assessment of final, pre-lake, pit conditions should include a contingency remediation plan, because there are a variety of chemical treatments available for developing pit lakes with potentially adverse chemistry.*

Response: Pit lakes are not regulated by the State of Arizona, per se; however, ADEQ regulates impacts to groundwater quality. PDSI must comply with state groundwater quality and federal surface water quality statutes and regulations, in addition to various regulations concerning the protection of wildlife.

The best available scientific information indicates that the pit lake water will be of good quality, comparable to other natural waterbodies in the state. Additionally, ADEQ has indicated to PDSI that pit lakes will have to be addressed at the end of mine life as part of the closure and post-closure plans under the APP.

Comment 8 *...BLM should provide more specific details on the frequency and mechanism of monitoring, to ensure that monitoring is rigorous and meaningful. We recommend that PDSI seek consultation on the technical aspects of the proposed monitoring program with the appropriate wildlife agencies.*

Response: Please see revised Appendix F, Mitigation and Monitoring Plan. In addition to USGS involvement in revising the 3M Program, USFWS considered the effects of the Alternate Year Following Program in the Section 7 Consultation for this Project when it issued its Biological Opinion concurring with BLM's determinations of may affect but unlikely to adversely affect listed species and designated critical habitat.

Comment 9 *This figure (Figure 4-11) is very hard to read. ...we recommend either adding color or expanding the figure scale and contour symbols of the figure.*

Response: Figure 4-11 has been deleted from the FEIS because the revised 2001 Rewetting Model did not generate comparable information.

Comment 10 *The FEIS should include a spring monitoring program and contingency mitigation in the event that springs are impacted.*

Response: Please see Appendix F regarding monitoring and contingency mitigation measures for potential impacts to springs.

Comment 11 *...BLM should clarify the capacity of the stormwater containment units--will each unit be capable of containing the volume of water resulting from the 100-year, 24-hour storm on top of the 100-year, 10-day storm? Please explain the difference between the two storm events, because a 100-year, 10-day storm does not appear to be standard reference event. How many hours is the 100-year, 10-day storm, and how does it relate to, for example, the 500-year storm event, in terms of water quantity?*

Response: The stormwater retention dams were conservatively designed with sufficient capacity to retain stormwater runoff resulting from the 100-year, 10-day storm event, a larger capacity than if the dams were sized to contain runoff from the 100-year, 24-hour storm. The 100-year, 24-hour and 100-year, 10-day storm events represent extreme rainfall events of different duration and are statistically derived using existing rainfall data from the local area. For the project area, the 100-year, 24-hour storm event was estimated to be 3.7 inches of rain; the 100-year, 10-day storm event was estimated to be 5.2 inches and 5.7 inches of rain for areas below and above 4,000 feet elevation, respectively. Although the 100-year, 10-day storm event resulted in a more conservative design capacity for the stormwater retention dams, the 100-year, 24-hour storm may be more conservative when sizing facilities that incorporate pumping systems, depending on site-specific parameters such as pumping rates.

Comment 12 *BLM should add the following additional language/clarification to the FEIS. In addition to requiring discharges of mine drainage to meet technology-based effluent limitations (40 CFR Part 440), all discharges into waters of the U.S. must also comply with state water quality standards, which are often more stringent than the technology-based effluent limitations. In the development of a permit, EPA evaluates the technology-based effluent limitations against the applicable water quality standards and selects the most stringent limitation for each parameter of concern.*

Response: Section 1.5.1 of the EIS has been revised to include this information.

- Comment 13 *Although the description of the requirements for the Clean Water Act Section 402 permit is accurate, it would be helpful to the public for BLM to add language in the FEIS to clarify how various discharges are regulated. In summary, allowable discharges from mining facilities can generally be classified as either storm water or mine drainage. In addition to the definition of mine drainage included in the DEIS, mine drainage also includes drainage from pits or adits, process water mixed with storm water, and storm water which comes into contact with any materials used in the mining process. Storm water includes runoff from waste rock piles, snow melt runoff, and surface drainage that does not come into contact with raw materials, product, or mine drainage. Discharges of mine drainage are subject to the technology-based effluent guidelines described at 40 CFR Part 440. Facilities discharging storm water are not subject to technology-based guidelines but are required to prepare a storm water pollution prevention plan. BLM should acknowledge in the FEIS that a stormwater pollution prevention plan would be included as part of the APP permit.*
- Response: Section 1.5.1 has been revised to include this information.
- Comment 14 *The FEIS should clearly state that prior to issuance of a final Clean Water Act Section 402 permit, a draft permit will be circulated to the public for a minimum 30-day public comment period.*
- Response: See General Response No. 2, NEPA Process.
- Comment 15 *In the FEIS, BLM should include a summary of its (BLM or Department of Interior) environmental justice strategy, as required by implementation of the "Environmental Justice Executive Order," Number 12898.*
- Response: Section 5.2 in the EIS outlines BLM's strategy for compliance with EO 12898 on environmental justice. BLM follows the same strategy as outlined in the Council for Environmental Quality (CEQ) guidelines for addressing environmental justice and as well as the outline included in "Overview of BLM's NEPA Process - Arizona BLM Desktop Reference" dated March 1998.
- Comment 16 *On p. 4-47 of the DEIS, BLM provides assurances that expected impacts on surface flows in the Gila River would be mitigated by implementing an alternate year following program. This information appears to conflict with information presented on page 1-9 of the DEIS where it states that "leaving decreed agricultural lands fallow may or may not increase the amount of water in the Gila River" In the FEIS, these two disparate statements should be made to agree with one another.*
- Response: Section 1.5.3 has been revised to address this comment.
- Comment 17 *We therefore recommend that in the FEIS, BLM fully analyze any potential disproportionate impacts to potentially affected tribes by loss of federal land status of the selected lands. This analysis should include discussion of other applicable laws, regulations and executive orders as they apply to Tribes. In this context, BLM should describe, in the FEIS, how the proposed land exchange would comport with its environmental justice strategy.*
- Response: In the EIS, BLM fully analyzes the effects of the proposed exchange for compliance with Executive Order (EO) 12898. Environmental justice is "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or a socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies." The BLM's strategy for environmental justice compliance is to identify where minority and low income populations exist in relation to the proposed action and alternatives and then determine whether effects are disproportionately high and adverse. BLM has adhered to its strategy for environmental justice and has followed the requirements of EO 12898. The EIS identifies minority and low income populations in the surrounding area to determine how far these populations are from the proposed action and alternatives. The nearest Native American populations are located in the communities of Bylas and Peridot, which are 30 and 50 miles away, respectively. See Section 3.2.5.1.1. BLM also completed further consultation and coordination with Native American tribes to identify their issues and concerns and address them in the EIS; see Sections 5.1.4 and 5.2. Listed in Table 1-1 are the applicable laws, regulations and executive orders as they apply to the Federal and State Regulatory Requirements for the Mining Plan of Operations and the Land Exchange for the Dos Pobres/San Juan Project. Table 5-2 lists the Summary of Adverse Impacts of the Action Alternatives for the Dos Pobres/San Juan Project Environmental Justice Analysis. BLM has added Executive Order 13007, Indian Sacred Sites, to Table 1-1. See also response 250-18.
- Comment 18 *In the FEIS, BLM should discuss how the treatment of the boundary dispute issue, as related to the proposed land exchange, is consistent with its environmental justice strategy and, in the context of BLM's environmental justice compliance role, how the EIS is consistent with the goal of fair treatment of potentially effected minority or low-income communities.*
- Response: The issue of the boundary dispute was raised earlier during the scoping process and in the appeal filed by the San Carlos Apache Tribe on the Morenci Land Exchange, an earlier exchange proposed and completed with the BLM by PD.
- As described in Section 1.6.2.2.1 in the EIS, BLM fully considered the tribal boundary dispute in their evaluation of impacts to land use and land ownership. Because documents show the Tribe accepted fair compensation for any outstanding land disputes and the Tribe has not provided any new information to the contrary, BLM considers this issue satisfactorily resolved. Therefore, exchanging the selected lands for the offered lands was not considered to be an adverse impact that would create disproportionately adverse effects on the Tribe or any other minority or low-income group, as required by Executive Order 12898 on environmental justice. The BLM's efforts to consider, research, analyze, and disclose this important issue in the EIS are consistent with the objectives of EO 12898.

Chapter 7

- Comment 19 *We recommend that BLM work with PDSI, the potentially affected Tribes, and the State Historic Preservation Office, to investigate the possibility of additional project proponent initiated studies, as a potential way to mitigate for archaeological impacts of the proposed mine development.*
- Response: See General Response No. 9, Cultural Resources Mitigation.
- Comment 20 *Despite the seeming complexities of an EIS with a land exchange identified as BLM's preferred alternative, and a Proposed Action, a mining project--we want to make it perfectly clear to the public that the underlying driving force of the document preparation was the Purpose and Need expressed by PDSI to develop the Dos Pobres/San Juan project. As such, BLM has appropriately identified the foreseeable uses of the land exchange to be nearly identical to those of the Proposed Action and has appropriately chosen to analyze indirect and cumulative impacts (40 CFR 1502.16, 1508.7). Regardless of semantics, the end result, unless both a land exchange and an MPO are not approved, would be the likely development of a mining project with nearly identical environmental impacts. EPA does not intend to imply that the land exchange does not have merit. We recognize that a land exchange may satisfy BLM's agency goals and also provide various tangible benefits to the public.*
- Response: Thank you for your comment. The appropriateness of BLM's analysis approach with regard to impacts of foreseeable future mining under a Land Exchange alternative was affirmed in the appeal decision for the Morenci Land Exchange (IBLA 97-299, 97-311, 98-142, 98-173, May 21, 1999).
- Comment 21 *...pages 2-38, through pages 2-41, the future status of mineral entry is described in somewhat confusing terms. ...In the FEIS, BLM should clearly identify in the section on Offered Lands and their Foreseeable Uses which properties would not be available to mineral entry.*
- Response: See response 210-8.
- Comment 22 *The FEIS should state whether the exchange of the 12 acres at Sanchez would in any way enable or accelerate mine startup at that property.*
- Response: Approval of the proposed land exchange, which includes 12 acres of federal lands on which the Sanchez office building sits, would not enable mining activity on the Sanchez property, nor would it accelerate startup of that mine. PD intends to use the building for ongoing mine planning.
- Comment 23 *BLM notes that levels of arsenic and chromium at this offered site (Tavasci Marsh) has exceeded standards. In the FEIS, we recommend that BLM discuss any potential environmental liabilities that the public may be acquiring, with respect to any future site remediation that may be necessary.*
- Response: In their comment letter (no. 203), the National Park Service identified a potential for ecological risk to aquatic organisms from levels of metals in the sediments of Tavasci Marsh. To address these concerns, further testing was completed by URS Greiner Woodward Clyde and a report entitled "Tavasci Marsh Supplemental Sampling Report" was submitted to BLM. The report showed that levels of metals in the sediment of Tavasci Marsh, with one exception, are below benchmarks that would indicate a risk to the organisms in the marsh. The one exception is in a single sediment sample in which arsenic exceeds the benchmark. This exception is, in itself, not indicative of an unsuitable habitat. Tests for the toxicity of the sediment and surface water further suggest that conditions in the marsh are not adversely affecting aquatic life. In their letter to BLM regarding these studies, NPS stated "... there would be no need for Tuzigoot National Monument to undertake clean up of the Marsh or to actively manage the habitat to prevent ecologic exposure...we look forward to the acquisition of Tavasci Marsh and its inclusion into the land base of Tuzigoot National Monument" (letter from Glen Henderson, Supt., Tuzigoot National Monument (now retired) to William T. Civish, Field Office Manager, Safford Field Office of the BLM, October 7, 1999).
- Comment 24 *...the FEIS should note whether the listed bond monies would be adjusted for future inflation, and how adjustments to the required bonding are made (both by BLM and by the State). The FEIS should also contain a description of any bonding provisions the State or the Federal Government may have for contingency pit lake remediation in the event modeling predictions do not hold.*
- Response: BLM regulations state that BLM will periodically review the estimated cost of reclamation and require increased funding, if necessary. Financial assurance must also be adjusted when changes are made to plans of operations that affect reclamation costs. Under Arizona regulations, operators are required to submit an annual status report identifying any changes in surface disturbances and areas reclaimed. State regulations also require the State Mine Inspector to adjust the amount of financial assurance every five years or more often as necessary to adjust for new areas of surface disturbances or inflation or to reflect changed costs resulting from modifications to the reclamation plan.
- Under the Land Exchange alternative, the Dos Pobres pit lake would be located on PD patented land and not subject to BLM oversight. A portion of the San Juan pit lake may be located on land that is currently managed by the BLM; however, no bonding provisions for the pit lake are currently anticipated because available scientific information indicates that pit lake water is expected to be of good quality. Pit lakes are not regulated under Arizona's mine reclamation program; however, ADEQ regulates impacts to groundwater quality. PDSI's proposed mine operations must comply with state groundwater quality and federal surface water quality statutes and regulations during and after mining.
- Comment 25 *RE: microsites. In the FEIS, BLM should provide additional background information on the success record of such an approach (case studies) and what criteria, with respect to re-vegetation, are used to determine release of bonds.*
- Response: PDSI has revised their reclamation plan to include placement of soil/growth medium over the entire surface area of the tops of the leach pad and the development rock stockpiles rather than using micro-sites. Existing on-site sources of growth medium-soil include unmineralized Gila Conglomerate within the Dos Pobres pit, as well as soils in the areas to be cleared for the leach pad, development rock stockpiles, the

SX plant, etc. Arizona does not have a set standard for success criteria regarding revegetation; determination of success (and release of bond) is based on whether the operator achieves the goals identified in the approved reclamation plan. As a general rule, the mine operator must demonstrate that the revegetation is self-sustaining for a reasonable period such that it is obvious that the vegetation is surviving without irrigation. Specifically, A.R. S. 27-996 states that "After the reclamation measures have been performed, the remaining financial assurance shall be released, except that ten percent shall be retained for the costs of care, monitoring and one reseeded, if necessary, or areas that have been revegetated. The Inspector shall release the retained monies after a period of not more than three growing seasons after the supplemental management or other man-induced inputs have been finally removed or as otherwise provided in 27-992, Subsection B." Also, it should be noted that revegetation efforts normally attempt to achieve similar plant densities as the adjacent undisturbed areas.

Comment 26 *EPA questions whether the possible post-mining use of the area as an "industrial complex" is compatible with other uses such as wildlife habitat. We also question how formation of large pit lakes would be compatible with future mineral development. BLM should discuss these topics in the FEIS.*

Response: The facilities that could be used as an industrial complex post-mining would be the truck shop complex. While the immediate vicinity of the facilities may not be suitable as wildlife habitat, particularly for game species, the juxtaposition of such uses is compatible as part of an overall plan for post-mining land uses within the 3,400-acre mine site.

Regarding pit lakes and future mineral development, if the Dos Pobres sulfide project is determined to be feasible, it would likely occur immediately after mining of the oxide ores at the Dos Pobres pit (this Project), assuming all necessary permits and authorizations were secured. Water infiltrating into the pit would continue to be pumped out until the mining of sulfide ores was completed. The ultimate pit lake would then be within the pit resulting from that future potential project.

Comment 27 *EPA recommends that all soil and growth medium stockpiles are guarded against erosion and physically labeled in the field to avoid inadvertent uses of the materials for other purposes during mine life.*

Response: Plans to do this are described in Section 2.1.2.1.7, Soil and Growth Medium Stockpiles, of the EIS.

Comment 28 *...BLM should discuss the relative potential for ground subsidence to occur as a result of mine de-watering activities. Any significant subsidence or differential subsidence along faults, under the proposed heap leach facilities, could lead to liner tears and potential groundwater contamination.*

Response: Subsidence is caused by the dewatering of unconsolidated sediments resulting in the compaction of typically fine-grained sediments occurring below the water table. The upper (northeast) portion of the leach pad is located on volcanic rock units, rather than sediments. The lower portion of the leach is located on lower basin fill, a sediment unit, which increases in thickness to approximately 200 feet near the southwest end of the pad. The lower basin fill in the area of the pad is not saturated, as evidenced by the location of the potentiometric surface several hundred feet below the basin fill in the volcanic units. Since the sediments in the area of the pad are of relatively small thickness and are not saturated, conditions that could contribute to subsidence do not exist. Potential pad settlement, due to the weight of the constructed leach pad, was analyzed as part of PDSI's APP application. This study concluded that the maximum design height of ore placement will not adversely affect the integrity of the pad liner.

Comment 29 *...BLM should discuss slope stability between the north end of the proposed heap leach pad and the highwall of the proposed Dos Pobres and potential deep (sulfide) Dos Pobres Pit. Based on provided data, we estimate that only about 300 feet would separate the edge of an expanded Dos Pobres pit and the reclaimed leach pile. Our concerns are based on the potential for long term impacts, after mine abandonment, and the potential resulting public safety and/or water quality impacts.*

Response: PDSI's current plans regarding pit slope angles and pit slope stability are based on pit slope studies conducted by independent consultants using geologic and geomechanical data obtained from oriented-core drilling, rock quality determinations (RQD data), rock strength testing, surface mapping and cell mapping. These studies were used to determine that current pit slope designs provide appropriate levels of safety and stability. Although PDSI has provided setbacks between current Dos Pobres pit limits and the leach pad, the adequacy of the setback distance would be reviewed prior to any expansion of the Dos Pobres pit, such as the potential sulfide pit. As the mine pits are developed, the pit wall geology will be exposed and will allow for the development of additional detailed information that PDSI will incorporate into future pit slope/stability studies.

Comment 30 *Re: shipment of acid via tanker trucks. ...BLM should state what the carrying capacity of each truck would be. We also ask that the BLM discuss the feasibility of transporting the acid in a potentially more benign form, such as a solid. The FEIS should also discuss the most likely source of the sulfuric acid and discuss potential for adverse environmental impacts along any of the proposed transport corridors, outside of the immediate Safford area, should accidental spillage occur (e.g, would this increased truck traffic pass any other heavily populated areas or areas with sensitive environmental attributes, and would it pass through any Indian Country?)*

Response: Section 2.1.2.3.6, Sulfuric Acid Storage and Transport, has been revised to include information on the capacity of trucks, the most likely source location of sulfuric acid, and the feasibility of transporting acid in solid form. Regarding the potential for spills, potential impacts, and mitigating factors, see General Response 14, Hazardous Materials.

Comment 31 *Reference to Figure 1-1, made on page 3-5, top paragraph, of the DEIS, should actually be made to refer to Figure 1-2.*

Response: The reference to Figure 1-1 in the first paragraph of Section 3.2.1.2.1, Access, is incorrect and has been changed to "Figure 1-2."

Chapter 7

- Letter 251 Commentor David L. Harlow of U.S. Fish and Wildlife Service
- Comment 1 *We believe the purpose and need statement has been too narrowly defined and the alternatives analysis has inappropriately identified avoidance and minimization efforts as project alternatives and not adequately analyzed true alternatives to the proposed action. ...We believe this statement (the purpose and need) encompasses both the proposed action and the purpose of and need for that action. We believe the development of the Dos Pobres and San Juan copper deposits is the proposed action. The underlying purpose of and need for the proposed action is to mine copper to meet a continuing demand for copper. We recommend the purpose and need statement be modified accordingly.*
- Response: This comment was addressed by revising the Purpose and Need statement of the EIS. The purpose of and need for the Proposed Action, and other action alternatives including the Land Exchange alternatives, is for PD to develop the Dos Pobres and San Juan ore deposits, including PD's mining claims to those deposits currently located on public lands. A continuing demand for copper underlies PD's expressed desire to implement the proposed mining project and their proposed MPO and Land Exchange alternative address this purpose and need. See also response 240-5.
- Comment 2 *We believe efforts to minimize impacts should be considered as mitigation measures and not as project alternatives. We recommend this discussion be removed from the alternatives analysis and placed in a section which addresses actions which could be taken to mitigate impacts of the proposed project.*
- Response: See General Response No. 4, Alternatives.
- Comment 3 *We believe that different mine plan configurations represent mitigation measures and not proposed action alternatives. The off-site mine alternative section should be expanded and more fully analyzed, as we believe it represents a true alternative course of action, different from the proposed action, which would still meet the underlying purpose of and need for the action.*
- Response: See General Response No. 4, Alternatives.
- Comment 4 *This section (Section 2.2) does not describe alternative courses of action that could meet the underlying purpose of and need for the proposed action, but rather describes a different regulatory pathway by which to approve the proposed action. For the purposes of NEPA compliance, we believe acquisition of the offered lands more accurately represents mitigation measures for impacts resulting from the proposed project.*
- Response: As indicated in Section 1.4, the purpose and need for the Project is the development of PD's mineral resources at the Dos Pobres and San Juan ore deposits. BLM agrees and has stated in Section 1.4 that, while the primary purpose of the land exchange is the acquisition of private lands for public lands to achieve improved management of federal lands and acquisition of lands containing important resource values, the exchange is also an alternative that is consistent with the purpose and need for the mining project.
- BLM disagrees that the exchange more accurately represents mitigation for impacts of the proposed mining. While it is understandable that some may consider public acquisition of the resources on the offered lands as "compensating for the impact [e.g., of mining] by replacing or providing substitute resources or environments" (see definition of mitigation at 40 CFR 1508.20[e]), this presumes that BLM will select the exchange alternative to compensate for the mining impacts that would occur under the COE's and ADEQ's approval of CWA permits necessary to implement the Dos Pobres/San Juan Project. However, the public must clearly understand that the relationship between the impacts of the proposed mining and the acquisition of the offered lands is NOT a causal one. For the BLM, the MPO and the land exchange are mutually exclusive alternatives to achieve the purpose and need. For the COE and ADEQ, approval of their respective CWA permits in no way requires nor causes BLM to select the land exchange (see Figure 1-3). Therefore, because the impacts of mining on the selected lands could occur with OR without the exchange, the exchange cannot and should not be considered as mitigation for mining impacts to public lands resources.
- Comment 5 *Furthermore, we believe the loss of 17,000 acres of BLM administered lands to satisfy a project that would only require 1,935 acres of BLM land unnecessarily complicates the regulatory process by including land that could later be developed as a separate yet-undescribed project and may not be in the public interest. For the land exchange alternative we recommend BLM only consider exchanging those selected lands which would be necessary to complete the Dos Pobres/San Juan project.*
- Response: See General Response No. 4, Alternatives.
- Comment 6 *We disagree with the statement that impacts associated with the foreseeable land uses are not directly or indirectly caused by the land exchange. We believe the impacts associated with the proposed project, as well as the future land uses, would be direct consequences of the land exchange. If BLM chooses to implement a land exchange, we believe the potential impacts resulting from actions on the entire 17,000 acres of selected lands should be assessed before the exchange occurs, including the impacts of future projects.*
- Response: See General Response No. 3, Scope of Analysis and response 251-4.
- Comment 7 *We are concerned these sections may not have adequately addressed potential impacts to springs and seeps located along the riverfront, such as Cold springs and Bylas springs, which support populations of endangered fish species.*
- Response: The hydrologic model addresses the issue of the cone of depression, which does not encompass these springs. However, if the monitoring wells indicate that the cone of depression is more extensive than anticipated, these springs would be monitored for adverse impacts. Cold Springs and Watson Wash are

- presently monitored quarterly by BLM.
- Comment 8 *We are also concerned the hydrologic analysis may not provide an accurate representation of potential impacts on the Gila River or Bonita Creek. The DEIS states that predictions of the hydrologic model do not account for changes in climate, population growth, water use, and other land uses that may affect the regional groundwater system. We believe this approach is inappropriate as it does not consider the cumulative effect of interrelated and interdependent projects. Also, we understand that BIA hydrologists disagree with the assumption regarding permeability of the geologic fault identified as existing between the mine and the river (Cathy Wilson, BIA, personal communication). We recommend potential impacts to riverfront springs and the cumulative effect of interrelated and interdependent projects be more thoroughly assessed, and the hydrologic model be circulated for independent peer review by other agencies' experts.*
- Response: The hydrologic model has been subject to extensive outside independent peer review (see General Response No. 16, Groundwater Model Review). The conclusion of those reviews are that the model provides a reasonable estimate of project impacts. This peer review has also correctly reaffirmed that no model is without uncertainty. Considering this uncertainty, the BLM ID Team has required that the MMP for the project (see Appendix F) contain a program to monitor the model's predictions against actual effects and adjust mitigation as necessary. This program is called the Model, Monitor, and Mitigate (3M) Program and its implementation will ensure that predicted and actual impacts to the Gila River are adequately mitigated. See also General Response No. 16, Groundwater Model Review.
- Comment 9 *Please note that the Plan (HMMP) itself has the potential to impact listed species through the removal of salt cedar. We recommend these potential impacts be assessed.*
- Response: The BLM and COE coordinated with the USFWS regarding this specific concern and modified the implementation plan in the mitigation and monitoring program to avoid these potential effects. See revised Appendix F. Additionally, in light of these changes, the Biological Opinion issued by USFWS in June 2002 states that "while there are temporal setbacks to the suitability of the habitat patch at the Pima mitigation site for flycatchers [as a result of salt cedar eradication], the proposed MMP is expected to result in net beneficial environmental effects" (p. 30) and "the Service does not anticipate the proposed action will incidentally take southwestern willow flycatcher" (p. 32).
- Comment 10 *Because of the loss of BLM jurisdiction that would occur under a land exchange, the Service believes it is imperative that the total impacts of the foreseeable land uses on the entire acreage of selected lands be assessed prior to exchange.*
- Response: This analysis is included in the EIS. Impacts of the land exchange, including impacts of both the proposed mining at Dos Pobres/San Juan and the foreseeable uses of the selected lands, are quantified and disclosed in Chapter 4. Impacts of foreseeable uses associated with development of the Dos Pobres sulfide and Lone Star deposits are not analyzed in the same level of detail as impacts attributable to the MPO for reasons explained in General Response No. 3, Scope of Analysis.
- Comment 11 *We disagree with the statement that the only effect of the proposed land trade on federally listed, proposed, or candidate plant species would be a change in required consultation procedures for proposed actions. We believe any on-the-ground effects to listed species resulting from mining operations would be a result of the land exchange.*
- Response: See General Response No. 3, Scope of Analysis, regarding the non-causal relationship between physical impacts from foreseeable mining activities on the selected lands and the proposed exchange; see also response 251-4.
- Comment 12 *...the DEIS does not state how long the following program would be performed. This is important because of the time discrepancy inherent in this approach. Mitigation would begin a year after project initiation, but impacts to the Gila River would not occur for over 400 years. If the following program is not implemented at the time groundwater pumping actually affects the river, the program would fail to mitigate impacts to the river. Also, we understand that BIA questions the viability of the following program due to provisions and requirements of the Federal Globe Equity Decree (Cathy Wilson, BIA, personal communications). We recommend this section identify alternative mitigation plans in the event the following program is unable to be implemented. We further recommend this section include monitoring of riverfront springs and Bonita Creek and identify potential mitigation measures if appropriate.*
- Response: Through deed restriction, the Alternate Year Following Program would be implemented in perpetuity. The program would begin when groundwater pumping for mine development is initiated. Initial mitigation amounts would be based upon the maximum predicted impact to the river and therefore, would initially overcompensate for those potential effects. The Alternate Year Following Program, as proposed, is legally and technically achievable and the actions are verifiable through review of Gila River Water Commission's annual reports and for any given year, visual inspection to verify compliance. The 3M Program outlined in the MMP (see Appendix F) provides detailed, specific contingency measures that ensure that proposed mitigation efforts are adequate to address actual effects associated with the project; additional contingency measures are not necessary.
- See response 251-7 regarding riverfront springs.
- Monitoring of the modeled impacts to groundwater systems that would potentially cause impacts to Bonita Creek is provided by the 3M program. Further, as indicated in the BIA's hydrologic consultant's report (Stetson Engineers letter to Cathy Wilson, BIA, dated May 17, 1999, p. 3), "Even if the model results [for the predicted depletion of Bonita Creek of a maximum impact of one acre-foot per year] are low by a factor of five, this amount of flow is not likely to be measurable, even during dry periods."
- Comment 13 *...the Section 404 draft mitigation plan only mitigates for impacts to jurisdictional waters of the United*

Chapter 7

States. We believe mitigation prepared pursuant to NEPA should address the totality of project related impacts. Additional mitigation measures for potential impacts occurring to upland biotic communities should be identified. The BLM may wish to identify acquisition of the offered lands as partial mitigation for project impacts.

Response: The Mitigation and Monitoring Plan was initially prepared to address impacts to jurisdictional waters of the United States, such as the Gila River, and will be included as a condition of the Corps' Section 404 permit, if issued. Additional mitigation proposed for the project has been identified in Table 4-42 of the EIS. BLM does not consider acquisition of the offered lands as mitigation for impacts resulting from the proposed mine plan of operations. The resource values associated with these properties are considered, in conjunction with the resource values of the selected lands, during the BLM public interest review of the proposed exchange.

Letter 252 Commentor Janine Baeloch of West. Land Exch. Project & Brian Segee of Center for Biodiversity (was SW Cent. for Biodiv.)

Comment 1 *The Southwest Center and WLXP have numerous objections to all of the action alternatives for this proposal. However, we are adamantly opposed to the Land Exchange Alternative.*

Response: See General Response No. 1.

Comment 2 *...the "improved management" that would follow public acquisition of the offered lands is marginal, and, as the DEIS notes, the mining operation will occur whether or not the proposed land exchange is completed. Thus, the public interest rationale offered by the BLM in the DEIS is flimsy, at best, and collapses completely when the adverse consequences of the exchange are considered.*

Response: See General Response No. 8, Public Lands Management.

Comment 3 *The Amado and Curtis properties, along with the other 13 inholdings within the Gila Box, should be the subject of a vigorous quest by the BLM to obtain money for purchase from the Land and Water Conservation Fund.*

Response: This comment has been addressed in General Response No. 4, Alternatives.

Comment 4 *Re: Musnicki property. Further grazing and ORV use do not constitute "improved management" as the BLM asserts.*

Response: See General Response No. 1.

Comment 5 *It is unclear how its (Schock property) acquisition would improve public land management.*

Response: See General Response No. 8, Public Lands Management.

Comment 6 *...if the National Park Service believes acquisition of this land (Tavasci Marsh) is critical, the agency should be aggressively lobbying for funds from the Land and Water Conservation Fund.*

Response: This comment has been addressed in General Response No. 4, Alternatives. See also response 198-3.

Comment 7 *It is unclear how acquisition of this property (Freeland and Butler Borg) would improve public land management.*

Response: See General Response No. 8, Public Lands Management.

Comment 8 *Re: Fuelner property: This property is also contained within the Empire-Cienega LTMA. Like the Schock property, Fuelner will remain open to livestock grazing and will leave very diverse ownership patterns within Empire-Cienega.*

Re: Norton: This parcel would continue to be grazed.

Re: Clyne I and Clyne II: These lands, also within the Empire-Cienega LTMA, lie in the foothills of the Whetstone mountains. Like the other properties, grazing would continue and mixed ownership patterns would remain.

Response: See General Response No. 8, Public Lands Management.

Comment 9 *...this land exchange will facilitate an open pit copper mine which will have disastrous impacts on both people and wildlife, many of which are addressed in the land exchange regulations at 43 CFR 2200.6(b):*

'Fish and Wildlife Habitats/Watersheds:' Both mines will consume enormous amounts of surface and ground water, resulting in reduced instream flows in the already beleaguered Gila River. Less water means less chance for recovery of populations of endangered species dependent on the river, such as the Gila topminnow and Southwestern willow flycatcher.

'The needs of State and local residents, San Carlos Apache:' ...the San Carlos Apache reservation holds senior water rights that will be directly impacted by the Dos Pobres/San Juan project.

'The need of State and local residents, Labor:' Dos Pobres/San Juan will not benefit union workers.

'The needs of State and local economies/expansion of communities:' ...mining projects only perpetuate the boom and bust cycle that has devastated the state's natural heritage and assured the instability and marginality of its rural communities.

'Fulfillment of public needs:' ...opening yet more open pit copper mines is failing to fulfill any public needs, is creating an even more volatile and unstable industry, and is actually hurting the public by unnecessarily driving copper prices even lower.

Responses to Comments

'Conflict with Indian trust land objectives:' ...the BLM is allowing a land exchange to go forward with great potential to do enormous harm to Indian trust objectives in direct violation of land exchange implementing regulations.

Response: See General Response No. 8, Public Lands Management.

Comment 10 *While we strongly believe that the agency's practice of withholding private land values should cease, the short-term solution is for private parties to land exchanges to open appraisal records to the public as soon as appraisals are complete.*

Response: The total value of the offered (private) lands was provided in the EIS, in Table 2-13 and the process for developing the appraisals was described in Section 1.6.2.2.3 in Chapter 1. See also General Response No. 4, Appraisals.

Comment 11 *...we are very concerned that the federal government is not entering into a fair and equal as required by Federal Land Policy and Management Act regulations at 43 C.F.R. 2200.6c. Specifics pointing to this include:*

-The fact that over 4 acres of public land are being given away for each private acre received.

-The selected lands are highly consolidated while the offered lands are scattered throughout five counties in Arizona. Contiguous property has a higher market value than isolated property. Is this consideration reflected in the appraisal?

...With the exception of one parcel within the San Juan block which has a high potential, the presence or absence of mineral potential has not been determined to any meaningful degree of certainty.

...What has been determined to be the highest and best use of the selected land? Does this appraisal take into account the millions of dollars that Phelps Dodge will save by acquiring this land?

Response: See General Response No. 4 Appraisals and Section 1.6.2.2.3 in Chapter 1 regarding the BLM's appraisal process and considerations in developing appraisals for the selected and offered lands.

Comment 12 *...the Western Land Exchange Project learned last year that the salaries of Arizona BLM land exchange staff (including those assigned to this project) are paid by Phelps Dodge and the other private parties working on land exchanges within the agency. At the very least, this creates the appearance of conflict of interest, as staff may have a built-in incentive to decide in the interest of the private party funding their positions.*

Response: See General Response No. 15, Conflict of Interest.

Comment 13 *Rather than treat the [LWCF] Fund as a lost cause, the BLM should actively promote it as an alternative to land swaps.*

Response: With regard to the LWCF as an alternative to the proposed land exchange, see General Response No. 4, Alternatives. See also Section 1.6.2.2.1 regarding use of the LWCF as an alternative to the land exchange.

Comment 14 *...neither this table (Table 1-1) nor any other section in the DEIS confronts directly the environmental effects created by the land exchange--most important, the removal of protection found in BLM's mining regulations at 43 CFR 3809. Even a cursory comparison of these regulations with Arizona's state mining regulations demonstrates that such effects will be significant.*

Response: See General Response No. 5, Loss of Federal Oversight, as well as Section 1.6.2.2.4 and Section 4.4, Land Exchange Alternatives Impact Analysis, which discuss impacts of the alternatives with regard to loss of BLM management of the selected lands.

Comment 15 *...the land exchange would affect application of the following laws:*

-Section 7 consultation under the Endangered Species Act would not be required.

-The National Historic Preservation Act would not apply.

-Clean Water Act permits would not have to contain as much detail.

It is clear that the land exchange would fundamentally shift the legal framework surrounding mining operations at Dos Pobres/San Juan, and that the DEIS' repeated assertions that impacts would be the same with an exchange as they would be without are false.

Response: See Section 1.6.2.2.4 regarding regulatory requirements under the land exchange scenario and see General Response No. 5, Loss of Federal Oversight.

Comment 16 *...none of the environmental effects of using state rather than federal mining regulations are discussed in the DEIS. This failure constitutes a serious violation of NEPA.*

Response: Certain state regulations, such as the Aquifer Protection Permit program, pertain to mining activities on both public and private lands, however, reclamation would be overseen by the State Mine Inspector rather than by BLM under an exchange scenario. Because the reclamation measures proposed by PD will meet, and would be implementable, under both BLM's 3809 regulations and Arizona Mined Land Reclamation regulations, there are no environmental effects resulting from any real or perceived differences between state and federal reclamation requirements for this Project. This is discussed in Section 4.4.1.1.

Comment 17 *All told, the DEIS devotes 6 pages to these issues (biological resources) in the "environmental consequences" section. This analysis is obviously inadequate when one remembers that Dos Pobres/San*

Chapter 7

Juan will consist of two open-pit copper mines and ancillary facilities sprawling over thousands of acres, using and creating highly toxic materials, and extracting nearly 3 billion pounds of copper during its existence.

An example of the DEIS's failure in this respect may be seen in the "wildlife resources" section . Here it is stated that "some wildlife, including game species such as mule deer, javelina, mountain lions, doves, and quail" will be affected. Yet nowhere is it explained how these species will be affected. ...A similar lack of attention is given to threatened, endangered, and BLM sensitive species. The FEIS must be amended to provide meaningful analysis of this project's effects on wildlife.

Response: Section 4.3.3.2 of the EIS in its entirety discusses the potential impacts on wildlife, including game species, from the proposed mining. Section 4.3.3.3 discusses impacts on sensitive and listed species. These sections have been revised to discuss impacts in more detail.

Comment 18 *Finally, in addition to the NEPA violation associated with this dearth of analysis, it appears that the BLM has failed to conduct a Section 7 Endangered Species Act, consultation with the U.S. Fish and Wildlife Service concerning the effects of this action of federally-listed threatened and endangered species.*

Response: See General Response No. 6, Endangered Species Act Compliance, for a description of BLM's extensive Section 7 Consultation process, efforts, and results.

Comment 19 *Consistent with Executive Order No. 11988, when trading away land within a 100 year floodplain, the BLM must consider including in the deed of conveyance a requirement to preserve the beneficial aspects of the floodplain. ...This requirement has not been met in the Dos Pobres/San Juan DEIS.*

Response: See General Response No. 13, 100-year Floodplains.

Letter 253 Commentor Robert E. Yount of Arizona State Land Department, Nat'l Res. Division

Comment 1 *Project uses of surface water are not regulated under the Globe Equity Decree. This decree regulates diversions of water from the Gila mainstem for agricultural purposes. The Project will use surface waters several miles distant from the river. These new uses must be authorized; however, the permitting authority is the State of Arizona, not the Federal District Court as Decree administrator. It is not incumbent on Phelps Dodge to obtain approval from the court before initiating new uses pursuant to state law. Assertions to the contrary in the Draft EIS are mistaken.*

Response: Please see Section 1.5.3 of the EIS, which has been revised.

Comment 2 *Project uses of groundwater are not regulated under the Globe Equity Decree. The Draft EIS erroneously asserts that the District Court has authority to regulate groundwater pumping several miles distant from the Gila River channel. Under Arizona law, groundwater pumpers may not take subflow from a stream in disregard of established diversion rights. No other limitations presently exist in this area of the state.*

Response: Please see Section 1.5.3 of the EIS, which has been revised.

Comment 3 *Project uses of surface and groundwater are minimal. It is possible to speculate, as do the authors of the Draft EIS, concerning possible changes in law that might limit Phelps Dodge's future ability to develop water sources for the Project....However, the combined downstream effect of its planned surface and groundwater uses (75 a/f/a) appears to have no practical adverse consequences for any holder of prior diversion rights. Moreover, mitigation seems feasible should some harm occur....It appears, from the Draft EIS, that proposed Project water uses pose no significant threat to existing appropriators. The Bureau of Land Management need not delay or condition approval based on perceived uncertainty regarding water rights.*

Response: See General Response No. 1, Expression of Personal Opinions.

Letter 254 Commentor Kenneth E. Travous of Arizona State Parks

Comment 1 *Review of the Draft EIS has revealed no adverse effects to State Parks' operations in the region of the state where the Dos Pobres project is proposed.*

Response: Your comment has been noted. Thank you.

Comment 2 *...State Parks views the transfer of Tavasci Marsh part of the land exchange as a desirable enhancement to recreational access and activities in the Verde River Valley near Cottonwood and Clarkdale.*

Acquisition of the Tavasci Marsh property by Tuzigoot National Monument will allow partnership in development activities between the National Park Service and State Parks-Verde River Greenway.

Response: See General Response No. 1.

Letter 255 Commentor Mary Thomas of Gila River Indian Community

Comment 1 *GRIC suggests that BLM review those regulations applicable in the State of Utah and other states that may require a double synthetic liner system to determine whether such a system would be required under the circumstance present here. In that manner BLM can more adequately investigate and report on whether the project presents unnecessary or undue risk of environmental degradation.*

Response: Regarding use and specifications of a liner system in the MPO, BLM defers to the requirements of the ADEQ's Aquifer Protection Program (APP). PD must comply with the requirements of this program in order to secure an APP permit, which is necessary to commence mining regardless whether the land exchange is approved or not. The leach pad will be lined, but the development rock stockpiles do not warrant liners, as indicated by ABA studies of the development rock material.

Comment 2 *GRIC would like assurance that plans for zero discharge will not be changed or altered if the land exchange takes place. Again, if such changes are possible, GRIC finds it difficult to understand how BLM*

can adequately determine whether or not the land exchange will or will not result in undue degradation to the environment, including those related to cultural resource issues.

Response: PD has designed and engineered the Dos Pobres/San Juan mine facilities to meet EPA's zero-discharge standards for NPDES permitting under Section 402 of the Clean Water Act. EPA is a cooperator on this EIS and will make a permit decision on the application submitted by PD, regardless of whether mining occurs under an MPO or after a land exchange.

While BLM or even EPA cannot provide assurance that PD will not alter its permit application (if the land exchange occurs or even if an MPO is approved), BLM assures the Gila River Indian Community that PD must meet and comply with EPA's standards and requirements for NPDES to implement mining at Dos Pobres/San Juan. Any changes to its permit application or to the permit if it is issued would require additional EPA review for compliance and authorization. For federal or state environmental resources under other agencies' jurisdiction, BLM can make a determination that no undue degradation of the environment would occur if a proponent, PD in this case, adequately demonstrates compliance with the agencies' standards and requirements for resource protection.

Comment 3 *GRIC has not independently reviewed the modeling techniques but anticipates that, to the extent possible, actual withdrawal, impact to the aquifer and to the surface water flow of the Gila River (if measurable) will be available for public review. If not, this should be a condition of any permit to the maximum extent allowed by law.*

Response: The BIA's hydrological consultant, Stetson Engineers, undertook a lengthy and exhaustive review of the groundwater model, its input parameters, and output. Their report and conclusions are available to the Gila River Indian Community and to any other members of the public through the BIA during regular business hours.

To assure technical adequacy, a qualified third-party hydrologist will review monitor well data collected during the 3M Program, including the recalibrated model projection if warranted, and submit a report of findings to the COE. This report will be available to the public if release by the COE is requested under the Freedom of Information Act (FOIA) of 1966 as amended.

Comment 4 *To the extent that the proposed mitigation compensates for the loss of waters in the Gila River Watershed, GRIC is supportive of PD's decision to offer mitigation, of its approach to that mitigation, and its commitment to meeting its obligations by avoiding those potential losses. To the extent that the models described in draft form at Appendix F of the DEIS are accurate in predicting the Project's impact on the Gila River, PD's efforts should mitigate the loss of waters to the Gila River.*

Response: See General Response No. 1.

Comment 5 *GRIC is concerned that the land exchange alternative will remove those protection and policy considerations, making the sites and areas less accessible, subject to damage and/or destruction, and more difficult to use for prayer and other matters. Although Indian people may have quit using certain sites for a period of time after being restricted to reservations, having their religious practices made criminal acts, and having thereby lost knowledge of the sites' locations, that does not diminish the sites' significance.*

Response: See General Response No. 9, Cultural Resources Mitigation.

Comment 6 *If those laws and policies [pertaining to protection of cultural resources on public lands] are to be abandoned with respect to the TCPs identified on the federal lands by the execution of a land exchange agreement, it is critically important that BLM take appropriate steps to ensure that measures are taken prior to or contemporaneous with the land exchange in order to ensure that the TCPs are protected for the benefit of the tribes and the tribal people.*

Response: See General Response No. 9, Cultural Resources Mitigation. BLM considers loss of federal protection of cultural resources, including of TCPs, to be an impact of the land exchange and, as such, mitigation measures will be required if that alternative is selected.

Comment 7 *BLM can partially meet its obligations (under NAGPRA, and EO 13007) by either altering the MPO with respect to the location of the East Development Rock Pile, which will otherwise adversely impact the use of Site No. AZ CC:2:211, or, with respect to the land exchange alternative, by either transferring certain lands to the tribes, the Secretary of the Interior for the benefit of the tribes or by including restrictive and prescriptive covenants in the deed to the lands to provide for those items.*

Response: See General Response No. 9, Cultural Resources Mitigation.

Comment 8 *GRIC also believes that the issue of "ownership" of the numerous petroglyphs needs to be addressed. Either ownership of the petroglyphs should be established in the tribes prior to a land exchange agreement or any land exchange agreement should incorporate a provision describing the tribes' ownership of the items and sites.*

Response: See General Response No. 9, Cultural Resources Mitigation.

Comment 9 *GRIC is concerned that the section 5.2, addressing environmental justice concerns, is lacking in discussion and in addressing potential impacts of the Project. It must be noted that Environmental Justice includes disproportionate adverse environmental impacts in regard to cultural resources. Here, both approval of the Project MPO and approval of the land exchange would have that result. The tribes will suffer in a significant manner. GRIC also notes that this item may also be considered as a "cumulative impact" consideration. Increasingly, tribal people have seen their important traditional sites and objects destroyed or otherwise disappear.*

Chapter 7

Response: Executive Order 12898 on environmental justice addresses disproportionate human health, environmental, and economic effects on minority and low-income populations from the proposed facilities. While places of traditional importance to cultural groups and communities, including Indian tribes, are part of the environment, such places are identified, evaluated, considered, and mitigated under the provisions of the National Historic Preservation Act of 1966. This includes traditional cultural properties (TCPs) as described in National Register Bulletin No. 38. Archaeological sites to which eight Indian tribes ascribe traditional importance are identified in Chapter 3, Affected Environment, Section 3.2.4.2, and potential impacts to these sites are analyzed in Chapter 4, Environmental Consequences, Section 4.3.4.2.1.

In Table 5-2, BLM provides a Summary of Adverse Impacts of the Action Alternatives for the Dos Pobres/San Juan Project: Environmental Justice Analysis. Section 4.8.1.1 describes the unavoidable adverse impacts and discusses the impacts to archaeological sites, 23 of which may potentially be eligible for listing on the National Register of Historic Places as Traditional Cultural Properties (TCPs). The BLM's consultations with Indian tribes included tribal review and input regarding the data recovery plan. The cumulative effects discussion in Section 4.5 has been expanded in the FEIS to address potential cumulative impacts to cultural resources.

Letter 256 Commentor Peter Lahm of USDA, Forest Service

Comment 1 *Use of Safford PM10 background values should be re-considered. Were the values recorded in the Montezuma background representative in terms of meteorology and other pertinent factors? The EIS should additionally cite nearby air quality analyses that established precedence for Montezuma Castle PM10 background values. Background for NO2 needs to be re-assessed. Other air quality permit modeling analyses located in rural sites are not using zero background values. Receptors should be placed at nearby Class III Wilderness areas. Why wasn't an evaluation of meteorology included? Where is the description of current visibility conditions?*

Response: Each part of this multi-part comment is addressed separately below.

Montezuma Castle Data: The Final Air Impact Analysis followed the modeling protocol (provided in Appendix A of that report) developed for the Dos Pobres/San Juan Project Class II permit application. This protocol was approved by ADEQ. As explained in the response to Comment 15-1 above, PM10 data collected at the suburban Safford site were considered but further review indicated that the measured PM10 concentrations are not characteristic of the background levels that would be expected near the rural Dos Pobres/San Juan Project location. In selecting the Montezuma Castle site, the rural setting and general elevation of the Montezuma Castle were compared to the Dos Pobres/San Juan Project area and were found to be very similar. In ADEQ's response to the above referenced modeling protocol, ADEQ stated that Montezuma Castle is one of three PM10 background monitors in the state used to demonstrate background in minimal impact areas. ADEQ approved use of the rural Montezuma Castle data after reviewing the meteorological data used in the dispersion modeling. The ADEQ also established precedence for use of the Montezuma Castle data in ADEQ's approved air impact analysis conducted for the rural Sanchez Copper Project, located approximately 12 kilometers southeast of the Dos Pobres/San Juan project area.

Gaseous Background Values: Gaseous background concentration values were revised for the Final Air Impact Analysis. The background concentrations used, and justifications for their use, were as follows.

Background NO2: According to the latest air quality data published by the ADEQ (Air Quality Report, Appendix I to the 1998 Annual Report, which summarizes 1997 data) NO2 monitoring was conducted in St. Johns, Springerville, Page, Phoenix, Scottsdale, Palo Verde, Alomas Way (Bullhead City), and Tucson. These monitoring sites are close to major NOx emission sources such as electric power generating stations or metropolitan areas. Therefore, use of maximum monitoring data obtained at these sites to represent rural background conditions would be very conservative is not appropriate. For that reason, the lowest NO2 concentration measured at these sites was used (2 =B5g/m3 from the Springerville monitoring site located 4 miles northeast of town).

Background CO: No rural CO monitoring sites exist. Consequently, use of monitoring data obtained from any of the CO monitoring sites to represent background conditions would be very conservative. Thus, the monitoring site with the lowest measured CO concentrations, Casa Grande, was used to represent background conditions. During 1997, the highest 1-hour and 8-hour CO concentrations measured at the Casa Grande site were 1,714 micrograms/m3 (1.5 ppm) and 1,486 micrograms/m3 (1.3 ppm), respectively. These values were conservatively used as rural background CO concentrations in the modeling analysis.

Background SO2: There are a number of SO2 monitoring sites located throughout the state. As with the NO2 monitoring sites, however, many of these monitoring sites are located near electric power plants or metropolitan areas, while the others are located near smelters. These sites will provide unrealistically high estimates for background SO2 concentrations in the rural project area.

Consequently, background concentrations were conservatively represented by the lowest 3-hour, 8-hour, and annual SO2 concentrations measured from the less developed Springerville site during 1997. These values, recorded from the Springerville monitoring site located 4 miles northeast of town, are 55 micrograms/m3, 13 micrograms/m3, and 1 micrograms/m3, respectively.

Receptors: Although receptors were not placed in specific Class II Wilderness Areas, special receptors were placed in the mandatory Federal PSD Class I Gila and Galiuro Wilderness Areas, in the San Carlos Apache Reservation, in downtown Safford, at the Safford Airport, and at the nearest residence. In addition, the general receptor grid used in the modeling extended outward approximately 4 kilometers from the process area boundary. The modeling results indicate impacts decrease rapidly with increasing distances from the project area. Potential impacts at distant Class II wilderness areas would be much less than the maximum values reported in Table 4.1 of the Final Air Impact Analysis, and can be interpolated from the modeling results for other receptor locations.

Meteorology: A detailed evaluation of the meteorological data is included in Section 3.3 of the Final Air Impact Analysis.

Visibility: As reported in Section 5 of the Final Air Impact Analysis, the background visibility conditions assumed in both mandatory Federal PSD Class I areas was 110 kilometers, a value much cleaner (more clear) than would be expected under the meteorological assumptions applied in the Level 1 and Level 2 visibility screening analyses. In addition, at the request of the U.S. Forest Service, the Secondary Air Impact Analysis for the Environmental Impact Statement for the Dos Pobres/San Juan Project Based Upon

an Alternative Emissions Inventory, October 4, 1999, also examined potential visibility impacts at both mandatory Federal PSD Class I areas assuming the very clean (clear) background of 238 kilometers. Regardless of the background assumptions applied, emissions from the Dos Pobres/San Juan Project would not cause visibility impacts in either the Galiuro or Gila wilderness mandatory Federal PSD Class I areas.

Comment 2 *Simple maximum impact (not modeling) of VOC in terms of ozone formation should be conducted. VOC analysis and calculation of emissions should be conducted using similar conservative methods used in Carlotta Project EIS July 1997. The EIS needs a comprehensive emission inventory of the sources including citation of AP-42 calculation methods used. Any emission reduction credit through the use of mitigation measures should be specifically cited along with criteria for use. The rate and standard/criteria for application of water and/or palliatives used on haul roads should be specified. What are the total uncontrolled and controlled emissions for the alternatives?*

Response: The Final Air Impact Analysis contains an evaluation of VOC emissions with respect to Arizona Ambient Air Quality Guidelines (AQGs). Moreover, VOC emissions are expected to be extremely low, much less than the major source thresholds, as well as ADEQ significant emission rates. Generally, the effect of such low VOC emissions on ozone formation is negligible, and ozone modeling for this proposed source was not required by ADEQ.

The Final Air Impact Analysis also contains a complete emissions inventory with an associated section on calculation methodology. All assumptions are explained and all AP-42 methods are cited (including control and capture efficiencies). Site and process flow diagrams are also included. The Final Air Impact Analysis also contains a complete explanation of the dispersion modeling methodology including explanations and justifications for the various modeling approaches and techniques that were used.

Comment 3 *The visibility analysis has no basis for review since there are no emissions, example model runs with inputs or sample outputs provided. The analysis indicates that the Galiuro Wilderness required a Level 2 analysis indicating that impacts were found in the Level 1 step. Is this true? What background visual range values were used and from what sites. What seasons were used. Why were the current visibility conditions omitted from a description of current condition? Was the 90th percentile visibility condition the basis of the analysis? What criteria were used to indicate "no impacts to visibility" in the Class I areas? ...What screening values were used?*

Response: The Final Air Impact Analysis contains a revised visibility impact analysis complete with a full explanation of the methodology that was used and inclusion of modeling input and output files. The visibility impact in the Final Air Impact Analysis follows the EPA guidelines for conducting such analyses.

To address U.S. Forest Service concerns regarding default visibility impact screening criteria, a separate visibility analysis was conducted and submitted to the BLM as part of the document: Secondary Air Impact Analysis for the Environmental Impact Statement for the Dos Pobres/San Juan Project, Based Upon an Alternative Emissions Inventory, October 4, 1999. The visibility impact analysis contained in this report is based on the more stringent U.S. Forest Service screening criteria.

Comment 4 *Since no emissions were provided in the draft EIS, how can the statements made in this section be supported? Were haul road mileages changed? This type of conclusion requires documentation including a map which shows the sources and how they change between alternatives.*

Response: As stated in response 256-2, the Final Air Impact Analysis contains a complete emissions inventory with an associated section on calculation methodology, along with all the proper documentation and references for the critical assumptions that were made. Maps showing source locations and tables listing source parameters are also included. All necessary documentation to support the stated conclusions is included in the Final Air Impact Analysis.

Comment 5 *The proponent has several mining holdings in the area which if run simultaneously and are potentially adjacent to each other may have significant enough emissions to move beyond minor source classification. How are these other areas and operations being considered? The Sanchez Project is already permitted and not considered in any cumulative analysis or linked to these adjacent proposed facilities. The role of the ADEQ air permit and its role in enforceable conditions needs to be discussed. The concept of how maximum production rates relates to the emissions calculated and air quality impact analysis needs discussion. Will there be a production cap in the air quality permit to ensure the public that emissions from this action will not exceed the stated emissions in the EIS? This concept should be seriously considered as an element in the permit and Plan of Operations.*

Response: The Dos Pobres/San Juan Project is considered a separate, stand-alone facility, or stationary source, for purposes of air permitting and air impact analysis. While the undeveloped Sanchez Copper Project has an air permit, it is not adjacent or contiguous to the Dos Pobres/San Juan Project since the Sanchez mine is located approximately seven miles southeast of the San Juan mine. Any significant changes in project facilities or operating rates resulting in higher potential emission rates of the Dos Pobres/San Juan Project would be subject to modifications to the air quality permit. Additionally, potential future development by PDSI of other mineral resources in the area would result in ADEQ review to determine whether such development would be considered separate or whether it is adjacent and/or contiguous to the Project requiring treatment as an expansion to the permitted stationary source.

The air quality impact analysis for the Dos Pobres/San Juan Project incorporated emission rates (potential to emit) based on maximum daily and annual production rates. ADEQ is responsible for protecting National Ambient Air Quality Standards (NAAQS) through appropriate permit conditions and limitations to limit project emissions to those quantities used in the air impact analysis that demonstrated protection of

Responses to Comments

the NAAQS. As ADEQ has not yet issued their permit to PDSI, BLM does not know what specific permit conditions, limitations, or combination thereof the agency will require to ensure protection of NAAQS.

- Letter 257 Commentor Charles Vargas of Future San Carlos Chamber Commerce
- Comment 1 *...there is no discussion throughout the DEIS of San Carlos Apache issues pertaining to social impacts, economic, above and underground water issues as well as soil / land issues and what environmental effects the operation would have on surrounding lands including the San Carlos Apache Reservation.*
- Response: To the degree that they may occur, impacts to the San Carlos Apache people and the San Carlos Apache Reservation were identified and disclosed throughout Chapter 4 of the DEIS.
- See response 238-1.
- Comment 2 *...there is no effective mitigation plan for the control of hazardous materials that the Apache Community will see increasing with the proposed project passing through our boundaries. With depressed economic conditions that exist on the reservation there is no Hazardous Materials Task Force proposed or even considered. Given the Apache People will be subjected to the increased possibility of having a Hazardous Materials accident there should be some plan for emergency circumstances as well as equipment and personnel in the area.*
- Response: See General Response No. 14, Hazardous Materials.
- Comment 3 *All water resource data sited are questionable by BIA's understanding and USGS confirmation as what ground water recourses are in the Gila basin. To base formulas and projections of water use from this nonfactual information is questionable to say the least but should raise a serious question to BLM of water resource uses and trust responsibilities to not only the U.S. taxpayer but the San Carlos Apache Tribe. These problem areas we are vary concerned with as they will impact our future ground water needs and possible uses in our economic development. No in-depth mitigation plan was covered for possible ground water contamination and possible effects to the Gila River flow, which feeds San Carlos Lake.*
- Response: A significant amount of the water resources data used for the purposes of the EIS was obtained from USGS and published USGS Water Resources Data reports. Additional data were obtained from published literature on the hydrogeology of the Safford area, which is generally recognized by the scientific community at large. Furthermore, the model underwent rigorous scientific review by BLM's review hydrologist Dr. Robert MacNish of the University of Arizona, BLM and USGS hydrologists, and by BIA's hydrology contractor, Stetson Engineers. The discrepancies in model results identified by Stetson Engineers' in their review/rerun of the model are not significant and within expected levels of error for the model. A detailed plan for mitigation of projected effects on surface flow in the Gila River is provided in Appendix F of the EIS; no surface water quality effects are predicted for the Gila River therefore no mitigation has been proposed. See also General Response No. 16, Groundwater Model Review.
- Comment 4 *We oppose any steps forward toward the development of the Dos Pobres/San Juan project. Citing lack of effective mitigation plans for water and hazardous waste control and concerning all aspects of impacts to our community and lack of involvement in planning such a project with potential great impact to our people we do not agree with any land trades between the BLM and the Phelps Dodge Corporation.*
- Response: See General Response No. 1.
- Letter 258 Commentor Gail Hansous of Future San Carlos Chamber Commerce
- Comment 1 *...there is no discussion throughout the DEIS of San Carlos Apache issues pertaining to social impacts, economic, above and underground water issues as well as soil / land issues and what environmental effects the operation would have on surrounding lands including the San Carlos Apache Reservation.*
- Response: See response 238-1.
- Comment 2 *...there is no effective mitigation plan for the control of hazardous materials that the Apache Community will see increasing with the proposed project passing through our boundaries. With depressed economic conditions that exist on the reservation there is no Hazardous Materials Task Force proposed or even considered. Given the Apache People will be subjected to the increased possibility of having a Hazardous Materials accident there should be some plan for emergency circumstances as well as equipment and personnel in the area.*
- Response: See General Response No. 14, Hazardous Materials.
- Comment 3 *All water resource data sited are questionable by BIA's understanding and USGS confirmation as what ground water recourses are in the Gila basin. To base formulas and projections of water use from this nonfactual information is questionable to say the least but should raise a serious question to BLM of water recourse uses and trust responsibilities to not only the U.S. taxpayer but the San Carlos Apache Tribe. These problem areas we are vary concerned with as they will impact our future ground water needs and possible uses in our economic development. No in-depth mitigation plan was covered for possible ground water contamination and possible effects to the Gila River flow, which feeds San Carlos Lake.*
- Response: See response 257-3. See also General Response No. 16, Groundwater Model Review.
- Comment 4 *We oppose any steps forward toward the development of the Dos Pobres/San Juan project. Citing lack of effective mitigation plans for water and hazardous waste control and concerning all aspects of impacts to our community and lack of involvement in planning such a project with potential great impact to our people we do not agree with any land trades between the BLM and the Phelps Dodge Corporation.*
- Response: See General Response No. 1.

Chapter 7

- Letter 259 Commentor Richard Begay of The Navajo Nation
Comment 1 *The Navajo Nation does not have any concerns regarding this project; however, we thank your office for making a commitment to consulting with Native American people who may have an interest in the area.*
Response: Thank you for your comment.
Comment 2 *RE: Appendix D. In our work we have found that archaeological sites are often eligible for protection under more than one criteria, especially if they have been found to be a TCP. Navajo TCPs are usually associated with deities as well as significant events and archaeological sites are often TCPs.*
Response: See General Response No. 9, Cultural Resources Mitigation.
- Letter 260 Commentor Amy J. Hurt of Ingersoll-dresser Pump Company
Comment 1 *I am writing in order to show my support for the permitting of the planned Phelps Dodge Safford Project.*
Response: See General Response No. 1.
- Letter 261 Commentor Thomas & Carole Aston of Gold Tooth Mine
Comment 1 *IS ANY PORTION OF Section 7 and 8 of T17N,R3E G&SRB&M IN YAVAPAI COUNTY, ARIZONA aka "Packard Ranch" at Sycamore Creek & Verde River in the USDA Prescott & Coconino National Forest EFFECTED BY THE PROPOSED LAND EXCHANGE?*
Response: No, the Tavasci Marsh parcel as described in the EIS (legal description is provided in Appendix B) is the only property in the Verde Valley involved in the proposed land exchange.
Comment 2 *DO ANY CURRENT POWER TRANSMISSION LINE TRAVERSE ANY PORTION OF THE PHELPS DODGE CORPORATION LANDS OFFERED IN THIS EXCHANGE? ...CAN POWER TRANSMISSION LINES BE UP GRADED TO CURRENT STANDARDS after an exchange takes place?*
Response: No power lines cross the offered lands. As stated in the DEIS, a buried telephone line of the Valley Telephone Cooperative (VTC) is located on the Musnicki property, although VTC does not have a formal right-of-way or other easment. Section 3.3.1.2.1 of the FEIS has been revised to disclose this fact. Since there are no power lines crossing the offered lands, it is beyond the scope of this analysis to determine whether transmission lines can be upgraded to current standards if the exchange is selected.
- Letter 262 Commentor Jim Slawson of National Marine Fisheries Service
Comment 1 *The National Marine Fisheries Service has reviewed the following Public Notice (from the COE) and does not object to the issuance of a permit for the proposed activities.*
Response: See General Response No. 1.
- Letter 263 Commentor Jack A. Henry
Comment 1 *I am in support of the project and believe it is in the best interests of the community overall and for the State of Arizona.*
Response: See General Response No. 1.
- Letter 264 Commentor David P. Kimball, III
Comment 1 *I would like to register my support in the official record for this project.*
Response: See General Response No. 1.
- Letter 265 Commentor Peter D. Shumway
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. I'm particularly supportive of the preferred land exchange alternative outlined in the Draft Environmental Impact Statement (Draft EIS).*
Response: See General Response No. 1.
- Letter 266 Commentor Phillip H. Downing of Projects West, Inc.
Comment 1 *I am writing in support of the Phelps Dodge Dos Pobres/San Juan Project. ...I write in support of the preferred land exchange alternative outlined in the Draft Environmental Impact Statement (Draft EIS).*
Response: See General Response No. 1.
Comment 2 *...I think the BLM deserves recognition for their thorough review of the issues associated with the development of the mine.*
Response: See General Response No. 1.
- Letter 267 Commentor E. Michael Schern of Phelps Dodge Safford, Inc.
Comment 1 *The document adequately describes the procedural steps that were taken by BLM once Phelps Dodge submitted the Mine Plan of Operations (MPO); however, the text does not adequately explain why the change (MPO submittal) was made and why that change affected the scope of NEPA analysis.*

...The BLM should note in the document that submittal of the MPO by Phelps Dodge and the resulting change in course of the NEPA process was not simply a convenience to the project proponent, but provided the agency decision makers and the public additional information and analysis of the foreseeable uses of the selected lands.
Response: This comment has been addressed by revising Section 1.3.

Responses to Comments

- Comment 2 *This section (Section 1.5.3) incorrectly states, on page 1-9, that Phelps Dodge, through its following plan, is changing use of water rights on lands it owns that are subject to the Decree in Globe Equity No. 59, that it is changing its points of diversion for these water rights, and that it is changing the place of use of these water rights. From these factually incorrect assumptions, the draft then incorrectly concludes that Phelps Dodge must obtain the Decree Court or the Gila Water Commissioner's approval of Phelps Dodge's following plan.*
- Phelps Dodge is not proposing to change the point of diversion, the type of use, or the place of use of any of its water rights on agricultural lands that it owns that are subject to the Decree in Globe Equity No. 59.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 3 *...the suggestion in the fourth paragraph on page 1-9 that Phelps Dodge must seek the Globe Equity Court's or the Gila Water Commissioner's approval of a following program is legally incorrect, particularly since the following program does not involve any change in place or type of use or any change in diversion points. Any landowner with water rights under Globe Equity No. 59 may fallow its land at any time, without the approval of the Court or the Gila Water Commissioner. There is no provision in the Decree either requiring such approval or authorizing either the Gila Water Commissioner or the Court to grant approval for a landowner to fallow land.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 4 *...to the extent that ephemeral flows in washes which are tributary to the Gila River were to be diverted and retained at the mine site for environmental purposes, these diversions would not be "waters of the Gila River" because they have not reached the Gila River. The diversion of such flows is no more subject to the jurisdiction of the Court in Globe Equity than are diversions of appreciable water on the upstream tributaries of the Gila River...*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 5 *...BLM does not have the authority to withhold administrative action on either of the proposed actions until such time as the Globe Equity Court or some other court deals with water rights issues associated with the mine. ...as a matter of law, withholding action on a ROD until a (relatively minor) mitigation measure is approved is inappropriate.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 6 *...BLM should include text to fully describe the insignificant nature of the potential impacts to flows in the River that may result from project activities. As mentioned above, the mitigation plan will likely reduce an already insignificant impact to no impact.*
- Response: The discussion of water rights authority in the first chapter of the EIS addresses issues pertaining to the regulatory authorities under which BLM must consider the Proposed Action. BLM has revised this section to summarize the projected environmental impacts to waters of the Gila River and refer readers to Chapter 4. The last sentence of the Proposed Action alternatives analysis in Section 4.3.2.6.1 characterizes the magnitude of the potential impacts to flows in the River as less than one percent of the river's lowest annual mean flow.
- Comment 7 *The Gila River is not an intermittent stream. It is a perennial stream which, at certain times, is diverted in its entirety.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 8 *Re: Page 1-8, second paragraph. The second paragraph does not adequately describe the projected impact, i.e., that the maximum project groundwater impact of 35.4 acre-feet per year may occur only after 416 years. The paragraph should recognize that projected groundwater impacts are within the margin of error of the groundwater model which projects the impact. The paragraph also does not deal with the capture of sheet flows at the project.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 9 *Re: Page 1-8, third paragraph. The third paragraph does not fully describe the following program, particularly the fact that the program will result in lower diversions during the high-flow winter months, when priority demands are low, which will allow water to flow in the River that would otherwise have been diverted by Phelps Dodge. At a minimum, the paragraph should contain cross-references to Section 4.9 of the draft EIS and to Appendix F, in which the following plan is more fully described.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS. Also, the Alternate Year Fallowing Program described in the MMP (Appendix F) has been enhanced since publication of the DEIS.
- Comment 10 *Re: Page 1-9, second paragraph. The paragraph incorrectly implies that because Phelps Dodge owns agricultural lands that are subject to the Globe Equity Decree, all of Phelps Dodge's activities, even those outside the Decree area, are subject to the Decree. ...The paragraph also incorrectly implies that Phelps Dodge is proposing to change its point of diversion or the type or place of use of its decreed water rights, which is not the case. Phelps Dodge intends to leave its existing Globe Equity water rights in place and to exercise those rights, on an alternating year basis, for agricultural purposes.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 11 *Re: Section 1.6.2.2.4, Regulatory/Permitting, Aquifer Protection Permit. Under this section, the statement is made that "the ADEQ requires quarterly monitoring of wells...". Phelps Dodge's APP application, submitted on October 2, 1998, does not specify a sampling frequency. Monitoring requirements, including the frequency of monitoring, will be specified in the permit to be issued by the ADEQ.*

Chapter 7

- Response: This section has been corrected to reflect this information.
- Comment 12 *No Indian water rights "pertain" to the Project. Rather, the Gila River Indian Community and the San Carlos Apache Tribe have water rights which are located in the general vicinity or area of the Project.*
- Response: This statement has been revised in the EIS.
- Comment 13 *Re: Section 4.3.1.6.1, Surface water rights. The second paragraph is in error in that proposed water usage at the mine site is legal under current law, which allows groundwater to be pumped for reasonable use. In addition, the capture of sheet flows of water, i.e., water which has not entered a water course, which will occur at the mine site, is permissible under State law and is not subject to the rights of appropriators. Finally, to the extent that the Project captures ephemeral flows in normally dry stream beds to avoid the discharge of contaminants, the capture of such water is unlikely to interfere in any unlawful manner with the rights of senior appropriators, for a variety of reasons. It is incorrect to characterize water uses at the mine site as "illegally" taking higher priority water rights.*
- Response: This comment has been addressed by revising Sections 1.5.3 and 4.3.1.6.1 of the EIS.
- Comment 14 *Re: Section 4.3.2.6, Surface Water/Surface Water Quantity. ...the third sentence should be changed to read "It will take more than 2,000 years for the total volume of water captured from the Gila River to approach the total volume of water to be pumped by the mine (MacNish 1998), about 68,347 af.*
- Response: The 2002 groundwater model run extended for a period of 3000 years into the future. Extrapolating from the model results, it appears that the total volume of water captured from the Gila River will approach the total volume of water to be pumped for the mine approximately 8000 years into the future. This revised information is reported in the EIS.
- Comment 15 *Re: Section 4.3.5.3.3, Schools. This section should be revised to reflect the fact that the school district boundary bisects the project area and the Solomon School District will also benefit from increased property taxes to be paid by Phelps Dodge.*
- Response: This comment has been addressed by revising Section 4.3.5.3.3.
- Comment 16 *Re: Section 4.4.6.1.1, Selected Lands. The paragraph incorrectly assumes that these impacts, if they occur, are unlawful. The impacts, if they occur, are lawful even if unmitigated, for the reasons stated in the comment to Section 4.3.1.6.1 and to Section 1.5.3 above.*
- Response: Nowhere does this paragraph assume or imply that impacts to Indian Trust Resources are unlawful. Rather, this paragraph simply states that if impacts to Gila River flows are unmitigated, there would be impacts to Indian water rights, a trust resource.
- Letter 268 Commentor L. Anthony Fines of Gila Valley and Franklin Irrigation Districts
- Comment 1 *Since the District Court Ninth Circuit Court of Appeals elected to wait for the decision from the state courts, apparently those courts have rejected the interpretation the Draft Environmental Impact Statement that the Decree prohibits more than interference with the subflows and surface flows of the Gila River.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Comment 2 *...under the Draft Environmental Impact Statement, the BLM, ignoring rulings by the District Court, proposes to preemptively impose its interpretation of the Decree on Phelps Dodge. ...The BLM should leave the interpretation of federal decrees to the courts, especially when those decrees do not deal with environmental issues and when, as here, the issue of interpretation has been presented to the court and is awaiting decision. ...it is respectfully urged that the portions of the Draft Environmental Impact Statement that purport to interpret the Decree in Globe Equity 59 and which require steps by Phelps Dodge to comply with the Decree be omitted from the final Environmental Impact Statement.*
- Response: This comment has been addressed by revising Section 1.5.3 of the EIS.
- Letter 269 Commentor Don Higgins
- Comment 1 *I believe that the Draft E.I.S. on the Safford Project does not adequately address the impacts on the nighttime environment in regard to light pollution.*
- Response: See General Response No.12, Nighttime Lighting.
- Comment 2 *Hauling and stockpiling at night, with dust illuminated by spotlights, may create a canopy of light pollution over the project that will be visible for miles as "sky glow". Perhaps there is an option for use of switches or motion sensors on these "safety lights" to activate the fully-shielded spot lights when trucks are present?*
- Response: See General Response No.12, Nighttime Lighting.
- Comment 3 *Impacts of 24-hour operations on the astronomical observatory at Discovery Park, on the high ground on the south side of Safford, are not mentioned in the EIS.*
- Response: See General Response No.12, Nighttime Lighting.
- Comment 4 *Impact of increased light pollution on the astronomy program at Eastern Arizona College in Thatcher is not addressed in the E.I.S..*
- Response: See General Response No.12, Nighttime Lighting.
- Comment 5 *The phrase, in section 4.3.1.8, that "night time operations of the project are not expected to effect astronomical observations on Mt. Graham" is an undocumented assertion that needs to be verified with Mt. Graham astronomers. ...no indication of discussions with nighttime neighbors is documented in support of PD's assumptions.*
- Response: See General Response No.12, Nighttime Lighting.

Responses to Comments

Comment 6 *...why would any night lights at the project be visible from Safford? Why should any light be in trespass off the mine site? Why should the "truck shop" and "SX/EW plant" be visible at night from miles away in the Gila Valley?*

Response: See General Response No.12, Nighttime Lighting.

Comment 7 *No mention is made of long-term effects [of lighting] on citizens of the Gila Valley, including Safford, who live in closer proximity to the project.*

Response: See General Response No. 12, Nighttime Lighting.

Comment 8 *Please re-write Section 3.2.1.8.5 to clarify the message therein. Surely PD is not suggesting that because of massive light pollution from the prison, the few existing lights at Site # 2 are inconsequential? What does this section address, in simple language? Pre-existing conditions? I trust that it does not imply that because the east side is already impacted by light pollution, that PD's project won't matter much. Light pollution effects are cumulative, not self-correcting.*

Response: See General Response No. 12, Nighttime Lighting.

INDEX

	Page
A	
access	S-4, S-5, S-8-10, 1-7, 1-14, 1-16, 2-5, 2-14, 2-15, 2-23, 2-28-32, 2-34, 2-39, 2-41, 2-43-45, 2-48, 3-3-5, 3-8, 3-15, 3-60, 3-62, 3-64, 3-66, 3-74, 3-81, 3-87, 3-91, 3-97, 3-101, 3-106, 4-3-6, 4-9, 4-13, 4-18, 4-19, 4-35, 4-37, 4-43, 4-55, 4-57-60, 4-63, 4-70, 4-83-85, 4-90, 4-94, 4-113, 4-120, 4-122-125, 7-2, 7-6, 7-9, 7-11
acid	S-3, S-4, S-6, S-7, 1-4, 1-6, 1-7, 1-17, 1-24, 2-3-5, 2-8, 2-11, 2-12, 2-15, 2-16, 2-21-24, 2-27, 3-15, 3-18, 3-28, 3-69, 4-12-14, 4-28, 4-30, 4-31, 4-54, 4-105, 5-6, 7-4, 7-14, 7-15
aggregate	S-4-5, 2-14-16, 2-34, 4-7, 4-9, 4-19, 4-42, 4-69
agriculture	S-10, 1-10, 1-12, 1-14, 1-16, 2-29, 3-1, 3-6, 3-10, 3-12, 3-27, 3-42, 3-54-56, 3-69, 3-72, 3-74, 3-78, 3-81, 3-98, 3-110, 4-4, 4-16, 4-27, 4-45, 4-61, 4-77, 4-93, 4-95, 4-96, 4-102, 4-108, 4-110, 4-111, 4-120, 5-2, 6-1, 7-12
air pollution	3-15
air quality	S-2, S-7, S-10, 1-4, 1-7-9, 1-14, 1-17, 1-21, 1-22, 2-1, 2-6, 2-25, 2-34, 3-15, 3-16, 3-65, 4-13, 4-15, 4-17, 4-18, 4-68, 4-92, 4-105, 4-106, 4-116, 4-122, 6-4, 7-7, 7-13
Air Quality Control Region (AQCR)	1-14, 1-20, 1-21, 2-39, 2-40, 2-42, 2-46, 2-48, 3-16, 3-18, 4-15, 4-69, 6-4, 7-9, 7-10
Airport Road	3-4, 3-5, 3-60, 3-61, 4-54
airshed	1-17, 3-16-18, 4-68
Ak-Chin Indian Community	3-48-51, 5-3
allotment	2-15, 3-3, 3-7, 3-9, 3-10, 3-64, 3-69, 3-87, 3-92, 4-5, 4-59, 4-61-63, 4-103, 4-104, 4-122
Alternate Year Following Program	1-11, 4-23, 4-25, 4-27, 4-39, 4-40, 4-54, 4-55, 4-90, 4-108, 4-109, 5-4
Amado property	2-42, 3-63-64, 4-87
American Indian Religious Freedom Act (AIRFA)	1-7, 3-48, 4-83, 4-112, 4-119
appraisal	
aquifer	S-2, S-6, S-8, 1-4, 1-8, 1-9, 1-21, 1-22, 1-24, 2-1, 2-12, 2-22, 2-23, 2-32, 3-14, 3-22-25, 4-12, 4-23, 4-25, 4-26, 4-29, 4-31, 4-70, 4-71, 4-102, 4-107, 4-110, 4-117, 7-7, 7-16, 7-17-7-21
Aquifer Protection Permit (APP)	S-2, S-6, S-7, S-8, 1-4, 1-8, 1-9, 1-21, 1-22, 2-1, 2-22, 2-23, 2-28-30, 2-33, 2-32, 3-14, 4-12, 4-19, 4-25, 4-26, 4-29, 4-58, 4-71, 4-96, 4-102, 4-107, 4-110, 4-117, 7-7, 7-8, 7-16
Aquifer Water Quality Standard (AWQS)	3-25, 3-26, 3-28, 4-31, 4-32
Aravaipa Canyon Wilderness	3-5, 3-54
archaeological	S-10, 1-8, 1-14, 1-17, 3-46-49, 3-64, 3-65, 3-74, 3-86, 3-90, 3-91, 3-93, 3-98, 4-1, 4-42, 4-43, 4-81-84, 4-112, 4-113, 4-119, 4-120, 4-123, 4-126, 5-6, 7-11
Area of Critical Environmental Concern (ACEC)	1-16, 3-4, 3-5, 4-3, 4-56
Arizona Department of Environmental Quality (ADEQ)	S-1, S-2, S-5, S-6, 1-4, 1-7, 1-9, 1-21-23, 2-1, 2-9, 2-14, 2-16, 2-22, 2-23, 2-47, 3-14-16, 3-27, 4-3, 4-12, 4-13, 4-16, 4-26, 4-68, 4-71, 4-97, 4-99, 4-101, 4-102, 4-106, 4-107, 4-109, 5-2, 7-7, 7-14
Arizona Department of Transportation (ADOT)	3-62, 4-94, 5-2
Arizona Department of Water Resources (ADRW)	1-11, 1-12, 2-22, 3-8, 3-11, 3-12, 4-64, 4-65, 4-102, 5-2, 7-24
Arizona Game and Fish Department (AGFD)	2-44, 3-6, 3-33, 3-34, 3-37-45, 3-68, 3-69, 3-72, 3-74, 3-76, 3-78, 3-81, 3-84, 3-86, 3-90, 3-96, 3-98, 3-100-102, 3-105, 3-110, 4-3, 4-4, 4-36, 4-37, 4-59, 4-60, 4-76, 4-77, 4-80, 4-81, 4-94, 4-96, 4-97, 5-2, 7-24

INDEX

Page

Arizona hedgehog cactus	3-36, 3-37, 4-39, 4-77, 7-9
Arizona Mined Lands Reclamation	1-8, 1-21-23
Arizona Native Plant Law	1-9, 3-37, 3-44, 3-68, 3-72, 3-76, 3-81, 3-86, 3-90, 3-96, 3-100, 3-105, 3-110, 4-77, 4-78
Arizona Pollutant Discharge Elimination System (AZPDES)	S-2, 1-4, 1-7, 1-8, 1-22, 1-23, 2-1 2-25, 4-3, 4-27, 4-28, 4-30, 4-72, 7-7
Arizona Water Quality Assurance Revolving Fund	3-13, 3-64, 4-11
Army Corps of Engineers (COE)	S-1, S-2, S-5, S-9, 1-1, 1-3, 1-4, 1-5, 1-6, 1-10, 1-12, 1-21, 1-22, 2-1, 2-2, 2-16, 2-35, 2-36, 2-46, 2-47, 3-29, 3-46, 4-2, 4-3, 4-6, 4-34, 4-56, 4-70, 4-72, 4-74, 4-77, 4-78, 4-81, 4-111, 4-115-121, 5-1, 6-2, 7-1, 7-2, 7-4, 7-7, 7-8, 7-12
artesian	3-24, 3-26, 3-38, 4-25, 4-26, 4-28, 4-39, 4-79
ATI	1-2, 3-7, 4-63
attainment	3-15, 4-13

B

Back County Byway	3-54
backcountry driving	3-5, 3-97, 3-101, 4-60
Best Available Demonstrated Control Technology (BADCT)	S-6, 2-9, 2-22, 2-23, 4-25, 4-26, 4-28, 4-67, 4-71, 4-107, 4-110, 4-125
biodiversity	S-10, 1-14, 1-17, 3-45, 3-46, 4-41, 4-42, 4-81, 4-103, 7-2
Black Hills Rockhound Area	3-54
blasting	S-2, 1-16, 1-24, 2-7, 2-17, 2-24, 2-34, 3-10, 4-7-9, 4-13, 4-64, 4-65, 4-122, 4-126, 5-6
Blue Jay Mine Area	3-20
Bonita Creek	1-15, 1-19, 2-42, 3-5-7, 3-9, 3-10, 3-26, 3-35, 3-38, 3-40, 3-42-44, 3-54, 3-58, 3-63-65, 4-3, 4-5, 4-20, 4-21, 4-23, 4-24, 4-26, 4-28, 4-39-41, 4-52, 4-55, 4-57, 4-59, 4-60, 4-62, 4-65, 4-72, 4-73, 4-77, 4-79, 4-94, 4-96, 4-97, 4-101, 4-102, 4-107-109, 4-117, 4-118, 7-17-7-20
bridge	S-5, 2-15, 2-23, 3-1, 3-39, 3-41, 3-60, 3-62, 4-12, 4-54, 4-94, 4-96, 7-14, 7-15, 7-18
Bryce Road	2-15, 3-60, 3-61, 4-54
Butler Wash	3-26, 3-28, 4-27, 4-29
Butler-Borg property	2-44, 3-87, 3-91-93, 3-95, 3-96, 4-87
Butte Fault	3-18, 3-20, 3-22, 3-23, 3-26, 4-23, 4-24, 7-19
Bylas	3-53, 3-55, 4-45, 4-46, 5-5

C

California leaf-nosed bat	3-33, 3-35, 3-37, 3-41, 3-67, 3-70, 3-75, 3-79, 3-85, 3-88, 3-93, 3-99, 3-103, 3-108, 4-41, 4-80
cave myotis	3-33, 3-35, 3-37, 3-41, 3-67, 3-70, 3-75, 3-79, 3-84, 3-89, 3-93, 3-99, 3-103, 3-108, 4-41, 4-80
Cienega Creek	2-43, 2-44, 3-74, 3-76, 3-98, 3-101, 3-102, 3-106, 4-96, 4-97, 4-103
Clean Air Act (CAA)	1-8, 1-9, 1-21, 2-1, 2-47, 3-15, 3-16, 4-6, 4-17, 4-56, 4-68, 4-96, 4-124, 7-1, 7-7, 7-8
Clean Water Act (CWA)	S-1, S-2, S-9, 1-1, 1-3, 1-4, 1-5, 1-6-8, 1-21, 1-22, 2-1, 2-2, 2-6, 2-35, 2-36, 2-46, 2-47, 3-29, 3-46, 4-2, 4-28, 4-30, 4-34, 4-56, 4-72-74, 4-81, 4-96, 4-99, 4-109, 4-110, 4-117, 4-124-126, 6-2, 6-4, 7-7, 7-8
Clyne I property	2-45, 3-78, 3-98, 3-100-103, 3-105
Clyne II property	2-45, 3-102, 3-106-110, 4-61, 4-87

INDEX

Page

compactible soil	S-4, 2-5, 2-9, 2-14, 2-34, 2-36, 3-21, 4-9
Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA)	1-8, 1-23, 3-13, 3-82, 4-11
Cottonwood Spring	3-12, 3-26, 3-29, 3-31, 3-32
Cottonwood Wash	S-3, 2-9, 2-17, 2-18, 2-21, 3-11, 3-25, 3-26, 3-29, 3-32, 4-29, 4-30, 4-33
Coyote Wash	2-17, 3-26, 4-29
criteria pollutant	1-17, 3-15, 3-16, 4-13, 4-14, 4-18, 4-68, 4-122
critical habitat	S-10, 3-34, 3-35, 3-38-40, 3-65, 3-84, 4-40, 4-41, 4-79, 4-80, 4-109, 4-111, 4-112, 4-118, 4-119, 5-2, 7-9
crushing	S-2-4, 1-7, 1-22, 2-2-4, 2-7, 2-8, 2-10, 2-13, 2-14, 2-24, 2-26, 2-34, 2-41, 4-10, 4-13
Curtis property	S-10, 2-42, 2-43, 3-63, 3-64, 4-57, 4-66, 4-69, 4-87

D

Dam Safety Permit	1-9
development rock	S-2-5, S-7, S-8, 1-6, 1-7, 1-24, 2-4, 2-5, 2-7, 2-12, 2-17, 2-19, 2-20, 2-28-32, 2-34, 2-35, 2-41, 3-19, 3-31, 3-54, 4-8-11, 4-13, 4-17-19, 4-30, 4-33, 4-35, 4-36, 4-42, 4-66, 4-67, 4-104, 4-116, 4-126, 7-6
Discovery Park	3-54, 4-10, 4-94, 7-13
diversions	S-7, 1-10, 1-12, 2-5, 2-7, 2-17, 2-30, 2-31, 3-24, 3-27, 4-10, 4-21, 4-26-28, 4-35, 4-40, 4-42, 4-55, 4-65, 4-79, 4-91, 4-102, 4-111, 4-122, 4-125, 7-14, 7-18
Dos Cabezas Mountains	S-9, 2-43, 2-44, 2-48, 3-5, 3-63, 3-66, 3-69, 3-72, 3-78, 3-86, 3-87, 3-91-93, 4-57, 4-60, 4-98
Dos Pobres pit	S-2-4, 2-3, 2-7, 2-9, 2-12, 2-17, 2-34, 3-18, 3-22, 3-25, 3-60, 4-10, 4-18, 4-30, 4-32, 4-69, 4-73
Dos Pobres Road	3-4
Dos Pobres sulfide	S-10, 1-21, 2-41, 3-20, 4-1, 4-2, 4-19, 4-56, 4-60, 4-62-64, 4-66-76, 4-79, 4-80, 4-82-91, 4-93, 4-95, 4-105, 4-106, 4-111, 4-124, 4-125, 7-4, 7-5
DP Seep	3-29, 3-31, 3-32, 4-24, 4-34, 4-122, 4-126

E

easement	1-16, 2-39, 3-3, 3-6, 3-64, 3-69, 3-73, 3-77, 3-87, 3-92, 3-101, 3-106, 4-4, 4-59, 4-61
Echinocereus	3-36, 3-37, 3-70, 3-89, 3-93
economic	S-9, S-10, 1-14, 1-18, 1-20, 2-28, 2-30, 2-34, 2-37, 2-38, 3-1, 3-15, 3-18, 3-19, 3-52, 3-54-56, 4-44, 4-45-48, 4-68, 4-69, 4-85, 4-113, 4-114, 7-5, 7-7
Eighth Avenue	3-1, 3-60-62, 4-54
electrowinning	S-1, S-2, S-4, 1-1, 1-7, 2-2, 2-11, 2-27, 2-28, 4-13, 4-14
electrowinning tankhouse	2-11
Emergency Response Notification System (ERNS)	3-13, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87, 3-92, 3-97, 3-101, 3-106, 4-11
emissions	S-7, 1-4, 1-7, 1-17, 2-3, 2-25, 2-27, 2-28, 3-15, 4-13-18, 4-68, 4-105, 4-122
Empirita Ranch	3-77, 3-100
employment	S-8, 1-18, 1-20, 2-5, 2-15, 2-23, 2-28, 2-29, 2-32, 2-33-35, 3-52, 3-59, 3-54, 3-55, 3-59, 4-3, 4-44-54, 4-85, 4-86, 4-113, 7-13
encumbrances	S-10, 1-14, 1-16, 3-3, 3-6, 3-69, 3-77, 3-82, 3-92, 3-97, 4-4, 4-61, 7-6

INDEX

Page

endangered	1-8, 2-39, 3-34, 3-35, 3-37-40, 3-45, 3-68, 3-72, 3-76, 3-81, 3-84, 3-86, 3-90, 3-96, 3-98, 3-100, 3-105, 3-110, 4-39, 4-40, 4-56, 4-77-80, 4-92, 4-103, 4-109, 4-111, 4-112, 4-117-119, 5-2, 7-8
Endangered Species Act (ESA)	1-8, 3-34, 4-56, 4-77-79, 4-95, 4-96, 4-109, 4-117, 7-8
environmental justice	1-2, 1-8, 1-14, 1-18, 3-53, 5-4-7, 6-1, 7-2
Environmental Protection Agency (EPA)	S-1, S-6, 1-1, 1-2, 1-3, 1-6, 1-7, 1-12, 1-23, 2-2, 2-23, 2-47, 3-13, 3-15, 3-28, 3-82, 4-6, 4-12, 4-14, 4-15, 4-17, 4-26, 4-31, 5-1, 5-4, 6-2, 7-1, 7-23
equal value	2-37, 2-38, 2-47, 7-9
erosion control	2-12, 2-29, 4-36, 4-70
Essex Area	3-20

F

farmland	1-10, 1-11, 1-16, 3-6, 3-42, 3-45, 4-4, 4-27, 4-28, 4-61
Feulner property	xvii, 2-43-45, 3-74, 3-77-79, 4-87
floodplain	1-8, 1-9, 1-11, 1-17, 2-45, 3-6, 3-10, 3-17, 3-18, 3-20, 3-21, 3-24, 3-28, 3-29, 3-63, 3-65, 3-81, 3-83, 3-84, 3-96, 3-97, 4-19, 4-33, 4-73, 4-74, 7-13, 7-14
Four Southern Tribes	3-48, 3-49, 4-43
Freeland property	2-44, 3-86-89, 3-91, 3-93, 4-87
fuel storage	1-7, 2-25

G

game species	1-17, 3-6, 3-33, 3-34, 4-36, 4-76
Gila Box Riparian National Conservation Area	S-9, 2-38, 2-42, 2-43, 3-5, 3-54, 3-63, 3-64, 4-3, 4-57, 4-59, 4-60, 4-63, 4-69, 4-95, 4-98, 4-103, 4-117
Gila monster	4-41, 4-80, 4-96, 4-103, 4-110, 4-123
Gila Mountain Volcanics	2-7, 3-17, 3-18, 3-22, 3-23, 3-25, 4-31, 4-32
Gila Mountains	S-9, 1-2, 1-16, 3-1, 3-4-6, 3-10, 3-12-15, 3-17, 3-20, 3-22, 3-23, 3-25, 3-26, 3-30, 3-31, 3-43, 3-44, 4-3, 4-9-11, 4-20, 4-21, 4-23, 4-24, 4-59, 4-60, 4-66, 4-95, 4-105, 4-116, 5-6, 7-15, 7-18

INDEX

Page

Gila River	S-5, 1-2, 1-3, 1-10-13, 1-17, 2-3, 2-15, 2-23, 2-37, 2-40, 3-1, 3-2, 3-5, 3-6, 3-10, 3-12, 3-17, 3-20, 3-22-24, 3-26-28, 3-35, 3-38-40, 3-42-44, 3-48-51, 3-54, 3-58, 3-60, 3-62, 3-63, 3-96, 4-1, 4-3, 4-6, 4-10, 4-19-24, 4-26-30, 4-33, 4-39-41, 4-43, 4-54, 4-55, 4-64, 4-71-74, 4-79, 4-90, 4-91, 4-94, 4-96, 4-99-103, 4-106-110, 4-114, 4-116-118, 4-122, 4-124, 5-3, 5-4, 7-12, 7-14, 7-15, 7-17-7-21, 7-27
Gila River Indian Community	1-3, 1-11, 3-48-51, 3-62, 4-54, 4-55, 4-96, 5-3, 5-4, 7-12, 7-27
Gila topminnow	3-35, 3-38, 3-67, 3-75, 3-79, 3-85, 3-99, 3-103, 3-108, 3-109, 4-39, 4-40, 4-78, 4-79, 4-119, 7-9
Graham County Electric	3-8, 3-59
grazing	S-7, S-10, 1-14, 1-16, 1-20, 2-15, 2-28, 2-30, 2-31, 2-39, 2-42-45, 3-3, 3-6, 3-7, 3-10, 3-29, 3-32, 3-48, 3-64-66, 3-69, 3-72-74, 3-77, 3-78, 3-82, 3-83, 3-86, 3-87, 3-91, 3-92, 3-96-98, 3-101, 3-102, 3-106, 3-110, 4-4-6, 4-61-63, 4-94, 4-95, 4-103, 4-121, 4-122, 4-124, 4-126, 5-6, 5-7
groundwater	S-4, S-6, S-10, 1-3, 1-9-14, 1-17, 1-24, 2-3, 2-4, 2-6, 2-12, 2-13, 2-20, 2-22, 2-34, 2-37, 3-8, 3-13, 3-22-28, 3-63, 3-82, 3-102, 4-3, 4-11, 4-20-33, 4-37, 4-39, 4-40, 4-55, 4-70-72, 4-79, 4-91, 4-92, 4-93, 4-97, 4-102, 4-105-108, 4-110, 4-114, 4-116, 4-122-125, 5-4, 7-1, 7-2, 7-12, 7-16-21
H	
habitats	S-7, S-10, 1-17, 1-22, 2-28-31, 2-39, 2-43, 2-44, 3-21, 3-22, 3-29, 3-31, 3-33-35, 3-37-46, 3-64, 3-65, 3-69, 3-78, 3-81-84, 3-87, 3-98, 3-102, 3-107, 4-25, 4-34-36, 4-38-41, 4-58, 4-60, 4-73, 4-90, 4-102-104, 4-109, 4-111, 4-112, 4-117, 4-118, 4-119, 4-123, 4-124, 5-2, 5-6, 7-9, 7-15
Hackberry Spring	3-12, 3-26, 3-29, 3-31, 3-32, 3-64
hazardous	S-6, S-7, S-10, 1-8, 1-14, 1-17, 1-22-24, 2-15, 2-23, 2-30, 2-34, 3-13, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87, 3-92, 3-97, 3-101, 3-106, 4-11, 4-12, 4-17, 4-28, 4-67, 6-4, 7-14, 7-15
hiking	1-16, 3-5, 3-6, 3-64, 3-68, 3-73, 3-76, 3-81, 3-82, 3-87, 3-91, 3-97, 3-101, 3-106, 4-60
Hispanic	3-1, 3-53, 4-45, 5-5
historic	1-8, 1-16, 1-17, 2-13, 2-44, 3-6, 3-15, 3-28, 3-46-48, 3-66, 3-72, 3-82, 3-86, 3-91, 3-93, 3-98, 3-102, 3-110, 4-27, 4-33, 4-42, 4-43, 4-56, 4-81, 4-82, 4-99, 4-104, 4-112, 4-113, 4-115, 4-120, 5-2, 5-6, 7-11, 7-24
Hopi Tribe	3-49, 4-43, 5-3
Horseshoe Claims	2-40, 3-3, 3-5, 4-59
Hot Well Dunes Recreation Area	3-54
housing	1-20, 3-58, 3-72, 4-44, 4-47, 4-51, 4-52, 4-88, 5-7
hunting	1-16, 2-43, 3-5, 3-6, 3-47, 3-68, 3-76, 3-81, 3-87, 3-91, 3-97, 3-101, 3-106, 4-3, 4-4, 4-36, 4-59, 4-60, 4-76, 4-90, 4-122, 5-6

INDEX

Page

I

income	1-18, 3-1, 3-7, 3-10, 3-53-58, 4-5, 4-45, 4-48-50, 4-62, 4-86, 4-113, 5-4, 5-5, 5-7
Indian trust resources	S-10, 1-3, 1-14, 1-18, 3-1, 3-62, 3-63, 4-20, 4-24, 4-54, 4-55, 4-90-92, 4-114, 4-121, 4-123, 4-124, 5-1, 5-2, 5-3, 5-4, 7-12

J

Johnny Creek Loop	3-5, 4-59
-------------------	-----------

L

Land and Water Conservation Fund (LWCF)	1-15, 2-47, 7-6
leach pad	S-1, S-3-7, S-9, 1-1, 1-7, 2-3-5, 2-7-12, 2-14, 2-16, 2-18, 2-19, 2-21-24, 2-29, 2-30, 2-32, 2-34, 2-36, 2-41, 3-54, 4-7, 4-9, 4-10, 4-12, 4-19, 4-25, 4-26, 4-33, 4-35-37, 4-42, 4-66, 4-69, 4-71, 4-104, 4-105, 4-116, 4-124, 4-126, 7-13
leach solution	S-3, 2-7, 2-9, 2-10, 2-13, 2-36, 4-38
leaching	S-3, S-5, 1-17, 2-3, 2-4, 2-10, 2-11, 2-13, 2-16, 2-37, 3-14, 3-28, 3-82, 4-30, 4-33, 7-14
Leaking Underground Storage Tank (LUST)	3-14, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87, 3-92, 3-97, 3-101, 3-106, 4-11
liner	S-3-7, 2-9, 2-10, 2-12, 2-14, 2-19, 2-22, 3-14, 4-25, 4-71, 4-125
listed species	2-48, 3-35, 4-1, 4-40, 4-79, 4-80, 4-97, 5-2, 7-8
Lone Star	S-1, S-4, S-9, S-10, 1-2, 1-4, 1-15, 1-19, 1-21, 1-22, 2-14, 2-36, 2-37, 2-41, 3-2, 3-4, 3-6, 3-7, 3-9, 3-10, 3-18-20, 3 3-25-27,-29, 3-60, 4-1, 4-2, 4-5, 4-8, 4-27, 4-56, 4-59-64, 4-66-76, 4-79, 4-80, 4-82-91, 4-93, 4-95, 4-105, 4-106, 4-111, 4-124, 4-125, 7-4-7-7, 7-14
Lone Star Mountain Road	3-4, 4-59
low income	1-18, 3-53-55, 3-58, 4-45, 5-4, 5-5
Lower Basin Fill	3-17, 3-18, 3-22-26, 4-21

M

Melody Claims	1-16, 2-40, 3-3, 3-5, 3-7, 3-48, 4-59
mineral potential	1-17, 1-20, 1-21, 2-40, 3-18-20, 3-65, 3-66, 3-70, 3-73, 3-77, 3-83, 3-88, 3-92, 3-98, 3-102, 3-107, 4-18, 4-63, 4-68, 4-69, 4-122, 6-4, 7-9, 7-10
mining claim	S-1, S-9, 1-2, 1-4, 1-7, 1-16, 2-40, 2-46, 3-2-4, 3-7, 4-6, 4-63, 4-69, 4-104, 5-5, 7-5, 7-7
Mining Law of 1872	1-2, 1-3, 1-6, 1-7, 2-35, 4-6, 4-69, 7-7
minority	1-18, 3-53, 4-45, 4-48, 5-4, 5-5
mitigation	S-11, 1-10-12, 1-22, 2-30, 3-39, 3-46, 3-48, 4-1, 4-3, 4-16, 4-20, 4-24, 4-25, 4-27, 4-37, 4-39, 4-40, 4-42, 4-43, 4-55, 4-70, 4-82, 4-108, 4-109, 4-111-114, 4-117, 4-120, 4-121, 4-124, 4-126, 4-127, 5-2, 5-3, 5-5, 7-2, 7-5, 7-6, 7-9, 7-11, 7-12, 7-14, 7-17, 7-19, 7-20
Mitigation and Monitoring Plan (3M Program)	1-11, 4-20, 4-24, 4-39, 4-40, 4-55, 4-108, 4-109, 4-117, 4-121, 4-126, 7-1, 7-12, 7-20, 7-21
mixer-settler	2-4, 2-11
monitor wells	2-22, 3-22, 3-24, 3-25, 4-22
monitoring	S-8, 2-22, 2-30, 2-31, 2-42, 3-15, 3-16, 4-3, 4-20, 4-24, 4-25, 4-27, 4-31, 4-37, 4-39, 4-40, 4-55, 4-99, 4-107-109, 4-117, 4-121, 4-126, 4-127, 5-2, 7-8, 7-12, 7-17, 7-19, 7-20

INDEX

Page

Mount Graham 1-16, 3-60, 3-68, 3-100, 4-93, 7-24
Musnicki property 1-16, 2-43-45, 3-63, 3-66, 3-69-72, 3-78, 4-61, 4-87

N

National Conservation Area (NCA) 2-38, 2-39, 2-43-45, 3-5, 3-63, 3-72-74, 3-77, 3-78,
3-100-102, 3-106, 4-56, 4-57, 4-59, 4-60, 4-95, 4-103
National Environmental Policy Act (NEPA) S-1, S-9, 1-1, 1-3, 1-6, 1-7, 1-9, 1-10, 1-12, 1-14, 1-15,
1-21, 2-1, 2-2, 2-35, 2-47, 3-3, 4-6, 4-56, 4-58, 4-70, 4-72,
4-91, 4-115, 4-126, 5-1-3, 7-2, 7-3, 7-7, 7-8, 7-15, 7-16
National Historic Preservation Act (NHPA) 1-8, 3-46, 3-48, 4-56, 4-81-84, 4-96, 4-112, 4-119, 5-6
National Pollutant Discharge Elimination System (NPDES) S-1, 1-7, 1-22, 4-97
Native American 3-1, 3-46, 3-48, 3-49, 3-53, 3-86, 3-93, 4-45,
4-81, 4-113, 4-120, 5-1, 5-3, 5-5, 5-6, 6-1, 7-6
New Source Review (NSR) 3-15, 4-15
nighttime lighting 1-4, 2-3, 3-13, 4-11, 4-123, 5-6, 7-13
noise S-10, 1-14, 1-16, 3-10, 4-7-9, 4-37, 4-64, 4-65,
4-122, 4-123, 4-126, 5-6, 6-4
Norton property S-9, 2-45, 3-96-100, 4-57, 4-60

O

observatories 1-16, 4-8, 4-9, 7-13
outfitters 1-16, 3-6, 4-4, 4-60
oxide S-2, S-9, 2-4, 2-8, 2-34, 3-2, 3-19, 4-13, 4-17,
4-66, 4-69, 4-95

P

pack trips 3-6
payments in lieu of taxes (PILT) 3-56, 3-57, 4-87, 4-120, 5-7
Peterson Wash S-5, 2-17-19, 3-9, 3-11, 3-26-29, 4-5, 4-27, 4-29, 4-30, 4-42
petroglyphs 3-47, 3-50-52, 3-72, 3-90, 4-43, 7-11
Phelps Dodge Mine Road 2-15, 2-23, 3-4, 3-5, 3-6, 3-60, 4-4, 4-59
Pima Indian mallow 3-35, 3-37, 3-44, 4-41, 4-80, 4-123
PLS collection tank S-3, 2-36
ponds 1-17, 1-22, 3-102, 4-19, 4-37, 4-41
powder magazine 2-16, 2-24, 2-34
pregnant leach solution (PLS) S-3, 2-4, 2-5, 2-9-11, 2-19-21, 2-36,
4-25, 4-26, 4-28, 4-37, 4-38
Prevention of Significant Deterioration (PSD) 3-15, 3-16, 4-15-17
prill 2-16

R

raffinate S-3-4, 2-10, 2-11, 2-14, 2-19, 2-36
raffinate booster 2-4, 2-10, 2-14

reagent 2-10, 2-11, 2-24, 2-25, 2-28, 7-14
Reay Lane S-5, 2-15, 2-23, 3-60-62
reclamation S-4, S-5, S-7-10, 1-6, 1-8, 1-21-24, 2-2, 2-5, 2-16, 2-23,
2-28-33, 2-35, 2-37, 2-46, 2-47, 3-3, 4-1-3, 4-12, 4-19,
4-35, 4-56, 4-58, 4-69, 4-93, 4-122, 4-124, 5-2, 7-7, 7-8
Record of Decision (ROD) S-2, 1-4, 1-5, 1-12, 1-19, 1-20, 2-11, 2-43,
5-2, 5-4, 7-3, 7-4, 7-10, 7-15, 7-25

INDEX

Page

recreation	S-7, S-10, 1-14, 1-16, 2-28, 2-29, 2-38, 2-39, 2-43-45, 2-48, 3-3-6, 3-15, 3-16, 3-21, 3-22, 3-54, 3-60, 3-64, 3-68, 3-73, 3-76, 3-81, 3-82, 3-87, 3-91, 3-97, 3-101, 3-106, 4-3, 4-4, 4-25, 4-36, 4-59, 4-60, 4-76, 4-122, 4-124, 7-2, 7-10
Resource Conservation and Recovery Act (RCRA)	1-8, 1-22, 3-13, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87, 3-92, 3-97, 3-101, 3-106, 4-11
retention dam	S-5, 2-16, 2-19-22
revegetation	S-7, S-8, 2-29-32, 4-19, 4-35, 4-36, 4-58, 4-124
right-of-way (ROW)	2-39, 2-43, 3-3, 3-6, 3-8, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87, 3-92, 3-101, 3-106, 4-4, 4-61, 7-15
Riparian National Conservation Area (RNCA)	S-9, 2-38, 2-42, 2-43, 2-47, 2-48, 3-4, 3-5, 3-54, 3-63, 3-64, 4-3, 4-57, 4-59, 4-60, 4-63, 4-69, 4-95, 4-98, 4-103 4-117
rock art	3-91, 3-93
rockhounding	1-16
runoff	S-5, 1-7, 1-10, 1-23, 2-3, 2-4, 2-11, 2-17-21, 2-23, 2-24, 3-11, 3-17, 3-23, 3-26-28, 3-60, 3-82, 4-6, 4-26, 4-27, 4-29-31, 4-33, 4-37, 4-99, 4-108, 4-110, 7-18
S	
Safford Basin	3-17, 3-24
Safford District Resource Management Plan	S-10, 1-9, 1-10, 1-15, 1-19, 2-38, 2-43, 2-45-47, 3-3, 3-4, 3-12, 3-63, 3-69, 3-92, 4-63, 7-6
Safford Volcanics	3-17, 3-18, 3-22, 3-23, 3-25, 3-28, 4-31, 4-32
Safford-Bryce Road	2-15, 3-60, 3-61, 4-54
Safford-Morenci Trail	1-16, 3-5, 3-6, 3-64, 4-3, 4-59
Salt River Pima-Maricopa Indian Community	3-48-51, 5-3
San Carlos Apache Reservation	S-8, 1-13, 1-15, 1-17, 1-19, 2-3, 2-34, 3-1, 3-6, 3-15, 3-53-55, 3-96, 3-97, 4-14, 4-15, 4-18, 4-20, 4-22-24, 4-55, 4-60, 4-91, 4-95, 4-114, 4-123, 4-125, 5-4, 5-5, 7-1, 7-12, 7-15, 7-17, 7-19-7-21
San Carlos Apache Tribe	1-3, 1-11, 1-13, 1-15, 1-19, 3-6, 3-49, 3-62, 3-63, 4-54, 4-55, 4-91, 5-3, 5-4, 5-6, 7-4, 7-12, 7-26
San Juan Mine Road	1-16, 2-15, 3-4-6, 4-3, 4-4, 4-59, 4-60, 4-122
San Juan pit	S-4, S-8, S-9, 2-7, 2-12, 2-18, 2-34-36, 2-40, 3-18, 3-19, 3-22, 3-26, 3-28, 4-7, 4-10-13, 4-18, 4-19, 4-24, 4-30, 4-31, 4-33, 4-35, 4-37, 4-73, 7-19
San Pedro RNCA	2-47, 2-48
Sanchez	S-9, 1-2, 2-37, 2-39-42, 3-2, 3-53, 3-60, 3-61, 4-45, 4-56, 4-93, 4-95, 4-105, 4-106, 4-111, 5-5, 7-5
Sanchez Copper Project	2-41, 3-2, 4-95
Sanchez Road	3-60, 3-61
Schock property	2-43-45, 3-63, 3-72-76, 4-87
schools	1-18, 3-58, 3-59, 4-47, 4-52, 4-53, 4-89, 5-7, 6-3
Section 402	S-1-3, 1-22, 2-1, 2-47, 4-3, 4-27, 4-28, 4-109, 4-125, 6-2
Section 404	S-1, S-2, S-9, 1-3-6, 2-1, 2-2, 2-6, 2-35, 2-36, 3-29, 4-2, 4-3, 4-34, 4-56, 4-70, 4-72, 4-74, 4-77, 4-78, 4-109, 4-126, 6-2, 6-4, 7-4, 7-7, 7-8
security	S-4, S-5, S-8, S-9, 2-15, 2-31, 2-34, 2-42, 3-52, 3-54, 3-55, 4-5, 4-6, 4-10, 4-37, 4-44, 4-59-62, 7-10
septic	S-6, 1-9, 2-16, 2-22
Sierra Southwest Transco	3-8, 3-74
Solomon	S-5, 2-15, 2-23, 3-4-6, 3-24, 3-39, 3-53, 3-59, 3-60,

INDEX

	Page
	3-62, 3-64, 4-3, 4-45, 4-46, 4-52, 4-54, 4-59, 4-60, 5-5
Solomon Pass Road	3-4, 3-5, 3-64, 4-3, 4-59, 4-60
solution extraction	S-1, S-2, S-4, 1-1, 1-7, 2-2, 2-11, 2-28, 4-14
Southwest Fault	3-18, 3-22-25
southwestern willow flycatcher	3-35, 3-39, 3-67, 3-80, 3-84, 3-100, 3-105, 3-109, 4-40, 4-78-80, 4-112, 4-118, 4-119, 7-9
Special Management Areas	S-9, 1-16, 2-39, 3-4, 3-5, 4-3, 4-56
special status species	1-17
spill prevention	1-23, 2-25, 4-12, 4-110
springs	2-45, 3-2, 3-5, 3-11, 3-12, 3-23, 3-24, 3-26, 3-29, 3-31, 3-32, 3-33, 3-40-43, 3-54, 3-64, 3-66, 3-75, 3-77, 3-81, 3-82, 3-90, 3-91, 3-93, 3-95, 3-98, 3-101, 3-102, 3-106, 3-107, 4-24, 4-34, 4-36, 4-64, 4-65, 7-17, 7-19, 7-20
stormwater impoundment	S-5, S-6, 2-3, 2-5, 2-10, 2-11, 2-14, 2-16, 2-19, 2-20, 4-26, 4-28, 4-37, 4-71
stormwater pollution prevention	1-7, 1-23, 4-110
sulfide	S-2, S-9, S-10, 1-21, 2-4, 2-6, 2-7, 2-34, 2-41,, 3-2, 3-18-20, 4-1, 4-2, 4-18 4-19, 4-31, 4-56, 4-60, 4-62-64, 4-66-76, 4-79, 4-80, 4-82-91, 4-93, 4-95, 4-105, 4-106
surge pile	4-111, 4-124, 4-125, 7-4, 7-5 2-8, 2-26, 2-27, 4-7, 4-13
Solution Extraction/Electrowinning (SX/EW)	S-1-7, S-9, 1-1, 2-2, 2-4, 2-5, 2-10-16, 2-19, 2-21, 2-23-25, 2-28, 2-34, 2-36 2-37, 2-41, 2-48, 4-10, 4-13, 4-18, 4-66, 4-71, 4-93, 4-95-97
<u>T</u>	
Talley Wash	2-15, 2-17, 2-20, 3-7, 3-9-11, 3-28, 4-5, 4-27, 4-29, 4-61, 4-62
tank farm	S-4
Tavasci Marsh property	S-9, S-10, 2-44, 3-78, 3-81-86, 4-60, 4-61, 4-65, 4-73, 4-79, 4-80, 4-87
Thatcher	S-5, 2-15, 3-39, 3-41, 3-52-54, 3-58-62, 4-33, 4-44, 4-46, 4-49-54, 4-96, 5-5, 7-9, 7-23
threatened	2-39, 3-34, 3-35, 3-37-40, 3-68, 3-72, 3-76, 3-81, 3-86, 3-90, 3-96, 3-98, 3-100, 3-105, 3-110, 4-39, 4-40, 4-77, 4-78, 4-92, 4-103, 4-111, 4-112, 4-118, 4-119, 5-2
Title V Air Quality Permit	1-21, 7-7
Tohono O'odham Nation	3-48-51, 4-43, 5-3
Tonto Apache	3-86
traffic	S-5, S-8, 1-4, 1-18, 1-20, 2-15, 2-23, 2-30-32, 3-54, 3-60-62, 4-13, 4-37, 4-53, 4-54, 4-105, 5-6, 6-4, 7-14, 7-15
truck shop	S-4, 2-5, 2-14-16, 2-24, 2-25, 2-29, 4-7, 4-10
Tuzigoot National Monument	S-10, 1-9, 2-44, 2-48, 3-78, 3-81, 3-86, 4-57, 4-59, 4-60, 5-2
<u>U</u>	
Underground Storage Tanks (UST)	3-14, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87, 3-92, 3-97, 3-101, 3-106, 4-11
Upper Basin Fill	3-18, 3-22, 3-24
<u>V</u>	
Valley Fault	3-18, 3-24
vibration	S-10, 1-14, 1-16, 3-10, 4-7, 4-9, 4-37, 4-64, 4-122, 4-126, 5-6, 6-4

INDEX

visual resources S-10, 1-14, 1-16, 3-10, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87,
3-92, 3-101, 3-106, 4-9, 4-11, 4-66, 4-92, 4-104,
4-105, 4-114, 4-115, 4-122, 5-6

W

Walnut Spring 3-11, 3-26, 3-29, 3-31, 3-32
wastewater 2-16, 2-34, 2-37, 3-59, 3-82, 4-52
water quality S-6, S-8, S-10, 1-7-9, 1-17, 2-22, 2-23, 2-31, 2-37,
3-13, 3-18, 3-24, 3-25, 3-27, 3-28, 3-64, 4-11, 4-25, 4-26, 4-28-31,
4-33, 4-37, 4-71-73, 4-99, 4-100, 4-107, 4-109, 4-110, 4-117, 4-118
water quantity 1-4, 1-17, 1-22, 3-26, 4-20, 4-26, 4-28, 4-64,
4-71, 4-72, 4-107, 4-109, 4-117, 4-122, 4-124, 7-12
water rights S-10, 1-10-14, 1-16, 2-39, 3-8, 3-11, 3-12, 3-27, 3-58, 3-62, 3-63,
3-65, 3-73, 3-82, 3-87, 3-92, 4-1, 4-6-8, 4-28, 4-52, 4-54, 4-55,
4-63-65, 4-90, 4-91, 4-109, 4-117, 5-4, 5-6, 7-12
water supply S-4, 2-12, 2-34, 3-31
waters of the U.S. S-10, 1-7, 1-14, 1-17, 2-36, 4-12, 4-34, 4-35, 4-67,
4-74, 4-111, 4-122, 4-127, 6-3
Watson Wash S-3, 2-9, 2-16, 2-17, 3-26, 3-28, 3-35, 3-38,
3-39, 4-19, 4-25-29, 4-39, 4-79
West Ranch Road 3-4-6, 4-3, 4-59
wetland 1-6, 1-8, 1-17, 2-39, 2-44, 2-48, 3-29, 3-32, 3-40,
3-81, 3-83, 4-34, 4-75, 4-76, 4-96, 4-117, 6-3
White Mountain Apache tribe 3-48, 3-49, 4-43, 5-3
wild and scenic river (W&SR) S-7, S-10, 1-14, 1-17, 2-28-31, 2-38, 2-39, 2-43-45, 3-3,
3-5, 3-8, 3-11, 3-12, 3-16, 3-21, 3-22, 3-33, 3-34, 3-37, 3-38,
3-40, 3-64, 3-65, 3-68, 3-69, 3-72-74, 3-76, 3-78, 3-81, 3-82, 3-84,
3-86-88, 3-90, 3-91, 3-92, 3-93, 3-96-98, 3-100-102, 3-105-107, 3-110,
4-25, 4-33, 4-34, 4-36-38, 4-57, 4-58, 4-60, 4-65, 4-76, 4-77, 4-80,
4-81, 4-92, 4-94, 4-95, 4-97, 4-103, 4-111, 4-112, 4-118, 4-123,
4-124, 5-2, 5-6, 6-1, 6-2, 7-8, 7-15, 7-23
Wildlife of Special Concern in Arizona (WSCA) 3-34-39, 3-41-44, 3-67, 3-68, 3-70-72, 3-75, 3-76,
3-79-81, 3-84-86, 3-88-90, 3-93, 3-95, 3-96,
3-99, 3-100, 3-103-105, 3-108-110
Wilson Wash 3-11, 3-28, 4-27, 4-29
Water Quality Assurance Revolving Fund (WQARF) 3-13, 3-64, 3-69, 3-73, 3-77, 3-82,
3-87, 3-92, 3-97, 3-101, 3-106, 4-11

Y

Yavapai 2-44, 3-44, 3-78, 3-84-87

Z

zipACIDS site 3-13, 3-14, 3-64, 3-69, 3-73, 3-77, 3-82, 3-87,
3-92, 3-97, 3-101, 3-106, 4-11, 4-67
Zuni 3-49-51, 4-84, 5-3