

**APPENDIX A**

**Comments on the Draft Environmental Impact Statement  
for the  
Eagle Mountain Pumped Storage Hydroelectric Project  
Project No. 13123-002**

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## APPENDIX A

### COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE EAGLE MOUNTAIN PUMPED STORAGE HYDROELECTRIC PROJECT PROJECT NO. 13123-002

The Federal Energy Regulatory Commission (Commission or FERC) issued its draft environmental impact statement (EIS) for the licensing of the Eagle Mountain Pumped Storage Hydroelectric Project (project) on December 23, 2010. The Commission requested comments be filed by February 28, 2011. In addition, the Commission conducted two public meetings on February 3, 2011, in Palm Desert. In this appendix, we summarize the written comments received on the draft EIS; provide responses to those comments; and indicate, where appropriate, how we have modified the text of the final EIS. We grouped the comment summaries and responses by topic for convenience. The following entities filed comments on the draft EIS:

<b>Commenting Entity</b>	<b>Filing Date</b>
JoAnn and Warren Dean	February 14, 2011
Philip R. Hu	February 15, 2011
Advisory Council on Historic Preservation	February 17, 2011
Brendan Hughes	February 23, 2011
Eagle Crest Energy Company (Eagle Crest)	February 28, 2011
Kaiser Eagle Mountain, LLC, and Mine Reclamation, LLC (Kaiser)	February 28, 2011
Citizens for Chuckwalla Valley	February 28, 2011
U.S. Department of the Interior (Interior), National Park Service (Park Service)	February 28, 2011
County Sanitation District No. 2 of Los Angeles County (County Sanitation District)	February 28, 2011
Metropolitan Water District of Southern California (Metropolitan Water District)	March 1, 2011
Kim Floyd of the San Geronio Chapter of the Sierra Club	March 1, 2011
Johnney Coon	March 1, 2011
U.S. Environmental Protection Agency Region 9 (EPA)	March 1, 2011

<b>Commenting Entity</b>	<b>Filing Date</b>
Center for Biological Diversity	March 1, 2011
State Water Resources Control Board (State Water Board)	March 1, 2011

## **GENERAL**

**G 1 Comment:** Several entities made comments of an editorial nature on the EIS.

**Response:** We have revised the text of the EIS, as appropriate, in response to these comments.

**G 2 Comment:** Kaiser states that section 5.3 of the draft EIS should provide an exhaustive list of unavoidable consequences of the project and should include impacts on the wilderness experience, impacts on the desert tortoise, and the loss of the potential to construct the proposed landfill and for future mining opportunities at Eagle Mountain.

**Response:** In section 3.3.5, *Recreation, Land Use, and Aesthetics*, we describe the effects on the wilderness experience as limited because the majority of the central project area encompasses largely inactive mining pits and spoil piles from historical mining operations. As described in the same section, the construction and operation of the proposed landfill and the proposed hydroelectric project should be largely compatible. We have revised section 5.3, *Unavoidable Adverse Effects*, to add information about the potential loss of some mining opportunities and effects on desert tortoise.

**G 3 Comment:** Kaiser states that the draft EIS does not undertake any study of the impacts associated with decommissioning the project, including closure and post-closure impacts.

**Response:** A project's decommissioning would be its own proceeding before the Commission and a separate federal action. Therefore, that proceeding would include its own National Environmental Policy Act (NEPA) process, including the preparation of either an environmental assessment (EA) or an EIS to analyze the effects of the decommissioning and develop any recommended measures to mitigate those effects. As such, decommissioning is beyond the scope of this final EIS.

**G 4 Comment:** Kaiser states that the draft EIS (pages 11 and 12) did not identify Mine Reclamation, LLC, as an intervening and commenting party.

**Response:** Mine Reclamation, LLC, is now listed as a joint commenter on Scoping Document 1, as a joint intervener, and as a joint commenter on the draft EIS with Kaiser. However, we note that, in all three documents, Mine Reclamation, LLC, filed joint documents with Kaiser and asked to be referred to as Kaiser in those documents.

**G 5 Comment:** Kaiser states that the following sentence found in the draft EIS on page 47 does not makes sense and should be corrected as appropriate: “The U.S. Ninth Circuit Court of Appeals reviewed Eagle Crest’s license application, and on November 10, 2009, denied the land exchange between Kaiser and BLM.”

**Response:** We revised this sentence to read: “The U.S. Ninth Circuit Court of Appeals issued a court ruling on November 10, 2009, that denied the proposed land exchange between Kaiser and BLM.” For consistency, we have revised section 3.3.1.2, *Geologic and Soil Resources*, as well as other sections in the final EIS.

**G 6 Comment:** Kaiser states that the draft EIS is misleading in its characterization of certain Kaiser-owned lands that are subject to outstanding litigation. For example, footnote 8 on page 1 of the draft EIS inaccurately describes the status of Kaiser’s land exchange. Kaiser states that all references, maps, figures, and other items that purport to depict the ownership of lands should reflect that Kaiser currently owns about 1,545.63 acres of land that would be directly taken and occupied by the project.

**Response:** We have revised section 1.1, *Application*, to indicate that the proposed project would occupy both federal and private lands, some of which are disputed and are the subject of past and possible future litigation and further review by Interior.

**G 7 Comment:** The County Sanitation District states that the draft EIS does not provide any information regarding what access would be necessary or what equipment would be used to maintain and repair the proposed transmission lines, either inside the central project area or offsite, to determine the potential impacts of repair and maintenance activities, particularly with respect to any foreseeable disruption of rail service. The County Sanitation District also states that the draft EIS does not discuss the compatibility issue regarding the route for the project’s proposed transmission line that runs parallel to a long section of the Eagle Mountain railroad, crossing the railroad in several locations, and it states that these impacts should be discussed.

**Response:** Detailed measures to limit disturbance to other facilities during construction and maintenance of the proposed transmission lines would be part of the project’s final engineering design and approval process. While the railroad is predicted to be used if the landfill is built in the future, it has not been in regular use since the 1980s, and the last use was for two shipments of iron ore in March 1993. Near the mine, the transmission line would cross the railroad several times, but the route proposed by Eagle Crest does not closely parallel the railroad for any sizable distance. To ensure the transmission line does not affect railroad or interstate operations or safety, Eagle Crest would consult with the County Sanitation District and the California Department of Transportation during the final engineering process. Eagle Crest would construct the transmission line in accordance with all federal and state standards for transmission lines in road and railroad corridors.

**G 8 Comment:** The County Sanitation District states that the draft EIS does not properly establish the environmental setting for the project and, therefore, proposes mitigation measures for unknown impacts. The County Sanitation District also states that the defects in the draft EIS are so significant that they can only be adequately addressed in a revised and recirculated draft EIS. Similarly, Kaiser states that without this critical information on baseline conditions, there can be no meaningful development and review of appropriate mitigation measures. The Citizens for Chuckwalla Valley comments similarly that all analysis for the dams, water containment, geology, historic properties, and flora and fauna are speculative and states that the draft EIS does not take a “hard look” as required by NEPA.

**Response:** Because Kaiser has not granted Eagle Crest and others access to the site, we used other available information, such as prior environmental documents, historical information, mining studies, and information from nearby and similar areas, to prepare the EIS. Additionally, in section 5.2, *Comprehensive Development and Recommended Alternative*, we recommend that Eagle Crest conduct numerous surveys and develop and/or implement appropriate mitigation measures before any ground-disturbing activities begin, and these surveys would help refine the design and proposed measures prior to construction of the project. Therefore, the available information about the project area is sufficiently summarized in the draft and final EISs and our recommended protection and mitigation measures, including additional surveys after license issuance and before construction begins, would provide an appropriate level of environmental protection.

**G 9 Comment:** The County Sanitation District states that the draft EIS does not provide mitigation measures or license terms and conditions that would prevent or lessen the significance of environmental impacts.

**Response:** In the EIS, we recommend several mitigation measures to address the effects of construction and operation of the proposed project on all resource areas. However, it is important to note that NEPA does not require that all potential impacts be eliminated or lessened. Finally, our NEPA document only provides our recommended measures (see section 5.0, *Conclusions and Recommendations*) for the Commission to consider in its licensing decision.

**G 10 Comment:** The County Sanitation District states that no specific mitigation measure is identified for each impact. No discussion is provided from which to measure the impact of any available mitigation measure or the basis by which the lead agency may select from mitigation measures. There is no discussion of any specific performance standards or ways in which a specific mitigation measure may be accomplished. It also states that there is no discussion of the impacts from implementation of mitigation

measures, such as impacts on air emissions. The County Sanitation District does not believe that the draft EIS meets the requirements of 40 CFR §1502.1.

**Response:** 40 CFR §1502.1 requires that an EIS provide a full and fair discussion of significant environmental impacts to inform decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment. Throughout the EIS, we discuss measures proposed by Eagle Crest and recommended measures by Interior, the U.S. Fish and Wildlife Service (FWS), the U.S. Bureau of Land Management (BLM), and others. A summary of the measures proposed by Eagle Crest is provided in section 2.2.4, *Proposed Environmental Measures*, and our additional measures are provided in section 2.3, *Staff Alternative*. These measures are discussed in detail in section 3.0, *Environmental Analysis*, the effects of these measures on the cost and generation of the project are analyzed in section 4.0, *Developmental Analysis*, and our recommendations are provided in section 5.0, *Conclusions and Recommendations*.

**G 11 Comment:** The Park Service and the County Sanitation District state that the detail necessary to determine impacts or appropriate mitigation measures is lacking in the draft EIS. BLM requests that “all relevant plans, as they pertain to public lands or may indirectly affect public lands, be accomplished to the same degree of development that has been required of large-scale solar projects in vicinity and that have been accepted by [the] partner agencies.”

**Response:** Based on recently filed information on nearby projects, the State Water Board’s environmental impact report (EIR), and information provided in comments on our draft EIS, we have added information about effects, mitigation measures, and plans, particularly as they pertain to public lands, throughout the final EIS. Since issuing the draft EIS, several of the proposed plans were updated and revised and included in our Biological Assessment issued on April 21, 2011.

**G 12 Comment:** Interior states that the draft EIS lists approximately 16 plans necessary to address construction impacts, including biological resources, subsidence, invasive weeds, and translocation of tortoise. BLM, the Park Service, and FWS find that many of these plans are not sufficiently developed in order to reach many of the stated conclusions in the draft EIS.

**Response:** Eagle Crest provided sufficient detail related to the intent and feasibility of these plans such that we could include the expected benefits of their implementation in our analysis. Additionally, since issuance of the draft EIS, Eagle Crest filed revised versions of the Raven Monitoring and Control Plan (now titled Predator Monitoring and Control Plan) and the Desert Tortoise Removal and Translocation Plan (now titled Desert Tortoise Clearance and Relocation/Translocation Plan). During preparation of our Biological Assessment, we further developed the Predator Monitoring and Control Plan

to include specific survey methods for coyote and dogs and increase survey frequency during the early years of the project. We also improved upon the Desert Tortoise Clearance and Relocation/Translocation Plan to include identification of recipient sites for desert tortoise relocations, specify that all injured tortoises receive care from a qualified veterinarian, and state that permanent exclusion fences would be maintained for the term of the license. Further discussion of these plans is described in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects*. As discussed in section 5.0, *Conclusions and Recommendations*, we also recommend modifications to the Worker Environmental Awareness Program (WEAP); Revegetation Plan; Invasive Species Plan; the proposed plan to manage the evaporation ponds; and proposed measures to minimize effects on wildlife species, including migrating birds, raptors, bats, small mammals, and reptiles.

**G 13 Comment:** Interior states that the following technical appendices should be incorporated into the final EIS either directly or by reference: Revegetation Plan, Weed Control Plan, Desert Tortoise Translocation or Removal Plan, Raven Monitoring and Control Plan, WEAP, Bighorn Sheep Report, Biological Assessment for Desert Tortoise, and Golden Eagle aerial surveys.

**Response:** These plans have been included in the Biological Assessment for this project, issued April 21, 2011, and are part of our recommended alternative in the final EIS.

**G 14 Comment:** The Park Service states that general conclusions such as, “There would be no changes to the physical, biological and cultural resources of the area...” are unsupported by any analysis or data in the draft EIS.

**Response:** This statement only occurs in section 3.4, *No-Action Alternative*, which describes conditions if the proposed project were not built. This statement does not imply that changes in the area would not result from other proposed projects or even in the event that this project is not built.

**G 15 Comment:** Interior states that page 47 of the draft EIS states that there are about 193.5 million tons of recoverable iron-bearing placer at the mine. This statement contradicts information provided in the Executive Summary that states this is a depleted mine.

**Response:** We have removed the term *depleted* to describe the mine area, and we have revised section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*, to add information about the estimated recoverable iron-bearing deposits.

**G 16 Comment:** Joanne and Warren Dean state that Eagle Crest’s proposed water usage would most certainly affect their water table and cause problems with their wells, both on their parcel and on the parcel where the Deans reside during part of the year.



**Response:** As described in section 3.3.2, *Water Resources*, lowering of the groundwater table would likely occur near the proposed water supply wells, which would be used to fill and maintain the reservoirs. However, in most areas, the decline in the groundwater is predicted to be small. We further discuss the proposed project's effects on groundwater resources in section 3.3.2.2.

**G 17 Comment:** The Park Service states that technical appendices were provided in the July 2010 California Water Quality Control Board's draft EIR pertaining to the proposed project and should be included and delineated in this project. Specifically, the Park Service is interested in the re-vegetation plan, weed control plan, desert tortoise plan, raven monitoring and control plan, bighorn sheep report, biological assessment for desert tortoise and golden eagle aerial survey report.

**Response:** These plans are included in the Biological Assessment for this project, which was issued by the Commission on April 21, 2011, and are discussed and analyzed in section 3.3.3, *Terrestrial Resources*, and section 3.3.4, *Threatened and Endangered Species*, in the final EIS.

**G 18 Comment:** Joanne and Warren Dean state that figure 9 (page 134) of the draft EIS is incorrect. The Deans state that their parcel 811-141-011 is indicated as BLM land but that is incorrect. The Deans state that this parcel should be indicated as private land, along with the parcels to the north and west of the Dean's parcel. In addition, Interior comments that this figure inaccurately depicts its preferred alternative transmission line route. Interior recommends that transmission for this and other projects in the vicinity be co-located and follow Kaiser Road.

**Response:** We have revised the figure to correctly display private land boundaries. Our recommendation is for the transmission line to be co-located with the proposed transmission line for the Desert Sunlight Solar Farm Project along the California Public Utilities Commission's environmentally superior route identified in the draft EIS for the solar project. This route follows the existing Southern California Edison (SCE) 161-kilovolt (kV) line, avoiding Desert Wildlife Management Area (DWMA) lands and affecting less desert tortoise habitat.

**G 19 Comment:** Interior comments that the description of measures in section 5.2 should provide much more detail so that reader can easily determine how they will be implemented and effectively avoid and minimize impacts on various resources. Interior also requests consistency in measures cited in other chapters, in table 27, and those described in this section (e.g., page 20 of the draft EIS identifies Measure BIO-2, but there is no description of this measure in this section).

**Response:** Section 5.2, *Comprehensive Development and Recommended Alternative*, provides a summary of both Eagle Crest's proposed measures and additional measures that we recommend for inclusion in the license. Table 27 (table 37 in the final EIS) provides the cost of the environmental mitigation and enhancement measures proposed by Eagle Crest, the State Water Board, and staff. Because we do not recommend all of Eagle Crest's proposed measures in their entirety, there may be inconsistencies between section 5.2 and table 27 (table 37 in the final EIS). Measure BIO-2, which includes Eagle Crest's proposal to designate a project biologist, is not included in this section because we incorporated a similar measure into the Desert Tortoise Clearance and Relocation/Translocation Plan and WEAP. We recommend the license include implementation of the WEAP filed October 27, 2009. This plan includes designation of Eagle Crest staff responsible for ensuring compliance with measures to protect biological resources. The WEAP outlines both requisite skills for these positions and their duties and responsibilities. Additionally, we recommend that any license include implementation of the Desert Tortoise Clearance and Relocation/Translocation Plan issued with the Commission's Biological Assessment on April 21, 2011. This plan includes further descriptions of experience, duties, and responsibilities of the designated staff as specifically related to desert tortoise. Sufficient detail on the effects of these measures is provided in section 3.0, *Environmental Analysis*, to analyze the costs and benefits of the mitigation measures.

**G 20 Comment:** The Park Service requests better quantification of the potential effects associated with the no-action alternative for all of the resource areas of concern in the draft EIS. The discussion for each resource area of concern should have a thorough, stand-alone evaluation and discussion on the potential impacts on each resource associated with implementing the no-action alternative.

**Response:** Under the no-action alternative, the license application would be denied, the project would not be built, and the environmental resources in the project area would not be affected by the proposed project.

**G 21 Comment:** The Center for Biological Diversity states that the Commission too narrowly construed the project purpose and need such that the draft EIS did not consider an adequate range of alternatives to the proposed project. The Center for Biological Diversity states that alternatives analysis is inadequate because it only includes three alternatives—the no-action alternative, the applicant's alternative, and the staff alternative. Additional feasible alternatives should be considered which would avoid all of occupied desert tortoise habitat as well as alternatives that would have looked at alternative sites for the substation to avoid impacts on the DWMA and critical habitat. The Center for Biological Diversity states that other alternatives should have considered alternative types of energy that would provide the same and/or more efficient amounts of energy. The Center for Biological Diversity adds that the Commission should have also looked at alternative siting closer to the site of energy consumption that would have

reduced the impacts associated with transmission line gen-tie, the new substation, and transmission.

**Response:** The nature of the proposed project requires certain physical attributes that are not readily available close to sites of energy consumption. These attributes include existing topography to hold the upper and lower reservoirs, sufficient elevation difference between the reservoirs to create a substantial hydraulic head, and minimal distance between the reservoirs to limit costs associated with development of infrastructure. The project would also need to be located within sufficient proximity to high-voltage transmission corridors with sufficient capacity to exchange energy used and produced by the project. The mining pits at the largely inactive Eagle Mountain mine meet these physical conditions. In addition, the extensive disturbance associated with the mining activities reduces the environmental effects of the proposed project as compared to some other locations with less historical disturbance. Therefore, we find it unlikely that another project location exists that would meet the physical requirements and have lower environmental effects. The EIS is for the project as proposed in the license application, and no specific action alternatives have been proposed or recommended.

However, we did identify alternative measures to reduce the environmental effect of the proposed project. As compared to Eagle Crest's proposed project, our alternative greatly reduces disturbance within the DWMA by co-locating the transmission facilities with existing facilities and requiring the project to connect at a planned substation rather than creating an additional substation specifically for the project. Therefore, under the staff alternative, there would be substantially less effect on the desert tortoise and its critical habitat than under Eagle Crest's proposal.

**G 22 Comment:** The Center for Biological Diversity states that the draft EIS does not provide a full analysis of possible mitigation measures to avoid or lessen the impacts of the proposed project and therefore the Commission cannot properly assess the likelihood that such measures would actually avoid the impacts of the proposed project.

**Response:** Section 2.2.4, *Proposed Environmental Measures*, and section 2.3, *Staff Alternative*, summarize the measures that are analyzed in section 3.0, *Environmental Analysis*. Specific measures are presented in section 3.0 with sufficient detail to analyze the costs and benefits of the measures. Where detail is lacking, we recommend that any project license include specific articles requiring Eagle Crest to consult with agencies and develop site-specific plans prior to initiating any land-disturbing activities. These plans would be available for public review and comment and would require Commission approval prior to implementation. As discussed in section 3.0, and provided for in section 5.0, *Conclusions and Recommendations*, we find that while our recommended measures would not avoid all of the effects of the project, they would adequately protect and enhance the environmental resources affected by the project.

**G 23 Comment:** The Center for Biological Diversity states that the draft EIS does not adequately consider potential alternatives that would protect the most sensitive lands within the proposed right-of-way from all future industrial development. The Center for Biological Diversity states that alternative siting and alternative technologies (including solar energy, which was erroneously referred to as being able to provide power at low rates during nighttime or low-demand hours, compared to rates available during daytime, high-demand hours [draft EIS at page 4]—solar energy projects actually act as peaking plants only during sunlight hours) should have been considered in the EIS.

**Response:** The staff alternative would result in the majority of the transmission and water lines in existing rights-of-way associated with existing infrastructure. We have revised section 1.2.2, *Need for Power*, to clarify that power from solar energy projects could be used to provide a portion of the pump-back power during off-peak weekday and weekend hours.

**G 24 Comment:** The Metropolitan Water District states that, as a result of the project's potential effects on Metropolitan facilities and rights-of-way, the final EIS should identify Metropolitan as an agency whose approval is required. All areas requiring Metropolitan's review and approval shall be clearly identified in the document.

The Metropolitan Water District recommends that the Commission coordinate with the Metropolitan Water District's Real Property Development and Management Team, Substructures Team, and others to facilitate the planning process. The Metropolitan Water District is concerned the proposed project may adversely impact its ability to deliver water if the proposed project disrupts the Metropolitan Water District's electric system. Construction activities and operation of any new facilities resulting from the proposed project should not impede or increase the cost of any electrical operation or maintenance activities on the [Metropolitan Water District's Colorado River Aqueduct](#) (Colorado River Aqueduct) and its related transmission system. The final EIS should identify mitigation measures to prevent such disruptions.

The Metropolitan Water District states that it will need at least 1 year notice prior to any shutdown to coordinate this event with project construction. The final EIS should identify the transmission standards and a work plan for construction and operation of the proposed 500-kV transmission line, as well as identifying the shutdown coordination requirements as indicated above. The Metropolitan Water District goes on to state that shutdown plans should include SCE, whose transmission system is interconnected with the Metropolitan Water District's 230-kV transmission system at its pumping plant.

The Metropolitan Water District states that the proposed 500-kV transmission line would cross its 230-kV transmission system. To avoid any clearance issues, both during construction and operation, Metropolitan Water District states that the proposed 500-kV transmission line should meet all applicable Institute of Electrical and Electronics

Engineers' and utility standards and requirements, including California State General Orders 95 and National Electrical Safety Code C2, regarding separation requirements of the two systems. It goes on to state that the most current and updated edition of these standards should be used in the design specifications. The 500-kV transmission line should also be in compliance with the requirements of the Western Electricity Coordinating Council and North American Electric Reliability Corporation (NERC) electric reliability standards.

Finally, the Metropolitan Water District states that while it will attempt to provide advanced notice of any scheduled maintenance, there could be times when unscheduled maintenance or repair is required that may also necessitate the de-energizing of the 500-kV transmission line. The final EIS should identify these events, as well as the mitigation/planning measures, to ensure safe operation and maintenance of both transmission line systems.

**Response:** Consultation and coordination between Eagle Crest and Metropolitan Water District on a number of plans, as well as on the design, construction and operation of project facilities that would be located close to Metropolitan Water District facilities, would be appropriate. We have identified in section 5.0, *Conclusions and Recommendations*, all plans in which Eagle Crest's consultation with the Metropolitan Water District is appropriate and recommend that Eagle Crest document its consultation with the Metropolitan Water District in any plans filed for Commission approval.

## **PURPOSE AND NEED**

**PN 1 Comment:** Kaiser states in reference to the statement on page 3 of section 1.2.1 of the draft EIS, "In deciding whether to issue a license for hydroelectric project, the Commission should determine that the project will be best adapted to a comprehensive plan for developing a waterway," that no waterway is discussed in the draft EIS. Kaiser and the Park Service request a description of the waterway and a justification for concluding that there is a waterway.

**Response:** The comment raises a legal question; whether the Commission has jurisdiction to license the proposed project. The purpose of the environmental review process is to take a hard look at environmental issues, not to address legal issues; however, any order issued by the Commission will address the basis of the Commission's jurisdiction under the Federal Power Act (FPA).

**PN 2 Comment:** Kaiser states that section 1.3 of the draft EIS does not discuss NEPA and what is required in the preparation of a legally sufficient EIS and that such a discussion should be included.

**Response:** NEPA requires that the Commission take a hard look at the environmental effects of the proposed action and any reasonable alternatives, and if there is a significant effect on the human environment, to prepare an EIS. The final EIS meets the requirements of NEPA. The final EIS meets the requirements of NEPA.

**PN 3 Comment:** Kaiser states that the draft EIS provides inadequate analysis of the reason for the project, only that the project could have positive effects on the growing renewable energy industry due to its energy storage capacities. Kaiser states that there is no assurance that any of the proposed major solar and wind projects will actually be built. Kaiser states that solar power already coincides to the day-and-night cycle of on-peak and off-peak value. Interior asks that the EIS identify energy sources to be used if adjacent renewable energy projects are not constructed, and because the project would deplete the limited and valuable groundwater in the area, Interior asks that it not be considered a renewable energy project.

**Response:** Several large wind and solar facilities have been approved and are planned or under construction in the vicinity of the proposed Eagle Mountain Project and elsewhere in the southern California region. In addition to energy storage, pumped storage facilities provide other benefits to the electric grid including ancillary services, such as spinning and non-spinning reserves and voltage regulation, which can be important due to the variability in operations of wind and solar installations. California's Renewable Portfolio Standards (RPS) state:

A pumped storage hydroelectricity may qualify for the RPS if: ... 2) the energy used to pump the water into the storage reservoir qualifies as an RPS eligible source and the amount of energy that may qualify for the RPS is the amount of electricity dispatched from the pumped storage facility.

Pumped storage facilities qualify for the RPS in the basis of the renewable energy used for pumping water into the storage reservoir, but the storage facilities will not be certified for the RPS as separate or distinct renewable facilities. A facility certified as RPS-eligible may include an electricity storage device if it does not conflict with other RPS eligibility criteria.

We discuss the benefits of pumped storage facilities in more detail in section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*. We discuss the project's effects on groundwater in section 3.3.2, *Water Resources*. Additionally, we have revised section 3.3.2.3, *Water Resources, Cumulative Effects*, to include an analysis of the annual water use of the proposed project and other nearby electrical generation facilities, including nuclear, natural gas, and solar plants.

**PN 4 Comment:** Kaiser states that the project is not aligned with the need for both on and off-peak power in California or California Independent System Operator's

(CAISO's) Southern California local capacity requirements. Kaiser states that there should be sufficiently detailed independent studies that demonstrate that there is a need for the project so that there can be a realistic analysis of the benefits of the project versus the detriments of the project, which will be a substantial net user of power. Kaiser states that with the ability to integrate renewable resources into the electrical grid already being met, the need for the project is questionable. Kaiser also comments that as justification for the project, the draft EIS states that the proposed project "would also be able to provide ancillary services to the electric grid, including load following, system regulation through spinning and non-spinning reserve, and immediately available standby generating capacity." These ancillary services are not sufficiently quantified in the draft EIS or anywhere else in the record.

**Response:** The benefits offered by the project would not be limited to providing on-peak and off-peak energy and generating capacity. It would provide energy storage and system stabilization through the various ancillary services that pumped storage facilities provide and are important to the successful integration of solar and wind-powered facilities into the electric grid. We have revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to describe the project's benefits in meeting regional resource goals and providing various ancillary services.

**PN 5 Comment:** Kaiser states that Eagle Crest indicates that the project would serve as a necessary battery for the storage of wind and solar energy and that there are substantial wind and solar facilities planned near the project that could help provide power to pump water to the upper reservoir (see e.g., draft EIS page 212). However, Kaiser states that this is not necessarily true because the draft EIS also states that Eagle Crest "would not be able to choose where the electricity would originate to move the water to the upper reservoir" (draft EIS, page 167). Similarly, the Sierra Club, Brendan Hughes, and the Citizens for the Chuckwalla Valley state that describing the project as using renewable resources and thus reducing carbon dioxide (CO<sub>2</sub>) emissions is inaccurate because coal powered plants may be used to provide energy for the project.

**Response:** As stated above, Eagle Crest does not have firm contracts in place for either the sale of power generation or purchase of pumping power, thus the actual source of pumping power (renewable or non-renewable) that would be used cannot be predicted at this time. We have revised section 1.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to reflect the various sources of pumping power. The air quality analysis in the EIS discusses potential emission offsets, and the final EIS includes some additional information provided by the State Water Board in its comments on the draft EIS; therefore, we revised the analysis in the final EIS to incorporate this additional information.

**PN 6 Comment:** Kaiser states that the economic analysis of the project is deficient and that an accurate and complete discussion of the economics and financial context of the

project is required. It also states that the project is not economically viable because there is not a large differential between peak and off-peak prices and states that the draft EIS does not accurately explain many material aspects of the financial context and effects of the project.

**Response:** The economic value of a pumped storage project is not limited to the differential between on-peak and off-peak energy prices, although the differential is important. Pumped storage facilities also provide ancillary services, such as spinning and non-spinning reserve, voltage regulation, and black start capabilities. The value of these services also helps to offset the cost of pumping water to the upper reservoir and other operational costs of the project. We have revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to describe the project's benefits in meeting regional resource goals and providing various ancillary services.

**PN 7 Comment:** Kaiser states that the draft EIS does not adequately address serious transmission constraints that impact the project, as the project currently has no capacity to deliver the power it may generate to market. A full explanation of the availability and timing of transmission capacity and the impacts of any delay in being able to connect the power grid should be made in the EIS. Kaiser states that the lack of discussion of the transmission line capacity and availability are necessary to ensure NEPA compliance and for a credible general estimate of the potential power benefits and costs of the project.

**Response:** Eagle Crest proposes an interconnection with the proposed Devers-Palo Verde No. 2 transmission line, and we recommend an alternative route that would interconnect with the existing Devers-Palo Verde No. 1 transmission line. Each of these alternatives would depend on transmission projects that are currently proposed by SCE and are currently in the approval process. The approval process for these projects is proceeding, and SCE expects the projects that would make either interconnection point a possibility would be completed and be in service in 2013, prior to the completion of the Eagle Mountain Project. We have revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to include further discussion of the transmission line interconnections.

**PN 8 Comment:** EPA recommends that the final EIS provide evidence of a guaranteed source of renewable energy (e.g., contractually binding agreement) for pumping and that the project would be replacing non-renewable-fueled peaking generation. Similarly, Brendan Hughes states that the draft EIS does not include proof that any of the electricity providers in Southern California wants or needs the proposed project and asks if Eagle Crest has a power purchase agreement.

**Response:** Eagle Crest has stated that it does not yet have a firm contract for pumping energy or a firm power sales contract for the project. The Commission does not require an applicant to have a binding power purchase agreement for sale of power generated by



the project (or in the case of a pumped storage facility, a binding power purchase agreement for purchase of pumping power) prior to issuance of a license.

**PN 9 Comment:** EPA recommends that the Purpose and Need statement in the final EIS be broad enough for analysis and consideration of a full range of reasonable alternatives for addressing the underlying need. EPA recommends serious consideration of a broader range of alternatives for addressing the needs for peaking capacity, transmission regulation, and use of renewable energy generation (e.g., onsite distributed generation, improvements in efficiency, power conservation). Similarly, the Sierra Club and the Citizens for Chuckwalla Valley state that the draft EIS did not include a clear statement of purpose as required by NEPA and that any good alternatives that would meet the need for power should be identified and considered in the EIS.

**Response:** The proposal before the Commission is to construct a pumped storage facility as configured in the license application. The project is located to use two existing open pits on the site that are configured in such a way that with the proposed modifications they could feasibly function as upper and lower reservoirs. The consideration of alternatives applies to the pumped storage project and any alternative configurations that would potentially reduce environmental effects. The matter before the Commission is not to decide whether to construct a pumped storage project or to construct an alternative project that operates using an alternative fuel source. The alternatives considered by the Commission, given the limited options to reconfigure the project on the site, are to construct the project as proposed, construct the project as proposed with additional staff recommendations, or not construct the project as evaluated in the EIS. We have, however, revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to improve our discussion about the need for the project and the ability to provide ancillary services, such as spinning and non-spinning reserve, voltage regulation, and black start capabilities.

**PN 10 Comment:** EPA recommends that the final EIS further explain how the project meets renewable energy generation needs in the context of the many renewable energy project applications in the desert southwest and California. EPA recommends that the final EIS include a summary of other energy projects being planned for the region to meet the same purpose and need.

**Response:** As discussed in the EIS, several large solar and wind facilities are proposed, planned, and/or under construction in the vicinity of the proposed Eagle Mountain Project, including several along the Interstate 10 corridor. In addition, many such projects are proposed, planned and/or under construction throughout southern California and the desert southwest. We have revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to explain that pumped storage facilities can provide energy storage and voltage regulation benefits to the system and

that these benefits dovetail with the variable output of the solar and wind developments to help provide balanced power production and electrical grid stability.

**PN 11 Comment:** The Park Service states in section 1.2.2 that estimates of power generation indicate that the proposed project would have a net loss of power annually. The Park Service states that the NERC projects that current generating capacity will not fall below target reserves during the from period 2009–2018. The Park Service asks that the final EIS clarify why this is a necessary project for providing energy during peak delivery periods.

**Response:** The need for generating capacity is not the only consideration. California has a very aggressive mandate to increase its percentage of generation from renewable resources that are mostly variable in terms of generation and reduce the percentage of generation produced by fossil fuels. Pumped storage facilities can stabilize variable renewable generation and provide ancillary services, like operating reserves and frequency regulation, to support the reliable integration of large-scale solar and wind power projects proposed near the Eagle Mountain Project. We have revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to provide additional information about the role that the project could play in meeting California’s RPS goals.

## PROCEDURAL

**P 1 Comment:** The County Sanitation District states that the draft EIS makes no provision for public review and comment on the preliminary design of the project or on the environmental impacts disclosed at that post-final EIS (final EIS) approval stage. Also, that there has been no meaningful environmental review by the Commission. The County Sanitation District states that the draft EIS improperly asks the public to comment on a project that currently lacks critical design features and has a lack of technical and engineering information.

**Response:** Public review and comment on publically accessible documents and design information has been available throughout the process. State and federal resource agencies and other stakeholders will have opportunities to comment on any post-license study information, and final design plans would undergo detailed review by the Commission. The EIS represents our environmental review of the license application, our analysis of proposed and recommended measures, and the effects of the proposed project.

**P 2 Comment:** Interior states that the draft EIS needs to further develop a Pre-Design Site Investigation Plan because access to the project site is currently limited; this would include having an approved Plan of Development as part of a Record of Decision.

**Response:** In the draft and final EIS, we analyzed and recommend adopting the Phase 1 Pre-Design Site Investigation Plan, and this plan would likely be part of a possible license issued by the Commission.

**P 3 Comment:** The Sierra Club and the Citizens for Chuckwalla Valley state that a number of the documents in the Commission’s eLibrary for P-13123 contain the designation “Availability CEII.” The Sierra Club and the Citizens for Chuckwalla Valley state that the rationale invoked by the Commission is that protection from the threat of terrorism requires some degree of government censorship, but that they are not content to accept designation of Critical Energy Infrastructure Information (CEII) without justification. These entities also state that they would like to know the particulars directly associated with this project relevant to CEII designation and that NEPA guidelines indicate that these groups and the general public should be allowed to obtain this information.

**Response:** Any member of the public can file a request to access CEII information; the instructions to do so are available at: <http://www.ferc.gov/legal/ceii-foia/ceii.asp>.

## **PROPOSED ACTION AND ALTERNATIVES**

**PAA 1 Comment:** Kaiser states that the draft EIS should analyze the option of what additional design modifications would be necessary if the construction of both the proposed landfill and the pumped storage projects proceed simultaneously.

**Response:** The project as proposed by Eagle Crest assumed that both projects could proceed simultaneously, and our analysis in section 3.3.5.2, *Recreation, Land Use, and Aesthetics, Environmental Effects*, indicates that this is feasible.

**PAA 2 Comment:** Kaiser states that alternative pumped storage project locations were not sufficiently analyzed in the draft EIS, including the possible use of the Black Eagle Mine site and that these sites should be evaluated in the draft EIS. Additionally, no evaluation of other potential pumped storage sites in other parts of California or in other locations has been undertaken.

**Response:** We have revised section 2.4, *Alternatives Considered but Eliminated from Further Analysis*, to analyze the use of the Black Eagle Mine as one of the reservoirs in the proposed pumped storage project. Based on our analysis and for reasons discussed in section 2.4, we have determined that the use of Black Eagle Mine is not a reasonable alternative to the proposed project location.

**PAA 3 Comment:** Kaiser states that the draft EIS does not evaluate what other type of projects and facilities may provide the ancillary services that the draft EIS states the

project would provide. It states that there are other alternative options that can provide ancillary services that have not been studied.

**Response:** Some other facilities can provide some of the ancillary services that pumped storage facilities can provide, but none can provide all of them. As discussed in section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, one of the benefits of a pumped storage facility is its ability to quickly change modes to provide ancillary services to the market, including spinning and non-spinning reserve, voltage regulation, and black start capability. The project is able to store water for use at any time so that it can produce energy at any given time. These benefits are becoming more important as renewable energy facilities, which have significant variability over the course of the day due to the availability of the resources that fuel them (wind and sunlight), are coming online. In addition to pumped storage facilities, California is seeing an increase in the number of applications to construct “peakers,” which are typically natural gas-fired units that are not installed to act as base load units but to function solely as standby units until circumstances arise when their capacity and output is immediately needed to provide power during peak periods or to provide ancillary services. Obviously, natural gas-fired units have their own environmental effects and produce greater greenhouse gas emissions than those associated with a pumped storage facility, such as the Eagle Mountain Project. As discussed in section 1.2.2, *Need for Power*, if the power to pump water to the upper reservoir can be obtained from a qualified renewable resource, the pumped storage facility can be considered to be an eligible facility under the California RPS, another unique aspect of a pumped storage facility.

**PAA 4 Comment:** Kaiser states that renewable projects should be considered at this location (e.g., expanded wind and solar projects) because these projects could avoid many of the adverse impacts associated with the proposed project. Also, Kaiser states that the net energy balance of other renewable energy projects should be analyzed and compared to the net energy balance of the project.

**Response:** This EIS analyzes the effects of constructing and operating the proposed pumped storage hydropower project proposed at this site. While renewable projects, such as wind and solar projects, avoid some of the effects of the proposed project, they do not provide the reliable grid support and demand response for when generation for other projects, such as wind and solar, are low or unavailable. In addition, a solar array to supply 1,300 megawatts of energy demand would require an area many times larger than the acreage of the proposed pumped storage project, could not be placed on the highly disturbed Eagle Mountain mine site, and would probably require flat and most likely relatively undisturbed terrain similar to the majority of the nearby proposed solar projects. Further, these nearby solar or wind projects would not have the ability to store energy for use during peak demand periods or provide immediate response to grid fluctuation or black start capability as the pumped storage project would. We have

revised section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to fully describe the benefits of a pumped storage facility.

**PAA 5 Comment:** EPA recommends that the final EIS include a table comparing the life-cycle costs of the different alternatives. The table should include information on the cost of the land, different project design criteria that would be required, acquisition effort, scheduling effects, and the cost of mitigation.

**Response:** The proposal before the Commission is for constructing a pumped storage facility as configured in the license application. The matter before the Commission is not to decide whether to construct a pumped storage project or to construct an alternative project that operates using an alternative fuel source, which would be outside of the Commission's jurisdiction under the FPA. However, we did consider, but eliminated from detailed analysis, an alternative location for one of the reservoirs, the Black Eagle Mine as discussed in section 2.4.2 of the final EIS. Therefore, we respectfully decline EPA's recommendation.

**PAA 6 Comment:** The Citizens of Chuckwalla Valley states that jojoba plantings need to be part of the Alternative Actions section of the environmental documents and that its members are experts in the field and will be happy to provide further information about the use of jojoba as an energy source. The Citizens of Chuckwalla Valley also states that jojoba is native to the area, and the infrastructure is already in place to re-start the industry, thus providing an alternative energy source from the region that is desired to develop alternative energy projects.

**Response:** We appreciate the Citizens of Chuckwalla Valley's suggestion of jojoba as an alternative energy source; however, the most recent literature on jojoba suggests the oils in a potential energy context are best suited for use as biofuel. Biofuel crops are currently being harvested throughout the country predominately for vehicle fueling uses instead of electrical energy generation fuels. Additionally, the scale of the proposed project is many magnitudes larger than the possible energy that could be delivered after processing jojoba from historical or potential jojoba crop coverage in the Chuckwalla Valley. In addition, the proposed project would use a much smaller amount of water than the irrigation required to produce an equal amount of biofuel that could be used to generate an equal amount of electricity. The proposed pumped storage project would also provide ancillary services as discussed in section 1.2.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*.

**PAA 7 Comment:** Interior comments that the system cannot be considered to be closed given losses to evaporation that are anticipated to occur from the reservoirs. It would be more appropriate to say that system is designed to minimize water losses.

**Response:** We revised section 2.2.3, *Project Operation*, to add a footnote that provides our definition of a closed loop system. This footnote defines the system as closed because it is not located on a perennial waterway as are the majority of existing conventional and pumped storage hydropower projects. Evaporation losses are discussed in section 3.1, *General Description of the Project Area*, and section 3.3.2, *Water Resources*.

**PAA 8 Comment:** Interior comments that another criterion that should be considered when selecting project sites is proximity to load centers; minimizing transmission distances would reduce energy losses as well as impacts on remote landscapes and biological resources.

**Response:** Although we agree that the proposed site is located in a remote area, it is mostly situated on a highly disturbed, largely inactive open pit mine with a substantial elevation difference between the two proposed reservoirs. These key factors, along with the proximity to existing transmission corridors, the proximity to existing and proposed renewable energy sources, and the need for energy storage projects, were considered when Eagle Crest selected the site.

## PROJECT SAFETY

**PS 1 Comment:** Kaiser states that the draft EIS does not adequately address the potential impacts and health hazard of electromagnetic fields from transmission lines for the project. Kaiser states that the draft EIS analysis is deficient in analyzing potential hazards and health effects to residents, sensitive receptors, and potential impacts on wildlife.

**Response:** Review of the available scientific literature indicates that there is considerable uncertainty concerning whether, and how, exposure to electromagnetic fields might adversely affect human health. The most authoritative assessment of the effects of electromagnetic fields on humans and animals was issued in June 1999 by the National Institute of Environmental Health Sciences. After Congressionally mandated research, it concluded that the evidence for a risk of cancer and other human disease from the electromagnetic fields around power lines is “weak.”

The findings of the scientific community suggests that electromagnetic fields associated with this proposed transmission line would not likely affect the health of residents in the area if any live close to the proposed 500-kV transmission line corridor. Therefore, we do not analyze this issue in the final EIS.

**PS 2 Comment:** Kaiser and the County Sanitation District comment that they are concerned that that the draft EIS provides inadequate information about the saddle dams and the risk and consequences of a dam break. These entities state a dam break analysis

is required to have a complete understanding of the potential environmental consequences and public safety considerations of the project due to potential catastrophic consequences to the landfill, the town of Eagle Mountain, the Colorado River Aqueduct and other infrastructure if the dam breaks or fails.

**Response:** Eagle Crest has provided information regarding flood routing in Exhibit F (CEII) of the license application in its response to deficiencies and additional information requests (AIRs) dated October 26, 2009 (AIR 3) and in its clarification letter dated December 22, 2009 (Deficiency 5, AIR 14, Deficiency 6, AIR 3). As discussed in section 3.3.2.2, *Water Resources, Environmental Effects*, if the upper reservoir were full (and thus the lower reservoir were at its lowest level), flood inflows would pass over the upper reservoir spillway, down the Eagle Creek channel, and into the lower reservoir. If necessary, flows would then pass over the lower reservoir spillway and lower spillway channel to the Chuckwalla Valley. Details are contained in the aforementioned filings. Additional reviews and approvals the Commission's Division of Dam Safety and Inspections and California regulatory agencies related to dam safety concerns would occur after Eagle Crest completes its final engineering design.

**PS 3 Comment:** EPA recommends that the final EIS include an emergency response plan and a description of what mitigation measures would be taken, and by whom, if monitoring reveals groundwater contamination or if a catastrophic event occurs.

**Response:** The final EIS was revised to state that Eagle Crest would be responsible for mitigation in the event of groundwater contamination from project related events.

## **GEOLOGICAL AND SOIL RESOURCES**

**GS 1 Comment:** Kaiser states that the draft EIS does not accurately describe the status of the Eagle Mountain mine and the Eagle Mountain site. Rather than being depleted, the mining pits that Eagle Crest proposes to use contain economically valuable minerals including iron ore and mining on a limited basis has continued since 1983. Also, Kaiser states that the town of Eagle Mountain is not inactive or "largely a ghost town." Thus, to refer to Eagle Mountain mine or Eagle Mountain site as inactive is incorrect and this inaccuracy also translates to a misunderstanding as to the lack of sensitive receptors such as nearby residences.

**Response:** We discuss the history of mining operations in the project area in section 3.3.6, *Cultural Resources*. Based on available reports, including those published by proposed landfill proponents (e.g., CH2M HILL, 1996) and the U.S. Geological Survey (USGS) (Force, 2001), mining operations at Eagle Mountain Mine ceased in 1983 after 35 years in operation. Further, the ore processing and refining facilities have been removed since this time, as reported in the draft EIS/EIR for the proposed landfill project

(CH2M HILL, 1996); however, this document states the following in section 1.1.1, *Historical Mining Activity*:

Although full-time operation of the mine was curtailed in 1983, Kaiser continues to engage in mining-related activities, including the sale and shipment of overburden as crushed rock and mixed rock product, the maintenance of equipment and roads, and the administration of Kaiser's mining claims. Kaiser's Eagle Mountain rail line was used for two shipments of iron ore in March 1993.

Based on available information on mining-related activities at the Eagle Mountain site, no further extraction, removal, and/or shipments of iron ore from the site are known to have occurred since 1993. The County of Riverside states that vested mining rights no longer exist at the Eagle Mountain mine because iron ore mining ceased in 1983, so future mining of the site would require additional permitting in accordance with the mining ordinance of the county.

**GS 2 Comment:** Kaiser states that the draft EIS does not adequately discuss and analyze the project's impacts on the mineral resources at Eagle Mountain and, specifically, does not consider the mining of iron ore to be economical or the potential project effects on reactivation of large-scale iron ore mining. Kaiser states that it estimated in 1983, when extractive iron ore mining ceased, that there was up to 336 million tons of in-ground iron ore still available at the mine and that a 2001 USGS study (Force, 2001) published a higher amount of up to 550 million tons of in-ground iron ore. Kaiser states that in addition to the in-ground iron ore, there is an estimated 135 million tons of coarse and fine tailings remaining onsite that can likely be economically extracted. Additionally, Interior comments that the draft EIS states that there are about 193.5 million tons of recoverable iron-bearing place at the mine, which contradicts information provided in the Executive Summary that states this is a depleted mine.

**Response:** We discuss the effects of project construction and operation on the Eagle Mountain mine in section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*. We state the total amount of estimated "recoverable" iron ore (i.e., not in-ground) in the central project area is estimated at 170 million tons (e.g., Eagle Crest, 1994; Mine Reclamation Corporation, 1997), with about 23.5 million tons reported to remain at the east end of the eastern mining pit (i.e., the proposed lower reservoir) (GeoSyntec, 1992, as cited in Eagle Crest, 1994). The 23.5 million tons of recoverable iron ore reserves are located within the 467-acre parcel of land that is currently held by the California State Lands Commission. We have revised this section to add information about the estimated amount and location of iron ore from the USGS study (Force, 2001). However, it is important to note that the USGS study's estimate of iron ore present at the Eagle Mountain mine refers only to iron ore likely to be present in the underlying bedrock, or "in-ground" (i.e., not in the coarse tailings present in the pits or stockpiled elsewhere



onsite). We have also revised the Executive Summary to replace the term *depleted* with *largely inactive* to provide a more accurate description of the existing conditions in the project area.

To further address potential effects on the existing mineral resources in the project area, we have added information about the potential for reactivation of large-scale iron ore mining and the economical value of recoverable iron ore at the Eagle Mountain mine that would become inaccessible in the eastern and central pits once project construction begins. In summary, full-time operation of the mine ceased in 1983 and shipment of ore ceased in 1993, as summarized in the landfill project's draft EIS/EIR (CH2M HILL, 1996). There is currently no plan by either Kaiser or others to recover the remaining ore; however, we do acknowledge that about \$10 billion worth of iron ore could potentially remain beneath the footprints of the proposed reservoirs. This ore could become accessible again for mining operations if the project were decommissioned. The proposed landfill project, once completed, would greatly hinder mining of iron ore beneath the landfill footprint. The draft EIS/EIR of the proposed landfill project (CH2M HILL, 1996) does not provide an explicit estimate of the quantity of iron ore that would become largely inaccessible once the landfill is completed; however, it does show visually that the landfill would overlap with the known occurrences of iron ore (e.g., Phases 2, 3, and 5). We have revised section 3.3.1.2, *Geologic and Soils Resources, Environmental Effects*, to add this information to our discussion.

**GS 3 Comment:** Kaiser comments that the statement that recoverable precious metals are not present at Eagle Mountain is in error and that the EIS should include information about improved mining and recovery technology and current market conditions. Kaiser includes an executive summary from a conceptual study for the recovery of contained mineral values.

**Response:** This information in the draft EIS was derived from the draft EIS/EIR prepared for the proposed landfill project (CH2M Hill, 1996), which specifically states:

Following suspension of iron ore mining, the mine was examined for precious metals. No significant quantities of precious metals were detected in the mine area (Kaiser Steel Resources, Inc., 1990).

Kaiser's attached document entitled *Conceptual Study of Kaiser Venture Inc.'s Eagle Mountain Project for Recovery of Contained Mineral Values* finds that there is "sufficient mineral grades and tonnage of gold, platinum, palladium, and iron" that "may exist in the process tailing to warrant a stand-alone 5,000 ton per day tailings recovery operation." Because this document was considered confidential and was not available to us prior to Kaiser's filing, we were not able to consider its findings until now. We have revised section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*, to reference this abridged document. Although there is the potential for precious metals to occur in the

process tailings currently located within the central project area, the precise locations are not wholly known and neither are the quantities. Additionally, neither Kaiser nor any other entity currently has plans to recover the remaining precious metals.

Any metals-enriched tailings located beneath the footprint of the proposed landfill project would become inaccessible once the landfill is completed, unless removed from the footprint prior to and/or during landfill construction.

**GS 4 Comment:** The Center for Biological Diversity states that the revised or supplemental draft EIS should identify the extent of the cryptobiotic soils onsite and analyze the potential impacts on the essential desert ecosystem components as a result of this project.

**Response:** We have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, to discuss cryptobiotic soils. Because of the undisturbed nature of portions of the project area, we expect cryptobiotic soils to be present. However, these microbiotic soil communities can require decades to develop, so we do not expect them to be present in previously disturbed areas in the central project area. Effects of the project on cryptobiotic soils would be limited to areas of disturbance in previously undisturbed soils, which we estimate to be less than 100 acres. Eagle Crest would mitigate these effects as part of the revegetation plan, which includes inoculation of soils with microorganisms that contribute to the formation of cryptobiotic soils. We acknowledged the presence of desert pavement soils in the central project area in section 3.1, *General Description of the Project Area*. We have revised section 3.3.1, *Geologic and Soil Resources*, to add information about this known occurrence of desert pavement. Desert pavement is known to be intermittently present in the central project area, as mapped as part of a geomorphic and soil-stratigraphic age assessment study conducted in support of the proposed landfill project (Shlemon, 1993). Potential impacts on these soils and any underlying soil layers would be avoided and/or minimized through implementation of Eagle Crest's Erosion and Sediment Control Plan (Measure GEO-1), as discussed in greater detail in sections 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*; 4.3, *Cost of Environmental Measures*; and 5.0, *Conclusions and Recommendations*.

**GS 5 Comment:** The Center for Biological Diversity states that the impacts of the proposed project on the sand transport corridor and the down-wind sand dune habitat which supports the Mojave fringe-toed lizard (a BLM sensitive species and a California Department of Fish and Game [DFG] species of special concern) could be significant and that analysis should be done in a revised or supplemental draft EIS.

**Response:** We have revised section 3.3.1, *Geologic and Soils Resources*, to add information about the location of the sand transport corridor. The sand transport corridor is generally situated within the Chuckwalla Valley where only the proposed water supply pipelines and electrical transmission lines would cross it and only very minor effects

would occur as a result of the proposed project. We note that the Mojave fringe-toed lizard is a BLM sensitive species and a California DFG species of concern. However, no habitat for this species exists in the project area, and the project would not affect sand transport to a degree that would affect this species.

**GS 6 Comment:** The County Sanitation District and Kaiser state that the draft EIS does not discuss or describe any mitigation measures that may minimize the project's impacts on soils located in the central project area and, by extension, on the landfill.

**Response:** Section 3.3.1, *Geologic and Soil Resources*, discusses geology and soil conditions known to exist within the proposed project area, which includes the central project area and the potential project-related effects on soils in this area. Implementation of Eagle Crest's Erosion and Sediment Control Plan (Measure GEO-1) would result in the avoidance and/or minimization of potential project-related effects on soils throughout the project area, including the central project area. Prior to project construction, Eagle Crest would conduct detailed subsurface investigations in the proposed project area (including the central project area) to support final engineering designs.

**GS 7 Comment:** Kaiser asks for clarification and explanation of the basis of the following statement and conclusion: "Eagle Crest states that no mass soil or rock movements related to site construction could occur that would affect offsite facilities (i.e., those facilities existing and/or constructed on the valley floor)." Kaiser states that this cannot be true with regard to the landfill and its related facilities and that it is unclear what is meant by reference to the "valley floor." It asks if this statement is meant to indicate that Eagle Crest has concluded that there are no possible mass soil or rock movement impacts on the Colorado River Aqueduct, Kaiser's water pipeline serving Eagle Mountain, and the Eagle Mountain town site, etc.

**Response:** We discuss the effects of project construction and operation on landslides and mass movements in section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*. In this discussion, the "valley floor" refers to the lowland areas of the Chuckwalla Valley. We have revised this section to clarify that existing facilities in the valley would not be affected by any potentially occurring mass soil or rock movements originating in and around the central project area. The central project area is located in the Eagle Mountains, which are above and adjacent to (but not within) the Chuckwalla Valley. The types of existing facilities present upon the floor of the Chuckwalla Valley include, but are not limited to, the Colorado River Aqueduct, Kaiser's water pipeline(s), and the Eagle Mountain town site.

**GS 8 Comment:** Kaiser states that the draft EIS' discussion of the project impacts on the excavation of the landfill is inadequate and the draft EIS does not discuss the potential impacts of the project on landfill stability. Specifically, the discussion should have included consideration of potential impacts results from the back cut excavation for each

phase of the landfill's development, upgradient and downgradient landfill monitoring wells, and landfill perimeter gas probes that may abut, conflict, and impinge on the proposed facilities.

**Response:** We discuss compatibility with the proposed landfill project and the potential effects on the landfill project in section 3.3.5, *Recreation, Land Use, and Aesthetics*. We discuss Eagle Crest's Erosion and Sediment Control Plan (Measure GEO-1) in section 3.3.1, *Geologic and Soils Resources*, which includes best management practices to be implemented during the construction process to control and minimize erosion and stabilize disturbed lands after construction. Destabilization of steep slopes in the central project area would be limited to those areas within the east and central pits (proposed lower and upper reservoirs), with some potential disturbance of existing slopes occurring along linear features (e.g., roads, transmission line, and pipelines), rather than within the areas of the landscape between the pits where the landfill would be constructed. Therefore, no geotechnical issues related to the stability of the landfill are expected to occur as a result of project construction or operation.

**GS 9 Comment:** The County Sanitation District and Kaiser state that the discussion of geological conditions in the central project area does not include a detailed physical examination of the site, an analysis of project design, or site-specific geological studies regarding proposed project facilities. These entities state that site-specific data are critical to determine the true "baseline conditions" at the site and thereby consider the actual environmental impacts of the project. Additionally, the County Sanitation District states that the proposed site investigation program does not consider the project impacts on the static and seismic stability of the landfill's slopes and that such studies cannot be deferred until after the certification of the final EIS and licensing of the project.

**Response:** We discuss the baseline geological conditions of the project area in section 3.3.1.1, *Geologic and Soil Resources, Affected Environment*, for which we relied upon the detailed accounts of surveyed geological conditions in the project area and vicinity, as reported by numerous available information sources. These sources include the California Geological Survey (e.g., Hadley, 1945; Jennings, 1967), USGS (e.g., Force, 2001), and environmental studies conducted in support of the proposed landfill project (e.g., Shlemon, 1993; GeoSyntec, 1996). As discussed in section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*, Eagle Crest proposes to conduct detailed subsurface investigations in the project area prior to construction to support final project configuration and design.

We discuss geologic hazards, which include reservoir-triggered seismicity, in sections 3.3.1, *Geologic and Soil Resources*. Here, we also discuss compatibility with the proposed landfill project and the potential effects on the landfill project in section 3.3.5, *Recreation, Land Use, and Aesthetics*. Our analysis of reservoir-triggered seismicity found that the initial filling of the reservoirs and the planned twice-daily movement of a

relatively large mass of water could impose stress upon the underlying land surface. This stress could potentially trigger land movement, even though there is no evidence that any local faults have exhibited seismic activity within the past 40,000 years. Consequently, we recommend Eagle Crest's proposal to: (1) conduct a thorough subsurface investigation in the project area to better characterize existing conditions and (2) establish a seismic monitoring program per the general recommendations of the International Commission on Large Dams (ICOLD, 2008) for reservoir projects.

**GS 10 Comment:** The County Sanitation District states that the discussion of the extent and location of borings proposed for the geotechnical investigation plan is insufficient because it does not consider the landfill. Eagle Crest's proposed Phase 1 geotechnical investigation plan shows approximately one boring for each 1,800 feet of tunnel. This entity states that the draft EIS should have also explained how such widely spaced borings will provide sufficient information for the design and construction of the tunnels. The County Sanitation District further states that in accordance with 18 CFR §380.12(h)(3), the draft EIS should have incorporated expanded site investigation studies to establish existing geologic conditions, as a baseline prior to blasting, then assess and mitigate any changes that result from the blasting associated with project construction. Kaiser states that the draft EIS is deficient with regard to its discussion on the impacts of blasting and a detailed and complete study and analysis of the impacts of blasting on the landfill and biological resources is required and should not be deferred.

**Response:** We referenced Eagle Crest's proposed site investigations (from section 12.6 of its license application [Eagle Crest, 2009a]) in section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*. We have revised section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*, to add information about the location and purpose of the borings, and we discuss compatibility with the proposed landfill project and the potential effects on the landfill project in section 3.3.5, *Recreation, Land Use, and Aesthetics*.

We also discuss the effects of construction and operation of project facilities in section 3.3.5.2, *Recreation, Land Use, and Aesthetics, Environmental Effects*, which includes information about the expected occurrences of and effects of blasting related to project construction activities. In section 3.3.1.2, *Geologic and Soil Resources, Environmental Effects*, we discuss the potential effects of blasting on the two mining adits in the central project area and the need for Eagle Crest to evaluate the potential for these activities to destabilize these features as part of its subsurface investigations. We have revised the text in section 3.3.1, *Geologic and Soils Resources*, to clarify information about the proposed locations of blasting associated with project construction activities and its potential effects on existing geologic conditions. The proposed blasting activities would occur in conjunction with drilling/boring during construction of the subsurface facilities (e.g., tunnels, surge control, and powerhouse). Once site access is granted and prior to construction, Eagle Crest would conduct its subsurface investigations, including

considering the effects of blasting on existing geologic conditions and proposing modifications to its final designs and/or mitigation measures, if needed. The results of these investigations and the project's final designs would be reviewed and critiqued by the Commission's Division of Dam Safety and Inspections, which would authorize the project's construction and operation.

**GS 11 Comment:** The Citizens for Chuckwalla Valley states that the draft EIS should analyze how the crumbling slopes will be prevented from filling in the reservoirs, which in turn could cause massive flooding caused by displaced water. The Citizens for Chuckwalla Valley states that the draft EIS should contain mapping of the flooding, damage estimates, and mitigation measures if this type of emergency situation were to occur.

**Response:** Reviews and approvals by the Commission's Division of Dam Safety and Inspections related to dam safety concerns such as those mentioned above would occur after Eagle Crest completes its final engineering design.

**GS 12 Comment:** The Citizens for Chuckwalla Valley requests that information be obtained from Cal Tech regarding seismic activity in a 15-mile radius of Eagle Mountain from 1994 until present and that the data should exclude blasting for mining. This entity states that the Blue Cut fault is capable of a 7.2 magnitude earthquake and that many faults that were not identified 20 or more years ago have been identified because of new seismic activities. It also states that Kaiser allows law enforcement agencies to detonate bombs at the Eagle Mountain site without permits and that this is an ongoing activity. The Citizens for Chuckwalla Valley states that these topics need to be included in the EIS.

**Response:** We present information about the recorded seismic history of the project area and vicinity and discuss the potential effects of these seismic events on project facilities, as well as the potential effects of the project on triggering seismic events in section 3.3.1, *Geologic and Soil Resources*. In the *Affected Environment* section, we make reference to the California Geological Survey's database of all known historical earthquakes of magnitude greater than 4.0 within the project region for the period from 1769 to 2000 (California Geological Survey, 2001). The threshold of magnitude 4.0, for which the USGS defines all magnitudes less than this value to be "minor," is used by the California Geological Survey in its database because data on smaller events is sparse prior to the 1940s. Additionally, the USGS defines all events less than magnitude 4.0 to be "minor" and to rarely cause damage to structures. We show locations of known faults within the project vicinity in figures 6 and 7, and we have added labels to the major faults shown in figure 6.

We queried the Southern California Earthquake Data Center online database for the period of 1932 to the present to evaluate the occurrence and magnitude of more recent

seismic events in the vicinity. Our evaluation reveals that there have been no new seismic events of a magnitude greater than 4.0 near the central project area and that there has been no identification of previously unmapped faults occurring in the vicinity. There have been numerous recorded seismic events in the central project area not attributed to fault movement but, instead, caused by mining-related blasting (termed “quarry blasts” in the online database). These blast-caused events had magnitudes up to about magnitude 3.0. We have revised section 3.3.1, *Geologic and Soil Resources*, to add, by reference, this new information. As described in the final EIS, as part of the proposed Phase 1 Pre-Design Site Investigation Plan but prior to the final project design, Eagle Crest would investigate the site to determine the site-specific geologic stability of the mining pits, as well as collecting and analysis of site samples. The results of this investigation will be used to develop the final engineering design for the proposed project. The stability of the slopes and design of the dams and other structures would be reviewed and evaluated by the Commission’s Division of Dam Safety and Inspections, which would authorize the project’s construction and operation.

## **WATER RESOURCES**

### **Groundwater**

**GW 1 Comment:** The County Sanitation District states that the seepage analysis included in the draft EIS relating to groundwater is insufficient in many respects. The County Sanitation District lists the following elements of the seepage analysis that it interpreted to be based on information incorporated into the draft EIS from the State Water Board’s draft EIR: (1) seepage analysis modeling; (2) specific model output figures; and (3) other estimated values of seepage rates and recovery pumping rates.

**Response:** The information that the County Sanitation District cites is part of the State Water Board’s draft EIR but was not included the draft EIS. We have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to include information in the final EIS about the pertinent components of Eagle Crest’s groundwater modeling and analysis.

**GW 2 Comment:** The County Sanitation District states that the draft EIS’ discussion of ground subsidence impacts in connection with the project does not address potential subsidence impacts associated with tunneling activities during construction. Specifically, the draft EIS does not describe any procedure or design for lining the pressure tunnel for seepage control.

**Response:** We discuss the proposed project facilities in section 2.2.1, *Project Facilities*, and potential reservoir seepage and ground subsidence effects in section 3.3.2, *Water Resources*. We have included additional information to our discussion in this latter section that describes the general construction specifications of the water conductor tunnels that would be implemented to minimize seepage. Ground subsidence is not

expected anywhere along the course of the water conductor tunnels as they will pass relatively deep below surface grade within structurally competent bedrock.

**GW 3 Comment:** The County Sanitation District states that the draft EIS does not discuss regulatory interference with the development of the landfill, which could potentially occur as a consequence of reservoir seepage resulting in groundwater levels rising to an elevation that is within 5 feet of the deepest part of the landfill, which would violate requirements of California State Code of Regulations 27 CCR § 20240(c).<sup>66</sup>

**Response:** We have included additional discussion on reservoir seepage in section 3.3.2, *Water Resources*. Additionally, we have modified Measures SR-3 and SR-4 to specifically take into account the requirements of California State Code of Regulations 27 CCR § 20240(c) that would require Eagle Crest to prevent artificially raised groundwater levels from encroaching within 5 feet of the bottom of the landfill. In summary, the project has the potential to artificially raise groundwater levels in the vicinity of the reservoirs, and in turn beneath the landfill, due to reservoir seepage. As discussed in section 3.3.2.2, *Water Resources, Environmental Effects*, results of Eagle Crest's seepage modeling predict that in the absence of seepage recovery actions, groundwater levels could potentially come within about 100 feet of the existing ground surface. In section 5.2, *Comprehensive Development and Recommended Alternative*, we recommend that Eagle Crest implement a seepage mitigation program based on additional information to be obtained in support of final engineering design (Measures SR-1, SR-2, SR-3, SR-4, and SR-5). Seepage recovery via the proposed wells would greatly reduce the potential for artificially raised groundwater levels to come into contact with the existing ground surface, the Colorado River Aqueduct, and the deepest portions of the proposed landfill. Ongoing review of the groundwater monitoring and seepage recovery activities by the Commission through annual reports submitted by Eagle Crest would further ensure that corrective actions would be undertaken should groundwater levels become too shallow beneath critical facilities in the project area. We therefore find that our recommended mitigation measures are likely to control potential reservoir seepage effects on groundwater levels in the project area and, specifically, to prevent groundwater levels from encroaching within 5 feet below the deepest portions of the landfill.

**GW 4 Comment:** Kaiser states that the draft EIS contains no discussion of the potential off-site disposal of salts other than the estimated amount of truck traffic and that this is inadequate.

**Response:** Eagle Crest has not proposed a method of transport or destination for the disposal of salts that the proposed reverse osmosis system would generate. In the draft EIS, our analysis was limited to the proposed facilities that would generate salts and the

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<sup>66</sup> Source: <http://www.calrecycle.ca.gov/Laws/Regulations/Title27/ch3sb2b.htm>.



onsite storage until they can be removed. The removal of these materials would result in additional truck traffic in the area.

**GW 5 Comment:** Kaiser states that a number of potential regional projects use groundwater from the Chuckwalla Groundwater Basin. Kaiser states that it would be beneficial to the public and the Commission if the draft EIS included a review of all the recently published groundwater analyses for the Chuckwalla Basin and provide a report and summary table showing material differences used in each respective analysis.

**Response:** We discuss the cumulative effects on groundwater resources from the proposed project and others in the Chuckwalla Valley (both existing and proposed) in section 3.3.2.3, *Water Resources, Cumulative Effects*. We have included additional background information (i.e., a summary table) on the planned groundwater usage in Chuckwalla Valley.

**GW 6 Comment:** Kaiser states that the analysis and accounting of the groundwater balance for the Chuckwalla Valley groundwater basin does not sufficiently document and explain the basis for its assumptions that the pumping effects of the project will actually result in a water surplus by the end of the assumed 50-year operation period. Kaiser states that the model used to support the groundwater analysis does not include typical model components, as well as an appropriate explanation of the model components used.

**Response:** In our analysis of the effects of project operations on the regional and local groundwater levels, presented in section 3.3.2, *Water Resources*, we do not state that the pumping effects of the project would result in a water surplus in the Chuckwalla groundwater basin. Referring to the more detailed information provided in Eagle Crest's license application (Eagle Crest, 2009a,b) and the State Water Board's draft EIR (2010), the groundwater balance over the 50-year duration (with consideration of cumulative uses from other existing and planned projects in the valley) reveals that project pumping would exceed recharge during the initial 4-year reservoir filling period. Recharge would then exceed pumping during the remaining years because project pumping would be reduced to only provide reservoir make-up water. During this period, groundwater levels would begin to recover as a result of inflow exceeding outflow. We have added more specific details about the groundwater balance, in addition to information about pertinent components of the groundwater modeling and analysis, to sections 3.3.2, *Water Resources*, including section 3.3.2.3, *Cumulative Effects*.

**GW 7 Comment:** Kaiser states that the draft EIS does not adequately address the possibility of drilling and pumping only two groundwater wells and that a long fill period should not be rejected just because it may take more time and/or be more expensive than the preferred alternative.

**Response:** With the use of three pumping wells as proposed, the reservoirs would be filled to a minimum operating capacity in about 1.3 years and full operating capacity in about 4.1 years. We revised section 3.3.2, *Water Resources*, to indicate that if only two wells were used at the same proposed pumping rates, it would take about 6 years to reach full operating capacity. In addition, a smaller number of pumping wells would not limit the amount of groundwater lowering over the term of the license.

**GW 8 Comment:** The County Sanitation District states that the draft EIS should have addressed other areas of analysis, including the applicability of deterministic and probabilistic calculations used to evaluate the dam and reservoir design; representative wave boundary conditions; technical properties, such as those for required strength of foundation and side slope materials, particularly under oblique wave attack and wave overtopping, wave transmission at oblique wave attack, and wave growth under extreme winds.

**Response:** Reviews and approvals by the Commission's Division of Dam Safety and Inspections related to dam safety concerns such as those mentioned by the County Sanitation District would occur after Eagle Crest completes its final engineering design and before project construction would commence.

**GW 9 Comment:** The County Sanitation District states that the draft EIS is missing a discussion of the materials to be used in constructing the dams and the methods or designs for controlling seepage. Specifically, it believes that the draft EIS lacks site-specific information regarding the design of foundation grouting controlling seepage or discussion regarding the likelihood of this construction method's success. The details of the design may significantly impact the economics of the project and have resulting environmental consequences that should have been disclosed in the draft EIS. The County Sanitation District further states that the proponent's plan to use mine tailings to help control seepage, as described in the draft EIS, is inconsistent with site-specific observations of the properties of the tailings and, accordingly, detailed geotechnical characterizations of the actual existing materials should have been discussed. Kaiser has similar comments and states that proposing potential methods for mitigating project seepage is speculative in nature without sufficient geotechnical studies.

**Response:** Site-specific information about the materials proposed to control seepage and the overall potential reservoir seepage effects comes from published studies of existing geologic and hydrogeologic conditions in the central project area. Most of these studies have been published by scientific and regulatory agencies and by others in support of the proposed landfill project (e.g., CH2M HILL, 1996). Together, these information sources provide a comprehensive account of existing conditions in the central project area where the reservoirs and related infrastructure are proposed to be constructed and operated. We discuss the existing hydrogeologic conditions of the central project area and within the Chuckwalla Valley, along with seepage control measures (both reservoir lining

approaches and seepage recovery actions) in section 3.3.2, *Water Resources*. In our analysis of these measures, we conclude that lining the portions of the two reservoirs underlain by bedrock with fine tailings and lining the east end of the lower reservoir (underlain by alluvium) with fine tailings and roller-compacted concrete would be suitable in minimizing seepage. However, if it is determined by the Commission's Division of Dam Safety and Inspections following Eagle Crest's onsite reconnaissance and subsurface investigations that the fine tailings available onsite are not suitable for lining the reservoirs alone (i.e., not sufficiently impermeable), we recommend that Eagle Crest supplement the fine tailings used in the seepage blanket with imported materials, such as clay materials (e.g., bentonite) or even roller-compacted concrete or soil cement, and/or grouting of bedrock fractures to further reduce permeability, as may be required by the Commission. We have revised section 3.3.2, *Water Resources*, to provide additional information to our discussion.

We have revised section 2.2.1, *Project Facilities*, to provide additional information about the materials that Eagle Crest plans to use to construct the dams. However, Eagle Crest will provide much more detailed information based onsite investigations and design details in its final engineering design, which will require review and approval by the Commission's Division of Dam Safety and Inspections. As described in section 3.3.2, *Water Resources*, Eagle Crest's proposed seepage control measures would consist of lining the reservoirs and installing a series of groundwater monitoring wells located downgradient from each reservoir for seepage monitoring and pump-back recovery. We recommend these measures in section 5.0, *Conclusions and Recommendations*.

**GW 10 Comment:** Kaiser states that the evaluation of potential impacts on groundwater at the Eagle Mountain site is limited to document and photographic review, rather than actual studies by Eagle Crest at the central project site. Kaiser states that deferring necessary studies and analysis deprive the Commission, other governmental agencies, and the public of meaningful information that is necessary for analysis of water impacts and other project impacts.

**Response:** Eagle Crest has not been able to conduct on-the-ground data collection efforts in the central project area due to Kaiser's access limitation; however, Eagle Crest and others were able to use a comprehensive data set that characterizes hydrogeologic conditions throughout the central project area. Much of this data set was collected and compiled by others in support of the landfill environmental permitting process (e.g., CH2M Hill, 1996). Additionally, several other published studies on groundwater conditions in the Chuckwalla groundwater basin and adjacent basins were used in the groundwater analyses and modeling efforts conducted specifically by Eagle Crest for this project. We discuss the findings of these studies and our analyses in sections 3.3.2, *Water Resources*. Eagle Crest would conduct additional site reconnaissance and subsurface investigations (including aquifer tests) in support of its final engineering designs. We therefore conclude the analyses of potential project effects on groundwater

resources in the area is technically sound, based on the sufficient volume of available data considered, the appropriateness of the analytical methods employed, and the plan to conduct additional site investigations and analyses when site access conditions are resolved.

**GW 11 Comment:** The County Sanitation District states that the draft EIS does not contain adequate discussion related to the technical and permitting criteria that would be required for the proposed south and west saddle dams. The draft EIS provides no technical explanation as to how the “normal freeboard” and similar parameters for the dams and reservoirs was estimated or calculated.

**Response:** We have revised section 2.2.1, *Project Facilities*, to provide additional information about the elevation of the proposed dams at the upper reservoir and the invert of the spillways at both proposed reservoirs. Information about the maximum water elevation in the proposed reservoirs is available in figure 4 of the EIS. Eagle Crest would provide more detailed information based onsite investigations and design details in the final engineering design, which would require review and approval by the Commission’s Division of Dam Safety and Inspections.

**GW 12 Comment:** The County Sanitation District states that the draft EIS does not provide any real, site-specific basis for its discussion of Eagle Creek’s capacity to handle a flooding event. It comments that the draft EIS should have determined the capacity of the existing drainage features, the project’s capacity for providing drainage for the nearby watershed, the potential project overflows or flooding, and related environmental effects.

**Response:** Eagle Crest provided information about these issues in its Exhibit F (CEII) of the license application; response to deficiencies and AIRs dated October 26, 2009 (AIR 3); and clarification letter dated December 22, 2009, (Deficiency 5, AIR 14, Deficiency 6, AIR 3). This information was summarized as part of our analysis of these topics in section 3.3.2.2, *Water Quantity, Environmental Effects*. As recommended in the EIS, additional investigation, design, and the Commission’s review and approval would ensure sufficient capacity of Eagle Creek channel to protect existing and proposed infrastructure.

**GW 13 Comment:** The County Sanitation District states that the draft EIS does not provide a sufficient analysis of the impacts of seepage and other byproducts of the operation of the project on groundwater levels. Similarly, EPA recommends that the final EIS include more definitive information on the amount and flow direction of reservoir seepage. The County Sanitation District further states that the draft EIS does not assess whether seepage flows are a risk to the upper liner on the landfill (backslopes), the base liner (bottom grade), or both. The County Sanitation District states that because the draft EIS does not characterize groundwater movement on the site, the ability of the proposed monitoring to offer protection of the landfill’s liners cannot be evaluated.

**Response:** We discuss the potential effects of reservoir seepage and related mitigation measures in section 3.3.2, *Water Resources*. Groundwater levels that may become artificially raised due to reservoir seepage would be controlled during project operations through the use of seepage recovery wells that would be installed along the down-gradient sides of each reservoir. Other related measures would involve initial confirmation of aquifer characteristics and appropriate seepage recovery pumping rates (Measures SR-1 and SR-2). These measures would also include monitoring of groundwater levels in the project area to record and allow for the assessment of seepage conditions for the purpose of managing groundwater levels below critical facilities, including the bottom of the landfill and the Colorado River Aqueduct (Measures SR-3, SR-4, and SR-5). We have modified Measures SR-3 and SR-4 to specifically take into account the requirements of California State Code of Regulations 27 CCR § 20240(c) that would require Eagle Crest to prevent artificially raised groundwater levels from encroaching within 5 feet of the bottom of the landfill. We have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to provide additional clarification about potential reservoir seepage effects on the proposed landfill.

**GW 14 Comment:** The County Sanitation District states that the reservoir level monitoring plan recommended by the Commission should be integrated into a comprehensive water balance program and monthly monitoring of the seepage wells to ensure an adequate response is available if pumping at some point did not prevent groundwater levels from rising in the central project area.

**Response:** We discuss the need for a reservoir level monitoring plan in sections 3.3.2.2, *Water Resources, Environmental Effects*, and 4.3, *Cost of Environmental Measures*. We have clarified our recommendation in sections 5.1, *Comparison of Alternatives*, and 5.2, *Comprehensive Development and Recommended Alternative*, to integrate the reservoir level monitoring plan into a comprehensive water balance and water quality monitoring program.

**GW 15 Comment:** The County Sanitation District states that with respect to specific mitigation measures for seepage regarding the landfill, the draft EIS should have included either a target elevation for groundwater levels, performance standards, or an adaptive management approach to make sure that the expected seepage from the reservoir, once an expected level is determined, will not raise groundwater levels under the landfill's liners. To support these measures, the draft EIS should have included a pre-design field investigation to determine the characteristics of the project site.

**Response:** As discussed in our responses to similar comments above, Eagle Crest has not been able to conduct on-the-ground data collection efforts in the central project area due to access limitation; however, it was able to use a comprehensive dataset that characterizes hydrogeologic conditions throughout the project area. Eagle Crest proposes and we recommend additional site reconnaissance and subsurface investigations

(including aquifer tests) to be conducted in support of the final engineering designs. Eagle Crest would additionally confirm aquifer characteristics and adequate pumping rates in the seepage recovery wells as part of aquifer testing during these investigations (Measures SR-1 and SR-2).

**GW 16 Comment:** EPA recommends that the final EIS include a groundwater basin balance analysis for cumulative effects on the Pinto Basin, as well as the Chuckwalla Valley groundwater basin. The final EIS should include a more robust groundwater cumulative impacts analysis that considers impacts from the proposed Eagle Mountain landfill, renewable energy projects, climate change, drought, and growth. The significance and potential implications of the project's cumulative impacts and level of groundwater depletion should be described. The Park Service also requests that a more thorough evaluation and discussion on how the values reported in the current cumulative effects discussion were determined.

**Response:** We have elaborated on our discussion of cumulative effects of groundwater depletion in the Chuckwalla groundwater basin in section 3.3.2.3, *Water Resources, Cumulative Effects*, with additional discussion about related potential effects on the Pinto groundwater basin. We have created a table and added other information showing the groundwater balance of the Chuckwalla groundwater basin and incorporated the cumulative effects of existing groundwater usage, the proposed pumped storage hydroelectric project, the proposed landfill, and the proposed and potential future solar projects in the basin.

**GW 17 Comment:** EPA recommends that the final EIS describe the effectiveness of, and commitments to, the mitigation and monitoring plans proposed in the draft EIS.

**Response:** We discuss the mitigation measures proposed to minimize potential project-related effects on groundwater resources in sections 3.3.2.2, *Water Resources, Environmental Effects*; 4.3, *Cost of Environmental Measures*; 5.1, *Comparison of Alternatives*; and 5.2, *Comprehensive Development and Recommended Alternative*. We make reference to FPA, section 10(c), 16 U.S.C. 803, which makes clear that a licensee of a hydropower project “shall be liable for all damages occasioned to the property of others by the construction, maintenance, or operation of the project works...” We additionally recommend a modification to the proposed mitigation measures in the draft EIS to include a comprehensive groundwater monitoring program. As part of this program, annual reports would be submitted to both the Commission and the State Water Board for their review of groundwater conditions during project operations.

**GW 18 Comment:** EPA recommends that the final EIS address what mitigation measure would be taken, and by whom, if groundwater resources in the basin become overextended to the point that further curtailment is necessary due to, for example,

additional growth, the influx of large-scale solar projects, drought, climate change, and the use of existing or pending water rights in the basin.

**Response:** We discuss the potential project-related and cumulative effects on groundwater supply in the Chuckwalla Valley in sections 3.3.2.2, *Water Resources, Environmental Effects*, and 3.3.2.3, *Cumulative Effects*. We note that as a condition of Measures WS-1, WS-3, and WS-4, Eagle Crest would monitor groundwater levels throughout the valley using a groundwater monitoring network in addition to monitoring groundwater levels in existing water production wells located on neighboring properties in the vicinity of the project pumping wells. Quarterly groundwater monitoring would be conducted as part of a comprehensive groundwater monitoring program and annual reports would be submitted to both the Commission and the State Water Board. As a condition of project pumping during the initial reservoir fill period (i.e., when pumping and drawdown rates would be greatest), Eagle Crest would not exceed historical drawdown levels.

To provide specificity to these levels, in the final EIS, we incorporated drawdown thresholds for the monitoring wells that would be installed and used as part of the comprehensive groundwater monitoring program. These thresholds are based the Maximum Allowable Changes proposed in the State Water Board's 2010 draft EIR (i.e., Measure MM GW-1). We revised section 3.3.2, *Water Resources*, to add a table (table 12) that lists the Maximum Allowable Changes. Measure WS-3 in this section of our EIS would ensure that any owners operating water production wells on neighboring properties in the vicinity of the project pumping wells would be compensated by Eagle Crest if it is determined through monitoring that these wells have become adversely affected during the initial reservoir filling period.

**GW 19 Comment:** EPA recommends that the final EIS include a full description of the cost, energy consumption, and feasibility of the reverse osmosis system to buffer the potential maximum amount of acid drainage. For instance, EPA states that the final EIS should provide a short description of the buffering technology and information demonstrating that it is a proven technology for treating acid drainage.

**Response:** As part of our recommended Phase 1 Pre-Design Site Investigation Plan, prior to the final project design, Eagle Crest would collect and analyze site samples to determine the site-specific acid production potential and the net neutralizing capacity. We added text in section 3.3.2.2, *Water Quality, Environmental Effects*, about the ability of reverse osmosis systems to modify the pH of water.

**GW 20 Comment:** The Metropolitan Water District states that groundwater production by the project could result in an unauthorized diversion of the Colorado River. The Metropolitan Water District proposes that as a mitigation measure, the project annually report the static water beneath each of the project's production wells, along with a

reference to either the accounting surface as proposed by USGS in 2008 or to a valid accounting surface methodology set forth in future legislation, rule making, or applicable judicial determination. Interior also requests that the final EIS acknowledge the USGS accounting surface methodology and express groundwater elevations in feet above mean sea level, vertical datum of 1929.

**Response:** The USGS 2008 Colorado River Accounting Surface (Wiele et al., 2009) does not apply to the western portion of the Chuckwalla groundwater basin because: (1) this basin is not within the river's floodplain; (2) groundwater flow in the basin is directly east toward the Palo Verde groundwater basin, the Palo Verde Mesa groundwater basin, and the Colorado River (which remained in this direction even during the historically high groundwater pumping in the early 1980s); and (3) groundwater levels in the vicinity of the project's proposed pumping wells are currently several hundred feet above the proposed accounting surface elevation. Therefore, we find that groundwater use by the project would have no adverse effect on the Colorado River Accounting Surface and, in turn, would not result in an unauthorized diversion of the Colorado River. We have added this information to our discussion in section 3.3.2.2, *Water Resources, Environmental Effects*.

We agree with Metropolitan Water District's recommendation and have modified Measures WS-1 and WS-4 to include the quarterly measurement and annual reporting of groundwater pumping production, water quality, and groundwater levels in the project pumping wells. This modification revises these two measures to also be more in line with the similar measure (Measure MM GW-1) proposed in the State Water Board's draft EIR (2010).

**GW 21 Comment:** The Park Service believes the results presented in tables 1–5 of its filing indicate that use of Eagle Crest's total average annual recharge estimate of 12,700 acre-feet per year results in a substantial underestimation of the potential effects of project pumping on groundwater storage in the basin. Eagle Crest's recharge estimate and water balance analysis is not supported by the historical water level trends provided in the State Water Board's draft EIR. The Citizens for Chuckwalla Valley also questions our recharge analysis and state that it is based on incorrect numbers and data. The Park Service contends that the total average annual recharge to the basin is much lower (3,000 acre-feet or less) than Eagle Crest's estimate which is supported by the Park Service's revised water balance analyses, and the historical pumping volumes and resulting water level trends provided in the State Water Board's draft EIR. The Park Service contends that Eagle Crest's method of estimating the total natural recharge and inflow for the Chuckwalla, Orocopia, and Pinto valleys has biased the estimate upward and that other analysis methods used in the region by the USGS indicate a substantially lower recharge rate for these basins. As a result, Eagle Crest may have underestimated the potential impact on groundwater storage in the Chuckwalla Valley that might result from the pumped storage project. The Park Service requests that the Commission and the State



Water Board give fair consideration to the 2004 USGS recharge study for the Joshua Tree groundwater basin (Nishikawa et al., 2004) because they believe it presents one of the more thorough, peer-reviewed recharge studies in the area. Additionally, the Park Service states that Eagle Crest's claim that the basin will recover to pre-project levels by 2094 cannot be substantiated by the historically declining water level trends observed in the valley, which strongly suggest much lower recharge conditions exist than those used by Eagle Crest. The Park Service states that additional pumping from the proposed project and other foreseeable projects will only exacerbate the depletion of groundwater storage and decline in water levels in the valley.

**Response:** In section 3.3.2.2, *Water Resources*, we discuss how groundwater levels in the basin have been recovering steadily since the 1980s based on a review of historical well data. We acknowledge that groundwater levels in the Desert Center area of the Chuckwalla Valley have not fully recovered from the intensive groundwater pumping in the 1980s to support the short-term agricultural activities. Groundwater pumping that is attributable to continued, albeit lower, withdrawals in the area. We also independently evaluate recharge in the Chuckwalla groundwater basin using best available information on existing precipitation and hydrogeologic conditions published by state and federal agencies and others. We found recharge to be about 12,700 acre-feet per year, which is consistent with Eagle Crest's estimated recharge rate. When considering the proposed groundwater use to support project operations and other reasonably foreseeable groundwater use projects (e.g., solar and landfill), we found that the groundwater withdrawal rate would not exceed the recharge rate, except during the initial 4 years of reservoir filling. We conclude that of the about 10 million acre-feet of groundwater currently stored in the basin, the project's proposed use of groundwater to fill and maintain water levels in the reservoirs would result in the total extraction of about 1 percent of the recoverable water in the aquifer. In response to the Park Service's extensive comments and information contained in its tables 1–5, we have revised section 3.3.2, *Water Resources*, to include additional support for our analyses. We have made reference to the Park Service's findings in our discussion; however, we have not modified our findings because the analysis in the draft EIS of groundwater recharge is technically sound based on the use of appropriate analyses that represent basin-specific conditions.

**GW 22 Comment:** The Park Service's storage depletion estimate represents approximately a 6.6 percent decline of the estimated 9,100,000 acre-feet in storage (as summarized in table 6; attached to the Park Service's comment letter). This is substantially different from Eagle Crest's estimated maximum decrease in groundwater storage (95,300 acre-feet in 2046) and corresponding water level decline (9 feet) over this same period of time. It should also be noted that Eagle Crest's estimate of a 9-foot decline appears to be incorrect, as it is not consistent with the decline predicted by its maximum storage depletion estimate (i.e.,  $95,300 \text{ acre-feet} / 15,000 \text{ acre-feet/foot} = 6.3 \text{ feet}$ ).

**Response:** We provided a response regarding the effects of differences in recharge estimates, which in turn influences the predicted magnitude of project-induced aquifer depletion and water level changes, in our response to Comment GW 25. Here, we stated that the total reduction in recoverable groundwater from the basin would be about 1 percent over 50 years of project operation.

Drawdown throughout the Chuckwalla groundwater basin would not be uniform as is suggested by the Park Service in its comment. Rather, drawdown would be focused at and near the various water supply wells already in use and those proposed for use in the foreseeable future. Our analysis has found that the maximum drawdown would be much greater near the pumping wells, as they create a cone of depression, and the effects would be much less in areas farther away. Therefore, our drawdown estimate of 9 feet appears to be a reasonably conservative estimate of cumulative drawdown given the spatial heterogeneity of water levels expected to occur during the operations of all proposed projects.

**GW 23 Comment:** The Park Service disagrees with the magnitude of the cumulative pumping effects that will result over the life of the project. The Park Service states that Eagle Crest has underestimated the potential cumulative effects on groundwater storage and water level declines in the Chuckwalla Valley that may result from existing pumping, the pumped storage project, and pumping by other foreseeable projects in the basin.

**Response:** When using the groundwater recharge estimates provided by the Park Service, it would appear that we have underestimated the potential cumulative effects on groundwater storage. However, as discussed our response to Comment GW 25 and in section 3.2.2, *Water Resources*, of the final EIS, the Park Service appears to have underestimated recharge in the basin as compared to our estimate, which we determined from several reliable information sources (e.g., Mann, 1986; California Department of Water Resources [DWR], 2004a; Nishikawa et al., 2004). Therefore, our draft and final EIS provides an appropriate estimate of the magnitude of the cumulative effects of pumping on groundwater storage.

**GW 24 Comment:** The Park Service asks for more consistency in the discussion of proposed mitigation measures so that the reader can fully comprehend these measures and when they will be applied.

**Response:** We discuss the proposed mitigation measures related to groundwater resources in sections 2.2.4, *Proposed Environmental Measures*; 3.3.2.2, *Water Resources, Environmental Effects*; 4.3, *Cost of Environmental Measures*; 5.1 *Comparison of Alternatives*; and 5.2, *Comprehensive Development and Recommended Alternative*.

**GW 25 Comment:** The Park Service states that the discussion under the groundwater resources subsection is incomplete with respect to potential effects on groundwater

availability and/or groundwater levels and flow directions related to consumptive evaporative losses from the storage reservoirs. The Park Service requests including discussion on potential mitigation measure(s) that can be implemented to substantially reduce the consumptive evaporative losses that will occur from the surfaces of the two storage reservoirs. If Eagle Crest cannot propose a workable mitigation measure to address a consumptive evaporative loss of groundwater, the evaporative loss from the reservoirs should be considered an unavoidable, adverse impact on the groundwater resources in the basin, and the State Water Board and the Commission should consider denying the operating permit for the proposed pumped storage project.

**Response:** We agree with the Park Service and conclude in section 5.3, *Unavoidable Adverse Effects*, that the evaporative losses from the reservoirs (1,700 acre-feet per year) would be an unavoidable adverse effect of the proposed project. However, project pumping to replace reservoir water lost to evaporation would be offset by the natural recharge of groundwater to the basin (about 12,700 acre-feet per year), thereby avoiding overdraft of the aquifer during project operations.

**GW 26 Comment:** The Park Service states that the discussion in the second paragraph on page 77 of the draft EIS is incomplete with respect to evaluating possible changes in groundwater flow directions resulting from project pumping and that general statements are made without any supporting data.

**Response:** We have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to add more detailed information presented in the State Water Board's draft EIR (2010). In summary, project effects are not expected to substantially alter flow directions throughout the basin given the following: (1) the relatively large size of the basin (about 45 miles across) in comparison to the much smaller size of the cumulative cone of depression that is expected to form around the three pumping wells near Desert Center (less than 10 miles across); (2) the total volume of water in storage (about 10 million acre-feet); and (3) the volume of water to be pumped during the initial reservoir filling period (about 32,000 acre-feet).

**GW 27 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Project Operations on the Regional and Local Groundwater Level and Flow Directions and Quality, Our Analysis*, the discussion in the second paragraph on page 76 makes reference to "maximum historic drawdown" in several of the valleys, but no numerical values are provided. The Park Service asks for the historic drawdown values for each of the valleys and areas of interest and a discussion on how they were derived to provide better context for the modeling results.

With respect to Eagle Crest's reported maximum historic drawdown of 15 feet for the Pinto Valley, the Park Service requests changing this value to 8 feet based on information in its comment letter. The Park Service states that project pumping will occur only in the

Chuckwalla Valley so drawdown in Pinto Valley that can be directly related to historic pumping in the Chuckwalla Valley should be the measure.

**Response:** We discuss the historical drawdown magnitude in the Pinto groundwater basin in section 3.3.2.1, *Water Resources, Affected Environment, Groundwater Resources*. We have included additional information about historic drawdown in the Orocochia groundwater basin in this section, per the request of the Park Service.

With respect to the Park Service's preference of using 8 feet, versus 15 feet, for the maximum historic drawdown magnitude of the Pinto groundwater basin, we respectfully disagree and support the value of 15 feet to represent the maximum drawdown of the basin, which is based on historical water level measurements made in well 3S/15E-4J1 situated at the mouth of the basin between 1960 and 2007. The drawdown of 8 feet referenced by the Park Service occurred after pumping by Kaiser in the upper Chuckwalla groundwater basin caused drawdown of about 7 feet. Because pumping by Kaiser and others together caused the maximum drawdown of 15 feet, we consider this to represent the "historic drawdown magnitude" in the Pinto groundwater basin.

At the recommendation of the Park Service, we have included numerical values and additional discussion to better characterize the historical drawdown magnitude in all wells located in the Chuckwalla, Orocochia, and Pinto basins having long-term measurement records. This additional information is presented in section 3.3.2, *Water Resources*, of the final EIS in table 7.

**GW 28 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Project Operations on the Regional and Local Groundwater Level and Flow Directions and Quality, Our Analysis*, the discussion on the modeling results is lacking a summary discussion of the type of model that was used and why it was chosen, the input parameters that are required (hydraulic conductivity, transmissivity, storage coefficient, recharge, discharge rates, etc.), the parameter values used in the model, the modeling runs performed, and the limitations of the model results. Additionally, the discussion is lacking any figures of the drawdown results. Inclusion of such discussion and figures will provide context to the reader and help them to better understand the modeling effort and the results of the impact analysis.

**Response:** We have included additional information in section 3.3.2.2, *Water Resources, Environmental Effects, Groundwater Resources*, that further supports our discussion of potential impacts on water resources. We have included details about the Eagle Crest's groundwater modeling approach, assumptions (i.e., hydraulic parameters), and results. This additional information is presented in the final EIS in the form of new and/or revised tables, figures (i.e., maps), and text.

**GW 29 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Project Operations on the Regional and Local Groundwater Level and Flow Directions and Quality, Our Analysis*, the Park Service disagrees with the first part of the Commission’s opening statement that the proposed project could cause temporary overdraft of the Chuckwalla Groundwater Basin. In several previous comments to the State Water Board’s draft EIR and the Commission’s draft EIS, the Park Service has provided compelling evidence that the potential impact to the basin overdraft from the proposed project pumping should be considered *significant* as it will exacerbate groundwater storage depletion and declining water levels already occurring in the basin.

**Response:** See response to Comment GW 25; we provided a response to the previous comments issued by the Park Service with regard to the potential discrepancies between Eagle Crest’s recharge estimate and the Park Service’s estimate, as supported by the long-term decline of water levels in a well situated within a grouping of active wells near Desert Center (see above). In section 5.3, *Unavoidable Adverse Effects*, we note that the project’s continued use of groundwater to make up water losses to evaporation would be an unavoidable adverse effect. In consideration of the Park Service’s comment, we have modified our analysis discussion in sections 3.3.2.2, *Water Resources, Environmental Effects, Groundwater Resources*, and 3.3.2.3, *Cumulative Effects*, to state that the initial reservoir filling during the first 4 years of project operations would result in adverse effects on groundwater storage and water levels because pumping is expected to exceed recharge rates during this period. Various mitigation measures are therefore proposed to monitor, manage, and mitigate these effects during this period.

**GW 30 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Project Operations on the Regional and Local Groundwater Level and Flow Directions and Quality*, the second paragraph mentions that Eagle Crest proposes several measures to minimize the effects of project groundwater pumping on regional and local aquifer levels in the basin. Most if not all of the measures mentioned in this paragraph are monitoring or management measures, not mitigation measures. The Park Service comments that monitoring or management should not be portrayed as a mitigation measure.

**Response:** Because “management measures” would be implemented to mitigate project effects, we have adopted the Park Service’s recommendation and revised this section to more clearly describe which measures (or aspects of certain measures) that Eagle Crest proposes and we recommend serve to “monitor,” “manage,” and/or “mitigate” groundwater resources.

**GW 31 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Reservoir Seepage during Operations, Our Analysis*, the Commission mentions some additional actions that could be taken to

ensure the protection of groundwater supplies. The current wording suggests there is some uncertainty related to requiring Eagle Crest to implement these actions. It requests clarification on whether the Commission (and/or the State Water Board) will require these actions to be taken by Eagle Crest. The Park Service states that the proposed operational hydrologic budget may hold promise in understanding the actual water gains and losses related to operating the project, but should also include an accounting of evaporative losses from the reservoirs and brine pond for completeness.

**Response:** We discuss our staff alternative to these reservoir seepage measures in section 5.1, *Comparison of Alternatives*. Here, we state that those actions described in section 3.3.2.2, *Water Resources, Environmental Effects*, should be undertaken with the associated measures (e.g., a comprehensive groundwater monitoring program to include a hydrologic budget). We have adopted the Park Service's recommendation to clarify the wording used in section 3.3.2, and section 5.2 to state that Eagle Crest would be required to implement the additional actions.

**GW 32 Comment:** The Park Service states that in the last paragraph under the *Groundwater Resources* subsection (page 74 of the draft EIS), the Commission mentions that preliminary groundwater modeling has been conducted by Eagle Crest to aid in the design of the seepage recovery well system. It requests more discussion in the EIS on the details and results of this modeling effort (in tabular form, figures, and/or an appendix) so that the reader can see how the preliminary seepage recovery well field design was derived. The Park Service recommends taking this a step further and requiring Eagle Crest to conduct a performance pump test of the final seepage recovery system prior to reservoir filling to assure that hydraulic control of the local groundwater can be achieved and to validate the modeling results. The results of this performance pumping test should be documented in a report to the Commission, the State Water Board, and interested stakeholders.

**Response:** We have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to add detail about Eagle Crest's preliminary groundwater modeling, which is based, in part, on information presented in the State Water Board's draft EIR (2010).

We added a discussion of proposed measures to gage aquifer characteristics, potential seepage conditions, and well pumping capacity in this section (Measures SR-1 and SR-2). We have included additional elements of the proposed measure based on the Park Services' recommendation for Eagle Crest to conduct a well performance test. In summary, the aquifer tests would be performed by constructing one of the seepage recovery wells and pumping that well while observing the drawdown in at least two seepage recovery or monitoring wells (as also described in the State Water Board's draft EIR [2010], Measures GW-4 and GW-5). Additionally, a well capacity, or performance, test would be undertaken in conjunction with the aquifer tests.

**GW 33 Comment:** The Park Service asks for clarification about the difference in the monitoring proposed for Measures SR-3 and SR-5. Measure SR-3 appears to be proposing water level monitoring, while Measure SR-5 appears to propose water quality monitoring similar to Measure GQ-2 (see page 70).

**Response:** We discuss these measures in sections 3.3.2.2, *Water Resources, Environmental Effects*; 4.3, *Cost of Environmental Measures*; 5.1, *Comparison of Alternatives*; and 5.2, *Comprehensive Development and Recommended Alternative*. We note that Measure SR-3 would involve the development of a groundwater level monitoring network for the purpose of monitoring seepage rates and seepage recovery success. Measure SR-5 would involve the quarterly monitoring of these wells and the annual reporting to the Commission and State Water Board for their review and input. Measure GQ-2 would involve the monitoring of water quality conditions in these wells, in addition to those monitoring wells to be installed in the valley to assess pumping effects on water levels (i.e., Measure WS-4). Our recommended alternative would involve a comprehensive groundwater quantity and quality program that implements these measures together in a coordinated manner.

**GW 34 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Project Operations on Groundwater Availability*, the Park Service recommends revising the discussion in the first paragraph to correct a couple of inconsistencies. Examination of Eagle Crest's water balance (presented in the State Water Board's draft EIR) indicates that recharge would exceed project pumping by 1,700 acre-feet per year, not vice-versa. Additionally, the Park Service states that in examination of this same water balance indicates that about 108,700 acre-feet of groundwater would be used by the project over the simulated 50-year operating period, not 96,600 acre-feet as reported.

**Response:** We have corrected these two inconsistencies. This section now correctly states that: (1) recharge would exceed cumulative pumping by the proposed pumped storage hydroelectric project and other proposed projects in the project area (e.g., the landfill and solar power facilities) by about 1,700 acre-feet per year; and (2) the project would require about 109,620 acre-feet of groundwater over a 50-year operating period.

**GW 35 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Effects of Project Operations on Groundwater Availability*, the discussion in the first paragraph mentions that Eagle Crest developed a groundwater balance for evaluating the proposed project's effect on groundwater supplies, but no water balance is presented to support the discussion of the results in the EIS. The Park Service requests that the water balance be provided in tabular form or in an appendix, along with a more detailed discussion of how the water balance was derived and what the water balance results indicate so that the reader can better understand what the potential effects will be from the proposed project pumping. The Park Service further

states that this information is critical in evaluating whether or not the proposed project has a substantial impact on the perennial yield and the amount of groundwater in storage and communicating the evaluation results to the public.

**Response:** We have revised section 3.3.2, *Water Resources*, to add information and new tables to summarize the water balance under existing conditions and under project (and cumulative) pumping conditions, as recommended by the Park Service.

**GW 36 Comment:** The Park Service recommends including an introductory discussion at the beginning of section 3.3.2.2 describing the water resource-related impact issues that have been identified by the Commission's staff as they relate to the proposed project. Additionally, the Park Service recommends providing a related discussion on the various methodologies that were used by the Commission's staff to evaluate the potential impact issues, along with establishing threshold limits by which to gage the degree of potential impact. The Park Service states that this is a common discussion element, which is normally presented in an EIS document, but is absent from the draft EIS.

**Response:** In section 3.3.2.2, *Water Resources, Environmental Effects*, we opted not to present an introductory discussion but, instead, discuss and analyze issues separately, which also includes discussion on the methodologies we employed to evaluate project effects on groundwater resources. However, in the *Executive Summary* and in section 5.0, *Conclusions and Recommendations*, we provide summary discussions of the effects on water and other resources as they relate to the proposed project with our recommended measures.

**GW 37 Comment:** The Park Service states that, in the subsection on groundwater resources under the discussion about *Perennial Yield*, the Commission mentions in the last sentence in this subsection that in Eagle Crest's April 23, 2010, letter, Eagle Crest states that its estimate (12,700 acre-feet/year) compares well against a re-calculation of the basin's perennial yield using a recent USGS method that was developed for the nearby Joshua Tree aquifer (Nishikawa et al., 2004). The Park Service requests that identification of the methodology from the 2004 USGS study (as there were several) that was used to calculate the recharge to the Chuckwalla Valley aquifer and provide the calculations and supporting data as part of the EIS and the EIR for this project.

**Response:** We have revised section 3.3.2.1, *Water Resources, Affected Environment*, to add more detail about the analytical methods we used in evaluating groundwater recharge rates in the Chuckwalla groundwater basin. In summary, the approaches included the modified Maxey-Eakin method (Hevesi et al., 2002) and an empirical methodology recommended by Metropolitan Water District's Review Panel for the nearby Fenner Valley groundwater basin (URS, 2009, as cited in State Water Board, 2010). As part of this re-evaluation, Eagle Crest only considered recharge inputs from the basin's



surrounding mountain areas, which is based on the approach taken by the USGS in its 2004 study of recharge rates in the Joshua Tree groundwater basin.

**GW 38 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Perennial Yield*, the title of this section leads the reader to believe that the discussion will focus on the perennial yield estimate of the basin. However, there is no definition of the perennial yield presented to aid the public's understanding of the discussion. The Park Service asks that Eagle Crest update the current discussion to address this deficiency.

**Response:** In the EIS, we provide a brief definition of perennial yield to mean the "natural recharge" of the groundwater. We have revised section 3.3.2.1, *Water Resources, Affected Environment*, to elaborate on this definition to clarify our discussion of perennial yield. Perennial yield is defined by California DWR (2003) as: "The maximum quantity of water that can be annually withdrawn from a groundwater basin over a long period of time (during which water supply conditions approximate average conditions) without developing an overdraft condition."

**GW 39 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Groundwater Recharge Sources*, several references are made in the second, , and fourth paragraphs to several recharge estimates, but there is no indication of the sources of these estimates. The Park Service requests the sources for these recharge estimates.

**Response:** We have provided additional citations to the published sources of information referenced in this subsection on *Groundwater Recharge Sources*. We have additionally provided new estimates of groundwater recharge made in the Chuckwalla groundwater basin that were presented in related documents, such as the solar power project environmental permitting documents and the 2004 USGS study of recharge in the Joshua Tree groundwater basin (Nishikawa et al., 2004).

**GW 40 Comment:** The Park Service states that, in the subsection on groundwater resources under the discussion about *Groundwater Pumping*, the statement is made that annual pumping at the two prisons is expected to be reduced 35 percent by 2011, from 2,100 acre-feet per year to 1,500 acre-feet per year. The Park Service states that, if this is true, then Eagle Crest's wastewater recharge estimate of 800 acre-feet per year should be reduced proportionately to reflect the lower amount of wastewater that will be produced, and therefore, recharged back to the aquifer. The Park Service states that the wastewater recharge estimate after 2011 remains unchanged in Eagle Crest's water balance estimates presented in section 12.4 of the State Water Board's draft EIR and should be changed to reflect a proportional decrease in the production of wastewater after 2011.

**Response:** We have revised section 3.3.2, *Water Resources*, to reflect the expected decrease in wastewater recharge from the subject prison facilities.

**GW 41 Comment:** The Park Service asks that the Commission provide more detail in the EIS about the parameter estimates that were used to derive the groundwater storage volume for the Chuckwalla Valley groundwater basin in the subsection on groundwater resources under the discussion about *Groundwater Storage and Outflow*. The storage volume presumably required an estimate of the saturated volume (i.e., saturated area x saturated thickness x drainable porosity) of the sediments in the basin. In addition, the Park Service requests that the EIS please provide an estimate of the groundwater storage volume for the Pinto and Orocopia valleys, as existing project and reasonably foreseeable project pumping all have the potential to affect groundwater levels and storage volumes in these basins as well. Finally, the Park Service states that the statement that the storage estimate for the valley “is probably another conservative estimate because it does not include water in the clay deposits” is misleading as economical quantities of water from saturated clay deposits cannot be reasonably expected and therefore, should not be considered as part of the overall storage volume estimates. Any discussion on storage estimates should focus on the volume of water that can be economically recovered. The Park Service asks this statement be corrected.

**Response:** We have revised section 3.3.2.1, *Water Resources, Affected Environment*, to provide more detail about calculating the storage capacity of the Chuckwalla groundwater basin in. In summary, the storage capacity estimate of about 10 million acre-feet was calculated by multiplying the areal extent of the groundwater basin (~600,000 acres) by the average saturated thickness of the aquifer (150 feet; as determined by evaluation of available well logs) and by the storage coefficient (10 percent). This estimate compares well to the range published by California DWR (2003) of 9.1 to 15 million acre-feet calculated based on similar parameter assumptions. We have included additional information on the groundwater storage capacity of the two adjoining and contributing groundwater basins based on information published by California DWR (2003). In summary, the storage capacity of the Orocopia groundwater basin has been estimated to be between 1.5 and 6.25 million acre-feet and of the Pinto groundwater basin to be 230,000 acre-feet (California DWR, 2003). We respectfully have not modified our statements on the groundwater storage capacity being potentially a “conservative” estimate because we have presented a discussion on the “total storage capacity” of the Chuckwalla aquifer.

**GW 42 Comment:** The Park Service states that recent draft EISs for the Palen Solar Power Project and the Genesis Solar Energy Project in Chuckwalla Valley presented additional hydrographs of wells that appear to indicate a long-term decline in water levels is occurring in parts of the study area that are more distant from the historic pumping centers that occurred in the Desert Center area. Declining water levels in the valley are

an indication that natural recharge may be much lower than is proposed by Eagle Crest and that depletion of groundwater storage may be occurring.

**Response:** We have revised section 3.3.2, *Water Resources*, to add information about the groundwater levels and groundwater recharge rates from the proposed Genesis Solar Energy Project (BLM, 2010) and the draft EIS for the proposed Palen Solar Power Project (BLM and CEC, 2010). In summary, the hydrographs presented in these two documents for the two proposed solar power projects indicate that water level changes over the past several decades in the vicinity of the proposed project's pumping wells (just north of Desert Center) generally exhibit recovery toward historic levels, with a few exceptions likely caused by local pumping activities.

**GW 43 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Groundwater Levels*, reference is made to various wells with water level records that were evaluated in the draft EIS and discussion is presented on selected wells. The Park Service asks that the EIS provide a table that summarizes the historic water level information for all of the wells in the study area that have water level measurements and clarify whether the various wells were pumping during the period of record or whether they were inactive and acted as monitoring wells. Additionally, the Park Service asks that the EIS provide a figure showing all known wells in the valley and label those with water level data so that the reader can cross-reference them to the table.

**Response:** We have revised section 3.3.2.1, *Water Resources, Affected Environment*, to provide additional detail about the water production and monitoring wells referenced in our discussion. This additional information is in the form of new and/or revised tables, figures (i.e., maps), and text. Specifically, figure 7 has been updated with clearer labels of the various wells.

**GW 44 Comment:** The Park Service states that Eagle Crest contends that pumping by Kaiser in the Pinto Valley and upper Chuckwalla Valley lowered water levels in the Pinto Valley by 15 feet and that the water level has recovered to about 7 in 1960. The Park Service states that the draft EIS indicates that the water level recovery is being slowed in part by pumping effects related to current pumping occurring in the Desert Center area. The Park Service states that the discussion about *Groundwater Levels* in the Commission's draft EIS lacks any mention of this and; therefore, should be revised to address this issue and recognize that much of this residual decline could be explained as a result of groundwater storage depletion occurring from the earlier pumping by Kaiser in the Pinto Valley and upper Chuckwalla Valley.

**Response:** In section 3.3.2.1, *Water Resources, Affected Environment*, we discuss groundwater levels and how these levels have changed historically, based on available records. We specifically cite the information provided in the first paragraph of this

comment in our discussion in this section and, further, acknowledge that the cause for the present-day water level still being about 7 feet below the static water level measured in 1960 could possibly be due to withdrawals near Desert Center. Based on consideration of the information provided in this comment, we have included additional details on historic and existing groundwater conditions, presented in the form of new and/or revised figures, tables, and text, to clarify information presented in this section. However, we have not modified our findings as presented in section 3.3.2.2, *Water Resources, Environmental Effects*, based on these additional details.

**GW 45 Comment:** The Park Service states that in the subsection on groundwater resources under the discussion about *Groundwater Levels*, the discussion in the first paragraph focuses on a water level recovery of about 100 feet in the Desert Center area from 1986 to 2002, and based on 2007 data that indicate water levels are still about 17 feet lower than the static water level in 1980 before heavy pumping began. The Park Service suggests that the 2007 residual drawdown levels may be partially explained by drawdown created by current reduced pumping in the area. The Park Service recommends the discussion should be revised to also recognize that some of this residual decline is likely the result of groundwater storage depletion occurring from historic agricultural pumping and earlier pumping by Kaiser. The Park Service states that, given that current agricultural pumping is approximately three times lower than it was in 1986, some of the water level decline could be explained by depletion of groundwater storage in the aquifer.

**Response:** We discuss the reduction of groundwater stored in the Chuckwalla groundwater basin as caused by the historically high groundwater pumping in the 1980s in section 3.3.2.1, *Water Resources, Affected Environment*. Based on consideration of this and other related comments, we have included additional details on historic and existing groundwater conditions, presented in the form of new and/or revised figures, tables, and text, to clarify the information presented in this section. However, we have not modified our findings as presented in section 3.3.2.2, *Water Resources, Environmental Effects*, based on these additional details.

**GW 46 Comment:** The Park Service states that, in the subsection on groundwater resources under the discussion about *Hydraulic Characteristics*, the EIS should provide all available hydraulic characteristic data (in tables or an appendix) to provide support for the discussion presented to the reader. The Park Service states that the discussion cites ranges of values for hydraulic conductivity, porosity, etc. but the reader cannot easily confirm these ranges because supporting data are missing in the draft EIS.

**Response:** We have revised section 3.3.2, *Water Resources, Affected Environment*, to include additional information on reported hydraulic characteristics of the sediments in the Chuckwalla groundwater basin. This information has been presented in the form of a new table supported with additional text in the section.

**GW 47 Comment:** The Park Service states that the draft EIS should provide additional figures and tables to support the discussion in section 3.3.2.1, *Water Resources, Affected Environment*. Specifically, figures showing the groundwater basins being discussed, the location of known wells in the Chuckwalla Valley, geologic cross-sections showing the type and continuity of subsurface lithologies, groundwater surface elevations and flow directions, and hydrographs showing historic water level trends of wells throughout the valley should be included.

**Response:** In figures 5, 6, and 7, we show the Chuckwalla and adjacent groundwater basins, regional geology, and existing and proposed well locations, respectively. We have included additional information on hydrogeologic attributes of the project area and region in the form of new and/or revised figures, tables, and text to clarify our discussion.

**GW 48 Comment:** Regarding the statement in section 3.3.2.1, *Water Resources, Affected Environment, Groundwater Resources*, “In the JTNP, the Park Service owns one well in the Pinto groundwater basin (Pinto Well No. 2), and Kaiser owns two additional wells near the Park Service well in the southeastern portion of the Pinto groundwater basin,” the Park Service states that this sentence should be edited to indicate that the Metropolitan Water District owns the two additional wells (not Kaiser) located on an inholding within the boundary of the Joshua Tree National Park and wilderness area.

**Response:** We have revised section 3.3.2.1, *Water Resources, Affected Environment*, to reflect this correction.

**GW 49 Comment:** The Center for Biological Diversity states that although no express reservation of rights has been made for many of the other public lands in the California Desert Conservation Area (CDCA), the draft EIS should have addressed the federal reserved water rights afforded to the public to protect surface water sources on all public lands that would be affected by the proposed project. Pursuant to Public Water Reserve 107 (PWR 107), established by Executive Order in 1926, government agencies cannot authorize activities that will impair the public use of federal reserved water rights.

**Response:** We conclude that licensing the proposed project with our recommended measures would not substantially adversely affect the availability or quality of water in the area. We consider water rights issues to be within the jurisdiction of the State Water Board, not the Commission.

**GW 50 Comment:** The Center for Biological Diversity states that the Commission should examine the federal reserved water rights within the area affected by the proposed project and other proposed and recently approved projects in this area that will use significant amounts of groundwater. It states that this examination should include a survey of the water sources potentially affected by the proposed project. It also states

that the Commission should ensure that any springs, seeps, creeks, or other water sources on public land and particularly within the wilderness areas are not degraded by the proposed projects' use of water and continue meet the needs of the existing wildlife and native vegetation that depend on those water resources.

**Response:** We revised section 3.3.3, *Terrestrial Resources*, to provide additional information about springs and other water sources near the proposed project. However, all of the nearby natural water sources are those located in the Eagle Mountains at elevations above the project or those not connected hydrologically to the groundwater in the project area and therefore would not be affected by groundwater withdraws in the Chuckwalla Valley or proposed project operations.

**GW 51 Comment:** The Center for Biological Diversity states that the draft EIS does not identify which wells will be used for groundwater pumping. Figure 7 shows the “existing wells,” “existing wells to be used for monitoring,” “proposed new monitoring wells,” and “seepage recovery wells.” It is unclear if all existing wells will be used for pumping or if additional wells will be needed. It is unclear if the existing wells are on private or public lands.

**Response:** The location of the three wells proposed to supply water to the reservoirs during project operations would be constructed by Eagle Crest in the upper Chuckwalla Valley, near Desert Center; their proposed locations are discussed in section 3.2.2, *Water Resources*, and shown in figures 3 and 6 of the draft EIS. As proposed by Eagle Crest, these three wells would serve as the sole water supply source for the reservoirs in section 2.2.1, *Project Facilities*. Figure 7 of the draft EIS shows the locations of the existing wells (previously or currently used by others), existing wells to be used for groundwater monitoring, proposed new monitoring wells (to be constructed), and proposed extensometers near the central project area. We discuss the function of these existing and proposed wells as part of groundwater monitoring and seepage recovery measures in section 3.3.2.2, *Water Resources, Environmental Effects*. The locations of these wells are shown on figures 3 and 8 of the final EIS.

**GW 52 Comment:** The Center for Biological Diversity states that The California Desert Protection Act (CDPA) expressly reserved water rights for wilderness areas that were created under the act (16 U.S.C. § 410aaa- 76.34). Therefore, the Center for Biological Diversity states that, at minimum, the Commission should ensure that use of water for the proposed project (and cumulative projects) *over the life of the proposed projects* will not impair those values in the wilderness that depend on water resources (including perennial, seasonal, and ephemeral creeks, springs and seeps as well as any riparian dependent plants and wildlife).

**Response:** The proposed project would withdraw groundwater from the Chuckwalla Valley located in excess of 100 feet below the surface and therefore is not available to

riparian plants and animals. All of the natural springs, seeps, and other water sources are those located in the mountains at elevations above the project or those not connected hydrologically to the groundwater in the project area and therefore would not be affected by groundwater withdrawals in the Chuckwalla Valley or proposed project operations.

**GW 53 Comment:** The Center for Biological Diversity states that the draft EIS does not provide an evaluation of the existence of the U.S. Army Corps of Engineers jurisdictional waters occur on site and that the draft EIS also does not provide an evaluation of the existence of Waters of the State.

**Response:** We discuss the presence of intermittent and ephemeral streams in the project area in section 3.3.2.2, *Water Resources, Environmental Effects, Fishery Resources*. We note that there are no U.S. Army Corps of Engineers jurisdictional streams in the project area. We also note that these streams may qualify as Waters of the State. We find that Eagle Crest's proposals to (1) consult with California DFG to obtain any necessary Streambed Alteration Agreements and (2) prepare and file construction plans that show the project would not alter desert wash topography or flow patterns would adequately protect these resources. These proposals would also answer any of the legal jurisdictional ambiguities.

**GW 54 Comment:** Brendan Hughes states that the exact recharge rates of groundwater in the Chuckwalla basin are unknown, and that mining desert groundwater, a non-renewable resource, should not occur to support a for-profit venture as proposed in the draft EIS. Brendan Hughes also states that the proposed project will leave an estimated groundwater deficit in the Chuckwalla basin of 100,000 acre-feet over a 50-year project period. Hughes states that, since 1,700 acre feet/year (85,000 acre feet over the life of the project, and probably more) will be lost to evaporation, if the project moves forward Eagle Crest should cover the upper and lower reservoirs to prevent evaporation. Brendan Hughes states that Eagle Crest could put photovoltaic solar panels on these covers to produce energy, if the project moves forward.

**Response:** As addressed in GW 25, we discuss natural recharge rates and uses of groundwater (for both domestic and for-profit purposes) in the Chuckwalla Valley in section 3.3.2, *Water Resources*. We provide background information about reported rates of recharge to the groundwater basin and region based on various information sources, including the California DWR and USGS. Recharge rates were also considered from those reported in the landfill's draft EIS/EIR (CH2M Hill, 1996). In summary, the Chuckwalla groundwater basin is recharged by precipitation falling on the valley and surrounding mountains and by surface and subsurface inflow from the adjacent Pinto and Orocochia valleys. We have revised section 3.3.2.1, *Water Resources, Affected Environment, Groundwater Resources*, by adding a table to summarize the existing recharge sources and their estimated rates. We have also added a table and additional discussion summarizing the anticipated project-related and cumulative effects on the

perennial yield of the aquifer in sections 3.3.2.2, *Water Resources, Environmental Effects, Groundwater Resources*, and 3.3.2.3, *Water Resources, Cumulative Effects*.

Mr. Hughes is correct that the project would pump about 110,000 acre-feet of water from the Chuckwalla groundwater basin—an equivalent of about 1 percent of the recoverable groundwater in storage—and that covering of the upper and lower reservoirs could decrease evaporation. However, under proposed operation of this pumped storage project, both reservoirs would have daily water level fluctuations of about 100 vertical feet. The surface area at the daily maximum water level is also about 2.5 times or more the surface area at the daily low water level. These daily fluctuations in both the water levels and surface areas would make any covering the reservoirs, especially one with solar panels, very problematic and expensive, and a rigid cover of the reservoirs would also be very expensive.

**GW 55 Comment:** The Citizens for Chuckwalla Valley states that the final EIS should analyze the impacts from filling the pits with water where various activities took place, such as training with firearms and explosives, because the area is highly fractured and poisonous contaminants from conventional weaponry will flow into the underground aquifer. The Citizens for Chuckwalla Valley asks what will happen when the water starts to rise from leakage, and what will prevent these contaminants from entering the undermined Colorado River Aqueduct.

**Response:** We discuss measures intended to intercept groundwater potentially seeped from the reservoirs in section 3.3.2.2, *Water Resources, Environmental Effects, Groundwater Resources*. These measures include the installation of seepage recovery and groundwater monitoring wells that would serve to limit effects on existing groundwater levels and quality, particularly beneath the Colorado River Aqueduct. Further, the Colorado River Aqueduct traversing the upper Chuckwalla Valley east of the project area is built slightly below ground level and lined with concrete, which would prevent entrance of groundwater into this waterway.

**GW 56 Comment:** The Citizens for Chuckwalla Valley, Brendan Hughes, and Johnney Coon state landowners are concerned about a lower water table resulting from the project, which would require landowners to drill deeper wells. The Citizens for Chuckwalla Valley states that despite the mitigations offered to landowners by Eagle Crest if the project results in lower water table levels, including (1) pay to lower pumps, (2) drill well deeper or replace well, and (3) compensate for increased cost of pumping, there is no guarantee in the draft EIS that such mitigations would be provided for private well owners. Further, the Citizens for Chuckwalla Valley states that lowering the wells is not possible once the water table is below the pump. The Citizens for Chuckwalla Valley and Johnney Coon state that the draft EIS should include a development agreement with the host community (Eagle Mountain/Desert Center/Lake Tamarisk) well owners that would preclude litigation. Otherwise, the Citizens for Chuckwalla Valley and Johnney



Coon are concerned that landowners would have to go through litigation to ensure that they receive these proposed mitigation measures. The Citizens for Chuckwalla Valley further states that Eagle Crest may not accept responsibility for lower water levels if it is determined that the impact is derived from cumulative use of the aquifer's groundwater, specifically by the project operations of Eagle Crest, the landfill, agricultural practices, and solar companies. Johnney Coon states that he would like specifics on what would be done to help landowners if the water table is lower because of the project operations.

**Response:** Determination of whether water production wells on neighboring properties are being adversely affected by project pumping near the Desert Center area would be achieved through implementation of Measures WS-1, WS-3, and WS-4. These measures would involve the monitoring of groundwater levels in a newly established groundwater monitoring network (consisting of existing and new monitoring wells positioned throughout the project area and upper Chuckwalla Valley [see figure 7]) and in water production wells on neighboring properties, such as those that may be impaired by project pumping. Monitoring would be conducted on a quarterly basis during the initial 4 years of reservoir filling but may be extended beyond this period, depending on findings that would be summarized for and reviewed by the Commission and the State Water Board for the purpose of confirming actual drawdown conditions (Measures WS-1, WS-3, and WS-4). In the event it is determined that the proposed project is negatively affecting neighboring wells (under Measure WS-3), the FPA, section 10(c), 16 U.S.C. 803, provides that a licensee of a hydropower project "shall be liable for all damages occasioned to the property of others by the construction, maintenance, or operation of the project works...." We have modified Measure WS-1 (develop a groundwater level monitoring network) to be more in line with a similar measure proposed in the State Water Board's draft EIR (Measure MM GW-1), where Eagle Crest would be responsible for recording groundwater levels, water quality, and production at the project pumping wells. We have revised sections 3.3.2.2, *Water Resources, Environmental Effects*; 5.1, *Comparison of Alternatives*; and 5.2, *Comprehensive Development and Recommended Alternative, Water Quality/Water Quantity*, and *Additional Measures Recommended by Staff*.

**GW 57 Comment:** The Metropolitan Water District is concerned about structural, water quality, and operational effects of the discharge channel flow and conveyance atop or immediately adjacent to the Colorado River Aqueduct. Metropolitan Water District states that the draft EIS should provide greater detail of the discharge channel and associated flows, proposed design and proximity to the Colorado River Aqueduct, and the specific mitigation measures to prevent any impacts on the Colorado River Aqueduct.

**Response:** Greater details of the proposed discharge channel in the area of the Colorado River Aqueduct will be available after Eagle Crest prepares the final engineering design of the project. As part of the design process, Eagle Crest would consult with the Metropolitan Water District about the Colorado River Aqueduct, regarding the design of

the proposed discharge channel from the lower reservoir, and seek approval from the Commission's Division of Dam Safety and Inspections.

**GW 58 Comment:** The Metropolitan Water District believes that impacts on groundwater quality may not necessarily be evident during the first 4 years. It is not clear within the draft EIS whether continued monitoring (potentially on a less frequent basis) would continue past the 4 years indicated. According to the Metropolitan Water District, the State Water Board maintains regulatory authority over the water quality of the groundwater basin; the final EIS should clearly indicate that any reduction in the monitoring frequency (from quarterly) would require specific approval of the State Water Board. In addition, the Chuckwalla basin has previously been considered by Metropolitan, and may be considered in the future, for a conjunctive use water resource project and the maintenance of existing groundwater quality would be critical for future projects. The Metropolitan Water District also requests that the final EIS specify that all groundwater monitoring data and associated technical reports should be provided to the Metropolitan Water District, if requested, in the future for assessment of the Chuckwalla basin groundwater quality.

**Response:** We have revised sections 3.3.2.2, *Water Resources, Environmental Effects*; 5.1, *Comparison of Alternatives*; and 5.2, *Comprehensive Development and Recommended Alternative*, to add more detail about groundwater monitoring programs. All groundwater monitoring would include quarterly measurement and annual reporting and results would be filed on eLibrary and would be available to the public and the Metropolitan Water District.

**GW 59 Comment:** The Citizens for Chuckwalla Valley states that it disagrees with the draft EIS statements that groundwater recharge will not be exceeded within 4 years of pumping, and that by 2065, recharge will be increased by 75,000 acre-feet, with no depletion of the aquifer. The Citizens for Chuckwalla Valley states that rainfall estimates in the draft EIS are incorrect, and that the area has gone from 4 to 7 years with no rainfall, with an average of 4 inches of rainfall a year, based on National Oceanic and Atmospheric Administration data. The Citizens for Chuckwalla Valley states that these rainfall amounts would not recharge the aquifer, and that the draft EIS is incorrect in this conclusion.

**Response:** We addressed groundwater recharge in response to Comment GW 25 where, briefly, we stated that groundwater recharge would be exceeded during the first 4 years of reservoir filling, but because pumping would be smaller than recharge rates thereafter through the remainder of project operation, the amount of groundwater in storage would be increased by about 75,000 acre-feet by 2065, without depletion of the aquifer. We discuss precipitation and groundwater recharge conditions in the Chuckwalla Valley and potential project-related effects on the groundwater supply in sections 3.3.2.1, *Water Resources, Affected Environment, Water Quantity*, and 3.3.2.2, *Water Resources*,

*Environmental Effects, Groundwater Resources.* We state that the average annual rainfall in the Eagle Mountains and Chuckwalla Valley is between 3 and 5 inches. This range represents the average annual total amount of rainfall that was recorded in rain gauges (and interpolated in between) in the mountains and valley over several decades. It is presumed that some years had more rainfall and some years had less than the reported average. This information is based on long-term precipitation records for the region published by various scientific agencies, including the National Oceanic and Atmospheric Administration. The U.S. Department of Agriculture's official climatological data center—the PRISM Climate Group—provides freely available data sets on its web site<sup>67</sup> that show average annual precipitation contours across the entire state of California, including the subject area, between 1971 and 2000. The California DWR's Groundwater Bulletin 118 for the Chuckwalla groundwater basin also states that the average annual precipitation in the valley is 4 inches. We have provided supporting citations in section 3.3.2.1, *Water Resources, Affected Environment, Water Quantity*, that specifically reference these two information sources (i.e., California DWR, 2003; PRISM Group, 2006).

**GW 60 Comment:** The Citizens for Chuckwalla Valley states that water does not flow from the Cadiz and Palo Verde basins, and thus amount of recharge stated in the draft EIS is incorrect. Further, the Citizens for Chuckwalla Valley states that the draft EIS statement that water flows in the Chuckwalla aquifer from Hayfield is speculative, and that previous tests have been unable to trace flows of groundwater in the area. The Citizens for Chuckwalla Valley requests further clarification on the draft EIS' finding that the project's proposed use of groundwater would have less of an impact on groundwater levels in the Chuckwalla Valley than the groundwater use in the 1980s had on water levels.

**Response:** The Chuckwalla groundwater basin is recharged by percolation of runoff from the surrounding mountains, precipitation to the valley floor, and surface and subsurface inflow from the adjacent Pinto and Orocopia valleys, situated immediately to the north and west of the Chuckwalla Valley, respectively, based on information contained in the California DWR Bulletin 118 (2003). The Cadiz Valley is not hydrologically connected with the Chuckwalla Valley (due to bedrock barriers), and subsurface water from the Chuckwalla groundwater basin drains east to the Palo Verde Mesa groundwater basin. We discuss this information in section 3.3.2.1, *Water Resources, Affected Environment*. Although we do not specifically discuss Hayfield Lake in this section, we do cite available information (e.g., California DWR, 2003) that states that the Chuckwalla Valley receives both surface and subsurface water from Orocopia Valley, within which Hayfield Lake is located.

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<sup>67</sup> Web site available at: <http://www.prism.oregonstate.edu/>.

We discuss historical groundwater pumping and the project effects on regional and local groundwater levels in section 3.3.2, *Water Resources*. We state that the highest rates of pumping reached up to nearly 21,000 acre-feet per year, which resulted in a groundwater level declines of about 130 feet. At the proposed pumping wells of the project, groundwater levels are expected to decline by about 50 feet during the initial 4 years (during reservoir filling), but the drawdown would level off at about 14 feet thereafter.

**GW 61Comment:** Interior states that the description of the groundwater resources mitigation measure in section 2.2.4, *Proposed Environmental Measures*, that will entail installation and use of monitoring wells “to confirm that wells would be maintained at historical levels” needs to provide a definition of “historical levels.” Further, Interior asks how limiting groundwater pumping to a range of historic volumes pumped determines significance of effects considering that historic levels may not have been sustainable and may have resulted in significant impacts that were not subject to any regulatory controls at that time. Interior, therefore, requests that a monitoring and mitigation plan should be required of Eagle Crest that addresses the actual groundwater levels and their effects, not just magnitude relative to historic levels.

Related to these statements, Interior also states that any groundwater network monitoring efforts should be extended beyond the initial fill period and be coordinated with other applicants in the surrounding area to ensure consistent data collection that can be used to evaluate cumulative impacts on the groundwater basin. Further, Interior states that measures to compensate adversely affected well owners should include options that would maintain sustainability of existing uses in the long term, rather than being focused solely on various forms of financial compensation.

**Response:** We discuss historic and existing groundwater pumping activities in the Chuckwalla groundwater basin and the potential effects of project operations on groundwater levels in section 3.3.2.1, *Water Resources, Affected Environment*. Here, we explain that the “historic levels” refer to the maximum drawdown that occurred during the early 1980s in support of relatively intensive agricultural activities in the Desert Center area. As a condition of project pumping during the initial reservoir fill period (i.e., when pumping and drawdown rates would be greatest), we find that Eagle Crest would not exceed historical drawdown levels.

We have included a table in section 3.3.2.2, *Water Resources, Environmental Effects, Groundwater Resources*, that lists the Maximum Allowable Changes established for the monitoring wells to be installed and used as part of the comprehensive groundwater monitoring program.

We discuss the potential project effects on neighboring wells and the associated mitigation measure (Measure WS-3) in section 3.3.2.2, *Water Resources, Environmental Effects*.

**GW 62 Comment:** Interior requests clarification on the seemingly contradictory statements made in section 3.3.2.1, *Water Resources, Affected Environment, Groundwater Quantity*, related to groundwater input from the adjacent Orocopia and Pinto groundwater basins. Specifically, Interior requests that we provide a basis for the use of the term “subsequent estimate” used in this section.

**Response:** In this section, we presented a range of published rates of recharge to the Chuckwalla groundwater basin from the two adjacent groundwater basins: Orocopia and Pinto. We have modified our use of the term in question to clarify that we are presenting a range of recharge estimates.

**GW 63 Comment:** Interior states that the project’s proposed groundwater use is outside federal purview provided that static groundwater elevations in the Chuckwalla groundwater basin are maintained over 240 feet above mean sea level, vertical datum of 1929. Interior requests that the Commission require of Eagle Crest, as a section 10(a) license condition, that the Bureau of Reclamation be provided copies of any reports prepared under Measures WS-1, WS-2, and WS-4, or pursuant to the comprehensive groundwater monitoring program that is recommended in the staff alternative. Interior further requests that the Commission and Eagle Crest coordinate with the Bureau of Reclamation to ensure that the location of and the static water elevations for wells used to fill the reservoirs and make up losses are included in the Bureau of Reclamation’s inventory of wells.

**Response:** We have revised section 3.3.2, *Water Resources*, to provide additional detail about groundwater levels under existing conditions and under expected conditions during project operations (see our response to Comment GW 23 related to the USGS accounting surface). In section 5.0, *Conclusions and Recommendations*, of the final EIS, we recommend filing copies of these reports with Interior. These reports also would be on the Commission’s eLibrary system, available to the public, and thus to the Bureau of Reclamation and others.

## **SURFACE WATER**

**SW 1 Comment:** Kaiser states that the draft EIS does not specifically discuss potential impacts on surface water including sedimentation and metals, but instead asserts that mitigation of these impacts will be through, among other things, the Erosion and Sediment plan filed as part of the license application, which is incomplete due to inadequate studies and baseline conditions.

**Response:** Because Kaiser has not allowed access to the site, Eagle Crest has been forced to rely on other sources, such as the landfill EIR/EIS and other available information, for baseline information and the analysis of some of the effects associated

with the proposed project. As mentioned earlier, several key investigative plans would be required before the final engineering plans are prepared and before construction would begin. Information obtained during the onsite investigations would help refine effects on surface water, such as the potential of acid production and other concerns, prior to final engineering design and construction.

**SW 2 Comment:** Kaiser states that the draft EIS is deficient with regard to evaluation of stormwater impacts. There is insufficient analysis of Eagle Creek since there has not been any actual onsite studies related to the channel capacity of the creek (draft EIS, page 63); therefore, hydraulic capacity was estimated. Kaiser states that the draft EIS does not adequately discuss how debris and sediment loading from any one storm and from cumulative storms will impact the lower reservoir, the project's operations, and the landfill. Kaiser also states that the draft EIS does not analyze potential impacts from an overflow of Eagle Creek prior to stormwater being discharged into the lower reservoir. Kaiser states that there is inadequate discussion in the draft EIS of the impacts resulting from the discharge of water near the town of Eagle Mountain.

**Response:** Eagle Crest estimated channel capacities using the best available data. In the draft and final EIS, we recommend that prior to construction and if necessary after additional studies with detailed onsite information are completed, Eagle Crest perform channel modification and other measures to contain flows associated with the probable maximum flood (PMF) to the Eagle Creek channel and direct these flows to the proposed lower reservoir.

**SW 3 Comment:** The Citizens for Chuckwalla Valley states that, according to the document, drawdown of the aquifers would not be expected to affect local springs. The Citizens for Chuckwalla Valley does not agree with this conclusion and suggest requiring additional studies to analyze the potential impacts on local springs. The Citizens for Chuckwalla Valley states that the springs in the area surrounding the project are important water sources for local wildlife including desert bighorn sheep, and that there is a deficiency in reliable data and observations on the existing springs in the area. The Citizens for Chuckwalla Valley states that there are times during droughts when Buzzard Springs is dry, but after year of rainfall the spring flows and that when the Desert Protection Act was enacted, Buzzard Springs was included in the new boundaries of the Joshua Tree National Park and wilderness area.

**Response:** It is unlikely that the springs are hydrologically connected with the Chuckwalla groundwater basin because the springs are located in the mountains above the valley floors (SCS Engineers, 1990). The project would obtain its water supply from the Chuckwalla groundwater basin; therefore, it would not have any adverse effect on the springs. We discuss the springs in sections 3.3.2.1, *Water Resources, Affected Environment, Water Quantity, and Groundwater Resources*, and 3.3.2.2, *Water Resources, Environment Effects, Groundwater Resources*.

**SW 4 Comment:** The Park Service states that a discussion on climate setting for the study area is missing from the *Affected Environment* section. The Park Service asks for a discussion on the climate records of the study area basins, including tabulations of temperature extremes (daily and monthly), precipitation extremes (monthly and annual), and estimated evaporation rates (monthly) for climatic stations in the vicinity of the project study area. It states that this information is important in understanding the potential amount of recharge to these basins, as well as evaporative losses from the project reservoirs.

**Response:** We provide general climate information, including temperature and precipitation extremes in section 3.1, *General Description of the Project Area*. Additionally, we have revised section 3.3.2, *Water Resources*, to add information about recharge and related parameters.

**SW 5 Comment:** Interior requests clarification on whether the lack of proposed modifications to the Eagle Creek channel to contain the PMF mean that the channel is believed to accommodate the PMF with the reservoir system in place. Interior further seeks clarification on whether there is any commitment on the part of Eagle Crest that flow in the channel below the lower reservoir during a PMF will be limited through any channel improvements to below a level of significant (identified in the draft EIS as 4,000 cubic feet per second [cfs]).

**Response:** Eagle Crest estimated the flow capacity of Eagle Creek and provided conceptual plans for channel modification to contain the PMF within the Eagle Creek. Eagle Crest's analyses indicate that, by using the available storage in the reservoirs and the pump-back capability during the PMF, the outflow from the lower reservoir would be limited to 460 cfs. Eagle Crest also provided conceptual plans for a riprap channel to convey this flow to the alluvial fan below the Colorado River Aqueduct. However, the final design of these plans and structures would require approval of the Commission's Division of Dam Safety and Inspections.

**SW 6 Comment:** The County Sanitation District states that the draft EIS does not analyze a likely operating condition where the lower reservoir is full or even partially full during a PMF. Given the possibility that this condition may well exist while the project is operating, the draft EIS should have considered: flow volumes that exceed the capacity of the existing Eagle Creek and the resulting sediment load down gradient; a flood that exposes and discharges refuse from the landfill to surface water; and uncontrolled discharge of storm waters from the lower project reservoir.

**Response:** Analyses such as those referenced above will be reviewed and approved by the Commission's Division of Dam Safety and Inspections. However, at this time, available information from Eagle Crest and our analyses, as summarized in the draft and

final EIS, indicate a peak flow from the upper reservoir of 17,370 cfs reaching the lower reservoir during the PMF. This inflow is greater than the proposed pump-back capacity to the upper reservoir of 11,600 cfs. As summarized in section 3.3.2.2, *Water Quantity, Environmental Effects*, Eagle Crest's preliminary calculations indicate that because of the pump-back capability, the available storage in the reservoirs, and the volume of the PMF, the maximum discharge from the lower reservoir would be 460 cfs.

High levels of sediment inflows are likely during the very rare surface water flow events in the area. However, during most years, there would be no sediment inflow to the reservoirs and limited amounts in most other years.

## WATER QUALITY

**WQ 1 Comment:** Kaiser with assistance from its consultant GeoSyntec reviewed the proposed reverse osmosis system and provided comments with respect to such system, which are set forth in the GeoSyntec letter.

**Response:** We have reviewed the comment letter and have added additional discussion about the reverse osmosis system in section 3.3.2, *Water Resources*.

**WQ 2 Comment:** Kaiser states that the reservoir seepage risks are not sufficiently analyzed and seepage from the proposed project could adversely affect the proposed landfill project. Kaiser (through its consultant GeoSyntec) comments that sufficient information has not been presented regarding the schedule for additional investigation and a conceptual design for some seepage control measures. Additionally, seepage from the brine ponds and its potential impacts on groundwater are inadequately studied and discussed in the draft EIS. Specifically, Kaiser states that, while the potential problem is identified, there is no detailed analysis of the impacts of such a brine leak.

**Response:** We recognize the complexities associated with constructing two proposed projects in proximity and operating them simultaneously. Landfill regulations are strict with respect to the liners and the control of seepage from the landfill into the surrounding environment. We recommend that Eagle Crest develop a groundwater monitoring network and install a separate set of seepage recovery wells to address potential seepage from the reservoirs. This system could be redundant to the system associated with the landfill project. We have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to address concerns related to seepage releases to groundwater and potential effects on the landfill.

Although Eagle Crest has provided an expected schedule to begin construction, the details of proposed and recommended comprehensive sampling and monitoring plans would be filed for Commission approval as part of any license condition. Regarding Kaiser's comments on potential impacts of a brine leak, we have revised section 3.3.2,



*Water Resources, Water Quality*, to supplement our existing analysis of the brine ponds and their potential failure.

**WQ 3 Comment:** The County Sanitation District states that the draft EIS does not address the potential impacts of significant seepage from the dams and reservoirs for the project upon the environment and the landfill.

**Response:** As described in the draft EIS, Eagle Crest proposed and we recommend measures (SR-1, SR-2, SR-3, SR-4, and others) to investigate and control seepage from the reservoirs and greatly limit the effect of seepage of the proposed landfill and the environment.

**WQ 4 Comment:** Eagle Crest suggests that the determination of best technology for monitoring the evaporation ponds be determined in consultation with the State Water Board during development of the comprehensive water quality monitoring plan because horizontal monitoring wells may not be the best monitoring strategy for the conditions found in the project environment.

**Response:** We understand that the local site conditions play an important role in determining the best monitoring strategy for early detection of potential brine pond leaks and recognizes this type of detail would likely be included during the consultation process with the State Water Board in developing a comprehensive water quality monitoring plan. However, we also recognize that part of the challenge in preventing a larger effect on groundwater resources is early detection and that traditional vertical groundwater wells may not detect potential leaks until after substantial volumes of brine solution have reached the groundwater table where it would be detected by the wells. We have retained the discussion of horizontal wells as a monitoring strategy but also have amended the analysis to include other appropriate technologies developed in consultation with the State Water Board, including the ability to refine this recommended measure after onsite investigations occur.

**WQ 5 Comment:** The Park Service asks for additional clarification in the EIS in the subsection on water quality under the discussion about *Water Quality Monitoring*. The Park Service states that the discussion under *Our Analysis* focuses mainly on monitoring procedures and is lacking discussion on specific mitigation measures that would be instituted if downgradient water quality impacts are detected.

**Response:** The development of the proposed project would result in direct, indirect, potential, and cumulative impacts on the environment, which are analyzed in the EIS. The deployment of monitoring equipment for the overall project and would detect indirect effects (e.g., brine leakage into the water table and reservoir leakage). If monitoring shows there a leak, measures would be taken to prevent additional damage and mitigate the damage already done. Details of mitigation approaches could be

developed as part of a comprehensive water quality monitoring plan that could include protocols and emergency action measures to address the unintended consequences of the project failing in its operations. One of the key water quality measures is the maintenance of the water quality in the reservoir by the proposed reverse osmosis system, at a level equal to the groundwater used to fill and maintain the reservoir and the proposed seepage recovery system. This measure would help to limit the effects on water quality from the proposed reservoirs.

**WQ 6 Comment:** The Park Service asks for clarification of first paragraph under the Water Quality Monitoring discussion, where the draft EIS states that Eagle Crest proposes a monitoring program to be conducted on a quarterly basis for the first 4 years of operation. The Park Service asks if this monitoring program would continue throughout the life of the project and if so, under what frequency of sampling. The Park Service recommends that the water quality monitoring program be conducted throughout the life of the project in order to determine if impacts occur and additional mitigation measures are needed.

**Response:** We understand the Park Service's concerns related to operations beyond the first 4 years of monitoring as proposed by Eagle Crest. Section 3.3.2.2, *Water Quality*, includes analysis of measures to develop a comprehensive water quality monitoring plan in consultation with the State Water Board and should include action items if water quality monitoring wells indicate that water of poorer quality has reached the wells from proposed project sources. This plan has yet to be developed; however, it is our recommendation that the plan be developed in consultation with the State Water Board and filed with the Commission for approval.

**WQ 7 Comment:** The Park Service states that if Eagle Crest is still planning on using fine-grained tailings material at the mine site to line the reservoirs for seepage control, the sampling program should be expanded to include collecting a sufficient number of tailings samples for analysis. As the Park Service noted in previous comments, EPA's technical document (EPA530-R-94-036) indicates that the finest particles expose more surface area to oxidation [and acid mine drainage generation potential], for example from leaking oxygenated reservoir water. The Park Service states that, therefore, tailings material that might be high in pyrite concentration is another potential source for acid mine drainage that should be evaluated.

**Response:** As discussed in the draft EIS, Eagle Crest proposes to use a combination of onsite, fine-grained tailing materials and roller-compacted concrete based on site-specific investigations. Our recommendation to implement Eagle Crest's proposed Phase 1 Pre-Design Site Investigation Plan would provide data on the suitability of the fine-tailing materials for use as liner for the reservoirs and the potential for acid generation during proposed project operations. The results of the investigations that would be used for the final design should be filed with and the Commission.

**WQ 8 Comment:** The Park Service asks for clarification about the current site access situation and the likelihood for Eagle Crest to obtain site access in the future so that the sampling program can be implemented. The Park Service states that site access problems are mentioned a couple of other times in the water resource section as it relates to obtaining information and/or implementing a plan or program. The Park Service asks if the owner(s) of the property is unwilling to allow Eagle Crest access to the site, then how can the project be licensed.

**Response:** Eagle Crest has stated in its filings with the Commission that it does not have access to the proposed site at this time, and we have analyzed the proposed project as such. Federal regulations allow an applicant to develop its hydropower applications without access to the site as a prerequisite for a license. However, if the Commission determines that the project is in the public interest and the project is licensed, the applicant would gain access to the site by either mutual consent or by adjudicated imminent domain. Access would need to be secured to develop the project at the owners' discretion. Once access to the site is obtained, the applicant would be required to complete our recommended site investigations and analyses to refine its current analyses and estimates and provide data for engineering design.

**WQ 9 Comment:** The Park Service asks for clarification about the timing of the sampling program relative to issuing a license for the project. The Park Service asks whether the completion of the sampling plan and evaluation of the results is a condition for receiving the license. Consistent with EPA's protocols and procedures, it has been the Park Service's contention that additional testing for acid mine drainage-generating potential should be conducted prior to licensing and not after licensing, as previously proposed by Eagle Crest.

**Response:** Eagle Crest has not been granted access to the site to conducting sampling, as recommended by the Park Service. Therefore, the analysis of acid mine drainage-generating potential would occur under the proposed and recommended Phase 1 Pre-Design Site Investigation Plan if a license is granted, but before any ground-disturbing activities occur or the final engineering designs are completed. However, as described in the license application, the initial estimates of acid mine drainage generation were based on previous reports and observations made during a reconnaissance visit to the mine during the 1992 to 1994 time frame, using analytical data from five samples collected from the site.

**WQ 10 Comment:** The Park Service states that the Commission makes the statement in the second paragraph (page 66) that Eagle Crest's proposal includes treating 3,315 acre-feet of reservoir water each year to maintain water quality comparable to the source water, but no supporting information is provided in the document indicating how treatment of this volume of water would maintain the native water quality. Please

provide additional supporting information and discussion (in tabular form or an appendix) showing how Eagle Crest arrived at this treatment volume. The Park Service asks: does this treatment volume account for possible water quality differences that might be associated with water collected from the seepage control system, which supposedly will be re-introduced back to the reservoirs? The Park Service states that the last sentence in this discussion (see page 67) indicates that the Commission does not believe that seepage recovery water would contribute to an increase in chemical component concentration in the reservoirs because the water components of the reservoirs would be similar to the groundwater. The Park Service asks for additional information or calculations about degradation of seepage water quality (e.g., by acid drainage generation) and its occurrence in the subsurface.

**Response:** The first part of this comment mistakenly mentions that the reverse osmosis system would maintain the native water quality. The proposed reverse osmosis system would treat reservoir water so that the quality of the water in the reservoirs would be equal to that of the groundwater pumped in to make up for evaporative losses. Our recommended goal of the reverse osmosis system would be to maintain water quality levels in the reservoirs comparable to the existing groundwater quality. The reverse osmosis treatment system would remove water from the upper reservoir and remove sufficient total dissolved solids to maintain the in-reservoir total dissolved solids at the same average concentration of the source water.

To address uncertainty surrounding the reverse osmosis system and its consideration of the potential volume of water collected via the seepage control system, we have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to enhance our discussion of the reverse osmosis system and specific design considerations or circumstances. Similarly, we now include the discussion on the potential for seepage water to be inferior in quality to the make-up water in the final EIS and our recommendation of possible methods to address neutralization of increased acidity.

**WQ 11 Comment:** The Park Service states that in the subsection on water quality under the discussion about *Effects of Seepage and Evaporation from the Reservoirs and Brine Ponds on Groundwater Quality*, the Commission presents Eagle Crest's estimates of annual evaporative loss and seepage loss from the reservoirs, but provides no supporting data showing how these estimates were derived. Please provide more details and discussion on how these estimates were derived (in tabular form or an appendix) to help the reader to understand where these values come from. The Park Service states that these water losses also have implications on the amount of replacement water that is needed to remain operationally efficient, which potentially translates into impacts on groundwater levels and storage volumes.

**Response:** We have revised section 3.3.2.1, *Water Resources, Affected Environment*, to provide additional information about how the evaporative losses were calculated based

on expected site conditions and how these calculations are reasonable. Eagle Crest through implementation of our recommended Measure SR-1 would evaluate aquifer characteristics and adequate pumping rates in the proposed reservoir seepage recovery wells prior to construction of the project as part of the final engineering design of the project and would require review and approval from the Commission's Division of Dam Safety and Inspections.

**WQ 12 Comment:** The Park Service states that, in the subsection on water quality under the discussion about *Groundwater Quality*, the EIS should provide all available water quality data (in tables or an appendix) that supports the discussion presented to the reader. The Park Service states that statements such as "Human-induced groundwater pollution is low...." are unsupported by any water quality data in the draft EIS.

**Response:** Although limited groundwater quality data from the Desert Center area are available, we have revised section 3.3.2.1, *Water Resources, Affected Environment*, to add information about groundwater quality to the final EIS. As stated in the draft EIS, human-induced groundwater pollution is limited due to the relatively undeveloped nature of Chuckwalla Valley, limited infiltration of surface water, and the extreme depth to groundwater.

**WQ 13 Comment:** The Park Service states that in section 3.3.2.2, on page 65 under the heading *Water Quality-Effects of Seepage and Evaporation from the Reservoirs and Brine Ponds on Groundwater Quality*, in the absence of geotechnical analysis for all rock types and a detailed mapping of the central pit, the potential for seepage may be greatly understated. Additionally, the Park Service states that the lower reservoir is not fully situated on basement rock. The eastern portion of the lower (east) pit is underlain by alluvial deposits. The proposal to use onsite derived clay or fine material for an impermeable liner poses many issues. The finest materials proposed as an impermeable layer also likely represent the most soluble onsite material. Chemical analysis to determine the amount sulfide bearing particles, in addition to the potential for heavy metals needs to be conducted prior to their use as an impermeable layer.

The Park Service also states that cation exchange between clayey material and brine solution will likely breakdown the impermeability of a clay liner over time, and that, if the aforementioned situation should occur, seepage will likely occur at an uncontrollable rate. The Park Service states that environmental impacts from a catastrophic failure or unforeseen conditions/events (and mitigations for such an event) should be included in the analysis. The Park Service states that chemical analysis and feasibility study should occur prior to licensing to fully determine the environmental impacts.

**Response:** We, along with Eagle Crest, recognize the need for onsite sampling and collecting technical field data prior to advancing the technical designs of the proposed project. Eagle Crest proposes to undertake sampling once a license is granted and access

has been secured. Our recommendation in the EIS is that, prior to construction, Eagle Crest would analyze acid mine drainage potential using existing soil, which would address the Park Service's concerns that the amount of sulfide-bearing particles (including the potential for heavy metals) needs to be analyzed prior to their use as an impermeable layer. The concern that this analysis (and feasibility) should be refined prior to licensing is unnecessary and not possible due to lack of site access. However, we have revised section 3.3.2.2, *Water Resources, Environmental Effects*, to indicate that the proposed onsite lining materials may not be suitable for use as impermeable layer or may need to be augmented with other materials to the discussion in the final EIS. The final determination as to whether or not the onsite materials are suitable would be based on field sampling and consultation with Eagle Crest's submittal of a final request for approval from the Commission as part of final engineering designs.

**WQ 14 Comment:** The Park Service states that draft EIS section 3.3.2.2, on page 67, under the heading *Water Quality-Effects of Project Operations on Acid Production and Water Quality*, cites several reports relating to the mineralogy of the Eagle Mountain mine site. All the reports commonly refer to the presence of magnetite and pyrite. Force (2001) indicates that the lower zone of the central pit (upper reservoir) contains 10 to 50 percent platy pyrite. The Park Service states that the potential for acid mine drainage is an environmental issue associated with this project. In the absence of analytical data relating to the mineral makeup of all stratigraphic zones, the potential environmental effect relating to seepage of acid mine drainage is difficult to fully assess. The Park Service states that acid mine drainage potential and/or effective means of mitigation needs to be determined prior to licensing.

**Response:** As discussed in the prior comment, we, along with Eagle Crest, recognize the need for onsite sampling and collecting technical field data prior to advancing the technical designs of the proposed project. Eagle Crest proposes to undertake sampling once a license is granted and access has been secured. The proposed sampling would be conducted as part of Phase 1 Pre-Design Site Investigation Plan, which would occur before Eagle Crest's submittal of its final engineering design.

**WQ 15 Comment:** The Park Service states that an issue relating to acid mine drainage is with decommissioning of the site. The Park Service states that, with the increasing efficacy of renewable energy resources, the possibility of obsolescence may become an issue with a power generating facility that operates at a net loss of power. In addition to a net loss of power by pumping the water back to its potential state, a reverse osmosis high pressure pump will need to continuously operate to filter the impounded water. It is not clear if the operation of the reverse osmosis system was included into the net power loss equation. However, as previously stated, if the efficiency of this technology renders this project obsolete prior to or after the 50-year license, the Park Service asks how the site is to be decommissioned. The Park Service also asks where the contaminated water will be disposed.

**Response:** Eagle Crest's estimate for operating the proposed reverse osmosis system is 3.7 gigawatt-hours of energy annually. The draft and final EIS are for the initial licensing of the proposed project. It is not the Commission's policy to analyze issues that might occur during a future decommissioning of a hydroelectric project, especially prior to the issuance of an initial license. However, when a Commission-licensed project is proposed to be decommissioned, a full NEPA process, including the preparation of an EA or an EIS, is normally required and could involve the remediation of acid mine drainage and other issues associated with decommissioning.

**WQ 16 Comment:** The Citizens for Chuckwalla Valley states that the containment system proposed for the project does not meet EPA standards for protection of the environment. The Citizens for Chuckwalla Valley also states that monitoring wells will not detect leakage because leaks from the lined facility would escape in straight line trails, and monitoring wells would have to be in a straight line trail from the pits to detect these leaks. The Citizens for Chuckwalla Valley states that monitoring by horizontal wells is required to detect leaks from the proposed facility.

**Response:** One of the key and expensive measures proposed by Eagle Crest and recommended in the EIS is the operation and monitoring of the reverse osmosis system to insure that the water quality of the reservoirs remain equal to the source water. Other measures include extensive aquifer tests that would determine the design and operation of seepage recovery wells around the reservoirs to capture and monitor water quality downstream of the proposed reservoirs. We agree that in some geological situations seepage from the reservoirs could bypass the recovery wells if the monitoring wells are not placed in suitable locations. However, the exact design of the seepage recovery and monitoring wells, as well as monitoring wells around the proposed evaporation and brine ponds would be reviewed by the State Water Board and require approval from the Commission.

**WQ 17 Comment:** Interior states that having a groundwater quality monitoring program limited to 4 years appears to be problematic because seepage problems, particularly from the brine disposal lagoon, may develop after this time. Interior therefore recommends that water quality monitoring, at least for seepage from the brine disposal lagoon, should continue throughout the term of the license.

**Response:** This was somewhat unclear in the draft EIS. In the final EIS, we revised section 5.2, *Comprehensive Development and Recommended Alternative, Additional Measures Recommended by Staff*, to indicate that the length and frequency of monitoring past the initial fill period for all of the groundwater monitoring programs, would be determined through consultation with the State Water Board and filed for Commission approval but should continue through the life of the project.

**WQ 18 Comment:** Interior asks why the wastewater treatment pond on the southeastern side of the largely abandoned town of Eagle Mountain is considered to be likely still active, as noted in section 3.3.2.1, *Water Resources, Affected Environment*.

**Response:** In its license application, Eagle Crest states, “The townsite is fenced with controlled access and is currently vacant except for a few dwellings still reportedly occupied by Kaiser Ventures employees. The town site is serviced by public utilities, and a wastewater treatment plant is located southeast of the town.” In Kaiser’s comment letter (dated February 28, 2011) on the draft EIS, Kaiser states that there are still four occupied homes, additional homes are occupied at times, and the elementary school is still used for students from the greater Chuckwalla Valley. Therefore, based on these statements and because aerial imagery from 2011 indicates that there is water in the treatment pond, we expect that wastewater treatment pond is still active.

**WQ 19 Comment:** In the discussion on the failure of the brine pond wall potentially affecting a “limited area,” Interior requests clarification on the meaning of a “limited area.” EPA also recommends the development of an emergency response plan to address a potential breach in the pond berms or liners. The final EIS should describe the process and identify the responsible party for responding to detection of contaminated groundwater.

**Response:** The project would include six evaporation ponds (about 8.3 acres each) and 5 solidifying ponds (about 1.4 acres each); every pond would have a maximum wall height of about 8 feet. Based on our analyses of the relatively small volume of the individual evaporation ponds (about 45 acre-feet), in the very unlikely event of a brine pond wall failure, surface flow would probably not reach the Colorado River Aqueduct, which is buried and located about 2.4 miles down gradient. We did not attempt to estimate the exact surface area that could be affected before the brine would percolate into the soil, but we do expect the area to be limited due to percolation and the relatively small volume of water flow. The bottom and walls of the ponds would be double lined with clay or human-made membranes liners, and the design, materials, and construction would require approval and inspection by the Commission’s Division of Dam Safety and Inspections. We present our analysis of this topic in section 3.3.2.2, *Water Resources, Environmental Effects*.

**WQ 20 Comment:** Interior requests that a clear statement of what will be required of Eagle Crest to ensure that risk associated with the brine pond leakage is small and, further, that a definition of “small” is provided.

**Response:** Eagle Crest has stated that the brine ponds would be double lined but has not defined the exact liners that might be used. In addition, Eagle Crest proposes monitoring the groundwater down gradient of the brine ponds. In our draft and final EIS, in section 3.3.2.2, *Water Resources, Environmental Effects* we analyze additional brine pond-level



monitoring and the installation of possible partially horizontal monitoring wells to allow for earlier detection of possible leakage through the lining of the ponds. The proper design of the brine ponds and their monitoring would not totally eliminate, but would greatly decrease, the risk of leakage, and the design and construction would require approval and inspection by the Commission's Division of Dam Safety and Inspections.

**WQ 21 Comment:** Interior states that it cannot draw any conclusions on the extent of the potential effects associated with acid mine drainage production because of a lack of site access by Eagle Crest.

**Response:** We agree that the potential for acid mine drainage is difficult to determine with the lack of site access. However, Eagle Crest's license application contained data about samples collected from the site and the Phase 1 Pre-Design Site Investigation Plan would require field sampling and determination to refine the potential effects associated with project operation.

## AQUATIC RESOURCES

**AQ 1 Comment:** The Center for Biological Diversity states that the draft EIS does not evaluate the impact of the proposed project on the ephemeral and intermittent streams and the ecosystem processes that they provide both on and off of the proposed project site. The Center states that the revised or supplement draft EIS will need to include an analysis of these important issues.

**Response:** We discuss potential effects of the project on water quantity within Eagle Creek and the alluvial fan in section 3.3.2.2, *Water Resources, Environmental Effects, Effects of Operation on Water Quantity in the Reservoirs*. We note that, under current conditions, the upper mine pit collects water that formerly contributed to flows in Eagle Creek. With creation of the upper reservoir, there would be the potential during extremely large, but very rare, storm events (such as the PMF) to increase flows into Eagle Creek if water levels in the upper reservoir prevent the flows from being contained (as would occur under the existing condition). We recommend channel modifications to Eagle Creek to ensure the channel would be capable of containing these flows.

We discuss additional potential effects on ephemeral washes in section 3.3.2.2, *Water Resources, Environmental Effects, Fishery Resources*. We note the project water pipeline, transmission line, and access roads would cross ephemeral washes. We recommend that Eagle Crest consult with California DFG to obtain any necessary Streambed Alteration Agreements for these areas. Additionally, the license would require that prior to any ground-disturbing activities, the licensee prepare a construction plan that identifies wash crossings and shows how the designs would preserve existing desert wash topography and flow patterns (see section 5.2, *Comprehensive Development and Recommended Alternative, Terrestrial Resources*). As such, we conclude the project

would not affect ephemeral or intermittent streams in the project area or ecological processes associated with those streams.

## TERRESTRIAL RESOURCES

**T 1 Comment:** FWS and EPA state that they are concerned that Kaiser has not granted site access for biological resource surveys or any other investigations necessary to characterize site and evaluate feasibility of project engineering. They are also concerned that details on specific project impacts within this portion of project site have not been articulated. The County Sanitation District states that the draft EIS improperly defers analysis of the impacts of the project on terrestrial resources because the draft EIS relies on delayed analysis and deferred mitigation rather than a comprehensive, contemporaneous analysis.

**Response:** As mentioned in sections 3.3.3.2, *Terrestrial Resources*, *Environmental Effects*, and 5.1, *Comparison of Alternatives*, we recognize that additional surveys and preparation of mitigation activities would be necessary prior to project construction. However, the project record contains sufficient information, including reports prepared for the landfill EIS, the landfill biological opinion, and our analysis of historical and recent aerial photography, to adequately describe the affected environment and potential project effects on terrestrial resources in the central project area. Additionally, if the Commission were to grant a project license, Eagle Crest would initiate a 2-year period of final design engineering. During this period, Eagle Crest would conduct thorough, on-the-ground surveys within portions of the project previously inaccessible. These surveys would include surveys for sensitive plant species, bats, desert tortoise, and desert tortoise predators. During this period, Eagle Crest would consult with resource agencies and prepare reports detailing the results of these surveys. Based on the results of these surveys and prior to any ground-disturbing activities, Eagle Crest would prepare and/or amend mitigation plans for kit fox, badger, bats, raptors, desert tortoise, and desert tortoise predators. Development of these plans would occur in consultation with resource agencies and require Commission approval before any ground-disturbing activities could commence.

**T 2 Comment:** Kaiser states that the draft EIS inaccurately describes landfill operations. Kaiser states that as a result of these factual inaccuracies, there are incorrect conclusions that have resulted in little analysis of the project's potential impacts with regard to increasing predator population.

**Response:** We have revised section 3.3.3.3, *Terrestrial Resources*, *Cumulative Effects*, to better describe the proposed landfill operations that would limit food resources for ravens, and we have revised our analysis of cumulative effects associated with increasing predator populations.

**T 3 Comment:** The County Sanitation District states that the draft EIS omits any assessment of the impacts of the creation of a new water supply in the reservoirs on the population of ravens and other desert tortoise predators and the impacts that these increased populations would have on local wildlife, including the desert tortoise. The draft EIS does not establish an ongoing monitoring and management program for dealing with ravens and coyotes during construction and throughout any subsequent operation and maintenance of the project area.

**Response:** We discuss the effects on the population of ravens and other desert tortoise predators from the creation of the reservoirs that would provide new water sources in section 3.3.3.1, *Terrestrial Resources, Affected Environment, Human Subsidized Predators*. In section 3.3.4.2, *Terrestrial Resources, Environmental Effects*, we discuss our recommended and Eagle Crest's proposed Predator Monitoring and Control Plan (with our modifications). We revised these sections to further discuss historical water availability in the central project area. Water availability in this location is not unprecedented. We discuss the projects potential effects on ravens and other desert tortoise predators in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Effects of Operation on Desert Tortoise*, including the potential for additional water sources to subsidize ravens, gulls, coyotes, and feral dogs. To address these potential effects, we recommend that Eagle Crest implement the Predator Monitoring and Control Plan. The details of the plan are presented in section 3.3.4.2 and were issued with our Biological Assessment on April 21, 2011.

**T 4 Comment:** The County Sanitation District states that the draft EIS does not explain why the mitigation measures proposed for the evaporation ponds should not also be applied to the reservoirs, or why no mitigation measures are assessed for the reservoirs. The County Sanitation District states that an appropriate mitigation plan, along with reporting of monitoring results and adaptive management responses for all mitigation plans would need to be provided to the BLM and FWS for review and comment. EPA recommends that the final EIS describe the potential quality of the brine solution and potential risk of wildlife exposure to selenium, heavy metals, and salts. EPA states that the final EIS should describe what mitigation measures would be taken, and by whom, if management practices prove insufficient in avoiding wildlife exposure.

**Response:** The reverse osmosis system would maintain water quality in the reservoirs so that it is not hazardous to wildlife. Therefore, mitigation measures proposed for the evaporation ponds are not needed for the reservoirs.

We discuss the potential effects of the project evaporation ponds on wildlife in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Project Brine Pond Operation on Wildlife*. We revised this section to increase the detail of this analysis. Additionally, we recommend Eagle Crest prepare and file, for Commission approval, a brine pond management plan. The plan would identify Eagle Crest as the responsible

party for responding to detection of contaminated groundwater. If initial fencing and hazing measures prove inadequate to prevent wildlife access to the brine ponds, Eagle Crest would implement exclusion measures, including installation of nets over the ponds. Eagle Crest would be responsible for maintaining these measures and ensuring the brine ponds do not adversely affect wildlife. Eagle Crest would develop the plan in consultation with FWS, BLM, and California DFG.

**T 5 Comment:** FWS states that conducting raven monitoring only once every 5 years does not appear to be adequate to address this potential issue. FWS states that these methods do not provide many opportunities for adaptive management and recommends more frequent surveys, particularly in early years of the license. Interior and the County Sanitation District state that methods described in the draft EIS would not provide suitable baseline data for ravens or coyotes. They also recommend the collection of baseline data before any project-related activities are conducted.

**Response:** We discuss our recommended and Eagle Crest's proposed Predator Monitoring and Control Plan (with our modifications) in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Effects of Operation on Desert Tortoise*. We have amended the Desert Tortoise Predator Monitoring and Control Plan to include pre-construction baseline surveys. Our amended plan was issued with our Biological Assessment on April 21, 2011. Baseline surveys would occur during the 2 years of final project design, before any construction activities begin. Surveys would continue annually during construction and in years 1 through 5, 7, and 10 following the initiation of reservoir filling. Based on the results of these surveys, Eagle Crest, in consultation with FWS, Park Service, BLM, and California DFG, would determine the need for additional surveys and appropriate survey schedules. A strategy for the continuation of the plan would be filed for Commission approval.

**T 6 Comment:** The Center for Biological Diversity states that the project would permanently affect the onsite plant communities and habitat for wildlife, despite revegetation because the agency's regulations based on the Northern and Eastern Colorado Plan's rehabilitation strategies only requires 40 percent of the original density of the dominant perennials and only 30 percent of the original cover. It recommends the final EIS include a detailed reclamation plan and a cost estimate. Interior states that Eagle Crest should develop and implement a revegetation plan for disturbed areas in a manner consistent with other large-scale solar projects. The Park Service recommends irrigating transplants monthly for 2 years.

**Response:** We discuss our recommended and Eagle Crest's proposed Revegetation Plan (with our modifications) in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Construction on Vegetation*. This plan would be prepared in consultation with FWS, BLM, and California DFG and would need to receive final Commission approval before Eagle Crest initiates any land-disturbing activities. The costs for this plan are

presented in table 27 of the draft EIS. We note that unlike large-scale solar projects that could occupy large expanses of native vegetation, covering thousands of acres, the proposed project is expected to affect less than 100 acres of native desert vegetation.

**T 7 Comment:** The Park Service states that in footnote 33, page 120, of the draft EIS, environmental resource surveys are identified as having been conducted on only part of the lands in 2008 and 2009 (i.e., excluding the Kaiser lands). The Park Service states that less than one-half of the project area has been surveyed for resources to assess impacts and the remainder of impacts has been extrapolated based on this assessment. It states that this should be expanded and identified more prominently earlier in the document. The County Sanitation District expressed similar concerns.

**Response:** We revised section 3.3.3.1, *Terrestrial Resources, Affected Environment*, to clearly state that access was not permitted in the central project area and that descriptions of that area are based on analysis of aerial photography and previously published reports. We also added graphic representation on figures indicating where on-the-ground field surveys took place and where surveys were not permitted.

**T 8 Comment:** Interior, FWS, BLM, and the Park Service state that the 2-years of surveys proposed in the current invasive species monitoring plan is inadequate. FWS recommends a minimum of 5 years of surveys, minimum precipitation requirements for an accurate assessment, and an adaptive management plan including success criteria, and contingencies if success criteria are not met. The Park Service recommends surveys for the life of the project. Interior states that the plan should also include areas that may be subsidized by project-related surface water and/or seepage. The Park Service also states that while mining activities may not increase the available nitrogen, recent studies have shown this region to be well above ambient nitrogen levels due to anthropogenic deposition from other areas in southern California. The Park Service notes that invasive annuals have been shown to disproportionately take advantage of these additions versus native plants.

**Response:** We discuss our recommended and Eagle Crest's proposed Invasive Species Monitoring and Control Plan (with our modifications) in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Operation on Noxious and Invasive Species*. We have revised this section to incorporate information about increased nitrogen levels.

**T 9 Comment:** The Park Service comments that the statement, "As such, operation of the project would provide some benefit to the bighorn population, counteracting any temporary negative effects associated with construction" is vaguely supported. The Park Service suggests that this line be removed from the section or that the effects should be considered as unknown.

**Response:** We revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, to add support for our analysis.

**T 10 Comment:** The Park Service asks for the name of the management plan referred to on page 111 of the draft EIS.

**Response:** We revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, to state that the new source of drinking water is one of two measures to protect bighorn sheep. We removed reference to a management plan for this species.

**T 11 Comment:** The Park Service asks to please expand/explain the statement, “The addition of the new water source is likely to disrupt the migration of the northern ewe population to Buzzard Spring.” The Park Service is very interested in this spring and its importance to sheep movement from the Coxcomb Mountains across the Eagle Mountains and to the Little San Bernardino Mountains. It suggests that the bighorn sheep population in question be monitored and their movement patterns be formally addressed through scientific study.

**Response:** We revised section 3.3.3, *Terrestrial Resources*, to provide more discussion about desert bighorn sheep migration in the region and more details about past and current water presence near the project site. In response to this comment, we conducted additional analysis on bighorn sheep migration and existing water resources in the project area. We conclude that our original statement was in error and do not find the project is likely to disrupt bighorn sheep movements. We revised section 3.3.3.1, *Terrestrial Resources, Affected Environment*, to address migration corridors between the project area and Buzzard Spring. The additional analysis was based on review of Divine and Douglas (1996) and Epps et al. (2005). This report describes the results of a 2-year radio telemetry study of rams and ewes in the Eagle Mountains. The size of the proposed reservoirs is small in relationship to the distance from the Coxcomb Mountains to the Little San Bernardino Mountains or from the project area to Buzzard Spring and would not create a physical barrier preventing movement between these areas. Perennial water sources have been present in the project area in the past, including a bighorn sheep watering tank at the Eagle Mountain water tank, which did not prevent movement of bighorn sheep between the local subpopulations. Additionally, the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO Plan) recommends creating water sources in the Eagle Mountains to increase summer habitat for bighorn sheep. By designing the perimeter fencing at the lower reservoir to provide access to surface water, the project would provide a positive effect on bighorn sheep. As such, we do not recommend the addition of monitoring surveys for this species.

**T 12 Comment:** The Park Service asks for a reference for the statement on page 111 “This migration occurs outside of the breeding and lambing period and does not result in

increased interaction with other ewe populations.” The Park Service asks if this conclusion is from a multiple year dataset or just from casual observation.

**Response:** We added a citation for Divine and Douglas (1996) following the referenced statement. This study was a 2-year telemetry study on desert bighorn sheep in the Eagle Mountains.

**T 13 Comment:** The Park Service states that with increased water from the reservoir available to bats (drink while flying), it is likely that many of the bat species would be affected by this increased water subsidy.

**Response:** We have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Operations on Bats*, to add information to our discussion. We concur with Park Service that bats could benefit from drinking water associated with the project reservoirs.

**T 14 Comment:** The Park Service asks if it is known if water is currently available to bighorn sheep near the proposed fence set back. If so, the Park Service states that this would seem like a reasonable action; however, as the lower pond is likely to be affected by human activity for the duration of the project, it may be reasonable to locate the access to water in a remote location within the natural habitat of the bighorn sheep. The Park Service states that if water is not currently being provided to the sheep in or near the project area, then the effects of providing subsidized water to bighorn sheep and its related population should be examined (through scientific study) before it is provided. Kaiser has similar comments.

**Response:** We revised section 3.3.3.1, *Terrestrial Resources, Affected Environment, Sensitive Species*, to include additional discussion of water availability for sheep in the project area. In section 5.0, *Conclusions and Recommendations*, we recommend that Eagle Crest monitor wildlife use at the water access locations. If monitoring indicates bighorn sheep are not using these areas, we recommend that Eagle Crest consult with FWS, BLM, the Park Service, and California DFG to develop alternative water sources.

**T 15 Comment:** The Park Service, the Center for Biological Diversity, Kaiser, and FWS state that the document describes a potential disruption of migratory paths for bighorn sheep but does not adequately address these impacts. The Park Service notes Buzzard Spring is an important resource for sheep movement from the Coxcomb Mountains across the Eagle Mountains and to the Little San Bernardino Mountains. The Park Service and EPA suggest that the bighorn sheep population in question be monitored and their movement patterns be formally addressed through scientific study.

**Response:** In section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Sensitive Species*, we state that, while the project reservoirs may disrupt movement from the

project area to Buzzard Spring, we conclude that this movement does *not* occur during the breeding and lambing season. The movement to Buzzard Spring occurs in summer when water is less available near the project. The addition of water to the project area is consistent with recommendations in the NECO Plan and would reduce the need for sheep to travel to Buzzard Spring and would provide a perennial water source closer to the breeding and lambing areas northwest of the project. We have revised section 3.3.3.1, *Terrestrial Resources, Affected Environment, Sensitive Species*, to provide more discussion of bighorn sheep movements in the project area, habitat connectivity, and observed tolerance of local bighorn sheep to mining activities. We also have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Sensitive Species*, to discuss potential for the project to disrupt these movements, measures to reduce injury and disturbance to bighorn sheep, and our evaluation of the severity of these effects. Given the project area's history of extensive mining activity, local tolerance of these activities, and recommended mitigation measures, we conclude that project construction activities would not impede migratory movements.

**T 16 Comment:** FWS would like clarification on section 3.3.3.1, *Terrestrial Resources, Affected Environment, Nelson's Bighorn Sheep*, page 98 of the draft EIS. FWS asks: Is Divine and Douglas (1996) the most recent telemetry study in this area for this species?

**Response:** To our knowledge, Divine and Douglas (1996) is the most recent telemetry study of bighorn sheep in the Eagle Mountains. We have revised section 3.3.3.1, *Terrestrial Resources, Affected Environment, Nelson's Bighorn Sheep*, to discuss habitat connectivity and movements of sheep between the Coxcomb, Eagle, and Little San Bernardino mountains.

**T 17 Comment:** Brendan Hughes states that both power line alignments would impact desert tortoise habitat and require the blading of several acres within the Chuckwalla DWMA. Brendan Hughes states that the survival of the desert tortoise is already threatened by predation, disease, off-road vehicles, urban sprawl, and renewable energy development, and that pumped storage development would have further adverse impacts.

**Response:** We discuss the effects of the project on desert tortoise in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*. We discuss that the project would have adverse effects on desert tortoise habitat. Eagle Crest proposed and we recommend several measures to reduce and mitigate these effects including the Desert Tortoise Clearance and Relocation/Translocation Plan, the Desert Tortoise Predator Monitoring and Control Plan, the Revegetation Plan, and purchase of compensation lands to preserve desert tortoise habitat. As discussed in our Biological Assessment, which was issued on April 21, 2011, and in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*, of the EIS, we conclude that these plans with staff-recommended additions would minimize project effects on this



species. However, we also conclude that the project is likely to adversely affect desert tortoise and have initiated formal consultation with FWS.

**T 18 Comment:** The Center for Biological Diversity states that the entire project area is located within an area identified as an “essential connectivity area” for wildlife identified by the California Essential Habitat Connectivity Project. The Center states that additional data need to be provided on the wildlife movement and linkage areas in and adjacent to the proposed project and then an analysis of the impacts from the proposed project on those resources needs to be included in the revised or supplemental EIS.

**Response:** We have revised section 3.3.3, *Terrestrial Resources*, to discuss project-related effects on habitat connectivity. We conclude that the project reservoirs are not likely to affect connectivity because it is unlikely the mine pits were part of common movement corridors. The transmission line would not preclude movement and the water supply pipeline would be buried. The project would not result in permanent fence lines, roads, railroads, urban areas, canals, agricultural fields, or other types of barriers to habitat connectivity identified by the California Essential Habitat Connectivity Project.

**T 19 Comment:** The Center for Biological Diversity states that the draft EIS does not adequately describe the environmental baseline and that many species and habitats have incomplete and/or vague onsite descriptions that make determining the proposed project’s impacts difficult at best. It states that a revised or supplemental EIS should include all rare species, including insects, a discussion of their occurrence on site and avoidance, minimization and mitigation measures. The County Sanitation District expresses similar concerns.

**Response:** In table 10 of the draft EIS, we summarize habitat characteristics and potential for occurrence within the project for all California Natural Diversity Database (CNDDDB)-identified species known to occur within USGS 1:24,000 quads where project activities are proposed. We updated this list to include LeConte’s thrasher, Darlington’s blazing star, and Parish’s club cholla. The CNDDDB does not identify any rare insect species in the project area. Avoidance, minimization, and mitigation measures to protect sensitive species are discussed in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Sensitive Species*.

**T 20 Comment:** The Center for Biological Diversity states that mitigation acquisition to offset the habitat that will no longer be available to desert bighorn sheep should be required to be included in the draft EIS to offset impacts on this species.

**Response:** We discuss the projects effects on bighorn sheep in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Sensitive Species*. We revised this section to discuss bighorn sheep movements and habitat use in the central project area. We conclude the project would have minimal effects on habitat connectivity and would offset

removed access to water in the mine pits with access to water in the lower reservoir. The project would not remove access to quality habitat. Therefore, we do not recommend Eagle Crest acquire mitigation lands to offset effects to this species.

**T 21 Comment:** The Center for Biological Diversity states that the EIS needs to evaluate the potential impact of the proposed project on the regional distribution of burrowing owls. The Center for Biological Diversity also states that mitigation acreage is required and should be calculated using the mean foraging area of burrowing owls and be within native habitats on undisturbed lands. The Center for Biological Diversity states that the final EIS should also require a plan for long-term monitoring of passively relocated birds in order to evaluate survivorship of passively relocated birds and eliminate possible “take” of owls. The Center for Biological Diversity also states the final EIS should include a requirement for constructed burrows as mitigation for the destruction of burrows.

Interior states that FWS should be consulted on needs of burrowing owls, in addition to the California DFG. Interior notes that the burrowing owl is protected by the Migratory Bird Treaty Act and is a federal trust resource. According to Interior, depending on outcome of future surveys, appropriate mitigation for this species may require more than avoidance of burrow during breeding season and eviction once owls have fledged. If the project site or any of facilities are occupied by burrowing owls, Interior recommends that a burrowing owl relocation plan be developed and implemented to minimize and mitigate effects.

**Response:** We discuss presence of burrowing owls in the project area in section 3.3.3.1, *Terrestrial Resources, Affected Environment, Sensitive Species*. We discuss potential effects on burrowing owls in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Sensitive Species*. We have revised this section to include information regarding the construction of replacement burrows for any occupied burrows that are to be collapsed. The project would not result in a substantial removal of burrowing owl habitat or deter use of occupied habitat. Burrowing owls commonly occur along road sides and within utility corridors. Therefore, we do not recommend acquisition of mitigation lands specifically for burrowing owls. However, Eagle Crest would acquire desert tortoise habitat, which also would likely to be suitable for owls. We have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, and section 5.2, *Comprehensive Development and Recommended Alternative*, to recommend that Eagle Crest consult with FWS, BLM, and California DFG following pre-construction surveys for burrowing owls to determine mitigation needs and, if needed, to develop a burrowing owl relocation plan for Commission approval.

**T 22 Comment:** The Center for Biological Diversity states that the revised or supplemental draft EIS should identify the density of kit foxes on the proposed project site, including natal and other dens. If passive relocation is identified as an avoidance

strategy, the Center for Biological Diversity states that the EIS should evaluate if suitable habitat occurs nearby and is not already occupied by existing kit foxes.

**Response:** We have revised section 3.3.3.1, *Terrestrial Resources, Affected Environment, Sensitive Species*, to provide results of Eagle Crest surveys for kit fox. We address potential effects on kit fox in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Projection Construction on Burrowing Animals*.

**T 23 Comment:** The Center for Biological Diversity states that badgers were documented on the project site in 2008 and 2009 (draft EIS, table 10). It states that literature on the highly territorial badger indicates that badger home territories range from 340 to 1,230 hectares. Therefore, the proposed project could impact *at least* one badger territory. It also states that even passive relocation of badgers into suitable habitat may result “take” and that excluding badger from the site is likely to cause badgers to move into existing badger’s territory; therefore, the EIS needs to include an actual analysis of impacts to badgers from the proposed project.

**Response:** We have revised section 3.3.3.1, *Terrestrial Resources, Affected Environment, Sensitive Species*, to provide results of Eagle Crest surveys for badgers. We address potential effects on badger in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Projection Construction on Burrowing Animals*.

**T 24 Comment:** The Citizens for Chuckwalla Valley, the Center for Biological Diversity, FWS, and the Park Service state that the EIS should address potential impacts on golden eagles. Interior requests a specific discussion of golden eagles in the sensitive species section and other relevant sections of the final EIS. The Center for Biological Diversity states that FWS issued new guidance March of 2010 with regards to surveying and impact analysis to golden eagles and recently released a draft Eagle Conservation Plan because of significantly declining populations of golden eagles. The Center for Biological Diversity states that the EIS should incorporate these golden eagle guidance documents into the analysis for this proposed project. The Park Service recommends increasing protection buffers to 1,600 meters (1 mile) during the nesting season as found in Richardson and Miller (1997). Interior requests inclusion of the results of Eagle Crest’s 2010 raptor surveys in the final EIS. FWS would like to work with the Commission and Eagle Crest to develop appropriate means to assess potential effects on raptor species using the project area.

**Response:** We discuss potential effects of the project on golden eagles in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Sensitive Species*. We recommend conducting pre-construction surveys and using 1.0-mile buffers around active nests to protect eagles from construction noise. We have modified our recommendation to include consultation with FWS and California DFG during identification of the locations and extent of protection buffers for raptors and preparation of an avian protection plan.

We also recommend Eagle Crest implement its avian protection plan, with our recommended modifications, to reduce potential for eagle collisions or electrocutions associated with power lines. We note that the draft Eagle Conservation Plan document referenced in the Center for Biological Diversity's comment is aimed at development of a programmatic eagle take permits for wind generation facilities; however, the proposed project does not include any wind turbines.

**T 25 Comment:** Interior states that nesting for some bird species may begin as early as January 15 (and earlier, if conditions are appropriate). Interior recommends that surveys for active nests should be incorporated into activities starting after that date and an avian and bat protection plan should be developed to address potential impacts on and avoidance and minimization measures for migratory birds, raptors, and bats. Interior also states that the proposed 15-foot no activity buffer is insufficient. Interior requests Eagle Crest and the Commission coordinate with FWS and California DFG on content and data required for quarterly reports and on species-specific needs to be included in a FWS- and California DFG-approved avian and bat protection plan. Interior also states it would like to have opportunity to provide technical assistance with the development of measures to assess and manage migratory bird access to brine evaporation ponds.

**Response:** We revised section 3.3.3.1, *Terrestrial Resources, Affected Environment, Wildlife*, to provide baseline information about the potential for migratory birds to occur in the project area. We discuss potential project effects on migratory birds in section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Effects of Construction on Wildlife*. We have revised our recommendations in this section to include initiation of surveys for nesting birds on January 15 and consultation with FWS and California DFG to determine appropriate protection buffer distances for migratory birds, raptors, and bats.

We have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, to provide additional analysis on potential effects on migratory birds. We discuss our recommended measures to deter wildlife from accessing the brine ponds, including the use of exclusion netting if other measures prove unsuccessful in section 5.0, *Conclusions and Recommendations*. The project reservoirs would not pose a risk to migratory birds because the reverse osmosis system would maintain water quality. We have modified our recommendation to include consultation with FWS, BLM, and California DFG during preparation of the management plan for the brine ponds.

**T 26 Comment:** The Center for Biological Diversity states that the draft EIS does not appear to provide the specific language for a proposed amendment to the CDCA Plan.

**Response:** The CDCA Plan states that transmission routes that do not conform to the BLM's adopted corridor system may be allowed within Moderate and Limited Use areas after NEPA requirements are met. The draft EIS and final EIS act as the mechanisms for complying with those NEPA requirements.

**T 27 Comment:** The Citizens for Chuckwalla Valley and Johnney Coon state that they believe the pumping associated with the proposed project would lower the water table so that plants would no longer be able to access water. This would result in denuding and eutrophication of the desert.

**Response:** The project would pump water from areas where the depth to groundwater is more than 100 feet. This depth is far below any rooting depth for desert vegetation. Rather, desert plants obtain their water from precipitation events and intercept water as it moves down through the soil towards the groundwater. As such, there is no interaction between desert vegetation and water located in the aquifer, and groundwater pumping would not result in denuding the desert.

**T 28 Comment:** The Park Service and Kaiser state that eutrophication of the desert from an additional water source and associated additional resources could alter ecosystem processes. Kaiser states that this concern is incorrectly dismissed in the draft EIS. Kaiser states that the introduction of two large bodies of water could impact wildlife behavior, and that the draft EIS is inadequate in its consideration of the proliferation of nutrients, the potential increase in plants, including invasive plant species, and the possible impacts to biodiversity in the sensitive desert environment.

**Response:** Human-made lakes are abundant in the desert southwest where water retention and storage are critical components to the high degree of human settlement in these otherwise constraining environments. Human-made lakes in the desert vary in scale from the order of several hundred square miles (Lake Mead and Lake Powell) to 20 to 30 square miles (Salt River Project reservoirs) to several acres (ponds at Lake Tamarisk). Many of these systems have been in place for 50 to 100 years. Although these systems certainly create ecological changes in their associated aquatic environments, we have not identified any evidence that they create ecosystem level affects modifying adjacent desert habitats. Along the Salt and Verde rivers in Arizona, diverse, functional sonoran desert plant and wildlife communities thrive adjacent to multiple reservoirs larger in scale than the proposed project. The proposed project would be disconnected from any surface hydrology and would not affect any existing aquatic community because no such community is currently present. Further, in addition to removing salt, the reverse osmosis water treatment system would remove microorganisms, including algae, which would decrease the likelihood of algal blooms and eutrophic conditions in the reservoirs.

**T 29 Comment:** Johnney Coon and the Citizens for Chuckwalla state that they believe impacts on wildlife from the project and cumulative impacts from other proposed projects, including the dump and solar energy developments, would range from moderate to extreme and are concerned about adverse project impacts on wildlife.

**Response:** Unlike the solar projects, the proposed project would not occupy large expanses of undisturbed desert habitat. Unlike the landfill, the project would result in minimal traffic across desert habitats to the central project area. Therefore, we do not expect the proposed project to be a major component of cumulative effects on wildlife in the Coachella Valley. The large majority of project related disturbance would occur in areas that have already been disturbed by mining activities and existing transmission lines. Within the central project area, the project is only expected to disturb about 62 acres of previously undisturbed wildlife habitat. The project would disturb about 28 acres of undisturbed habitat along the transmission line and water pipeline. Our recommended mitigation measures are discussed in section 5.2, *Comprehensive Analysis and Recommended Alternative*. With implementation of these measures, project effects on wildlife would likely be minimal.

**T 30 Comment:** Interior requests that the final EIS include more detail for conservation measures. Interior states descriptions contained in the general discussion of mitigation measures and in section 5.2 require more specific details to demonstrate how these measures will minimize impacts on various resources and how they will be implemented.

**Response:** We included full detail of measures in the WEAP, Desert Tortoise Clearance and Relocation/Translocation Plan, Desert Tortoise Predator Control Plan, Revegetation Plan, and Invasive Species Monitoring and Control Plan, all of which are included as appendices to our Biological Assessment issued on April 21, 2011.

**T 31 Comment:** Interior states that, while fencing the reservoirs may be effective at excluding large wildlife species, it is concerned about small mammals and reptiles that may gain access to reservoirs, become trapped, and potentially drown. Interior states FWS would like to assist with the development of exclusion fencing to ensure the fence design excludes but does not entrap wildlife species. Interior recommends the lower portion of exclusion fence be fitted with a material (e.g., smooth metal) that will prevent access to reservoirs to all terrestrial species.

**Response:** We agree that additional fencing to exclude all terrestrial wildlife from the reservoirs would be beneficial. We have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, and section 5.2, *Comprehensive Development and Recommended Alternative*, to incorporate this recommendation.

**T 32 Comment:** Interior requests that the final EIS use citations to support information put forth in section 3.3.3.1. Interior states that because surveys were limited for this project, identification of information sources is important for our analysis of the project. Interior requests the final EIS also provide details relative to species-specific surveys (i.e., number of individuals observed, proximity to project components, and number of acres of habitat and vegetation types identified during surveys).

**Response:** Unless otherwise noted, our source for information about the affected environment is Eagle Crest's license application. We have revised section 3.3.3.1, *Terrestrial Resources, Affected Environment*, to include results of Eagle Crest's surveys and have included figures depicting these results.

**T 33 Comment:** Interior recommends that section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, quantify total number of acres to be impacted under preferred alternative by each project component and vegetation type (i.e., proposed water line, transmission lines and tower pads, access roads, and other project features) with an explanation as to how these acres were calculated. Interior also requests that the Commission ensure that figures provided in the final EIS are consistent throughout the document. Interior requests the final EIS provide specific details when comparing alternatives and their impacts.

**Response:** We have added tables 17 and 19 in section 3.3.3.1, *Terrestrial Resources, Affected Environment*, and 3.3.4.1, *Threatened and Endangered Species, Affected Environment*, respectively, to provide the total number of acres expected to be affected under our recommended alternative and have incorporated this quantitative analysis into the text.

**T 34 Comment:** Interior asks whether vegetation around reservoirs would be controlled, and if so, how? Interior requests that the final EIS discuss potential impacts to wildlife and native plants from control activities.

**Response:** In the draft EIS, we recommended modification of the filed Invasive Species Monitoring and Control Plan to include the proposed reservoir areas and water seepage areas. In the final EIS, we have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, and section 5.2, *Comprehensive Development and Recommended Alternative*, to include additional information about our recommendation that Eagle Crest control growth of invasive species, trees, and shrubs around the reservoirs. In the final EIS, we recommend Eagle Crest, in consultation with FWS, BLM, and California DFG, develop a vegetation control plan to identify methods for vegetation control and protection of native plants and wildlife.

**T 35 Comment:** Interior notes that the State Water Board's recommended transmission line route is longer, but that it goes through more lands that have already been disturbed. Interior asks whether this was considered in the assessment of these impacts.

**Response:** This was included in our analysis of the effects of construction on wildlife in section 3.3.3.2, *Terrestrial Resources, Environmental Effects*, and elsewhere in the draft EIS.

**T 36 Comment:** Interior notes that the draft EIS states that upgrading transmission infrastructure from 161 kV to 500 kV would not result in additional subsidies for raven and other avian predators; however, Interior states that the lattice tower necessary for a 500-kV line would provide significantly more nesting and perching opportunities for avian predators than currently available from wooden poles supporting a 161-kV line. Interior recommends constructing all new transmission infrastructures according to Avian Power Line Interaction Committee (APLIC) guidelines.

**Response:** Our conclusion is that the addition of a 500-kV line adjacent to the existing 161-kV line would not create additional nesting areas for ravens (note the 500-kV line would not replace the existing 161-kV line). This conclusion is not based on availability of suitable structures for nests, but on territorial behavior exhibited by ravens. The common raven actively defends its nest territory from other ravens, usually up to a distance of 2 miles (FWS, 2008). Therefore adding new nest structures within an occupied nesting territory would not result in higher nest density because the current residents would not tolerate construction of another nest. We revised section 3.3.3.1, *Terrestrial Resources, Affected Environment*, to clarify this information. In the draft and final EIS, we recommend Eagle Crest prepare an Avian Protection Plan, in consultation with FWS and California DFG, that meets the APLIC guidelines.

## **THREATENED AND ENDANGERED SPECIES**

**TES 1 Comment:** The County Sanitation District states that the draft EIS conclusion that the 2,164 acres included in the landfill would provide food sources for ravens is not factual, and not based on analysis in the landfill's EIS/EIR from 1996. Also, the draft EIS assumes that the landfill would not commence until long after the project is operating, so potential impacts from the project alone should be considered. As per the draft EIS, impacts of the project on desert tortoise would occur without study or consideration in the interim, causing potentially irreversible environmental degradation. Kaiser had similar comments and states that the evaluation and study of the project's potential impacts on the predator population is deficient because the evaluation is based on inaccurate understandings with regard to landfill operations.

**Response:** We have revised section 3.3.4.3, *Threatened and Endangered Species, Environmental Effects, Cumulative Effects*, to incorporate Kaiser's proposed mitigation measures to limit landfill effects on ravens. We do not agree that impacts of the project on desert tortoise would occur without study or consideration. Kaiser did not permit Eagle Crest to conduct surveys during preparation of the application. However, we did evaluate analysis presented in Kaiser's EIS for the proposed landfill and analyzed historical and recent aerial imagery that provide information about the level of vegetation development in the central project area. Additionally, the license would require Eagle Crest to conduct on the ground surveys to refine understanding of characteristics in the central project area. Following these surveys, Eagle Crest would develop mitigation



plans, and Commission approval of mitigation plans would be required prior to any project-related disturbance could occur.

**TES 2 Comment:** The Park Service states that habitat either intentionally or inadvertently created from the proposed actions may create an ecological trap where the habitat attracts additional listed species but, due to the dynamics of the area, would limit their reproductive success. Consider the additional listed species that could be affected by this habitat growth in the future (e.g., Least Bell’s vireo, Southwestern willow flycatcher).

**Response:** We added additional text to section 3.3.3.2, *Terrestrial Resources, Environmental Effects, Vegetation*, to indicate that Eagle Crest should prevent development of riparian vegetation along the upper and lower reservoirs.

**TES 3 Comment:** FWS states the draft EIS incorrectly identifies the FWS-recommended alignment. FWS clarifies its intent was to recommend the Kaiser Road alignment identified in the EIR, not the State Water Board’s preferred alternative along an existing 161-kV line. In addition, FWS states the preferred location of SCE’s substation are inconsistent between the draft EIR and draft EIS. Any discrepancies between these documents relative to preferred alternative and various project components should be reconciled prior to release of final EIR and EIS.

**Response:** In its comment letter in response to the ready for environmental analysis notice on March 12, 2010, FWS states: “Desert tortoise designated critical habitat occurs within Project footprint. Currently, the project proposes to locate a 500-kilovolt (kV) transmission line within designated critical habitat for desert tortoise. FWS would prefer that the transmission line be relocated out of critical habitat and co-located with existing transmission lines near project site. We appreciate FWS’ clarification and have revised section 3.3.3.2, *Terrestrial Resources, Environmental Effects* to include its recommendation in our analysis.

**TES 4 Comment:** Interior states that Eagle Crest should acquire land to mitigate for desert tortoise habitat that may be disturbed by project utilizing the same agreed-to protocols that have been developed by BLM, FWS, and California DFG. Kaiser has similar comments and stated that the draft EIS does not adequately describe the measures to be implemented to avoid or minimize impacts on the desert tortoise for each aspect of the project.

**Response:** We have revised section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*, to clarify our discussion about habitat compensation for desert tortoise. Our intent is for Eagle Crest to be accountable for all project-related disturbances to desert tortoise habitat and compensate for such disturbance with the purchase of desert tortoise habitat following protocols identified in the NECO

Plan. We make this recommendation in our Biological Assessment issued on April 21, 2011, and in section 5.2 of the final EIS.

**TES 5 Comment:** Interior states that section 3.3.4.2, *Environmental Effects, Effects of Operation on Desert Tortoise*, focuses on potential predation on desert tortoises. Interior asks Eagle Crest to include a discussion of other activities associated with operations and maintenance that may impact desert tortoises and their habitats, such as weed control, access road, and transmission infrastructure maintenance.

**Response:** We have revised section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*, to note that all project-related activities, including weed control, biological surveys, and maintenance activities that occur within potential desert tortoise habitat would take place under the protocols stated in the Desert Tortoise Clearance and Relocation/Translocation Plan (which replaces the Desert Tortoise Removal and Translocation Plan described in the draft EIS) and the WEAP, and under the general supervision of Eagle Crest-designated staff. Similar discussions are provided in our Biological Assessment issued on April 21, 2011.

**TES 6 Comment:** Interior comments that the statement in section 3.3.4.2, *Environmental Effects, Effects of Construction on Desert Tortoise*: “Staff finds construction of project may affect but is not likely to adversely affect desert tortoise,” conflicts with determination submitted in the Commission’s letter requesting consultation with FWS on this project.

**Response:** We have revised this statement to read: “We find construction of project may adversely affect desert tortoise and modify critical habitat for this species.”

**TES 7 Comment:** Interior states that the desert tortoise translocation plan and raven management plan are being revised; therefore, much language in this section should be revised accordingly in the final EIS. Interior states that any activities associated with desert tortoises, such as surveys, handling, and translocation, should follow most recent guidance from FWS and California DFG.

**Response:** We have revised section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects*, to be consistent with final versions of the desert tortoise predator monitoring and control plan and the desert tortoise clearance and relocation/translocation plan. These plans were submitted to FWS on April 21, 2011, with the Commission’s final Biological Assessment.

**TES 8 Comment:** Interior states that data from 2010 desert tortoise surveys should be incorporated into document either directly or by reference to consultant’s survey report. The estimates of number of individuals expected to be impacted by the proposed action should be articulated.

**Response:** We have revised section 3.3.4.1, *Threatened and Endangered Species, Affected Environment, Desert Tortoise*, to include results of Eagle Crest’s 2010 tortoise surveys.

**TES 9 Comment:** Interior states that all injured tortoises should be taken to a qualified veterinarian as it is not appropriate for field personnel to make determination as to whether “tortoise is expected to survive.” Kaiser had similar comments and states that the draft EIS does not discuss who would make the determination and how the determination would be made if a tortoise is expected to survive and would be transported to a qualified veterinarian.

**Response:** We have revised section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*, to indicate that all injured tortoises should be taken to a qualified veterinarian. We make the same recommendation in our final Biological Assessment, issued on April 21, 2011.

**TES 10 Comment:** FWS recommends that all measures that will be implemented to avoid or minimize impacts to desert tortoise for each project component, including desert tortoise translocation, and their effects on species be described more clearly and specifically. FWS recommends the final EIS clarify whether all “permanent” avoidance and minimization measures will be implemented as described for life of any license issued for the project. Kaiser had similar comments and asked that the client provide a chart showing the studies and conclusions reached for each component of the project.

**Response:** We have revised section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*, to analyze all project-related activities. These activities include weed control, biological surveys, and maintenance activities that would occur within potential desert tortoise habitat, take place under the protocols stated in the Desert Tortoise Clearance and Relocation/Translocation Plan and the WEAP, and occur under the general supervision of Eagle Crest-designated staff. We find effects on desert tortoise would be minimized. We also clarify that all “permanent” avoidance and minimization measures will be implemented as described, for term of any license issued for the project.

**TES 11 Comment:** Interior states that Eagle Crest should develop and implement a Desert Tortoise Removal and Translocation Plan in coordination with BLM and other agencies in a manner consistent with large-scale solar projects.

**Response:** In section 5.2, *Comprehensive Development and Recommended Alternative*, , we recommend Eagle Crest implement the Desert Tortoise Clearing and Relocation/Translocation Plan, with our recommended modifications. We note that the

scale of potential effects of the project on desert tortoise, desert tortoise habitat, and habitat connectivity much less than that associated with the large scale solar projects.

**TES 12 Comment:** EPA recommends that the final EIS demonstrate that the approved project site is consistent with the Desert Renewable Energy Conservation Plan (DRECP) for Mojave and Colorado Desert Regions.

**Response:** The DRECP is under development by the state of California. The Renewable Energy Action Team, which was formed to oversee the implementation of the DRECP, once completed, consists of several state and federal resource agencies. The plan would provide binding, long-term endangered species permit assurances and facilitate renewable energy project review and approval processes for the development of renewable resource projects in the Mojave and Colorado deserts. The plan would apply only to the following types of renewable resource facilities: solar, wind, geothermal, and biomass; therefore, the plan is not applicable to the Eagle Mountain Project.

**TES 13 Comment:** FWS states that table 11 in the draft EIS should be annotated to reflect that there is no current information on the amount of habitat available, rather than stating that there is no habitat available in that area. FWS also states that, without data to substantiate zero occupancy (i.e., no effect) determination, Eagle Crest is unable to analyze potential impacts on desert tortoises and their habitats in the project area.

**Response:** We have added a footnote to table 11 to indicate that our estimates of desert tortoise habitat within the central project area are based upon Eagle Crest and staff review of current (2011) aerial photography within a Geographic Information Systems environment and that these estimates would be refined following preconstruction tortoise surveys.

**TES 14 Comment:** The Center for Biological Diversity states that the recovery unit for desert tortoises in the proposed project site (including the Red Bluff substation) is documented as having the second highest declines in population over the last two years – 37 percent decline. The Center states that the draft EIS does not identify and consider the localized impact to this recovery unit that is already in steep decline.

**Response:** We have revised our assessment of project effects to the Chuckwalla Critical Habitat Unit in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*. The proposed project would have minimal effects on the Critical Habitat Unit. However, we have analyzed those effects in section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects*, and recommend in section 5.2, *Comprehensive Development and Recommended Alternative*, that Eagle Crest compensate for any disturbance to critical habitat at a 5:1 ratio.

**TES 15 Comment:** The Center for Biological Diversity states that determination of home ranges for the onsite tortoises is not provided, and that no impacts on tortoises are analyzed regarding home range impact and that the Desert Tortoise Removal and Translocation Plan not available for public review. It states that it is unclear if desert tortoise exclusion fencing will be used, where it will be used, how much, and how it would affect connectivity. Kaiser had similar comments and states that the draft EIS does not analyze if there are any impacts to the connectivity of desert tortoise habitats by the project and any habitat fragmentation resulting from the project. The Center for Biological Diversity and Kaiser also comment that the draft EIS does not provide estimates of tortoise density or number of tortoise expected to be effected. They ask that the final EIS clearly indicate which tortoise surveys followed FWS protocol.

**Response:** Our recommended proposed Desert Tortoise Removal and Translocation Plan and proposed locations for desert tortoise exclusion fencing were filed by Eagle Crest as part of the Commission's public record on July 27, 2010. We revised the plan (now titled the Desert Tortoise Clearance and Relocation/Translocation Plan), which was included in our Biological Assessment issued on April 21, 2011. We have revised section 3.3.4.2, *Threatened and Endangered Species, Environmental Effects, Desert Tortoise*, to clarify this issue. We discuss Eagle Crest's proposed measures during construction to reduce effects of temporary fencing on habitat connectivity. Following construction, the exclusion fences would be removed and habitat connectivity restored. We also clarify that Eagle Crest conducted FWS protocol surveys for desert tortoise in 2009 and 2010 and provide density estimates and construction encounter estimates based on the results of these surveys.

**TES 16 Comment:** The Center for Biological Diversity states that the preferred transmission line route is located within the DWMA. It states that the draft EIS does not identify that this part of the DWMA is also the proposed "recipient site" for the desert tortoises that will be translocated from the Desert Sunlight project, if that project is permitted and constructed. It states that translocated tortoises will increase the density of tortoises in the project area, and the draft EIS does not address this issue.

**Response:** As depicted on figure 11 in the draft EIS, our recommended transmission line route would be adjacent to the northern boundary of the DWMA, but it would be outside of the management area and does not cross the DWMA. The three preferred recipient site for the Desert Sunlight Solar Project are identified in the draft EIS for that project (BLM, 2010, appendix H). None of these three sites overlap any of the proposed project features or the project's proposed recipient sites for desert tortoise.

**TES 17 Comment:** The Center for Biological Diversity states that the mitigation ratio for habitat acquisition of 2:1 is too low and that a ratio of 5:1 should be required to mitigate impacts at the proposed project site.

**Response:** The draft EIS does not recommend a 2:1 habitat mitigation ratio. Consistent with the NECO Plan and our recommendation, the project would compensate for disturbance to Class I and Critical Habitat Unit habitat at a 5:1 ratio and for Class III habitat at a 1:1 ratio.

**TES 18 Comment:** The Center for Biological Diversity states that while the draft EIS recognizes that impacts from the proposed project would occur to desert tortoise, the significance of those impacts is not analyzed.

**Response:** We recognize the project has potential to adversely affect desert tortoise and modify critical habitat for this species. We recommend that Eagle Crest implement mitigation to limit effects on this species. These recommended mitigation measures include implementation of the Desert Tortoise Clearance Relocation/Translocation Plan, the WEAP, the Predator Monitoring and Control Plan, and the purchase of compensation lands. We have initiated formal consultation with FWS under section 7 of the Endangered Species Act.

**TES 19 Comment:** The Center for Biological Diversity states that desert tortoise numbers at the project site may be underestimated because desert tortoises may not be evenly distributed across the landscape and may occur in pockets of density.

**Response:** Eagle Crest's 2009 and 2010 desert tortoise surveys covered 100 percent of the disturbance area for project facilities where surveys were possible. The objectives of these surveys were to determine desert tortoise presence and estimate desert tortoise density within the project area and zone of influence related to project activities. The surveys were conducted following FWS standards to meet this objective. Based on this information, we conclude desert tortoise density is about 1.2 tortoises per square mile in areas surveyed. Surveys in the central project area were not possible due to land access restrictions. However, we estimate that density in this area would be no greater than that recorded in the survey areas because the central project area contains lower quality habitat. Following the possible issuance of the license, Eagle Crest would conduct field surveys in the central project area to refine these estimates.

**TES 20 Comment:** The Center for Biological Diversity states that the proposed project will significantly impact occupied desert tortoise habitat both outside of DWMA and within DWMA and the draft EIS should have considered alternatives to relocate all of the project elements to minimize these impacts.

**Response:** Our analysis indicates that while there is potential for some effects on desert tortoise in the central project area, the highly disturbed nature of this area makes the proposed location more favorable than other sites in the vicinity. As such, we do not recommend relocating the proposed reservoirs. We do analyze alternative locations for the transmission line. To deliver energy generated at the project to the electrical grid, the

project would need to connect with the existing Devers-Palo Verde 500-kV transmission line or similar high-voltage line. The majority of previously undisturbed areas between the central project area and existing high-voltage lines are potential desert tortoise habitat. However, to reduce effects on desert tortoise habitat, we recommend the transmission line be co-located with an existing line and therefore in a previously disturbed corridor. We also recommend the project use a proposed substation associated with another project to eliminate the need for two new substations in the area.

**TES 21 Comment:** The Citizens for Chuckwalla Valley states that the draft EIS should include cumulative impacts from the proposed project to the desert tortoise—both impacts from train and truck traffic from the proposed dump and impacts from the construction of transmission lines and the pipeline across the Chuckwalla Valley to the site of the project. Kaiser had similar comments.

**Response:** We have revised section 3.3.4.3, *Threatened and Endangered Species, Cumulative Effects*, to add detail to our discussion and analysis regarding the proposed project and other planned activities such as the proposed extensive solar facilities within the valley.

**TES 22 Comment:** The Citizens for the Chuckwalla Valley states that desert tortoise habitat occurs only a short distance from the project area and that an increase in number of predators from the artificial lake will have a detrimental effect on desert tortoise numbers inside the Joshua Tree National Park and wilderness area. It states that augmented populations of coyote, gulls, wild dogs, and other potential predators of the desert tortoise from the project were not addressed in the draft EIS. The Citizens for the Chuckwalla Valley suggests the creation of a desert tortoise predator control plan to address the likely increased predation pressure on the desert tortoise.

**Response:** As stated in section 5.2, *Comprehensive Development and Recommended Alternative*, we recommend a desert tortoise predator monitoring and control plan. We revised this section to recommend additional components for inclusion in the plan, such as baseline surveys for predator activity and desert tortoise predation levels, annual surveys during the first 5 years of the project, specific methodology for dog and coyote activity surveys, and canine predation on tortoise estimates.

**TES 23 Comment:** The Park Service states that it agrees that this project will add to already existing water sources available to desert wildlife near the project area. However, it disagrees with the statement, “water supply is not a limiting factor on predator species population size in the project vicinity” and that this statement can only be determined through scientific monitoring and study (e.g., home-range study, habitat use profiles). The Park Service is concerned about the effect of additional water sources on potential predators.

**Response:** We do not agree that scientific study is necessary to evaluate whether water is a limiting resource in the project area. For water to be a limiting factor to populations, it would need to be unavailable to some individuals. As discussed in section 3.3.3.1, *Terrestrial Resources, Affected Environment*, multiple constant sources of water can be found in the project vicinity, and they are readily available to any individuals in the area. While there may be the potential for the reservoirs to attract additional individuals, we do not expect a large increase in population size. As stated in section 5.2, *Comprehensive Development and Recommended Alternative*, we recommend a desert tortoise predator monitoring and control plan. We revised this section to recommend including additional components in the plan, such as baseline surveys for predator activity and desert tortoise predation levels, annual surveys during the first 5 years of the project, specific methodology for dog and coyote activity surveys, and canine predation on tortoise estimates.

**TES 24 Comment:** The Park Service states that the two surveys conducted for the Coachella Valley milkvetch were done in conjunction with tortoise surveys, and the entire area was not surveyed. The Park Service states that it is possible that Coachella Valley milkvetch plants were missed either spatially or temporally and recommends additional surveys throughout the construction phase of this project. Additionally, the Park Service recommends adding this species to the WEAP, as well as developing mitigation measures in the case that this species is discovered. It also recommends having mitigation measures in place if the species were to be found during construction activities.

**Response:** We have included identification of Coachella Valley milkvetch into the WEAP and added this species to the recommended pre-construction surveys for sensitive plants. As part of the WEAP, if this species is identified during construction, Eagle Crest-designated staff would be notified and construction activities would be suspended in the immediate area. All efforts would be made to avoid disturbance to this species. If avoidance is not possible, the Eagle Crest-designated staff would contact FWS for guidance.

## RECREATION AND LAND USE

**R 1 Comment:** Interior states that the description of the off-highway vehicle (OHV) areas in section 3.3.5.1, *Recreation, Land Use, and Aesthetics*, subsection *Existing Recreation Resources in the Proposed Project Vicinity*, of the draft EIS is incorrect. Ford and Palen Dry lakes are not OHV use areas because they are limited to designated routes per the NECO Plan. There are no OHV use areas (i.e., OHV open areas) on BLM lands in Riverside County.

**Response:** We have revised section 3.3.5.1, *Recreation, Land Use, and Aesthetics, Affected Environment*, to state that OHV use is restricted in Ford and Palen Dry lakes.



**R 2 Comment:** The Metropolitan Water District states that the draft EIS indicates (section 3.3.5.1, *Recreation, Land Use, and Aesthetics*, subsection *Land Use Within and Adjacent to the Proposed Project Boundary*) that the proposed project site is accessible via Eagle Mountain Road, approximately 11 miles south of the site. The final EIS should clarify that Eagle Mountain Road is open to the public between Interstate 10 and the Eagle Mountain Pumping Plant, at which point the road stops at the closed gate to Metropolitan's Eagle Mountain Pumping Plant; there is no through access to the proposed project site through the Eagle Mountain Pumping Plant.

**Response:** We have revised section 3.3.5.1, *Recreation, Land Use, and Aesthetics, Affected Environment*, and figure 18 to indicate that Eagle Mountain Road is gated near the Eagle Mountain pumping plant, prohibiting public access beyond this point and therefore, blocking access to the proposed project site.

**R 3 Comment:** Kaiser states that the draft EIS does not discuss that the Eagle Mountain Road will become a private road as a part of the landfill project and how that may impact land ownership and other items related to the project.

**Response:** Eagle Crest would need to secure the use of Eagle Mountain Road to access the central project area, just as it would need to secure the land on which the proposed project would be constructed and operated. We have revised section 3.3.5, *Recreation, Land Use, and Aesthetics*, to clarify our discussion of use (construction and operation) of Eagle Mountain Road and effects on existing land uses.

**R 4 Comment:** The Metropolitan Water District states that the final EIS should clarify that no private or public entity currently has entitlement to build over its fee-owned rights-of-way or properties (page 143, section 3.3.5.1, *Recreation, Land Use, and Aesthetics*, subsection *Land Use Within and Adjacent to the Proposed Project Boundary*). It comments that appropriate rights will need to be acquired from Metropolitan Water District to facilitate crossing its fee property. Metropolitan Water District's facilities and fee-owned or permanent easement rights-of-way should be considered in planning and in the final EIS, and the project should avoid potential impacts that may occur due to implementation of the project. Any new facilities related to the project should not impact accessibility or use of existing Metropolitan Water District facilities. Development associated with the proposed project should not restrict any of Metropolitan Water District's day-to-day operations or access to its facilities. Metropolitan Water District should be able to maintain its rights-of-way, which requires unobstructed access to its facilities and properties at all times in order to repair and maintain its system.

**Response:** The draft EIS considers the proposed project and the lands that the various linear project facilities (e.g., transmission lines and water conduits) of the project would cross. Specifically, the EIS discloses that the water conveyance pipeline and the

transmission lines would potentially cross Metropolitan Water District lands and/or easements. As such, we have revised section 3.3.5.2, *Recreation, Land Use and Aesthetics, Environmental Effects*, to provide additional analysis covering the potential effects of constructing the proposed project facilities across Metropolitan Water District lands to the final EIS.

**R 5 Comment:** The Metropolitan Water District states that, in order to avoid potential conflicts with its rights-of-way, it requires that any design plans for any activity in the area of Metropolitan Water District's pipelines or facilities be submitted for its review and written approval. It requests that the final EIS note that Metropolitan Water District's approval of the project where it could impact Metropolitan Water District's property will be contingent on such review and approval of design plans for the project.

**Response:** We have revised section 3.3.5.2, *Recreation, Land Use and Aesthetics, Environmental Effects*, to incorporate Metropolitan Water District's suggestion for consultation prior to final design and construction to the proposed measures section of the EIS and solicit its expertise relative to proposed design elements that may interfere with their facilities.

**R 6 Comment:** The Metropolitan Water District states that its Colorado River Aqueduct conduit was not designed for American Association of State Highway and Transportation Officials (AASHTO) H-20 loading in this area, and any vehicle crossings should be restricted to the existing paved roadways that have protective slabs in place to distribute this loading away from the pipeline. The final EIS should note that any vehicle or equipment that would likely cross the conduit as part of the construction operation of the proposed project will be subject to review and approval by Metropolitan Water District.

**Response:** We have revised section 3.3.5.2, *Recreation, Land Use and Aesthetics, Environmental Effects*, to supplement the discussion relative to the potential effects on Metropolitan Water District facilities and address the use of Eagle Mountain Road, staging areas, and construction vehicle traffic crossing the Colorado River Aqueduct.

**R 7 Comment:** Mr. Phillip Hu expresses concerns that the proposed water pipeline would be constructed through his property, which was purchased as an investment to build and operate recreational vehicle and mobile home parks and that the proposed project would result in portions of his land becoming unusable for his business venture.

**Response:** We have revised section 3.3.5.2, *Recreation, Land Use and Aesthetics, Environmental Effects*, to supplement the discussion relative to the potential effects on private land associated with construction of the proposed water pipeline. As a result, in the final EIS, we recommend that Eagle Crest:

Develop a construction plan for construction activities on or next to private properties including adjustments, to the extent practicable, to the route of the water pipeline developed in consultation with each affected landowner; and

Develop and implement an environmental complaint resolution procedure with directions for identifying and resolving environmental mitigation problems/concerns during construction of the project and restoration of the right-of-way including monthly reporting to the Commission.

**R 8 Comment:** The Center for Biological Diversity states that the draft EIS does not explain how the proposed substation relates to the Red Bluff substation (which is needed for the proposed Desert Sunlight project to interconnect to the Devers Palo Verde 1 transmission line), and relates to earlier review by BLM for the Devers Palo Verde 2 transmission line right-of-way and the yet-to-be-completed review for the Colorado River substation “expansion” which may also be a connected action that is part of the Devers Palo Verde 2 transmission line. The Center for Biological Diversity states that it is unclear if the “State Water Board Recommended Substation” is the same as the proposed Red Bluff Substation Alternative A as presented in the Draft Environmental Impact Statement and California Desert Conservation Area Plan Amendment for the Proposed First Solar Desert Sunlight Solar Farm Project, Riverside County, California BLM Case File Number CACA #48649, issued by BLM.

Additionally, the Center for Biological Diversity states that it is unclear if any of the proposed transmission footprint alternatives in this draft EIS are the same as the transmission line alternatives proposed in the Desert Sunlight draft EIS. Because it is unclear if multiple transmission lines will be coming from the same general area (this proposed project and the proposed Desert Sunlight project), the Center for Biological Diversity is very concerned about the proliferation of separate transmission lines for each project, when they could easily be consolidated, and the additional road and infrastructure that will exacerbate the direct, indirect and cumulative impacts including landscape level fragmentation.

**Response:** Eagle Crest proposes to construct a substation near Desert Center to connect its proposed transmission line to the Devers Palo Verde 2 transmission line proposed by SCE. Figure 11 of the draft EIS and figure 18 of the final EIS provide the location of the proposed substation and the State Water Board’s preferred (Eastern Red Bluff) substation. Transmission line Alternative A-1 for the Desert Sunlight Project appears to be mostly along the same route as the State Water Board’s preferred alternative transmission line route, both of which would interconnect at the Eastern Red Bluff substation.

## **AESTHETICS RESOURCES**

**A 1 Comment:** The Park Service agrees with the State Water Board’s draft EIR that the project would result in significant and unavoidable impacts on the aesthetics, i.e.,

viewshed. The State Water Board draft EIR states that the viewshed would be significantly impacted by proposed project as well as other renewable energy projects in the vicinity (cumulative impacts). However, the Park Service comments that the draft EIS does not adequately address effects on the park experience to those visiting for recreational purposes, and the final EIS should strengthen the discussion of comparisons between current conditions, proposed future conditions, and potential impacts on those park visitors who do use the area. While exact numbers are unknown, potential impacts should not be dismissed or minimized.

**Response:** We have revised section 3.3.5.2, *Recreation, Land Use and Aesthetics, Environmental Effects*, to clarify the discussion relating to the proposed project's potential effects on aesthetics. In particular, we enhanced the discussion related to potential visitors who use the Joshua Tree National Park and wilderness area; however, we respectfully disagree with the Park Service on the extent of the difference of visitation. The potential effects would not be substantially different than the existing uses of the central project area (open pit ore mines and alleged explosive-related training grounds). We considered the Park Service's comment related to the proposed renewable energy projects in the greater Chuckwalla Valley and their bearing on cumulative effects; we have revised section 3.3.5.3, *Recreation, Land Use and Aesthetics, Cumulative Effects*, to provide additional discussion of these potential effects in the final EIS.

**A 2 Comment:** Interior states that the draft EIS does not include visual simulations for proposed project, or adequately discuss mitigation or design techniques in terms of BLM Visual Resource Management (VRM) contrast rating system.

**Response:** In section 3.3.5.2, *Recreation, Land Use and Aesthetics, Environmental Effects*, we evaluate the proposed project effects on the aesthetic resources in the area and disclosed the potential effects in the EIS. Eagle Crest provided sufficient description and photographs for us to evaluate the proposed project's effects on visual resource through our NEPA analysis. Additionally, Eagle Crest provided a visual resource inventory (VRI), using BLM methods. Eagle Crest has proposed, and we recommend, a dark night sky conditions study and the use of lights that minimize the impacts on dark sky conditions as a mitigation measure. Additional measures include using existing materials on site whenever possible to retain the aesthetic character in the central project area. We also recommend mitigation measures for the transmission and water conveyance pipeline features.

**A 3 Comment:** BLM states that figure 12 on page 142 does not take into account visual resource inventory conducted for the area as part of draft programmatic EIS for the Solar Energy Development in Six Southwestern States (December 2010). BLM states that the Eagle Crest visual resource analysis does not meet BLM standards and should have included a VRI, which would lead to proposed interim (not surrogate) VRM Classes, to be approved by authorized officer (see BLM WO IM 2009-167). BLM raises issue that

use of Eagle Crest's visual resources work as a surrogate is unnecessary given the new work published in the draft programmatic EIS for Solar Energy Development (BLM and DOE, 2010). The inventory conducted for the draft programmatic EIS for Solar Energy Development assigned VRI Class II and III for the project area. BLM also states that the key observation points (KOPs) for the Eagle Crest draft EIS were not selected in conjunction with the BLM field office (however, KOPs appear to be adequate).

**Response:** We have revised section 3.3.5, *Recreation, Land Use, and Aesthetics*, as suggested by BLM, to include information from the draft programmatic EIS for Solar Energy Development in Six Southwestern States (BLM and DOE, 2010) that assigns VRI Class II and III for the proposed project area. Because BLM conducted a VRI and developed VRI Classes for the area as part of the programmatic EIS, these classes replace the applicant-prepared VRI Classes. The BLM VRI Classes are considered to be superior to those prepared by Eagle Crest because the inventory and classes were prepared by staff with special training and experience in VRM on BLM lands. Because the BLM VRI Classes replace the previous work by Eagle Crest, we have also enhanced the discussion related to land uses to incorporate information from the draft programmatic EIS, which was not yet available at the time this draft EIS was prepared.

## **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

**S 1 Comment:** The Citizens for Chuckwalla Valley comments that this project violates environmental justice because it targets a poor, rural community to benefit urban areas. Further the Citizens for Chuckwalla Valley states that obtaining land from citizens in the area by eminent domain would remove the possibility of these citizens helping form a viable economic base for the valley. Also, this entity states the scoping meetings were held 50 miles away from the host community and during work hours, making it difficult for most citizens to attend and violating NEPA environmental justice stipulations.

Similarly, EPA recommends that the final EIS define the reference community, as well as the affected community, and analyze whether there are disproportionately high and adverse human health or environmental impacts by comparing the impacts to the affected population with the impacts to the reference community. The reference community (or comparison group) is generally defined as the population that will benefit from the proposed project. An environmental justice section of the final EIS should briefly summarize the affected community and reference community, and provide the source of the demographic information.

**Response:** Environmental justice as defined by Executive Order 12898 applies to the agencies specified in section 1-102 of that Order, and the Commission is not one of the specified agencies. Consequently, the provisions of Executive Order 12898 are not binding on the Commission, and the Citizens for Chuckwalla Valley and EPA are mistaken in its assertion to the contrary. However, it is current Commission practice to

address environmental justice in its NEPA document when raised. Therefore we have included this discussion in the final EIS in section 3.3.7.2, *Socioeconomics, Environmental Effects*.

Regarding the Citizens for Chuckwalla Valley's comments that scoping meetings were held 50 miles away from the host community and during work hours, making it difficult for most citizens to attend, the project is located in a remote, sparsely populated area, and the nearest suitable facility, readily accessible to the public, was chosen for both scoping meetings and public meetings on the draft EIS. For both of these meetings, we had one meeting during normal working hours for agency personnel and a meeting during the evening for the convenience of the public.

**S 2 Comment:** Interior states that the draft EIS also does not address economic loss to Kaiser if eminent domain were to be exercised on private property or the economic effect on Kaiser employees or other private land owners.

**Response:** We have revised section 3.3.1, *Geologic and Soil Resources*, to provide more detail on the value of the iron ore that remains at the site. However, as stated in the landfill EIS in 1996, the full time mining at the Eagle Mountain mine was curtailed because the ore deposits were no longer considered economically feasible to mine. As described in the draft and final EIS, Kaiser currently employs a limited number of people at the mine, and the vast majority of other private land owners who would experience effects would be those affected by either the proposed transmission or water lines and the drawdown in the groundwater table near Desert Center.

**S 3 Comment:** EPA recommends that the final EIS determine whether there are disproportionately high and adverse impacts as detailed in the CEQ's *Environmental Justice: Guidance under the National Environmental Policy Act*. EPA also recommends that if these impacts are high and diverse on minority populations or low-income populations, the final EIS should propose appropriate mitigation of environmental impacts on minority populations or low-income populations are likely to result from the proposed action and any alternatives.

**Response:** As stated earlier, in our response to Comment S 1, the Commission is not bound by Executive Order 12898. However, the Commission has considered environmental justice issues during specific phases of the NEPA process through: scoping, public participation, analysis, mitigation, and other measures. In addition, while the project is located in an area that has lower income than some other parts of Riverside County, the project location was selected based on its unique suitability as a pumped storage project, according to a set of objective parameters described in an earlier response. In addition, in section 3.3.7.2, *Socioeconomics, Environmental Effects*, we conclude that the project would confer economic benefits on the surrounding communities by bringing jobs and increased economic activity to the area.

**S 4 Comment:** EPA recommends that the final EIS define the potential environmental justice concerns. EPA states that the final EIS should include a discussion of any environmental justice issues raised during scoping meetings and discuss the key issues that may raise environmental justice concerns, such as contamination or drawdown of domestic wells, air quality, noise, vibration, access to property, local business (e.g. tourism), and personal safety.

**Response:** All of these topics are discussed and analyzed throughout the draft and final EIS but not explicitly in an environmental justice context as discussed in earlier comment responses. Specifically, we discuss contamination and drawdown effects on existing wells in section 3.3.2.2, *Water Resources, Environmental Effects*. We discuss air quality, noise, and vibration in section 3.3.8.2, *Air Quality and Noise, Environmental Effects*. Access and safety issues are discussed in section 3.3.5.2, *Recreation, Land Use, and Aesthetics, Environmental Effects*. The effects on local businesses are discussed in section 3.3.7.2, *Socioeconomics, Environmental Effects*.

## **AIR QUALITY AND NOISE**

**AQN 1 Comment:** Kaiser comments that the statement on page 205 of the draft EIS, “Aerial photographs of the region show that there are no sensitive land uses, such as residences, schools/churches, or parks located in the general project vicinity” is incorrect. It states that the draft EIS does not account for these sensitive receptors and does not analyze the potential environmental impacts of sensitive receptors and that this should be corrected.”

**Response:** We have revised section 3.3.8, *Air Quality and Noise*, to include the low number of remaining occupied buildings at the Eagle Mountain town site. We have also revised the analysis in the final EIS to indicate that there are a few additional rural residences closer to the central project area than previously indicated in the draft EIS. However, we maintain that there are a very limited number of sensitive receptors in proximity to the project area, and during construction and especially during operation of the proposed project, noise levels would be lower than during the former mining operations.

**AQN 2 Comment:** The Park Service states that mitigation measures should be implemented to maintain natural soundscape during both construction and operation for the life of the project (e.g., timed periods of minimal visitor use in the Joshua Tree National Park). The Park Service also states that it could work with Eagle Crest to measure current levels of ambient noise using state-of-the-art acoustical monitoring equipment and to develop a monitoring program. The Park Service states that current soundscape and ambient noise levels should be maintained for the life of the project during construction and operations.

**Response:** The central project area is about 2 miles from the nearest park boundary, and noise levels indicated in table 34 in section 3.3.8.2, *Air Quality and Noise, Environmental Effects*, are worst case scenarios. During rock drilling at the reservoir sites, the noise levels are estimated at 43 A-weighted decibel scale (dBA). As indicated in the EIS, most of the loud construction noise would occur near the bottom of the proposed reservoir sites or underground for the proposed tunnels and powerhouse. Noise levels from both of these locations would be attenuated by the presence of natural sound barriers. We recommend that the construction machinery be equipped with properly operating and maintained noise mufflers and intake silencers and compliance with applicable County of Riverside noise ordinance codes. Because the proposed powerhouse would be located underground during project operation, there would be minimal noise increases, mostly from the slight increase in traffic on Kaiser Road and from corona discharge near the proposed transmission lines. However, during both project construction and operation, noise levels are expected to be lower than during past mining operations.

**AQN 3 Comment:** EPA recommends that the final EIS include a section evaluating project greenhouse gas emissions, including detailed estimates of emissions from construction and operation of the project. In addition, provide information detailing the impacts that climate change may have on the project, its sources of groundwater, and reclamation and restoration efforts after construction and decommissioning. EPA states that the final EIS should also discuss how climate change may exacerbate or otherwise alter the impacts of the project, particularly with regard to sensitive species and groundwater construction.

**Response:** We have revised section 3.3.8, *Air Quality and Noise*, to add information about CO<sub>2</sub> emissions. However, it is out of the scope of this analysis to provide detailed effects that climate change may have on this project during its proposed operation. If the project were built and subsequently decommissioned, that proceeding would require the preparation of a separate EA or EIS to analyze any effects associated with decommissioning. If a license is issued for this project, it will contain reopening procedures to be used if conditions change that might change the effects of this proposed project.

**AQN 4 Comment:** EPA recommends that the final EIS should discuss whether mitigation measures beyond changes in construction scheduling to limit emission levels and standard Best Management Practices are needed, or if the project would affect the ability of other foreseeable projects to be permitted.

**Response:** As discussed in section 3.3.8, *Air Quality and Noise*, our recommended measures with regard to emission levels associated with the proposed project are suitable for the proposed project. In the cumulative effects sections of the EIS, we analyze the effects of planned nearby projects. Further, we find that based on the available



information, our recommended measures are suitable for the proposed project and not inconsistent with any of the reasonably foreseeable projects, as discussed in the cumulative effects discussions in section 3.0, *Environmental Analysis*, of the final EIS.

**AQN 5 Comment:** EPA states that the final EIS should provide technical justification for the determination regarding that the proposed project is too far from the other proposed projects to contribute to cumulative air quality impacts. EPA also recommends that, in the final EIS, the cumulative emissions from the proposed project combined with proposed solar and transmission line projects that would affect the same air basin. In consultation with the local air quality management agency, EPA recommends that these cumulative emissions data be used to develop an incremental construction schedule that would not result in any violations of local, state, or federal air quality regulations. EPA recommends incremental construction to ensure air quality impacts are limited and are sufficiently staggered.

**Response:** As described in EIS, the proposed project could have temporary exceedances in nitrogen oxide (NOx) levels during 2 years of the planned construction schedule. However, it is unknown if these 2 years would overlap with construction of the other projects, and the Commission does not have regulatory control or oversight on the other projects. The solar projects proposed in other areas of the Chuckwalla Valley are in various stages of the approval process and might be built before the proposed pumped storage project, but the timing of these proposed projects is purely speculative at this point. In addition, Eagle Crest has proposed to work collaboratively on a cost share basis with the Park Service to complete a 2-year air monitoring study to provide data to adjust construction workload if NOx exceedances are observed.

**AQN 6 Comment:** The Park Service states that the proposed transmission utility corridor and other new proposed corridors are within a few miles of the park which is a Class I area for meeting National Ambient Air Quality Standards (NAAQS). The Park Service states that monitoring should include particulate monitoring (PM<sub>10</sub>) in addition to localized monitoring for ozone near transmission lines. The Park Service will collaboratively develop a monitoring plan to complete a 2-year monitoring study, aimed at maintaining air quality standards for the life of the project.

Similarly, the Center for Biological Diversity states that the draft EIS does not adequately address air quality issues such as PM<sub>10</sub> both during construction and operation, which is of particular concern in this area because it is a nonattainment area for PM<sub>10</sub> and ozone. The Center for Biological Diversity states that it is clear that construction grading would result in significant amounts of bare soils, and increased PM<sub>10</sub> may be introduced into the air by wind. It goes on to state that the use of the area during construction and operations would lead to additional PM<sub>10</sub> emissions from the site. The Center for Biological Diversity states that although some mitigation measures are suggested, they are not specific and enforceable.

**Response:** The development of a 2-year air quality monitoring study with for PM<sub>10</sub> is part of the staff-recommended alternative in the draft and final EIS; however, we do not recommend monitoring for ozone near the transmission lines. Based on this monitoring plan for PM<sub>10</sub>, Eagle Crest proposes and we recommend that the results of the monitoring could be used to adjust the construction work schedule if exceedances are observed. Ozone can be produced as a result of corona discharges near transmission lines, but ozone produced by transmission lines is typically insignificant when compared to natural variations or ozone production by other sources.

**AQN 7 Comment:** The Park Service and Interior states that impacts on air quality related to decommissioning of the project are also an environmental concern. Impacts related to decommissioning of the project have not been addressed in the draft EIS. Decommissioning of the project due to higher efficacy alternatives or at the expiration of the license (50 years) will result in impacts to air quality. During decommissioning, the impoundment will lose water due to evaporation and seepage; evaporates will begin to form and will likely become airborne during periods of high winds. The Park Service states that decommissioning of the project and full analysis of the environmental impacts needs to be addressed in this EIS.

**Response:** While the Commission normally issues a license for 30 to 50 years, there is no guarantee that the project would be decommissioned after the expiration of the initial license. In addition, in the event of a future decommissioning of the project, a full NEPA review would be required, including an EA or an EIS, based on the applicable environmental conditions and regulatory standards then in effect. Therefore, it is not necessary to include the effects of decommissioning in an EA or EIS during a licensing proceeding for a proposed project.

**AQN 8 Comment:** The Center for Biological Diversity states that the Commission does not identify any significant greenhouse gas emissions and therefore does not provide for avoidance, minimization, or mitigation. The Commission has also does not include the loss of carbon sequestration from soils in its calculations or to provide a lifecycle analysis of greenhouse gas emissions that include manufacturing and disposal. The Center states that the Commission does not consider any alternatives to the project that would minimize such emissions or to require that these near-term emissions be off set in any way.

**Response:** The draft EIS provided information on the amount of CO<sub>2</sub> and other greenhouse gases that would be emitted during construction and operation. In addition, the draft EIS also provided estimates of the sizable amount of CO<sub>2</sub> and other greenhouse gases that would be offset from the operation of this project as compared to generation from natural gas peaking facilities. In the EIS, we conclude that the proposed project would have a net benefit to the state with regard to CO<sub>2</sub> emissions, similar to conclusions

in the draft EIR. We have revised section 1.2, *Need for Power*, and section 4.1, *Power and Developmental Benefits of the Project*, to reflect the various sources of pumping power that could include renewable sources from existing and proposed nearby projects.

**AQN 9 Comment:** The State Water Board recommends that the Commission acknowledge its analysis of greenhouse gas emissions as a more conservative approach. Under both minimum and maximum displace scenarios as determined by the State Water Board, the proposed project would have a net benefit to the state with regard to generation of CO<sub>2</sub> pollutant emissions. The State Water Board states that over the long term, as more renewable energy sources are integrated into the system, these types of energy may be used in increasing amounts for pump-back at the proposed project, but for purposes of this analysis, it cannot reasonably assume that will be the case.

**Response:** We have revised section 3.3.8, *Air Quality and Noise*, to include similar CO<sub>2</sub> emissions values to those presented in the State Water Board's draft EIR. These values are slightly lower than the values presented in our draft EIS and are based on updated and slightly different calculations. We have revised this section to include these values because of the uncertainty involved with the source of power for pump-back power.

**AQN 10 Comment:** The Center for Biological Diversity states that the draft EIS does not discuss greenhouse gas emissions either from construction or operation and that the revised or supplemental EIS will need to include these data and an analysis of the "carbon footprint" for the proposed project and means to avoid, minimize or off-set these emissions.

**Response:** In section 3.3.8.2, *Air Quality, Environmental Effects*, we estimated amount of CO<sub>2</sub> that would occur during construction and operation of the project. In table 20 of the draft EIS, we supplied an estimated total emission during construction of about 28,247 tons of CO<sub>2</sub>. In table 22 in the draft EIS, we estimated about 102 tons of CO<sub>2</sub> would be emitted during project maintenance during operation of the project. In table 23 of the draft EIS, we stated that the annual offset of emission by the proposed project is estimated at about 1,443,260 tons of CO<sub>2</sub> as compared to a fossil fueled peaking generation facility of the same size. However, based on information provided in a comment letter from the State Water Board and information in the EIR, we have revised section 3.3.8.2, *Air Quality, Environmental Effects*, to indicate that the annual offset value would be 1,229,892 tons (1,115,751 metric tons).

## CUMULATIVE EFFECTS ANALYSIS

**CE 1 Comment:** Kaiser states that a more robust analysis of cumulative air impacts is required. Particular care should be taken to analyze all air impacts of the project, particularly during construction along with the air impacts of other projects, including the air impacts of resumed mining.

**Response:** Because proposed solar projects would be located a substantial distance from the proposed Eagle Crest Project, we revised section 3.3.8.3, *Air Quality and Noise, Cumulative Effects*, to remove the cumulative effects of these projects. The solar projects are in various stages of the approval and design processes, but it is likely that most of these projects could be constructed before the hydroelectric project, based on current, but relatively speculative, information. We also removed the effects of constructing the proposed landfill because it would probably be constructed after the proposed Eagle Mountain Project. Further, because the issue of resuming large-scale iron ore mining is not planned, we did not analyze this issue in the EIS.

**CE 2 Comment:** Kaiser states that groundwater conjunctive use analysis is required. The Park Service states that the current cumulative effects discussion on water resources presents little or no information about the reasonably foreseeable projects that were considered. Both entities state that the cumulative effects analysis should be expanded to ensure that both supply and water quality would not be adversely affected in the long term.

**Response:** We revised section 3.3.2, *Water Resources*, to add information about effects on groundwater availability and quality, and, in particular, we have revised section 3.3.2.3, *Cumulative Effects*, to provide additional details about potential effects on water resources.

**CE 3 Comment:** The Sierra Club and Citizens for Chuckwalla Valley state that the cumulative impacts of the proposed Eagle Mountain Project and Lake Elsinore Advanced Pumped Storage (LEAPS) Project should be analyzed together because both projects would draw pumping power from the same sources and provide power to essentially the same load. The Sierra Club states that the Commission should consider LEAPS and the proposed Eagle Mountain Project as alternatives to each other and that the LEAPS Project should be included in the analysis for Eagle Mountain Pumped Storage.

**Response:** The Commission accepted the LEAPS Project application and issued the final EIS in January 2007, but thus far the project has not received a water quality certificate that is required for construction to begin. Furthermore, the LEAPS Project has some unique environmental issues that do not apply to the Eagle Mountain Project.

**CE 4 Comment:** The Park Service is concerned that this project, and others proposed for this area, will adversely affect the wilderness experience for visitors by adding substantial evidence of humans and their works within landscape view. Impacts of this proposal and currently structured mitigations and cumulative impacts of other development of any sort located near wilderness may adversely affect the wilderness experience for visitors and resource values dependent upon isolation. The Park Service requests identification reassessment of all potential effects on the congressionally

designated Wilderness in the final EIS. Kaiser states that the draft EIS incorrectly concludes that the impact on wilderness would be less than significant. Kaiser states that the landfill EIR concluded that impacts on wilderness from the landfill were significant, so this impact should be listed as an unavoidable adverse impact in the draft EIS.

**Response:** We did not use the words “less significant” in the draft EIS to describe the effects of the proposed project on a congressionally designated Wilderness. However, we recognize that the proposed project would introduce new features and uses into the existing landscape. As described in section 3.3.5.1, *Recreation Land Use and Aesthetics, Affected Environment*, the proposed central project facilities would occupy lands previously disturbed by decades of mining activity resulting in mountains of spoil piles terraced into straight forms that already conflict with the surrounding landscape. New facilities associated with the dams, spillways, transmission lines, brine ponds, and other features would be similar to existing facilities surrounding the mine in the town of Eagle Mountain. We recognize that the greatest difference would be the visual presence of water within the reservoirs; however, the presence of water is often perceived as a desirable visible feature, and the reservoirs would be visible only from the very sparsely visited section of the park from portions of the eastern Eagle Mountains. The construction and operation of the transmission lines would add linear features to the area, increasing the linear features already in place, which include the Colorado River Aqueduct and transmission lines, SCE transmission lines, and the rail lines and existing network of roads. The potential effects of these features and the potential cumulative effects associated with other proposed projects in the area are discussed throughout section 3.3.5.

As for conclusions in the landfill EIR, the proposed landfill project is a separate project with a separate set of operations that would contribute to the effects. Potential effects from that project, which would be different from the proposed project, include continual grading of the site with heavy machinery (e.g., bull dozers), regular train and truck traffic from off-loading the trash at the transfer area, and the potential for wind-blown trash to be distributed throughout the area. As analyzed in section 3.3.5, *Recreation, Land Use, and Aesthetics*, we determined the potential effects of constructing and operating a pumped storage hydroelectric project, including transmission lines and water conveyance systems, may result in limited effects on the wilderness values for visitors in the sparsely used far eastern portion of the park. The proposed utility scale solar projects in the Chuckwalla Valley have the potential to be more visible to park users as described in section 3.3.5.3, *Recreation, Land Use, and Aesthetics, Cumulative Effects*.

**CE 5 Comment:** The Park Service states that the sentence, “Although seeing project features and night lighting would contribute to the degradation of the values of solitude and night sky conditions, few people would be annually exposed to those conditions,” should be altered to read “Seeing project features and night lighting would contribute to the degradation of the values of solitude and night sky conditions for the visitors using that area.” The Park Service states that while the number of visitors who use that area is

unknown, those that do likely highly value the current night skies for their pristine qualities.

**Response:** As discussed in section 3.3.5.2, *Recreation, Land Use, and Aesthetics; Environmental Effects*, we understand the Park Service's concerns related to potential effects of night sky conditions from the additional security lighting proposed around the central project area of the proposed project. Concurrently, we must balance the proposed new features with the existing environment, which includes the largely inactive ore mine, as well as a few buildings and residences that are still occupied at the Eagle Mountain town site. We estimated that annually about 1,000 people might visit the far eastern area of the park and maybe 100 of them would climb high enough to see project features. Taken in isolation, the proposed project would likely contribute less nighttime light pollution than historical conditions that included the mining operations, the town of Eagle Mountain, and the state penitentiary because the proposed facilities require less lighting and the design and materials would be mitigated through collaborative study efforts. To address the degradation of night sky conditions from the other proposed projects (e.g., landfill, solar projects, and associated growth in the Chuckwalla Valley), we have added night sky degradation to the cumulative effects discussion in section 3.3.5.3, *Recreation, Land Use, and Aesthetics, Cumulative Effects*.

**CE 6 Comment:** Interior, the Center for Biological Diversity, and FWS state their concern that the draft EIS does not adequately address the proposed Eagle Mountain Project in the context of other connected projects, especially pertaining to cumulative impacts. Interior and the Center for Biological Diversity state that the draft EIS demonstrates direct conflict with the draft programmatic EIS for Solar Energy Development in Six Southwestern States that was jointly produced by DOE and BLM, as well as six other EISs that were recently approved and currently are being finalized. BLM states that a closer review of draft programmatic EIS and nearby solar EISs pertaining to methodologies and reasonable foreseeable development scenarios would allow for a more consistent analysis so that cumulative effects can be more accurately presented in the final EIS. FWS recommends that additional coordination with other project applicants, BLM, and appropriate utilities and local jurisdictions to ensure transmission, for this and other proposed projects nearby, are consolidated to maximum extent possible to minimize direct, indirect, and cumulative environmental impacts in area. The Center for Biological Diversity, the Citizens for Chuckwalla Valley, and Johnney Coon also state that the cumulative effects, including effects from light pollution, of proposed 30,000 acres associated with proposed solar projects within the Chuckwalla Valley, plus an additional 200,000 acres proposed in the Solar PEIS, should be analyzed.

**Response:** We analyzed cumulative effects of the proposed projects in the Chuckwalla Valley in the draft EIS and expanded the cumulative effects analysis in the final EIS. In section 3.3.2.3, *Water Resources, Cumulative Effects*, we analyzed the effects on

groundwater and determined that future water use would be exceeded by recharge, but would result in only about a 1 percent decrease in the aquifer storage volume during a 50-year period. In section 3.3.3.3, *Terrestrial Resources, Cumulative Effects*, we analyzed the effects on bighorn sheep and predators to the desert tortoise. We recommend measures to reduce the effects on bighorn sheep and recommend co-locating the transmission line and substation with the proposed facilities for the Desert Sunlight Solar Farm Project would limit effects on and terrestrial resources and limit additional nesting habitat for ravens. In section 3.3.4.3, *Threatened and Endangered Species, Cumulative Effects*, we analyzed the effects on desert tortoises but found that in comparison to the effects of the proposed solar projects, effects of the project would be negligible. We have revised section 3.3.5.3, *Recreation, Land Use, and Aesthetics, Cumulative Effects* to incorporate potential light pollution from other proposed projects. In section 3.3.8.3, *Air Quality and Noise, Cumulative Effects*, we determined that the construction of the solar projects would be at a distance that would limit the cumulative effects associated with their project construction and the timeline associated with the proposed landfill would occur later than the likely construction associated with the hydroelectric project.

**CE 7 Comment:** Interior states that project-related and cumulative effects from other projects in the area on wildlife movement and habitat connectivity should be addressed in appropriate section(s) of the draft EIS because the effects of this and adjacent solar energy projects may significantly impact movement and population (genetic) connectivity of desert tortoises and other species in project and surrounding areas.

**Response:** We have revised section 3.3.3.3, *Terrestrial Resources, Environmental Effects, Cumulative Effects*, to address this issue. We conclude the project would not impede wildlife movement or habitat connectivity because wildlife would be able to move past the linear features and around the reservoirs. Compared to the scale of disturbance associated with the large-scale solar projects, which would cover thousands of acres of open land, the project contribution to cumulative effects on wildlife habitat would be minimal.

**CE 8 Comment:** The Park Service states that, with respect to the discussion in section 3.2, it is concerned that the scope of the cumulative effects analysis is incomplete because several resource areas have been excluded from the cumulative effects analysis. Specifically, a cumulative effects analysis has not been conducted for geologic and soil resources, cultural resources, or socioeconomics. The Park Service believes there is nothing in the NEPA regulations that allows the lead federal agency in the preparation of an EIS to predetermine which resource areas are to be analyzed for potential cumulative impacts. This entity states that the Commission has selectively decided which resource areas to analyze based on its review of the license application materials and agency and public comments received for the project. It believes that the NEPA regulations specifically require it to analyze potential cumulative effects for all resource areas of concern, no matter how inconsequential the impacts initially may appear to the lead

agency or the public, and requests that the Commission evaluate and discuss the potential cumulative impacts associated with these neglected resource areas, unless it can be shown that the NEPA regulations grant such discretion. If it is shown that the regulations do allow such discretion, the Park Service requests that the current discussion be expanded to include a summary of the specific information that led the Commission to conclude that potential cumulative impacts on these particular resource areas would not be significant and therefore, required no further analysis.

**Response:** The NEPA regulations regarding scoping allow an agency to identify and eliminate from detailed study, issues that are not significant. As summarized in Scoping Document 2, after reviewing of the draft license application and the written and oral comments on Scoping Document 1, we identified the following resources that could be cumulatively affected by the proposed project and other past, present, and reasonably foreseeable actions: water resources, terrestrial resources (including federally listed threatened and endangered species), land use, recreation, and air quality. We analyzed the cumulative effects of all of these resources in the draft and final EIS. However during the preparation of the EIS, we determined that during the construction of the proposed project, there would be a temporary exceedance of the NO<sub>x</sub> levels as the result of emissions of construction equipment. With the progress and locations of other projects in the Chuckwalla Valley, we concluded that construction of the solar projects should be removed from cumulative actions due to their locations and distances from the proposed project, while construction of the Eagle Mountain landfill project should also be removed due to its time schedule (construction would probably not occur simultaneously with construction of the proposed project).

**CE 9 Comment:** The Center for Biological Diversity states that it is concerned that the Commission's EIS did not include adequate information regarding the impacts on resources and the failure to fully examine the impact of the proposed project to the CDCA Plan along with other energy projects and their proposed plan amendments. It states that as a result of the current piecemeal process of energy projects, especially in the area of this proposed project site, approval of industrial sites appears to be on track, which will result in sprawl across the California desert generally, and the Chuckwalla Valley in particular, within habitat that should be protected to achieve the goals of the bioregional plan as a whole. The Center for Biological Diversity states that this approach maximizes (rather than minimizes) the indirect and cumulative impacts of each of the projects and will cause extensive habitat fragmentation.

**Response:** We respectfully disagree. The draft and final EIS include extensive analyses on resources that would be affected and cumulatively affected by the proposed project and other proposed projects such as the large solar facilities in the Chuckwalla Valley.



**CE 10 Comment:** The Citizens for Chuckwalla Valley states that the cumulative impact analysis should include the loss of rainfall recharge due to solar development, and the impacts that lack of percolation will have on groundwater.

**Response:** We have revised section 3.3.2.3, *Water Resources, Cumulative Effects*, to add information about the cumulative effects associated with the possible decrease of rainfall recharge.

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Document Content(s)

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