

**State Water Resources Control Board
Eagle Mountain Pumped Storage Project
(FERC Project No.13123)**

**Responses to Comments on July 2010
Draft Environmental Impact Report (SCH #2009011010)**

January 2013

Package 4 of 6

This package contains the following responses to comments:

PACKAGE	LETTER	COMMENTER	DATE OF LETTER
4	Q	Kaiser – Kaiser Ventures, LLC	October 7, 2010



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October 7, 2010

VIA E-MAIL (PMURPHEY@WATERBOARDS.CA.GOV)
& FEDERAL EXPRESS

Mr. Paul Murphey
STATE WATER RESOURCES CONTROL BOARD
1001 I Street, Second Floor
Sacramento, CA 95814

**RE: COMMENTS ON THE DRAFT EIR FOR THE EAGLE CREST ENERGY
COMPANY EAGLE MOUNTAIN PUMPED STORAGE PROJECT (STATE
CLEARING HOUSE No: 2009011010)**

Dear Mr. Murphey:

By this letter Kaiser Eagle Mountain, LLC and Mine Reclamation, LLC (collectively "**Kaiser**") are submitting comments regarding the draft environmental impact report ("**DEIR**") for Eagle Crest Energy Company's ("**ECEC**") proposed Eagle Mountain Pumped Storage Project to be located at Eagle Mountain, California (the "**Project**").

Kaiser retained Geosyntec Consultants, Inc. to assist it in the review of certain aspects of the DEIR and the Project. Geosyntec's letter dated October 5, 2010, is attached hereto (**Attachment #1**) and the comments made therein are incorporated into and made a part of this letter by this reference (the "**Geosyntec Comment Letter**").

In making a determination with regard to an application for a water quality certification pursuant to Section 401(a)(1) of the Federal Clean Water Act (33 USC § 1341 et seq.) (herein after referred to as the "401 water quality certification") the State Water Resources Control Board ("**State Water Board**") must either: (1) deny certification; or (2) issue an appropriately conditioned 401 water quality certification. A 401 water quality certification is to be denied if compliance with water quality standards is not yet determined or if the application suffers from a procedural inadequacy. The DEIR, as currently written, does not provide sufficient information to make a reasonable evaluation and determination of the environmental impacts of the Project, including water quality impacts. Accordingly, among other reasons, as a result of the inability to determine compliance with water quality standards, certification of the EIR for the Project, and the Project's 401 water quality certification application should be denied.

KAISER #1

1. ECEC DOES NOT OWN OR CONTROL THE HEART OF ITS PROPOSED PROJECT AND ECEC HAS NOT CONDUCTED NECESSARY STUDIES AT THE EAGLE MOUNTAIN MINE SITE

Kaiser owns and controls much of the real property on which ECEC is proposing to construct and operate the Project. The DEIR acknowledges such fact in stating: "The Project lies almost entirely within the Eagle Mountain Mine... ." (DEIR,

KAISER #2



p. 3.0-2.¹⁾ Kaiser also owns and controls permits for the construction of the Eagle Mountain Landfill and Recycling Center (the "Landfill")²⁾. The Landfill is designed to serve seven southern California counties and it could ultimately receive, if maximum capacity is achieved, 708 million tons of household municipal waste.³⁾ The Landfill remains under contract to be sold to the Los Angeles County Sanitation District No. 2 ("LACSD"). Despite ECEC's assertions to the contrary, the Landfill and the Project are not compatible as discussed in more detail in this letter.

KAISER #2

1.1 THE WATER QUALITY CERTIFICATION APPLICATION SHOULD BE DISMISSED SINCE ECEC NEITHER OWNS NOR CONTROLS MUCH OF THE LAND ON WHICH THE PROJECT IS PROPOSED TO BE CONSTRUCTED. At the outset it must be recognized that ECEC neither owns nor controls the very heart of the proposed Project—the Eagle Mountain Mine pits and the land necessary for the power generation facilities. Additionally, ECEC has not had access to the Eagle Mountain Mine site. Without ECEC demonstrating ownership of or the terms by which it will control the necessary land, the State Water Board cannot establish clear, certain and enforcement conditions that ensure compliance with water quality objectives and the beneficial uses they are intended to protect. Thus, the State Water Board should not issue a 401 water quality certification unless and until ECEC owns or controls the land that is necessary for the Project.⁴⁾ For this reason alone, ECEC's application for a 401 water quality certification should be immediately dismissed.

KAISER #3

¹⁾ All page references are to the applicable page number in the DEIR unless otherwise noted.

²⁾ The Landfill has been the subject of extensive litigation, including litigation initiated by ECEC. In April 1999, the California Court of Appeal unanimously rejected challenges to the Landfill under the California Environmental Quality Act. Subsequent to their loss in state courts, Landfill opponents filed federal litigation against a completed land exchange between Kaiser and the U.S. Bureau of Land Management ("BLM"). In September 2005, a U.S. District Court ruled against the completed land exchange and "set aside" the completed land exchange. By subsequent order, the U.S. District Court explained that "set aside" did not mean the exchange was undone, but that it would be held in abeyance pending BLM's preparation of an environmental impact statement and a record of decision consistent with the court's ruling. Title to the exchanged lands remains with Kaiser. The U.S. District Court decision was appealed to the U.S. 9th Circuit Court of Appeals. In November 2009, the majority of a three-judge panel ruled in favor of Kaiser on several issues but found that there were three matters that still needed to be addressed. Kaiser remains committed to the Landfill and the completed land exchange and is pursuing its options with regard to the Landfill. These options included seeking review of the adverse 9th Circuit decision by the U.S. Supreme Court and/or pursuing a fix of the three deficiencies found by the 9th Circuit through the BLM. Thus, to paraphrase Mark Twain: "The rumors of the Landfill's death have been greatly exaggerated."

³⁾ The Landfill will have the capacity to handle and dispose of 470 million tons in current Phases 1-4 and 238 million tons in Phase 5.

⁴⁾ Where a project is proposed for a portion of the property owned by an entity other than the project proponent, it appears difficult and bad policy for the State Water Board to issue a 401 water quality certification; unless and until a determination is made that the project proponent has an actual legal right to use the property and a determination can be made that the proposed project is consistent with existing and future uses by the existing landowner. Indeed, consistent with these points, the applications for 401 water quality certification of the California Regional Water Quality Control Boards for the San Diego, Lahontan, and North Coast Regions ask for



1.2 THE WATER QUALITY CERTIFICATION SHOULD BE DISMISSED BECAUSE OF A LACK OF PROPER ENVIRONMENTAL ASSESSMENT SINCE ECEC HAS NOT ACCESSED THE EAGLE MOUNTAIN SITE AND CONDUCTED CRITICAL STUDIES. ECEC has not conducted critical studies and evaluations for material components of the Project. Lack of critical environmental studies and evaluations have resulted in an inadequate description and analysis of material Project components and related impacts and mitigation programs. The deferred studies include the following:

KAISER #4

1.2.1 DEIR SECTION 3.1 - GEOLOGY, SOILS AND MINERAL RESOURCES. The DEIR's discussion of geological conditions includes no detailed and site-specific geological studies regarding conditions at the Eagle Mountain location - the site of the proposed reservoirs, power generation facilities and ancillary facilities. Accordingly, the DEIR's discussion regarding ground subsidence, soil erosion, and landslides and mass movements are not sufficient. The DEIR indicates that future testing is required before any analysis can be completed. For example, the first of several "project design features" described by the DEIR are to be performed *after EIR certification* and once "site access is obtained." "Stage 1 Subsurface Investigations" will only then be conducted to provide the information necessary to "finalize project features." These investigations are to be followed by Stage 2 investigations for final design, including the design of dams. (p. 3.1-29.) Additionally, the DEIR proposes to perform "geologic mapping" to describe the stability of slopes within the mine pits where the reservoirs are to be located *after the EIR is certified.* (*Id.*) Under the California Environmental Quality Act and its implementing guidelines, rules and legal interpretations (collectively "CEQA"), this type of analysis cannot be deferred.

KAISER #5

1.2.2 DEIR SECTION 3.2 - SURFACE WATER. The DEIR notes that the Project-created surface waters may be impacted by sedimentation and metals as a result of former mining activities at the Eagle Mountain site. However, the DEIR does not specifically discuss these potential impacts but instead asserts that mitigation of these impacts will be through the "erosion plan." The erosion plan suffers from the same lack of information identified above, and "on-site studies of acid production potential," which will be performed "when access is granted to Eagle Crest Energy Company" to collect samples. (p. 3.2-16.) Thus, the DEIR again acknowledges that ECEC does not have sufficient information to identify the Project's potential impacts upon water quality. Instead studies and necessary analysis regarding these potential impacts will be delayed until after certification of the EIR which also means that mitigation measures will be adopted without essential public review or comment. CEQA does not allow for the deferment of necessary studies.

KAISER #6

1.2.3 DEIR SECTION 3.3 - GROUNDWATER. The evaluation of potential impacts to groundwater at the Eagle Mountain site is limited to document

KAISER #7

information from the owner or related to ownership of the project site. Other Regional Water Quality Control Boards request information that would be difficult, if not impossible, to provide without the project proponent owning or maintaining the right to use the subject land. See, for example, California Regional Water Quality Control Boards, Central Coast, Central Valley and Colorado River Basin Regions' Application Form, which requests information on proposed schedule. How could a schedule be developed by a project proponent, if that proponent does not have the right to use the property on which the project is proposed to be located?



and photographic review, rather than any actual studies by ECEC at the site. (p. 3.3-19.) For example, the DEIR acknowledges that seepage may impact the amount of groundwater that will need to be pumped for the Project. However, "estimates" for seepage in the DEIR are provided without performing any actual geological studies of the characteristics of the areas in which the reservoirs, the tunnels, and water over flow areas are proposed to be located. As a consequence of not having critical information, the DEIR indicates that a "detailed reconnaissance" of areas where leakage and seepage is expected to occur will be conducted during "final engineering design" as part of ECEC's seepage control efforts. Once again deferring necessary studies and analysis deprive the State Board and the public of meaningful information that is necessary for the analysis of water quality impacts and other Project impacts. Proposing potential methods for mitigating Project seepage is speculative in nature without sufficient geotechnical studies to determine the site's characteristics and to conclude whether impacts are significant.

KAISER #7

1.2.4 DEIR SECTIONS 3.5 AND 3.6 - BIOLOGICAL RESOURCES AND THREATENED AND ENDANGERED SPECIES. No onsite biological surveys of the mine pits that will serve as the reservoirs and other features at the Eagle Mountain Mine site have been undertaken. (p.3.5-32.) Instead, ECEC relies upon "pre-construction surveys" of plant and wildlife species, that will take place sometime after (i) the EIR is certified; (ii) the proponents obtain access; and (iii) the Project is licensed. (p. 3.6-24.) This lack of actual field information and resulting analysis clearly does not meet the requirements of CEQA.

KAISER #8

As the State Water Board is aware, the EIR is the very heart of CEQA compliance (*Dunn Edwards v. BAAQMD* 9 Cal. App. 4th 644, 653) (1992)) and the participation of governmental entities and the public in the evaluation and commenting on a project through the EIR process is essential. This process is throttled when material studies are deferred.

2. THE PROJECT AND PROJECT DESCRIPTION

2.1 INADEQUATE PROJECT DESCRIPTION. The Project description is inadequate. As discussed in this letter, there is an inadequate description of certain material components of the Project, related mitigation measures, and how the mitigation will be implemented. Further, the DEIR states that three wells would be utilized to pump groundwater but there is an insufficient clarity as to exactly where the wells will be located that will be used by the Project. As a result the review and analysis of local groundwater impacts is inherently limited. ECEC and the DEIR also assume that there will be no material alteration of the physical environment at the Eagle Mountain site prior to the possible construction of the Project. As discussed in more detail under "**Mineral Resources**" below, this may be incorrect.

KAISER #9

2.2 THE NEED FOR THE PROJECT IS NOT ESTABLISHED. The DEIR provides an inadequate analysis of the reasons for the Project. 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. There should be sufficiently detailed independent studies that demonstrate that there in fact is a need for the Project so that there can be a realistic

KAISER #10



analysis of the benefits of the project versus the detriments of the Project. For example, in a report issued by the CAISO dated August 31, 2010, titled "Integration of Renewable Resources-Operational Requirements and Generation Fleet Capacity at 20% RPS" (the "**CAISO Integration Report**"), there is no discussion of the need for a hydro-electric pumped storage project like the Project in order to integrate renewable energy sources such as solar and wind power into the electrical system in California. In fact, the CAISO Integration Report concludes that this "study confirms that the generation fleet possesses sufficient overall operational flexibility to reliably integrate 20% RPS in over 99% of the hours studied." (CAISO Integration Report, p. 93.) With the ability to integrate renewable resources into the electrical grid already being met, the justification for the Project is weak at best. As further justification for the Project, the DEIR states: "The Project will provide an economical supply of peaking capacity, as well as load following electrical system regulation through spinning reserve, and immediately available standby generating capacity." (p. ES-2.) Yet, these ancillary services being touted as justification for the Project are not sufficiently quantified in the DEIR. For example, the DEIR does not explain how the Project could be considered to have spinning reserve and immediately available standby generating capacity if the lower reservoir is already full of water. Additionally, as discussed in more detail in this letter, the DEIR fails in its analysis of how these benefits compare to other alternatives that can provide most, if not all, of the claimed benefits of the Project.

KAISER #10

2.3 THE DEIR FAILS TO ADEQUATELY ADDRESS TRANSMISSION CONSTRAINTS. The EIR fails to adequately address serious transmission constraints that impact the Project. The Project currently has no capacity to deliver the power it may generate to market. At best, the Project must wait until the Devers - Palo Verde 2 ("Devers 2") transmission line is built. At worst, given the number of solar and wind projects that may access the Devers 2 line, there may be no transmission capacity for a substantial number of years for the Project. Without the ability to sell power into the grid, ECEC may not be able to, among other things, timely implement required mitigation measures. 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 DEIR.

KAISER #11

2.4 THE PROJECT IS NOT COST-EFFECTIVE. The cost to operate the Project (using realistic off-peak power costs to operate and transmission costs) will exceed the benefit/value of the on-peak power as well as any revenues that can be derived through the ancillary services market. ECEC has effectively conceded that the Project is not commercially viable in that there is not a sufficient differential between day-time and night-time electrical rates. The Project will be more expensive to operate than a natural gas combined cycle facility or a natural gas combustion turbine, while affording less operational flexibility than either alternative.

KAISER #12

2.5 THE PROJECT IS NOT GREEN. The Project will consume more energy than it would produce and it is misleading for ECEC and the DEIR to assert that the Project is in any way a "renewable energy" or a "green" project, or essential to the development of renewable resources. (See comments under Section 2.2 above.) By confirming memorandum dated March 30, 2010, ECEC corrected previously incorrect published numbers for the amount of energy to be consumed by the Project versus the amount of energy to be produced by the Project. (See **Attachment #2**). Under the

KAISER #13



assumptions used, ECEC states that the proposed annual average generation would be 4,308 giga-watt hours, while the pumping energy would be 5,744 giga-watt hours. As discussed in this letter, there are other alternatives which ECEC did not study as required by CEQA that could more efficiently and cost effectively to achieve the Project's touted benefits of providing peaking capacity and electrical system benefits (p. ES-2).

KAISER #13

Additionally, the DEIR states that one of the goals of the Project is the reduction of greenhouse gases. However, the DEIR is misleading to assert that greenhouse gasses will be reduced without appropriate documents and analysis when the Project uses substantially more power than it will generate. Undoubtedly, much of this power for the Project will likely originate from fossil fuel sources. An appropriate study needs to be undertaken that demonstrates the net increase or decrease in greenhouse gases as a result of the Project, taking into account the likely true sources of the power that will be utilized by the Project.

2.6 THE DEIR FAILS TO ADEQUATELY IDENTIFY AND DISCUSS NECESSARY CONSENT AND APPROVALS. The DEIR fails to adequately identify and discuss all the consents and approvals necessary for the Project. For example, the DEIR does not address in any meaningful manner the necessary consents from the Metropolitan Water District of Southern California ("MWD") that will be required for ECEC's crossing of the Colorado River Aqueduct ("CRA") and for discharges across the CRA as result of emergency releases of water.

KAISER #14

3. ALTERNATIVES ANALYSIS

The DEIR has impermissibly narrowed the range of alternatives. The Statement of Goals and Objectives (p. 2-2 to 2-7; p.4-12.) has narrowed the range of alternatives to exclude other potential energy generation projects or locations that could meet some or most of the same stated objectives. CEQA Guidelines state in § 15124(b) that "A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR" It also states in Section 15126.6(a) that "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." There are several other alternatives that should be given substantial consideration and analyzed in the DEIR, including renewable energy projects, alternative site location, and other means of achieving ancillary services to benefit the electrical grid.

KAISER #15

3.1 OTHER RENEWABLE PROJECT ALTERNATIVES. Other renewable projects should be considered at this location. For example, expanded wind and solar projects would help meet most of the objectives and goals set out in the DEIR. They could also avoid many of the adverse impacts associated with the proposed Project, and avoid potential conflicts with the Landfill, which already has a certified EIR. The NET energy balance of these other renewable resource energy projects should also be analyzed and compared with the NET energy balance of the proposed pumped storage project.

KAISER #16



3.2 OTHER ALTERNATIVES FOR PROVIDING ANCILLARY SERVICES. The DEIR does not evaluate what other types of projects and facilities may provide the ancillary services touted for the Project. For example, the approved Blythe Energy Project II ("BEP II") located near Blythe, California is considering modifying such facility in order to expand the ancillary services available from such facility. As proposed, such facility would be a high efficiency quick start facility to meet the current and future market demand for Southern California. The incorporation of new technology will make BEP II a more flexible generating facility with the ability to work as an intermittent load that will assist in the integration of renewable power and in the regulation of power into the electrical grid. There are likely other alternative options as well that can provide ancillary services that have not been studied.

3.3 ALTERNATIVE LOCATIONS. Alternative pumped storage project locations were not sufficiently analyzed in the DEIR. For example, there are two additional iron ore pits at Eagle Mountain and this fact is recognized in the DEIR. (p. 3.1-9) The DEIR does not discuss the possible use of these two pits or the use of one of these pits in conjunction with the Central Pit serving as the lower reservoir instead of serving as the upper reservoir as the proposed Project is currently configured. This alternative would likely offer similar advantages in terms of possible suitability for the Project including proximity to transmission lines and groundwater, yet further minimize (though they would not be completely be eliminated) potential impacts to the Landfill. Additionally, using an Eagle Mountain Black Eagle Pit as the upper reservoir might result in other and lesser environmental impacts of the Project including those related water quality. There is no question that these possible alternatives, which seemingly meet all the attributes articulated in the DEIR (p. 4-12), should have been exhaustively analyzed in the DEIR. Additionally, no analysis of other potential sites in other parts of California has been substantiated.

KAISER #16

3.4 ALTERNATIVE PUMPED STORAGE PROJECT DESIGNS-CONSTRUCTION CONFLICTS. The DEIR analysis of alternatives assumes that the proposed project is compatible with the Landfill, at least during the fifty years term of the Project. (However, see the comments under "The Project is Not Compatible with the Landfill" below.) Since the Landfill has a certified EIR, and is in the process of obtaining final federal approvals, assuming the Project is ultimately approved it is indeed a possibility that simultaneous construction could occur given the uncertainties of timing approvals for both projects. In that case, portions of the proposed pumped storage project would not be immediately available, and the DEIR should therefore analyze the option of what additional design modifications would be necessary should both projects proceed simultaneously.

3.5 FILL ALTERNATIVES. The DEIR does not adequately address the possibility of drilling and pumping only two groundwater wells. A longer fill period for the Project would likely reduce the impacts of the Project's pumping. A longer fill period should not be rejected just because it may take more time and/or be more expensive than the preferred alternative.

3.6 TRANSMISSION LINE ALTERNATIVES. The DEIR does not discuss all the transmission line scenarios although the EIR does generally discuss several possible transmission line routes and their inter-connection into the electrical grid. However,



the DEIR does not analyze the associated environmental impacts of a possible transmission line and route from Eagle Mountain to near Blythe, California, as originally proposed by ECEC. ECEC must still consider the construction of such electrical transmission line to near Blythe as a viable alternative route since ECEC continues to hold a reservation on U.S. Bureau of Management land for the construction of such a transmission line. One must ask why ECEC has not surrendered its reservation of federal lands for this purpose unless it is holding this land in reserve for a possible transmission route? Given the facts, this alternative should have been studied in the DEIR.

KAISER #16

4. GROUNDWATER RESOURCES AND IMPACTS

There is no doubt that the proposed use of groundwater by the Project is a significant concern that must be thoroughly analyzed by the State Water Board. The DEIR concedes that the Project will put the Chuckwalla Groundwater Basin into overdraft. Particular care must also be taken in analyzing the cumulative impacts on groundwater of the Project with other projects such as the solar energy projects. As expressed in more detail below, Kaiser is concerned that there is insufficient documentation and explanation of certain assumptions used in the preparation of the DEIR and that there are apparent inconsistencies among other recent ground water analysis prepared for the Chuckwalla Groundwater Basin. These concerns of course lead to concerns about the accuracy of various conclusions reached concerning the groundwater analysis in the DEIR.

KAISER #17

4.1 CONFLICTS WITH THE GROUNDWATER ANALYSIS PROVIDED BY OTHERS. A number of potential regional projects would utilize groundwater from the Chuckwalla Groundwater Basin. A number of these projects have released information and provided their own respective analysis of the Chuckwalla Groundwater Basin and impacts of their and other projects on water in the basin. It appears that these other studies often have different assumptions, analyses and conclusions. It would be beneficial to the public and the State Board for there be a review all of the recently published groundwater analysis for the Chuckwalla Basin and to provide a report and a summary table showing the material differences used in each respective analysis including the different methodologies used in evaluating the groundwater impacts, differences in assumptions such as groundwater recharge, amount of groundwater in the basin, the rate of transmissivity, etc. Additionally, a narrative and chart that seeks to harmonize these various studies would be useful.⁵

4.2 INCONSISTENCIES AND LACK OF CLARITY ON GROUNDWATER ASSUMPTIONS USED IN MODELING AND REACHING CONCLUSIONS. The analysis and accounting of the groundwater balance for the Chuckwalla Valley Groundwater

⁵ Illustrative of the type of comparative information that should be provided so that there can be an informed review of groundwater information for the Project along with other proposed projects is found in the Desert Solar Farm Project Draft EIS and CDCA Plan Amendment (August 2010). For example, see the identified paragraph in **Attachment #3**. With the vast amount of water to be used by the proposed Project and the Project putting the Chuckwalla Basin into overdraft, the State Water Board and the public need to see how other major projects have analyzed groundwater and groundwater impacts in relation to the information being supplied in the DEIR.



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. This accounting is set forth in Table 3.3-8 (p. 3.3-22 and 3.3-23). There is not a sufficient identification and explanation of how there is not a net decrease in the water balance because of an increase in inflow between 2014 and 2060. For example, the DEIR provides no support for the assumption that the water usage by the Chuckwalla and Ironwood State Prisons will be reduced by thirty percent in 2011 and continuing after such date. Additionally, this analysis appears to be incorrect, because of the cumulative groundwater impacts of the Project when combined with other existing and foreseeable projects are now purportedly set forth in revised version Table 5.5. (Revised Table 5.5 was provided after the commencement of the comment period.) Revised Table 5.5 evidences a completely different conclusion than set forth in Table 5.5 of the DEIR. Instead of supposedly demonstrating a cumulative increase of 87,000 acre feet during the 50-year period of the Project, revised Table 5.5 shows a cumulative decrease of almost 80,000 acre feet during the same period. This is a dramatic shift from the information presented in the DEIR, and it must be adequately analyzed with the true environmental impacts associated with this deficit understood.

KAISER #17

4.4 HYDROCOMPACTION. The decrease in groundwater levels that would result from the potential use of this water for initial fill of the reservoirs and for recharge may also result in hydrocompaction.⁶ Excessive withdrawal of groundwater, such as the 50 to 80 foot decline forecasted here for the two-year initial fill of the reservoirs and subsequent, long-term withdrawals for make-up water (which may be at levels greater than projected in the DEIR given its inadequate assessment of the Project's seepage risks), may cause the water table to move to deeper levels than exist in its current withdrawal and recharge pattern. Since lowering of the water table involves loss of water, hydrocompaction may occur. While the DEIR concludes that "it is unlikely that the lowering of the water levels below their historic lows by up to an additional 5 acre feet will have a significant effect" (p. 3.3 - 26.) such analysis is limited to the potential impacts on the CRA. A more complete hydrocompaction analysis must be undertaken on a cumulative basis to the Chuckwalla Ground Water Basin rather just relying upon the conclusion that while the risk of hydrocompaction is greater, it remains low. Accordingly, it is unclear from the DEIR what long-term effects the proposed groundwater withdrawal might have on aquifer storage areas in the vicinity of the Project. Inelastic subsidence in aquifer storage areas could permanently reduce aquifer capacity. Similarly, hydrocompaction could impact the habitat of burrowing wildlife.

Reservoir seepage could also raise groundwater levels, causing hydrocompaction from surface soil subsidence.

The sediments around the fringes of the Chuckwalla groundwater basin were deposited as alluvial debris flows. These types of sediments are susceptible to subsidence if wetted from above or

⁶ Hydrocompaction results when formerly unsaturated soils become saturated, allowing the soil particles to reorient. High porosity of soils in the arid environment means that surface soils are susceptible to hydrocompaction.



below. The CRA is constructed on these sediments at the base of the Eagle Mountains. Seepage from the reservoir or brine ponds could raise groundwater levels and consolidate the sediments leading to subsidence. (p. 3.3-27.)

KAISER #17

Over the proposed 50-year term of the Project, use of extraction wells to respond to this risk (as suggested in the DEIR) does not appear to be a reasonable or efficient control measure. To assess these hydrocompaction impacts, additional information should be gathered through use of geologic mapping, soil borings and/or geophysical methods, or other appropriate methods. Only when this information is provided can we begin the process of identifying sufficient protection, mitigation, and enhancement measures.

5. WATER QUALITY IMPACTS

5.1 RESERVOIR SEEPAGE RISKS ARE NOT SUFFICIENTLY ANALYZED AND POSE SIGNIFICANT RISKS TO THE LANDFILL USE, WATER QUALITY, AND WATER QUANTITY. In addition to the potential impacts to water quality already discussed in this letter, the DEIR acknowledges that seepage from the Project could adversely affect the Landfill there are significant seepage risks and concerns. (See, e.g., p.3.) The Geosyntec Comment Letter addresses in detail some of the seepage concerns and such comments are incorporated herein by this reference.

KAISER #18

5.2 CONCERNS OVER THE PROPOSED REVERSE OSMOSIS WATER TREATMENT SYSTEM. The DEIR essentially acknowledges that there are significant water quality concerns arising from the Project but the discussion in the DEIR asserts that any such issues will be adequately addressed in a number of ways, with a key component being a reverse osmosis water treatment system. On Kaiser's behalf, Geosyntec reviewed the proposed reverse osmosis system and provided comments with respect to such system which are set forth in the Geosyntec Letter. These comments are incorporated herein by this reference.

6. THE PROJECT IS NOT COMPATIBLE WITH THE EAGLE MOUNTAIN LANDFILL

ECEC maintains, and the DEIR seeks to support, that the Project is compatible with the Landfill.⁷ This is incorrect. Over the nearly twenty years that ECEC has been promoting the Project in one form or another, ECEC has indeed refined its initial design in an attempt to reduce conflicts with the Landfill, the fact is the Project and Landfill are not compatible and remain in conflict.

KAISER #19

ECEC's Project as currently proposed would use portions of the Eagle Mountain Landfill site to generate electricity as water flows from an upper reservoir (known as the Eagle Mountain Central Pit) through tunnels containing turbines to a lower reservoir (known as the Eagle Mountain East Pit) when power demand is high and pumping it from the lower to upper reservoir when demand is low. The approved

⁷ The DEIR sometimes mischaracterizes the status of the Landfill and the completed land exchange with the BLM. See footnote 1 for an accurate description of status of the Landfill.



Landfill would utilize the Eagle Mountain East Pit as a place in which municipal solid waste would be deposited.

It should be noted that ECEC effectively assumes that the Project will be built prior to the construction of the Landfill. (See, e.g., Appendix C-Technical Memoranda, § 12.8- Eagle Mountain Pumped Storage Project-Landfill Compatibility ("**Compatibility Report**") p. 3). This is not necessarily the case given the delays often associated with large and controversial projects, particularly projects that are not independently commercially viable. Additionally, the DEIR assumes that the phasing of the Landfill will not change. Again, this is not necessarily a correct assumption. The exact implementation of the filling (i.e., the phasing) of the Landfill may change as a result of various considerations, including engineering considerations.

6.1 ECEC HAS CONCEDED THAT THE LANDFILL AND THE PROJECT ARE INCOMPATIBLE IN THE FUTURE. The DEIR essentially concedes that at some point in the future that ECEC use of the Eagle Mountain East Pit (ECEC's proposed lower reservoir) will directly conflict with the Landfill. (See, e.g., Compatibility Report, p.5.) However, it is argued that this direct conflict will not occur for a number of years, and thus, because that direct conflict is outside the 50-year term of the license being sought that the direct future conflict need not be considered and analyzed. ("Therefore, it is fair to leave the decision of the best use of the east pit to a future generation if relicensing is proposed and a conflict with future land fill operations is encountered (Compatibility Report, p.5.) ECEC through the DEIR minimizes this direct conflict. This is not what is required under CEQA. A project proponent must analyze all foreseeable environmental impacts and not just for a limited period. For example, the Landfill's certified EIR conducted an environmental analysis covering a period of more than 100 years even though the approved life of the Landfill is for a materially shorter period of time. (The DEIR incorrectly identifies the landfill as being approved for a 50-year term by Riverside County." (Compatibility Report, p.5.) Actually, the initial term is 50-years with an approval of up to 78 years.) The DEIR artificially truncates the time period of the environmental analysis for the Project.

KAISER #19

6.2 NOT ONLY IS THE PROJECT IN CONFLICT WITH THE LANDFILL IN THE FUTURE, THE PROJECT IS CURRENTLY IN CONFLICT WITH THE LANDFILL. As previously noted, Kaiser retained Geosyntec Consultants, Inc. to review the DEIR with respect to the compatibility of the Project as currently proposed with the Landfill. Rather than repeat Geosyntec's comments in detail. In summary, Geosyntec: (i) points out the obvious-no one purposefully sites a landfill near a large body of water; (ii) discusses a number of issues, concerns and conflicts that have been inadequately studied and analyzed including geotechnical matters, seepage, slope stability, impacts to the Landfill's storm water plan, liner, monitoring and collection systems and facilities, etc.; and (iii) the possible loss of approximately 31 million cubic yards (25.6 million tons) of airspace impacts in current Phase 2 of the Landfill, and approximately 9 million cubic yards (7.4 million tons) of airspace impacts in Phase 3 of the Landfill. Additionally, there will likely be other Landfill air space losses as well as delays in the use of portions of Landfill phases. As previously noted, Geosyntec's letter and comments are incorporated in this letter.



6.3 THE DEIR MUST EXAMINE THE IMPACTS OF POSSIBLE CONSTRUCTION CONFLICTS. ECEC effectively assumes away any possible construction conflicts by arguing that the Project will be constructed first. ("... it is highly unlikely that the landfill project and the pumped storage project construction periods will overlap." (Compatibility Report, p.5). The Project bases its assumption on the belief that the construction of the Project can commence as early as June 2012 and be completed by August 2016 and the Landfill cannot commence construction within that period of time. The DEIR assumes that there will not be any delays. This is very optimistic thinking. If the 401 water quality certification is not immediately denied, at the very least ECEC will be required to prepare a revised DEIR, there will be an additional review period and ultimately a final EIR. There will be hearings on the EIR and on whether the 401 water quality certification will be issued. The State Board will make a final determination whether the 401 water quality certification will be issued and if issued, the conditions associated with its issuance. Assuming there is ultimately a conditional certification of the Project final EIR, there is likely to be litigation over the EIR. There is also the Federal Energy Regulatory Commission process, including the issuance of a draft environmental impact statement ("EIS"), receiving comments, preparing a final EIS, conducting hearings and perhaps ultimately granting a license for the Project. In such case, there is likely to be federal litigation. Additionally, among other things, ECEC will need to acquire or control the land necessary for the Project. As discussed above, ECEC does not currently own or control the land that is the heart of its Project. Thus, additional litigation may ensue. ECEC will also need to obtain financing, power supply contracts, and wait for the construction of transmission line capacity and obtain various other consents such as those that will be required by MWD. When one puts into context that ECEC has been "working" on the Project since at least 1990, there are more than serious doubts that the Project will be approved, constructed and begin operation on the time table optimistically expressed in the DEIR. Accordingly, ECEC cannot essentially assume away construction conflicts based upon assumed timing of the Project and the Landfill. These conflicts and possible cumulative environmental construction related impacts need to be studied and analyzed. The DEIR is inadequate in this regard.

KAISER #19

6.4 ECEC MUST EXAMINE IMPACTS IF THE PROJECT PREVENTS IMPLEMENTATION OF THE LANDFILL. Assuming that the Project is implemented and the Landfill project cannot move forward as a result the Project, the DEIR fails to address the indirect impacts of the Landfill not being constructed at Eagle Mountain. For example, the Eagle Mountain Landfill EIR examines a "No Project" Alternative, which identifies potential significant adverse impacts that would occur in other parts of the seven County solid waste disposal area if the Landfill is not constructed.

6.5 IF THE 401 WATER QUALITY CERTIFICATION FOR THE PROJECT IS ULTIMATELY APPROVED, IT MUST BE APPROPRIATELY CONDITIONED TO ASSURE COMPATIBILITY WITH THE LANDFILL PROJECT. ECEC has stated that it "is committed to successfully resolving all issues of compatibility between the two projects." (Compatibility Report, p. 4.) Given this expressed commitment by ECEC to resolve conflicts, in the event the 401 water quality certification is not ultimately denied, the certification as issued by the State Board should include the conditions set forth in Exhibit "A" attached hereto.



7. MINERAL RESOURCES

The DEIR does not adequately discuss and analyze the Project's impacts on the mineral resources at Eagle Mountain. Large-scale iron ore mining at Eagle Mountain ceased by 1983, with the Kaiser Steel Corporation steel mill near Fontana, California, closing in 1983. However, the DEIR incorrectly identifies the Eagle Mountain Mine as being inactive and closed, (See, e.g., p. 31-8.) The Eagle Mountain Mine remains active and has continued to ship rock, rock products and stock-piled iron ore pellets and iron ore fines as market conditions may allow. The Eagle Mountain Mine continues to have a vested mining right. There is an estimated up to 300 million tons of iron ore still available at the Eagle Mountain Mine with approximately 170 million tons estimated to be economically recoverable in 1983. A material portion of that tonnage is located on the property on which the Project would be located. For example, based upon final pit designs as of January 1, 1983, and using estimates based upon the then current technology and iron ore prices, the estimate of the then economically recoverable open pit iron ore tonnage was approximately 33 million tons for the East Pit (the Project's proposed lower reservoir) and approximately 64.6 million tons in the Central Pit (the Project's proposed upper reservoir). (See Attachment #4). The DEIR essentially assumes that there will be not be reactivation of large-scale iron ore mining but has not conducted the necessary analysis to support such conclusion other than to say there is not currently active iron ore mining, much of the mining equipment originally used at Eagle Mountain no longer exists, and that the railroad would need to be repaired. This is an insufficient analysis. The price of iron ore has substantially increased over the last year and the price is anticipated to remain relatively high. (See Attachment #5). Historically iron ore pellets were produced at Eagle Mountain with some of such product ultimately exported to Japan. Given current and projected iron ore prices, the active world market for basic commodities including iron ore, proximity to transportation, currently available mining and recovery technology and other factors, all contribute to the real possibility of the resumption of large-scale iron ore mining at Eagle Mountain. The DEIR fails to analyze this possible resumption of large scale iron ore mining, if the resumption of large-scale iron ore mining would be compatible with the Project and the associated cumulative environmental impacts⁸. Given the state of the economy, any resumption of large - scale iron ore mining would have a significant and positive impact for the area, region and state.

KAISER #20

8. CUMULATIVE IMPACTS ANALYSIS

8.1 RECREATION-THE DEIR INCORRECTLY CONCLUDES THAT THE IMPACT ON THE WILDERNESS EXPERIENCE IS LESS THAN SIGNIFICANT. The DEIR states (p. 5-28.) that "Development and operation of the proposed Project in addition to other potential projects, including the proposed landfill and cumulative solar projects may have an effect on the wilderness experiences of visitors to the remote eastern margins of the Joshua Tree National Park ("JTNP")." The DEIR goes on to state that

KAISER #21

⁸ With the possible resumption of large-scale iron ore mining, it is likely that that the current physical dimensions of the pits that ECEC is seeking to use or the Project would be materially altered, including the mining out of that portion of the land that would serve as the dam of the Project's proposed upper reservoir (i.e., the Central Pit.)



"...Congress has indicated that 'the fact that non-wilderness activities or uses can be seen or heard from areas within a wilderness area shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area' (CDPA, 1994)." The DEIR therefore concludes that "this cumulative impact would be less than significant and the incremental impact of the proposed Project would be less than cumulatively considerable." The certified Eagle Mountain Landfill EIR concluded that because people's experience of wilderness is so different, and that the full impact of the wilderness experience cannot be fully known, it had to be considered a significant impact under CEQA. Because it has been found to be significant impact in a certified EIR for a project in the same area, it should be found to be cumulatively significant in the Pumped Storage Project EIR.

KAISER #21

8.2 GROUNDWATER CONJUNCTIVE USE ANALYSIS REQUIRED. The DEIR concludes (p. 5-20) that "...Basin overdraft of about 9 feet is likely to occur over the life of the Project, in which case, this Project would contribute to a significant adverse cumulative effect." The EIR also acknowledges (p. 5-20) that it does not include MWD conjunctive management policies in its analysis. There may also be additional demands in adjacent aquifers that could affect groundwater supply and quality over a larger area. The cumulative effects analysis should be expanded to ensure that both supply and water quality will not be adversely affected in the long term.

KAISER #22

9. BIOLOGICAL IMPACTS

9.1 DESERT TORTOISE. In August 2010 the U.S. Fish and Wildlife Service issued a guidance document on how to handle the relocation of desert tortoises in certain situations. The discussion in the DEIR on the desert tortoise, particularly with respect to tortoise mitigation measures should be reevaluated and modified as appropriate in light of this guidance.

KAISER #23

9.2 INTRODUCTION OF NEW WATER SOURCES - EUTROPHICATION. During the Eagle Mountain EIS/EIR process, the National Park Service, through Joshua Tree National Park ("JTNP") staff, expressed extreme concerns about the introduction of additional nutrients into the desert environment. From their comment letter on the Eagle Mountain Landfill EIS/EIR: "Joshua Tree National Park is considered one of the finest examples of preserved Mohave Desert and Colorado Desert ecosystems in existence today. The Joshua Tree desert is characterized by geographic, botanical, and wildlife diversity. Human activities can disturb natural nutrient cycles. Just as a lake can be affected by the addition of small amounts of phosphorus, deserts can be affected by small amounts of water...and other nutrients. Once changes are set in motion, related ecological effects may proliferate." And "although the term 'eutrophication' properly applies to aquatic systems, JTNP uses this term in a broad sense, referring to the large scale addition of nutrients...to the desert ecosystem." Also from the JTNP comment letter: "In the desert where resources are scarce, even small amounts of nutrients are highly attractive to animals and alter wildlife behavior." And finally: "In seeking to fulfill its mandated mission, Joshua Tree National Park seeks assurances based on data that resources within the park boundary will not be significantly affected by this project."



These same concerns apply to the ECEC project. The introduction of two large bodies of water will substantially impact wildlife behavior. The ECEC DEIR is inadequate in its consideration of the proliferation of nutrients, the potential significance to park resources, and the possible impacts to biodiversity in the sensitive desert environment.

KAISER #23

The creation of these major artificial water sources will certainly attract known and potential predators of the desert tortoise, including, but not limited to, coyotes, ravens and gulls. Desert tortoise habitat is not far from these new water sources. Accordingly, it is likely that there will be increased predation on the desert tortoise. The DEIR effectively dismisses these concerns by stating that it unlikely that there will be a measurable change in the density of predators. However, the DEIR does not adequately support this conclusion or study the "eutrophication" concerns.

10. OTHER MATERIAL ENVIRONMENTAL MATTERS

10.1 TRANSMISSION LINE EFFECTS - EMF ANALYSIS REQUIRED. The potential health hazards associated with electromagnetic fields are well documented. The Project proposes substantial new transmission lines onsite and to connect to existing and proposed transmission corridors. The DEIR does not adequately address the potential impacts and health hazards of EMF. For example, the Eagle Mountain Landfill project includes a Townsite, which will house hundreds of permanent residents. Included within the Townsite is an existing school with students. The DEIR analysis is deficient in analyzing potential hazards and health effects to these and other residents, sensitive receptors and potential impacts to wildlife.

KAISER #24

10.2 BEST MANAGEMENT PRACTICES. To obtain a 401 water quality certification, the applicant must provide detailed best management practices and a specific plan to ensure water quality standards are met. The DEIR includes many generic BMPs for erosion and sediment control, and some other issues. While many water quality impacts can be reduced because of the dry nature of the site and lack of water bodies, additional specific plans need to be developed and provided concerning BMP's for treatment processes, brine control and disposal, and groundwater protection to conclusively demonstrate that mitigation is adequate and that impacts will be less than significant.

KAISER #25

10.3. DAM BREAK ANALYSES. Due to the catastrophic consequences to the landfill, the town of Eagle Mountain, the CRA and other infra-structure if a dam breaks or fails, a dam break analyses is a required matter, which are incorporated herein by this reference. See the comments in Geosyntec Comment Letter on this.

KAISER #26

10.4. DECOMMISSION OF THE PROJECT. The DEIR effectively states that the Project has a life of 50-years since that is the life of the license being sought for the Project. If this is correct, under CEQA, all reasonably foreseeable environmental impacts are to be analyzed. The DEIR fails in undertaking any study of the impacts associated with the decommissioning of the Project including closure and post closure impacts.

KAISER #27



11. CONDITIONS OF THE PROJECT

If the State Board should ultimately determine to certify the final EIR for the Project and not to deny the 401 water quality certification for the Project, the Project should be appropriately conditioned, including, but not limited to, the conditions specified in Exhibit "A" attached hereto and incorporated herein by this reference.

KAISER #28

If you should have any questions about these comments, please do not hesitate to contact the undersigned.

Very truly yours,

Terry L. Cook, Vice President
Kaiser Eagle Mountain, LLC
Mine Reclamation, LLC

Enclosures

TLC:jpk

terry10\ecec comment letter on EIR



EXHIBIT "A"

KAISER #28

Conditions to 401 Water Quality Certification Shall Include The Following:

CONDITION 1

The applicant must obtain a signed agreement from the permittee and landowner of the proposed Eagle Mountain Landfill project that acknowledges that construction and operation of the Project will not interfere with the design, construction or operation of the proposed Eagle Mountain Landfill project.

CONDITION 2

The Project shall be constructed and operated consistent with the terms and conditions included in permits issued for or other conditions or requirements imposed on the Eagle Mountain Landfill, including but not limited to water discharge requirements, as they may be modified from time to time. The State Water Board reserves its jurisdiction to use appropriate administrative procedures to ensure the Project does not conflict with or otherwise cause the Eagle Mountain Landfill to violate any permit(s) issued to it or other conditions or requirements imposed on the Eagle Mountain landfill or other appropriate actions to maintain consistency between the Project and Eagle Mountain Landfill.

CONDITION 3

This Order shall not take effect and may not be relied upon by any agency, body or authority that may have the ability to grant a license, permit or consent for the Project unless and until applicant provides sufficient written documentation to the State Board that demonstrates that applicant owns or maintains the right to use the land on which the Project will be located.

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Responses to Comments from Kaiser Ventures, LLC (Kaiser):

Kaiser #1: The DEIR, as currently written, does not provide sufficient information to make a reasonable evaluation and determination of the environmental impacts of the Project, including water quality impacts. Accordingly, among other reasons, as a result of the inability to determine compliance with water quality standards, certification of the EIR for the Project, the Project's 401 water quality certification application should be denied.

Response to Kaiser #1: The comment is noted. The Draft Environmental Impact Report (EIR) presents a comprehensive discussion of potential impacts of the proposed Eagle Mountain Pumped Storage Project (Project).

Water quality impacts are discussed in the Draft EIR in Section 3.2.3 (for Surface Water) and in Section 3.3.3.3.9 (for Groundwater).

Impacts 3.2-1, 3.2-2, and 3.2-3 address potential impacts to surface water quality. Impact 3.2-2 (eutrophication) is identified as less than significant. Impact 3.2-1 (existing surface waters) and 3.2-3 (created surface waters) are identified as potentially significant and subject to the mitigation program. Mitigation measure (MM) GEO-1, project design feature (PDF) GW-2, MM GW-6, and MM SW-1 will reduce these impacts to a level of less than significant.

Impact 3.3-5 (groundwater quality) identifies that potential impacts to groundwater quality are potentially significant and subject to the mitigation program. MM GW-6, PDF GW-1, and PDF GW-2 are proposed to address this potential impact. With full implementation of mitigation measures, potentially significant adverse effects on groundwater quality will be reduced to a level of less than significant.

Kaiser #2: Kaiser owns and controls much of the real property on which ECE [Eagle Crest Energy Company] is proposing to construct and operate the Project. Kaiser also owns and controls permits for the construction of the Eagle Mountain Landfill and Recycling Center (Landfill). Despite ECE's assertions to the contrary, the Landfill and the Project are not compatible as discussed in more detail in this letter.

Response to Kaiser #2: The proposed Eagle Mountain Landfill (Landfill) was included as a Future Foreseeable Project (Table 5-3) in the cumulative impact analysis (Section 5.4) in the Draft EIR for the proposed Project, as it is considered to be a "probable future project" (California Environmental Quality Act [CEQA] Guidelines §15130(b)). In addition, the proposed Landfill and land use compatibility are discussed in detail in Section 3.9 of the Draft EIR. Landfill compatibility is discussed in detail in Section 12.8 of the Draft EIR. Section 12.8 includes a discussion of potential conflicts between the Project and the proposed Landfill, including the measures that have been taken to reduce the potential for conflict. The Applicant has committed to working collaboratively with the owners of adjacent projects, including the proposed Landfill as described in PDF LU-4. The revised text of PDF LU-4 in the Final EIR reads (new text shown in red):

PDF LU-4. Coordination with Adjacent Projects. The Project layout has been modified to eliminate conflicts with existing and proposed land uses. **For example**, construction

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staging and lay-down areas have been relocated to a parcel southwest of the Lower Reservoir and outside of the proposed landfill to eliminate conflict with the proposed landfill truck marshalling and railyard facilities. Low voltage cables from the underground powerhouse have been routed through the underground powerhouse access tunnel to avoid conflicts with landfill Phase 3. Water treatment facilities have been relocated further from the **Colorado River Aqueduct (CRA)** to address concerns of the **Metropolitan Water District of Southern California (MWD)** regarding the proximity of the brine ponds to the CRA.

These efforts will continue during the final design and construction of the proposed Project. Because several large and complex projects are proposed in the same general area (including the landfill project and several proposed solar energy projects), detailed coordination will occur as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations. The Licensee will be required to have regular project coordination meetings with the owners of the landfill project, the adjacent solar projects, MWD, and any other interested landowners and project developers during construction of the Project. As the Project progresses into the design phase, the Project layout will be designed to preserve landfill capacity in Phases 1 through 4.

Kaiser #3: ECE neither owns nor controls the very heart of the proposed Project. Additionally, ECE has not had access to the Eagle Mountain Mine site. Without ECE demonstrating ownership of or the terms by which it will control the necessary land, the State Water Board cannot establish clear, certain and enforcement conditions that ensure compliance with water quality objectives and the beneficial uses they are intended to protect. ECE's application for a 401 water quality certification should be immediately dismissed.

Response to Kaiser #3: The California State Water Resources Control Board (State Water Board) only permitting authority with respect to the Project is its determination of whether and under what conditions to issue a water quality certification. The State Water Board's role in considering approval of water quality certification for the Project is not predicated on Eagle Crest Energy Company (ECE) holding property rights. With regard to the State Water Board's ability to enforce compliance with required mitigation measures, compliance with mitigation measures will be a condition of water quality certification. The purpose of the water quality certification is to protect the waters of the United States in California by upholding Section 401 of the Clean Water Act and thereby ensuring that waste discharged to these waters from a proposed activity meets water quality standards and other appropriate requirements. State certification conditions become mandatory conditions of any federal license or permit for the Project. The Project and implementation of associated mitigation will only occur after ECE acquires the necessary property rights. If ECE does not acquire property rights, the Project will never be implemented.

Kaiser #4: ECE has not conducted critical studies and evaluations for material components of the Project. Lack of critical environmental studies and evaluations have resulted in an inadequate description and analysis of material Project components and related impacts and mitigation programs.

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Response to Kaiser #4: The Final EIR: 1) describes all of the main features of the Project; 2) includes maps; 3) explains who will prepare those design reports not yet capable of being prepared; and 4) includes a description of who will approve the designs, and based on what standards. The mitigation measures for the Project include extensive monitoring of potential impacts (see Section 6 of the Final EIR for a complete list of mitigation measures).

The State Water Board has required ECE to conduct additional studies prior to construction and is committed to implement effective mitigation measures that are based on additional studies and test results. This approach is consistent with CEQA. (See *Laurel Heights Improvement Assn. v. Regents of the University of California* (1988) 47 Cal.3d 376, 412). (At this time, test results from on the ground surveys of the Central Project Area, where the reservoirs and powerhouse will be located, are unknowable, but will become known when site access is obtained. Adaptive management will be applied to adjust mitigation measures based on the results of the on the ground surveys to ensure that Project impacts, which were developed based on the worst-case scenario, are fully mitigated.

The Final EIR also puts forth a list of alternatives to be considered in mitigating impacts (see Section 4.0), and commits to mitigating the impacts. See *Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal.App.3d 1011, 1029 (“SOCA”) [an agency should be able to rely on its commitment as evidence that significant impacts will in fact be mitigated].

Kaiser #5: The DEIR’s discussion of geological conditions includes no detailed and site-specific geological studies regarding conditions at the Eagle Mountain location. Under the California Environmental Quality Act and its implementing guidelines, rules and legal interpretations (collectively “CEQA”), this type of analysis cannot be deferred.

Response to Kaiser #5: Section 3.2.3.1 of the Draft EIR describes the methodology used for preparation of the assessment of environmental impacts to geologic resources. In summary, extensive literature based upon site specific investigations was available to address the geology of the Project area. As recorded in the references and the list of Persons and Organizations Contacted (Section 8.0 of the DEIR), contacts were made with state and federal agencies to gather additional information.

Focused geologic mapping and numerous test explorations, geotechnical analyses and subsurface interpretations have been performed on the site for the proposed Landfill. This work was performed specifically for the Landfill; however, the broad scope of the Landfill investigations was sufficient for a detailed characterization of the ground and subsurface conditions, and evaluation of the potential geologic hazards across the site for the preliminary design of the Project.

While additional detailed site specific geologic studies will be needed for Project design, this information is not required to analyze the potential environmental impacts of the Project. The CEQA Guidelines require an EIR to be prepared with a “sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences” (Guidelines § 15151). According to the CEQA Guidelines, the Project description,

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...shall contain the following information but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact.

- (a) The precise location and boundaries of the proposed project shall be shown on a detailed map, preferably topographic...
- (b) A statement of the objectives sought by the proposed project...
- (c) A general description of the project's technical, economic, and environmental characteristics, considering the principal engineering proposals if any and supporting public service facilities (Guidelines § 15124).

The Project description contains sufficient information to understand the environmental impact of the proposed project. Consistent with CEQA, the State Water Board is issuing the EIR early enough in the planning process to allow disclosure of all possible environmental impacts and to allow for environmental concerns to assist in the development of the project design and mitigation. (See CEQA Guidelines section 15004.)

The CEQA Guidelines (CEQA Guidelines §15126.4[a][1][B]) state that, “measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.” Appropriate mitigation measures will be implemented to meet the stated performance standards, as informed by additional studies, which will provide a more complete picture of site characteristics.

Kaiser #6: The erosion plan suffers from the same lack of information identified above, and “on-site studies of acid production potential,” which will be performed “when access is granted to Eagle Crest Energy Company” to collect samples. (p. 3.2-16.) Thus, the DEIR again acknowledges that ECE does not have sufficient information to identify the Project’s potential impacts upon water quality. CEQA does not allow for the deferment of necessary studies.

Response to Kaiser #6: The Erosion Control Plan was prepared by ECE in consultation with the relevant resource managing agencies (BLM, California Department of Fish and Wildlife (CDFW; formerly known as California Department of Fish and Game, United States Fish and Wildlife Service [USFWS], and the State Water Board) and contains specific best management practices (BMPs) for each area of the Project site. BMPs were developed based on the California Stormwater BMP Handbook (California Stormwater Quality Association, 2003). MM GEO-1 generally summarizes the erosion control plan mitigation measure, describes implementation timing, and parties responsible for implementation, monitoring, reporting, verification, and enforcement. Site specific details of the Erosion Control Plan can be found in Section 12.2 of the Draft EIR.

The CEQA Guidelines (CEQA Guidelines §15126.4[a][1][B]) state that, “measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.” A water treatment facility is proposed, as described in MM SW-1, which includes a performance standard to maintain reservoir water quality at a level comparable to source water quality. Water treatment modules will be added to

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the water treatment facility, as necessary to ensure reservoir water quality meets the stated performance standard.

Kaiser #7: The evaluation of potential impacts to groundwater at the Eagle Mountain site is limited to document and photographic review, rather than any actual studies by ECE at the site. Once again deferring necessary studies and analysis deprive the State Board and the public of meaningful information that is necessary for the analysis of water quality impacts and other Project impacts.

Response to Kaiser #7: Additional detailed site specific studies will be needed for final Project engineering design. However, this information is not required to analyze the potential environmental impacts of the Project. The CEQA Guidelines require an EIR to be prepared with a “sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences” (CEQA Guidelines §15151).

The Draft EIR describes the mitigation that will be implemented to control seepage (PDF GW-1, MM GW-4, and MM GW-5) and specifies performance standards (see Tables 3.3-9 and 3.3-10) to ensure that mitigation will be effective at controlling potential seepage.

Kaiser #8: No onsite biological surveys of the mine pits that will serve as the reservoirs and other features at the Eagle Mountain Mine site have been undertaken. This lack of actual field information and resulting analysis clearly does not meet the requirements of CEQA.

As the State Water Board is aware, the EIR is the very heart of CEQA compliance (Dunn Edwards v. BAAQMD 9 Cal. App. 4th 644, 653) (1992) and the participation of governmental entities and the public in the evaluation and commenting on a project through the EIR process is essential. This process is throttled when material studies are deferred.

Response to Kaiser #8: The Endangered Species Act (ESA) Section 7(a)(2) requires that each agency “shall use the best scientific and commercial data available.” The State Water Board concludes that the information presented in the Draft EIR constitutes the best scientific data available at the time of the preparation of the document.

Conclusions developed for the Draft EIR were based on extensive field studies of the Central Project Area conducted during permitting for the proposed Landfill. Those studies were used as the basis for development of a Biological Opinion (BO) 1-6-92-F-39 for the proposed Landfill, issued by the USFWS on September 10, 1992. Those studies included a Biological Assessment (BA) for the proposed Landfill prepared by RECON, April 8, 1992 and a Biological Technical Report prepared by Circle Mountain Biological Consultants, February 1998. The BA concluded that the Landfill does not extend into desert tortoise habitat, and therefore no direct construction impacts to desert tortoise habitat will occur in the Landfill site area. The Biological Technical Report noted that developed portions of the existing mine are mostly denuded of vegetation, and are not representative of the plant communities that once occurred.

Recent (2008) aerial photography was also used to assess the current conditions of the Central Project Area. Figure Kaiser-1 is an example of the aerial photography used to review current

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site conditions. This review determined that the Central Project Area remains substantially unchanged since the time of the field studies for the proposed Landfill. The Central Project Area is highly disturbed from past mining activities, and remains denuded of vegetation. The Central Project Area is not a sensitive habitat area for desert tortoise.

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Figure Kaiser-1: Photograph of Upper Reservoir Site. Photo taken November 2008.

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A review of the mitigation measures in the 1992 USFWS BO confirmed that the Project will not interfere with the implementation of mitigation measures required for the proposed Landfill (see Table 3.9-3 of the Draft EIR for a complete list of mitigation measures in the 1992 USFWS Landfill BO, and the effect of the Project on these mitigation measures).

The 1992 USFWS Landfill BO was reaffirmed by the USFWS twice after it was issued. In 1993, a proposal to designate critical habitat for desert tortoise was issued, and BLM requested a formal conference with the USFWS regarding the proposed Landfill and its potential to impact proposed critical habitat. On September 20, 1993, the USFWS concluded that the original BO adequately addressed impacts to habitat which was proposed as critical habitat for the desert tortoise. USFWS stated that the mitigation measures proposed by BLM, the project proponent, and the terms and conditions of the BO, adequately offset impacts to proposed critical habitat (letter from the Field Supervisor, Carlsbad Field Office, USFWS to the California State Director, BLM dated September 20, 1993).

An Environmental Impact Statement (EIS) on the proposed Landfill was issued in 1996. The USFWS submitted a comment letter on that EIS on September 30, 1996 wherein it re-affirmed the conclusions of the 1992 USFWS Landfill BO. This letter references the 1992 BO and reiterates the conclusion that the mitigation measures proposed by BLM, the project proponent, and the terms and conditions of the BO, adequately offset impacts to proposed critical habitat. The letter further states that “New survey information of desert tortoise in new areas in the Project vicinity and the recent designation of critical habitat shall be investigated, but at present the Service sees no need to reinitiate consultation pursuant to Section 7 of the Act” (letter from the Field Supervisor, Carlsbad office of the USFWS to the District Manager, California Desert District Office, BLM, dated September 30, 1996).

The information presented in the Draft EIR on potential impacts to wildlife in the Central Project Area qualifies as the best available data, adequately characterizes conditions in this extremely disturbed environmental setting, and is sufficient to support informed decision-making.

Kaiser #9: There is an inadequate description of certain material components of the Project, related mitigation measures, and how the mitigation will be implemented. ECE and the DEIR also assume that there will be no material alteration of the physical environment at the Eagle Mountain site prior to the possible construction of the Project. As discussed in subsequent comments on Mineral Resources, this may be incorrect.

Response to Kaiser #9: CEQA Guidelines §15125(a) require that an EIR “must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published.” It would be unduly speculative to consider potential future changes in the Project site, for projects which have not been announced and have no pending applications for permitting approval. Before the impacts of a project can be assessed and mitigation measures considered, an EIR must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined. The Mitigation and Monitoring Reporting Program described within Section 6.0 of the Final EIR provides details on implementation of the mitigation program.

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Kaiser # 10: The DEIR provides an inadequate analysis of the reasons for the Project. 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"). Additionally, as discussed in more detail in this letter, the DEIR fails in its analysis of how these benefits compare to other alternatives that can provide most, if not all, of the claimed benefits of the Project.

Response to Kaiser #10: Section 4.3 of the Draft EIR describes the Goals and Objectives of the Project. Section 4.7 of the Draft EIR describes alternatives to the Project. Section 4.7.3 of the Draft EIR describes the alternative of generating peak power with other forms of energy. However, pumped storage hydroelectric generation is the only large scale source of both peak power and energy storage.

The need for energy storage in California is becoming widely recognized. California recently passed legislation (Assembly Bill [AB] 2514 [Statutes 2010, Chapter 469, Skinner]) which requires the Public Utilities Commission (PUC) to determine appropriate targets, if any, for load serving entities to procure energy storage systems. This bill requires load serving entities to meet any targets adopted by the PUC by 2015 and 2020. This bill requires publicly owned utilities to set their own targets for the procurement of energy storage and then meet those targets by 2016 and 2021.

Excerpts from the AB 2514 Bill Analysis prepared by the Senate Rules Committee (dated August 2, 2010) state:

One of the distinctive characteristics of the electric power sector is that the amount of electricity that can be generated is relatively fixed over short periods of time, although demand for electricity fluctuates throughout the day. Developing technology to store electrical energy so it can be available to meet demand whenever needed would represent a major breakthrough in electricity distribution. Helping to try and meet this goal, electricity storage devices can manage the amount of power required to supply customers at times when need is greatest, which is during peak load.

These devices can also help make renewable energy, the output of which cannot be controlled by grid operators, smooth and dispatchable. Storage devices can provide frequency regulation to maintain the balance between the network's load and power generated. Thus, energy storage holds substantial promise for transforming the electric power industry.

Battery storage and pump hydro storage systems have been around for many years, so the concept of energy storage is not new. Large pump storage facilities have been proven to be very effective in shifting large quantities of low-cost, off-peak energy production to delivery during high cost on-peak energy periods by using excess electricity to pump water uphill into a reservoir. When power is needed, the water can run down through turbines, much like a traditional hydroelectric dam. However, large pump hydro storage facilities are quite costly, and there are very few locations where they can be built. California has a number of pump storage facilities. One of the largest facilities is the Helms Pump Storage Facility that was built in the early 1980s with three units. Each

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unit is rated at 400 MW in generation mode and 310 MW in pumping mode for a total of 1,200 MW generating mode and -930 MW pumping mode. The facility is owned and operated by PG&E.

Pump hydro storage is the largest and most viable storage technology available with nearly 123,000 MW deployed around the world. Excluding pump hydro storage only 2,128 of installed energy storage technologies exist worldwide.

Kaiser #11: The EIR fails to adequately address serious transmission constraints that impact the Project. 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 DEIR.

Response to Kaiser #11: Section 3.0 of the Draft EIR addresses the potential impacts of the Project's required interconnection transmission line. Section 4.9.3 addresses alternative transmission routes and substation locations, and the environmental impacts of those varying routes and interconnection locations.

A formal and complex transmission planning process is being undertaken by the CAISO and Southern California Edison, with participation of the CPUC and the Federal Energy Regulatory Commission (FERC), specifically to address transmission constraints that affect the Project and the proposed solar power projects along the Interstate 10 (I-10) corridor. Significant progress is being made to address transmission constraints in the Project area. Construction of the Devers-Palo Verde No. 2 transmission line project began in June 2011. (The Notice of Availability of the Record of Decision approving the Devers–Palo Verde 2,500 kilovolts (kV) transmission project was published in the Federal Register, Volume 76, Number 138, page 42725). The interconnection location for the Chuckwalla Valley solar projects has been selected as the Eastern Red Bluff substation. BLM issued a Notice to Proceed for construction of the Red Bluff and Colorado River Substations and the overhead transmission line on its lands in September 2011, and those substations are currently under construction. Therefore, transmission constraints are being addressed, and consequently no delays are anticipated which would result in environmental impacts.

As with acquisition of property rights to the Central Project Area, the Project will not be constructed if transmission capacity is not available.

Kaiser #12: The cost to operate the Project (using realistic off-peak power costs to operate and transmission costs) will exceed the benefit/value of the on-peak power as well as any revenues that can be derived through the ancillary services market.

Response to Kaiser #12: The comment relates to the economics of the Project, not the potential for economic impacts of the Project. CEQA Guidelines §15131(a) states that the "Economic or social effects of a project shall not be treated as significant effects on the environment."

In the event that the Project is found to be financially unsound, the private funding being used to finance the Project will not be available and therefore the Project will not be constructed, resulting in no impact to the environment.

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Kaiser #13: The Project will consume more energy than it would produce and it is misleading for ECE and the DEIR to assert that the Project is in any way a “renewable energy” or a “green” project, or essential to the development of renewable resources.

Additionally, the DEIR states that one of the goals of the Project is the reduction of greenhouse gases. An appropriate study needs to be undertaken that demonstrates the net increase or decrease in greenhouse gases as a result of the Project, taking into account the likely true sources of the power that will be utilized by the Project.

Response to Kaiser #13: The Draft EIR does not describe the Project as a renewable power generator, nor as a “green” project. The Project will facilitate the integration of renewable energy into the transmission grid. The Project is an energy storage project, which is defined by the state of California as “a commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy.” (AB 2514) AB 2514 states:

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

- (a) Expanding the use of energy storage systems can assist electrical corporations, electric service providers, community choice aggregators, and local publicly owned electric utilities in integrating increased amounts of renewable energy resources into the electrical transmission and distribution grid in a manner that minimizes emissions of greenhouse gases.
- (b) Additional energy storage systems can optimize the use of the significant additional amounts of variable, intermittent, and offpeak electrical generation from wind and solar energy that will be entering the California power mix on an accelerated basis.
- (c) Expanded use of energy storage systems can reduce costs to ratepayers by avoiding or deferring the need for new fossil fuel-powered peaking powerplants and avoiding or deferring distribution and transmission system upgrades and expansion of the grid.
- (d) Expanded use of energy storage systems will reduce the use of electricity generated from fossil fuels to meet peak load requirements on days with high electricity demand and can avoid or reduce the use of electricity generated by high carbon-emitting electrical generating facilities during those high electricity demand periods. This will have substantial co benefits from reduced emissions of criteria pollutants.
- (e) Use of energy storage systems to provide the ancillary services otherwise provided by fossil-fueled generating facilities will reduce emissions of carbon dioxide and criteria pollutants.

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- (f) There are significant barriers to obtaining the benefits of energy storage systems, including inadequate evaluation of the use of energy storage to integrate renewable energy resources into the transmission and distribution grid through long-term electricity resource planning, lack of recognition of technological and marketplace advancements, and inadequate statutory and regulatory support.

Section 3.15 of the Draft EIR contains a detailed analysis of the Project's potential impact on greenhouse gas emissions. The analysis included two scenarios, one that all pump back power comes from renewable generation (maximum displaced emissions) and the other scenario where all pump back power comes from fossil fuel generation (combined cycle natural gas fueled generation which provides minimum displaced emissions). Both scenarios result in the Project providing a net benefit to greenhouse gases (see Table 3.15-2).

Kaiser #14: The DEIR fails to adequately identify and discuss all the consents and approvals necessary for the Project. For example, the DEIR does not address in any meaningful manner the necessary consents from the Metropolitan Water District of Southern California ("MWD") that will be required for ECE's crossing of the Colorado River Aqueduct ("CRA") and for discharges across the CRA as result of emergency releases of water.

Response to Kaiser #14: Detailed drawings of the crossings of the MWD's facilities have been prepared and submitted to MWD for discussion. However, these drawings are not included in the Draft EIR due to Critical Energy Infrastructure Information (CEII) requirements of FERC. ECE will submit all appropriate design plans for any Project features that may affect MWD facilities or rights-of-way to the MWD for review and approval. MWD will also have the opportunity to observe construction of these Project features to ensure compliance with approved designs.

MM LU-2 in the Draft EIR states that "engineering designs of crossings of the MWD facilities will be submitted to the MWD for its review and approval." The language of this mitigation measure in the Final EIR was modified in response to the MWD's comments to read, "**The Applicant will submit design plans for proposed Project facilities which may affect MWD facilities to the MWD for its review and approval for any Project component that may affect MWD facilities or rights-of-way. MWD's approval will be contingent on review and approval of design plans. MWD will also be notified of the construction of Project features that may affect MWD facilities or rights-of-way and have an opportunity to observe construction of such features.**"

Kaiser #15: The DEIR has impermissibly narrowed the range of alternatives. The Statement of Goals and Objectives (p. 2-2 to 2-7; p A-12.) has narrowed the range of alternatives to exclude other potential energy generation projects or locations that could meet some or most of the same stated objectives. There are several other alternatives that should be given substantial consideration and analyzed in the DEIR, including renewable energy projects, alternative site location, and other means of achieving ancillary services to benefit the electrical grid.

Response to Kaiser #15: Pursuant to CEQA Guidelines §15124, the description of the project shall contain certain outlined information, including "a statement of objectives sought by the

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proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project. The project description should not supply extensive detail beyond that needed for evaluation and review of the environmental impact. The Statement of Goals and Objectives in Section 2.2 of the Draft EIR includes nine objectives which describe the underlying purpose of the Project.

Section 4.7 of the Draft EIR describes Project alternatives, including the alternative of providing energy generation with other sources of generation. CEQA requires the discussion of reasonable alternatives which would feasibly attain most of the basic project objectives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation (CEQA Guidelines §15126.6).

The alternatives discussed and analyzed in the Draft EIR were chosen based on the following criteria: 1) feasibly obtains most of the Project's goals and objectives; 2) lead agency determination of a reasonable range of alternatives; and 3) avoids or substantially lessens identified significant impacts (refer to Draft EIR Section 4.5 for full discussion). The State Water Board considered and evaluated five Project alternatives based on these criteria.

Renewable energy projects, alternative site locations, and other means of achieving ancillary services were alternatives considered, but were eliminated from further analysis (see Section 4.7 of the Draft EIR).

Kaiser #16: Other renewable projects should be considered at this location. For example, expanded wind and solar projects would help meet most of the objectives and goals set out in the DEIR. They could also avoid many of the adverse impacts associated with the proposed Project, and avoid potential conflicts with the Landfill, which already has a certified EIR.

The DEIR does not evaluate what other types of projects and facilities may provide the ancillary services touted for the Project. For example, the approved Blythe Energy Project II ("BEP II") located near Blythe, California is considering modifying such facility in order to expand the ancillary services available from such facility.

Alternative pumped storage project locations were not sufficiently analyzed in the DEIR. For example, there are two additional iron ore pits at Eagle Mountain and this fact is recognized in the DEIR. Additionally, no analysis of other potential sites in other parts of California has been substantiated.

The DEIR analysis of alternatives assumes that the proposed project is compatible with the Landfill, at least during the fifty years term of the Project. Since the Landfill has a certified EIR, and is in the process of obtaining final federal approvals, assuming the Project is ultimately approved it is indeed a possibility that simultaneous construction could occur given the uncertainties of timing approvals for both projects.

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The DEIR does not adequately address the possibility of drilling and pumping only two groundwater wells. A longer fill period should not be rejected just because it may take more time and/or be more expensive than the preferred alternative.

DEIR does not discuss all the transmission line scenarios although the EIR does generally discuss several possible transmission line routes and their inter-connection into the electrical grid.

Response to Kaiser #16: CEQA provides the following guidelines for discussing alternatives to a project:

- The EIR must describe a reasonable range of alternatives to the project that would "...feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." [CEQA Guidelines §15126.6(a)]
- The EIR must identify ways to mitigate or avoid significant effects of the project on the environment: "...the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." [CEQA Guidelines §15126.6(b)]
- The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and those that could avoid or substantially lessen one or more of the significant adverse effects. If there is a specific proposed project or a preferred alternative, the EIR must explain why other alternatives considered in developing the proposed project were rejected in favor of the proposal. "The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination." [CEQA Guidelines § 15126.6(c)]
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. "If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed." [CEQA Guidelines §15126.6(d)]
- The specific alternative of "no project" "shall be evaluated along with its impact." The purpose of describing and analyzing a no project alternative is to allow "decision-makers to compare the impacts of approving the Proposed Project with the impacts of not approving the Proposed Project." The CEQA Guidelines also stipulate that the "no project" analysis "shall discuss the existing conditions at the time the Notice of Preparation is published...as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans..." [CEQA Guidelines §15126.6(e)]
- The CEQA Guidelines also instruct that, "If the environmentally superior alternative is the No Project Alternative, the EIR shall also identify the environmentally superior alternative among the other alternatives." [CEQA Guidelines §15126.6(e)(2)]

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- Under the CEQA Guidelines §15126.6(f), the range of alternatives required in an EIR is governed by a “rule of reason” that requires an EIR to set forth only those alternatives necessary to permit a reasoned choice. “The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decisionmaking.”

Additional detail was added to Section 4.7.3 of the Final EIR to further explain why wind and solar generation were not alternatives considered in detail in the Draft EIR. Wind and solar generation alternatives would not meet Project Objective #2 (Provide Generation to Meet Part of California’s Peak Power Requirements), #3 (Provide Energy Storage for Integration of Renewable Energy Generation), #4 (Provide Ancillary Services for Management of the Transmission Grid), or #5 (Provide for Flexible Transmission Grid Operations), and were therefore rejected from further consideration in the EIR.

Additional detail was added to Section 4.7.1 of the Final EIR to explain why the Black Eagle Pits on the Kaiser Mine site were not considered as alternative locations for the Project. There are two mining pits (known as North Black Eagle Pit and South Black Eagle Pit) to the west of the Central Pit, which is currently proposed as the Upper Reservoir. The larger of the Black Eagle pits, North Black Eagle Pit, may be able to provide storage equivalent to that proposed for the Project, while the South Black Eagle Pit is much smaller. The elevation of the rim around North Black Eagle Pit is approximately 400 feet lower than the proposed maximum water surface elevation on the Upper Reservoir (Central Pit).

A pumped storage project between the Central Pit and North Black Eagle Pit would be significantly smaller in capacity than the proposed Project because of the smaller hydraulic head between the two reservoirs, resulting in a Project of approximately 370 megawatts (MW) rather than 1,300 MW for the proposed Project. Similar concerns identified by Kaiser for the Project regarding Landfill compatibility exist for this alternative configuration since the Central Pit would still be part of the Project. Concerns about seepage affecting the Landfill liner and monitoring systems, and the incompatibility of facilities, would not be alleviated by this alternative.

A pumped storage project between North Black Eagle Pit and the proposed Lower Reservoir (East Pit) would result in 400 less feet of total hydraulic head reducing the Project from 1,300 MW to about 930 MW. Similar concerns identified by Kaiser regarding Landfill compatibility for the Project would exist for this alternative configuration as well. These alternatives were considered and rejected because while they would satisfy the primary goals of the Project, they would not result in reduced environmental impacts.

The Blythe Energy Project II is approved, but as yet unconstructed natural gas fired power plant. As Section 4.7.3 of the Draft EIR describes, natural gas power plants can provide peaking power, but they cannot provide energy storage. Section 4.7.3 of the Final EIR has been clarified to further describe that natural gas power does not meet Project Objective #6 (Reduce Greenhouse Gas Emissions). In addition, the Blythe Energy Project does not meet Project Objective #7 (Re-Use Existing Industrial Sites).

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Section 4.7.1 of the Draft EIR addresses alternative locations for the Project.

Landfill construction timing is described on pages 3.9-24 to 3.9-26 of the Draft EIR.

The alternative of a longer fill period was considered in the Draft EIR, and is included in MM GW-1 of the Final EIR.

While the Draft EIR does not address every imaginable transmission route, the Draft EIR does address the most logical routes with the highest potential to reduce environmental impacts (see Section 4.9.3 of the Draft EIR).

Kaiser #17: Concerns about groundwater resources and seepage. The response to this comment is broken into sections, following the numbering system in the comment letter.

Kaiser #17-4.1: Conflicts with the groundwater analysis provided by others.

Response to Kaiser #17-4.1: Three recent EISs have been released which review the potential impact of proposed solar energy projects on the Chuckwalla Valley (Palen Solar Energy Project EIS; Genesis Solar Energy Project EIS; and Desert Sunlight Solar Energy Project EIS). These documents include an analysis of potential impacts of solar project water use on the Chuckwalla aquifer. In addition, comments provided by the National Park Service (NPS) included an alternative estimate of recharge to the Chuckwalla aquifer. This response summarizes these other groundwater analyses and makes a comparison to the groundwater analysis provided in the Draft EIR.

Recharge to the Chuckwalla aquifer was calculated to be 12,700 acre-feet per year (AFY) for use in calculations of the water balance in the Draft EIR. This recharge estimate is near the mean estimate of recharge for the aquifer as developed by numerous authors. Figure Kaiser-2 shows a summary of groundwater recharge estimates for the Chuckwalla and tributary valleys using: the estimates developed during previous studies; the baseline water balance estimates developed for Response to NPS #14-5; estimates based on an approach outlined by the United States Geological Survey (2004); NPS estimates from July and August 2010; recent recharge estimates used by state and federal agencies for the proposed solar projects in the valley; and previous estimates developed by the Project Applicant.

As Figure Kaiser-2 illustrates, estimates of recharge for the Chuckwalla aquifer range from a low of 3,000 AFY as suggested by the NPS in its October 2010 comment letter on the Draft EIR submitted to the State Water Board (a copy is included in this Responses to Comments), to a high over 30,000 AFY in the Palen Solar Power Project EIS. The recharge estimates at the very low range of values would predict drawdown in the valley much greater than has been actually observed in groundwater levels. Therefore, these very low estimates of recharge are deemed inaccurate and unreasonable for use in water balance modeling. As shown in Figure Kaiser-2, the average of these estimates is 12,100 AFY, and the average with high and low outliers eliminated is 12,500 AFY, supporting the conclusion that the 12,700 AFY recharge estimate used in the Draft EIR is both conservative and reasonable.

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Summary of Estimated Annual Recoverable Water Chuckwalla Valley

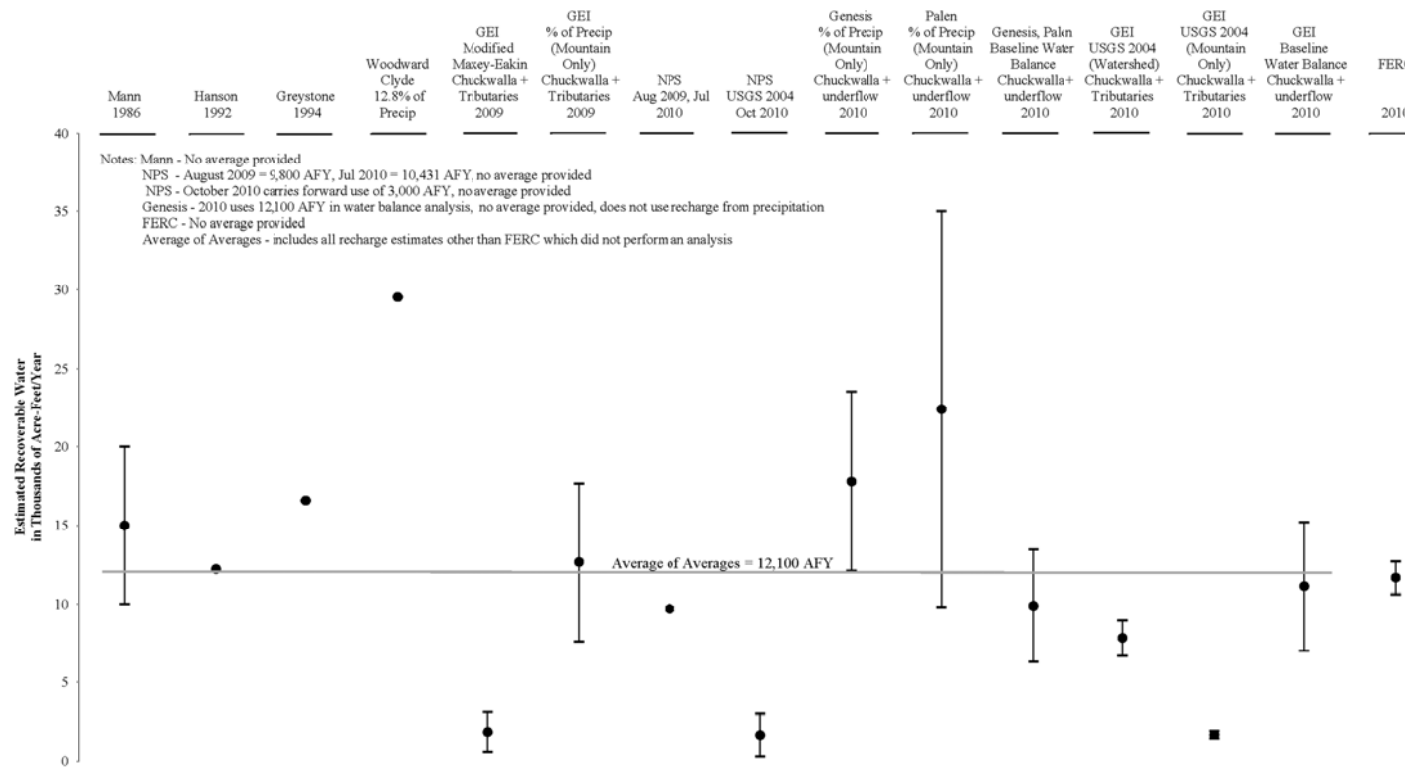


Figure Kaiser-2: Comparison of Estimated Annual Recharge to Chuckwalla Aquifer as Developed by Various Authors.
 (A recharge estimate of 12,000 AFY was used in the Draft EIR.)

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A detailed comparison of the key statistics from the groundwater analysis for the four proposed projects is provided in Figure Kaiser-3, below. Key differences are:

- The Draft EIR for the Project overestimates annual water use for the Palen solar project. At the time the Draft EIR was prepared, it was assumed that the Palen project would use wet cooling. However, the project proposal was modified to a dry cooling proposal, resulting in reduced annual water use. This error was corrected in the water balance in the Final EIR.
- Analysis done for the Palen and Genesis projects assumed 800 AFY of irrigation return water recharging the aquifer. The Draft EIR for the Project assumes no irrigation return water in the recharge estimate.
- There were some variations in the assumptions of recharge coming from tributary aquifers.
- The EISs for the Palen and Genesis projects estimated recharge at 12,088 AFY. The Draft EIR for the Project estimates recharge to be 12,700 AFY.

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Water Balance Comparisons From EIRs					
Item	RESULTS				Difference positive = overestimated in Eagle Mtn EIR
	Genesis	Palen	Desert Sunlight	Eagle Mountain Pumped Storage	
SOLAR WATER USE					
Construction duration	26 mo	39 months	26 mo	Calc'd 3-year const period	
Total Construction GW use	1,368	1,560	1,300 - 1,400	2,240----1,560----126	(302)
Annual O&M GW use	300	annual avg 303	0.2 AF/yr	1,644-----300----55	1,396
SUBTOTAL					1,094
CHUCKWALLA VALLEY BASELINE GROUNDWATER BUDGET-- AFY					
Precip. Recharge	8,588	8,588	cites budgets of Palen	low =3675, high = 8575, ave 6125	(2,463)
Underflow to Chuckwalla	3,500	3,500	and Genesis as project	low =3930, high = 9170, ave 6550	3,150
Wastewater return	831	831	net inflow:	831	-
Irrigation return	800	800	Genesis = 2446 AF	NA	(800)
GW extraction	(10,361)	(10,361)	Palen = 2608 AF	10,640	279
Underflow to PVM	(400)	(400)		400	-
Palen Lake Evapotrans.	(350)	(350)		NA	(350)
SUBTOTAL	2,608	2,608			(184)
TOTAL UNDERESTIMATION OF WATER BALANCE IN EM EIR - DIFFERENCE (Construction water minus water balance difference)					1,278
CHUCKWALLA VALLEY RECHARGE ESTIMATES-- AFY					
Watershed area					
Chuckwalla Valley GW basin	601,543	601,543		604,000	2,457
surrounding mtns	258,825	258,825		245,000	(13,825)
total	860,368	860,368		849,000	(11,368)
Chuckwalla HU#17			1,268,650	1,321,246	
recharge area					
	822,259	860,368	not discussed		
Recharge Percentages	3, 5, and 7	2, 3, 5, and 10		3,7, average (5)	
Recharge Estimate	8588---14313--20038	6300--9440--15750--31500		low =3675, high = 8575, ave 6125	(2,463)
Used in analysis					
Past studies cited	3	3			
	12.8% of 3.39" = 29,530 AFY (Woodward Clyde)			10,000-20,000 AFY (Mann)	
	10% for 5540-5600 AF/yr (BLM-county, chuckwalla only)			12,000 AFY (Hanson)	
	3-5% (Whitt and Jonker)			16,600 AFY (Greystone)	
	3-7% USGS				
	7-8% USGS		not cited in Palen		
UNDERFLOW ESTIMATES (Eagle Mtn EIR uses recharge from precip. in basin)					
from Pinto Valley	3,173	3,173	recharges - qualitative	low =3525, high = 8225, ave 5875	2,702
from Orocopia	1,700	1,700	not mentioned	low =405, high = 945, ave 675	(1,025)
total	4,873	4,873		ave = 6,550	1,677
PERENNIAL YIELD--AFY					
Water Balance total	12,088	12,088	NA	12,700	612

Figure Kaiser-3: Comparison of Water Balance Calculations from Recent Environmental Impact Statements, Chuckwalla Valley.

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Kaiser #17-4.2: Section 4.2: Inconsistencies and Lack of Clarity on Groundwater Assumptions Used in Modeling and Reaching Conclusions.

Response to Kaiser #17-4.2: The Draft EIR uses existing data to project the amount of recharge that the Chuckwalla and tributary basins receive. Estimates used range from 10,000 to 20,000 AFY. In the Draft License Application to FERC, an estimate of recharge of 12,200 AFY was used to develop a water balance. The NPS requested additional studies to estimate the recharge, and these subsequent studies developed a more detailed analysis of recharge that concluded with the revised estimated recharge of 12,700 AFY, similar to but slightly larger than the previous assumed value from existing literature. All work is documented in Section 12.4 of the Draft EIR.

Kaiser #17-4.4: Section 4.4: Hydrocompaction concerns.

Response to Kaiser #17-4.4: As stated in Draft EIR Section 12.6, page 8, the Upper Reservoir is entirely underlain by bedrock, and seepage from the Upper Reservoir would only be through joints in fractures in the bedrock. Section 12.6, page 9, of the Draft EIR provides the justification for the number of wells needed. Section 12.6, page 9, of the Draft EIR, Seepage, states the estimate of seepage from the Upper Reservoir will be about 738 AFY or about 460 gallons per minute (gpm). Section 12.6, page 9, of the Draft EIR, Hydraulic Characteristics, indicates that the School Well could produce about 75 gpm. Section 12.6, page 9, of the Draft EIR, Seepage Recovery Wells, bases the number of wells needed on a conservative pumping estimate of 70 gpm. Therefore, seven wells times 70 gpm equals 490 gpm, thus exceeding the annual seepage losses from the Upper Reservoir.

The seepage recovery well metrics are provided in Section 12.6, Table 2, of the Draft EIR. The table provides borehole depths, borehole diameters, casing diameters, screen intervals, maximum allowable drawdown and maximum allowable water elevation. The maximum allowable water elevations were established to maintain groundwater levels below the Landfill's Phase 1 through Phase 4 leachate collection and removal systems.

Section 12.6 of the Final EIR was modified to include a new section after Water Balances as follows (new text in red):

Landfill Compatibility

The water surface elevation in the Lower Reservoir will range from an elevation of 925 to 1,092 feet msl. The landfill is proposed to be constructed in four phases. Phases 1 through 3 will be constructed at elevations above the Lower Reservoir's maximum water surface elevation and therefore cannot be affected by the seepage from the lower reservoir. Phase 4 is located to the north of the Lower Reservoir and its foundation finish grade at its lowest point is about 1,040 feet msl (about 800 feet from the reservoir), below the maximum reservoir water surface. This portion of the landfill is being built at least in part over the older alluvium exposed in the eastern portion of the Lower Reservoir, however the area is currently covered by tailing piles so the exact extent of the alluvium is unknown.

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The groundwater model covered this area and can approximate the change in the groundwater level beneath this portion of the landfill. Groundwater levels directly beneath the reservoir, if not controlled by seepage recovery wells, would be expected to rise a maximum of 8 feet. Existing MW-1 is the closest monitoring well in the alluvium to Phase 4. The groundwater elevation in MW-1 was 706 feet msl in 1992. The water surface elevation with uncontrolled recharge mounding projects to be about 714 feet elevation, far below the landfill foundation. With seepage control wells, as shown on Figure 16, groundwater levels are expected to change by about one to four feet.

Kaiser #18: Reservoir risks are not sufficiently analyzed and there are concerns about the reverse osmosis water treatment facility.

Response to Kaiser #18: These concerns are addressed in detail in the responses to comments for the Kaiser Attachment. No specific concern with the reverse osmosis water treatment facility is stated. The comment is noted and no further response is required.

Kaiser #19: Comment concerns conflicts with the proposed landfill project. The proposed project is not compatible with the proposed landfill. The proposed project may experience delays, therefore the timing assumptions may not be correct. The DEIR does not sufficiently address construction conflicts. The DEIR should address the impacts of not building the landfill. The water quality certification should be conditioned to assure compatibility with the landfill.

Response to Kaiser #19: The comment included multiple parts. The responses are detailed below.

The Project has been designed to be compatible with the proposed Landfill. Both projects are large and complex, with extensive volumes of information. It is anticipated that direct coordination will be needed between the Projects to minimize conflict. For this reason, PDF LU-4 in the Final EIR, was modified to require this coordination (new text in red):

PDF LU-4. Coordination with Adjacent Projects. The Project layout has been modified to eliminate conflicts with existing and proposed land uses. **For example**, construction staging and lay-down areas have been relocated to a parcel southwest of the Lower Reservoir and outside of the proposed landfill to eliminate conflict with the proposed landfill truck marshalling and railyard facilities. Low voltage cables from the underground powerhouse have been routed through the underground powerhouse access tunnel to avoid conflicts with landfill Phase 3. Water treatment facilities have been relocated further from the **Colorado River Aqueduct (CRA)** to address concerns of the **Metropolitan Water District of Southern California (MWD)** regarding the proximity of the brine ponds to the CRA.

These efforts will continue during the final design and construction of the proposed Project. Because several large and complex projects are proposed in the same general area (including the landfill project and several proposed solar energy projects), detailed coordination will occur as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits,

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and operations. The Licensee will be required to have regular project coordination meetings with the owners of the landfill project, the adjacent solar projects, MWD, and any other interested landowners and project developers during construction of the Project. As the Project progresses into the design phase, the Project layout will be designed to preserve landfill capacity in Phases 1 through 4.

Kaiser #19-A: The approved landfill would utilize the East Pit as a place to dispose of waste.

Response to Kaiser #19-A: The east, or lower pit, of the proposed Landfill was not included in the approvals issued by Riverside County in Specific Plan #305 or Development Agreement #64, Waste Discharge Requirements issued by the Colorado River Basin Regional Water Quality Control Board (Colorado River Regional Board), or the Solid Waste Facility Permit. Therefore, use of the East Pit as a waste disposal area is considered speculative at this time.

Kaiser #19-B: The proposed Project may not be constructed prior to the start of landfill construction and assumes that landfill project phasing will not change. The DEIR artificially truncates the term of the analysis. Conflict with the East Pit should be examined.

Response to Kaiser #19-B: The Draft EIR presents the Project Description and proposed Project Schedule as best as it is known at this time. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (*Residents Ad Hoc Stadium Committee v. Board of Trustees* (1979) 89 Cal. App.3d 274, 287.) (CEQA Guidelines, §15126.6 subdivision (f)(3)). CEQA requires the evaluation of direct as well as cumulative impacts. Direct impacts are to be evaluated against the conditions on the ground at the time the Project is proposed. Existing information was appropriately used to assess direct Project impacts.

Cumulative impacts analysis must look at the impacts of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. (CEQA Guidelines §15355.) The reasonably foreseeable probable future project is the Landfill as permitted, not as it might be modified at some unknown future date.

Specific Plan #305 for the proposed Landfill (Riverside County, 1997) and the Landfill EIR describe the proposed phasing of the Landfill. The phasing in the Landfill compatibility evaluation in the Draft EIR is based on the Landfill phasing described in these permitting documents for the Landfill. There is no indication in these documents that an alternate phasing is permitted or contemplated. See Section 12.8 of the Final EIR for a summary of landfill permitting related to the phasing of the proposed Landfill.

CEQA applies to governmental action (CEQA Guidelines §15002[b]). The governmental action under consideration is the issuance of a water quality certification for a FERC hydropower license. Under the terms of the Federal Power Act, a hydropower license is issued for between 30 and 50 years. Therefore, 50 years is the maximum term of the license and the maximum length of time the water quality certification would be valid, unless the license is extended on an interim basis by FERC. If a license is issued, the licensee is required to apply for a new license or a surrender of license 24 months in advance of license expiration. At that time a new CEQA process would begin.

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Conflict between the Project and the proposed Landfill use of the East Pit is examined in Section 12.8 of the Draft EIR. The Draft EIR concludes that the proposed Project will preclude the Landfill's use of the East Pit as a location for waste deposits for the life of the Project. The East Pit is not included in the approved project design of the Landfill; therefore, the Project does not conflict with the development of the Landfill, as approved. As described in PDF LU-4 of the Final EIR, detailed coordination will occur as the Project progresses in order to avoid or minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

Kaiser #19-C: The Project is currently in conflict with the landfill. The comment refers to the letter prepared by GeoSyntec, which is included as an attachment.

Response to Kaiser #19-C: The responses to the GeoSyntec letter follow, and respond to the comment in detail.

Kaiser #19-D: The DEIR should address construction conflicts. The pumped storage project is likely to be delayed.

Response to Kaiser #19-D: Landfill construction timing is described on pages 3.9-24 to 3.9-26 of the Draft EIR. As described in the Draft EIR, PDF LU-4 detailed coordination will occur as the Project progresses in order to minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

Kaiser #19-E: The DEIR should address the impacts that would occur if the pumped storage project prevents the landfill from being constructed.

Response to Kaiser #19-E: The Draft EIR concludes that the two projects are compatible; therefore, the Project will not prevent the proposed Landfill from being constructed according to its approvals. As described in PDF LU-4, detailed coordination will occur as the Project progresses in order to minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

Kaiser #19-F and #28: If the 401 Water Quality Certification is issued, then the certification should be appropriately conditioned. The recommended conditions are included in the comment letter.

Response to Kaiser #19-F and #28: If the State Water Board issues a water quality certification, compliance with water quality standards will be conditions of the certification. The draft water quality certification, released by the State Water Board on June 27, 2012, illustrates the types of conditions that the State Water Board considers applicable to this type of project. The certification will include all feasible mitigation measures to reduce the environmental impact of the Project to a less than significant level whenever possible.

Kaiser #20: The DEIR does not appropriately consider impacts to mineral resources.

Response to Kaiser #20: The Project's potential impact on mineral resources is discussed in Section 3.1 of the Draft EIR. Section 3.1 of the Final EIR has been revised in response to this comment, to reflect Kaiser's potential interest in re-opening the Kaiser Mine.

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The Draft EIR concluded that the Project will make a small percentage of the iron ore on the Project site unavailable to commercial mining for the life of the Project, and that this impact is less than significant. According to Kaiser (2010), “over approximately 150 million tons of stockpiled rock are located on fee-owned Eagle Mountain property that is not part of the proposed Landfill. Sale of other materials, such as iron ore, may also be commercially viable. The sale of rock and other materials is subject to market conditions and [Kaiser] having any necessary permits.” According to Kaiser (2012), the actual total amount, type, and quality of the iron ore on the site cannot be ultimately determined without further exploration and testing. Additionally, not all of the iron ore reserves may be economically recoverable.

The Landfill EIR stated that the amount of iron ore remaining on the site represents less than one percent of the United States iron reserves. The Landfill EIR also stated that 72.7 million short tons of iron reserves remain in the Black Eagle North and South resource areas. These areas would be unaffected by both the Project and the proposed Landfill. Therefore, even if both the Landfill and the Project were to be developed, iron ore mining could also be re-developed on the site and there would be at least 72.7 million short tons of iron reserves available for mining.

At the time of this writing (August 2012), the price of iron ore had fallen to three-year lows, making the resumption of iron mining less economically feasible than may have been the case at the time of Kaiser’s comment letter (October 2010). In addition, Kaiser has been unable to locate a third-party interested in potentially acquiring the iron ore resources on the Eagle Mountain site (Kaiser, 2012).

In order to re-start iron mining on the site, substantial investments would be needed. Virtually all of the equipment and all of the mining and processing facilities for large scale iron mining are no longer in existence on the site. The Eagle Mountain Railroad, needed for economical transportation of iron ore to market, suffered significant flood damage in 2003, and there has been other damage to the railroad since that date (Kaiser, 2012). The Union Pacific Railroad removed the track and switch at Ferrum Junction in 2011. Significant maintenance and possible upgrades will be required for the rail line to become fully operational (Kaiser, 2012). In addition, the houses and buildings at the Eagle Mountain Townsite are deteriorating at a faster rate than anticipated and many may not be salvageable (Kaiser, 2012). If the iron mine were to re-open, worker housing would need to be rehabilitated or newly constructed.

In addition, certain permits and consents will likely be required prior to the resumption of large-scale extractive iron ore mining (Kaiser, 2012). Kaiser has not applied to Riverside County for resumption of large scale iron mining, thus large scale iron mining is not considered to be a probable future project for the purposes of analysis under CEQA.

Kaiser #21: The Eagle Mountain Landfill DEIR found the landfill project to be potentially a significant impact to wilderness experience, therefore the pumped storage project must find the cumulative impact to be significant.

Response to Kaiser #21: Pursuant to CEQA Guidelines §15130, “An EIR shall discuss cumulative impacts of a project when the Project’s incremental effect is cumulatively considerable, as defined in Section 15065(a)(3)...” And further, “cumulatively considerable” is defined by the incremental effects of an individual Project which are significant when taking into

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consideration with the effects of past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines §15065 (a)(3)).

When an incremental effect is not “cumulatively considerable,” the Lead Agency (the State Water Board) need not consider that effect significant, but shall briefly describe its basis for conclusion that the incremental effect is not cumulatively significant (CEQA Guidelines §15130(a)).

It is reasonable to conclude that the construction of a large scale Landfill may have a significant impact on the wilderness experience of a visitor to the wilderness area in Joshua Tree National Park (JTNP) because of the ongoing noise, rail and truck traffic, and massive changes in the landscape. The Project, in contrast, will only generate noise during construction and will make relatively minor changes in the landscape. JTNP visitors who travel to the border of JTNP nearest to the Project will experience noise at a level estimated to be “very quiet” during the construction time period only. During the operational period there will be no detectable noise in JTNP from the Project. Visually, the Central Project Area will result in a very minor change from the baseline condition, which is highly degraded. For these reasons, the incremental effect of the Project is not considered cumulatively considerable.

Kaiser # 22: Groundwater conjunctive use analysis required. The cumulative effects analysis should be expanded to ensure that both supply and water quality will not be adversely affected in the long term.

Response to Kaiser #22: The Chuckwalla Valley groundwater basin has about 600 feet of saturated thickness. A cumulative depletion of up to nine feet over 50 years would result in about 1.5 percent change in the groundwater levels basin wide.

MWD’s conjunctive management of groundwater basins that are tributary to the Chuckwalla Basin, specifically aquifer storage and recovery projects, which may store and then later retrieve water, result in a net zero change to groundwater levels. Therefore, MWD’s projects would not have any long-term effect on the water balance. In addition, our understanding from MWD is that it intends to store water in the aquifer only in years of excess water supply, which are rare and unpredictable. The water will be pumped from the aquifer during times of need (MWD, 2012). On balance, this will have no impact to the overall water supply of the Chuckwalla Aquifer.

For aquifer storage and recovery projects the quality of the groundwater is of key importance so that the stored water quality is not degraded. The Project is not expected to have any adverse effects on water quality. Therefore, there are no impacts to the MWD’s conjunctive water management.

The analysis of cumulative impacts is included in Section 5.5.3 of the Draft EIR. Current projects and future foreseeable projects were identified (Tables 5-2 and 5-3) and their water use was accounted for in the cumulative impacts analysis.

Kaiser #23-1: In August 2010, the U.S. Fish and Wildlife Service issued new guidance on the relocation of desert tortoises.

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Response to Kaiser #23-1: A draft Desert Tortoise Removal and Translocation Plan was developed in consultation with the resource agencies in September 2009, and has been revised and updated in ongoing consultation between FERC, the Applicant, USFWS and CDFW. Since that time, USFWS developed several guidance documents, and changes continue to occur to the most recent guidance document. The final Desert Tortoise Relocation/Translocation Plan (required by MM TE-4) will incorporate new agency guidance, where relevant. The new guidance does not change the conclusions of the Draft EIR and no new mitigation measures are required.

Kaiser #23-2: Commenter quotes a letter from the National Park Service commenting on the Eagle Mountain Landfill EIS/EIR. The introduction of two large bodies of water will significantly impact wildlife behavior. The DEIR is inadequate in its treatment of nutrients, Park resources, and biodiversity. The DEIR does not adequately support the conclusion that there will not be a measurable change in the density of desert tortoise predators or study the “eutrophication” concerns.

Response to Kaiser #23-3: JTNP is a fine example of Mojave and Colorado Desert ecosystems. However, the letter quoted was prepared as a comment on the proposed Landfill, which was to be a site defined by trash and waste materials. The set of concerns associated with the Landfill do not apply to the Project.

Section 3.2.3.3.1 of the Draft EIR discusses potential impacts of eutrophication. Impact 3.2-2 concludes that eutrophication is a less than significant impact, as the Project will not add nutrients to the environment.

Section 3.6.3.3.2 of the Draft EIR discusses the potential for increased predators. As discussed, neither food nor water currently are the primary limiting factors for raven populations in the area under existing conditions. Water sources present in the Project area include a water treatment pond, the open water portions of the CRA, ponds at Lake Tamarisk, and MWD’s Eagle Mountain Pumping Plant (part of CRA system). In addition, humans have occupied the Eagle Mountain townsite for many years. Perching, roosting and nesting sites for ravens are plentiful under the existing condition of the Project area. The Draft EIR identifies the potential impact of the Project on the raven population (Impact 3.5-5). The Draft EIR includes mitigation and monitoring requirements for ravens and other predators (see MM TE-5, as revised in the Final EIR), which reduces this cumulative impact to less than significant. Section 5.5.5 of the Draft EIR discusses this issue in the context of cumulative impacts, including the proposed Landfill.

MM TE-5 was revised in the Final EIR to include the modifications recommended by FERC in its Final EIS, as follows (modifications in red).

MM TE-5. Predator Monitoring and Control Program. The **Predator Monitoring and Control Program** is found in its entirety within Section 12.14. Proposed projects on federal lands that may result in increased **desert tortoise predator** populations must incorporate mitigation to reduce or eliminate the opportunity for raven proliferation. **One of the most significant desert tortoise predators are ravens.** The USFWS has developed a program to monitor and manage raven populations in the California desert in an effort to enhance desert tortoise recovery. In order

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to integrate monitoring and management, the USFWS has agreed to an “in-lieu” fee to replace quantitative raven monitoring on new projects in the range of the desert tortoise. The Licensee will pay in-lieu fees to the USFWS that will be directed toward a future quantitative regional monitoring program aimed at understanding the relationship between ongoing development in the desert region, raven population growth and expansion and raven impacts on desert tortoise populations. The vehicle for this program is a Memorandum of Understanding between the Licensee, the CDFW, and USFWS.

The Predator Monitoring and Control Program may include this in-lieu fee if it is determined that the raven population may increase over current levels due to the Project.

In addition to this in-lieu fee, the program will include, at a minimum:

- A suite of construction and operations measures to reduce food scavenging and drinking by ravens (e.g., trash containment, minimization of pooling water on roadways and construction right-of-ways)
- Roadkill removal
- Qualitative monitoring of raven use of the Project site during operations, conducted on a pre-determined schedule by the on-site Project environmental compliance officer
- Breeding season nest surveys
- Baseline and post-construction surveys for other desert tortoise predators, including coyotes, wild dogs, and gulls
- Mitigation measures to be implemented if the number of predators increases
- A schedule for post-construction surveys during the second year of project operation, followed by surveys once every 5 years

The Licensee will continue to work collaboratively with the resource managing agencies to conduct adaptive management to control ravens and other predators in the Project area.

Kaiser #24: The DEIR does not address the potential health hazards of electromagnetic fields from the transmission line.

Response to Kaiser #24: The California Public Utilities Commission, California Department of Health Services, and South California Edison have all concluded that public concern about possible health hazards from the delivery and use of electric power (via electronic and magnetic fields) is based on data that give cause for concern, but which are still incomplete and inconclusive and in some cases contradictory. (See California Public Utilities Commission, *EMF Design Guidelines for Electrical Facilities*, July 21, 2006; California Department of Health Services – Environmental Health Investigations Branch, *Electric and Magnetic Fields Long Fact Sheet*, 2000; and the Southern California Edison, *Electro Magnetic Field Answers to Common Questions*, <http://www.sce.com/Safety/everyone/electric-magnetic-fields.htm>).

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The California Department of Education School Facilities Planning Division (Department) has published a School Site Selection and Approval Guide. This guide addresses school locations in relationship to high voltage electrical transmission lines. The guide states,

Electric power transmission lines maintained by power companies may or may not be hazardous to human health. Research continues on the affects of electromagnetic fields (EMF) on human beings. However, school districts should be cautious about the health and safety aspects relating to overhead transmission lines. School districts should take a conservative approach when reviewing sites situated near easements for power transmissions lines.

In consultation with the state Department of Health Services (DHS) and electric power companies, the Department has established the following limits for locating any part of a school site property line near the edge of easements for high-voltage power transmission lines:

1. 100 feet from the edge of an easement for a 50-133kV line
2. 150 feet from the edge of an easement for a 220-230kV line
3. 350 feet from the edge of an easement for a 500-550kV line

The proposed transmission line for the Project is 500 kV and in excess of 2,500 feet from the Eagle Mountain School at the closest point. Therefore, no EMF mitigation is needed for the Eagle Mountain School. It is not known what portion of the Eagle Mountain townsite will be re-occupied if and when the Landfill is constructed. However, the Project's transmission corridor is at least 500 feet from the closest point of the historic extent of the Eagle Mountain townsite. Therefore, no additional mitigation is needed for EMF.

As stated in the Draft EIR, the Project will be constructed and operated in compliance conformance with all applicable federal, state, and local laws, ordinances, regulations, and standards. This includes the California Public Utilities Commission Guidelines for Electrical Facilities.

Additional information was added to Section 3.9 of the Final EIR to address the concern about EMF. Impact 3.9-2 in the Final EIR was modified to address the potential impact of EMF, as follows (new text in red):

Impact 3.9-2 Operational Impact from Transmission Line and Interconnection to Substation. This impact is considered *less than significant*. Long-term land use-related impacts associated with the transmission line/substation construction will be the permanent change from undeveloped desert to lands reserved for utilities. Except for the tower locations, land within the ROW [right-of-way] will remain undeveloped after construction. **The transmission line will be in excess of 500 feet from any school, day care, or other sensitive receptor, so no health impacts from EMF [electromagnetic fields] are anticipated.**

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Kaiser #25: Need to develop BMPs for treatment processes, brine control and disposal, and groundwater protection.

Response to Kaiser #25: Mitigation measures are based on specific performance standards that must be met.

Mitigation measures and project design features in the Draft EIR that describe how the Project will address treatment processes, brine control and disposal, and groundwater protection include MM GW-1 through MM GW-7, PDF GW-1, and PDF GW-2.

Kaiser #26: Commenter requests the results of a dam breach analysis.

Response to Kaiser #26: Dam breach analysis, inundation mapping, and an Emergency Action Plan (EAP) will be completed at the appropriate time in the design process to satisfy requirements of FERC and the California Department of Water Resources Division of Safety of Dams, as well as to comply with the standard of care in dam design. This information is not required for Project licensing or the environmental analysis.

Dams are designed to standards promulgated to prevent to the maximum extent possible the potential for a dam failure. The FERC Office of Energy Projects (OEP) has published Engineering Guidelines for the Evaluation of Hydropower Projects, which provides guidance to FERC technical staff for the processing of applications for license and in the evaluation of dams under Part 12 of the Commission's regulations. These guidelines can be found on the FERC website at: <http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide.asp>

When FERC issues a license authorizing major construction, the license includes a requirement that the licensee employ a board of qualified independent engineering consultants, approved by FERC, to review the design, plans and specifications, and construction of the project. Also, the board of qualified independent engineers is expected to assess the construction inspection program, construction procedures and progress, planned instrumentation, the filling procedures for the reservoir, and surveillance plans during the initial filling of the reservoir. FERC staff reviews the consultant's reports.

A Potential Failure Mode Analysis is conducted for all FERC regulated dams that are required to undergo Independent Consultant safety inspections as defined in 18 Code of Federal Regulations (CFR) Part 12, Subpart D. A Potential Failure Mode Analysis is an exercise to identify all potential failure modes under static loading, normal operating water level, flood and earthquake conditions including all external loading conditions for water retaining structures and to assess those potential failure modes of enough significance to warrant continued awareness and attention to visual observation, monitoring and remediation as appropriate.

Based on the existing standards and requirements for dams, it is a reasonable expectation that the Upper Reservoir dams will be constructed and operated in a safe manner. There are no known federal, state, or local regulations or standard-of-care considerations that require dam owners to design mitigation to protect facilities against damage that could be caused by a hypothetical breach of an existing or new dam.

**Responses to Comments on Draft Environmental Impact Report
Eagle Mountain Pumped Storage Project**

Kaiser #27: The DEIR should disclose impacts from decommissioning of the proposed Project.

Response to Kaiser #27: FERC Guidelines (FERC, 2008) require that Project retirement be considered as an alternative evaluated in the National Environmental Policy Act (NEPA) document for re-licensing. The Project is part of a new license application, not a project relicensing. Therefore, during re-licensing, the alternative of license surrender will be examined in a complete CEQA and NEPA proceeding conducted at that time. A project that has not yet been constructed cannot be retired; therefore this is not an alternative considered in the CEQA document.

FERC typically includes a license article such as the following in case the project is not completed or the license is surrendered:

The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Kaiser #28: If the State Board should ultimately decide to certify the final EIR and not deny the water quality certification, the Project should be appropriately conditioned. An exhibit is attached with conditions for the water quality certification.

Response to Kaiser #28: The comment is noted. The State Water Board will take Kaiser's suggested conditions into consideration when making a decision on the Project's water quality certification.

ATTACHMENT #1



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5 October 2010

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**Subject: Technical Review Comments
Environmental Impact Report
Eagle Crest Energy Company Eagle Mountain Pumped Storage Project**

Dear Mr. Cook:

Geosyntec Consultants (Geosyntec) is pleased to provide our technical review comments to Kaiser Ventures, LLC (Kaiser) on certain portions of the Eagle Mountain Energy Company (ECEC) Eagle Mountain Pumped Storage Project Draft Environmental Impact Report (DEIR), hereinafter referred to as the Project.

Our technical review comments are divided into the following three categories:

- Review of the DEIR for Omissions in the Evaluation of Landfill Compatibility Issues;
- Evaluation of the Reverse Osmosis System; and
- Evaluation of Storm Water Management System and Upper and Lower Reservoir Overflow Impacts to the Landfill and Surrounding Area.

Geosyntec's technical review comments are provided below.

Review of the DEIR for Omissions in the Evaluation of Landfill Compatibility Issues

Seepage

The DEIR identifies potentially significant impacts subject to the mitigation program related to seepage from the proposed reservoirs and tunnels and its impact on the landfill. The DEIR also identifies some proposed mitigation measures for controlling seepage. The proposed mitigation measures have not been adequately conceived or

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explained with regard to their compatibility with the Eagle Mountain landfill project. Significant impacts may remain on the construction and operation of the landfill at the site related to changes in the hydrogeology due to seepage.

As required for any proposed mitigation measure the licensee should provide enough detail in their description to allow for a determination of whether the proposed measures are appropriate and feasible.

This should include at a minimum:

- a preliminary description of any steps necessary to implement measures and the preliminary schedules for implementing the measures referenced to the license issuance date;
- Approximate costs of these measures.
- A consultation record leading to the development of these measures
- Operations and maintenance place for the proposed systems.

While some information has been provided regarding the schedule for additional minimal investigation and a conceptual design for some seepage control measures, ECEC has failed to meet these minimum requirements to allow for a determination that the mitigation measure are appropriate and feasible. Indeed the DEIR and its technical appendices raise many good questions about seepage without providing details about how this relates to the landfill.

- ECEC identifies increases in the groundwater elevations under the landfill footprint from the operation of both the upper and lower reservoirs. The impact of this seepage or even the magnitude of the increases in groundwater elevation below the permitted landfill (the “uncontrolled” or “controlled” situations) is not explicitly addressed in the DEIR. The two technical appendices addressing the issue of seepage “Eagle Mountain Pumped Storage Project – Seepage Analyses for Upper and Lower Reservoirs” and “Eagle Mountain Pumped Storage Project – Seepage Recovery Assessment” make no limited reference to the landfill project and focus instead on the CRA project.

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- The promised reductions of the seepage induced groundwater elevations to “below the bottom elevation of the landfill liner” are necessary but not sufficient. The impacts on global stability, liner stability, hydrogeologic monitoring requirements, vadose zone monitoring, and constructability of the landfill in the “seepage increased” condition even with groundwater below the liner have been ignored completely by ECEC.
- In “Eagle Mountain Pumped Storage Project – Seepage Recovery Assessment” no modeling or other justification is presented as evidence to support the assertion that “about seven seepage control wells be needed to control seepage losses” from the upper reservoir. ECEC admits that “Additional seepage recovery wells will be constructed along the axis of the Eagle Creek Canyon to provide secondary control to prevent groundwater levels from rising beneath this area of the proposed landfill” but does not provide details. No metrics are set for control of the groundwater elevations under the landfill. Modeling instead focuses on the lower reservoir and its impact on CRA. This is no discussion of the impact of the lower reservoir on the landfill.
- Control of seepage using a seepage blanket in the best case scenario proposed for the upper reservoir involves only a reduction of 25%. Any additional reduction of 30% due to grouting was established as an unsubstantiated estimate by ECEC. These seepage control measures don’t appear to produce significant benefit under the adjacent landfill footprint based on the modeling seepage models prepared by ECEC. (See Figure 6 and Figure 10 of “Eagle Mountain Pumped Storage Project – Seepage Analyses for Upper and Lower Reservoirs”)
- ECEC’s estimates of hydraulic conductivity for the Upper reservoir used in “Eagle Mountain Pumped Storage Project – Seepage Analyses for Upper and Lower Reservoirs” are unsubstantiated and are based on qualitative comparisons with borehole hydraulic conductivity of the lower reservoir. Site specific estimates of the fractured bed rock hydraulic conductivity in the upper bedrock area should be made prior to acceptance of the currently submitted seepage modeling.
- The composition of the mine tailing (with a large percentage of sand sized materials) may not be suitable for a low permeability seepage control blanket. It appears that estimates of hydraulic conductivity of the proposed seepage

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blankets are based on Geosyntec's laboratory hydraulic conductivity testing of the fine tailing material in 1996. These estimates were made assuming the material would be use as a compacted low permeability barrier as part of the landfill liner. It is unclear that the sample and testing conditions (compaction, confining pressure, gradient) used the Geosyntec testing are consist with what would expected in the seepage blanket condition. Desiccation cracking and an increase in hydraulic conductivity of the proposed seepage barriers should also have been addressed in the DEIR. The economic feasibility of what would be a very expensive and time consuming seepage control program including blankets, grouting, monitoring and pumping well network are not discussed. How will the seepage control system be maintained and operated? Is there financial assurance that the seepage control will continue after ECEC is gone and groundwater levels are still elevated?

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- Seepage from the proposed tunnel under the landfill is not systematically addressed in the DEIR. Is concrete proposed for the entirety of the tunnel lining? What are the estimated seepage losses from the tunnel with the proposed concrete lining? For unlined portions?

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Stability Comments

Increased groundwater elevations, even if controlled below the liner elevation will increase the potential for slope instability in the landfill. Increases in groundwater elevation could potentially increase the driving forces on landslides resulting in reduced factors of safety. Existing designs will not meet their required factors of safety and will require redesign. This will increase time and budget for design and construction and potentially reduce airspace due to the need to flatten slopes and incorporate berms for stability. It is ERC's responsibility to show that seepage would not produce these significant negative impacts on the landfill

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Inadequate Proposed Phase I Geotechnical investigation Program

The proposed investigation program will provide inadequate information regarding the design and constructability of the proposed system. This is especially true with regard to seepage. Boring spaced at intervals of 1000 feet in the tunnel and over 500 feet in the proposed dam abutments would appear to be insufficient to provide design for these

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features and may not be an appropriate mitigation measure. What is the basis for establishing this level of investigation?

Dam Break Analysis

While unlikely there is a chance that any dam will suffer a catastrophic failure during its lifetime. The southern saddle dam is adjacent to the western portion of phase 1 of the landfill. Land filling and Landfill related activities will likely be occurring in the dam break inundation areas. Flooding of these areas in addition to the potential for loss of life may damage landfill facilities, equipment, and access roads/railroads, interrupting the availability of the landfill as a resource to the community. Inundation maps should be prepared and the potential for the economic and environmental impacts of such a failure should be addressed and quantified.

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Landfill Siting Criteria Near Reservoirs/Water Bodies

The Upper Reservoir and its South Saddle Dam are located adjacent to the northeastern corner of Phase 1 of the Eagle Mountain Landfill.

We are unaware of any large reservoir proposed adjacent to a permitted lined landfill in the state of California. An attempt to control seepage from a large unlined reservoir at such a grand scale with a sensitive neighboring project is not something that is “standard of practice” and deserves more than a passing mention of a few proposed seepage control methods. A permit should not be granted based on promise of additional investigation and analysis in the future. (How will the Regional Water Quality Control Board or Kaiser have input on the design process once this project has been permitted? FERC and DSOD who will be reviewing designs may not be sensitive to construction and operational constraints of the landfill as it relates to hydrogeology.)

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The standard of practice is not to site a landfill near a water body or reservoir; consequently, there are no existing specific regulatory criteria or available technical publication that pertains to landfill siting near water bodies or reservoirs. Siting a landfill near a reservoir should not be considered for the Project unless a comprehensive analysis be performed and included in the DEIR.

Potential Impacts to the Liner

A November 24, 2009 GEI memorandum contained in DEIR Appendix C indicates on Page 2 that the water tunnel would be lined with concrete throughout to mitigate seepage. In the very next sentence, it indicates that “it may be feasible to only line the tunnels at certain locations where seepage potential is high.” In the latter scenario, the seepage potential is not adequately addressed; consequently, the potential impacts to the liner system, such as potential liner uplift, have not been addressed in the DEIR.

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While significant deformation of the landfill liner due to construction of the proposed tunnels is unlikely, criteria should be established to control or monitor this potential deformation.

Previous comments made in August 2008 on the Draft Application made to the Federal Regulatory Commission regarding seepage-related impacts to the liner on the Draft Application went unaddressed in the DEIR. Such comments included the following:

- The DA suggests using fine mine tailings for use as a seepage control blanket. We believe the composition of the mine tailings (i.e., large percentage of sand-sized materials) would not be suitable for a low-permeability seepage control blanket. The DA does not include a comprehensive static and seismic stability evaluation of tailings placed in the pits. Fine tailings will be subject to wetting and drying cycles due to the rising and falling water levels in the pits. The DA needs to address the potential for desiccation cracking and resultant increase of hydraulic conductivity of the fine tailings as a seepage barrier.
- The fines placed against the side walls of the Central and East Pits will be unconfined, will become saturated, and during draining of the pits, will be subjected to seepage forces. Free swell of the fines submerged below the low water level of the pits is likely to occur; long-term swelling under unconfined conditions will lead to an increased hydraulic conductivity of the seepage blanket material. These issues need to be addressed in a comprehensive slope stability analyses and geotechnical evaluation in order to adequately identify and address impacts of the pumped storage project.
- Page 1-6 of the DA indicates that “During the first four phases, no overlap occurs between the landfill disposal areas and lands required for the proposed pumped storage project.” The proposed conveyance tunnels transect Phases II,

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III, and IV of the Landfill Project. A detailed study should be performed to address the impacts of the conveyance tunnels to the Landfill Project, including, but not limited to, the effect of seepage on landfill stability and on the integrity of the landfill liner system. The alignment, profile, and corresponding elevations of the proposed conveyance tunnels with respect to the liner system base grading plan and waste fill plans for each respective phase of landfill development should be thoroughly evaluated to identify and adequately address impacts to the Landfill Project.

- Development of a geotechnical sections is required as soil liquefaction may be an issue. Local increase in groundwater elevations may result in local increase in soil liquefaction potential.
- The DA indicates the applicant understands reservoir seepage is an important issue for the project. However, to date, the applicant has only identified the issue and has not undertaken detailed investigations/analyses to understand the magnitude of the problem. Furthermore, at this time, the applicant only provides conceptual information regarding future seepage investigations, development of a seepage flow model, and potential components of a seepage mitigation program.

Potential Impacts on Methane Generation

Based on the potential for seepage that has been inadequately addressed in the DEIR, and ensuing impacts to the liner system without further required analysis, there may be a potential for impacts to methane generation should the liner system be impacted by the Project.

In the event that seepage water contacts the waste mass, accelerated waste decomposition and corresponding increased methane generation can be expected. Waste mass stability is likely to be affected and should be addressed in the DEIR. Rapid waste decomposition will result in accelerated landfill settlement and could require additional operational effort to be required for landfill regrading, surface water management system improvements, and the need for additional landfill gas collection wells to maintain effective gas control at the site. Altogether, these additional activities would result in increased capital and operational costs for Kaiser.

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Potential Impacts on the Environmental Monitoring and Collection Systems

The DEIR does not address the impact seepage may have on the environmental monitoring system.

For example, seepage resulting from the project, as presented in the above comments, will very likely affect the vadose zone monitoring system immediately beneath the liner system. The purpose of the vadose zone monitoring system is to evaluate liner system integrity by monitoring for the presence of liquids under the liner system. Seepage will likely cause “false positive” liquid detections in the vadose monitoring system.

The landfill operation would be required to conduct costly and time consuming technical field investigations and analysis each time a “false positive” reading was detected in order to demonstrate to the regulators that the liner system integrity has not been compromised. This will result in increased costs and unnecessary investigations, analyses, and reporting for the landfill project.

Seepage from the reservoirs and tunnel will likely impact the perimeter gas monitoring probes that are required for landfill development. The perimeter probes could become “watered in” from seepage from the adjacent reservoir and tunnel. If the perimeter probes become watered in, the regulators will require the operator of the landfill to install replacement probes, resulting in recurring financial impacts. The DEIR does not address this impact to the environmental monitoring system.

Airspace Losses

The proposed construction road to the surge tank bisects landfill Phases 1, 2, and 3. Temporary and possible long-term airspace losses to the landfill capacity will occur, depending on the duration of use of the construction access road. A worse-case scenario is presented as Figure 1, where landfill development is limited to areas south of the proposed construction road due to access impacts. Based on the alignment of the proposed construction access road, there are significant potential impacts on landfill development, especially in Phase 1, where the perimeter access road may not be built until sufficient landfill buildout is achieved. Development of the landfill south of the proposed construction road is estimated to result in approximately 15 million cubic yards (12.4 million tons) of airspace loss in Phase 1. The alignment of the proposed construction road will require redesign of the landfill development and phasing plan, reevaluation of the geotechnical and stability analyses already conducted for the site,

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and modification of interim stormwater control features. These impacts are not addressed in the DEIR.

Furthermore, approximately 31 million cubic yards (25.6 million tons) of airspace impacts in Phase 2, and approximately 9 million cubic yards (7.4 million tons) of airspace impacts in Phase 3, could occur; at the very minimum, airspace in Phases 1 through 3 will be temporarily unavailable due to the presence of the construction road; the total potential impacts to available airspace could be as much as approximately 45.4 million tons until landfill perimeter roads are extended throughout Phases 1 through 3.

Permanent airspace losses are likely due to the alignment of the overhead transmission lines running between Phase 5 and Phase 3 to the switch yard area. This impact from the Project was not addressed in the DEIR.

These airspace losses should be adequately addressed in the DEIR to determine impact of the proposed project on landfill site life, operations, and the need for comprehensive technical reevaluation, and redesign of the landfill.

Evaluation of Reverse Osmosis System

General

A review was conducted of the Technical Memoranda (TM) that were prepared in support of the DEIR for the proposed Eagle Mountain Pumped Water Storage Project (the Project). The Project plans to use an RO system to remove total dissolved solids (TDS) from make-up water that is needed to replace the water that will be lost due to seepage out of the reservoirs during the first year of operation and evaporation losses over the life of the project. The make-up water will be obtained by pumping local groundwater supply wells. Although the TM do not provide specific data regarding RO selection or operation, the following operating parameters were inferred based on the data provided in TM 12.2, 12.4, and 12.6:

- The RO will process approximately 1,260 gallons per minute (gpm) on average based on the addition of evaporation losses in the reservoir (1093 gpm) and the RO brine evaporation ponds (167 gpm);
- The RO will remove approximately 95% of the TDS mass from the process water based on the pumped groundwater supply TDS

concentration of 2,400 parts per million (ppm) and the target make-up TDS water concentration of 660 ppm; and

- Following the initial reservoir filling operation, the RO is only expected to treat enough process water to replace evaporation losses, as the Project assumes that its seepage recovery wells will recover the seepage out of the reservoirs.

TM 12.4 also states that the RO system will be capable of treating up to 2055 gpm, but it appears that this capacity is reflective of the initial reservoir filling operation and potential peak flow rates.

Analysis of Water Wastage by Evaporation of Reverse Osmosis Brine

The Project is expected to lose 1763 acre-feet of water per year due to evaporation from the reservoirs and another 270 acre-feet per year due to evaporation from the RO brine evaporation ponds (TM 12.1 and 12.2). This equates to an average of about 1.8 million gallons per day. For comparison purposes the United States Environmental Protection Agency estimates that the average household of four can use up to about 400 gallons per day of water (<http://www.epa.gov/WaterSense/pubs/indoor.html>). Thus, on average the Project will lose enough water via evaporation to supply about 4,500 households of four. This proposed plan for making up this water is to pump groundwater from the local groundwater aquifer despite the water shortages faced by California.

Evaluation of Potential Constituents that will Concentrate in the Reservoir Water

No specific groundwater characterization data are provided in the TM, with the exception that the groundwater supply is expected to contain 2,400 ppm of TDS. Calculations indicate that, despite the RO system's removal of TDS, the TDS concentration in the reservoir will increase over time (Figure 2). Similarly, if hazardous constituents (e.g., arsenic, selenium, mercury, etc.) should be present in the water then their concentrations will also increase over time.

Arsenic is a hazardous constituent that is often a concern in California groundwater supplies. The Project appears to be in a region of California that typically contains between 1 and 50 micrograms per liter ($\mu\text{g/L}$) of arsenic (Figure 3). For reference, the Maximum Contaminant Level (MCL) for arsenic in drinking water is 10 $\mu\text{g/L}$. As

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shown in Figure 2, the concentrations will increase over time and may exceed the MCL already, depending on the pumped groundwater quality.

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Note that the Project does not seem to account for the fact that the seepage water will likely dissolve solids as it migrates through the native sediments.¹ Our calculations also did not consider this phenomenon, as no information is provided for the projected concentrations of TDS or hazardous constituents in the seepage water. The TDS in the reservoir will increase even faster than predicted if seepage water dissolves additional solids. Further, hazardous constituents could also accumulate in the reservoirs faster than predicted, particularly if the native sediments contain elevated concentrations of these constituents.

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In summary, the TDS is expected to concentrate over time. Unless the RO system is designed to preferentially remove potential hazardous constituents, then the concentrations of these constituents would also be expected to increase over time. The TMs do not seem to fully consider whether accumulation of these constituents will occur, and if so if they pose a threat to the environment.

The data provided in the TM with respect to the selection and operation of the RO system are limited, and there was no information regarding the characterization of the groundwater that will be used to fill the reservoirs. Consequently, it is not clear if the Project fully considered the amount of water wastage, the potential for concentration of hazardous chemical constituents in the reservoir water, and the potential for hazardous constituents to trigger regulatory standards for the salt that will accumulate in the RO brine ponds for eventual disposal. However, the analysis presented herein raise concerns related to each of these issues.

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Evaluation of Storm Water Management Plan and Upper and Lower Reservoir Overflow Impacts to the Landfill and Surrounding Area

After reviewing the documents above to determine whether analyses conducted in preparation of the DEIR are appropriate for determining impacts and potential issues related to landfill compatibility, the following findings were noted:

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¹ According to TM 12.6, the Project assumes that the seepage recovery wells will capture 100% of the seepage from the reservoirs, which may not be practical given the large size of the reservoirs and the presence of "joints, fractures, and faults" that would be expected to conduct seepage.

The analyses conducted do not necessarily reflect the complexity of the hydrologic and hydraulic relationships internal to the Project and of the Project in relation to landfill plans.

For example, the hydrologic and hydraulic analyses discussed in the Project Drainage Plan and Reservoir Spillway Design consisted of a unit hydrograph analysis of inflows to the reservoirs, HEC-RAS modeling to design reservoir spillways, and unit hydrograph routing to account for transient storage volumes for each reservoir throughout the Probable Maximum Flood (PMF). The analysis does not take into account the modified watershed conditions that will result due to landfill development and associated stormwater management measures nor does it evaluate the system performance under dynamic conditions, where sequential storm events occur within the time frame for system recovery from the design conditions.

Flooding analyses supporting DEIR's for large-scale projects with impacts typically include these types of analyses and should be performed for this Project

Management of the PMF flows captured by the closed-loop reservoir system is managed primarily through excess storage in the reservoirs. Because the Project is intended to be a closed-loop system, where flows from the upper reservoir are routed to the lower reservoir via gravity, and pumped back up into the upper reservoir during off-peak hours, the infrastructure critical to system performance under the PMF is dependent on the stage of each reservoir when the PMF occurs. The Project Drainage Plan and Reservoir Spillway Design memorandum describes one scenario, where the upper reservoir is full, and establishes a critical storage volume for the lower reservoir, greater than which the lower reservoir would be unable to accommodate the entire PMF without pumping.

Pumping capacity between the lower reservoir and the upper reservoir, in combination with the excess storage in the lower reservoir when full to normal capacity, appear to be sufficient to accommodate the PMF if it were to occur when the lower reservoir is full. This management approach, however, relies heavily on the integrity of the pumping infrastructure under such extreme circumstances, increasing the risks associated with infrastructure failure. These risks and their resulting impacts should be adequately analyzed as the impacts of being wrong are tremendous.

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Terry L. Cook, Esq.
5 October 2010
Page 13

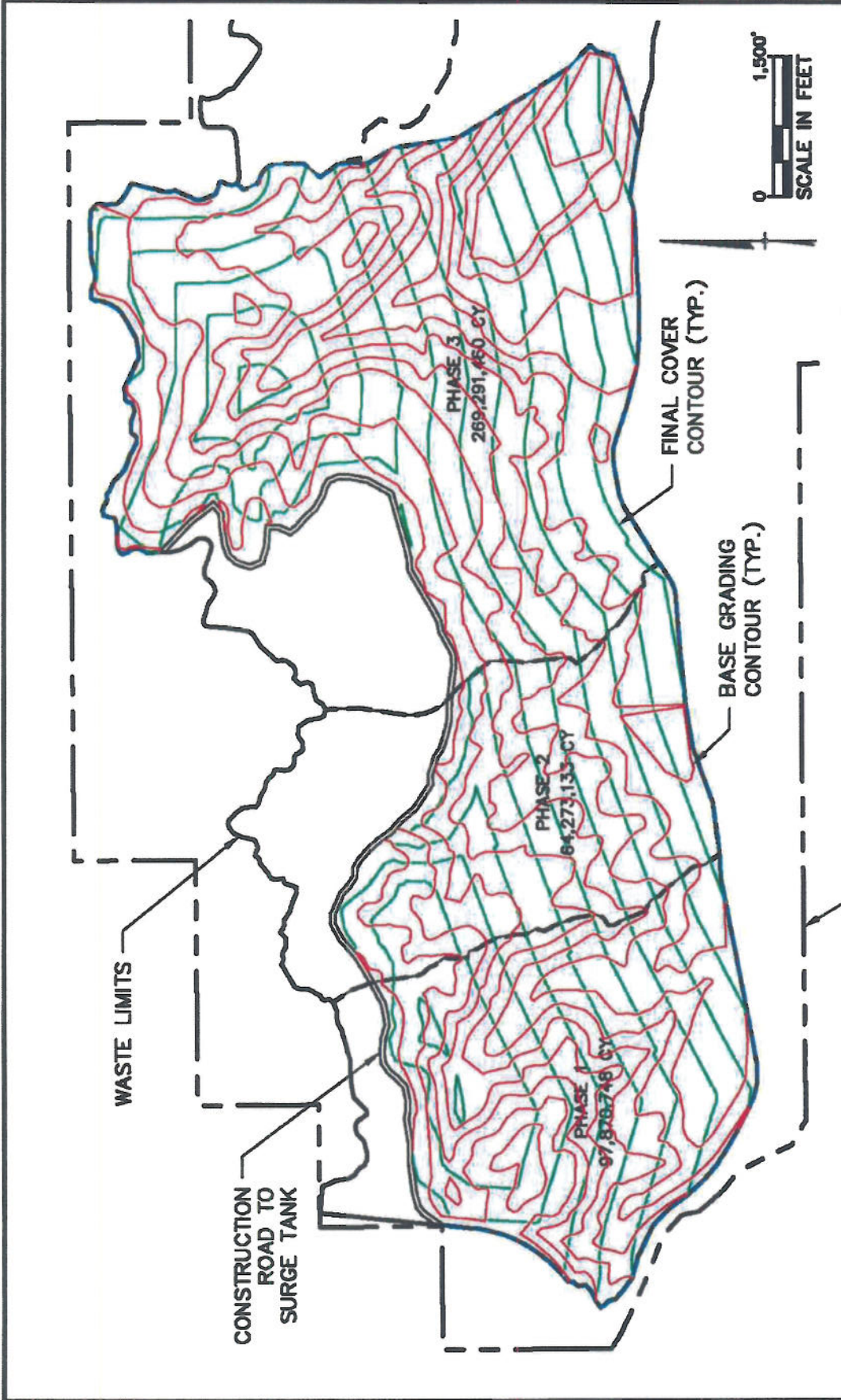
We understand that you may be providing this comment letter to the State Water Resources Control Board. Should you have any questions regarding these comments, please do not hesitate to contact us at (714) 969-0800.

Sincerely,


Neven Matasovic, Ph.D., P.E., G.E.
Associate


Jeffrey G. Dobrowolski, P.E.
Associate

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Geosyntec
consultants

ECEC IMPACTS TO EAGLE MOUNTAIN LANDFILL CAPACITY
EAGLE MOUNTAIN LANDFILL AND RECYCLING CENTER
RIVERSIDE COUNTY, CALIFORNIA

DATE:	September, 2010	FILE NO.	1224W002
PROJECT NO.	HL1224	FIGURE NO.	1

FIGURE 2
ACCUMULATION OF TOTAL DISSOLVED SOLIDS AND ARSENIC
EAGLE MOUNTAIN PUMPED STORAGE PROJECT

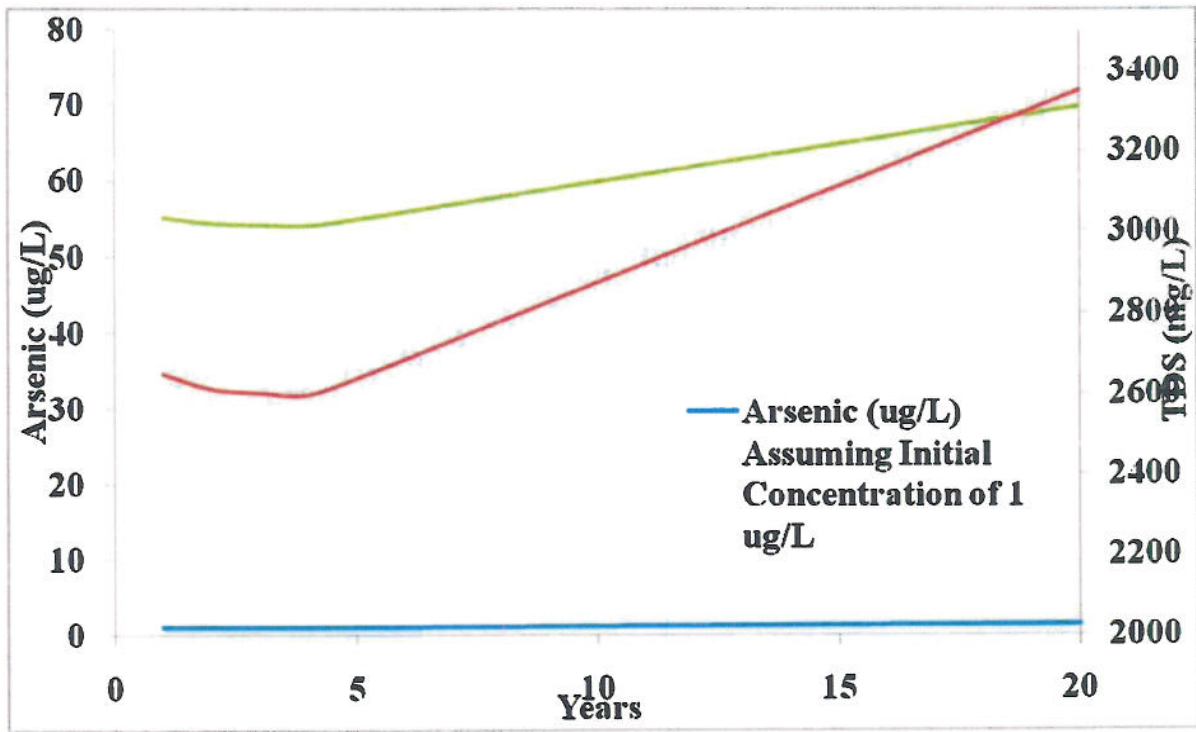
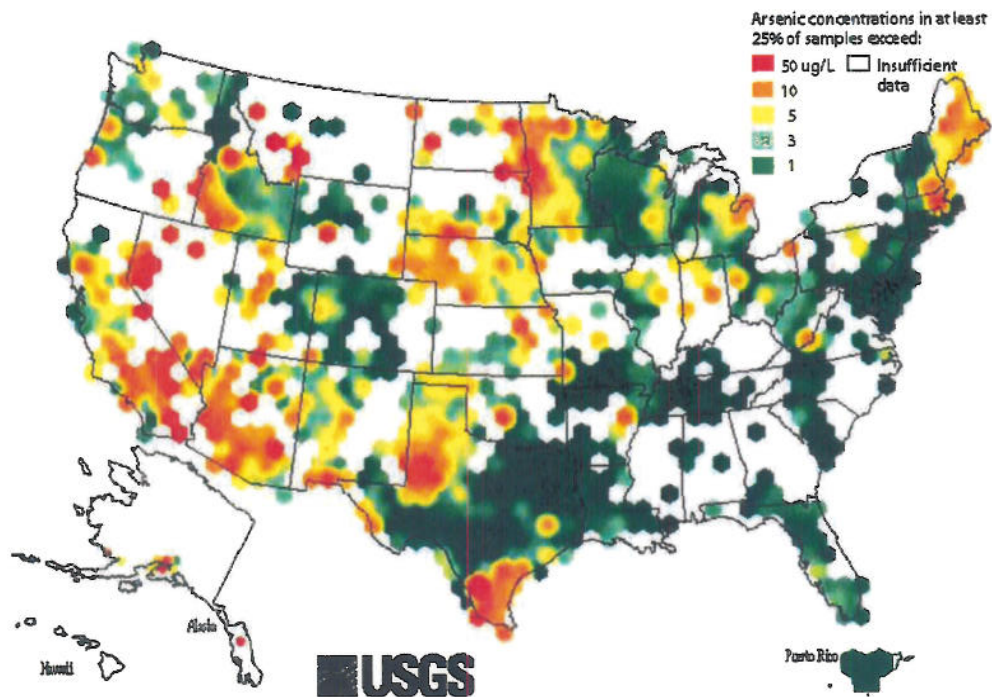


FIGURE 3
USGS MAP OF ARSENIC CONCENTRATIONS BY COUNTY
EAGLE MOUNTAIN PUMPED STORAGE PROJECT



**Responses to Comments on Draft Environmental Impact Report
Eagle Mountain Pumped Storage Project**

Responses to Comments from Letter from Geosyntec (Kaiser Attachment):

Kaiser Attachment #1: The proposed seepage mitigation measures have not been adequately conceived or explained with regard to the compatibility with the Eagle Mountain Landfill Project.

Response to Kaiser Attachment #1: The seepage mitigation measures (PDF GW-1, MM GW-1, MM GW-4, MM GW-5) present substantial information including: the hydraulic conductivity of the liner materials that were developed based on several field and laboratory tests; the depths of liner material assumed for each analysis; the location and placement of each mitigation measure; the limitations of the mitigation measures; and the assumed effectiveness of each mitigation measure. Based on this information, the seepage mitigation measures were presented adequately to assess the validity of each alternative and the associated environmental impacts. Further development of the seepage mitigation measures will be completed during the final design of the Project, after more detailed geotechnical investigations. Additional information that will be developed with the final design includes the implementation schedule, estimated costs, consultation records and the operations and maintenance of the seepage mitigation measures. This additional information is not necessary for the evaluation of the environmental impacts of the seepage mitigation.

Kaiser Attachment #2: The impact of the seepage or the magnitude of the increases in groundwater elevation below the permitted landfill is not explicitly addressed in the DEIR.

Response to Kaiser Attachment #2: The seepage analysis developed results for a “worst-case” scenario, in which the reservoir pool is maintained at the maximum pool level indefinitely and no seepage liner or mitigation measures are in place. Given the seepage mitigation measures, the results shown will not occur. Operation of the Project will likely result in a significantly lower phreatic surface than what was presented in the Draft EIR. The results for the “worst-case” scenarios in the west-east sections indicate the estimated maximum water surface elevation to be a minimum of 50 feet below the shown existing ground surface. The results for the “worst-case” scenarios in the north-south sections indicate the maximum water surface elevation could potentially intersect a nearby drainage channel below the proposed Landfill. However, the results are for a “worst-case” scenario that is highly unlikely to occur for many reasons including: both reservoirs can never be completely full at the same time, and the reservoir levels will cycle up and down in response to energy demands and hydroelectric operations, and seepage controls will be implemented to reduce seepage. Furthermore, any leakage or seepage that is released from the reservoir will be collected through the seepage recovery system prior to reaching the drainage channel or the Landfill elevations. As such, the proposed Project would not be expected to conflict with the proposed Landfill due to the elevated groundwater level. Section 12.5 of the Final EIR was revised to clarify the anticipated groundwater level with mitigation measures in place and the impact of reservoir seepage on the proposed Landfill.

Kaiser Attachment #3: The seepage analyses need to address the impacts of elevated groundwater on the global stability, liner stability, hydrogeologic monitoring requirements, vadose zone monitoring, and constructability of the landfill.

Responses to Comments on Draft Environmental Impact Report Eagle Mountain Pumped Storage Project

Response to Kaiser Attachment #3: See response to Kaiser Attachment #2. These comments are also addressed in more detail in the following responses.

Kaiser Attachment #4: In “Eagle Mountain Pumped Storage Project – Seepage Recovery Assessment” no modeling details, justification or evidence is provided to support “about seven seepage control wells will be needed to control seepage losses.” No metrics are set for control of the groundwater elevations under the landfill. There is no discussion of the impact of the lower reservoir on the landfill.

Response to Kaiser Attachment #4: As stated in the Draft EIR, Section 12.6, page 8, the Upper Reservoir is entirely underlain by bedrock. Seepage from the Upper Reservoir would be through joints in fractures in the bedrock. Draft EIR, Section 12.6, page 9 provides the justification for the number of wells needed using the assumption that the reservoirs will be lined. Draft EIR, Section 12.6, page 9, Seepage, states the estimate of seepage from the Upper Reservoir will be about 738 AFY or about 460 gpm. Draft EIR, Section 12.6, page 9, Hydraulic Characteristics, indicates that the School Well could produce about 75 gpm. Draft EIR, Section 12.6, page 9, Seepage Recovery Wells, bases the number of wells needed based on a conservative pumping estimate of 70 gpm. Therefore seven wells pumping at 70 gpm equals 490 gpm, and exceeds the estimated annual seepage recovery losses from the Upper Reservoir (of 460 gpm).

The seepage recovery well metrics are provided in Draft EIR, Section 12.6, Table 2. The table provides borehole depths, borehole diameters, casing diameters, screen intervals, maximum allowable drawdown and maximum allowable water elevation. The maximum allowable water elevations were established to maintain groundwater levels below the Landfill’s Phase 1 through Phase 4 Leachate Collection and Removal Systems.

A discussion of Landfill compatibility was added to Section 12.6 of the Final EIR as follows (new text in red):

Landfill Compatibility

The water surface elevation in the Lower Reservoir will range from elevation 925 and 1,092 feet msl. The landfill is proposed to be constructed in four phases. Phases 1 through 3 will be constructed at elevations above the lower reservoir’s maximum water surface elevation and therefore cannot be affected by the seepage from the lower reservoir. Phase 4 is located to the north of the lower reservoir and its foundation finish grade at its lowest point is about 1,040 feet msl (about 800 feet from the reservoir), below the maximum reservoir water surface. This portion of the landfill is being built at least in part over the older alluvium exposed in the eastern portion of the Lower Reservoir, however the area is currently covered by tailing piles so the exact extent of the alluvium is unknown.

The groundwater model covered this area and can approximate the change in the groundwater level beneath this portion of the landfill.

Responses to Comments on Draft Environmental Impact Report Eagle Mountain Pumped Storage Project

Groundwater levels directly beneath the reservoir, if not controlled by seepage recovery wells, would be expected to rise a maximum of 8 feet. Existing monitoring well MW-1 is the closest monitoring well in the alluvium to Phase 4. The groundwater elevation in well MW-1 was 706 feet msl in 1992. The water surface elevation with uncontrolled recharge mounding, projects to be about 714 feet elevation, far below the landfill foundation. With seepage control wells, as shown on Figure 16, groundwater levels are expected to change by about one to four feet.

Kaiser Attachment #5: In the “Eagle Mountain Pumped Storage Project – Seepage Analyses for Upper and Lower Reservoirs” an additional reduction of 30% due to grouting [in the upper reservoir] was established as an unsubstantiated estimate by ECE. These seepage control measures don’t appear to produce significant benefit under the adjacent landfill footprint based on the modeling seepage models prepared by ECE.

Response to Kaiser Attachment #5: The estimated additional reduction of 30 percent due to grouting in Section 12.5 of the Draft EIR was conservatively based on previous Project experience, engineering judgment, and Rock Quality Index (RQI) testing data obtained from numerous boreholes located within or adjacent to the Upper Reservoir (data available in the project record for the Landfill). This method is considered an appropriate, applicable, and conservative method for estimating the percent reduction provided by grouting rock materials.

Kaiser Attachment #6: The estimates of hydraulic conductivity for the Upper reservoir are unsubstantiated and are based on qualitative comparisons with borehole hydraulic conductivity of the lower reservoir. Site specific estimates of the fractured bed rock hydraulic conductivity in the upper bedrock area should be made.

Response to Kaiser Attachment #6: The hydraulic conductivity estimated for the Upper Reservoir rock materials was based on relationships between the borehole data and hydraulic conductivity tests developed for the Lower Reservoir rock material and borehole data and RQI testing results developed for the Upper Reservoir materials (data available in the project record for the proposed Landfill). Based on this data (published hydraulic conductivity data sources and engineering judgment), the hydraulic conductivity of the Upper Reservoir rock material was conservatively estimated to be a full magnitude higher than the Lower Reservoir rock material. During final Project design, the noted field investigations and pump testing will be performed to confirm or to adjust the hydraulic conductivity values used in the EIR seepage analyses..

Kaiser Attachment #7: The composition of the mine tailings may not be suitable for a low permeability seepage control blanket. Desiccation cracking and an increase in hydraulic conductivity of the proposed seepage barriers should be addressed. The economic feasibility of the seepage control program is not discussed. How will the seepage control system be maintained and operated? Is there financial assurance that seepage control will continue after ECE is gone and groundwater levels are still elevated?

Response to Kaiser Attachment #7: The previous geotechnical characterization of the fine tailing materials indicates the existing material could be suitable as liner material. According to Geosyntec (1997), “sufficient quantities of the fine tailings material appropriate for use in the

Responses to Comments on Draft Environmental Impact Report Eagle Mountain Pumped Storage Project

low-permeability soil liner are available.” The results of the laboratory test indicate that the fine tailings have relatively low permeability and clay contents that range from about 15 to 25 percent. Based on the estimated clay content, and the fact that the majority of the fine tailings liner material will continue to be inundated by the dead storage pool, the liner materials will not be very susceptible to desiccation cracking. Additionally, Pin-Hole Dispersion Tests were performed on the fine tailings material and the results indicated little or no dispersion. Based on this information, the proposed liner material will likely have negligible to minimal increases in hydraulic conductivity due to desiccation cracking. During final design, further geotechnical testing will be performed on the mine tailings material to fully evaluate the potential for use as a liner material. If the fine tailings are found to be unsuitable as reservoir lining materials due to their adverse properties, they will not be used and other methods will be selected. Section 12.5 of the Draft EIR discusses other methods.

Kaiser Attachment #8: Seepage from the proposed tunnel under the landfill is not systematically addressed in the DEIR. Is concrete proposed for the entirety of the tunnel lining? What are the estimated seepage losses from the tunnel with the proposed concrete lining? For unlined portions?

Response to Kaiser Attachment #8: Unmitigated seepage and leakage from the upper tunnel is not desirable as it would add to the Project operating costs. Extensive geologic and geotechnical investigations will be performed to assess geologic conditions and leakage potentials of the tunnels. Final decisions on tunnel lining requirements will be based on these investigations, as well as observations made during tunnel construction.

The tunnel or portions of the tunnel will need to be lined if the geologic conditions indicate a risk of seepage. Seepage from the lined portions of the tunnel would be negligible. Seepage from the unlined portions of the tunnel would also be minimal because the unlined sections of the tunnel would be located in rock formations that are not conducive to leakage or because particular sections are operating under low pressure, such as the tunnel section between the lower reservoir and powerhouse.

Kaiser Attachment #9: Increased groundwater elevations, even if controlled below the liner elevation will increase the potential for slope instability in the landfill. It is ECE's responsibility to show that seepage would not produce these significant negative impacts on the landfill.

Response to Kaiser Attachment #9: Groundwater monitoring is planned to monitor seepage and leakage from the reservoirs and to confirm the associated seepage control mitigation is working to lower groundwater levels. Seepage recovery wells will extract water lost to the reservoirs from seepage, as described in MM GW-4 and MM GW-5. These measures were modified in response to comments and the Final EIR as shown below (new text in red):

MM GW-4. Lower Reservoir Seepage Recovery Wells. Seepage from the Lower Reservoir will be extracted through seepage recovery wells. The proposed recovery well locations are shown on Figure 3.3-18. Seepage from the Lower Reservoir will be maintained to prevent a significant rise in water levels beneath the CRA **or a rise in groundwater that could potentially impact the liner of the proposed landfill.** Target levels have been assigned to the monitoring wells as shown in Table 3.3-

**Responses to Comments on Draft Environmental Impact Report
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10 [Final EIR, Section 3.3.4]. Aquifer tests will be performed during final engineering design to confirm the seepage recovery well pumping rates and aquifer characteristics. The tests will be performed by constructing one of the seepage recovery wells and pumping the well while observing the drawdown in at least two seepage recovery or monitoring wells. Upon completion of this testing, the model will be re-run and the optimal locations of the remainder of the seepage recovery wells will be determined to effectively capture water from the Lower Reservoir and maintain groundwater level changes at less than significant levels beneath the CRA **and the liner of the proposed landfill**. Groundwater monitoring will be performed on a quarterly basis for the first 4 years of Project pumping. This program may be **modified** to bi-annually or annually depending on the findings. Annual reports will be prepared and distributed to interested parties.

If needed based upon monitoring results, and acceptable based upon water quality monitoring results, as an adaptive management measure Project pumping drawdown can be mitigated by allowing seepage from the reservoirs to occur without pump-back recovery. If seepage from the reservoirs is unimpeded, groundwater levels could rise beneath the CRA by up to 3 feet.

Performance Standard: Seepage from the Lower Reservoir will be maintained to prevent a significant rise in water levels beneath the CRA or a rise in groundwater that could potentially impact the liner of the proposed landfill. Target levels for protection of the landfill and the CRA have been assigned to the monitoring wells as shown in Table 3.3-10.

MM GW-5. Upper Reservoir Seepage Recovery Wells. Seepage from the Upper Reservoir will be controlled through a separate set of seepage recovery wells, locations of which are shown on Figure 3.3-18. Seepage from the Upper Reservoir will be maintained below the bottom elevation of the landfill liner. Target levels have been assigned to the monitoring wells as shown in Table 3.3-10. A testing program will also be employed for seepage recovery wells for the Upper Reservoir to assess the interconnectedness of the joints and fractures and the pumping extraction rate. Drawdown observations will be made in nearby observation wells to support final engineering design. Groundwater monitoring will be performed on a quarterly basis for the first 4 years of Project pumping. This program may be **modified** to bi-annually or annually depending on the findings. Annual reports will be prepared and distributed to interested parties.

Based upon testing for final design, or if indicated by groundwater level monitoring, additional seepage extraction wells may be constructed to meet target groundwater levels listed in Table 3.3-10. PDF GW-1 would also apply should water levels approach target levels listed in Table 3.3-10. Based upon testing for final design, or if indicated by groundwater level monitoring, additional seepage extraction wells may be constructed.

Performance Standard: Seepage from the Upper Reservoir will be maintained at least five feet below the bottom elevation of the liner of the proposed landfill so that the landfill will comply with title 27 CCR Section 20240, subdivision (c).

**Responses to Comments on Draft Environmental Impact Report
Eagle Mountain Pumped Storage Project**

Target levels have been assigned to the monitoring wells as shown in Table 3.3-10.

Kaiser Attachment #10: The Phase I subsurface exploration program is inadequate.

Response to Kaiser Attachment #10: Subsurface investigations for the Project will be conducted in a multi-phased program. The intent of the Phase I program, outlined in the Final EIR (Section 12.1), is to provide a baseline of subsurface information from which initial design concepts can be confirmed, or modified, and from which a more thorough full-scale investigation program can be planned and executed. Subsequent phases of the subsurface investigations will be designed based upon the results of the previous phases. The Phase 1 and Phase II program has been updated in the Final EIR with additional detail on the studies to be conducted.

Kaiser Attachment #11: Although unlikely, any dam can fail and the inundation maps showing the extent of flooding that could be caused by failure of the proposed south saddle dam for the Project should be prepared and the potential for economic and environmental impacts addressed and quantified.

Response to Kaiser Attachment #11: Both FERC and the California Department of Water Resources Division of Safety of Dams will require dam failure analyses and mapping to be performed and an Emergency Action Plan (EAP) to be prepared. The FERC guidelines for preparation of EAPs can be found online at:

<http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide/chap6.pdf>

There are no requirements for any dam owner, even those with existing dams, to prepare studies of the economic and environmental impacts of a hypothetical dam failure. The Applicant will be required to build safe and reliable dams at the Upper Reservoir site and to meet or exceed the regulatory standards and industry standard of care for dam design, construction, and operation. As required by PDF LU-4, the Project will be required to coordinate with the proposed Landfill, in order to minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

See Response to Kaiser #26.

Kaiser Attachment #12: There is no precedent for siting reservoirs close to lined landfills and there are no analyses in the DEIR to support a decision to permit the Project close to the proposed landfill. How will Kaiser and the SWQCB have input to the Project designs once it is permitted?

Response to Kaiser Attachment #12: The landfill siting and design criteria contained in Title 27 of CCR do not prohibit a landfill from being located near a water body. Siting and design criteria that are relevant are performance related. For example, landfill siting, design, and operational criteria require that the landfill waste be separated from groundwater by a liner and a minimum of five feet above the highest anticipated elevation of underlying groundwater. Also, the waste contaminant structure (liner system) must be designed to accommodate hydraulic pressure gradients below the liner system.

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The proposed Landfill will be required to comply with California State Minimum Standards for solid waste handling and disposal as specified in Title 27 of CCR. According to the Report of Disposal Site Information, prepared by GeoSyntec Consultants, August 1999, the Landfill was designed with a leachate collection and removal system designed for 26 gallons per acre per day. This is twice the leachate generation rate for landfills in Los Angeles County, where rainfall is higher. This system was designed very conservatively, as little or no leachate is expected to be generated.

Neither project has advanced to final design. Therefore, there is opportunity to adjust the designs of both of the projects to be compatible. PDF LU-4 was revised in the Final EIR (new text in red):

PDF LU-4. Coordination with Adjacent Projects. The Project layout has been modified to eliminate conflicts with existing and proposed land uses. **For example**, construction staging and lay-down areas have been relocated to a parcel southwest of the Lower Reservoir and outside of the proposed landfill to eliminate conflict with the proposed landfill truck marshalling and railyard facilities. Low voltage cables from the underground powerhouse have been routed through the underground powerhouse access tunnel to avoid conflicts with landfill Phase 3. Water treatment facilities have been relocated further from the **Colorado River Aqueduct (CRA)** to address concerns of the **Metropolitan Water District of Southern California (MWD)** regarding the proximity of the brine ponds to the CRA.

These efforts will continue during the final design and construction of the proposed Project. Because several large and complex projects are proposed in the same general area (including the landfill project and several proposed solar energy projects), detailed coordination will occur as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations. The Licensee will be required to have regular project coordination meetings with the owners of the landfill project, the adjacent solar projects, MWD, and any other interested landowners and project developers during construction of the Project. As the Project progresses into the design phase, the Project layout will be designed to preserve landfill capacity in Phases 1 through 4.

Kaiser Attachment #13: Potential impacts to the liner and apparent contradiction regarding tunnel lining requirements. Deformation control and monitoring should be addressed.

Response to Kaiser Attachment #13: The Project cost estimates are conservatively based on the assumption that the water tunnels will be fully concrete lined and that the penstocks and draft tubes near the underground power house will be steel-lined. It may be observed that, as tunneling progresses, sections of the water tunnels exhibit conditions indicating that full concrete lining is not required based on geologic conditions. At that time, and consistent with design intent to control seepage, a decision could be made to leave a section of the tunnel unlined.

It will be necessary in the tunnel design to specify methods and procedures to deal with tunnel instability and rock bursts should they occur as tunneling progresses. This will include designs

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that call for installation of supports, shoring, and rock-bolting as conditions in the tunnel dictate. Continuous monitoring of ground movements is standard procedure for tunnel construction and permanent monitoring for movements and seismic response will be designed and implemented during construction.

As required by PDF LU-4, the Project will be required to coordinate with the proposed Landfill, in order to minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

Kaiser Attachment #14: We believe the composition of the mine tailings would not be suitable for a low-permeability seepage control blanket. The DA [Draft Application] does not include a comprehensive static and seismic stability evaluation of the tailings placed in the pits. The DA needs to address the potential for desiccation cracking and resultant increase of hydraulic conductivity of the fine tailings as a seepage barrier.

Response to Kaiser Attachment #14: Fine tailings are proposed to be used to line the bottom of the reservoirs only if they prove suitable. They will also be used to line the reservoir slopes if that proves to be feasible, based on materials properties, slope stability and slope angles, and a variety of other technical factors. If the fine tailings are not suitable, alternative seepage control methods and materials will be used as described in Section 12.5.

The previous geotechnical characterization of the fine tailing materials indicates the existing material could be suitable for a liner material. According to Geosyntec, "sufficient quantities of the fine tailings material appropriate for use in the low-permeability soil liner are available." The results of the laboratory test indicate that the fine tailings have relatively low permeability and clay contents that range from about 15 to 25 percent (data available in the project record for the proposed Landfill).

The reservoirs will cycle water up and down and rapid draw-down conditions will be a major consideration in final design of the reservoir interior slopes. An evaluation will be made of the potential un-watered times for the slopes to determine if desiccation and cracking could occur and affect performance of the seepage control measures. Based on the estimated clay content, and the fact that the majority of the fine tailings liner material will continue to be inundated by the dead storage pool, the liner materials will not be very susceptible to desiccation cracking. Additionally, Pin-Hole Dispersion Tests were performed on the fine tailings material and the results indicated little or no dispersion (data available in the project record for the proposed Landfill). Based on this information, the proposed liner material will likely have negligible to minimal increases in hydraulic conductivity due to desiccation cracking.

During final design, further geotechnical testing will be performed on the mine tailings material to fully evaluate the potential for use as a liner material, including a comprehensive evaluation of the static and seismic stability. If the fine tailings are found to be unsuitable as reservoir lining materials due to their adverse properties, they will not be used and other methods will be selected, such as grout, roller compacted concrete (RCC), or soil cement overlay. As required by PDF LU-4, the Project will be required to coordinate with the proposed Landfill, in order to minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

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Kaiser Attachment #15: Free swell of the fines submerged below the low water level of the pits is likely to occur; long-term swelling under unconfined conditions will lead to an increased hydraulic conductivity of seepage blanket materials. These issues need to be addressed in a comprehensive slope stability analyses and geotechnical evaluation in order to adequately identify and address impacts of the Pumped Storage Project.

Response to Kaiser Attachment #15: The previous geotechnical characterization of the fine tailing materials indicates a low to medium swell potential (data available in the project record for the proposed Landfill). Additionally, several design methods are available to prevent or limit the low to medium swell potential of the fine tailings materials, such as grout, RCC, or soil cement overlay (Section 12.5 of Draft EIR). These design methods, along with a comprehensive slope stability and geotechnical evaluation will be performed during final Project design to ensure long-term swelling does not occur. If the fine tailings are found to be unsuitable for liner materials during final design, additional seepage mitigation measures will be implemented to ensure the Project does not adversely impact the adjacent Landfill and all of the related components. As required by PDF LU-4, the Project will be required to coordinate with the Landfill, in order to minimize conflicts of facility locations, supporting infrastructure, designs, permits, and operations.

See Response to Kaiser Attachment #7.

Kaiser Attachment #16: A detailed study is needed to address the impacts of the conveyance tunnels on the Landfill, including, seepage, stability, and integrity of the Landfill liner system.

Response to Kaiser Attachment #16: Tunnels will be lined with either concrete or steel, as necessary to limit seepage (see answer to Kaiser Attachment #13). Deformations at the Landfill are not likely due to underground construction. However, it will be necessary in the tunnel design to specify methods and procedures to deal with tunnel instability and rock bursts should they occur as tunneling progresses. This will include designs that call for installation of supports, shoring, and rock-bolting as conditions in the tunnel dictate. Continuous monitoring of ground movements is standard procedure for tunnel construction. Permanent monitoring for movements and seismic response will be designed and implemented during construction.

Kaiser Attachment #17: Soil liquefaction is an issue to address.

Response to Kaiser Attachment #17: Soil liquefaction analyses may be performed for areas where seepage studies indicate an increase in groundwater levels. Based on current understanding of soil conditions, liquefaction of in-situ soils is not expected to be a significant concern. Should liquefaction be identified as an issue that could affect any Project structures or structures owned by others, modifications of the structures and/or measures to further reduce groundwater levels to levels where liquefaction will not occur will be planned, designed, and implemented. Performance standards identified in MM GW-4 and MM GW-5 are specifically designed to prevent risk of liquefaction.

Kaiser Attachment #18: The Applicant has only identified the seepage issue and has not undertaken detailed investigations/analyses to understand the magnitude of the problem. The Applicant only provides conceptual information regarding future seepage investigations,

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development of a seepage flow model, and potential components of a seepage mitigation program.

Response to Kaiser Attachment #18: The Draft EIR presents detailed seepage analyses using the SEEP/W computer program, which is standard engineering practice for estimating seepage. The development of the model and material properties was based on the best available geotechnical and site-specific information at the time. The SEEP/W models present analyses that provide a preliminary understanding of the magnitude of seepage issues, as well as an evaluation of the conceptual seepage mitigation measures. It is in the best interest of the Project to limit seepage from the Project. During final design of the Project, detailed and thorough geotechnical investigations will be performed, as well as a comprehensive evaluation of the material properties to confirm or adjust the material properties used in the EIR SEEP/W model analyses. This additional information is not necessary for the evaluation of the potential environmental impacts of the seepage mitigation.

See Response to Kaiser Attachment #2.

Kaiser Attachment #19: Based on the potential for seepage that has been inadequately addressed in the DEIR, and ensuing impacts to the liner system without further required analysis, there may be a potential for impacts to methane generation should the liner system be impacted by the Project. In the event that seepage water contacts the waste mass, accelerated waste decomposition and corresponding increased methane generation can be expected.

Response to Kaiser Attachment #19: The detailed seepage analysis provided in Section 12.5 of the Draft EIR presents a “worst-case” scenario, in which the reservoir pool is maintained at the maximum pool level indefinitely and no seepage liner or mitigation measures are in place. Therefore, the results shown will not occur because the Project will be required to control seepage. Operation of the Project will likely result in a significantly lower phreatic surface than what was presented in the “worst-case” analysis, and far below the level of the Landfill liner. Additionally, the reservoirs can never be completely full at the same time. The reservoir levels will cycle up and down in response to energy demands and hydroelectric operations. Figures 10 and 11 of Section 12.5 of the Draft EIR show the anticipated phreatic surface with seepage control measures in place. If a seepage blanket and grouting of rock fractures are used at the Upper Reservoir, the average annual seepage volume could potentially be reduced to 700 acre-feet. Below the Upper Reservoir the average groundwater elevations were estimated to be a minimum of approximately 125 feet below the existing ground surface. Similarly, if a seepage blanket, grouting of rock fractures and RCC or soil cement treatment of the alluvium on the east wall are used at the Lower Reservoir, the average annual seepage volume could potentially be reduced to 900 acre-feet. Below the Lower Reservoir, the average groundwater elevations were estimated to be a minimum of approximately 265 feet below the existing ground surface.

The results for the “worst-case” scenarios conservatively indicate the maximum water surface elevation to be a minimum of about 50 feet below the existing ground surface. Furthermore, leakage or seepage that is released from the reservoir will be collected through the seepage recovery system prior to reaching the Landfill elevations (as specified in MM GW-4 and MM GW-5). As such, the Project will not conflict with the proposed Landfill due to elevated

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groundwater levels and will not accelerate waste decomposition or increase methane generation.

Kaiser Attachment #20: Seepage resulting from the project will likely affect the vadose zone monitoring system immediately beneath the liner system. Seepage will likely cause “false positive” liquid detections in the vadose monitoring system.

Response to Kaiser Attachment #20: The Project is designed to limit seepage and leakage from the Project reservoirs, both for operational and economic reasons and to ensure the Project is compatible with the proposed Landfill. As indicated in the comment, the vadose zone monitoring system is located immediately beneath the liner system; therefore, “false positive” liquid detections in the vadose monitoring system would require the groundwater elevations to reach just below the Landfill liner. The seepage analysis in the EIR presents results for a “worst-case” scenario, in which the reservoir pool is maintained at the maximum pool level indefinitely and no seepage liner or mitigation measures are in place.

See Response to Kaiser Attachment #19. The Project will not conflict with the proposed Landfill’s vadose zone monitoring system immediately beneath the Landfill’s liner system.

Kaiser Attachment #21: The land fill operation would be required to conduct costly and time consuming technical field investigations and analysis each time a “false positive” reading was detected [in the vadose zone monitoring system] in order to demonstrate to the regulators that the liner system integrity has not been compromised.

Response to Kaiser Attachment #21: See Responses to Kaiser Attachments # 19 and 20.

Kaiser Attachment #22: Seepage from the reservoirs and tunnel will likely impact the perimeter gas monitoring probes that are required for landfill development. The perimeter probes could become “watered in” from seepage from the adjacent reservoir and tunnel. If the perimeter probes become watered in, the regulators will require the operator of the landfill to install replacement probes, resulting in recurring financial impacts.

Response to Kaiser Attachment #22: Operational efficiencies and economics dictate that seepage and leaks are limited, and to ensure the Project is compatible with the proposed Landfill. As indicated in the “Report of Waste Discharge” by Geosyntec (1992), the maximum depths of the perimeter gas monitoring probes will be constructed at depths equal to the maximum waste depth found within 1,000 feet of the monitoring probe. Based on this information, for the perimeter monitoring probes to become “watered in,” groundwater elevations must raise to the level of the waste material in the Landfill.

As explained in Responses to Kaiser Attachments #19 and 20, the results for the “worst-case” scenarios conservatively indicate the maximum water surface elevation to be a minimum of about 50 feet below the existing ground surface, far below the level of the Landfill liner. Furthermore, leakage or seepage that is released from the reservoir will be collected through the seepage recovery system prior to reaching the Landfill elevations. As such, the Project will not conflict with the proposed Landfill perimeter gas monitoring probes.

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Kaiser Attachment #23: Airspace losses from the construction road and the transmission line.

Response to Kaiser Attachment #23: As described in Section 3.9.3 of the Draft EIR, the existing access road will be used to access the pumped storage surge tank and shaft. However, in the event that the Landfill is constructed, a north perimeter access road will be constructed by the Landfill owner for Landfill access. The Project will then use the north perimeter maintenance road for access to the surge tank and shaft to avoid impacts to the Landfill Phases 2 and 3. The Project will coordinate with the Landfill on the use of this access road, as described in PDF LU-4.

The low-voltage transmission line from the powerhouse to the switchyard will be carried in an access tunnel to a shaft, then up to an overhead transmission line to the switchyard. The current alignment of the transmission line crosses over a small corner of the Landfill. The transmission line alignment could be changed from the shaft to the switchyard in order to avoid most of the Landfill. This modification will be made during final design, when more detailed information about the Landfill design is available. This adjustment is minor in nature (a slight shifting of Project facilities) and will not result in any additional environmental impacts. As described in PDF LU-4, as the Project progresses into the design phase, the Project layout will be designed to accommodate the Landfill as configured.

Kaiser Attachment #24: Provide a description of the planned reverse osmosis (RO) water treatment system.

Response to Kaiser Attachment #24: For clarification, the RO system is designed to maintain water quality in the reservoir system so that the effects of evaporation and potential seepage do not result in increased salinity over time. The target water quality goals are to maintain background groundwater in the reservoirs as well as the seepage. Preliminary design was based upon water quality from Chuckwalla Site Well #1.

The preliminary design for the RO system is sized to treat 3.1 million gallons per day (mgd) of feedwater or 2,150 gpm. The RO system is expected to operate at a recovery level of 90 percent returning 2.8 mgd to the reservoir with a total dissolved solids (TDS) of less than 30 milligram per liter (mg/l) TDS and effective salt rejection of approximately 95 percent.

The water quality used for the preliminary design of the RO system is described in Table Kaiser Attachment-1 below.

Table Kaiser Attachment-1: Water Quality Levels for Preliminary Design

Constituent	Concentration
Calcium	16.5 mg/l
Magnesium	1.2 mg/l
Sodium	201 mg/l
Potassium	3.2 mg/l
Bicarbonate	74.3 mg/l
Sulfate	240 mg/l
Chloride	88 mg/l
Fluoride	11 mg/l
Nitrate (as N)	0.65 mg/l

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Arsenic	0.009 mg/l
Boron	0.6 mg/l
Silica	< 20 mg/L *
Total Dissolved Solids	660 mg/l
Total Suspended Solids	<20 mg/l *
Turbidity	< 100 NTU *
pH	8.5

* Assumed levels for pretreatment and RO design.

Kaiser Attachment #25: Provide a statement on water lost to evaporation, implying wastage.

Response to Kaiser Attachment #25: The Project includes water conservation features in seepage control, and pump-back recovery of seepage losses intended to minimize water use. Reservoir evaporation is unavoidable as a consumed portion of the water use, and will require annual make-up water. Water used to generate power is considered a beneficial use as defined in CCR Title 23 Section 662. It is estimated that the Project will generate a maximum of 4,308 gigawatt-hours per year of electrical power. See Section 3.2.3.3 of the Final EIR for the evaporative water losses analysis.

Kaiser Attachment #26: Arsenic, and potentially other metals, and TDS concentrations in the reservoir water will increase over time.

Response to Kaiser Attachment #26: The design groundwater used for this study had a reported arsenic concentration of 9 micrograms per liter ($\mu\text{g/L}$), below the current maximum contaminant level (MCL) for arsenic (10 $\mu\text{g/L}$). The proposed RO system will reduce this concentration considerably. Rejection of arsenic depends upon the oxidation state of the arsenic, with the minimum rejection of greater than 50 percent. The expected concentration in the reservoirs is therefore expected to remain well below the MCL. This also applies to other potential heavy metals.

Kaiser Attachment #27: Seepage water will likely dissolve solids as it migrates through the native sediments and this phenomenon was not considered in the DEIR.

Response to Kaiser Attachment #27: Native sediments present at the site are not significantly different or richer in potential contaminants of concern than the material in contact with the groundwater used for the preliminary analysis (Chuckwalla Site Well #1). The RO system capacity (3.1 mgd) is designed for the maximum expected evaporation rate. Since this only occurs during the hottest months in the summer there exists additional “desalting” capacity available during the remaining months of the year if there is an additional “TDS Load” that needs to be controlled due to unanticipated reasons, such as higher than anticipated evaporation rates or the dissolving action mentioned in the comment.

The RO process does preferentially remove larger divalent ions over monovalent ions. To this extent the RO process preferentially removes many contaminants of potential health impact.

Kaiser Attachment #28: Information on RO is limited.

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Response to Kaiser Attachment #28: Additional information on the RO system is on file with the State Water Board and FERC, but is filed as CEII according to the FERC regulations. CEII is a category of information designated by FERC. It is defined as specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure (physical or virtual) that:

1. Relates details about the production, generation, transmission, or distribution of energy.
2. Could be useful to a person planning an attack on critical infrastructure.
3. Is exempt from mandatory disclosure under the Freedom of Information Act.
4. Gives strategic information beyond the location of the critical infrastructure.

Under FERC regulations, 18 CFR §388.109, information that meets the definition of CEII must be filed separately with FERC and is not made available to the general public on the FERC eLibrary. Information on making a request for CEII is available on the FERC website at: <http://www.ferc.gov/legal/ceii-foia/ceii.asp>.

See Response to Kaiser Attachment #24.

Kaiser Attachment #29: The hydrologic analysis does not take into account the modifications to the watershed that will be created by the Landfill development or sequential storm events that do not provide sufficient time for recovery from design conditions.

Response to Kaiser Attachment #29: The area affected by the proposed Landfill is a small portion of the total watershed areas tributary to Eagle Creek and Bald Eagle Creek. Based on the assumption that the Landfill area is planned appropriately for the 100-year flood, the simplifying assumption was made that runoff rates would also not be changed for storm events greater than the 100-year event. Design of the storm drainage features and reservoir operations for the Probable Maximum Flood (PMF) ensures that adequate capacity is provided for “back-to-back” storm events. For example, the PMF runoff volume from Eagle Creek drainage area downstream of the Upper Reservoir is four (4) times the volume of the 100-year runoff from the same drainage area. Therefore, the flood management system will be adequate to handle back-to-back 100-year events with no “recovery time” in between. The probability for two (2) 100-year floods in the same week in a given year would be extremely remote.

Kaiser Attachment #30: The flood management system relies on the integrity of the pump-turbines to operate during rare flood events.

Response to Kaiser Attachment #30: Pumped storage plants are designed to be “ready-to-serve.” To meet that purpose, the equipment must be well maintained and dependable. FERC will inspect the Project regularly to ensure that the Project is maintained in good working order. The flood management system could conceptually “fail” only under the very unlikely conditions of a PMF event occurring at the same time the Lower Reservoir is full, while at the same time all four (4) pump-turbine units are not operational. Even under this event, there would be no dam failure. Water would flow out of the Lower Reservoir at rates in excess of the outflow spillway design capacity but at flow rates on Eagle Creek much less than what would have occurred

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before the East Pit was excavated. The PMF event is often thought of as a 1:10,000-year type of event, although it cannot be assigned a precise probability because of the methods used to estimate the PMP rainfall.