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STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Quality Certification for

THE EAGLE CREST ENERGY COMPANY

EAGLE MOUNTAIN PUMPED STORAGE HYDROELECTRIC PROJECT

FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 13123

Source: Chuckwalla Valley Groundwater Basin

County: Riverside

WATER QUALITY CERTIFICATION FOR FEDERAL PERMIT OR LICENSE

Draft released for public comment on June 27, 2012

Written comments due by NOON (12:00 PM) on July 27, 2012 to:

Mr. Oscar Biondi
State Water Resources Control Board
Division of Water Rights
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Sacramento, CA 98512-2000

or

by email to: obiondi@waterboards.ca.gov

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WATER QUALITY CERTIFICATION

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Attachments:

Attachment A: Project Area Maps
Attachment B: Mitigation Monitoring and Reporting Plan[1]
Attachment C: California Environmental Quality Act Findings and Statement of Overriding Considerations[2]

[1] Refer to Table 6.2 in the Draft Environmental Impact Report (EIR) for the Mitigation Monitoring and Reporting Plan (MMRP) based on the Draft EIR. A final MMRP will be included as Attachment B to the final water quality certification.

[2] As required by Public Resources Code section 21000 et seq and the California Environmental Quality Act Guidelines (Cal. Code Regs., tit. 14 section 15000 et seq.) Attachment C will be included with approval of this water quality certification.

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BY THE EXECUTIVE DIRECTOR:

1.0 Project Description

The Eagle Crest Energy Company (Applicant) filed with the Federal Energy Regulatory Commission (FERC or Commission) a License Application to construct and operate the Eagle Mountain Pumped Storage Hydroelectric Project (Project). The Commission assigned Project Number 13123 to the Project.

The Project is located near the town of Eagle Mountain (just north of the unincorporated town of Desert Center), located within eastern Riverside County, California. Project Area Maps are contained in Attachment A, which are attached hereto and made part of this water quality certification by reference. The Project footprint is up to 2,364 acres: 1,133 acres are located on federal lands managed by the Bureau of Land Management (BLM) and the remaining 1,231 acres on privately owned lands.

The Project will primarily use off-peak energy to pump water from a lower reservoir to an upper reservoir and generate energy during periods of high energy demand by transferring the water from the upper reservoir to the lower reservoir through four reversible turbines. The Project will have an installed capacity of 1,300 megawatts. Two former iron ore mine pits form the reservoirs. The existing East Pit of the mine will form the Project's Lower Reservoir and the existing Central Pit of the mine will form the

Project's Upper Reservoir. There is an elevation difference between the reservoirs that will provide an average net head of 1,410 feet.

The Project will link the Upper and Lower Reservoirs by subsurface tunnels that convey water through the four reversible turbines in the underground powerhouse. Existing access roads within the former mining area will be improved to provide access for heavy machinery to the Project site during construction. Tunneling will be within the reservoir sites, and waste rock from tunnel boring will be used to meet construction needs such as for road base for access roads, miscellaneous backfills for access roads and around structures, flood berms, and potentially for concrete in the dams. Any excess material will be placed in the reservoirs or in spoil areas from which fine tailings have been removed.

Data used for characterization of the Central Project Area, which includes the area where the reservoirs and powerhouse will be located, were drawn from previous reports and observations made during the 1992 to 1994 FERC licensing process (Eagle Mountain Pumped Storage Project, FERC Project No. 11080). The previous investigations were not intended to obtain data that would support design of a large hydroelectric development with dams, tunnels, and related structures. However, data are available to understand the site characteristics in sufficient detail to document the feasibility of constructing the Project.

The Central Project Area includes privately owned land. The feasibility of the Project depends, in part, on the Applicant acquiring ownership or control via a lease or easement of the Project site. The Applicant has not been granted access to the Central Project Area by the current land owner. This water quality certification shall not be construed as granting permission for site access or commencement of any other activity outside the jurisdiction of the State Water Resources Control Board (State Water Board).

Due to site access constraints, the Applicant will undertake detailed site investigations to support the final configuration and design of the Project once access to the Central Project Area is granted. These detailed investigations will be conducted in two phases, to validate the results obtained using previous studies, as follows:

- Phase I Site Investigations: Based on available information and the current Project configuration, the Applicant will conduct a limited pre-design field investigation program designed to confirm that basic Project feature locations are appropriate, and to provide basic design parameters for the final layout of the Project features. Phase I Site Investigations will include investigation of:

    - Upper and Lower Reservoirs,
    - Hydraulic structures,
    - Tunnels, shafts, and powerhouse,
    - Reservoir and tunnel seepage potential,
    - Hydrocompaction and subsidence potential,

  - Reservoir-triggered seismicity, and
  - Water quality issues in the reservoirs and groundwater associated with ore-body contact

  Phase I Site Investigations will be initiated after licensing and acquisition of site access. Field work will be completed within six months of the start of field investigations. A Phase I Site Investigations report will be filed with the Commission and the State Water Board no later than twelve months after the start of field investigations.

- Phase II Site Investigations: Using the results of the Phase I Site Investigations report, and based on any design refinements developed during pre-design engineering, the Applicant will submit a Phase II Site Investigations Plan to the State Water Board's Deputy Director for Water Rights (Deputy Director) for approval. After the Plan is approved by the Deputy Director the Applicant will conduct additional explorations to support final design of the Project features and bids for Project construction. The Applicant will submit Phase II Site Investigations report to the Commission and the State Water Board for approval before submittal of a final Project design.

The site investigations will be conducted in accordance with Technical Memorandum 12.1 of the Eagle Mountain Pumped Storage Project Draft Environment Impact Report (Draft EIR), and will include analysis of the potential for acid production and metal leaching of proposed reservoir sites. If the Phase I or Phase II Site Investigations identify issues not addressed in the Draft EIR, the Project's environmental review document may need to be revised to address any newly discovered potential impacts and satisfy the California Environmental Quality Act (CEQA) requirements.

Water to initially fill the reservoirs and provide make-up water to offset seepage and evaporation losses will be pumped from groundwater within the adjacent Chuckwalla Valley. The Applicant will acquire land and attendant water rights to three properties in the Chuckwalla Valley where three new wells will be installed and connected to a central collection pipeline corridor prior to groundwater withdrawal. The water supply pipeline will be buried and extend approximately 15 miles from the wells to the Lower Reservoir. The pipeline corridor will parallel an existing power transmission line, but the existing disturbed area will need to be widened and will cross some small, typically dry desert tributary washes.

The total water storage will be approximately 20,000 acre-feet (AF) in the Upper Reservoir and approximately 21,900 AF in the Lower Reservoir. To allow for operations of the pumped storage reservoirs, only one reservoir can be full at a time. Seepage control measures will be applied to minimize seepage from the reservoirs. However, because some seepage is anticipated, a series of seepage interceptor wells will be constructed downgradient of the reservoirs to return seepage to the reservoirs.

Power will be supplied to and delivered from the Project by a double circuit 500 kilovolt transmission line. The power line will extend approximately 17 miles, from a new interconnection substation (Eastern Red Bluff Substation) located south of Highway 10, then extending north to parallel the water supply collection pipeline until reaching Kaiser Road, and continuing along an existing transmission line alignment to the Project switchyard.

2.0 Background

As part of the License Application and CEQA requirements, the Applicant conducted studies to assess the potential impact of the Project on the environment. The studies included assessment of the geology, hydrogeology, biology, and design and construction in the Project site and surrounding area (GEI Consultants, Inc., 2009a, 2009b, and 2009c; and State Water Board, 2010).

In July 2010 the State Water Resources Control Board (State Water Board) released the Draft EIR to satisfy CEQA requirements. The Draft EIR identifies the potential impacts to the environment caused by the Project and includes Project design features and mitigation measures to reduce those impacts to less than significant. Based on comments from interested parties on the Draft EIR, minor modifications that do not require recirculation of the EIR under CEQA and the CEQA Guidelines were made to the Final EIR. The Applicant has agreed to implement all measures identified in the Draft EIR to minimize environmental impacts. All mitigation measures identified in Section 6 of the Draft EIR are considered part of the Project for this water quality certification.

Currently the Applicant has not been granted access to the privately-owned land where the Central Project Area is proposed. The environmental analysis was conducted using data and previous studies of the site. In order to confirm the previous studies and modeling results, the Applicant must conduct additional site investigations prior to beginning construction of the Project. If the results from the Phase I and Phase II Site Investigations discover new potential impacts to the environment, the environmental documentation for the project may need to be updated to include those impacts before the Project can be constructed.

Measures that provide protection to beneficial uses of water resources form the basis of the conditions of this certification. Additionally, the conditions of this water quality certification are intended to address the range of possible environmental impacts that may result if the Project is built. Due to limited site access and the necessary use of previous studies to complete the environmental review, this certification recognizes the need to develop more specific and detailed site information, and includes the required approval of subsequent reports to ensure conditions of the certification are met. The conditions of this certification, in part, include additional studies that will be required to refine measures intended to protect water quality and beneficial uses and reduce environmental impacts identified in the Draft EIR.

2.1 Geology

Surface geology of the Eagle Mountain area generally consists of unconsolidated alluvial deposits. The alluvial deposits include sands, silts, gravels, and debris-flow deposits. The eastern edge of the Project site contains the most substantial alluvial deposits, where they form a laterally extensive alluvial fan that extends and thickens to the east into the Chuckwalla Valley.

The Central Project Area occupies a portion of the inactive Eagle Mountain Mine that contains a mineral-rich ore zone. Iron is the most important ore found within this zone. The iron ore reserves are: magnetite mixed with pyrite; and magnetite and hematite with small amounts of pyrite. The mine facility began operations in 1948 to extract iron ore from these deposits and by 1986, most of the mine's infrastructure was abandoned. The Upper and Lower Reservoirs will be surface impoundments that will likely discharge to groundwater to some extent. Water quality in the reservoirs and groundwater must therefore be monitored. Reservoir and groundwater water quality could potentially be affected by contact with the existing ore body. If the ore contains metal sulfides, a natural oxidation process can increase the reservoirs' water acidity. As the water becomes more acidic, the capacity to dissolve other elements from the ore increases. In the event that acid production potential is found during the Phase I and II Site Investigations, the water treatment facility should be designed to be able to neutralize this acid. Metal leaching – when metals leach into contact water without acidification – must also be evaluated during the Phase I and II Site Investigations. The performance standard that shall be met will be maintenance of water quality at a level comparable to the source groundwater background values and less than the MCLs listed in Table 3 or updates made to the *Water Quality Control Plan for the Colorado River Basin – Region 7* (Colorado River Basin Plan).

2.2 Hydrogeology

The Chuckwalla Valley Groundwater Basin consists of about 900 feet of sand and gravel with a few discontinuous layers of silt and clay. The saturated sediments are about 650 feet thick near Desert Center. The approximate depth to groundwater in the area of the Project supply wells is approximately 225 to 250 feet below ground surface.

Based upon the geologic conditions, aquifer characteristics and groundwater levels, the aquifer appears to be unconfined in the Upper Chuckwalla Valley from the Pinto Basin through the Desert Center area. In the central portion of the valley, east of Desert Center, the aquifer may be semi-confined to confined because of the accumulation of a thick clay layer.

The total storage capacity of the Chuckwalla Valley Groundwater Basin was estimated to be about 9.1 million AF (DWR, 1975). A later analysis estimates that there are 15 million AF of recoverable water in the Chuckwalla Valley Groundwater Basin (DWR, 1979).

Two particular groundwater-related issues associated with the Project are: 1) the potential effects of groundwater extraction on the Desert Center area due to the Project's initial filling of the reservoirs and replacement of annual losses from evaporation and seepage; and 2) the potential effects of seepage from the reservoirs to local groundwater, the Colorado River Aqueduct (CRA), and the proposed Eagle Mountain Landfill (Landfill).

When the Eagle Mountain mine was active between 1948 and about 1985, Kaiser[3] pumped groundwater from three wells in the Pinto Groundwater Basin. Kaiser added four wells in the upper Chuckwalla Valley Groundwater Basins, starting in 1958, to supply water to the mine over a period of about 37 years. Between 1965 and 1981 the groundwater pumping was relatively consistent and at rates sufficiently high to affect local groundwater elevations. Data from nearby wells show that there was approximately 15 feet of drawdown in the Pinto Basin and up to 24 feet of drawdown in the upper Chuckwalla Valley Groundwater Basin between 1952 and 1981.

During a six year period from 1981 through 1986, there was an increase in groundwater pumping near Desert Center due to increased agricultural use (primarily jojoba and asparagus) in the area. In 1986, groundwater pumping for agricultural use in the Chuckwalla Valley was approximately 20,800 acre-feet per year (AFY). Groundwater level data in the Desert Center area show that the drawdown during the 1981-1986 period was approximately 130 feet. As of 2007, irrigation for agriculture in the Desert Center area was estimated to be 6,400 AFY, and measurements show a 4-foot rise from the 1981 groundwater levels (GEI Consultants, Inc., 2009a).

2.2.2 Groundwater Supply Pumping Effects

Potential impacts to the Chuckwalla Valley Groundwater Basin from Project pumping were analyzed in May and October 2009 and presented in a technical memorandum titled: *Eagle Mountain Pumped Storage Project – Groundwater Supply Pumping Effects* (GEI Consultants, Inc., 2009a). A water balance was created to assess the Project's basin-wide effects on groundwater and the Project's cumulative effects on the perennial yield of the basin.

The water balance evaluates groundwater level changes during the Project period and predicts the time for the basin to recover to pre-Project levels. Results from the analyses show:

[3] In this document "Kaiser" refers to several companies that have filed for bankruptcy, merged or reorganized over the years. The Eagle Mountain Mine was bought by Kaiser Steel Corporation in 1944 with the Kaiser Eagle Mountain Mine operating from 1948 to 1983. Other more recent names for Kaiser interests in the Eagle Mountain area include Kaiser Ventures Inc., Kaiser Steel Corporation, and Kaiser Ventures LLC.

- Groundwater pumping to fill the reservoirs and operate the Project will create local drawdown areas near wells and could regionally lower groundwater levels basin-wide.
- The Project will use groundwater to fill the reservoirs and to make up for losses due to seepage and evaporation. Approximately 24,200 AF of water is needed to fill the reservoirs to full operating capacity, without accounting for seepage or evaporation losses. Estimated seepage and evaporation losses are presented in Table 1.
- During the initial fill, all three supply wells will be used. Based on analysis of the hydraulic characteristics of the Chuckwalla Valley Groundwater Basin, it is estimated that cumulatively the wells will pump approximately 6,000 gallons per minute (gpm). At this pumping rate it will take approximately 1.3 years to fill the reservoirs to minimum operating capacity and approximately 4.1 years to fill the reservoirs to full operating capacity. These fill rates assume that the wells will be pumped for 24 hours a day from October through May when there is low power system demand, and 12 hours a day during June through September when there is high power demand,
- After the reservoirs are filled to full operating capacity, one to two wells will be used to make up for seepage and evaporation losses. The expected quantity of seepage through the Upper and Lower Reservoirs was evaluated by performing seepage analyses (details are presented in Section 2.2.3). The evaporation loss was calculated using a reservoir evaporation rate of 7.5 feet per year. Seepage and evaporation estimates are based on a preliminary analysis that will be supplemented with complete data and additional analyses that must be submitted to and approved by the Deputy Director along with the final Project design prior to construction.

Table 1
Amount of Reservoir Losses

	Seepage Rate[4] (AFY)	Evaporation Rate[5] (AFY)
Upper Reservoir	713	908
Lower Reservoir	689	855
Total	1,402	1,763

- Drawdown effects resulting from pumping of the Project water supply wells and the amount of drawdown that could occur beneath the CRA were estimated using analytical methods described in the report titled *Groundwater Supply*

[4] Assuming an 8-foot thick liner using grouting, seepage blanket, and RRC as needed. GEI Consultants, Inc., 2009b
[5] Eagle Crest Energy Company, 2009

Pumping Effects (GEI Consultants, Inc., 2009a). Due to the lack of groundwater level data, especially near the Project site and CRA, analytical methods were used to estimate drawdown instead of a numerical groundwater model. The results were compared to drawdown that occurred as a result of Kaiser groundwater pumping in the upper Chuckwalla Valley Groundwater Basin over a 17-year period from 1965 to 1981 (average pumping rate of 2,208 gpm) and from agriculture pumping near Desert Center between 1981 and 1986 (average pumping rate of 10,702 gpm). Project water supply pumping, after the initial fill, will be in the range of historic (from 1965 to 1986) pumping. Therefore, the potential impact of subsidence beneath the CRA is at less than significant levels because there was no documented subsidence during historic pumping. The analysis indicates that groundwater pumping for the life of the Project would create 3.5 to 4.2 feet of drawdown in the groundwater levels beneath the CRA, which is less than the 9.4 to 18.7 feet of drawdown in groundwater levels beneath the CRA during the 17 years of pumping by Kaiser from 1965 to 1981.

- Hydraulic characteristics of the Chuckwalla Valley Groundwater Basin were estimated based on aquifer tests that were conducted in two monitoring wells near Desert Center and from data collected from three monitoring wells in the Eagle Mountain mine area. Table 2 is a summary of the aquifer hydraulic characteristics based on the test data and assumed values that were incorporated into an analytical groundwater model that uses a Taylor series approximation of the Theis non-equilibrium well function (Theis, 1935).

Table 2
Summary of Aquifer Characteristics in Chuckwalla Valley Groundwater Basin

Source of Test Data	Storativity (unit less)[6]	Hydraulic Conductivity (feet/day)	Transmissivity (gallons per day/foot)	Saturated Aquifer Thickness (feet)
Well Log	Not Reported	101	64,000	85
Well Log	Not Reported	39	48,000	166
Well Log	Not Reported	44	57,000	175
Well Log	Not Reported	51	57,000	150
Pump Test	0.06	118	264,002	300
Pump Test	0.05	139	311,288	300
Values used for modeling	0.05	50	56,000	150

To reduce the impacts of groundwater pumping, the Project supply wells will be constructed to minimize overlapping cones of depression, and interceptor wells will be installed to capture seepage from the reservoirs. Reservoir seepage will likely

[6] Storativity is a ratio of the volume of water that a permeable unit will absorb or expel from storage per unit surface area per unit change in head.

have a different chemical signature than percolated groundwater. Captured seepage will be returned to the reservoirs to prevent impacts to local groundwater. Groundwater and captured seepage will be used to offset seepage and evaporative losses once the reservoirs are filled to operating capacity.

2.2.2.1 Groundwater Modeling

Hydraulic data and groundwater level measurements were supplemented with the Taylor series approximation of the Theis non-equilibrium well function analytical model to assess pumping effects. Using the aquifer characteristics presented in Table 2, the analytical model was used to estimate drawdown from Project pumping. Use of the analytical approach correlated favorably, $R^2 = 0.994$, with the available groundwater level measurements (projections versus actual groundwater level measurement differences range from 1 to 7 feet). Sensitivity analyses show that using lower hydraulic conductivities would predict less drawdown, indicating that the model estimated maximum drawdown is a conservatively high estimate.

Project-Specific Results:

The analytical model was used to estimate the maximum drawdown from Project pumping at the end of 50 years[7]. Model results show maximum estimated drawdown from the Project at the following locations:

- 4 feet beneath the CRA in the upper Chuckwalla Valley Groundwater Basin;
- 4 feet beneath the CRA in Orocopia Valley;
- 3 feet at the mouth of Pinto Basin;
- 50 feet at the Project supply wells near Desert Center; and
- 10 feet at a distance of one mile from the Project supply wells.

After the 4-year initial fill of the reservoirs to full operating capacity, it will take approximately two years for water levels at the Project supply wells to rebound from 50 feet of drawdown to about 11 feet of pre-drawdown levels. After 50 years of Project operation, there will be approximately 14 feet of drawdown at the Project supply wells associated with the Project. Project use of groundwater by itself is not expected to result in drawdown of groundwater in excess of maximum historic levels.

[7] A 50-year term license is sought by the Applicant. The Project is required to undergo a new environmental analysis prior to relicense or surrender of license.

Project and Non-Project Results:

The analytical model was also used to estimate cumulative effects of groundwater drawdown from Project and non-Project use. The analytical model evaluated Project use of groundwater, existing uses of the aquifer, and potential future uses of the groundwater proposed by solar energy generators and a proposed landfill. Over a 50 year period, overall cumulative groundwater use will add about 3 to 10 feet of additional drawdown in pumping areas. Model results showed a maximum cumulative estimated drawdown in the following locations:

- 14 feet beneath the Colorado River Aqueduct in the upper Chuckwalla Valley Groundwater Basin;
- 9 feet beneath the CRA in Orocopia Valley;
- 10 feet at the mouth of the Pinto Basin;
- 60 feet near the Project supply wells near Desert Center; and
- 10 feet at a distance of about 1.5 miles from the Project supply wells.

Analytical modeling results show that cumulative groundwater use will result in exceedance of the maximum historic drawdown in the following locations:

- CRA in the upper Chuckwalla Valley Groundwater Basin (7 feet below historic levels);
- CRA in Orocopia Valley (6 feet below historic levels); and
- Mouth of the Pinto Basin (1 foot below historic levels).

The maximum depletion in storage from the Chuckwalla Valley Groundwater Basin, as a result of the Project, and existing and future uses, will be about 95,000 AF and is projected to occur in 2046. The maximum projected depletion in storage would be about one percent or less of the minimum 9.1 million acre-feet of the estimated total groundwater storage in the basin.

There are about 150 feet of saturated alluvium in the upper Chuckwalla Valley Groundwater Basin. Cumulative impacts from Project and non-Project uses will lower groundwater levels by about 10 to 18 feet over a 50 year period, leaving over 130 feet of saturated alluvium to continue to supply water to the wells in the upper Chuckwalla Valley Groundwater Basin.

2.2.3 Reservoir Seepage Analyses

Potential seepage from the reservoirs was analyzed and presented in the Draft EIR in two technical memorandums titled: *Eagle Mountain Pumped Storage Project – Seepage Analyses for Upper and Lower Reservoirs, prepared by GEI Consultants,*

Inc. (GEI Consultants, Inc., 2009b), and *Eagle Mountain Pumped Storage Project – Seepage Recovery Assessment* (GEI Consultants, Inc., 2009c).
Different methods were used to estimate seepage and methods that could be used to reduce seepage from the Lower and Upper Reservoirs since the subsurface conditions of the two reservoirs are dramatically different. The Lower Reservoir will be partially situated on unconsolidated alluvium, whereas the Upper Reservoir will sit atop fractured bedrock. The estimates of hydraulic conductivity for the various geologic materials were developed based on the results of field permeability tests, laboratory permeability tests, correlations with published values based on material descriptions, and empirical correlations between grain size and permeability. These estimates are based on a small quantity of samples because the applicant currently does not have access to the site. Seepage flow rates and gradients were estimated at both the Upper and Lower Reservoir sites using liner thicknesses of three, five, and eight feet at minimum and maximum water storage elevations. The expected quantity of seepage through the Upper and Lower Reservoirs was evaluated by performing seepage analyses using the SEEP/W module of the two-dimensional, finite-element geotechnical engineering software GeoStudio 2007.

Results of the seepage analyses found that:

- Upon filling of the Upper and Lower Reservoirs some seepage is expected. The seeping water could potentially result in ground subsidence due to hydrocompaction of the sediments. Water from the reservoirs could also leach metals from the host rock and degrade the native groundwater.
- The majority of the seepage from the reservoirs is anticipated to travel generally from west to east towards the Chuckwalla Valley Groundwater Basin, similar to the existing groundwater conditions at the Project site (GEI Consultants, Inc., 2009b).
- Based on the seepage analyses and assuming no reservoir seepage reduction measures, the estimated annual average seepage volume from the Upper Reservoir is approximately 1,200 AF, and the estimated annual seepage volume from the Lower Reservoir is approximately 1,730 AF. The estimated annual seepage volume for the Lower Reservoir is about 500 AF more than the Upper Reservoir because the eastern wall of the Lower Reservoir primarily consists of alluvial sediments and debris flow deposits, which have significantly higher hydraulic conductivities.
- Grouting and a fine tailings liner in the Upper Reservoir of eight feet in thickness would reduce the average annual seepage volume by about 40 percent. The average reduction for the Upper Reservoir is estimated to be approximately 510 AF annually, with an eight-foot thick liner in place. The need for additional seepage reduction measures in the Upper Reservoir will be evaluated as presented in Condition 7.

- The fine tailings liner thickness had minimal impact on the estimated reduction in annual seepage volume from the Lower Reservoir. The maximum reduction estimated for the Lower Reservoir was approximately 3 percent or 50 AF annually. The upper half of the walls in the Lower Reservoir consists of an alluvium deposit that is too steep to support the fine tailings liner. The average reduction for the Lower Reservoir is estimated to be approximately 1000 AF annually, using an eight-foot thick liner composed of fine tailings, grouting, and roller compacted concrete as needed. The need for additional seepage reduction measures in the Lower Reservoir will be evaluated as presented in Condition 7.

2.2.3.1 Potential Impacts from Reservoir Seepage

Seepage from the reservoirs has the potential to affect groundwater quality. The beneficial uses of groundwater of the Chuckwalla Valley Hydrologic Unit are: municipal supply and domestic supply (MUN); industrial service supply (IND); and agricultural supply (AGR). The Colorado River Regional Water Quality Control Board (Colorado River Regional Water Board) water quality standards for groundwater, based on MCLs, apply to the Project waters. Table 3 shows the numeric standards for inorganic chemical constituents that apply to water designated for MUN use.

Table 3: Colorado River Regional Water Board Numeric Standards for Inorganic Chemical Constituents for MUN Use Designation.

Inorganic Chemical Constituent	**MCL*** (mg/L)[8]
Arsenic	0.01
Barium	1.0
Cadmium	0.005
Chromium (total)	0.05
Fluoride	2.0
Lead	0.015
Mercury	0.002
Nitrate (as NO_3)	45
Nitrate+Nitrite (as N)	10
Selenium	0.05
Silver	0.10
*Colorado River Basin Plan, 2011	

Without reservoir seepage reduction measures and interceptor wells, it will take at least 15 years for the steady-state groundwater profile of the Lower Reservoir

[8] Concentration in milligrams per liter

to fully develop. This estimate assumes a two-year filling period, the reservoir remains full about half the time, and the maximum estimated seepage volume is achieved from the Lower Reservoir. Under the same assumptions, the steady-state groundwater profile will take at least 50 years to fully develop for the Upper Reservoir. Existing groundwater levels are estimated to be 1,000 feet below the lowest level of the Upper Reservoir and less than 100 feet below the lowest level of the Lower Reservoir.

Groundwater resource impacts will be mitigated by implementation of Condition 5. Impacts associated with reservoir seepage will be mitigated by implementation of Condition 7.

Background on the potential impacts to groundwater associated with each reservoir is presented below.

Lower Reservoir:

The numerical model MODFLOW was used to assess the effects of seepage from the Lower Reservoir on local groundwater conditions. Based on the seepage analysis and geologic assessment of the Upper and Lower Reservoirs, the Lower Reservoir will have larger increases in groundwater elevations. Operation of the pumped storage project will allow only one reservoir to be full at any one time. To provide a conservatively high estimate of the potential impacts of seepage on the CRA facilities, the reservoir that produced the most seepage while full (i.e., the Lower Reservoir) was evaluated.

Results of the MODFLOW model indicate that groundwater levels in the vicinity of the CRA would increase by up to three feet as a result of seepage from the Lower Reservoir if it is not controlled by interceptor wells. Because the estimated groundwater elevation is predicted to be approximately 450 feet below the ground surface, no uplift forces are expected on the concrete lining of the aqueduct. Six interceptor wells will be constructed east of the Lower Reservoir to capture seepage from the Lower Reservoir and return it to the Lower Reservoir.

Upper Reservoir:

A groundwater model was not developed to assess seepage from the Upper Reservoir because there is no data available to run the model. This water quality certification includes conditions that will require additional assessment of potential seepage impacts, and establishes performance objectives for seepage.

A geologic assessment of the major faulting pattern was prepared to develop a preliminary seepage interceptor well network to capture the seepage from the Upper Reservoir. Any seepage from the Upper Reservoir is anticipated to occur along joints, fractures, and faults that cross beneath the Upper Reservoir. Observations from two borings completed in the Upper Reservoir site vicinity

suggest that water may be present in joints and fractures at various depths and that lower fractures are either dry or at lower heads. Seepage interceptor wells will be completed in the aquifer south of the Upper Reservoir and along the axis of Eagle Creek Canyon to recover seepage and provide secondary control to prevent groundwater levels from rising beneath the Upper Reservoir.

The Project could be operating in conjunction with the neighboring proposed Landfill. The proposed site for the Landfill is south (downgradient) of the Upper Reservoir. In the case of consistently high water levels in the Upper Reservoir and efficient interconnectivity of bedrock fractures to the south, there is the potential that seepage from the reservoir could encounter the lining of the Landfill. Potential impacts to the proposed Landfill, associated with reservoir seepage, will be mitigated by implementation of Condition 7.

2.3 Biology

Four federal- or state-listed species are included in the list of special-status species that may occur or have been documented to occur in the Project vicinity. The federal- or state-listed species with the potential to be affected by Project activities include: Coachella Valley Milkvetch; American Peregrine Falcon; Gila Woodpecker; and Desert Tortoise. Federal-listed species are identified by the United States Fish and Wildlife Service (USFWS) and the United States Department of the Interior, BLM designation. State listed species are identified by the California Department of Fish and Game (DFG) and/or the California Native Plant Society.

Potential impacts to the four listed species are described in the Draft EIR as follows:

- Coachella Valley Milkvetch. Based on site reconnaissance and literature review, this species is not expected to be located on-site, or in areas that will be affected by the Project. Therefore, it is highly unlikely that there would be any Project effects on the Coachella Valley Milkvetch. However, if found on site, this impact would be potentially significant. Project Design Feature (PDF) BIO-2, included in the EIR's Mitigation Measures, is designed to ensure that no Coachella Valley Milkvetch will be disturbed. If Coachella Valley Milkvetch is found, the Applicant will immediately notify and obtain guidance from DFG on appropriate mitigation.

- American Peregrine Falcon. Based on site reconnaissance and literature review, this species is not expected to be located on-site or in areas affected by the Project. This species is not found in Riverside County, and has not been found during previous surveys in the Project area, including the Central Project Area. Therefore, it is highly unlikely that there would be any Project effects on American Peregrine Falcon. However, if found on site, this impact would be potentially significant. PDF BIO-1, included in the EIR's Mitigation Measures, requires pre-construction surveys to verify that no American Peregrine Falcon will

be disturbed. If any American Peregrine Falcons are found, the Applicant will immediately notify and obtain guidance from DFG on appropriate mitigation.

- Gila Woodpecker. Based on site reconnaissance and literature review, this species is not expected to be located on-site or in areas affected by the Project, nor residential areas. Between the small residential areas (town of Eagle Mountain, town of Desert Center, and the community of Lake Tamarisk) and the Central Project Area is a broad area of inhospitable habitat. However, if found on site, this impact would be potentially significant. PDF BIO-1, included in the EIR's Mitigation Measures, requires pre-construction surveys to be conducted to ensure that no Gila Woodpecker will be disturbed. If any Gila Woodpeckers are found, the Applicant will immediately notify and obtain guidance from DFG on appropriate mitigation before disturbing habitat areas.

- Desert Tortoise. Desert Tortoise may be affected by Project construction, particularly along the proposed transmission corridor. The Project may adversely affect Desert Tortoise, and as such, this impact is potentially significant and subject to mitigation. Comprehensive Desert Tortoise surveys were conducted by the Applicant in early April of 2008, 2009, and 2010. Results of the surveys show that habitat for Desert Tortoise exists within the Project area. The recommendations and findings from the surveys are incorporated in the Desert Tortoise Clearance and Relocation/Translocation Plan (Desert Tortoise Plan) included as part of the Draft EIR. The Desert Tortoise Plan will be implemented to avoid and mitigate potential impacts to Desert Tortoise throughout the life of the Project.

In addition to the four species listed above, the EIR evaluated the potential for the Project to increase the local raven population. If ravens increase in response to additional water resources at the Project, these ravens could forage in the Joshua Tree National Park (JTNP) or disperse into the JTNP from enhanced reproductive opportunities. This impact is potentially significant and subject to the Mitigation Monitoring and Reporting Plan (MMRP) presented in the Draft EIR.

Couch's spadefoot toad was also identified as a species that could be affected by Project construction. During construction of all Project facilities, any ephemeral pools that develop in response to intense rainfall showers from early spring through fall shall be examined for larvae of the Couch's spadefoot toad. Construction activities will avoid disturbing or restricting flow to impoundments that could support Couch's spadefoot toad. If larvae are present, the pools shall be flagged and avoided by construction activities. Where pools cannot be avoided, new pools shall be constructed and larvae transplanted.

Implementation of Condition 2 will mitigate impacts to biological resources.

3.0 Construction Activities

Construction activities fall into three general categories: 1) construction related to the generation of electrical power; 2) construction related to pollution prevention and control measures; and 3) other construction activities not described in 1) or 2).

3.1 Electrical Power Generation

Construction activities related to the generation of electrical power for the Project will include: construction of three new wells for water supply; excavation for and installation of the water supply pipeline; construction of support pads and installation of the power transmission lines; construction of two dams in the Upper Reservoir; construction of spillways and discharge channels for both reservoirs; tunnel excavation for water conveyance between the two reservoirs including inlet structures; underground excavation for the powerhouse; construction of an on-site switchyard; construction of permanent access roads including road cuts and embankments; construction of Project offices; and construction of an interconnection switchyard near Desert Center.

3.2 Pollution Prevention and Control Measures

Construction activities associated with pollution prevention and control measures include: installation of liners in the Upper and Lower Reservoirs; construction of interceptor wells to contain and return seepage to the reservoirs; construction of a water treatment system to treat reservoir and seepage water to maintain water quality; a waste management system for storage of wastewater; potential modification of the Eagle Creek channel to increase capacity; installation of monitoring wells to measure groundwater levels and to monitor groundwater quality; and installation of extensometers to measure ground subsidence.

3.3 Other

Other construction activities include minor construction such as fence installation and road maintenance that will occur over the life of the Project.

Construction and daily operations in the Project area may impact wildlife that occupy or migrate through the Project area. In addition, faunal community structure may be altered if predators are attracted to reservoirs due to available water or night lighting.

Implementation of Condition 3 and Condition 4 of this water quality certification will mitigate impacts associated with construction activities.

4.0 Control Measures and Environmental Mitigation

The following control measures and environmental mitigation will be implemented to ensure that there will be minimal impacts to the environment from Project activities.

4.1 Erosion Control

Erosion and sediment control measures will be implemented to minimize the erosion of soils in construction areas and prevent the off-site transport of sediment.

Three area types are defined for erosion and sedimentation control measures based on their similar characteristics and anticipated impacts: Area Type 1 represents locations and activities with a high potential for environmental impact without mitigation; Area Type 2, represents locations and activities with a moderate potential for environmental impacts; and Area Type 3, represents the lowest potential for environmental impacts. The different area types are shown on Figure 4 in the Erosion and Sedimentation Control Plan included as part of the Draft EIR.

Area Type 1

Area Type 1 includes cleared and graded areas for minor cuts and fills of permanent features such as roads, power cable conduit trenches, the interconnection switchyard near Desert Center, and transmission tower pads.

This area type encompasses construction where Project facilities and above ground structures will remain after construction is finished. Most of these areas were impacted during previous mining activities on the Project site. Area Type 1 locations include:

- The staging, storage and administrative area, where a permanent office will remain after construction activities finish;
- The work around permanent access roads;
- The Project site switchyard and surrounding area, including east along the access road;
- Road cuts and embankments;
- Transmission tower pads along the power transmission line extending aboveground from the Project site switchyard approximately 13.5 miles south to the interconnection switchyard at Desert Center;
- The water treatment facility;
- The waste management and storage area for water treatment wastes;
- Lower Reservoir inlet/outlet structure areas;
- Upper Reservoir inlet/outlet structure;

- West and south saddle dams on the Upper Reservoir;
- Upper and Lower Reservoir spillways and discharge channels; and
- Eagle Creek channel improvements.

Material from the tunnel excavation will be used during construction of the proposed Project to the extent feasible. Tunnel material can be used for backfill, road base, rough grading, flood berms, and possibly for roller compacted concrete in the dams. Any material from the tunnel excavation in excess of what is used in construction will be placed in the reservoirs or in areas from which fine tailings were removed. Any material removed from tunnel excavation shall be tested before being placed in the reservoirs and not contribute to water acidity or metal leaching. The Upper Reservoir will have 2,300 AF of dead storage volume, and the Lower Reservoir will have 4,300 AF of dead storage volume, which could be used for disposal of tunnel excavation spoil material. The estimated quantity of material to be excavated is shown in Table 4.

Table 4
Estimated Quantity of Excavated Material During Project Construction

Feature	**Quantity of material (in-place volume)**
Tunnel Excavations	736,000 cubic yards (CY)
Underground Caverns	132,000 CY
Excavations and Benching for Intakes	673,000 CY
Total (includes additional 15% volume for air voids)	1,772,000 CY (approximately 1,100 AF)
Total if Compacted	1,541,000 CY (approximately 955 AF)

Area Type 2

Area Type 2 includes areas that will be cleared and graded (minor cuts and fills) to accommodate construction operations and access. These temporary use areas would be initially cleared of vegetation and would be re-vegetated after construction. The following areas are identified as Area Type 2:

- The area around the surge tank and shaft and above the powerhouse;
- The area where the transmission line daylights from the tunnel portal and along the overhead transmission line alignment to the switchyard;
- The water supply pipeline extending from wells in the Chuckwalla Valley approximately fifteen miles northwest to the Lower Reservoir;
- The area around the water treatment facility supply pipeline from the Upper Reservoir to the water treatment facility site and staging area;
- The area around the water treatment facility pipeline to the waste disposal area;
- Any areas that contain washes, dry streams, or channels that intersect with proposed alignments and construction activities; and

- The areas adjacent to access and construction roads, temporary soil stockpiles, equipment staging/laydown areas, temporary access roads, and construction trailer/field office areas.

Area Type 3

Area Type 3 includes locations for the Upper and Lower Reservoirs used for temporary stockpiling of construction materials and the monitoring and seepage interceptor wells. The following areas are identified as Area Type 3:

- The eastern portion of the Upper Reservoir;
- The western portion of the Lower Reservoir; and
- Construction areas for monitoring and seepage interceptor wells.

4.2 Pollution Prevention Management Practices

The Applicant will use appropriate management practices to: (1) stabilize soil and prevent erosion to retain sediment before it can travel into surface drainages; (2) limit or reduce potential pollutants at their source; and (3) eliminate off-site discharge. Management practices commonly used to protect water quality for this type of construction project are presented in the Erosion and Sedimentation Control Plan, of the Draft EIR.

4.2.1 Erosion and Sediment Control Management Practices

Soil stabilization, also referred to as erosion control, consists of source control measures that are designed to prevent soil particles from detaching and becoming suspended in runoff. Soil stabilization practices protect the surface by covering or binding soil particles. Construction operations for the Project will follow dust control guidelines that are defined in the protection, mitigation, and enhancement measures developed for air quality in the Final EIR. Project construction will utilize and implement management practices for effective soil stabilization during and after construction, as required by Condition 3 of this water quality certification.

Practices to control sediment on a temporary basis will be implemented to prevent an increase of sediment in stormwater discharge and comply with the water quality objectives identified in Chapter 3 of the Colorado River Basin Plan.) (Colorado Regional Water Quality Control Board, Revised December 2011).

4.2.2 General Pollution Prevention Management Practices

The Applicant will implement general source control measures as described in Condition 4 of this water quality certification to prevent or minimize pollution.

4.3 Environmental Mitigation

Environmental mitigation measures are identified in the Draft EIR for the Project. The Applicant, by letter to the State Water Board dated October 5, 2010, agreed to incorporate all mitigation measures listed in the Draft EIR as part of the Project[9]. The required CEQA Findings and Statement of Overriding Considerations will be adopted concurrently with the final water quality certification and included as Attachment C.

If the results from the Phase I and Phase II Site Investigation reports identify additional impacts not addressed in the Draft EIR, Project activities will cease until methods to allow Project implementations are identified. Any newly identified impacts will need to be analyzed in accordance with CEQA and CEQA Guidelines before the Project's final design is completed.

4.4 Surface Water Protection

No perennial streams occur in the Project boundary or Project drainage area. There are two main surface drainage features at the Project site, Eagle Creek and Bald Eagle Creek. Both creeks are ephemeral streams. They are generally dry throughout the year, except during large storm events that occur infrequently in the area. Eagle Creek is located on the southern edge of the Project site. Eagle Creek is currently diverted in two locations by embankments in the main channel that direct flood flows into the proposed Lower Reservoir site. These engineered embankments were constructed during active mining operations to provide flood protection to the Eagle Mountain town site. Bald Eagle Creek also drains into the proposed Lower Reservoir site. Additionally, the proposed reservoir sites receive incidental runoff and sheet flow from surrounding slopes in a limited watershed area within the historically mined lands. Both the Upper and Lower Reservoir sites are located in closed basins, with minimal drainage areas.

With the Project, runoff from Eagle Creek will follow current drainage channels to discharge into the Lower Reservoir. Water from the Lower Reservoir will be treated to maintain salinity levels comparable to source groundwater and metals concentrations below the levels shown in Table 3.

The CRA is located east of the proposed reservoirs. If unmanaged, seepage from the reservoirs could cause groundwater levels to rise in the sediments underlying the CRA and thereby cause structural instability or subsidence. In order to protect the CRA, seepage from the reservoirs will be collected in interceptor wells that will be constructed and operated to maintain groundwater levels, as required by Condition 7.

To prevent uncontrolled over-topping of the reservoirs, spillways will be installed in both reservoirs. The Upper Reservoir spillway is designed to discharge into the Eagle Creek channel, which drains into the Lower Reservoir. Engineering surveys will determine if

[9] The Applicant will need to provide a letter agreeing to implement all mitigation measures identified in the Final EIR before the final water quality certification is issued.

the Eagle Creek channel will need to be modified to increase its capacity. If modifications to the Eagle Creek channel are necessary, a Lake and Streambed Alternation Agreement, pursuant to section 1602 of the Department of Fish and Game Code, may be necessary. The overflow spillway from the Lower Reservoir will discharge into a channel from the southeast rim of the Lower Reservoir. The channel will cross mine property and pass over the underground CRA. Flows will be discharged downgradient from the CRA and are expected to spread laterally at shallow depths over the alluvial fan.

Springs that are fed by groundwater in the Eagle Mountains (*see* EIR, Figure 3.3-1) are hydrologically disconnected from the aquifers of the Pinto or Chuckwalla Basins (United States Department of the Interior, NPS, 1994). The proposed Upper Reservoir operating level will be at a higher elevation than either Eagle Tank or Buzzard springs. The springs are located in the bedrock above the Pinto and Chuckwalla Basins. The spring water comes from joints and fractures in the rocks above the springs. There are two predominant fracture systems, as demonstrated by major faults in the area, which are oriented northeast-southwest and generally east-west (*see* EIR, Figures 3.3-3 and 3.3-18). Seasonal precipitation likely fills the fractures. None of the springs are documented as permanent, year round springs (SCS Engineers, 1990). Both springs are identified as Unlisted Springs in the Colorado River Basin Plan with the following site-specific use classifications: groundwater recharge; water contact recreation; non-contact water recreation; warm and /or cold freshwater habitat; wildlife habitat; and preservation of rare, threatened, or endangered species.

Buzzard spring is located 4.3 miles from the southern edge of the Upper Reservoir and 3.4 miles from the western tip of the Lower Reservoir. Bald Eagle Canyon is in between the reservoirs and Buzzard spring, at a lower elevation than the spring, so seepage from the reservoirs is not expected to affect Buzzard spring.

Eagle Tank spring is located more than 3 miles from the western edge of the proposed Upper Reservoir. It is unlikely that there are major geologic fractures connecting the reservoir to the springs over the distance separating the two features. The Applicant will be required to conduct water quality monitoring throughout the life of the Project to confirm that seepage from the reservoirs is not affecting the Eagle Tank spring, as required by Condition 6 and Condition 7 of this water quality certification.

Reservoir water quality could potentially be affected by contact with the ore body and tailings. The primary minerals found in the reservoir sites are magnetite and pyrite. Pyrite and other sulfide minerals can oxidize in the presence of oxygen and water, and form acidic water conditions in the reservoirs. As the water becomes more acidic, the capacity to dissolve other elements from the ore increases. Water contact with the ore body can lead to metals leaching into the water, even without acidic conditions. On-site studies during the Phase I Site Investigations will be conducted to determine the acid production potential from the ore body and tailings, and the potential for metal leaching, prior to Project construction, as required by Condition 6 of this water quality certification.

Reservoir Seepage Control Measures and Recovery

Seepage control measures will be constructed in the reservoirs. In addition to the installation of a fine tailings liner, the Applicant will consider seepage control measures such as roller-compacted concreteand soil cement treatment and grouting of faults, fractures, and joints.

Interceptor wells must control the seepage. Seepage interceptor wells will be constructed in the downgradient direction of both the Upper and Lower Reservoirs. Groundwater quality monitoring will be conducted in the seepage interceptor wells, private neighboring wells, other monitoring wells, and the Eagle Tank spring to determine whether groundwater or spring water quality is being adversely impacted by Project operations.

Seepage control methods will be further investigated and refined using data from the geologic reconnaissance and hydrogeologic modeling studies conducted after the Applicant gains full site access. Control methods should be identified that will be used to maintain seepage below the estimated seepage volumes presented in Table 1. Such measures may include, but are not limited to, the following mitigation measures:

- Curtain grouting of the foundation beneath the Upper Reservoir dam's footprint and around the reservoir rim;
- Backfill concrete placement and/or slush grouting of the faults, fissures and cracks on the Upper Reservoir;
- Placement of low permeability materials, as technically feasible, over zones too large to be grouted on the Upper Reservoir and over areas of alluvium within the Lower Reservoir;
- Blanket the entire alluvial portion of the Lower Reservoir with stepped roller-compacted concrete or soil cement overlay; and
- Seepage collection and monitoring systems positioned based on the results of the hydrogeologic analyses.

Seepage Management Plan

The Applicant will submit a Seepage Management Plan to the Deputy Director for approval prior to the preparation of final Project design for the seepage interceptor wells. The Seepage Management Plan should evaluate the Project site for seepage potential, identify seepage control measures and mechanisms to evaluate and assess seepage impacts, and establish performance objectives for seepage. The Seepage Management Plan will include a detailed reconnaissance of the proposed reservoir sites, and will describe the controls and monitoring that will be used to protect groundwater from seepage, as required by Condition 7 of this water quality certification. The Seepage Management Plan will include an adaptive management strategy that shall address, at a minimum, the following contingencies:

- Discovery of reservoir seepage water at the monitoring wells beyond the interceptor wells (operation of the interceptor well network requires modification);
- Discovery of an increase in seepage volume (liner failure);
- Discovery of changes in local groundwater quality that the State Water Board determines could be associated with Project operations;
- Unexpected or mandated shut-down of interceptor wells; and
- Unexpected cessation of Project power generation extending longer than three days.

Water Treatment

The water treatment facility will treat water drawn from the Upper Reservoir to maintain total dissolved solids (TDS) in both reservoirs at roughly the same average salinity concentration as the source groundwater. The source groundwater TDS is approximately 660 parts per million, based on available data for current Chuckwalla Valley Groundwater Basin wells. Treated water will be discharged to the Lower Reservoir. Water treatment facilities are expected to remove approximately 2,500 tons of salts from the reservoirs each year. The facilities are expected to generate approximately 270 acre-feet of brine per year. In addition to removing salts from the reservoirs, other contaminants (including nutrients and minerals), if present, would be removed. Depending on the constituents found in the dried brine, final disposal may require a facility approved to receive hazardous waste. The Applicant shall comply with all state and local regulations for disposal of the water treatment waste.

The water treatment technologies evaluated in the Draft EIR consist of Dissolved Air Flotation (DAF); Automatic Backwash Screens; Microfiltration (MF); and Reverse Osmosis (RO). If these technologies are not supplanted by more effective technologies prior to license issuance, the Applicant plans to incorporate these technologies in the design of the facility. DAF is a clarification process to treat water from the reservoirs for turbidity and suspended solids control. DAF removes algae, which could be a potential problem as it could foul turbines and pumps. The RO system will separate dissolved salts from water, producing finished (treated) water and brine. Finished water from the RO treatment plant would be returned to the Lower Reservoir. Brine from the treatment process will be discharged to brine ponds for evaporation, concentration and storage, and ultimate off-site disposal of collected solids at a licensed waste facility, unless the Applicant proposes, and the Deputy Director approves, an alternative waste management strategy.

4.4.1 Brine Ponds

The Draft EIR discloses impacts associated with waste management through the use of brine ponds managed as Class II surface impoundments. If, during the Phase I or Phase II Site Investigations, it is determined that brine ponds are infeasible or the Applicant identifies a more effective, efficient or economical method of waste

management, the Applicant may propose an alternate waste storage and disposal strategy. Any proposed waste management strategies not already described in the Draft EIR may require additional environmental analysis under CEQA, and will require approval from the Deputy Director prior to implementation.

Brine ponds will be managed as Class II surface impoundments, and brine pond operations must comply with all requirements for operation of Class II surface impoundments (California Code of Regulations, Title 27, Division 2, Chapter 3, Subchapter 3, Article 1 – Class II Surface Impoundments). The brine ponds will be constructed with double liners and a leachate control system following California Code of Regulations Title 27 requirements.

Brine will be discharged to brine ponds for drying and storage. Brine will enter the brine ponds at the rate of approximately 170 gpm or 270 AFY. Total pond area will be approximately 56 acres or about 2.5 million square feet, excluding protective berms.

The initial design for the brine ponds includes six evaporation ponds, where brine salinity concentrations will vary, and five salt solidifying ponds. Each of the six evaporation ponds will cover approximately 8.2 acres, and each salt solidifying pond will cover approximately 1.3 acres. The brine will flow from one pond to another, with increasing salinity as evaporation of water occurs. Pond design includes berms with double liners to protect against seepage. A leachate collection and recovery system will be installed between the liners.

Over a period of approximately 10 years, the salt level in the ponds will increase and salts will be mechanically removed from the ponds unless state, regional or local rules direct otherwise. Based on the pond size and the salt balance, the estimated rate of salt build-up is on the order of 0.25 to 0.5 inches per year. Salts will be collected, removed and disposed of from the brine ponds on an as-needed basis (anticipated to be approximately every 10 years). After salt removal, brine pond liners will be inspected and repaired or replaced as needed.

4.4.2 Water Treatment, Waste Management, Storage, and Disposal Plan

The Water Treatment, Waste Management, Storage, and Disposal Plan required in Condition 8 will identify the proposed manner of handling water treatment facility wastes, including solids from the DAF unit and brine resulting from RO. The Applicant will submit a Water Treatment, Waste Management, Storage, and Disposal Plan to the Deputy Director for approval with the Project's Final Design plans, as required by Condition 8 of this water quality certification. Construction of the Project will not begin until the Water Treatment, Waste Management, Storage, and Disposal Plan is approved by the Deputy Director. The Deputy Director may require modifications as part of the approval.

5.0 Rationale for Water Quality Certification Conditions

The State Water Board: held two CEQA scoping meetings with interested parties prior to the development of the Draft EIR; publicly circulated a Draft EIR; received comments on the Draft EIR and will respond to comments prior to issuing a Final EIR; has reviewed and considered the Colorado River Basin Plan, the Commission's Final Environmental Impact Statement (EIS), and other information in the record. In addition, the State Water Board considered the existing water quality conditions, and Project-related controllable factors, and developed conditions to ensure protection of the water quality and beneficial uses of the water bodies affected by the Project.

Measures that provide protection to beneficial uses of water resources form the basis for the conditions of this certification. Some conditions call for development of a plan subsequent to certification. This adaptive management approach is necessary to ensure all Project-related impacts are addressed during the construction period and the life of the Project. These plans must be reviewed and approved by the Deputy Director prior to implementation unless otherwise noted. This water quality certification may also specify instances where other agencies are anticipated to exercise approval authority. The Deputy Director shall be notified when approval is sought from another agency for a plan, action or report.

Rationale for Specific Water Quality Certification Conditions

The Project reservoirs will be filled, and water levels maintained, with groundwater extracted from the Chuckwalla Valley Groundwater Basin. Groundwater levels are expected to decline (albeit to a lesser extent than the average observed during the 1981 through 1986 period) due to Project operation. Without mitigation, Project operation poses a potentially significant impact to the CRA and existing private wells. A Groundwater Level Monitoring Plan is necessary to confirm that impacts of Project pumping will be mitigated to the maximum extent feasible and that groundwater resources will be maintained at levels within those that occurred during historic pumping operations. Pumping will be monitored throughout the life of the Project to evaluate the potential effects of hydrocompaction and subsidence on the CRA. Mitigation actions are required as part of Condition 5 to mitigate potential impacts to nearby production wells or the CRA.

The Upper and Lower Reservoirs will be designed with engineered seepage control measures to minimize seepage losses. However, some seepage is expected from both the Upper and Lower Reservoirs. To prevent groundwater quality degradation, seepage interceptor wells will be sited around the perimeter of the reservoirs in the downgradient direction to capture seepage and return it to the reservoirs. Reservoir water and seepage may be in contact with ore so the seepage interceptor wells will be monitored to assess impacts to groundwater quality. Condition 7 addresses seepage management and monitoring.

Construction and operation of the Project has a potential to impact surface waters unless appropriate management practices are used. Management actions during construction will control the discharge of stormwater runoff. Compliance with the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Quality Order 2009-0009-DWQ and NPDES No. CAS000002, as amended by Order No. 2010-0014-DWQ), and implementation of the Project design features included in the Final EIR will minimize impacts to surface waters. Condition 3 addresses impacts to surface water and to groundwater from construction and operation of the Project.

The Project has the potential to impact aesthetic and cultural resources, air quality, water resources, vegetation, wildlife populations and wildlife habitat. Environmental mitigation measures have been identified to reduce reasonably foreseeable impacts to a less than significant level. Prior to implementation, the Applicant must also develop an adaptive management strategy to manage and minimize unforeseen impacts to allow appropriate modification of Project features and operations to ensure protection of resources. The MMRP identifies management measures and monitoring and reporting activities that will ensure protection of environmental resources. Implementation of Condition 2 and compliance with the MMRP included in the Draft EIR will reduce environmental impacts to a less than significant level - with the exception of certain aesthetic impacts, impacts to groundwater levels, and air quality impacts during construction. These three unavoidable and significant impacts are further outlined in Section 6.3 and are part of the Statement of Overriding Considerations (Attachment C) for this Project that the State Water Board will concurrently adopt with the final water quality certification.

Operation of the water treatment facility will generate waste. The Draft EIR considered long-term on-site waste storage of liquid treatment wastes in brine ponds. In order to take full advantage of economic or efficiency improvements in technology that may occur between issuance of this certification and final Project design, the Applicant will submit a Water Treatment, Waste Management, Storage, and Disposal Plan to the Deputy Director for approval prior to Project construction. Implementation of Condition 8 will ensure that treatment wastes are managed, stored, and disposed of appropriately.

Due to site access constraints, detailed site investigation studies have not been conducted at the Central Project Area, which includes the reservoir sites and powerhouse location. Once access is granted, Phase I Site Investigation studies will be conducted to confirm that the basic Project feature locations are appropriate, and to provide parameters for the final layout of the Project. Implementation of Condition 1 will ensure that construction does not begin until Phase I Site Investigations report confirms that the location of Project features, the site geology, and measures identified to control seepage and water quality impairments will not pose a threat to the beneficial uses of water. Condition 1 will require that Phase I Site Investigations report be submitted to the Deputy Director for review and approval prior to any construction activities.

Erosion control practices and sediment control practices must be implemented during construction of the Project to minimize erosion of soils and sediment transport to surface waters during Project construction. Implementation of Condition 3 will ensure that erosion and sedimentation are minimized or avoided.

Construction and operation of the Project include the use of materials, oils, fuels, and chemicals that can pollute the environment. Implementation of Condition 4 will minimize the opportunity for these pollutants to enter the environment. Additionally, the Applicant will consult with the Riverside County (County) Office of Environmental Health and comply with all local planning, reporting and transport requirements for these materials and their waste products.

6.0 Regulatory Authority

The Federal Clean Water Act (33 U.S.C. §§ 1251-1387) was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1251(a).) Section 101 of the Clean Water Act (33 U.S.C. § 1251 (g)) requires federal agencies to "co-operate with the State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources."

Section 401 of the Clean Water Act (33 U.S.C. §1341) requires every applicant for a federal license or permit which may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the Clean Water Act, including water quality standards and implementation plans promulgated pursuant to section 303 of the Clean Water Act (33 U.S.C. § 1313). Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that water quality certification conditions shall become conditions of any federal license or permit for the project. The State Water Board is the state agency responsible for such certification in California. (Wat. Code § 13160.) The State Water Board has delegated this function to its Executive Director by regulation. (Cal. Code Regs., tit. 23, § 3838, subd. (a).)

6.1 State Water Board and Regional Water Quality Control Board Authority

The California Regional Water Quality Control Boards (Regional Water Boards) adopt, and the State Water Board approves, water quality control plans (basin plans) for each watershed basin in the State. These basin plans designate the beneficial uses of waters within each watershed basin, and water quality objectives designed to protect those beneficial uses. Section 303 of the Clean Water Act requires the states to develop and adopt water quality standards. (33 U.S.C. § 1313.) The beneficial uses together with the water quality objectives that are contained in the basin plans constitute State water quality standards under section 303.

In accordance with section 13245 of the Water Code, the Colorado River Regional Water Board adopted the Colorado River Basin Plan on November 17, 1993. The Colorado River Basin Plan includes amendments adopted by the Colorado River Regional Water Board through June 2006. Chapter 2 of the Colorado River Basin Plan defines beneficial uses and water quality objectives for waters of the State in the region, including groundwater and surface waters as discussed below.

Water use for the Project will be primarily from groundwater, with incidental storm water inflow to the reservoirs. The beneficial uses of groundwater of the Chuckwalla Valley Hydrologic Unit (717.00) are: MUN; IND; and AGR. The Colorado River Basin Plan does not list beneficial uses for surface waters in the Chuckwalla Valley; however, in 1988, the State Water Board adopted Resolution No. 88-63 (SB 88-63), the Sources of Drinking Water Policy. SB 88-63 considered all surface and groundwater to be suitable, or potentially suitable, for municipal or domestic water supply and that such water should be so designated by the Regional Water Boards. Criteria were provided in SB 88-63 that could be used by the Regional Water Boards to exempt water bodies through the basin plan amendment process. These criteria included: (1) surface and groundwater with greater than 3,000 mg/L of TDS; (2) surface and groundwater that cannot be reasonably treated for domestic use; (3) groundwater sources with yields below 200 gallons per day; (4) surface water in systems designed or modified to convey wastewaters and/or runoff; and (5) groundwater regulated as geothermal sources.

Historic groundwater quality TDS concentrations only occasionally exceed 3,000 mg/L (see EIR, Table 3.3-3) and none of the other exceptions would apply to the aquifer of the Chuckwalla Valley Groundwater Basin, reinforcing that the current municipal or domestic water supply classifications are generally appropriate. Therefore, the Colorado River Regional Water Board water quality standards for groundwater, presented in Table 3, based on MCLs for use of the groundwater for drinking water, would apply to the Project waters.

6.2 Water Quality Certification

The Applicant originally applied for water quality certification for the Project on September 26, 2008. On an annual basis since 2008, the Applicant has withdrawn and resubmitted its application on a timely basis. The State Water Board provided public notice of the application pursuant to California Code of Regulations, title 23, section 3858 on December 17, 2008, and posted information describing the Project on the Division of Water Rights' (Division) website.

6.3 California Environmental Quality Act

The State Water Board reviewed the Applicant's application for water quality certification and independently prepared an EIR pursuant to its Lead Agency status under CEQA [Public Resources Code §§21000-21178 and California Code of Regulations, title 14, sections15000-15387 (Guidelines)]. The State Water Board

released a Draft EIR for the Project on July 23, 2010 (State Clearinghouse No. 2009011010), and accepted comments on the draft until October 7, 2010. The Draft EIR evaluated potential impacts from the Project to water supply, water quality, landfill compatibility, biological resources, cultural resources, air quality, and aesthetics. The State Water Board received comments on the Draft EIR from 19 parties. These included comments from four federal agencies; six state and local government agencies; three environmental organizations; one Native American Tribe; one private company; three private individuals, and the Applicant. All comments were reviewed and considered in the development of the Final EIR.

The Draft and Final EIRs identify three unavoidable and significant impacts: 1) air quality during Project construction activities; 2) visual resources; and 3) cumulative impacts to groundwater resources due to Project pumping combined with groundwater use for other reasonably foreseeable projects within the region. For unavoidable and significant impacts, CEQA requires public agencies to prepare a statement of overriding considerations, which reflects the ultimate balancing of competing public objectives (including environmental, legal, technical, social, and economic factors) that the agency is required by law to carry out or approve. The State Water Board has also prepared CEQA Findings as required pursuant to Guidelines sections 15091-15093, and a MMRP. The final MMRP will be included as Attachment B in the final water quality certification. The required CEQA Findings and Statement of Overriding Considerations will be issued concurrently with the approval of the final water quality certification and included as Attachment C to the final water quality certification

The State Water Board will file a Notice of Determination within five days from the issuance of this water quality certification.

6.4 Federal Authority

After consultation with state and federal resource agencies, tribes, local governments, non-governmental agencies, the public, and upon approval of FERC, the Applicant chose to use the Traditional Licensing Process (TLP) for the licensing of the Project. The Applicant submitted an application for a preliminary permit for the Project to FERC on March 3, 2008. As part of the licensing process, FERC, in its federal Lead Agency capacity under the National Environmental Policy Act (NEPA), prepared an EIS [42 United States Code [USC] §4321 *et seq*., the Council on Environmental Quality Regulations for Implementing NEPA (40 CFR §§1500-1508)]. The Commission released the Draft EIS on December 23, 2010, and issued the Final EIS on January 30, 2012.

ACCORDINGLY, BASED ON AN INDEPENDENT REVIEW OF THE RECORD, THE EXECUTIVE DIRECTOR OF THE STATE WATER RESOURCES CONTROL BOARD CERTIFIES THAT THE CONSTRUCTION AND OPERATION OF THE EAGLE MOUNTAIN PUMPED STORAGE HYDROELECTRIC PROJECT BY EAGLE CREST ENERGY COMPANY, UNDER A LICENSE ISSUED BY THE COMMISSION, AS DESCRIBED IN ITS APPLICATION FOR WATER QUALITY CERTIFICATION, will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided the Applicant complies with the following terms and conditions during the Project activities certified herein.

7.0 Specific Conditions

CONDITION 1. SITE INVESTIGATIONS

The Applicant shall begin a Phase I Site Investigation within 60 days of receipt of site access to confirm that basic Project feature locations are appropriate and to provide basic design parameters for the final layout of Project features. Field work shall be completed within six months. Results of the Phase I Site Investigation shall be compiled in a report and submitted to the Deputy Director within twelve months after the start of the Phase I Site Investigation. The Deputy Director may require modification of the Phase I Site Investigation to ensure conditions of this certification are met. The Phase I Site Investigation report shall include, but is not limited to, studies of: the Upper and Lower Reservoir sites; hydraulic structures; tunnels, shafts, and powerhouse; reservoir and tunnel seepage potentials; hydrocompaction and subsidence potentials; reservoir-triggered seismicity; sensitive species surveys; and water quality issues in the reservoirs and seepage associated with ore-body contact. The Applicant shall follow procedures outlined in the Phase I Pre-Design Site Investigation Plan in the Draft EIR.

Following the Deputy Director approval of the Phase I Site Investigation report, and based on any design refinements developed during pre-design engineering, Phase II Site Investigation studies shall be completed to support final design of the Project features and bids for Project construction. The Applicant shall provide the Phase II Site Investigation Plan to the Deputy Director for review and approval. The Phase II Site Investigation shall not begin until the Phase II Site Investigation Plan is approved by the Deputy Director. The Deputy Director may require modification of the Phase II Site Investigation Plan to ensure conditions of this certification are met. The Phase II Site Investigation Report, summarizing the comprehensive findings of the Phase I and Phase II Site Investigations, shall be submitted to the Deputy Director for approval before the Project's final design is implemented. Project construction, including, but not limited to groundwater pumping and reservoir filling shall not proceed until the Deputy Director approves the Project's final design.

CONDITION 2. WILDLIFE PROTECTION

The Applicant shall conduct sensitive species surveys after it has gained access to the Central Project Area. The Applicant shall modify sensitive species protective measures identified in Section 3.6 of the Draft EIR based on this additional survey information. Any modifications to protection measures should be developed in consultation with USFWS and DFG and presented in a Wildlife Protection Plan. The Wildlife Protection Plan must be approved by USFWS and DFG, and provided to the Deputy Director for approval before starting construction. No construction activities may commence until the Wildlife Protection Plan is approved by the Deputy Director.

The Applicant, after consultation with USFWS and DFG, shall prepare an adaptive management plan for Couch's spadefoot toad (Toad AMP), to avoid disturbance of impoundments and avoid restriction of surface flow to impoundments. Surveys in the Project area should identify the presence of any artificial impoundment or ephemeral pools that could support Couch's spadefoot toad reproduction. The Toad AMP should be approved by USFWS and DFG, and provided to the Deputy Director for approval. Construction should not begin until the Toad AMP is approved by the Deputy Director.

All mitigation measures contained in the Desert Tortoise Plan, as identified in the Draft EIR, and all monitoring and reporting as required by the MMRP are hereby incorporated as conditions of this water quality certification. All mitigation measures contained in the Predator Monitoring and Control Plan, as identified in the Draft EIR, and all monitoring and reporting as required by the MMRP are hereby incorporated as conditions of this water quality certification.

Construction and daily operations in the Project area may impact wildlife that occupy or migrate through the Project area. In addition, faunal community structure may be altered if predators are attracted to reservoirs due to available water or night lighting. To reduce these impacts to a less than significant level, all mitigation measures relevant to wildlife contained in the Draft EIR and incorporated into the MMRP are hereby incorporated as conditions of this water quality certification. Additional wildlife protection measures associated with fencing are outlined in Condition 3.

CONDITION 3. CONSTRUCTION AND EROSION CONTROL

The Applicant will limit soil erosion through implementation of the Erosion and Sedimentation Control Plan, limiting surface disturbance to only those areas necessary for construction as required by California Code of Regulations, title 23, section 122.26. All erosion and sediment control measures including management practices in the Erosion and Sedimentation Control Plan, and the Revegetation Plan, as identified in the Draft EIR, are hereby incorporated as conditions of this water quality certification. Additionally, all construction and geological mitigation measures contained in the Draft EIR and monitoring and reporting of those measures as outlined in the MMRP are hereby incorporated as conditions of this water quality certification.

The Applicant shall also implement the following management practices for effective temporary and final soil stabilization during construction and to preserve existing vegetation where required to prevent and minimize erosion:

Fencing

The Applicant shall install permanent security fences around the Upper and Lower Reservoirs, switchyard, brine ponds and any structure or area that may be dangerous to wildlife in the Project area prior to construction of these facilities. Fences should be constructed in a manner that prevents wildlife access to the Reservoirs except at designated drinking points. The fencing should contain "dips" where the fence extends below the high water mark to allow wildlife access to drinking water. Fences should also include tortoise exclusion fencing.

Temporary tortoise exclusion fences that allow passage of sheep of all life stages shall be installed around work zones prior to beginning construction and should be removed only after construction and subsequent mitigation measures are complete. If additional fencing is needed during construction to protect tortoises, this fencing should be installed and maintained during the construction period. Where exclusion fencing is required, security gates should remain closed except during immediate vehicle passage.

All permanent fences shall be maintained in a fully functional condition for the life of the Project. All fences shall be inspected monthly as well as during and following all major rainfall events. All temporary tortoise exclusion fences should be inspected weekly during construction. Any damage to the fences should be immediately repaired with a temporary fix, and followed by permanent repair within one week. Any damage to temporary tortoise exclusion fences should be immediately repaired.

Construction General Permit

The Applicant shall comply with the Construction General Permit, and amendments thereto, including development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must detail the management practices that will be implemented for the Project. The SWPPP must detail the inspection, documentation, implementation procedures for contingency plans and triggers for amending the SWPPP. Inspections shall be conducted by the Applicant and inspection reports prepared on a routine basis and after significant storm events in conformance with the SWPPP. The reports should include information on performance of the erosion control measures, damage to or deficiencies with installed control measures, needed maintenance or repair activities, monitoring information, and the degree of vegetation establishment (in conjunction with re-vegetation monitoring plan). Reporting documents will be kept on file with the SWPPP and construction records. A monitoring plan will be incorporated into the SWPPP to ensure that stormwater is managed to control erosion. During construction, the management practices will be evaluated and, if further protective measures are necessary, the SWPPP will be amended.

The Applicant shall submit the SWPPP to the Deputy Director for review and approval. The Deputy Director may require modifications as part of the approval. Project construction should not start until the SWPPP is approved by the Deputy Director

CONDITION 4. POLLUTION PREVENTION

The Applicant shall ensure the safe delivery, storage, and use of various construction materials, oils, fuels, and chemicals by following all relevant federal, state and local laws, regulations and ordinances. The Applicant shall consult with the County Office of Environmental Health and comply with local handling, planning, reporting and transport requirements for these materials and their waste products. If County or local-level guidance on waste management does not exist, the Applicant shall, at a minimum, implement the following:

- Spill prevention control measures will be implemented to contain and cleanup spills and prevent material discharges outside the construction area.
- Solid waste management and hazardous waste management will be implemented to minimize stormwater contact with waste materials and prevent waste discharges. If the County does not prescribe hazardous materials communications protocols, the Applicant will, at a minimum, inform the Colorado River Regional Water Board and any neighboring fire departments when hazardous material or hazardous waste is present or discharged.
- Non-hazardous solid wastes will be stored in dumpsters throughout the Project site. Dumpster locations will change according to where construction activities are occurring. One dumpster will always be located next to the contractor's office trailers and yard.
- Hazardous wastes will be stored in a covered containment area in accordance with state and federal laws and local ordinances. Hazardous wastes will be stored in appropriate and clearly marked containers. Hazardous wastes will be segregated from other non-waste materials.
- Concrete waste will be managed to reduce or eliminate stormwater contamination during construction activities. Concrete and rubble will be stockpiled at least 20 feet from washes and channels and hauled away for off-site disposal when necessary.
- Trucks used to haul concrete may require occasional washouts. Rinse water may contain traces of residual concrete (e.g., Portland cement, aggregates, admixtures, and water). Concrete rinsate may only be discharged to land in compliance with local ordinances, the Colorado River Basin Plan, and statewide policies. Concrete trucks will not washout within 20 feet of any watercourse. Excess concrete will be broken up and used onsite as fill material or hauled away for off-site use or disposal.

- Sanitary and septic waste management will be implemented throughout the Project area in accordance with state and local regulations and ordinances. Portable toilets will be located and maintained throughout the Project site and maintained for the duration of the Project. The location of the toilets will follow the construction activity throughout the site. The toilets will always be positioned away from concentrated flow paths and heavy traffic flow to minimize the chance of accidental discharge.

CONDITION 5. GROUNDWATER SUPPLY

All Project production wells shall be enrolled in the Groundwater Recordation Program through the Division.

Within six months of license issuance, the Applicant shall submit a Groundwater Level Monitoring Plan to the Deputy Director for approval. No pumping shall commence until the Groundwater Level Monitoring Plan is approved by the Deputy Director. The Deputy Director may require modifications as part of the approval. Monitoring should commence with the onset of groundwater pumping for the Project. At a minimum, the following actions are required, and a monitoring plan must be prepared that describe these actions:

- Confirm that Project pumping is maintained at levels that are at or below the range of historic pumping as presented in the *Groundwater Supply Pumping Effects* technical memorandum (GEI, 2009a). The Applicant will track the pumping rate and duration associated with the Project production wells and report the amount of water extracted quarterly. The groundwater monitoring network will consist of both existing and new wells to assess changes in groundwater levels, at: the Project supply wells; beneath the CRA in the upper Chuckwalla Valley Groundwater Basin and Orocopia Valley; at the mouth of Pinto Basin; and in areas east of the Project supply wells. Wells will be monitored quarterly for groundwater level, water quality, and the amount of water extracted.

- Install and monitor extensometers to measure potential inelastic subsidence that may occur due to drawdown from Project pumping. Extensometers will be installed near the CRA, in the upper Chuckwalla Valley, and in the Orocopia Valley. Extensometer monitoring will be recorded on a daily basis to evaluate natural elastic subsidence and rebound. Extensometer monitoring will begin when Project groundwater pumping starts and continue until approved by the Deputy Director, at least two years after the initial reservoir fill is complete.

Water production at wells operated on properties in close proximity to the Project wells could potentially be affected by Project pumping, so the Groundwater Level Monitoring Plan must also monitor neighboring production wells if granted permission by the land owners. All monitoring conducted as part of the Groundwater Level Monitoring Plan

shall be submitted to the State Water Board within 30 days after each sampling event and annually in a summary report. The Applicant shall develop and maintain a publicly-available website for the duration of the Project, with all the monitoring data, for the duration of the Project. The Applicant shall submit the monitoring data and reports required by this water quality certification electronically in a format accepted by the State Water Board as described in General Condition B of this water quality certification. The Deputy Director may require the Applicant to incorporate this information into public reports and the State Water Board's water quality database systems in compliance with California Water Code section 13167. Website information shall be made available to all interested parties.

If monitoring indicates that Project operation has adversely affected neighboring production well water quality or water elevation, the Applicant shall consult with the owner of the affected well, and State Water Board and Colorado River Regional Water Board staffs to develop a plan to mitigate impacts to nearby production well operation. Mitigation actions that may be required include, but are not limited to, the following:

- Reduce or cease Project pumping from the Project supply wells;
- Replace or lower pumps on affected wells;
- Deepen existing well(s);
- Construct a new well(s); and/or
- Compensate well owner(s) for increased pumping costs associated with the lower water table.

CONDITION 6. SURFACE WATER QUALITY

Although Project operation water will be supplied by groundwater, surface water management actions are needed to control the discharge of stormwater runoff from the Project site, to manage reservoir sites and reservoir discharges, and to prevent impacts to the CRA, perennial springs, and other waterbodies within the Project area.

The Applicant shall maintain water quality in the Upper and Lower reservoirs within the following limits:

Constituent	**Concentration** (mg/L)
Arsenic	0.01
Barium	1.0
Cadmium	0.005
Chromium (total)	0.05
Fluoride	2.0
Lead	0.015
Mercury	0.002
Nitrate (as NO_3)	45
Nitrate+Nitrite (as N)	10
Selenium	0.05
Silver	0.10

The Applicant proposes to treat the stored water to maintain salinity, trace mineral (metals) and acidity levels not to exceed the concentrations and pH levels in the local groundwater. To verify that water quality is maintained, the Applicant shall submit a site-specific Monitoring and Reporting Plan for Surface Waters (Surface Waters MRP) to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. The Surface Waters MRP must be submitted after Phase II Site Investigations is complete and must be approved prior to filling the reservoirs.

The Surface Waters MRP should include a Detection Monitoring Program to detect seepage from the reservoirs. The Surface Waters MRP should be coordinated with the plans required in Condition 4. The Surface Waters MRP include a contingency plan to take corrective action should reservoir water quality or reservoir seepage begin to pose a threat to groundwater quality. The Applicant shall comply with the Colorado River Regional Water Board water quality standards, based on MCLs, for groundwater designated for MUN use. To ensure seepage from the reservoirs does not exceed current MCLs throughout the life of the Project, the water quality in the reservoirs shall not exceed the numeric standards for constituents presented in Table 3, or as may be modified through periodic updates to the Colorado River Basin Plan. At a minimum, the Surface Waters MRP should include monitoring for the constituents shown in Table 3. The Surface Waters MRP must also include a plan for monitoring surface water quality at the Eagle Tank Spring, to ensure spring water is not being affected by seepage from the reservoirs.

Results of all monitoring conducted as part of the Surface Waters MRP shall be submitted to the Deputy Director. The monitoring data shall be submitted electronically and included in the publicly-available website described in Condition 5.

The Draft EIR describes potential issues associated with surface water quality based on the mineralogy at the Project site and identifies measures to mitigate potential impacts. All surface water mitigation measures identified in Section 3.2 of the Draft EIR, are

hereby incorporated as conditions of this water quality certification. All monitoring and reporting relevant to surface waters required by the MMRP are hereby incorporated as conditions of this water quality certification.

CONDITION 7. GROUNDWATER QUALITY MONITORING AND SEEPAGE MANAGEMENT

The Applicant shall install interceptor wells to capture seepage from the Upper and Lower Reservoirs. Seepage interceptor wells should be constructed in the downgradient direction of both the Upper and Lower Reservoirs.

Groundwater Quality Monitoring

The Applicant shall submit a Groundwater Quality Monitoring Plan and Seepage Management Plan to the Deputy Director for review and approval by the Deputy Director approval prior to filling the reservoirs. The Deputy Director may require modifications as part of the approvals.

At a minimum, the Groundwater Quality Monitoring Plan should include baseline groundwater quality monitoring and characterization of the production, monitoring, and seepage wells for four years before the operation of the Project. The Groundwater Quality Monitoring Plan should include monitoring in the Central Project Area wells for the constituents listed in Table 3. The Applicant should submit all monitoring conducted as part of the Groundwater Quality Monitoring Plan to the State Water Board within 30 days after each sampling event and annually in a summary report. The monitoring data shall be submitted electronically through the publicly-available website described in Condition 5.

The Applicant shall conduct groundwater quality monitoring for the life of the Project. This monitoring should include monitoring of production wells, seepage interceptor wells and neighboring wells to determine whether groundwater quality is being adversely impacted by Project operations. Groundwater monitoring shall be conducted quarterly and submitted electronically as required by Condition 5. If necessary, the Deputy Director may require operational changes to reduce the potential for impacts to groundwater quality.

The Applicant shall monitor for salinity and pH, and maintain water quality in the reservoirs at approximately the same salinity and pH as the source groundwater. The Applicant shall notify the Deputy Director is seepage salinity (measured as Specific Conductance or SC) exceeds source water salinity by more than 500 micro Siemens per centimeter (µS/cm), or if groundwater monitoring downgradient of the interceptor wells increases more than 100 µS/cm. The Deputy Director should also be notified if seepage pH drops below 6 or the pH of groundwater downgradient of the interceptor wells decreases by more than 0.5 below background levels. The State Water Board will assess and may require modification of the seepage interceptor well network and

groundwater monitoring, and may require changes in Project operations to ensure protection of groundwater resources.

The Applicant shall comply with the Colorado River Regional Water Board water quality standards, based on MCLs, for groundwater designated for MUN use. The water quality in the reservoirs shall not exceed the numeric standards for constituents shown in Table 3, and any amendments thereto associated with updates to the Colorado River Basin Plan. Any exceedance of the Colorado River Basin Plan numeric standards for the constituents shown in Table 3 shall be considered a violation of this water quality certification and must be reported to the Deputy Director within 15 days of sampling. All monitoring data shall be included in the publicly available website described in Condition 5.

Seepage Management

The Applicant shall submit a Seepage Management Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval of the Plan. The Seepage Management Plan should be reviewed and updated by the Applicant no less than every two years. As part of the update, the Applicant shall summarize existing data, evaluate the effectiveness of the groundwater monitoring and seepage control methods, and make recommendations for future seepage management. The updated Seepage Management Plan shall be provided to the Deputy Director by January 15 of each reporting year for approval. The seepage control measures identified in the approved Seepage Management Plan must be in place, prior to filling the reservoirs.

The Seepage Management Plan should include identification of zones where seepage can be anticipated, criteria for evaluating seepage management strategies and an implementation strategy to minimize seepage to the greatest extent feasible. The Applicant shall evaluate the effectiveness of various methods to control seepage and to mitigate the effects of seepage as part of the Seepage Management Plan.

The Seepage Management Plan should also evaluate the compatibility of the Project with operation of the proposed Landfill. The Applicant shall conduct a detailed reconnaissance of the reservoir basins and connecting tunnel to identify zones where seepage would be expected to occur. These areas may have faults, fissures and cracks in the bedrock, and zones that have direct connection to the alluvial deposits of the Chuckwalla Valley. In the event that the proposed Landfill is permitted and constructed south of the Upper Reservoir, the Project must be operated such that it will not cause pumped groundwater or seepage to encounter the Landfill's liner.

The Seepage Management Plan should include an adaptive management strategy to implement additional necessary measures to control seepage if at any time Project operation monitoring indicates that further seepage controls are necessary to maintain seepage below the estimated average seepage volume of 689 AFY for the Upper Reservoir and 713 AFY for the Lower Reservoir as identified in the Draft EIR. The

Seepage Management Plan must identify corrective actions to eliminate reservoir seepage should monitoring indicate that operation of the Project is contributing to groundwater quality degradation or seepage volumes that exceed the maximum amounts identified in Table 1 and described in Section 2.2.3. Corrective actions may include curtailment of groundwater pumping until seepage issues or groundwater quality degradation has been adequately addressed.

The Applicant shall conduct monitoring for seepage over the life of the Project. All monitoring conducted as part of the Seepage Management Plan will be reported quarterly to the State Water Board and annually in a summary report as required by the MMRP. If necessary, the Deputy Director will prescribe operational changes to reduce the potential for uplift forces and hydrocompaction that could affect the CRA and impacts to groundwater levels and quality. Reservoir and connecting tunnel seepage water quality must comply with the Colorado River Basin Plan and not degrade existing groundwater quality.

The Applicant shall limit seepage from the two Project reservoirs to the maximum extent possible, and shall not exceed the estimated average seepage volume of 689 AFY for the Upper Reservoir and 713 AFY for the Lower Reservoir unless approved by the Deputy Director. The Applicant shall use fine tailing liners, as described in section 2.2.3, and other seepage control measures identified in the Seepage Management Plan.

Seepage interceptor wells should be operated to maintain groundwater levels ±5 feet of the lowest historic levels recorded between 1981 and 1986 in areas where hydrocompaction could potentially occur and adversely impact the CRA or other infrastructure. These wells will return the intercepted seepage to the Lower Reservoir. To confirm that the seepage interceptor wells are working as designed, groundwater level and quality monitoring should be conducted in the following areas:

- Upgradient and downgradient wells of reservoirs;
- Brine ponds;
- Wells in the Chuckwalla Valley sediments to assess changes related to seepage or Project pumping;
- Residential and municipal production wells nearest the Project to ensure safe drinking water; and
- At seepage interceptor wells.

All groundwater mitigation measures contained in the Draft EIR and all monitoring and reporting required by the MMRP are hereby incorporated as conditions of this water quality certification.

CONDITION 8. WATER TREATMENT, WASTE MANAGEMENT, STORAGE, AND DISPOSAL

Prior to Project construction, the Applicant shall submit a Water Treatment, Waste Management, Storage, and Disposal Plan to the Deputy Director for approval. The Deputy Director may require modifications as part of the approval. Project construction should not begin until the Water Treatment, Waste Management, Storage, and Disposal Plan is approved by the Deputy Director.

At a minimum, the Water Treatment, Waste Management, Storage, and Disposal Plan should include the following:

- Description of how waste will be managed, stored, and disposed of in compliance with all applicable federal and state laws and local ordinances;
- Identification of the treatment technologies to be used to address constituents of concern identified during the Phase I and II Site Investigations;
- Full characterization of the anticipated waste stream(s) resulting from treatment;
- Identification of the waste management methodology to be used (e.g., on-site long-term storage of liquid waste);
- Proposed method of waste storage (e.g., brine ponds);
- Anticipated duration of on-site waste storage;
- Proposed method of waste disposal;
- A schedule of implementation that includes operations and maintenance;
- Documentation of consultation with staffs from DFG and USFWS during plan development to address wildlife concerns; and
- Documentation of consultation with staff from the Colorado River Regional Water Board to address compliance with California regulations (e.g., requirements for operation of a Class II surface impoundment, etc.).

8.0 General Conditions

A. A copy of this water quality certification shall be provided to the contractor and all subcontractors conducting the work, and copies shall remain in their possession at the Project site. The Applicant shall be responsible for work conducted by its contractor or subcontractors.

B. Unless otherwise specified in this water quality certification or at the request of the State Water Board, data and/or reports must be submitted electronically in a format accepted by the State Water Board to facilitate the incorporation of this information into public reports and the State Water Board's water quality database systems in compliance with California Water Code section 13167.

C. No construction shall commence until all necessary federal, state and local approvals are obtained.

D. The Deputy Director reserves the authority to modify the conditions of this water quality certification to incorporate load allocations developed in a total maximum daily load approved by the State Water Board.

E. Notwithstanding any more specific conditions in this water quality certification, the Project shall be operated in a manner consistent with all applicable basin plans and policies for water quality control adopted or approved pursuant to the Porter Cologne Water Quality Act or section 303 of the Clean Water Act.

F. The authorization to operate the Project pursuant to this water quality certification is conditioned upon payment of all applicable fees for review and processing of the application for water quality certification and administering the State's water quality certification program, including but not limited to the timely payment of any annual fees or similar charges that may be imposed by future statutes or regulations for the State's reasonable costs of a program to monitor and oversee compliance with conditions of water quality certification.

G. This water quality certification does not authorize any act which results in the take of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & Game Code §§ 2050-2097) or the federal Endangered Species Act (16 U.S.C. §§ 1531 - 1544). If a take will result from any act authorized under this water quality certification or water rights held by the Applicant, the Applicant shall obtain authorization for incidental take prior to any construction or operation of the Project. The Applicant shall be responsible for meeting all requirements of the state and federal Endangered Species Acts for the Project authorized under this water quality certification.

H. In the event of any violation or threatened violation of the conditions of this water quality certification, the violation or threatened violation shall be subject to any

remedies, penalties, processes or sanctions as provided for under any State or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, processes or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this water quality certification.

I. This water quality certification is not intended and shall not be construed to apply to issuance of any Commission license or Commission license amendment other than the Commission license specifically identified in the Applicant's application for water quality certification.

J. The Applicant must submit any change to the Project, including Project operations, which would have a significant or material effect on the findings, conclusions, or conditions of this certification, to the Deputy Director for prior review and written approval. If such a change would also require submission to the Commission, the change must first be approved by the Deputy Director.

K. In response to a suspected violation of any condition of this water quality certification, the State Water Board may require the holder of any federal permit or license subject to this water quality certification to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs of reports, shall bear a reasonable relationship to the need for reports and the benefits to be obtained from the reports.

L. In response to any violation of the conditions of this water quality certification, the State Water Board may add to or modify the conditions of this water quality certification as appropriate to ensure compliance in the future.

M. This water quality certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23, division 3, chapter 28, article 6 (commencing the section 3867).

N. The State Water Board may add to or modify the conditions of this water quality certification, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

O. The State Water Board may add to or modify the conditions of this certification, as appropriate, to coordinate the Project operations and other hydrologically connected water development projects, where coordination of operations is reasonably necessary to achieve water quality standards or protect beneficial uses of water.

P. Upon request, the Applicant shall provide State Water Board staff access to Project site to document compliance with this water quality certification.

Q. The State Water Board may provide an opportunity for hearing in exercising its authority to add or modify any of the conditions of this water quality certification.

R. Future changes in climate projected to occur during the license term may significantly alter the baseline assumptions used to develop the conditions in this water quality certification. The State Water Board reserves authority to modify or add conditions in this water quality certification to require additional monitoring and/or other measures, as needed, to verify that Project operations meet water quality objectives and protect beneficial uses.

S. The Deputy Director or State Water Board's approval authority includes the authority to withhold approval or to require modification of a proposal or plan prior to approval. The State Water Board may take enforcement action if the Applicant fails to provide or implement a required plan in a timely manner.

T. This water quality certification is contingent on compliance with all applicable requirements of the Colorado River Basin Plan. The Applicant must notify the State Water Board and the Colorado River Regional Water Board within 24 hours of any unauthorized discharge to surface waters.

U. Activities associated with operation or maintenance of the Project that threaten or potentially threaten water quality shall be subject to further review by the State Water Board and Colorado River Regional Water Board.

V. The State Water Board reserves authority to modify this water quality certification if monitoring results indicate that construction or operation of the Project would cause a violation of water quality objectives or impair the beneficial uses of the affected groundwater basins.

W. Deviation from any of these requirements will be reported immediately to the State Water Board and Colorado River Regional Water Board.

X. Notwithstanding any more specific condition in this certification, the Applicant must comply with mitigation monitoring and reporting requirements in Attachment B, MMRP and the mitigation measures contained in the Final EIR.

Y. Any requirement in this water quality certification that refers to an agency whose authorities and responsibilities are transferred to or subsumed by another state or federal agency, will apply equally to the successor agency.

Z. The Deputy Director shall be notified when approval is sought from another agency for a plan, action, or report related to this Project.

DRAFT

Thomas Howard
Executive Director

Date

Attachment A	Project Area Maps
Attachment B	Mitigation Monitoring and Reporting Plan[10]
Attachment C	CEQA Findings and Statement of Overriding Considerations[11]

[10] Refer to Table 6.2 in the Draft EIR for the MMRP based on the Draft EIR. A final MMRP will be included as Attachment B to the final water quality certification.

[11] As required by Public Resources Code section 21000 et seq (CEQA) and the CEQA Guidelines (Cal. Code Regs., tit. 14 section 15000 et seq.) Attachment C will be included with approval of this water quality certification.

9.0 References

California Department of Water Resources. 1975. California's Groundwater. Bulletin 118.

California Department of Water Resources. 1979. Sources of Powerplant Cooling Water in the Desert Area of Southern California – Reconnaissance Study. Bulletin 91-24.

Colorado River Regional Water Quality Control Board, 2011. Water Quality Control Plan for the Colorado River Basin – Region 7, revised December 6, 2011.

Eagle Crest Energy Company, 2009. Eagle Mountain Pumped Storage Project, Final License Application, June 2009.

GEI Consultants, Inc., 2009a, Eagle Mountain Pumped Storage Project – Groundwater Supply Pumping Effects, May 12, 2009, revised October 23, 2009 and July 11, 2011.

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ATTACHMENT A

PROJECT AREA MAPS

Adelanto
Apple Valley
Hesperia
Twentynine Palms McAg
Angeles National Forest
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
San Bernardino National Forest
Glendale
Pasadena
Hollywood
Los Angeles
San Bernardino
Yucca Valley
Colorado River Aqueduct
Ontario
Yucaipa
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Riverside
Riverside
Eagle Mountain Project Area
Torrance
Anaheim
Garden Grove
ORANGE COUNTY
RIVERSIDE COUNTY
Palm Springs
Joshua Tree National Park
Long Beach
Irvine
Indio
Desert Center
Blythe
ARIZONA
Menifee
RIVERSIDE COUNTY
SAN DIEGO COUNTY
RIVERSIDE COUNTY
IMPERIAL COUNTY
Yuma Proving Ground
Camp Pendleton Marine Co Base
Salton Sea
Anza-Borrego Desert State Park
Poway
San Diego
CALIFORNIA
SAN DIEGO COUNTY
IMPERIAL COUNTY
Cleveland National Forest
San Diego
Mexicali
MEXICO
Tecate
CALIFORNIA
Area of Detail
0 10 20 Miles
N
City
Major River
Major Canal, Aqueduct
Transmission Route
Water Supply Line (buried)
County
Playa
Major Lake
Urban Area
Military Land
State, National Park
Eagle Mountain Pumped Storage Project - Water Quality Certification
Eastern Riverside County, California
California Water Boards
PROJECT VICINITY
June 2012
Figure 1
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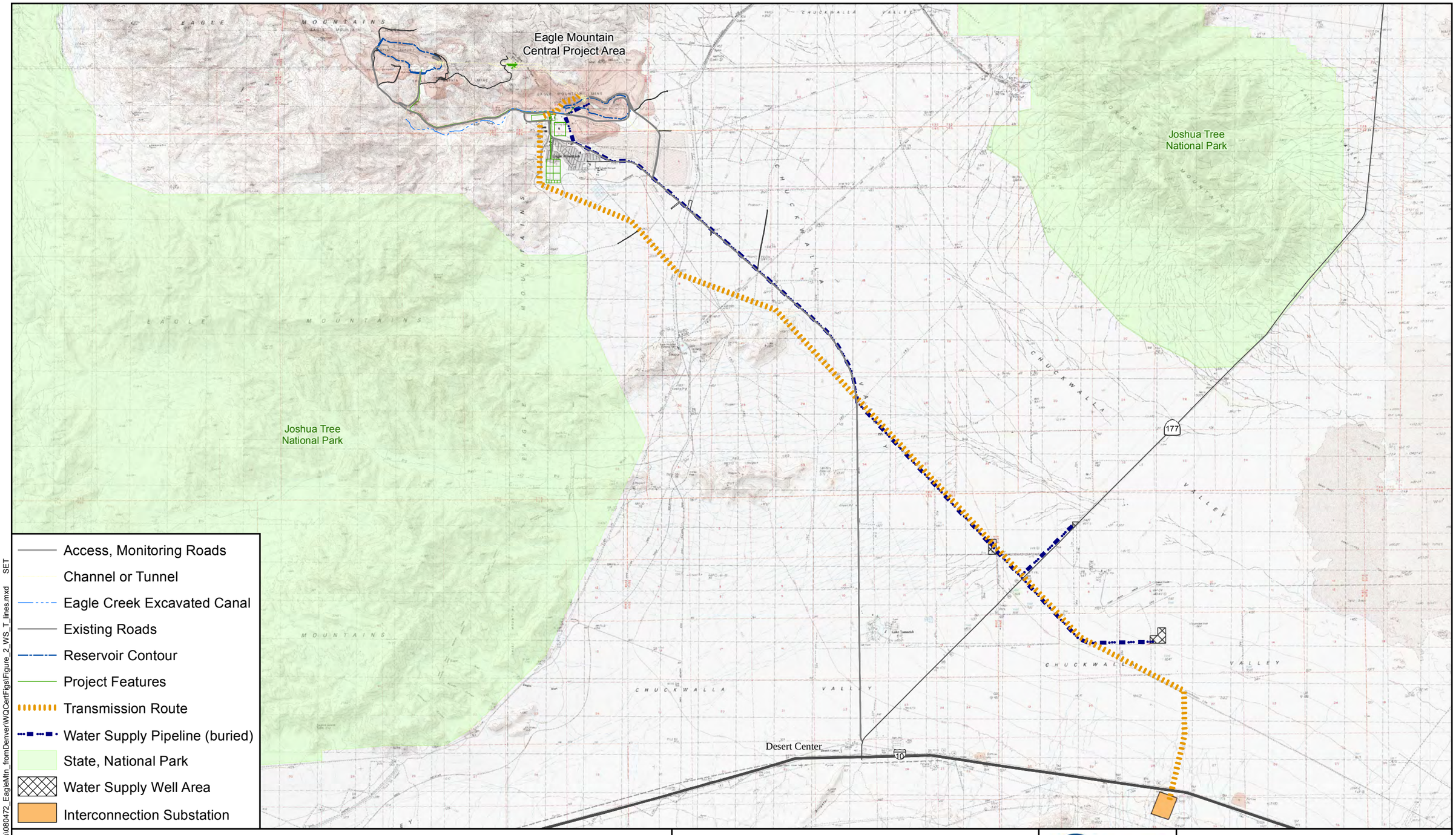

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Eagle Mountain Pumped Storage Project -
Water Quality Certification

Eastern Riverside County, California

WATER SUPPLY AND
TRANSMISSION LINES

June 2012 Figure 2

Construction Road To Intake Structure
Elevator Access Road
Project Boundary
6783404.36 Easting
2265771.64 Northing
Surge Tank and Shaft
Elevator Shaft
Access Tunnel 14 ft Dia.
West Saddle Dam
Max W.S. El. 2485.0
Upper Reservoir
Upper Reservoir Intake Structure
Pumping Powerhouse 4 x 325 MW
Transmission Lines Within Access Tunnel
West Dam Access Road
Tailrace Tunnel 33 ft. Dia.
Pressure Tunnel 29 ft Dia.
Transfer Station
Transmission Line Shaft to Ground Surface
Pumped Storage Project Access Road
Existing Access Road
Access Tunnel
Colorado River Aqueduct (CRA)
South Saddle Dam
Pumped Storage Project Construction and Permanent Access Road
Proposed Overhead Transmission Lines
Lower Reservoir Inlet Structure
Construction Road To Surge Tank
R\O Supply Pipeline From Upper Reservoir
Project Boundary
Culverts Under Road
R\O Supply Pipeline From Upper Reservoir
Lower Reservoir
Lower Reservoir Spillway Channel
Upper Reservoir Spillway Channel
Erosion Protection over CRA
Project Boundary
South Haul Road
R\O Permeate Pipeline To Lower Reservoir
6776765.94 Easting
2255991.24 Northing
Eagle Mountain Switchyard
Staging, Storage, and Administration Area
Max W.S. El. 1092.0
Return Flow to Natural Drainage
Reverse Osmosis System Site and Staging Area
68007088.12 Easting
2254795.86 Northing
Eagle Creek
Kaiser Road
Brine Ponds
Pumped Storage Project Construction and Permanent Access Road
Existing Access Road
R\O Concentrate Pipeline To Brine Ponds
Eagle Mountain Railroad
Water Supply Pipeline (Buried)
Project Boundary
6793085.18 Easting
2246031.44 Northing
Environmentally Superior Alternative Transmission Line To Interconnection Substation Near Desert Center
Project Boundary
Project Boundary
6816309.15 Easting
2230135.68 Northing
California
Area of Detail
N
0 2,000 4,000 Feet
Georeference Locations
Mitigation Monitoring Network Well
Water Supply Line
Transmission Route
Interconnection Substation
Water Supply Well Area
BLM Land Subject to Land Exchange
Project Boundary
Bureau of Land Management
National Park Service
State
Private
Eagle Mountain Pumped Storage Project - Water Quality Certification
Eastern Riverside County, California
California Water Boards
PROJECT BOUNDARY (PAGE 1 OF 2)
June 2012
Figure 3
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6816309.15 Easting
2230135.68 Northing

Water Supply Pipeline
(Buried)

Project Boundary

Kaiser Road

Environmentally Superior
Alternative Transmission Line
To Interconnection Substation

Water Supply
Well Area

Water Supply
Well Area

Project Boundary

6841037.1 Easting
2215800.22 Northing

177

Water Supply Pipeline
(Buried)

Water Supply
Well Area

Lake Tamarisk

6796471.05 Easting
2214381.64 Northing

C H U C K W A L L A V A L L E Y

Environmentally Superior
Alternative Transmission Line
To Interconnection Substation

Project Boundary

6820067.89 Easting
2204162.33 Northing

Desert Center

10

Interconnection Substation

California

Area of Detail

N

0 2,000 4,000 Feet

Georeference Locations
Mitigation Monitoring Network Well
Water Supply Line
Transmission Route

Interconnection Substation
Water Supply Well Area
BLM Land Subject to Land Exchange
Project Boundary

Bureau of Land Management
National Park Service
State
Private

Eagle Mountain Pumped Storage Project -
Water Quality Certification

Eastern Riverside County, California

California Water Boards
State Water Resources Control Board
Regional Water Quality Control Boards

PROJECT BOUNDARY
(PAGE 2 OF 2)

June 2012 Figure 4

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West Saddle Dam
Construction Road To Intake Structure
Elevator Access Road
Elevator Shaft
Access Tunnel 14 ft Dia.
Surge Tank and Shaft
Max W.S. El. 2485.0
Upper Reservoir
Upper Reservoir Intake Structure
Pumping Powerhouse 4 x 325 MW
Transmission Lines Within Access Tunnel
West Dam Access Road
Tailrace Tunnel 33 ft. Dia.
Pressure Tunnel 29 ft Dia.
Transfer Station
Transmission Line Shaft to Ground Surface
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South Saddle Dam
Access Tunnel
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Kaiser Road
Brine Ponds
Existing Access Road
Eagle Mountain Railroad
Environmentally Superior Alternative Transmission Line To Interconnection Substation
Water Supply Pipeline (Buried)

0 2,000 4,000 Feet

N

Eagle Mountain Pumped Storage Project - Water Quality Certification

Eastern Riverside County, California

California Water Boards
State Water Resources Control Board
Regional Water Quality Control Boards

PLAN PROJECT FEATURES

June 2012 Figure 5

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