

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

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

**January 2013**

**Package 2 of 6**

This package contains the following responses to comments:

<b>PACKAGE</b>	<b>LETTER</b>	<b>COMMENTER</b>	<b>DATE OF LETTER</b>
2	E	CRB – Colorado River Board of California	August 30, 2010
2	F	NAHC– Native American Heritage Commission	July 27, 2010
2	G	MWD – Metropolitan Water District of Southern California	October 6, 2010
2	H	CDFW – California Department of Fish and Wildlife (formerly known as California Department of Fish and Game)	September 30, 2010
2	I	CSLC – California State Lands Commission	November 10, 2010
2	J	District – County Sanitation Districts of Los Angeles County (County Sanitation District No. 2)	October 4, 2010

**COLORADO RIVER BOARD OF CALIFORNIA**

770 FAIRMONT AVENUE, SUITE 100  
 GLENDALE, CA 91203-1068  
 (818) 500-1625  
 (818) 543-4685 FAX



August 30, 2010

State Clearinghouse  
 1400 Tenth Street  
 P.O. Box 3044  
 Sacramento, CA 95812-3044

STATE WATER RESOURCES  
 CONTROL BOARD  
 DIV. OF WATER RIGHTS  
 SACRAMENTO  
 10 SEP - 2 PM 12:18

Regarding SCH# 2009-011-010: Notice of Completion & Environmental Document Transmittal for a draft Environmental Impact Report (EIR) for the Eagle Mountain Pumped Storage Hydroelectric Project located near the town of Desert Center, Riverside County, California

To Whom It May Concern:

The Colorado River Board of California (CRB) has received and reviewed a copy of Notice of Completion & Environmental Document Transmittal for a draft Environmental Impact Report (EIR) for the Eagle Mountain Pumped Storage Hydroelectric Project located near the town of Desert Center, Riverside County, California.

As shown in Figure ES-2 of the draft EIR report, there are three water supply well areas which were proposed to pump groundwater for the proposed Pumped Storage Hydroelectric Project. Those three water supply well areas are located within the "Accounting Surface" area designated by U.S. Geological Survey (USGS) Water Investigation Reports (i.e. WRI 95-4005 and WRI 00-4085). These USGS reports indicates that the aquifer underlying lands located within the "Accounting Surface" is considered to be hydraulically connected to the Colorado River and groundwater withdrawn from those well areas located within the "Accounting Surface" would be replaced by Colorado River water, in part or in total. This means that if it is determined that these wells are, in fact, pumping Colorado River water, a contract with the Secretary of the Interior would be required before such a diversion and use is deemed to be a legally authorized use of this water supply.

CRB # 1

According to the Consolidated Decree of the Supreme Court of the United States in the case of *Arizona v. California, et al.* entered March 27, 2006, (547 U.S. 150, 2006), the consumptive use of water means "diversion from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation" and consumptive use "includes all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping." Also, pursuant to the 1928 Boulder Canyon Project Act (BCPA) and the Consolidated Decree, no water shall be delivered from storage or used by any water user without a valid contract between the Secretary of the Interior and the water user for such use, i.e., through a BCPA Section 5 contract.

CRB # 2

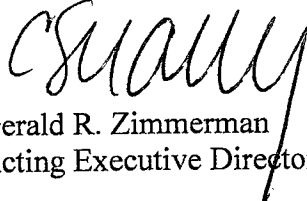
Within California, BCPA Section 5 contracts have previously been entered into between users of Colorado River mainstream water and the Secretary of the Interior for water from the Colorado River that exceeds California's basic entitlement to use Colorado River water as set forth in the Consolidated Decree. Thus, no additional Colorado River water is available for use by new project proponents along the Colorado River, except through the contract of an existing BCPA Section 5 contract holder, either by direct service or through an exchange of non-Colorado River water for Colorado River water.

CRB # 2

Therefore, the Board suggests that the project proponent/lead agency, State Water Resources Control Board, to consider a preferred option for obtaining a legally authorized and reliable water supply for the subject. That option involves obtaining water through an existing BCPA Section 5 contract holder, The Metropolitan Water District of Southern California. Although other options may be available, it is the Board's assessment that they could not be implemented in a timely manner and address the requirement that water consumptively used from the Colorado River must be through a BCPA Section 5 contractual entitlement. The Board also recommended that the draft EIR should be revised to include that adopted option in the Item Impact 3.3-6 Colorado River Effects in their final EIR.

If you have any questions, please feel free to contact me at (818) 500-1625.

Sincerely,

  
Gerald R. Zimmerman  
Acting Executive Director

cc: Mr. Paul Murphey, State Water Resources Control Board  
Ms. Lorri Gray-Lee, Regional Director, U.S. Bureau of Reclamation  
Mr. William J. Hasencamp, The Metropolitan Water District of Southern California

**Notice of Completion & Environmental Document Transmittal**

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613  
 For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2009011010

Project Title: Eagle Mountain Pumped Storage Project  
 Lead Agency: State Water Resources Control Board Contact Person: Paul Murphy  
 Mailing Address: 1001 I Street, 14th Floor Phone: (916) 341-5435  
 City: Sacramento Zip: 95814 County: Sacramento

Project Location: County: Riverside County City/Nearest Community: Eagle Mountain, CA  
 Cross Streets: Kaiser Road (map attached) Zip Code: 92239  
 Longitude/Latitude (degrees, minutes and seconds): 33 ° 51 ' 54.1 " N / 115 ° 28 ' 18.1 " W Total Acres: 2364  
 Assessor's Parcel No.: \_\_\_\_\_ Section: 36 Twp.: 3S Range: 14E Base: SBB&M  
 Within 2 Miles: State Hwy #: 177 Waterways: Eagle Creek (ephemeral)  
 Airports: \_\_\_\_\_ Railways: \_\_\_\_\_ Schools: Eagle Mountain

Document Type:  
 CEQA:  NOP  Draft EIR  Supplement/Subsequent EIR  Other: \_\_\_\_\_  
 Early Cons  Neg Dec  Mit Neg Dec  
 NEPA:  NOI  EA  Draft EIS  Other: \_\_\_\_\_  
 Joint Document  Final Document  Other: \_\_\_\_\_

Local Action Type:  
 General Plan Update  Specific Plan  Rezone  Annexation  
 General Plan Amendment  Master Plan  Prezone  Redevelopment  
 General Plan Element  Planned Unit Development  Use Permit  Coastal Permit  
 Community Plan  Site Plan  Land Division (Subdivision, etc.)  Other: Water Quality C

Development Type:  
 Residential: Units \_\_\_\_\_ Acres \_\_\_\_\_  
 Office: Sq.ft. \_\_\_\_\_ Acres \_\_\_\_\_ Employees \_\_\_\_\_  
 Commercial: Sq.ft. \_\_\_\_\_ Acres \_\_\_\_\_ Employees \_\_\_\_\_  
 Industrial: Sq.ft. \_\_\_\_\_ Acres \_\_\_\_\_ Employees \_\_\_\_\_  
 Educational: \_\_\_\_\_  
 Recreational: \_\_\_\_\_  
 Water Facilities: Type \_\_\_\_\_ MGD \_\_\_\_\_  
 Transportation: Type \_\_\_\_\_  
 Mining: Mineral \_\_\_\_\_  
 Power: Type Hydro MW 1300  
 Waste Treatment: Type \_\_\_\_\_ MGD \_\_\_\_\_  
 Hazardous Waste: Type \_\_\_\_\_  
 Other: \_\_\_\_\_

Project Issues Discussed in Document:  
 Aesthetic/Visual  Fiscal  Recreation/Parks  Vegetation  
 Agricultural Land  Flood Plain/Flooding  Schools/Universities  Water Quality  
 Air Quality  Forest Land/Fire Hazard  Septic Systems  Water Supply/Groundwater  
 Archeological/Historical  Geologic/Seismic  Sewer Capacity  Wetland/Riparian  
 Biological Resources  Minerals  Soil Erosion/Compaction/Grading  Growth Inducement  
 Coastal Zone  Noise  Solid Waste  Land Use  
 Drainage/Absorption  Population/Housing Balance  Toxic/Hazardous  Cumulative Effects  
 Economic/Jobs  Public Services/Facilities  Traffic/Circulation  Other: Greenhouse Gases

Present Land Use/Zoning/General Plan Designation:  
open desert land

Project Description: (please use a separate page if necessary)  
 The Project is a pumped storage hydroelectric project which will provide 1,300 MW of generating capacity, using reversible pump-turbine units, with four units of 325 MW each. The Project will use off-peak energy to pump water from a lower reservoir to an upper reservoir during periods of low electrical demand and generate energy by passing the water from the upper to the lower reservoir through the generating units during periods of high electrical demand. The Project reservoirs will be formed by filling existing mining pits with water. A 500 kilovolt (kV) double circuit transmission line will convey power to and from the Project through an interconnection collector substation located west of the unincorporated town of Desert Center, California. Groundwater from the Chuckwalla Aquifer will be used to fill the reservoirs for the initial fill and makeup water.

State Clearinghouse Contact: (916) 445-0613

State Review Began: 7.23 2010

SCH COMPLIANCE 9.7 - 2010

Please note State Clearinghouse Number (SCH#) on all Comments

SCH#: 2009011010

Please forward late comments directly to the Lead Agency

AQMD/APCD 93

(Resources: 7.24)

SL Project Sent to the following State Agencies

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Resources              | State/Consumer Svcs                                      |
| <input type="checkbox"/> Boating & Waterways               | General Services   |
| <input type="checkbox"/> Coastal Comm                      | Cal EPA  |
| <input checked="" type="checkbox"/> Colorado Rvr Bd        | ARB: Airport Projects                                    |
| <input type="checkbox"/> Conservation                      | ARB: Transportation Projects                             |
| <input checked="" type="checkbox"/> Fish & Game # <u>6</u> | ARB: Major Industrial Projects                           |
| <input type="checkbox"/> Delta Protection Comm             | SWRCB: Div. Financial Assist.                            |
| <input type="checkbox"/> Cal Fire                          | SWRCB: Wtr Quality                                       |
| <input type="checkbox"/> Historic Preservation             | SWRCB: Wtr Rights  |
| <input checked="" type="checkbox"/> Parks & Rec            | <input checked="" type="checkbox"/> Reg. WQCB # <u>7</u> |
| <input type="checkbox"/> Central Valley Flood Prot.        | Toxic Sub Ctrl-CTC                                       |
| <input type="checkbox"/> Bay Cons & Dev Comm.              | Yth/Adlt Corrections                                     |
| <input checked="" type="checkbox"/> DWR                    | Corrections  |
| <input checked="" type="checkbox"/> Cal EMA                |  |
| <input type="checkbox"/> Resources, Recycling and Recovery |  |
| <b>Bus Transp Hous</b>                                     | <b>Independent Comm</b>                                  |
| <input type="checkbox"/> Aeronautics                       | <input checked="" type="checkbox"/> Energy Commission    |
| <input checked="" type="checkbox"/> CHP                    | <input checked="" type="checkbox"/> NAHC                 |
| <input checked="" type="checkbox"/> Caltrans # <u>8</u>    | Public Utilities Comm                                    |
| <input type="checkbox"/> Trans Planning                    | State Lands Comm   |
| <input type="checkbox"/> Housing & Com Dev                 | Tahoe Rgl Plan Agency                                    |
| <input type="checkbox"/> Food & Agriculture                |  |
| <input type="checkbox"/> Public Health                     | Conservancy  |
|  | Other: _____   |

Comments attached

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

**Responses to Comments from the Colorado River Board of California (CRB):**

**CRB #1:** If it is determined that the Project's wells are pumping Colorado River water, a contract with the Secretary of the Interior would be required.

**Response to CRB #1:** The water proposed to be used to fill the reservoirs for the proposed Eagle Mountain Pumped Storage Project (Project) is groundwater. The Final Environmental Impact Report (EIR) contains a detailed hydrogeologic analysis with regard to the Accounting Surface as it has been contemplated by the United States Bureau of Reclamation (see Final EIR, Section 3.3.3.3.4).

The Colorado River is located about 60 miles east of the Central Project Area, where the reservoirs and powerhouse will be located, and 50 miles east of the proposed water supply wells. Due to these large distances, no impacts of groundwater pumping will be detectable on the river. USGS [United States Geological Survey] has developed a model in which it is assumed that the Chuckwalla Valley Groundwater Basin (Chuckwalla Basin) is hydraulically connected to the river, and therefore any potential impacts that groundwater extraction in the Basin may have on the Colorado River must be addressed (Water-Resources Investigations Report 94-4005, USGS 1994).

To determine if water pumped from groundwater wells will be replaced by Colorado River water, the USGS developed an "accounting surface" for groundwater basins that may be connected to the river (of which the Chuckwalla Basin is one). If static water levels in wells are equal to or below the accounting surface, it is assumed that this water would ultimately be replaced by Colorado River water. The accounting surface in the Chuckwalla Basin was determined to be between 238 and 240 feet above mean sea level (ft msl) (Scientific Investigations Report 2008-5113, USGS, 2008). A proposed policy for using this method for determining well impacts to the Colorado River was published in the Federal Register for the United States Department of the Interior on July 16, 2008, but was withdrawn and has not been acted upon since that time. However, for purposes of full examination of potential effects in this EIR, the draft accounting surface criteria were assessed relative to the Project's well water use. As shown in Figure 3.3-10, groundwater levels in the area of the Project's wells are approximately 500 ft msl, hundreds of feet above the contemplated accounting surface elevation. On that basis, it is concluded that the Project will not use groundwater that could ultimately be replaced by the Colorado River, and the Project's groundwater use would have no impact on the contemplated Colorado River accounting surface.

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

More recently, the USGS published another method for assessing whether wells deplete groundwater that would otherwise recharge the Colorado River aquifer. This superposition model is intended to simulate the percentage of water that could ultimately (over 100 years of constant pumping) be depleted from the Colorado River (Scientific Investigations Report 2008-5189, USGS, 2008). The assumption is that when a well is initially pumped, virtually all the water comes from groundwater storage, but over time as the cone of depression grows, the percentage of water from the Colorado River or other recharge sources increases. For the Desert Center area where Project pumping would occur, this depletion from the Colorado River was determined by the USGS to be less than one percent after 100 years, and concluded to be negligible and undetectable. The USGS method for assessing impacts to the Colorado River was applied to the groundwater supply wells for the proposed Project. Using this method, it was concluded that potential impacts of Project pumping on the Colorado River, nearly 50 miles to the east of the well field, are negligible and undetectable.

The analysis concludes that there is no potential, over the life of the Project, for groundwater levels to be drawn down below the elevation of the proposed accounting surface. If the accounting surface rule is formally adopted in the future in the manner previously contemplated, it would have no bearing on the Project.

The United States Bureau of Land Management's (BLM) Record of Decision (ROD) for the Blythe Solar Power Project (Blythe Solar Power Project Decision to Amend the California Desert Conservation Area (CDCA) Plan, Environmental Impact Statement FES 10-41, Case File Number: CACA 048811, October 2010), signed by the Secretary of the Interior states:

...the BLM has thoroughly reviewed the regulatory framework regarding the use of the accounting surface methodology of determining impacts to the Colorado River, and determined that no formal regulation exists that requires the Applicant to acquire an allocation at this time. The Bureau of Reclamation has not finalized its rule on the accounting surface methodology for the Colorado River. This ROD recognizes that, should a rulemaking ever be finalized on the currently proposed accounting surface, the BLM will work with the Applicant to ensure that appropriate processes are followed to obtain such an allocation.

The groundwater source for the Project is to be withdrawn about 50 miles west of the Colorado River, further from the Colorado River than the groundwater source for the Blythe Solar Power Project, which lies approximately 10 miles west of the Colorado River.

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

**CRB #2:** The CRB suggests that the State Water Board consider an option for obtaining a legally authorized and reliable water supply for the project and that the Draft EIR be revised to include that option in the Item 3.3-6 Colorado River Effects.

**Response to CRB #2:** Please see Response to CRB #1. The Project proposes to use groundwater from the underlying Chuckwalla Basin, pumped from wells located on private property and located nearly 50 miles from the Colorado River. No part of the Project proposal includes use of a surface water source for which a separate entitlement would be required.

FILE

~~10/1/06~~  
FERC 13123

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

**NATIVE AMERICAN HERITAGE COMMISSION**

915 CAPITOL MALL, ROOM 364  
SACRAMENTO, CA 95814  
(916) 653-6251  
Fax (916) 657-5390  
Web Site [www.nahc.ca.gov](http://www.nahc.ca.gov)  
e-mail: [ds\\_nahc@pacbell.net](mailto:ds_nahc@pacbell.net)



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DIV. OF WATER RIGHTS  
SACRAMENTO

STATE WATER RESOURCES  
CONTROL BOARD

July 97, 2010

Mr. Paul Murphey  
Hearing and Special Projects

**CALIFORNIA STATE WATER RESOURCES CONTROL BOARD**

1001 "I" Street, 14<sup>th</sup> Floor  
Sacramento, CA 95814

Re: SCH#2009011010; CEQA Notice of Completion: draft Environmental Impact Report (DEIR) for the "EAGLE MOUNTAIN PUMPED STORAGE PROJECT, FERC PROJECT NO. 13123;" located near the town of Desert Center in the Chuckwalla Mountains of eastern Riverside County, California.

Dear Mr. Murphey :

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 for the protection and preservation of California's Native American Cultural Resources.. (Also see *Environmental Protection Information Center v. Johnson* (1985) 170 Cal App. 3<sup>rd</sup> 604). The California Environmental Quality Act (CEQA - CA Public Resources Code §21000-21177, amended in 2009) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following.

The Native American Heritage Commission did perform a Sacred Lands File (SLF) search in the NAHC SLF Inventory, established by the Legislature pursuant to Public Resources Code §5097.94(a) and Native American Cultural Resources were not identified within the APE identified for the project. Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Also, the NAHC recommends that a Native American Monitor or Native American culturally knowledgeable person be employed whenever a professional archaeologist is employed during the 'Initial Study' and in other phases of the environmental planning processes.. Furthermore we suggest that you contact the California Historic Resources Information System (CHRIS) at the Office of





Historic Preservation (OHP) Coordinator's office (at (916) 653-7278, for referral to the nearest OHP Information Center of which there are 10.

Consultation with tribes and interested Native American tribes and interested Native American individuals, as consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f] *et se*), 36 CFR Part 800.3, the President's Council on Environmental Quality (CSQ; 42 U.S.C. 4371 *et seq.*) and NAGPRA (25 U.S.C. 3001-3013), as appropriate. The 1992 *Secretary of the Interior's Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including *cultural landscapes*.

NAHC #2

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The authority for the SLF record search of the NAHC Sacred Lands Inventory, established by the California Legislature, is California Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10). The results of the SLF search are confidential. However, Native Americans on the attached contact list are not prohibited from and may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of 'historic properties of religious and cultural significance' may also be protected under Section 304 of the NHPA or at the Secretary of the Interior's discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

NAHC #3

CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. Although tribal consultation under the California Environmental Quality Act (CEQA; CA Public Resources Code Section 21000 – 21177) is 'advisory' rather than mandated, the NAHC does request 'lead agencies' to work with tribes and interested Native American individuals as 'consulting parties,' on the list provided by the NAHC in order that cultural resources will be protected. However, the 2006 SB 1059 the state enabling legislation to the Federal Energy Policy Act of 2005, does mandate tribal consultation for the 'electric transmission corridors. This is codified in the California Public Resources Code, Chapter 4.3, and §25330 to Division 15, requires consultation with California Native American tribes, and identifies both federally recognized and non-federally recognized on a list maintained by the NAHC

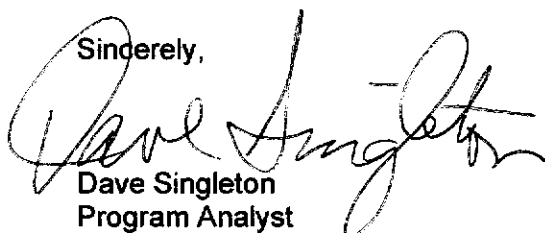
Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony.

NAHC #3

Again, Lead agencies should consider avoidance, as defined in §15370 of the California Code of Regulations (CEQA Guidelines), when significant cultural resources are discovered during the course of project planning and implementation.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,



Dave Singleton  
Program Analyst

Attachment: List of Native American Contacts

Cc: State Clearinghouse

Native American Contacts  
Riverside County  
July 29 2010

Cabazon Band of Mission Indians  
David Roosevelt, Chairperson  
84-245 Indio Springs Cahuilla  
Indio , CA 92203-3499  
(760) 342-2593  
(760) 347-7880 Fax

Joseph R. Benitez (Mike)  
P.O. Box 1829 Chemehuevi  
Indio , CA 92201  
(760) 408-4089 - cell  
(760) 347-0488

Pauma & Yuima  
Christobal C. Devers, Chairperson  
P.O. Box 369 Luiseno  
Pauma Valley CA 92061  
paumareservation@aol.com  
(760) 742-1289  
(760) 742-3422 Fax

Chemehuevi Reservation  
Charles Wood, Chairperson  
P.O. Box 1976 Chemehuevi  
Chemehuevi Valley CA 92363  
chair1cit@yahoo.com  
(760) 858-4301  
(760) 858-5400 Fax

Ramona Band of Cahuilla Mission Indians  
Joseph Hamilton, Chairman  
P.O. Box 391670 Cahuilla  
Anza , CA 92539  
admin@ramonatribe.com  
(951) 763-4105  
(951) 763-4325 Fax

Fort Mojave Indian Tribe  
Tim Williams, Chairperson  
500 Merriman Ave Mojave  
Needles , CA 92363  
(760) 629-4591  
(760) 629-5767 Fax

Twenty-Nine Palms Band of Mission Indians  
Darrell Mike, Chairperson  
46-200 Harrison Place Chemehuevi  
Coachella , CA 92236  
tribal-epa@worldnet.att.net  
(760) 775-5566  
(760) 775-4639 Fax

Chemehuevi Reservation  
Charles Wood, Chairperson  
P.O. Box 1976  
Chemehuevi Valley CA 92363  
chair1cit@yahoo.com  
(760) 858-4301

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2009011010; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Eagle Mountain Pumped Storage Project EIR; located near the town of desert Center in eastern Riverside County, California.

Native American Contacts  
Riverside County  
July 29 2010

Colorado River Reservation  
Ginger Scott, Acting Cultural Contact  
Route 1, Box 23-B Mojave  
Parker, AZ 85344 Chemehuevi  
symi@rraz.net  
(928) 669-9211  
(928) 669-5675 Fax

Augustine Band of Cahuilla Mission Indians  
Mary Ann Green, Chairperson  
P.O. Box 846 Cahuilla  
Coachella, CA 92236  
(760) 369-7171  
760-369-7161

Torres-Martinez Desert Cahuilla Indians  
Ernest Morreo  
PO Box 1160 Cahuilla  
Thermal, CA 92274  
maxtm@aol.com  
(760) 397-0300  
(760) 397-8146 Fax

Morongo Band of Mission Indians  
Michael Contreras, Cultural Heritage Prog.  
12700 Pumarra Road Cahuilla  
Banning, CA 92220 Serrano  
mcontreras@monongo-nsn.  
(951) 755-5025  
(951) 201-1866 - cell  
(951) 922-0105 Fax

AhaMaKav Cultural Society, Fort Mojave Indian  
Linda Otero, Director  
P.O. Box 5990 Mojave  
Mohave Valley AZ 86440  
lindaotero@fortmojave.com  
(928) 768-4475  
(928) 768-7996 Fax

Torres-Martinez Desert Cahuilla Indians  
Diana L. Chihuahua, Cultural Resources  
P.O. Box 1160 Cahuilla  
Thermal, CA 92274  
dianac@torresmartinez.org  
(760) 397-0300, Ext. 1209  
(760) 272-9039 - cell (Lisa)  
(760) 397-8146 Fax

Santa Rosa Band of Mission Indians  
John Marcus, Chairman  
P.O. Box 609 Cahuilla  
Hemet, CA 92546  
srtribaloffice@aol.com  
(951) 658-5311  
(951) 658-6733 Fax

Fort Mojave Indian Tribe  
Nora McDowell, Cultural Resources Coordinator  
500 Merriman Ave Mojave  
Needles, CA 92363  
g.goforth@fortmojave.com  
(760) 629-4591  
(760) 629-5767 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

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Native American Contacts  
Riverside County  
July 29 2010

Agua Caliente Band of Cahuilla Indians THPO  
Patricia Tuck, Tribal Historic Preservation Officer  
5401 Dinah Shore Drive Cahuilla  
Palm Springs, CA 92264  
ptuck@aguacaliente-nsn.gov

(760) 699-6907  
(760) 699-6924- Fax

Quechan Indian Nation  
Bridget Nash-Chrabascz, THPO  
P.O. Box 1899 Quechan  
Yuma, AZ 85366  
b.nash@quechantribe.com  
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Cahuilla Band of Indians  
Luther Salgado, Sr., , Chairperson  
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Anza, CA 92539  
tribalcouncil@cahuilla.net  
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This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code. Also, federal National Environmental Policy Act (NEPA), National Historic Preservation Act, Section 106 and federal NAGPRA. And 36 CFR Part 800.3.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2009011010; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the Eagle Mountain Pumped Storage Project EIR; located near the town of desert Center in eastern Riverside County, California.

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

**Responses to Comments from the Native American Heritage Commission (NAHC):**

**NAHC #1:** NAHC performed a Sacred Lands File search and found that Native American Cultural Resources were not identified in the Area of Potential Effect for the project.

**Response to NAHC #1:** Comment noted. The following response supports the NAHC's findings:

On behalf of the Federal Energy Regulatory Commission (FERC), ASM Affiliates (ASM) conducted consultation with the California State Historic Preservation Officer, appropriate Native American tribes, and other consulting parties, pursuant to 36 Code of Federal Regulations (CFR) 800.2 (c)(4) of the regulations implementing section 106 of the National Historic Preservation Act. NAHC provided ASM with results of a sacred lands record search on March 30, 2009. The results were negative for any known sacred lands. The NAHC provided a recommended list of local tribes to be consulted. Between September 10 and 17, 2009, the tribes were contacted by registered mail and provided with maps of the Area of Potential Effect (APE) and the draft Historic Properties Management Plan (HPMP). The HPMP identified no prehistoric or Native American sites within the APE but included a summary of previous Native American consultation for the Eagle Mountain Pumped Storage Project (Project). The request for consultation letter was followed by phone calls from ASM staff.

Groups consulted include the Augustine Band of Cahuilla Indians, the Twenty-Nine Palms Band of Mission Indians, the Chemehuevi Indian Reservation, the Colorado River Reservation, the Cabazon Band of Mission Indians, the Agua Caliente Band of Cahuilla Indians, the Morongo Band of Mission Indians, the Torres-Martinez Desert Cahuilla Indians, the Fort Mojave Indian Tribe, the Baron Band of Mission Indians, and the Cahuilla Band of Mission Indians. Many of these tribes were previously contacted by FERC and the Project proponents during initial phases of the Project Application.

No sacred sites or potential traditional cultural properties were identified by any consulting tribes. Written comments received included recommendations for Native American monitors during preconstruction and construction phases (Augustine Band of Cahuilla Indians and Cabazon Band of Mission Indians) and concern about the location of the prehistoric trail (Agua Caliente Band of Cahuilla Indians). The Agua Caliente Band of Cahuilla Indians raised a concern regarding the location of a prehistoric trail (CA-RIV-72) and potential impacts. As a result, an updated APE map and a map and description of the prehistoric trail that passes south of the Central Project Area, where the reservoirs and powerhouse will be located, were sent to all consulting tribes on December 3, 2009 to confirm that the prehistoric trail was located outside the APE. This mailing was followed by phone calls to confirm receipt of the new information.

Mitigation measure (MM) CR-11, which is included in the Final Environmental Impact Report (EIR), is intended to offset or reduce potential effects to cultural resources and is provided below:

**MM CR-11. Treatment of Unanticipated Discoveries of Cultural Resources and Human Remains.** As with all development projects in the state, should unforeseen artifacts become uncovered during site grading, the Licensee is required to

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

adhere to all state of California procedures, including Section 21083.2(i) of the CEQA Statutes and Section 15064.5 of the CEQA Guidelines regarding stoppage of work, handling of discovered materials, and notification of proper authorities to ensure that the construction/operation of the Project would not have an adverse effect on cultural resources. The Licensee is responsible for addressing action impacts to cultural sites and human remains should they be exposed as a result of ground disturbing activities by the Licensee or one of its contractors; erosion control measures; erosion of any inventoried historic properties; or resources that are exposed in the event of a Project operation emergency.

**Management Activities:** The Licensee shall follow the Project specific Plan and Procedures Addressing Unanticipated Discoveries of Cultural Resources and Human Remains, found in Appendix A of the HPMP in the event that unanticipated cultural materials or human remains are found within the Project area.

**Implementation Steps for Performance:** The Licensee shall consult with SHPO, BLM, interested Indian Tribes, Riverside County Coroner, as appropriate and depending on the land jurisdiction on which any discovery is made, and FERC. If the Licensee or its contractors discovers contemporary contexts with human remains, local law enforcement agencies and the Riverside County Coroner shall be notified and consulted.

**NAHC #2:** The NAHC recommends that the State Water Resources Control Board (State Water Board) contact the persons on the attached list. Also they recommend the use of a Native American monitor during the environmental planning process. Consultation with Native American Tribes should be conducted in compliance with federal laws.

**Response to NAHC #2:** The persons on the contact list were consulted during the preparation of the License Application submitted to FERC, for details see Response to Comment NAHC #1.

Native American monitors were not employed during the Class III intensive survey of the APE, as that was not a recommendation in the sacred lands record search response from NAHC. However, the HPMP stipulates that additional Native American consultation will occur if discoveries are made or Traditional Cultural Properties area is identified. If this additional consultation is necessary, Native American monitors will be present during any future survey, evaluation, or treatment phases.

**NAHC #3:** The NAHC notes that tribal consultation under CEQA is advisory, but that Senate Bill 1059 (SB 1059, Escutia and Morrow, Chapter 638, Statutes of 2006) states that tribal consultation is mandated for electric transmission corridors.

**Response to NAHC #3:** Avoidance of impacts to significant cultural resources is a primary and preferred approach, as stipulated in Section 3.8.4 of the Final EIR. The HPMP (Section 12.13 of the Final EIR,) guides all future cultural resources treatment and includes full citation of the Intentional Archaeological Excavations and the Inadvertent Discoveries sections of the Native

**Responses to Comments on Draft Environmental Impact Report  
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American Graves Repatriation and Protection Act. Summaries and section citations are also provided of the California Health and Safety Code regarding disturbance of human remains and the California Native American Graves Repatriation and Protection Act.

The State Water Resources Control Board and/or FERC (and their contracted staff) will continue to facilitate tribal consultation throughout future planning, construction, and operation of the Project. Confidentiality of information provided during Native American consultation will be maintained, as will confidentiality of site locations.

See Response to NAHC #1, which includes MM CR-11.





THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA

Office of the General Manager

October 6, 2010

**Via E-mail & Regular Mail**

Mr. Paul Murphey  
Division of Water Rights  
State Water Resources Control Board  
Post Office Box 2000  
Sacramento, CA 9512

Dear Mr. Murphey:

Eagle Mountain Pumped Storage Hydro-electric Project,  
FERC Project No. 13123 – California, Draft Environmental Impact Report/Statement

The Metropolitan Water District of Southern California (Metropolitan) reviewed the Notice of Completion/Availability for the Draft Environmental Impact Report (Draft EIR/EIS) for the Eagle Mountain Pumped Storage Hydroelectric project, FERC Project No. 13123-000 (Project). The California State Water Resources Control Board is acting as the Lead Agency under the California Environmental Quality Act and the Federal Energy Regulatory Commission (FERC) is acting as the Lead Agency under the National Environmental Policy Act for this Project, collectively “Agencies.” The Agencies prepared the Draft EIR/EIS to utilize two existing mining pits to pump and store water to generate power during periods of high demand on federal land near the town of Desert Center, within San Bernardino County. This letter contains Metropolitan’s response to the public notice as a potentially affected public agency.

Metropolitan previously provided comments to the Project during the Scoping Period. We reviewed the environmental document and acknowledgment to our comment letter dated January 15, 2009, in Appendix E of the Draft EIR/EIS. In addition, Metropolitan previously provided comments to the FERC for Eagle Crest Energy Crest’s Licensing Process, Project No. 12509 and No. P-13123, in comment letters dated February 11 and September 15, 2008, respectively, copies of which are enclosed for reference.

MWD #1

Specific comments on potential environmental issues for consideration and incorporation into the Draft EIR/EIS are listed below.

1. Page 3.3, Subsection 3.3.3.3.4 Colorado River Effects: Colorado River accounting surface issues. The Draft EIR/EIS includes a short discussion of potential effects of groundwater production by the project on water supplies from the Colorado River. The Project proposes to use approximately 8,100 afy (acre feet per year) of water during the initial fill and construction of the reservoirs and approximately 1,800 afy for long-term operations.

MWD #2

Metropolitan holds an entitlement to imported water supplies from the Colorado River. Water from the Colorado River is allocated pursuant to federal law and is managed by the Department of the Interior, Bureau of Reclamation (USBR). In order to lawfully use Colorado River water, a party must have an entitlement to do so. *See* Boulder Canyon Project Act of 1928, 43 U.S.C. §§ 617, et seq.; *Arizona v. California*, 547 U.S. 150 (2006) [“Consolidated Decree”].

According to the Consolidated Decree, consumptive use “includes all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping.” A groundwater basin that is hydro-geologically connected to the Colorado River is considered within the “accounting surface,” and water drawn from below that elevation is assumed to be replaced by Colorado River water. The extent of the accounting surface area for the Colorado River was determined by the U.S. Geological Survey (USGS) and USBR as part of an on-going rule-making process. *See* Notice of Proposed Rule Regulating the Use of the Lower Colorado River Without an Entitlement, 73 Fed. Reg. 40916 (July 16, 2008 [currently suspended]); USGS Scientific Investigation Report No. 2008-5113. To the extent the Project uses Colorado River water, it must have a documented right to do so.

MWD #2

In this project, the static water levels underlying planned wells appear to be over 200 feet above the accounting surface, assumed in the Draft EIR to be between 238 and 240 feet above mean sea level (feet msl). In the event either the accounting surface is determined to be at a different elevation, or the static water levels below the project’s wells begin significantly to drop toward the accounting surface; groundwater production by the project could result in an unauthorized diversion of Colorado River water to the detriment of Metropolitan.

Metropolitan proposes that as a mitigation measure, the project annually report the static water levels beneath each of the project’s production wells, along with a reference either to the accounting surface as proposed by USGS in 2008 or to a valid accounting surface methodology set forth in future legislation, rule-making, or applicable judicial determination.

MWD #3

2. Page 2-14, Section 2.14.3 Spillways: The Draft EIR/EIS indicates that flows overtopping the Lower Reservoir spillway will be conveyed in a channel over or past the buried portion of the Colorado River Aqueduct (CRA). Metropolitan is concerned about structural, water quality, and operational effects of this flow conveyance atop or immediately adjacent to the CRA. In addition, the Final EIR/EIS must provide greater detail indicating the crossing’s proposed design and the specific mitigation measures to prevent any impacts to the CRA, Figure 2.8- Plan Project Features. The Final EIR/EIS should acknowledge that the project proponent will submit all appropriate design plans for Metropolitan’s review and approval for any project component that may affect Metropolitan facilities or rights-of-way.

MWD #4

3. Page 3.3-27, Section 3.3.3.9 Potential Impacts to Groundwater Quality: The Draft EIR/EIS acknowledges there are limited groundwater quality analyses that have been performed in the Chuckwalla Valley; generally, metals exist in reservoir seepage water and brine ponds, and seepage control failure may adversely affect groundwater quality. In addition, the Draft EIR/EIS identifies various mitigation measures, and a groundwater monitoring program will be

MWD #5

implemented within the project vicinity under direction of the State Water Resources Control Board to address these issues and protect the Chuckwalla Basin water quality. The Chuckwalla Basin has previously been considered by Metropolitan, and may be considered in the future, for a conjunctive use water resource project and that maintenance of existing groundwater quality would be critical for future projects. The Final EIR/EIS should specify that all groundwater monitoring data and associated technical reports be made available to Metropolitan, if requested, in the future for assessment of the Chuckwalla Basin groundwater quality.

MWD #5

4. Metropolitan's Eagle Mountain Pumping Plant is one of five pumping plants along the CRA that receives power from Metropolitan's 230-kV transmission system. This power is needed to energize the pumps that supply water to Metropolitan's service area. Metropolitan is concerned the proposed Project may adversely impact its ability to deliver water if the proposed Project causes a disruption to Metropolitan's electric system. Construction activities and operation of any new facilities resulting from the proposed Project should not impede or increase the cost of any electrical operation or maintenance activities on the CRA and its related transmission system. The Final EIR/EIS should identify mitigation measures to prevent such disruptions.

MWD #6

5. Page 3.12-2, Subsection 3.12.2.1: The Draft EIR/EIS indicates the proposed project site is accessible via Eagle Mountain Road, approximately eleven miles south of the site. The Final EIR/EIS should clarify that Eagle Mountain Road is open to the public between Interstate 10 and the Eagle Mountain Pumping Plant, at which point the road stops at the closed gate to Metropolitan's Eagle Mountain Pumping Plant; there is no through access to the proposed Project site through the Eagle Mountain Pumping Plant.

MWD #7

6. Metropolitan's CRA conduit was not designed for AASHTO H-20 loading in this area, and any vehicle crossings must be restricted to the existing paved roadways which have protective slabs in place to distribute this loading away from the pipeline. The Final EIR/EIS should note that any vehicle or equipment which would likely cross the conduit as part of the construction operation of the proposed project will be subject to review and approval by Metropolitan.

MWD #8

7. The Final EIR/EIS should acknowledge that no private or public entity currently has entitlement to build over Metropolitan's fee-owned rights-of-way or properties. Metropolitan's facilities and fee-owned or permanent easement rights-of-way should be considered in planning and in the Final EIR/EIS, and the Project should avoid potential impacts that may occur due to implementation of the Project. Any new facilities related to the Project should not impact accessibility or use of existing Metropolitan facilities. Development associated with the proposed Project must not restrict any of Metropolitan's day-to-day operations or access to its facilities. Metropolitan must be able to maintain its rights-of-way, which requires unobstructed access to Metropolitan facilities and properties at all times in order to repair and maintain our system.

MWD #9

8. In order to avoid potential conflicts with Metropolitan's rights-of-way, Metropolitan requires that any design plans for any activity in the area of Metropolitan's pipelines or facilities be submitted for Metropolitan's review and written approval. The Final EIR/EIS should note that Metropolitan's approval of the Project where it could impact Metropolitan's property will be contingent on such review and approval of design plans for the Project. Detailed prints of drawings of Metropolitan's pipelines and rights-of-way may be obtained by calling Metropolitan's Substructures Information Line at (213) 217-6564. To assist in preparing plans that are compatible with Metropolitan's facilities, easements, and properties, we have enclosed a copy of the "Guidelines for Developments in the Area of Facilities, Fee Properties, and/or Easements of The Metropolitan Water District of Southern California." All submitted designs or plans must clearly identify Metropolitan's facilities and rights-of-way.

MWD #10

9. Page 2-30, List of Approvals: As a result of the Project's potential effects on Metropolitan facilities and rights-of-way, the Final EIR/EIS must identify Metropolitan as an agency whose approval is required. All areas requiring Metropolitan's review and approval shall be clearly identified in the document.

MWD #11

We appreciate the opportunity to provide input to your planning process and we look forward to receiving the Final EIR/EIS, technical studies, and future environmental documentation for this Project. If we can be of further assistance, please contact Mr. Mathew Hacker at (213)217-6756.

Very truly yours,



John Shamma  
Manager, Environmental Planning Team

BSM/bsm  
(EPT Job No. 2010100504)

Enclosures: Letter dated January 15, 2009  
Letter dated September 15, 2008  
Letter dated February 11, 2008

cc: Mr. Steven Lowe  
Eagle Crest Energy Company  
P.O. Box 2155  
Palm Desert, CA 92261

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

**Responses to Comments from the Metropolitan Water District of Southern California (MWD):**

**MWD #1:** Metropolitan previously provided comments to the FERC for Eagle Crest Energy's Licensing Process, Project No. 12509 and No. P-13123, in comment letters dated February 11 and September 15, 2008, respectively, copies of which are enclosed for reference.

**Response to MWD #1:** The State Water Resources Control Board (State Water Board) acknowledges receipt of copies of comment letters submitted to the Federal Energy Regulatory Commission (FERC), dated February 11 and September 15, 2008.

Responses to these comments were included in the Final License Application for the Eagle Mountain Pumped Storage Project (Project) submitted to FERC. Because these letters do not address a specific component of the State Water Board's Draft Environmental Impact Report (EIR), no further response is provided.

**MWD #2:** To the extent the Project uses Colorado River water, it must have a documented right to do so. In this Project, the static water levels underlying planned wells appear to be over 200 feet above the accounting surface. In the event either the accounting surface is determined to be at a different elevation, or the static water levels below the Project's wells begin significantly to drop toward the accounting surface; groundwater production by the Project could result in an unauthorized diversion of Colorado River water to the detriment of Metropolitan.

**Response to MWD #2:** Hydrogeologic analysis conducted for this Project demonstrates that Project wells will not encounter the proposed Colorado River accounting surface as it was previously proposed in the 2007 Federal Register notice.

Section 3.3.3.3.4 of the Draft EIR describes the potential impact of the proposed Project on the Colorado River. As the commenter noted, the static water levels underlying planned wells are over 200 feet above the accounting surface. Static water levels below the Project's wells will be monitored as described in mitigation measure (MM) GW-1 (see Response to MWD #3).

**MWD #3:** Metropolitan proposes that as a mitigation measure, the project annually report the static water levels beneath each of the project's production wells.

**Response to MWD #3:** MM GW-1 has been revised in the Final EIR as follows (new text shown in red):

**MM GW-1. Groundwater Level Monitoring.** A groundwater level monitoring network will be developed to confirm that Project pumping is maintained at levels that are in the range of historic pumping. The monitoring network will consist of both existing and new monitoring wells to assess changes in groundwater levels beneath the CRA [Colorado River Aqueduct] and the Pinto Basin, as well as in areas east of the Project water supply wells. Table 3.3-10 lists the proposed monitoring network and Figure 3.3-17 shows its proposed locations. In addition to the proposed monitoring wells, groundwater levels, water quality, and production will be recorded at the Project pumping wells.

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

The Project will report the static water levels beneath each of the Project's production wells annually along with a reference either to the accounting surface as proposed by USGS [United States Geological Survey] in 2008 or to a valid accounting surface methodology set forth in future legislation, rule-making or applicable judicial determination. A "static water level" shall be when the well has been idle for an equal time that it has been pumping or the measurement taken after the longest period of Project non-pumping.

If monitoring indicates that groundwater is being draw down at greater levels and faster rates than expected (exceeding the "Maximum Allowable Changes" identified in Table 3.3-9), pumping rates for the initial fill will be reduced to a level that meets the levels specified in Table 3.3-9. The initial fill period would therefore be extended to a maximum of 4.5 to 6 years.

**MWD #4:** Metropolitan is concerned about structural, water quality, and operational effects of the spillway flow conveyance atop or immediately adjacent to the CRA. The Final EIR/EIS should acknowledge that the project proponent will submit all appropriate design plans for Metropolitan's review and approval for any project component that may affect Metropolitan facilities or rights-of-way.

**Response to MWD #4:** MM LU-2 directs the Applicant to submit all appropriate design plans for any Project features that may affect MWD facilities or rights-of-way to MWD for review and approval. MWD will also have the right to observe construction of these Project features to ensure compliance with approved designs.

MM LU-2 in the Draft EIR states that "engineering designs of crossings of MWD facilities will be submitted to MWD for their review and approval." The language of this mitigation measure has been modified in response to MWD's comments, and now reads (changes shown in red):

**MM LU-2** **Coordinate with MWD.** The Licensee will submit design plans for proposed Project facilities which may affect MWD facilities to the MWD for its review and approval for any Project component that may affect MWD facilities or rights-of-way. MWD's approval will be contingent on review and approval of design plans. MWD will also be notified of the construction of Project features that may affect MWD facilities or rights-of-way and will have an opportunity to observe construction of such feature.

**MWD #5:** The Chuckwalla Basin has previously been considered by Metropolitan, and may be considered in the future, for a conjunctive use water resource Project and that maintenance of existing groundwater quality would be critical for future projects. The Final EIR/EIS should specify that all groundwater monitoring data and associated technical reports be made available to Metropolitan, if requested, in the future for assessment of the Chuckwalla Basin groundwater quality.

**Response to MWD #5:** MM GW-6 has been modified in the Final EIR as follows (updated text shown in red):

**MM GW-6.** **Water Quality Sampling.** Water quality sampling will be done at the source wells, and within the reservoirs, and in monitoring wells upgradient and

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

downgradient of the reservoirs and brine disposal lagoon consistent with applicable portions of California Code of Regulations Title 27. Figure 3.3-18 shows the proposed locations of these wells. The Licensee shall prepare and implement a site-specific monitoring and reporting plan for groundwater and surface waters which will specify the location and timing of water quality monitoring, and constituents to be monitored. Monitoring will be done on a quarterly basis for the first four years and may be reduced to biannually thereafter based on initial results. Results of the sampling will be used to adjust water treatment volume, and to add or adjust treatment modules for TDS [total dissolved solids] and other potential contaminants as needed to maintain groundwater quality under the direction of the State Water Board and FERC. Groundwater quality monitoring results will be made available to MWD upon request.

*Performance Standard:* As a performance standard, the proposed Project: 1) must not cause or contribute to the degradation of background water quality of the aquifer; and 2) water quality in the reservoirs will be maintained at the existing quality of the source groundwater.

**MWD #6:** Construction activities and operation of any new facilities resulting from the proposed Project should not impede or increase the cost of any electrical operation or maintenance activities on the CRA and its related transmission system. The Final EIR/EIS should identify mitigation measures to prevent such disruptions.

**Response to MWD #6:** No element of the proposed construction or operation of the Project has been identified that would block access to MWD's facilities, increase its operational costs, or prevent MWD from conducting normal operations and maintenance of its CRA or related electrical systems. The construction drawings and specifications for the Project will identify specific measures and requirements to protect existing CRA infrastructure and facilities.

See Response to MWD #4 for updated language for MM LU-2.

**MWD # 7:** The Final EIR/EIS should clarify that Eagle Mountain Road is open to the public between Interstate 10 and the Eagle Mountain Pumping Plant, at which point the road stops at the closed gate to Metropolitan's Eagle Mountain Pumping Plant; there is no through access to the proposed Project site through the Eagle Mountain Pumping Plant.

**Response to MWD #7:** Comment noted. The requested clarification has been added to Section 3.9.2 of the Final EIR (updated text shown in red): "Eagle Mountain Road is open to the public between I-10 and the Metropolitan Water District's Eagle Mountain Pumping Plant, at which point the road stops at the closed gate to the pumping plant; there is no through access to the proposed Project site through the pumping plant."

**MWD #8:** Metropolitan's CRA conduit was not designed for AASHTO [American Association of State Highway and Transportation Officials] H-20 loading in this area, and any vehicle crossings must be restricted to the existing paved roadways which have protective slabs in place to distribute this loading away from the pipeline. The Final EIR/EIS should note that any vehicle or

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

equipment which would likely cross the conduit as part of the construction operation of the proposed Project will be subject to review and approval by Metropolitan.

**Response to MWD #8:** It is recognized that existing CRA crossings have limited design capacity. MWD will be informed of all potential construction activities that require crossing its facilities, including loads on CRA crossings used by vehicles and equipment for Project construction and operations, as stipulated in the revised MM LU-2. MM LU-2 in the Draft EIR stated that “engineering designs of crossings of MWD facilities will be submitted to MWD for their review and approval.” This language of this MM has been modified in the Final EIR, as outlined in Response to MWD #4.

**MWD #9:** The Final EIR/EIS should acknowledge that no private or public entity currently has entitlement to build over Metropolitan’s fee-owned rights-of-way or properties. Any new facilities related to the Project should not impact accessibility or use of existing Metropolitan facilities. Development associated with the proposed Project must not restrict any of Metropolitan’s day-to-day operations or access to its facilities.

**Response to MWD #9:** Section 3.9. (Land Use/Public Services) of the Final EIR has been modified in response to this comment to acknowledge MWD’s fee-owned rights-of-way and properties and MWD’s authority to issue rights-of-way for crossings of its land.

Impact 3.9-15 (Impact to Public Services) has been modified in the Final EIR to include potential impacts to MWD services.

Impact 3.9-15 remains less than significant with the implementation of mitigation measures, as described in Section 3.9.5 of the Final EIR.

**MWD #10:** In order to avoid potential conflicts with Metropolitan’s rights-of-way, Metropolitan requires that any design plans for any activity in the area of Metropolitan’s pipelines or facilities be submitted for Metropolitan’s review and written approval.

**Response to MWD #10:** Please see Response to MWD #4 for revisions to MM LU-2.

**MWD #11:** Final EIR/EIS must identify Metropolitan as an agency whose approval is required.

**Response to MWD #11:** The Section 3.9.1.2 of the Final EIR has been revised to state that the MWD is a Responsible Agency per the California Environmental Quality Act (CEQA) Guidelines §15381; whereas the MWD has discretionary approval power for the Project based on review and approval of design plans as they relate to the MWD’s rights-of-way and facilities.





State of California –The Natural Resources Agency  
 DEPARTMENT OF FISH AND GAME  
 Inland Deserts Region  
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 Ontario, CA 91764  
 (909) 484-0459  
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**ARNOLD SCHWARZENEGGER, Governor**  
**JOHN McCAMMAN, Director**



U/PGM  
 FERC  
 13123

September 30, 2010

Mr. Paul Murphey  
 Hearings and Special Projects  
 State Water Resources Control Board  
 1001 I Street, 14<sup>th</sup> Floor  
 Sacramento, CA 95814

Subject: Draft Environmental Impact Report  
 Eagle Mountain Pumped Storage Project  
 State Clearinghouse No. 2009011010  
 FERC Project No. 13123

STATE WATER RESOURCES  
 CONTROL BOARD  
 DIV. OF WATER RIGHTS  
 SACRAMENTO  
 10 OCT -5 AM 11:13

Dear Mr. Murphey:

The Department of Fish and Game (Department) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the Eagle Mountain Pumped Storage Project (EMPS Project)[State Clearinghouse No. 2009011010; FERC Project No. 13123]. The Department is responding to the DEIR as a Trustee Agency for fish and wildlife resources (Fish and Game Code Sections 711.7 and 1802, and the California Environmental Quality Act [CEQA] Guidelines Section 15386), and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as the issuance of a Lake or Streambed Alteration Agreement (LSA Agreement) [Fish and Game Code Sections 1600 et seq.] and/or a Permit for Incidental Take of Endangered, Threatened, and/or Candidate species (Incidental Take Permit) [Fish and Game Code Sections 2080 and 2080.1]. Please note that as a Responsible Agency, the Department must rely on the environmental document prepared by the Lead Agency in order to prepare and issue an LSA Agreement and/or Incidental Take Permit for the project. If the Final Environmental Impact Report (FEIR) for this project fails to identify all project impacts and adequately mitigate those impacts, the project proponent may be required to reinstate the CEQA process at their expense, or fund another CEQA process under the direction of the Department to ensure that all project impacts are identified and adequately mitigated.

CDFW # 1

The EMPS Project consists of a pumped storage hydroelectric facility using two existing abandoned mining pits near the town of Eagle Mountain at the edge of the Eagle Mountains in Riverside County within the California portion of the western Sonoran Desert. Water will be pumped from a lower pit/reservoir to an upper pit/reservoir during periods of low demand to generate peak energy during periods of high demand. To obtain the needed storage volume at the existing upper pit, two dams will be constructed along its perimeter. As the lower pit has sufficient storage for the total required volume, no dams will be needed for the lower reservoir. The project will consist of the following facilities:

- Two roller-compacted dams at the upper reservoir at heights of 60-feet and 120-feet
- An upper reservoir with a capacity of 20,000 acres-feet
- A lower reservoir with a capacity of 21,900 acres-feet
- Inlet/outlet structures

*Conserving California's Wildlife Since 1870*

- Water conveyance tunnels, consisting of a 4,000-foot long by 29-foot diameter upper tunnel, a 1,390-foot long by 29-foot diameter shaft, a 1,560-foot long by 29-foot diameter lower tunnel, four 500-foot long by 15-foot diameter penstocks leading to the powerhouse, and a 6,835-foot long by 33-foot diameter tailrace tunnel to the lower reservoir
- Surge control facilities
- A 72-foot wide, 150-foot high, and 360-foot long underground powerhouse with four Francis-type turbine units
- A 13.5-mile long, 500-kilovolt transmission line
- Water supply facilities, including a reverse osmosis system and associated brine ponds
- Access roads
- Appurtenant facilities

The Department has the following concerns about the project with respect to fish and wildlife resources and associated habitats. These concerns and the Department's recommendations to address these concerns are discussed further below.

- (A) Impacts to jurisdictional waters
- (B) Creation of surface water resources
- (C) Impacts to desert tortoise (*Gopherus agassizii*)
- (D) Impacts to Nelson's bighorn sheep (*Ovis canadensis nelsoni*)
- (E) Impacts to American badger (*Taxidea taxus*) and kit fox (*Vulpes macrotis*)
- (F) Impacts to bats
- (G) Impacts to sensitive bird species
- (H) Impacts to nesting birds

#### Impacts to Jurisdictional Waters

The DEIR states that "there are many small washes crossed by the (water) pipeline and transmission line...the water pipeline will be a continuous linear feature that will be buried under any dry washes along the route. A streambed alteration agreement will be developed with the CDFW to address the condition and location of all washes and mitigation measures to protect those washes." The DEIR infers that the project proponent has not completed a jurisdictional delineation and therefore has not identified all Department jurisdictional waters present within the project site. Furthermore, the project proponent has not quantified the total area of Department jurisdictional waters that will be impacted by the proposed project and defers mitigation for potential impacts to jurisdictional waters to the issuance of a LSA Agreement. Please note that a jurisdictional delineation and impact analysis will be required for the Department to process a LSA Agreement for the proposed project. Additionally, in order for the Department to utilize the FEIR to prepare and issue a LSA Agreement, the FEIR must identify all Department jurisdictional areas within the project site, quantify the amount of jurisdictional areas that will be impacted by the project, and provide adequate mitigation for impacts to those jurisdictional areas.

CDFW # 2

The DEIR states that 19.7 acres of desert dry wash woodland will be impacted by the proposed project. Desert dry wash woodland is associated with dry washes, which are jurisdictional under the Department. Desert dry wash woodland habitat supports the highest diversity of wildlife in the Sonoran Desert. This habitat provides for various wildlife species essential elements such

CDFW # 3

as food, water, and shelter, which may be scarce in desert habitats. Desert tortoises, deer, rodents, foxes, coyotes, badgers, and host of bird species are known to utilize desert dry wash woodland habitat. Desert dry wash woodland habitat should be included when identifying Department jurisdictional areas within the project site. Thus, the proposed project impacts of 19.7 acres to desert dry wash woodland habitat should be included when quantifying impacts to Department jurisdictional areas. Please note that due to the slow maturation rate of desert dry wash woodland plant species and the potential long-term affects of habitat removal on associated wildlife, removal of these plants for construction of project activities is considered a permanent impact and must be mitigated accordingly in the FEIR. The Department recommends a minimum replacement-to-impact ratio of 3:1 for permanent impacts to desert dry wash woodland.

CDFW # 3

The DEIR concludes that the project will not “substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site, or that would result in flood on- or off-site”, due to the fact that best management practices would be implemented and the drainage pattern would be maintained. The current design of the lower reservoir spillway as described in the DEIR involves the release of 460 cfs from the reservoir into the spillway channel, which will terminate beyond the Colorado River Aqueduct and subsequently be released over the alluvial fan. The Department is concerned that the lower spillway design will convey frequent surface flows at high velocity over the alluvial fan and any desert dry washes within the area below the spillway, causing frequent erosion and flooding, ultimately altering the existing drainage pattern of the area downstream of the project. Any long-term, cumulative impacts to dry washes and other Department jurisdictional areas as a result of the project, including an alteration to the existing drainage pattern on- or off-site, should be included when quantifying impacts to jurisdictional areas under the FEIR and in the project proponent’s notification to the Department for a LSA Agreement.

CDFW # 4

#### Creation of Surface Water Resources

The DEIR states that proposed project will include the creation of two surface water reservoirs with a combined capacity of 41,900 acre-feet and 56 acres of brine ponds. The Department is concerned that these new surface water resources in this portion of the Sonoran Desert will be an attractive nuisance for wildlife species. The DEIR proposes to minimize wildlife impacts associated with the created surface water sources by installing permanent security fencing around the reservoirs and the brine ponds to prevent wildlife access, except at designated drinking points. As proposed, this fencing will contain dips to allow wildlife to reach the water for drinking, but will be designed to exclude desert tortoise. This fencing will also be inspected monthly and during/following all major rainfall events, and any damage to fencing will be repaired immediately, followed by permanent repair within one week. The Department recommends the following with respect to fencing. All permanent fencing should be constructed of materials suitable for the desert environment to reduce the frequency of damage and need for repair. Any damaged fencing should be provided with permanent repair immediately rather than “within one week” as stated in the DEIR to ensure wildlife do not enter the reservoirs or brine ponds and consequently become injured or drown. Fencing for the brine ponds should be designed to exclude all types of wildlife and not include “dips” for drinking due to the contaminated nature of the water that will be present within the ponds. The DEIR states that the brine ponds will be designed to be “unattractive” to birds and that netting will be provided to prevent access by birds. Please explain how 56 acres of brackish water will be designed to be

CDFW # 5

CDFW # 6

“unattractive” to birds in an environment where surface water sources are scarce. In addition, the FEIR should describe how 56 acres of netting will be initially installed and subsequently maintained regularly for the life of the project.

CDFW # 6

Impacts to Desert Tortoise

The DEIR states that desert tortoise are present within the project site. In addition, the project site includes 82.1 acres of desert tortoise habitat, which consists of 16 acres of the Bureau of Land Management (BLM) designated Desert Wildlife Management Area (DWMA) habitat, 16.7 acres of Fish and Wildlife Service (FWS) designated critical habitat, and 65.4 acres of Category 3 habitat. Desert tortoise is a State- and Federally-listed threatened species.

The Department recommends that project construction and operation is scheduled and designed to avoid and minimize impacts to desert tortoise to the maximum extent possible. Prior to commencement of project activities, a qualified (per the FWS document “Qualifications and Requirements for Authorized Biologists”) biologist shall conduct surveys for desert tortoise using current FWS Pre-project Survey Protocol. Please note that the Department will only accept 100% coverage surveys and not probabilistic sampling. Desert tortoise surveys are valid for one year only and shall be conducted within the entire action area.

CDFW # 7

If desert tortoises are found onsite and cannot be avoided, or are proposed to be relocated or translocated, the project proponent shall apply for an Incidental Take Permit from the Department pursuant to Section 2080 et seq. of the Fish and Game Code and the California Endangered Species Act (CESA). “Take” of a species constitutes the hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill of that species. Please note that the CESA requires that the impacts of authorized take are minimized and fully mitigated. Early consultation with the Department to obtain an Incidental Take Permit is strongly encouraged, as significant modification to the proposed project and mitigation measures may be required in order to obtain take authorization. In order for the Department to utilize the FEIR to prepare and issue an Incidental Take Permit, the FEIR must identify all impacts to desert tortoise and provide adequate minimization and mitigation measures for impacts. Please note that any proposals to translocate desert tortoise will require a translocation plan to be developed in coordination with the Department and FWS using current FWS translocation guidance.

CDFW # 8

The transmission line route for the EMPS Project as described in the DEIR parallels Eagle Mountain Road and terminates at a proposed Interconnection Collector Substation at Desert Center north of Interstate 10. Alternatively, the transmission line of the adjacent Desert Sunlight solar power project currently being proposed by First Solar, Inc. includes a route that follows Kaiser Road, turns east just north of Desert Center and then heads south across Interstate 10 to Southern California Edison’s (SCE) planned Red Bluff Substation A. In addition, First Solar, Inc. is planning to use the area between Eagle Mountain Road and Kaiser Road as their desert tortoise relocation site. As a condition of the translocation, First Solar, Inc. will likely be required to fence Kaiser Road and a portion of Interstate 10. If the project proponent constructs the transmission line for the EMPS Project along Eagle Mountain Road and fences the area during construction, a zoo-like environment will be created, isolating desert tortoise to the relocation site. Thus, the Department recommends that the EMPS Project transmission line be collocated with Desert Sunlight’s transmission line along Kaiser Road as it would minimize impacts to desert tortoise and the amount of raven subsidies within critical habitat, DWMA habitat, and the local area. In addition, the Department prefers that the EMPS Project transmission line connect

CDFW # 9

to the planned Red Bluff Substation A rather than build an additional substation. The additional substation would be located within critical habitat and DWMA habitat and would provide additional perch sites for ravens and therefore increase predation on resident desert tortoise populations as well as any translocated desert tortoise. The establishment of any redundant transmission facilities in the project site and adjacent areas will likely increase the direct, indirect, and cumulative impacts on desert tortoises, which may compromise recovery actions for the species within this critical habitat unit. Please note that regardless of the ultimate alignment of the transmission line, a raven management plan will need to be developed for the entire project site, including transmission lines and other facilities, to address increased predation on local desert tortoise populations.

CDFW # 9

CDFW # 10

#### Impacts to Nelson's Bighorn Sheep

The DEIR states that Nelson's bighorn sheep are present within the project site. Nelson's bighorn sheep are managed by the Department as a game species. The DEIR indicates that project construction and operation may have the following potential impacts to bighorn sheep: disturbance to migration patterns, foraging habitat, and breeding and lambing behavior; attraction to the reservoirs as a water source and subsequent drowning; and changes in local water sources such as springs. The Department recommends that project construction and operation is scheduled and designed to avoid and minimize impacts to bighorn sheep to the maximum extent possible. A qualified and Department-approved biologist shall survey the entire project site and adjacent areas for bighorn sheep using Department and/or FWS protocol prior to the commencement of project activities. Temporary fencing shall be provided around the project site as determined appropriate by the biologist to prevent bighorn sheep from entering active project construction areas or other areas that may be hazardous. The fencing shall be designed to ensure that bighorn sheep have sufficient migration paths and foraging areas for the duration of project construction. Permanent fencing shall be provided along the entire perimeter of each reservoir to prevent sheep from entering the reservoirs and drowning. All bighorn sheep exclusion fencing shall measure a minimum 6 feet in height and be inspected on a monthly basis. The DEIR states that the reservoir fencing will contain "dips" for drinking access, however if local springs or free standing water is adversely impacted or depleted by the proposed project, the Department recommends that drinkers be installed at various locations away from the reservoirs within bighorn sheep migration and foraging areas to provide supplementary water sources and deter bighorn sheep from visiting the reservoirs. The Department shall determine the appropriate quantity and location of the drinkers. The FEIR shall include these and other measures to avoid and minimize impacts to Nelson's bighorn sheep.

CDFW # 11

CDFW # 12

#### Impacts to American Badger and Kit Fox

The DEIR states that both American badger and kit fox are present within the project site. American badger is designated as State-listed mammal species of special concern. Section 460 of Title 14 of the California Code of Regulations stipulates that desert kit fox may not be taken at any time. To avoid impacts to American badger and desert kit fox, a qualified and Department-approved biologist shall perform surveys for badger and kit fox dens within the entire project area, including all areas within 90 feet of all project facilities, utility corridors, and access roads, prior to the commencement of any project activities. Surveys may be conducted concurrently with desert tortoise pre-construction surveys. Each den that is identified shall be classified as inactive, potentially active, or definitely active. Inactive dens that will be potentially

CDFW # 13

impacted by project construction shall be excavated by hand and backfilled to prevent reuse by badgers and/or kit fox. Potentially active and definitely active dens that will be directly impacted by project construction shall be monitored by the biologist for 3 consecutive nights using a tracking medium, such as diatomaceous earth or fire clay, and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured following the 3 nights, the den shall be excavated and backfilled by hand. If tracks are observed, and if high or low ambient temperatures could potential result in harm to badger or kit fox from burrow exclusion, various passive hazing methods may be used to discourage occupants from continued use. Once verified that a den is unoccupied, the den shall be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. In the event that passive relocation techniques fail for badgers, the Applicant shall contact the Department to explore other relocation options, which may include trapping. The FEIR shall include these and other measures to avoid and minimize impacts to American badger and desert kit fox.

CDFW # 13

Impacts to Bats

The DEIR lists several sensitive bat species as being present or having the potential to be present within the project site, including: big free-tailed bat (*Nyctinomops macrotis*), California leaf-nosed bat (*Macrotus californicus*), pallid bat (*Antrozous pallidus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), spotted bat (*Euderma maculatum*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western mastiff bat (*Eumops perotis californicus*), all State-listed species of special concern. In addition, the project site has the potential to support several common bat species.

To avoid impacts to bats, the Department recommends that project construction is scheduled to avoid the maternity seasons (generally May through September) for bats that are present or have the potential to be present within the project site. If the maternity seasons cannot be avoided, a qualified and Department-approved biologist shall survey all known and potential roosting sites and hibernacula within one mile of the project site for the presence of bats. Surveys shall be conducted using Department and/or FWS protocol. All active roosting sites, maternity colonies, and hibernacula should be provided with a minimum setback distance of 500 feet from project activities. The Department recommends that the placement of project facilities is avoided within and adjacent to active roosting sites, maternity colonies, and hibernacula. Any roosting sites or hibernacula that cannot be avoided during project construction should be mitigated through the implementation of mitigation/protection measures (as determined in consultation with the Department) within adjacent, offsite lands containing bat colonies or suitable bat habitat, and/or through the acquisition of these lands for long-term conservation and protection of local bat species and their habitat. The FEIR shall include these and other measures to avoid, minimize and/or mitigate impacts to bats.

CDFW # 14

Impacts to Sensitive Bird Species

The DEIR lists several sensitive bird species as being present or having the potential to be present within the project site, including: American peregrine falcon (*Falco peregrinus anatum*), a State-listed endangered and fully protected species; gila woodpecker (*Melanerpes uropygialis*), a State-listed endangered species; golden eagle (*Aquila chrysaetos*), a State-listed fully protected species; and Bendire's thrasher (*Toxostoma bendirei*), burrowing owl (*Athene cucularia*), crissal thrasher (*Toxostoma crissale*), loggerhead shrike (*Lanius ludovicianus*),

CDFW # 15

mountain plover (*Charadrius montanus*), north harrier (*Circus cyaneus*), short-eared owl (*Asio flammeus*), Sonoran yellow warbler (*Dendroica petechia sonorana*), vermilion flycatcher (*Pyrocephalus rubinus*), and yellow-breasted chat (*Icteria virens*), all State-listed species of special concern.

Per Section 3511 of the Fish and Game Code, fully protected birds may not be taken or possessed at any time. The project shall be designed to completely avoid golden eagle and American peregrine falcon. The Department recommends that no project activities are conducted during the period of January 1 through August 31 to ensure that golden eagle and American peregrine falcon are not impacted or otherwise disturbed while conducting nesting activities. Prior to the commencement of project activities, surveys shall be conducted by a qualified and Department-approved biologist using current Department and/or FWS protocol to ensure that golden eagle and American peregrine falcon are absent from the project site. In addition, golden eagle surveys shall be conducted where nesting, roosting, and/or foraging habitat exists within the project boundary and/or occurs within 10 miles of the project boundary. Any active nests that are found shall be provided with a minimum setback of ¼ mile. The biologist shall also be present for the duration of project construction to ensure that project activities are suspended should any golden eagle or American peregrine falcon enter the project site. The FEIR should include these and additional measures to completely avoid impacts to golden eagle and American peregrine falcon as both species are “no take” species.

CDFW # 15

Per Section 2080 et seq. of the Fish and Game Code, an Incidental Take Permit must be obtained by the project proponent from the Department if the proposed project has the potential to result in take of a species listed as threatened or endangered under the California Endangered Species Act. The Department recommends that the project be designed to avoid take of gila woodpecker. Recommended avoidance measures include: scheduling vegetation removal outside of the nesting season for gila woodpecker of April 1 through July 31, obtaining a qualified and Department-approved biologist to conduct preconstruction surveys for gila woodpecker using Department and/or FWS protocol and remain onsite for the duration of project construction to ensure that project activities are suspended should gila woodpecker enter the project site, and providing a minimum setback distance of 500 feet between project activities and any active nests. If impacts to gila woodpecker cannot be avoided during project construction, the project proponent must obtain an Incidental Take Permit from the Department. The FEIR should include the avoidance measures listed above as well as additional measures to avoid, minimize, and/or mitigate impacts to gila woodpecker.

CDFW # 16

The Department recommends that project construction is scheduled to avoid the nesting seasons of the various State-listed bird species of special concern that are present or have the potential to be present within the project site to avoid impacts to these species. If the nesting seasons of these species cannot be avoided, preconstruction surveys should be conducted by a qualified and Department-approved biologist per Department or FWS protocol/requirements to ensure that State-listed bird species of special concern are not impacted or otherwise disturbed by the proposed project. The FEIR should include these and other measures to avoid, minimize, or mitigate impacts to State-listed bird species of special concern.

CDFW # 17

#### Impacts to Nesting Birds

Sections 3503, 3503.5, and 3513 of the Fish and Game Code and the Migratory Bird Treaty Act prohibit take of all birds and their active nests, including raptors and other migratory non-game

CDFW # 18

Mr. Paul Murphey, State Water Resources Control Board  
Eagle Mountain Pumped Storage Project, SCH No.2009011010  
September 30, 2010

birds. The Department recommends that project construction is scheduled to avoid the nesting seasons of local birds that are present or have the potential to be present within the project site. If the nesting seasons cannot be avoided, a qualified and Department-approved biologist shall survey all vegetation and other potential nesting sites within the project site for nesting birds using current Department or FWS protocol. Any active nests found shall be flagged and provided with a minimum setback of 200 feet for non-sensitive species and 500 feet for sensitive and listed species as well as raptors. The FEIR shall include these and other measures to avoid and minimize impacts to nesting birds.

CDFW # 18

Please note that if the FEIR for this project fails to identify all project impacts and adequately mitigate those impacts, the project proponent may be required to reinitiate the CEQA process under the direction of the Department to ensure that all project impacts are identified and adequately mitigated.

CDFW # 19

The Department appreciates the opportunity to comment on the DEIR. If you have any questions regarding this letter, please contact Anna Milloy at (909) 987-8176 or [amilloy@dfg.ca.gov](mailto:amilloy@dfg.ca.gov).

Sincerely,



Jeff Brandt  
Senior Environmental Scientist  
Habitat Conservation Planning Program

Cc: Department of Fish and Game  
Anna Milloy, Ontario  
Magdalena Rodriguez, Ontario  
Jim Sheridan, Bermuda Dunes

Fish and Wildlife Service  
Jody Fraser, Carlsbad

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

**Responses to Comments from the California Department of Fish and Wildlife (CDFW;  
formerly known as Department of Fish and Game):**

**CDFW #1:** If the Final Environmental Impact Report (Final EIR) for this project fails to identify all project impacts and adequately mitigate those impacts, the project proponent may be required to reinitiate the CEQA process at their expense, or fund another CEQA process under the direction of the Department to ensure that all project impacts are identified and adequately mitigated.

**Response to CDFW #1:** The State Water Resources Control Board (State Water Board) is the designated lead agency under the California Environmental Quality Act (CEQA). The full range of potential environmental issues that need to be addressed for the Eagle Mountain Pumped Storage Project (Project) were identified in the CEQA scoping process, which CDFW participated in. Scoping and identification of issues was performed concurrently for the as part of the Federal Energy Regulatory Commission (FERC) licensing process for the Project. CDFW also participated in the FERC process. The Final Environmental Impact Report (EIR) is intended to identify all known potential Project impacts and describe mitigation measures to be implemented to avoid, reduce, or offset those potential impacts.

**CDFW #2:** Note that a jurisdictional delineation and impact analysis will be required for the Department to process a Lake and Streambed Alteration (LSA) Agreement for the proposed project. Additionally, in order for the Department to utilize the Final EIR to prepare and issue a LSA Agreement, the Final EIR must identify all Department jurisdictional areas within the project site, quantify the amount of jurisdictional areas that will be impacted by the project, and provide adequate mitigation for impacts to those jurisdictional areas.

**Response to CDFW #2:** Potential Project impacts to desert washes and microphyllous woodland are identified in the Draft EIR, including quantification of affected acreage, and identification of measures to avoid, minimize, and compensate for those potential impacts. On Page 3.5-41 of the Draft EIR, the text identifies that there are potentially jurisdictional state waters (dry washes) and that a Lake and Streambed Alteration (LSA) Agreement (also referred to as a 1602 permit) will be required for the Project. The requirement for an application for the LSA Agreement permit is also described in Section 3.5.1.2 of the Draft EIR. The discussion of vegetation community types in Section 3.5.2.1 of the Draft EIR describes the washes in these communities and Table 3.5-1 of the Draft EIR identifies the acreage of Desert Dry Wash Woodland and Sonoran Creosote Bush Scrub that may be disturbed by all Project features.

It is estimated that a total of 22 acres of state washes may be affected by the Project activities: 2.5 acres for the pipeline; 13.4 acres for the transmission line; and 6 acres for the substation. The Project feature parameters identified in the footnotes of Table 3.5-1 in the Draft EIR are based on a conservative estimate of half of the Desert Dry Wash Woodland acreage, and identification of individual washes in Sonoran Creosote Bush Scrub, from aerial photographs. Impact 3.5-9 specifically discusses potential impacts to state waters and mitigation measure (MM) BIO-21 requires the identification of, the condition and location of all state jurisdictional waters, impacts, and mitigation measures. Mitigation includes the acreage assessment of washes that may be affected, construction requirements associated with working on or near the washes, and compensation for lost or damaged acreage. It is anticipated that this compensation

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

will be included in the habitat compensation for special-status species (MM BIO-22 and MM TE-6).

To summarize, there will be no loss of hydrological function via construction and operation of the transmission line, substation, and pipeline. Avoidance measures will allow avoidance of most trees, especially those in washes, which are primarily along the transmission line. Poles and the access road can be strategically placed out of washes. Off-site compensation will be at a replacement-to-impact ratio of 3:1 for Desert Dry Wash Woodland.

The application for an LSA Agreement will be undertaken following final engineering design, after the final Project's linear routes are determined. The Project's final linear routes will be included in the LSA Agreement application.

**CDFW #3:** Thus, the proposed project impacts of 19.7 acres to desert dry wash woodland habitat should be included when quantifying impacts to Department jurisdictional areas. The Department recommends a minimum replacement-to-impact ratio of 3:1 for permanent impacts to desert dry wash woodland.

**Response to CDFW #3:** MM BIO-21 and MM BIO-22 address compensation acres for Desert Dry Wash Woodland. A compensation ratio of 3:1 for Desert Dry Wash Woodland is required in MM BIO-22. Acquisition of compensation habitat is intended to offset potential impacts to wildlife species that use Desert Dry Wash Woodland. Additional mitigation measures for these species are found in Section 3.6 of the Draft EIR.

**CDFW #4:** The Department is concerned that the lower spillway design will convey frequent surface flows at high velocity over the alluvial fan and any desert dry washes within the area below the spillway, causing frequent erosion and flooding, ultimately altering the existing drainage pattern of the area downstream of the project. Any long-term, cumulative impacts to dry washes and other Department jurisdictional areas as a result of the project, including an alteration to the existing drainage pattern on- or off-site, should be included when quantifying impacts to jurisdictional areas under the Final EIR and in the project proponent's notification to the Department for a LSA Agreement.

**Response to CDFW #4:** The Final EIR contains additional information in Section 2.4.3 to describe spillway operations and Section 12.9 contains a project drainage plan. This information is summarized below. Impact 3.1-4 has not been revised from the Draft EIR as it adequately describes the potential impact of the Project on soil erosion.

**Spillway Use:** The Lower Reservoir spillway is intended to be used following very large flood events, such as the 100-year event up to and including the Probable Maximum Flood (PMF) – a statistical 1- in 10,000-year or less frequent event – to drain excess stormwater from the Lower Reservoir. Precipitation events producing inflows less than 200 acre-feet (AF) may be stored in the reservoirs to reduce the amount of make-up water needed. Normal operations can continue with inflow volumes up to 200 AF, as 200 AF can be stored in the Lower Reservoir without overtopping the spillway crest. Note that the figure of 200 AF is based on the Lower Reservoir being full after a generating cycle. If the Lower Reservoir has not been refilled or if water were

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

pumped to the Upper Reservoir, additional flood storage space could be created in the Lower Reservoir.

The frequency of occurrence of large flood events on Eagle Creek is extremely low. The limited available flow record for the United States Geological Survey (USGS) stream gage on Eagle Creek (7.7 square miles) extends only from 1961 to 1967 (after which USGS data collection at this location were apparently terminated). During that period, there were two flood events: peak flows of 380 cubic feet per second (cfs) in August 1961; and 190 cfs in August of 1965. The estimated flood volumes for these events are 40 AF and 15 AF, respectively, which were estimated based on the daily average flows reported by USGS. Neither event lasted more than 24 hours or produced sufficient runoff volume to have caused an alteration of Project operations or use of the spillway if the Project existed at that time.

In the rare flood events that require use of the spillway, water will be conveyed from the Lower Reservoir through a rock armored (“riprap”) lined channel and then discharged through a structure that will spread flow such that the flow depth and velocity are sufficiently low to prevent erosion and scour. The Lower Reservoir Spillway discharge point is at an existing natural fluvial channel. Water velocity will be reduced to approximately 3 feet per second (fps) with a flow depth of approximately 0.5 feet. The resulting flow width will be approximately 300 feet (peak discharge 460 cfs). This velocity is typical of those used for design of stable unlined canal sections in sandy soils in the desert southwest. The water released from the Lower Reservoir will flow downstream, across the alluvial fan in existing washes and channels, seeping into the ground and evaporating as it moves downstream. The 460 cfs flow is similar to the peak flow experienced in Eagle Creek in 1961.

Although the spillway has a maximum capacity of 460 cfs, the spillway can be operated to release much lower levels of discharge. If scouring is noted during actual Project operations as a result of water released from the Lower Reservoir through the spillway channel, the rate of release from the Lower Reservoir will be adjusted downward.

Release of stormwater from the Lower Reservoir will help to maintain the channel morphology of the desert washes in downstream areas, as would occur under natural conditions.

**CDFW #5:** The Department is concerned that these new surface water resources in this portion of the Sonoran Desert will be an attractive nuisance for wildlife species. All permanent fencing should be constructed of materials suitable for the desert environment to reduce the frequency of damage and need for repair. Any damaged fencing should be provided with permanent repair immediately rather than “within one week” as stated in the Draft EIR to ensure wildlife do not enter the reservoirs or brine ponds and consequently become injured or drown.

**Response to CDFW #5:** Section 3.5 of the Final EIR (MM BIO-16) has been modified to state that any damaged fencing will be repaired temporarily by the on-site maintenance staff immediately following observation that damage has occurred and permanently no later than one week following the temporary repair.

**CDFW #6:** Fencing for the brine ponds should be designed to exclude all types of wildlife and not include “dips” for drinking due to the contaminated nature of the water that will be present

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

within the ponds. Please explain how 56 acres of brackish water will be designed to be “unattractive” to birds in an environment where surface water sources are scarce. In addition, the Final EIR should describe how 56 acres of netting will be initially installed and subsequently maintained regularly for the life of the project.

**Response to CDFW #6:** In the Draft EIR, the use of fencing that may allow wildlife access for drinking water was only intended for the reservoirs, not the brine ponds. Based on a potential conflict between the State Water Board’s water quality certification and the United States Fish and Wildlife Service’s (USFWS) Biological Opinion (BO) and CDFW’s Consistency Determination (Determination), the drinking water “dips” have been removed as mitigation measures and are no longer part of the Project. As stated in the October 3, 2012 letter to FERC, the fencing requirements in Section 3.5 of the Final EIR (MM BIO-16) have been updated to be consistent with the BO and Determination.

Fencing for the brine ponds will be designed to fully exclude birds. The brine ponds also will be made unattractive to birds by netting the ponds to restrict access, and/or using the following measures to minimize the attractiveness of the ponds to shorebirds and waterfowl: making the pond slope steep so there is no area that is suitable for shore birds; managing water depths to eliminate vegetation and shorelines; and/or installing multiple auditory and visual hazing methods. Figure 3.5-19 in the Final EIR shows how the netting will be constructed. Maintenance of Project fencing is a requirement of MM BIO-16.

**CDFW #7:** The Department recommends that project construction and operation is scheduled and designed to avoid and minimize impacts to desert tortoise to the maximum extent possible. Prior to commencement of project activities, a qualified biologist shall conduct surveys for desert tortoise using current USFWS Pre-project Survey Protocol.

**Response to CDFW #7:** Please see MM TE-1, which describes requirements for desert tortoise pre-construction surveys and clearance surveys. The USFWS Pre-Project Survey Protocol is not appropriate in this case because it is designed to identify tortoise densities and impacts, rather than for clearance surveys. Clearance surveys will be conducted according to the 2009 USFWS guidelines ([http://www.fws.gov/ventura/species\\_information/protocols\\_guidelines/](http://www.fws.gov/ventura/species_information/protocols_guidelines/)) for clearance surveys or more recent guidance as it becomes available. Tortoises will also be directly protected during construction by measures described in the Final EIR in MM TE-2 (Monitoring during Construction), MM TE-3 (Exclusion Fencing), and MM TE-4 (Translocation Plan).

**CDFW #8:** If desert tortoises are found on site and cannot be avoided, or are proposed to be relocated or translocated, the project proponent shall apply for an Incidental Take Permit from the Department pursuant to Section 2080 et seq. of the Fish and Game Code and the California Endangered Species Act (CESA). “Take” of a species constitutes the hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill of that species. In order for the Department to utilize the Final EIR to prepare and issue an Incidental Take Permit, the Final EIR must identify all impacts to desert tortoise and provide adequate minimization and mitigation measures for impacts.

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

**Response to CDFW #8:** Please see Section 3.6 of the Final EIR, which includes identification of potential impacts to desert tortoise (and other species) – including measures to avoid, minimize, and mitigate those potential effects – as well as the requirement to apply for “take” under Section 2081 of the Fish and Game Code and the California Endangered Species Act. See Impacts 3.6-4 and 3.6-5, and MM TE-1, MM TE-2, MM TE-3, MM TE-4, MM TE-5, MM TE-6, and MM TE-7 in the Final EIR.

**CDFW #9:** First Solar, Inc. is planning to use the area between Eagle Mountain Road and Kaiser Road as their desert tortoise relocation site. As a condition of the translocation, First Solar, Inc. will likely be required to fence Kaiser Road and a portion of Interstate 10. If the project proponent constructs the transmission line for the Eagle Mountain Pumped Storage (EMPS) Project along Eagle Mountain Road and fences the area during construction, a zoo-like environment will be created, isolating desert tortoise to the relocation site. Thus, the Department recommends that the EMPS Project transmission line be collocated with Desert Sunlight’s transmission line along Kaiser Road as it would minimize impacts to desert tortoise and the amount of raven subsidies within critical habitat, DWMA [Desert Wildlife Management Area] habitat, and the local area. In addition, the Department prefers that the EMPS Project transmission line connect to the planned Red Bluff Substation.

**Response to CDFW #9:** The CDFW comment on the preferred route for the transmission interconnection and substation location is noted.

Section 4.0 of the Final EIR is the alternatives analysis. The EIR included a review of two alternative substation locations and three alternative interconnection routes, including the Eastern Red Bluff Substation and a transmission interconnection route along Kaiser Road.

Section 4.10 of the Final EIR addresses the determination of the environmentally preferred alternative. Based upon the elimination of Project impacts to aesthetics, groundwater, and air quality, the environmentally superior alternative would be the No Project Alternative. However, while addressing Project-specific impacts, the No Project Alternative would eliminate a major utility-scale energy storage project from development, with the likely effect of impeding state goals for successful integration of renewable energy generation sources by 2020, as well as related consequences for attainment of California’s greenhouse gas reduction goals by 2020. With this perspective, it is questionable whether the No Project Alternative is environmentally superior.

CEQA directs that in the case where the No Project Alternative is identified as the environmentally superior alternative, the EIR shall also identify the environmentally superior development alternative (CEQA Guidelines §15126.6(e)). Two alternative substation locations (Eastern Red Bluff Substation and Western Red Bluff Substation) and three alternative interconnection routes were examined. Both of the alternative substation locations have less visual impact than the Project’s proposed Interconnection Collector Substation at Desert Center). However, the western substation location has greater impacts to desert tortoise and cultural resources than either the proposed Project or the eastern substation location. Therefore, the Eastern Substation is the environmentally preferred substation location.

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

Two of the three alternative interconnection routes examined involved interconnection to the Eastern Substation location. Interconnection Alternative #1A and #1B have less impact to desert tortoise, land use, and visual resources than Interconnection Alternative 2. Alternative #1A has slightly fewer impacts to biological resources than Alternative #1B. Therefore, Interconnection Alternative #1A is the environmentally superior interconnection alternative for the Project.

Interconnection Alternative #2, the Kaiser Road route, was determined to have greater impacts to desert tortoise because the route traverses 5.4 miles of the Desert Wildlife Management Area (DWMA). Visual impacts of Alternative #2 would include seven miles of high visual impact as a result of placement of the transmission line parallel to and in the foreground view zone of Interstate 10. In addition this route is in the foreground zone of the communities of Desert Center and Lake Tamarisk. Therefore Alternative #2, the Kaiser Road route, was not selected as the recommended alternative in the Final EIR.

**CDFW #10:** A raven management plan will need to be developed for the entire project site, including transmission lines and other facilities.

**Response to CDFW #10:** A draft Raven Management Plan was originally developed in consultation with the CDFW, USFWS and United States Bureau of Land Management (BLM) and is included in Section 12.14 of the Draft EIR. MM TE-5 of the Final EIR requires implementation of the plan, which is now referred to as the Predator Monitoring and Control Plan.

In January 2012, FERC released the Final Environmental Impact Statement (Final EIS) for the Project. The Final EIS recommends a modification of MM TE-5 to include other tortoise predators, including coyotes, wild dogs, and gulls. Consequently, MM TE-5 has been revised below and in the Final EIR to include the modifications recommended by FERC, as follows (modifications in red).

**MM TE-5. Predator Monitoring and Control Program.** The **Predator Monitoring and Control Program** is found in its entirety within Section 12.14. Proposed projects on federal lands that may result in increased **desert tortoise predator** populations must incorporate mitigation to reduce or eliminate the opportunity for raven proliferation. **One of the most significant desert tortoise predators are ravens.** The USFWS has developed a program to monitor and manage raven populations in the California desert in an effort to enhance desert tortoise recovery. In order to integrate monitoring and management, the USFWS has agreed to an “in-lieu” fee to replace quantitative raven monitoring on new projects in the range of the desert tortoise. The **Licensee** will pay in-lieu fees to the USFWS that will be directed toward a future quantitative regional monitoring program aimed at understanding the relationship between ongoing development in the desert region, raven population growth and expansion and raven impacts on desert tortoise populations. The vehicle for this program is a Memorandum of Understanding between the **Licensee**, CDFW, and USFWS.

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

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

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

- A suite of construction and operations measures to reduce food scavenging and drinking by ravens (e.g., trash containment, minimization of pooling water on roadways and construction right-of-ways)
- Roadkill removal
- Qualitative monitoring of raven use of the **Project** site during operations, conducted on a pre-determined schedule by the on-site Project environmental compliance officer
- Breeding season nest surveys
- **Baseline and post-construction surveys for other desert tortoise predators, including coyotes, wild dogs, and gulls**
- **Mitigation measures to be implemented if the number of predators increases**
- **A schedule for post-construction surveys during the 2<sup>nd</sup> year of Project operation, followed by surveys once every 5 years**

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

**CDFW #11:** The Department recommends that project construction and operation is scheduled and designed to avoid and minimize impacts to bighorn sheep to the maximum extent possible.

**Response to CDFW #11:** Potential construction impacts to bighorn sheep are described in Section 3.5.3.3.1 of the Final EIR. As discussed, construction activities, which will produce noise and increased human activity, may temporarily disrupt bighorn sheep movement in the Central Project Area, where the reservoirs and powerhouse will be located. All existing springs used by bighorn sheep are outside the Central Project Area and will still be accessible during construction. During Project operation access to Buzzard Spring will not be affected. MM BIO-1 includes development of a comprehensive site-specific mitigation and monitoring program to be developed in consultation with a Biological Technical Advisory Team. The Biological Technical Advisory Team shall be composed of the Licensee's staff, Environmental Coordinator, and consultants, and staff from the resource managing agencies (BLM, USFWS, and CDFW). A Draft Bighorn Sheep Plan, prepared in consultation with the BLM, National Park Service (NPS), and CDFW was submitted in September 2009, and is included in the Final EIR in Section 12.14. The final, approved plan will become a component of the overall mitigation and monitoring program described in MM BIO-1.

**CDFW #12:** If local springs or free standing water is adversely impacted or depleted by the proposed project, the Department recommends that drinkers be installed at various locations away from the reservoirs within bighorn sheep migration and foraging areas to provide supplementary water sources and deter bighorn sheep from visiting the reservoirs.

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

**Response to CDFW #12:** No component of the Project has been identified that would adversely affect local springs or free standing water. As described in Section 3.2 of the Draft EIR, springs that are fed by groundwater in the Eagle Mountains (see Figure 3.3-1 of the Draft EIR) are hydrologically disconnected to the Pinto or Chuckwalla basin aquifers since they are located in the mountains above the Pinto and Chuckwalla basins (NPS, 1994) . The springs are located in the bedrock and the water is being derived from fractures in the rock in the local area. The water filling the fractures is likely from seasonal precipitation. None of the springs are documented as permanent, year round springs (SCS Engineers, 1990).

**CDFW #13:** The Final EIR shall include specified mitigation measures to avoid and minimize impacts to American badger and desert kit fox.

**Response to CDFW #13:** Project design feature (PDF) BIO-3 in Section 3.5.4 of the Final EIR identifies pre-construction surveys and passive relocation techniques to avoid and minimize impacts to badger and kit fox.

**CDFW #14:** The Final EIR shall include recommended mitigation measures for bats.

**Response to CDFW #14:** MM BIO-15 of the Final EIR describes pre-construction surveys for bats, as well as the development of a mitigation plan (based on the survey results) to minimize disturbance to bats. Recent guidance (USFWS, 2010a) on development of avian and bat protection plans will also be incorporated into the mitigation plan, as relevant.

**CDFW #15:** Per Section 3511 of the Fish and Game Code, fully protected birds may not be taken or possessed at any time. The project shall be designed to completely avoid golden eagle and American peregrine falcon. The Final EIR should include recommended mitigation measures to completely avoid impacts to golden eagle and American peregrine falcon as both species are “no take” species.

**Response to CDFW #15:** Section 3.6 of the Final EIR identifies American peregrine falcon and golden eagle as fully protected species. Golden eagles and American peregrine falcons will be protected by PDF BIO-4, which describes raptor protection from the transmission line, and by MM BIO-14, which discusses the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), which require a buffer of 0.25 miles from a nest.

Based on species records, surveys in the area, and lack of nesting habitat, it is highly unlikely that American peregrine falcon is present. In the 1992 BO that USFWS issued for the proposed Landfill, the analysis determined that the American peregrine falcon did not warrant consultation (i.e., the species is not present). This conclusion is likely still accurate as there has been no significant change in habitat conditions since the BO was prepared. However, PDF BIO-1 identifies that pre-construction surveys will be conducted to ensure that special species and habitat (which would include American peregrine falcon) will not be disturbed.

Section 12.15 of the Final EIR includes results of the golden eagle surveys conducted to determine if eagles could occur in the Project area. Golden eagle territories were found in mountainous areas five or more miles from the Project site. No specific potential Project impacts to golden eagles were identified from the survey evaluation. MM BIO-10 will protect any golden



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

eagle nesting in the Project area. MM BIO-10 requires that for all construction activities in vegetated habitat, which is scheduled to occur between approximately February 15 and July 30, surveys shall be completed in all potential nesting sites for active bird nests. Unless otherwise directed by CDFW, if an active bird nest is located, the nest site shall be flagged or staked a minimum of five yards in all directions. This flagged zone shall not be disturbed until the nest becomes inactive. Alternatively, grading and site preparation may occur prior to February 15 to preclude interference with nesting birds.

**CDFW #16:** The Department recommends that the project be designed to avoid take of Gila woodpecker. The Final EIR should recommend mitigation measures to avoid, minimize, and/or mitigate impacts to Gila woodpecker.

**Response to CDFW #16:** Potential impacts to Gila woodpecker are discussed in Section 3.6.2 of the Final EIR. No Gila woodpecker habitat is identified within the Project's area of potential effects; however, PDF BIO-1, specifies that pre-construction surveys will be conducted to ensure that special species and habitat (including Gila woodpeckers) will not be disturbed.

**CDFW #17:** The Department recommends that project construction is scheduled to avoid the nesting seasons of the various state-listed bird species of special concern that are present or have the potential to be present within the project site to avoid impacts to these species. If the nesting seasons of these species cannot be avoided, pre-construction surveys should be conducted.

**Response to CDFW #17:** Section 3.6.2 of the Final EIR discusses all special-status species that could occur at the site. Although some transient species may periodically occur on-site, only four federally- and/or state-listed species have the potential to be affected by Project activities (Coachella Valley milkvetch, American peregrine falcon, Gila woodpecker, and desert tortoise). Potential impacts to these species and mitigation measures to protect these species are described in Sections 3.6.3 and 3.6.4 of the Draft and Final EIRs. MM BIO-10 describes breeding bird surveys and avoidance which will be done for all native nesting birds, including any state-listed species or species of concern; and MM BIO-13 describes pre-construction surveys for burrowing owls.

**CDFW #18:** The Department recommends that project construction is scheduled to avoid the nesting seasons of local birds that are present or have the potential to be present within the project site. If the nesting seasons cannot be avoided, a qualified and Department-approved biologist shall survey all vegetation and other potential nesting sites within the project site for nesting birds using current Department or FWS protocol.

**Response to CDFW #18:** MM BIO-10 of the Final EIR, describes surveys and avoidance measures for all native nesting birds.

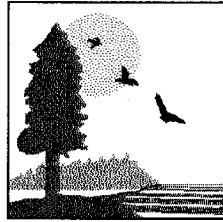
**CDFW #19:** Please note that if the Final EIR for this project fails to identify all project impacts and adequately mitigate those impacts, the project proponent may be required to reinstate the CEQA process under the direction of the Department to ensure that all project impacts are identified and adequately mitigated.

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

**Response to CDFW #19:** Please see Response to CDFW #1.

PGM

**CALIFORNIA STATE LANDS COMMISSION**  
100 Howe Avenue, Suite 100-South  
Sacramento, CA 95825-8202



**CURTIS L. FOSSUM**, Executive Officer  
(916) 574-1800 FAX (916) 574-1810  
California Relay Service From TDD Phone 1-800-735-2929  
from Voice Phone 1-800-735-2922

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November 10, 2010

File Ref: SCH # 2009011010  
W40871

Paul Murphey, Senior Environmental Consultant  
State Water Resources Control Board  
1001 I Street, 14<sup>th</sup> Floor  
Sacramento, CA 95814

STATE WATER RESOURCES  
CONTROL BOARD  
10 NOV 16 AM 11:01  
DIV. OF WATER RIGHTS  
SACRAMENTO

**Subject: Eagle Mountain Pumped Storage Project**

Dear Mr. Murphey,

On August 10, 2010, the California State Lands Commission (CSLC) staff received an electronic version of the Draft Environmental Impact Report (DEIR) for the Eagle Mountain pumped storage project. Upon review of the DEIR, we have the following comments.

We understand that the project would use two reservoirs at different elevations in the now idled open pits of the former Kaiser Eagle Mountain Iron Mine to generate up to 1300 megawatts per day of electrical capacity with four reversible pump-turbine units. On April 8, 2008, Greg Pelka of the CSLC provided verbal comments pertaining to our agency at a meeting held at the University of California, Riverside-Palm Desert Graduate Center, and shared CSLC responsibilities and the State's areas of interest.

The CSLC manages both sovereign (tide and submerged) and State school lands, generally Sections 16 and 36 of each Township and Range. The State school lands were granted by the federal government in 1853 for the economic support of the State school system. Today, the CSLC manages these lands under a fiduciary agency for the economic benefit of the State Teachers' Retirement System (STRS).

CSLC #1

CSLC has two interests within the project area. The first is a 466.66-acre 100 percent Reserved Mineral Interest (see attached map) within Section 36, T3S, R14E, SBBM, Riverside County that would be located within the East Pit Lower Reservoir from Sheet B, Plan View and Project Boundary. The legal description of this ownership is Lots 1, 2, 3, 4, 5, 6, 10 and 11, N1/2 of NW1/4, and W1/2 of the NE1/4 of Section 36, T3S, R14E, SBBM, Riverside County. The CSLC had a portion of this interest previously leased and mined by Kaiser Steel under Mineral Extraction Lease PRC 5678.2 for iron ore. These State lands and the pit surrounding them still contain substantial iron ore resources as identified by the California Geological Survey. We are concerned that, should the Eagle

Mountain pumped storage project come to fruition, future extraction of iron ore would not be possible and mineral revenues for STRS would be precluded.

CSLC #1

According to the DEIR, if the proposed project is approved and constructed, the State's ability to mine this parcel would be impeded during the life of the Project. The placer deposits at the east end of the lower (East) pit, with an estimated 21.4 million short tons ore reserve in the East Pit – Alluvial resource area, would become inaccessible. This is approximately 6.3 percent of the estimated Eagle Mountain ore reserves.


However, staff is also aware that iron ore mining at Eagle Mountain was completely dependent on the availability of rail transportation. The rail line has been inactive since 1986 and would require substantial reconstruction for reoperation.

The second interest of the CSLC that could be impacted by the proposed project is a 5.75-acre fee simple interest in the SW4 of S16, T5S, R16E, SBBM, Riverside County, currently leased to Southern California Edison for a transmission line right of way. From Figure 3.2 (Groundwater Basins Pipeline Area), the new proposed water pipeline could traverse this area and would likely require a right of way lease.

CSLC #2

We appreciate the opportunity to comment on the DEIR and would appreciate if you could keep us advised as this process moves forward so that we may participate appropriately. If you have any questions, please contact Greg Pelka at (562) 590-5227, or by e-mail at [greg.pelka@slc.ca.gov](mailto:greg.pelka@slc.ca.gov).

Sincerely,



Cy R. Oggins, Chief  
Division of Environmental Planning  
and Management

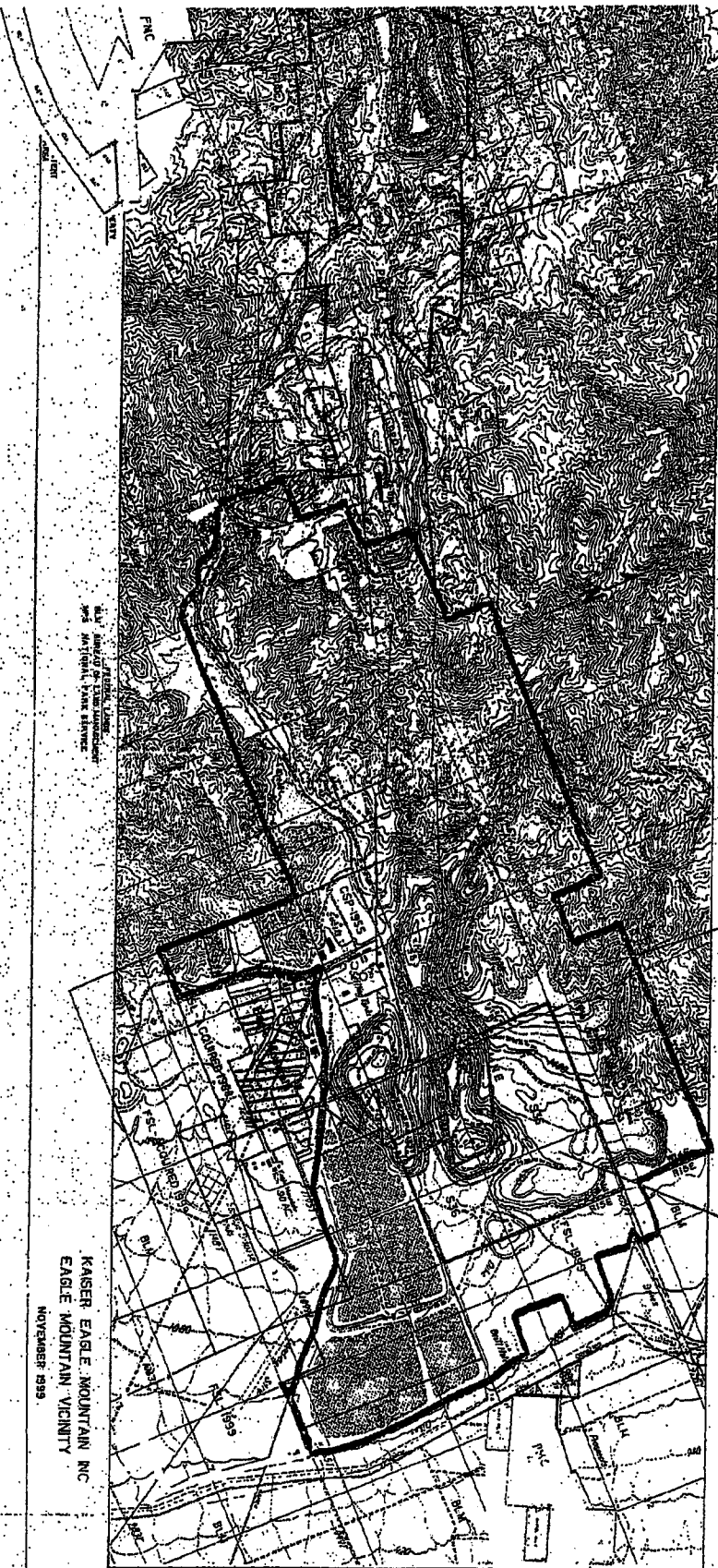
Attachment

cc: Office of Planning and Research  
MRMD, CSLC  
DEPM, CSLC

ACRE WESTEND PROPERTY

LANDFILL

STATE MINERAL INTEREST



KAISER EAGLE MOUNTAIN MINE

Map includes:  
1. Aerial Photograph  
2. Contour Lines  
3. Spot Elevation  
4. Section Lines  
5. Township and Range Lines  
6. Section Corners  
7. Section Numbers  
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KAISER EAGLE MOUNTAIN, INC.  
EAGLE MOUNTAIN VICINITY  
NOVEMBER 1999

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

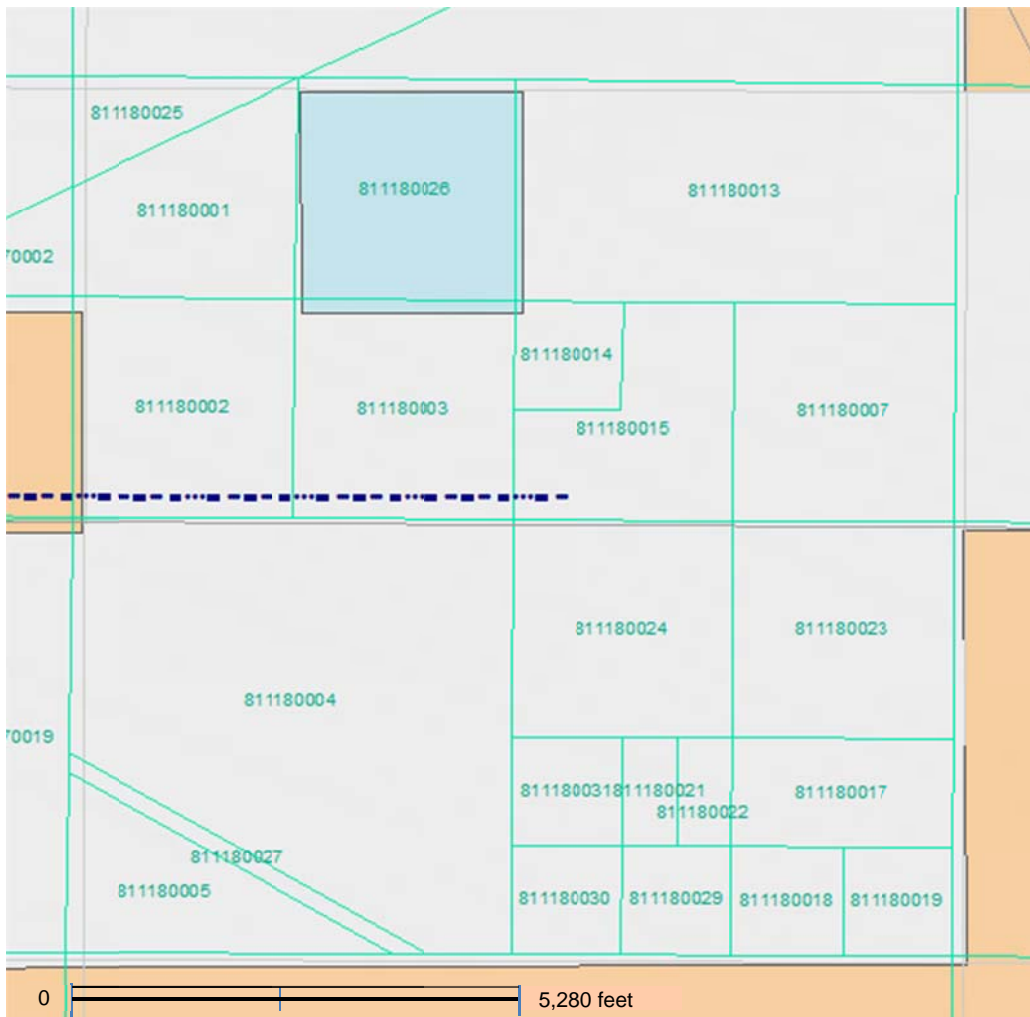
**Responses to Comments from the California State Lands Commission (CSLC):**

**CSLC #1:** The commenter is concerned that future extraction of iron ore would not be possible and mineral revenues would be precluded.

**Response to CSLC #1:** The Eagle Mountain Pumped Storage Project (Project) potential impact to the CSLC reserved mineral interest is described in Section 3.1.3.3.3 of the Final EIR.

**CSLC #2:** The proposed water pipeline would likely require a right of way lease.

**Response to CSLC #2:** The following figure displays the CSLC's property (light blue parcel # 811180026), owned by the State of California, in relation to the Project's water pipeline (dark blue dashed line). The Project will not encroach on the CSLC's land at this location. The water pipeline will be approximately one-half mile from the CSLC parcel.



**Figure CSLC-1: Parcel Map of Location of Project Water Pipeline (dark blue dashed line) in Relation to CSLC Parcel (#811180026) Owned by State of California.**



# COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

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www.lacsd.org

STEPHEN R. MAGUIN  
Chief Engineer and General Manager

October 4, 2010

Mr. Paul Murphey  
Division of Water Rights  
State Water Resources Control Board  
Post Office Box 2000  
Sacramento, CA 95812

**Eagle Mountain Pumped Storage Project  
Comments Regarding Draft Environmental Impact Report ("DEIR")  
State Clearing House No. 2009011010**

Dear Mr. Murphey:

Thank you for this opportunity to provide comments on the Draft Environmental Impact Report ("DEIR") for the Eagle Mountain Pumped Storage Project ("Project"). The County Sanitation District No. 2 of Los Angeles County (the "District") urges the State Water Resources Control Board ("Board") not to certify the DEIR because it fails to consider many potentially significant environmental impacts of the Project and otherwise fails to meet the requirements of the California Environmental Quality Act ("CEQA," which includes Pub. Res. Code Sections 21000 through 21177), as discussed below.

The District is part of a confederation of 23 independent special districts (collectively, the "Districts") that provide environmentally sound, cost-effective wastewater and solid waste management facilities to approximately 5.7 million people in Los Angeles County. The Districts are governed by Boards of Directors consisting of the presiding officer of the governing body of each city within the Districts and the presiding officer of the Los Angeles County Board of Supervisors for unincorporated territories.

Due to a projected future shortfall in local solid waste disposal capacity, the Districts have been working with other public agencies to develop the means by which solid waste may be disposed of at sites outside of the Los Angeles metropolitan area. The Districts have taken the lead role in implementing a Waste-by-Rail System to provide long term disposal capacity to replace local landfills as they reach capacity and close.

One such remote landfill site is the Eagle Mountain Landfill (the "Landfill"). The Landfill is permitted to receive residual solid waste by rail from Southern California. The Landfill would place municipal solid waste in four canyons and the east, or lower pit of the Project. The District has entered into an agreement to purchase the Landfill for use as part of its Waste-by-Rail System. The District entered into this agreement with the current owners of the Landfill, Kaiser Eagle Mountain, LLC and Mine Reclamation, LLC (collectively, "Kaiser").

DISTRICT #1

As generally described in the DEIR, the Project would use portions of the Landfill site to generate electricity as water flows from an upper reservoir through turbines to a lower reservoir when power demand is high and pumping it from the lower to upper reservoir when demand is low. There is no net increase in electricity, though the DEIR attempts to attribute many hypothetical and questionable “green” attributes to the Project.

DISTRICT #2

The District is concerned that the DEIR seeks to substitute promises of conceptual future mitigation programs for actual identification and consideration of Project impacts or identification and consideration of specific mitigation measures that may be reviewed and commented upon by the public. Accordingly, the Project proponents, even at this late date, are unable to describe the Project’s most significant features, instead deferring design specifics and analysis of related environmental impacts until after certification of a final environmental impact report and approval of the Project. This effectively avoids public comment. In addition, the District is concerned that the DEIR fails to consider the actual impacts of the Project on the Landfill project, which is scheduled to take place at the same time and in many of the same locations as the Project, and upon the environment.<sup>1</sup>

DISTRICT #3

DISTRICT #4

Under the DEIR, the Project is left largely undefined even as it is purportedly being analyzed. First, the DEIR lacks a sufficient description of the most critical baseline conditions at the site to permit any effective analysis of potential environmental impacts from the Project. Second, the DEIR states that Project proponents have not been physically present upon large portions of the proposed site. This means that their evaluation of environmental impacts is largely based upon tabletop or desktop studies based on the works of others that were not designed or intended for this Project’s purpose, or they have attempted to defer studies entirely until after approval. Thus, the DEIR does not include vital studies of the site geology, surface water and groundwater, and biology. These studies are essential for determining the environmental impacts related to a hydroelectric project. Undertaking these studies now could lead to starkly different conclusions of the environmental impacts associated with the Project design and permit important public comments on its related impacts.

DISTRICT #5

DISTRICT #6

DISTRICT #7

Despite failing to properly establish an environmental setting, the Project proponents then propose mitigation measures for potential impacts that are unknown and categorize such potential impacts as “significant” or “not significant” even though, by DEIR admission, there is insufficient understanding or consideration of baseline conditions or actual potential impacts at this time. This artificial process denies the public, including public agencies, the ability to determine how the Project will be developed and to comment on the most critical potential environmental impacts or required mitigation measures resulting from the Project’s development. The result is entirely contrary to the intent behind CEQA: to allow the lead agency to **identify at the earliest possible time in the environmental review process**, potential significant effects of the Project and appropriate mitigation measures based on public comment. (CEQA Section 21003.1.)

DISTRICT #8

The District believes that the defects in the DEIR are so significant that they can only be addressed adequately by a revised and recirculated DEIR (“RDEIR”).

**1. The DEIR Fails to Sufficiently Analyze Existing Environmental Conditions at the Project Site**

The environmental analysis in the DEIR fails to include sufficient detail about important existing natural features and conditions at the Project site. As discussed more fully below, the DEIR repeatedly ignores existing environmental conditions and indicates that studies of important site characteristics, like

DISTRICT #9

<sup>1</sup> The DEIR incorrectly states that there will be no overlap with the Landfill. See Section 2 below. Further, the Landfill is more advanced in the entitlement process than the Project, though a recent legal decision may cause Kaiser to make minor supplemental changes to environmental documents and to introduce a BLM appraisal related to the value of exchange property.



geology or groundwater, will be studied at some time after certification of a final environmental impact report (“EIR”) and after the Project is licensed by the Federal Energy Regulatory Commission (“FERC”). This approach is contrary to established precedent. CEQA is designed to inform the decision-making process and to permit the lead agency to examine environmental impacts before the decision has been made to approve the Project. To do otherwise denies the public of any meaningful opportunity to learn and comment on potential environmental impacts related to the Project. The environmental analysis of the Project site is required to be addressed in the RDEIR, not at some later point.

DISTRICT #9

Further, the DEIR frequently states that certain mitigation measures will be implemented if any impacts are discovered after licensing the Project. Thus, the Project’s proponents seek to defer fact-based analysis of environmental impacts and mitigation measures until after it is too late for the public reviewing the DEIR to comment or actually understand the true impact of the Project. This is entirely inconsistent with CEQA’s requirements. (*See, e.g.*, California Code of Regulations, Title 14, Sections 15200 and 15126.4 [Chapter 3 of Title 14 is known as the “CEQA Guidelines”].) These mitigation measures need to be addressed instead in the RDEIR.

DISTRICT #10

a. Section 3.1—Geology, Soils and Mineral Resources

Although this section has a subsection that purports to represent “Existing Conditions” as necessary to establish a baseline (Section 3.1.2), the discussion of geological conditions at the site includes no detailed physical examination focused on Project design, nor site-specific geological studies regarding conditions at the Project site. The discussions regarding ground subsidence, soil erosion, and landslides and mass movements do not sufficiently analyze existing site conditions (the DEIR expressly states future testing is required before any analysis can be completed). Instead, the Project proponents have attempted to use past studies performed for different purposes and markedly differing project design features and not perform their own studies at the site. The first of the “project design features” touted by the DEIR to be performed after certification of the EIR and once “site access is obtained,” is “Stage 1 Subsurface Investigations,” which will have the information necessary to “finalize project features.” These investigations are to be followed by Stage 2 investigations for final design, including the design of dams. (p. 3.1-29.) In addition, the DEIR proposes to perform “geologic mapping” to describe the stability of slopes within the mine pits where the reservoirs are going to be located after an EIR is certified. (*Id.*)

DISTRICT #11

In other words, the Project’s proponents seek the lead agency’s certification through an EIR process without having validly obtained sufficient site access to perform basic geological investigations at the locations where they propose to locate large tunnels below the Landfill footprint, as well as reservoirs and dams and other massive infrastructure improvements. This data is critical in determining true baseline conditions for their project and is the most basic requirement of an environmental assessment. This stymies any attempt at public comment or understanding of the actual environmental impacts of these proposed improvements. It is therefore impossible for the Project’s proponents to assert that any impacts will be mitigated since neither the impacts nor the extent to which mitigation will be needed is known. For example, informed discussion of an “erosion control plan” like that proposed for mitigation of potential soil erosion at the site is meaningless without studies indicating where and under what site-specific conditions such erosion could occur and what measures will be necessary to prevent or mitigate it. This constitutes “deferred mitigation” which is clearly impermissible under CEQA. These studies and mitigation measures instead need to be addressed in the RDEIR.

DISTRICT #12

b. Section 3.2—Surface Water

The DEIR fails to identify Eagle Creek as part of the Project’s environmental setting and fails to more significantly analyze the Project’s potential impacts upon the creek bed. Eagle Creek must be studied and the discussion of potential Project impacts upon this stream needs to be adequately detailed. A further discussion regarding defects in the DEIR with respect to Eagle Creek and Bald Eagle Creek is provided in Section 8a below.

DISTRICT #13

Although the DEIR speculates that the Project-created surface waters may be impacted by sedimentation and metals as a result of former mining activities on site, it relies for mitigation of these impacts upon the “erosion plan,” which detrimentally lacks the pertinent information identified above, and “on-site studies of acid production potential,” which will be performed “when access is granted to Eagle Crest Energy Company” to collect samples. (p. 3.2-16.) Thus, by its own language, the DEIR acknowledges that the Project’s proponents do not have sufficient information to identify the Project’s potential impact upon water quality. Instead, studies regarding these potential impacts will be conducted after EIR certification and mitigation measures are to be adopted without public review or comment. This again constitutes deferred mitigation and does not address the important issue of water contamination by a Project involving the importation of massive quantities of water onto the Project site. These studies and mitigation measures need to be addressed instead in the RDEIR.

DISTRICT #14

c. Section 3.3—Groundwater

The discussions of potential impacts and mitigation measures in this section are speculations based upon the proponent’s acknowledged limited information about existing conditions. The entire evaluation of potential impacts to groundwater is based upon a literature review and review of photographs rather than any actual field work at the Project site. (p. 3.3-19.) While the DEIR concedes that seepage may impact the amount of groundwater that will need to be pumped for the Project, estimates of this seepage are created without support from actual geological studies in the areas at the proposed reservoirs or tunnels, and are, therefore, not supported by substantial evidence. Recognizing this defect, the proponents propose in the DEIR to conduct a “detailed reconnaissance” of areas where leakage and seepage is expected to occur during the Project’s “final engineering design” as part of their seepage control efforts. Once again, disclosure of any meaningful information is deferred thereby avoiding any meaningful public review and comment. Proposing potential methods for limiting seepage from the Project is conjectural without sufficient geotechnical studies to determine the site’s characteristics. These seepage studies and any potential mitigation measures need to be addressed instead in the RDEIR. Seepage issues are discussed in greater detail in the comments on Technical Memorandum Section 12.5, later in this letter.

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d. Sections 3.5 and 3.6—Biological Resources and Threatened and Endangered Species

The DEIR relies again upon delayed analysis and deferred mitigation with respect to the biological impacts of the Project rather than analysis of existing conditions. The Project’s proponents performed no onsite surveys of the mine pits that will become the reservoirs or other features of the Central Project Area. (p.3.5-32.) Instead, the proponents rely upon “pre-construction surveys” of plant and wildlife species, including endangered and threatened species like the desert tortoise, that will take place some time after the EIR is certified, the proponents obtain access, and the Project is licensed. (p. 3.6-24.) This short-circuits any discussion of the potential impacts of the Project on biological resources or any means to permit the public to provide reasoned comments. This makes the DEIR seriously flawed as an informational document and prevents it from fulfilling its function as required by CEQA. These studies and potential mitigation measures need to be addressed instead in the RDEIR.

DISTRICT #17

In addition, the DEIR fails to establish either a baseline or ongoing monitoring and management program for dealing with ravens throughout construction, operation and maintenance of the project. In view of the potential attraction of ravens to the new bodies of water, and the likely deleterious effect of increased raven populations upon the threatened desert tortoise, these impacts need to be analyzed and considered in the RDEIR.

DISTRICT #18

**2. The DEIR Fails to Fully or Accurately Analyze the Project’s Potential Impacts Upon and Incompatibility With the Landfill**

As noted throughout the DEIR, the two projects will be physically located in many of the same areas and the Landfill may be displaced or interfered with by the Project. Nevertheless, the DEIR description and analysis of the substantial number of potential impacts to the Landfill is cursory as further addressed below.

DISTRICT #19

As a preliminary matter, there is an unsubstantiated assumption made in the DEIR regarding timing of the two projects; that is, the Project will be implemented and completed in the Central Project area before the Landfill reaches that portion of the Project site. First, the DEIR fails to consider that the Project will be subject to many of the same delays as the Landfill in obtaining entitlements, because the Project faces organized opposition from not only the opponents of the Landfill, but also possibly from the Metropolitan Water District, the District and Kaiser. Second, the DEIR fails to consider the activities necessary to comply with any closure and post-closure requirements when the energy project is complete. Third, the DEIR did not consider that the District is likely to change the phasing of the Landfill based on engineering considerations. Fourth, the DEIR did not consider the Landfill capacity losses due to the Project infringement into the Landfill footprint, limiting fill height and flattening fill slopes with resulting impacts to the economic viability of the Landfill.

DISTRICT #20

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DISTRICT #22

Moreover, the DEIR fails to address a myriad of obvious physical conflicts with various Landfill components. These conflicts exist regardless of whether the phasing of the Landfill is ever changed, or whether the Landfill is not operational until after the Project is completed. It is apparent that those who prepared the DEIR never consulted with Kaiser or the Districts regarding the compatibility of the two projects, or with the Districts regarding the environmental significance and public importance of the Landfill project. As will be apparent from the long list of material conflicts that are not addressed in the DEIR, the consultants did not engage an expert with sufficient or competent experience in landfill construction and operation. Therefore the Project’s proponents failed to make a good faith effort to consider the Project’s impacts upon the Landfill and the related environmental impacts.

DISTRICT #23

**a. Construction of the Project**

The discussion of the construction of water connector tunnels (Section 2.4.4) does not consider the impact of the construction methods for the tunnels upon the surrounding geology. This is important to the Landfill, because the tunnels are to be located below the Landfill’s liner.

While the tunnels to convey water from the upper reservoir to the underground powerhouse and from the powerhouse to the lower reservoir are to be constructed by using a tunnel boring machine ("TBM") or by drill and blast methods, the discussion fails to provide sufficient information by which the Districts or the public can determine the impact of either construction method on the Landfill. Without more extensive geotechnical studies by the proponents to determine potential environmental impacts of construction, selection of a construction method is essentially conjectural. Current published information suggests that either method would create significant constructability issues and could impact the Landfill.<sup>2</sup>

DISTRICT #24

The area to be displaced by the lower reservoir conducting tunnel would appear to include materials with widely differing properties, such as hardness and the ability to withstand the stress-stain caused by the proposed construction methods. Site geology, weathering and soil horizons and linear features such as joints, fractures, and shears structurally impact the rocks and would affect the selection of TBM or the drill and blast methods and related environmental impacts. Further discussion in the RDEIR is needed of the site-specific

<sup>2</sup> “Durability Prediction: geological influences in hard rock drill and blast tunneling” International Journal of Earth Sciences, v.86, K. Thuro author and “ Geological Parameter for Hard Rock Tunnel Boring” International Journal of Rock Mechanics and Mining Sciences and Geomechanics Abstracts, v. 23, Issue 5, 10/86, Movinkel, T; Johanmessen, O. authors.

factors included in the choice of either of these methods and potential impacts upon the Landfill and the environment that is located above the tunnels.

DISTRICT #24

The discussion of ground subsidence impacts in connection with the Project in Section 3.1.3.3.2 fails to address potential impacts of subsidence from tunneling activities during construction and from seepage from the tunnels during operation. Further discussion is required in the RDEIR that addresses these potential adverse impacts upon the Landfill and the environment.

b. Existing and Proposed Land Uses—Facility Conflicts

Although the DEIR asserts that the Project could be operated in conjunction with the Landfill and that it includes modifications to the Project’s layout to accommodate the Landfill, there is no information in the DEIR to gauge what these modifications will be or their potential environmental impacts. These modifications and potential impacts must be addressed in the RDEIR. Further, the DEIR ignores likely land use conflicts that will exist even with any purported modifications. To the extent that these incompatibilities can be determined given the limited disclosure of the Project’s conceptual design in the DEIR, it is apparent that even more significant conflicts will be manifested during detailed design to be performed in the RDEIR. Unless a legitimate analysis of the conflict between the two projects is completed in the RDEIR, the public will be deprived of comment on undisclosed impacts on the Landfill and the environment.

DISTRICT #25

In Riverside County’s Specific Plan No. 305 for the Landfill, the container handling yard and attendant facilities, including equipment washing facilities, the intermodal rail yard, local waste receiving facilities, repair and maintenance facilities, are located immediately south of the Landfill Phase 3 fill area. The DEIR places a switchyard, reverse osmosis system, storage and administrative facilities in the same location. This area is limited in size and cannot accommodate these facilities for both projects. The RDEIR should address this conflict and the related environmental impacts.

DISTRICT #26

The DEIR incorrectly shows the Landfill’s rail yard in a different location on the east side of the east pit—more than six miles from the refuse area to be used in the first phase of the Landfill. This distance would substantially increase the Landfill truck cycle times for transporting the waste from the rail yard to the disposal site and would significantly impact the Landfill’s economical viability. These conflicts need to be explored, in detail, in the RDEIR, and all related environmental impacts disclosed.

DISTRICT #27

Although the DEIR describes the Project’s proposed switchyard, storage warehouse and administration facilities as being located outside of the active Landfill area, their placement as shown in the DEIR would conflict with the Landfill rail yard. This would prevent the Landfill from being able to efficiently operate using rail haul—a key feature of the Landfill. The Project’s proponents must either relocate their facilities in this area or address the impacts upon the Landfill of displacing the rail yard. Again, this issue must be fully vetted in the RDEIR, with all environmental impacts disclosed.

DISTRICT #28

The Landfill Phase 3 fill area and the rail yard are also planned within an area depicted in the DEIR as a 200-foot wide right of way for the Project transmission lines and towers. These lines also interfere with the overhead clearance necessary to operate the railroad and the rail yard for the Landfill. The DEIR assumption that the lines will already be constructed prior to the startup of the railroad for waste hauling is irrelevant because the construction and operation of these lines would interfere with the construction and operation of the Landfill’s facilities, no matter when the lines are built. Therefore, these interferences must be fully considered in the RDEIR, as well as all related environmental impacts.

DISTRICT #29

The water pipeline corridor selected in the DEIR is also within the transmission line alignment and will conflict with Landfill facilities and operations. The location of the corridor shown in the DEIR will reduce the size of the Phase 3 fill area and could jeopardize the stability of the fill in that area by reducing the buttress (or “toe”) portion of the fill. These issues should have been considered in the DEIR. Also, the land use impacted by the water pipeline will not be merely “undeveloped desert” as described on page 3.9-30 of

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the DEIR, but rather areas to be used for maintenance of the proposed Landfill access road, rail yard and supporting facilities as well as the Phase 3, 4 and 5 fill areas of the Landfill. Once more, these conflict issues should be fully vetted in the RDEIR and all related environmental impacts disclosed.

DISTRICT #30

The DEIR representation that the reservoirs for the Project are located outside of those portions of the Landfill to be used for “waste disposal during Phases 1-4 of the Landfill operation” (p. 3-9.19) is incorrect. In fact, the upper reservoir’s dam overlaps a large portion of the Phase 1 fill area and is immediately up gradient from a large portion of that fill area. In addition, the proposed spillway and access road would displace a portion of that fill area to the east. The environmental and economic impacts of these potential modifications to the Landfill must be considered in the RDEIR.

DISTRICT #31

Another significant potential impact essentially unaddressed in the DEIR is the impact on the Project upon the Landfill liner. DEIR Section 2.4.4 describes an upper pressure tunnel with a diameter of 29 feet that may or may not be fully lined with concrete. Despite the volume of water to be pumped through this tunnel no analysis has been performed about the significance of the potential loss of water through fractures and crevices of the bedrock from an unlined tunnel or the impact of this seepage upon the District’s ability to construct and operate a lined landfill above the tunnel. Unmitigated pore pressures from seepages could be potentially damaging and destructive to the Landfill liner system. This analysis needs to be performed, and any related environmental impacts discussed in the RDEIR.

DISTRICT #32

The DEIR describes the migration of water from the upper reservoir adjacent the liner for the first phase fill area and the time it would take for the seepage to reach the liner, thus implying that such contact is inevitable. This ignores the regulatory requirements contained in Title 27 of the California Code of Regulations (§20240(c)) that mandates a minimum five-foot (5 ft.) separation above the highest anticipated elevation of ground water for site selection, design, construction, and operation of landfills. These regulations would prevent the development of the first phase of the Landfill if there were potential contact between the liner and groundwater. Therefore, the RDEIR must include an analysis of how the Project will maintain the minimum separation distance requirements set forth in Title 27 as well as a description of seepage prevention measures for the upper reservoir and the impacts of construction, operation and removal of those prevention systems. All related environmental impacts must be addressed in the RDEIR as well.

DISTRICT #33

The potential impact of the Project upon the Landfill ability to obtain necessary regulatory approvals amid the construction and operation of the Project must be coherently discussed in the RDEIR. The Project provides for the location of a large body of water upgradient from and behind a lined Landfill slopes as well as subsurface tunnels beneath an operating Landfill. However, the DEIR does not discuss the impact of these tunnels upon the Landfill’s ability to meet the requirements of CCR Title 27. The location of these items in the same vicinity would significantly modify the geotechnical conditions on the site and would require new slope stability and subgrade analyses for the Landfill and new waste discharge requirements for operating the Landfill. The economic and environmental impacts of these facilities upon the Landfill, and its ability to maintain or obtain needed permits to operate must be considered in the RDEIR and all related environmental impacts disclosed. This analysis is critical to assess the Landfill viability if the Project were to go forward.

DISTRICT #34

While the DEIR states that the Project will use the “fine tailings” on the site “not used by the Landfill,” the DEIR indicates the Project will use these tailings prior to the time that the Landfill begins operation. (p. 3.9-30.) This means that the tailings used would not be available for cover for the Landfill, and may cause the Landfill to obtain cover by some other means. The potential impacts of the Project’s use of tailings that would otherwise be used by the Landfill, and a potential shortage of fill for the Landfill, must be addressed in the RDEIR, with all related environmental impacts disclosed.

DISTRICT #35

Another Project component requiring further analysis is the northern perimeter road to be used for operation and maintenance of the Project. During construction of the Landfill, this road would interfere with the excavation and construction of slopes and benches that are necessary to anchor and install liner for the fill areas for the second and third phases of the Landfill. During this operation, the northern perimeter road will

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not be available, and the RDEIR must study alternative alignments for that road and their potential impacts upon the site and the Landfill as well as on the environment.

**3. Groundwater Yield Impacts of the Project**

The analysis and accounting of the groundwater balance for the Chuckwalla Valley Groundwater Basin fails to sufficiently explain the basis for its assumptions that the pumping effects of the Project will actually result in a water surplus by the end of the assumed 50-year operation period. This accounting is set forth in Table 3.3-8 (p. 3.3-22 and 3.3-23). The reason for the purported increase in inflow between 2014 and 2060, which prevents a net decrease in the water balance, is not quantified or even identified. The DEIR provides no support for the assumption that the water usage by the Chuckwalla and Ironwood State Prisons will be reduced by 30 percent in 2011 and, presumably, thereafter. In any event, this analysis appears to be incorrect, because the cumulative effects of the Project when combined with other existing and foreseeable projects are now purportedly set forth in the revised version of Table 5.5—added well after the start of the comment period. Instead of posting a cumulative increase of 87,000 acre feet during the 50-year period postulated for the Project, the revised table shows a cumulative decrease of almost 80,000 acre feet during the same period. This updated information, which is completely contrary to the information supplied in the DEIR, must be analyzed and the true environmental impacts associated with this deficit must be analyzed in the RDEIR.

DISTRICT #37

**4. Design Level Site Investigation Plan—Technical Memorandum Section 12.1**

The site investigation plan discussed in this memorandum requires more information about the geology of the Project site and the portions of the Project that underlie the Landfill. The proposed Phase 1 geotechnical investigation plan shows that only five borings are planned along a 9,000 foot tunnel alignment below the Landfill, or approximately one per 1,800-feet. The Landfill may eventually include up to 800 feet of refuse above that existing ground elevation. The RDEIR must explain how the geologic/geotechnical information generated from such widely spaced borings will permit the design and construction of tunnels that will not impact the Landfill located above. Also, this plan does not include borings at the bottom of the upper and lower reservoirs to assess the permeability of the subgrade. The Project’s proponents must document the properties of the subgrade to determine the impacts of any seepage of the upper reservoir upon the Landfill and address how the Project would be compatible with the Landfill. Also, the Phase 1 program must include investigation of the impacts of the Project upon the static and seismic stability of the Landfill slopes. These studies cannot be deferred until after EIR certification if the true impacts of the Project are to be analyzed for public review at a meaningful time.

DISTRICT #38

**5. Seepage Analysis for Upper and Lower Reservoir—Technical Memorandum Section 12.5**

This memorandum requires further analysis and explanation of its methodology and results in the RDEIR as described below.

**a. Seepage Mitigation Assumptions**

The plan to use mine tailings to help control seepage is inconsistent with site-specific observations of the properties of these tailings. Mine tailings in settling ponds at the Eagle Mountain Mine have been observed to be fine-grained and hydrophobic, meaning that they have dispersive properties that cause individual soil particles to pull apart when in contact with water. Thus, where the tailings are proposed as reservoir lining, erosion and vertical piping may result. This result demonstrates the folly of relying on the Project’s proponent’s expectation-based deferred maintenance conclusions throughout the DEIR, instead of relying on an actual baseline conditions. The RDEIR must address these adverse soil properties in connection with any plan to use the tailings for reservoir lining, including detailed geotechnical characterizations of the

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actual existing material with emphasis upon, for example, whether these soils are sodic and dispersive. All related environmental impacts must be addressed in the RDEIR.

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b. Seepage Analysis Modeling

(1) The DEIR analysis lacks important site-specific information

The seepage analysis is based on modeling specific groundwater conditions, such as the extent, depth and gradient of the piezometric groundwater surface along selected cross sections across the project site. The computer code SEEP/W was used in the analysis and appears to describe estimated saturated hydraulic conductivities ( $K_{sat}$ ) for different subsurface earth materials between the reservoirs and the Colorado River Aqueduct, located to the east of the project site. Normally SEEP/W requires two unique input parameters in order to predict the subsurface distribution of moisture along cross sections. They include: (1) hydraulic conductivity functions and (2) volumetric moisture content functions that are typically derived through exotic laboratory testing and curve-fitting methodologies. DEIR Section 12.5 does not provide any information on whether and how these input parameters were developed for the models presented in the EIR. Instead, Section 12.5 suggests that the models were based exclusively on estimates of saturated hydraulic conductivity ( $K_{sat}$ ) for the different subsurface earth materials between the reservoirs and the Colorado River Aqueduct. The RDEIR should address in detail the viability and technical feasibility of SEEP/W models to accurately predict seepage and groundwater distribution using only  $K_{sat}$  as input parameters and discuss all related environmental impacts.

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(2) Further explanation of the DEIR modeling methodology is necessary

The SEEP/W modeling output provided in the DEIR does not include important model components and explanations, which must be included in the RDEIR. These items include:

- the finite element mesh architecture needs to be presented, including, but not limited to, the number of mesh elements/element nodes and the aspect ratio and geometry of mesh elements;
- any utilized nodal boundary conditions need to be defined in the text and their locations need to be located in the appropriate model cross sections;
- quantification of flux quantities and rates assigned to significant boundary nodes and an explanation of their quantities and any flux rates assigned to constant flux rate boundary nodes to reflect the regional groundwater flow;
- an explanation of how the models are being calibrated;
- an explanation of the color-contouring scheme in terms of seepage rates or water content distributions.

## (3) Figure 6

The SEEP/W model output shown implies that near-surface seepage to the east of the upper reservoir will result from filling the reservoir. This implies that the proposed project conflicts with the Landfill because seepage water may be situated too close to the Landfill liner. The groundwater gradients calculated by the model on either side of the upper reservoir greatly differ from each other, and the differences must be explained in the RDEIR, along with any related environmental impacts.

## (4) Figure 7

The SEEP/W model output shown also predicts that groundwater will be close to the ground surface once the lower reservoir is filled. As described previously, Title 27 specifies a minimum separation between landfill liners and groundwater. This conflict must be discussed and analyzed in the section of the RDEIR dealing with compatibility of the Project with the Landfill and any related environmental impacts noted.

## (5) Figure 8

The SEEP/W model output suggests that filling the upper reservoir may cause groundwater to seep into drainage channels and Eagle Creek. The potential impacts of this seepage upon the Landfill and the potential impacts of a response to this condition by regulatory agencies, as well as any related environmental conditions, must be analyzed in the RDEIR.

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## (6) Figure 11

Figure 11 displays the modeling output representative of groundwater levels after filling a lower reservoir lined with mine tailings and roller-compacted concrete. The RDEIR needs to explain what boundary conditions were introduced into the model to reflect water seeping through the reservoir liner materials and to discuss any related environmental impacts.

(7) Clarification of the relationship between saturated hydraulic connectivity of bedrock and the seepage modeling. The DEIR discussions of this relationship require more information to assess potential environmental impacts of the Project upon the Landfill:

- Estimated Ksat values are based on limited published packer testing results, but packer testing alone may not yield accurate values. The Ksat of bedrock must be more definitively assessed in the RDEIR through pump testing that would provide regionally representative data on the hydraulic properties of bedrock.
- SEEP/W modeling using Ksat as the main input parameter should include sensitivity analyses of the effects of the bedrock fracturing, fracture densities, fracture infilling and cementation as well as aperture widths to be meaningful for public comment.
- The Ksat values of alluvial soils presented in the DEIR are based upon “empirical correlations between grain size and permeability”, which can only be considered rough approximations and may not provide a realistic picture of modeling of specific groundwater conditions. These values must be based on the results of pumping tests in the RDEIR.



- The Ksat values used to model the proposed reservoir liner materials were derived from published laboratory testing data, but the DEIR does not state whether hydraulic loading conditions from repeated reservoir filling and emptying were considered. An RDEIR must explain what effective consolidation pressures were applied during laboratory testing to assure that the Ksat results for reservoir liner materials are realistic and representative of expected design conditions and whether these could have potential environmental impacts.
- An undesignated table in Section 12.5 lists an unreferenced “Chuckwalla Report” in support of Ksat values for alluvium near the model area. The RDEIR must explain how these Ksat values were developed and how representative these Ksat values are for alluvium in the region.
- Another undesignated table in Section 12.5 relates grain size distribution to Ksat values for alluvial soils, but the hydraulic conductivity of alluvium ought to be determined using laboratory or field-testing since the potential impacts of the Project upon the Landfill may be dependent upon the assumptions used. The results of this analysis should be included in the RDEIR.
- A third undesignated table in Section 12.5 lists Ksat values for mine tailing materials that were apparently determined using unspecified “field” and “lab” tests. The RDEIR must describe: (1) the number of samples considered or analyzed; (2) the meaning of “field test type”; (3) the effective consolidation back pressures that were applied in the laboratory during testing; and (4) whether the back pressures included were calculated considering reservoir loading and unloading, in order to provide the public with meaningful data.

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Any changes in environmental impacts related to changes in the analysis should be discussed in the RDEIR.

(c) Further Information is Required About the Basis of Assumptions Made in the DEIR

The DEIR estimates the time required for development of “full seepage volumes”, “steady-state groundwater profiles” and “steady-state groundwater levels”. These estimates are provided to contrast predicted groundwater level increases to their impacts on the regional groundwater piezometric surface and the Colorado River Aqueduct. These estimates are unsupported by calculations or analysis. The RDEIR must substantiate all estimates of current seepage volumes and their impact upon groundwater levels with respect to the time during which the Project is to be performed and discuss all environmental impacts based on actual analysis.

DISTRICT #41

The DEIR does not provide sufficient detail regarding the means by which seepage flow rates were calculated. The RDEIR must provide such detail, including discussions regarding the unit width of the geologic section, unit width seepage rates and water surface elevation average top widths, and must address any related environmental impacts. This discussion must also explain how these parameters relate to the equations used in the DEIR to quantify seepage flow rates. This actual analysis of seepage rates and projected

rates based on actual conditions is necessary for the public to adequately gauge the impact of seepage on the Landfill and the environment.

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The DEIR, in discussing the possibility of hydrocompaction from seepage, describes a “worst-case” seepage condition in which groundwater rises to approximately 80 feet below the ground surface and concludes that groundwater will “not reach the near-surface zones where hydrocompaction would be most problematic”. However, the DEIR does not state, and the RDEIR must explain how groundwater rising to a depth of 80 feet is a “worst case” condition and at what depth and location the near-surface zones in the Project area are susceptible to hydrocompaction.

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The RDEIR must provide detailed calculations to substantiate the estimated reduced seepage rates that the DEIR assumes will result from seepage mitigation measures described in the DEIR in order for the public to be able to meaningfully comment on the validity of these measures.

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**6. Seepage Recovery Estimate—Technical Memorandum Section 12.6**

The underlying assumptions used in the modeling of seepage recovery included in this memorandum need to be clarified. A seepage recovery assessment is presented in the form of a groundwater flow model using the computer code MODFLOW and in a geologic evaluation of faults in the vicinity of the upper reservoir. The model domain is shown on Figure 7 of the memorandum. Although this figure suggests that the model encompasses an area of approximately 40,000 sq. ft., only about one third of the eastern modeling domain was actually utilized for modeling purposes. The model grid presented in the DEIR is unclear and suggests that the surface area of the model is more inclusive. The RDEIR must address this potential inconsistency and discuss any related environmental impacts if an inconsistency is corrected.

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The DEIR briefly discusses the hydraulic conductivity values of alluvial deposits that were included in the model, but the values used appear to have been determined from investigations other than any done to develop the DEIR. Since this discussion appears to assume that higher hydraulic conductivity and storativity values apply for these locations than is justified by the discussion, the RDEIR should contain further information and analysis supporting the use of these hydraulic input parameters or adjust the parameters to a supportable level. Any environmental impacts arising from a corrected analysis should be provided.

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The MODFLOW model is described as a “3-layer model” that represents geologic conditions beneath the lower reservoir. The lower two layers are represented to consist of clayey lakebed deposits and coarse-grained sediments, respectively—both of unknown thickness. No direct evidence is provided to support the assumption of the existence of sediments in the lowest layer. While the thicknesses and hydraulic conductivities of the lower two layers are concededly unknown, the DEIR assumes thicknesses and hydraulic conductivities for these layers without providing support for these assumptions. The DEIR analysis includes the assumption that the hydraulic conductivities of the lower two layers are so low that, according to the model, they represent an impermeable boundary for the upper layer. These assumptions need to be justified by facts and appropriate documentation in the RDEIR with a discussion of any related environmental impacts in order to permit informed public comment.

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Although the DEIR discusses “seepage recovery” from the upper reservoir through a geologic evaluation of the “major faulting pattern” in the vicinity of the reservoir, the discussion fails to consider that faults may serve as hydraulic barriers and whether a clayey fault gouge is present, as well as the potential impact of these conditions on water transmissibility. The DEIR also does not discuss the effect of bedrock fracturing upon the transmission of reservoir seepage water. The RDEIR must contain a discussion of these potential impacts, along with an assessment of bedrock fracturing that includes, without limitation: fracture densities; preferred fracture orientations; fracture interconnectedness; fracture aperture widths; and fracture infilling. Also, the RDEIR must explore the possibility that faults may provide only limited flow pathways and that fractures may transmit the bulk of seepage water. These features could represent fatal flaws of the

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Project. Otherwise, the public has not been adequately advised of the potential impact of seepage and related environmental impacts.

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The memorandum (at page 9) states that the installation of seven or more seepage recovery wells along the southern perimeter of the upper reservoir, between the two reservoirs, and around the eastern perimeter of the lower reservoir will maintain water levels “below the elevation of the liner for the proposed Landfill operations.” It is stated that these water levels will be maintained if the wells are operated at an assumed pumping rate of 70 gallons per minute. The RDEIR needs to present an analysis showing that the wells will maintain the proper water level if operated at this pumping rate and that the wells will pump at this rate, or what will happen if the wells fail to meet this rate, along with all related environmental impacts.

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**7. Project Compatibility With the Landfill—Technical Memorandum Section 12.8**

The RDEIR should consider potential preventative and mitigation measures to protect the cut and fill slopes of the first phase of the Landfill from breaches of the South Saddle Dam and the southern embankment of the upper reservoir. These facilities are located behind the cut slopes and above and upstream of the refuse fill in the first phase of the Landfill. Failure of either facility would risk failure of the Landfill liner slopes as well as exposure or washout of the refuse slopes. Further, the possibility of fire or explosion in the tunnels for the Project should be considered in the RDEIR as well as the potential impacts to the Landfill located above them should these events occur.

DISTRICT #49

DISTRICT #50

Given the proposed location of power generation and transmission facilities for the Project within tunnels located under the Landfill, the RDEIR also needs to present an analysis of the stress-strain behavior of the geologic materials located under the Landfill caused by the construction of the tunnels. The RDEIR also must assess the likelihood of loosening bedrock around the tunnels and sudden rock bursts, as well as mitigation measures to prevent any impacts upon the Landfill. All related environmental impacts should be noted.

DISTRICT #51

Finally, in the event that the Project is abandoned for economic, environmental or other reasons, or after the Project term is completed, the RDEIR needs to discuss the Project proponents’ plan for decommissioning and closing the Project’s infrastructure such that there would be no related limitation on the development and operation of the Landfill. In addition, the RDEIR needs to describe the ongoing activities needed to maintain the decommissioned Project facilities throughout the operation, closure and postclosure maintenance period of the Landfill as required by Title 27 CCR Division 2 Chapter 3 Subchapter 5. This discussion should include the methods to be used to abandon and maintain abandonment of the tunnels, pumping plant, reservoirs and associated structures. The RDEIR should also describe the mechanism to provide financing for these activities so that the Landfill owners will not be required to incur these costs or any environmental impacts related to decommissioning and closure activities.

DISTRICT #52

**8. Project Drainage Plan and Reservoir Spillway Designs—Technical Memorandum Section 12.9**

**a. Drainage and Flood Events**

The DEIR fails to discuss or quantify a number of assumptions regarding the capacity of existing drainage outlets to handle potential Project overflows or flooding as well as related environmental impacts. The RDEIR will need to consider and analyze all of the issues described below.

DISTRICT #53

The DEIR does not address the existing channel capacity of Eagle Creek or Bald Eagle Creek—the two main surface drainage features at the site—or provide sufficient analysis of the impact of flood events on these channels, the Project, or the Landfill. Without this information, the impacts to the existing drainage systems cannot be assessed. For an adequate assessment, the RDEIR must also clearly disclose the means and

assumptions used for calculating peak discharges, inflow rates and freeboard from an over-pumping event during the Probable Maximum Flood ("PMF") as described on page 5 of the memorandum. It is not clear whether a staged storage relationship for the upper reservoir has been prepared. If so, the specific analysis should be provided. The same detailed information should be provided with respect to any staged discharge relationship calculated for the spillway. The public needs to know if the channels and dams and related improvements are properly sized and designed, and if not, their impacts on the environment.

DISTRICT #53

DISTRICT #54

Because the previously described information was either not disclosed or was not the product of actual analysis, the RDEIR must modify the modeling provided in the DEIR to determine the capacity of the existing drainage features (existing conditions) and the capacity of the Project to provide drainage of the nearby watershed and the Project. The DEIR states "[r]eleases from the Upper Reservoir will be smaller than the estimated 100-yr flow from the 7.3 square mile Eagle Creek watershed, indicating that the natural channel should have adequate capacity." (p. 6.) Without analysis to determine the existing capacity of the natural channel or an assessment of the 100-year storm flow, this is an unsubstantiated claim. The natural channel, downstream of the upper reservoir discharge, will have a flow from the 7.3 square mile watershed—a large watershed. And the Project proposes to contribute more stormwater, an estimated 2,060 cfs of reservoir discharge, to these existing conditions. In place of unsubstantiated claims, appropriate modeling software such as EPA's Storm Water Management Model (SWMM model) or the US Army Corps of Engineer's Watershed Modeling System (WMS model) should be used to determine the routed peak flow in the natural channel during the PMF and support any conclusions as to the impacts of the Project.

DISTRICT #55

The DEIR also states that the lower reservoir could receive and can accommodate PMF flows from all 11.2 square miles of the nearby watershed (11,520 ac-ft) as long as the reservoir is empty during the flood peak flows. However, the DEIR has not analyzed a likely operating condition where the lower reservoir is full (17,700 acre-feet of operating volume) so any additional storm flow would require pumps operating at full capacity to keep up with the inflow. In view of the possibility that these conditions will be encountered, the following issues and related environmental impacts should be considered in the RDEIR:

- Assuming the pumps failed to function properly during a flood event, would a larger spillway will be required to handle this peak inflow?
- Wouldn't the PMF peak flow be a combination of 15,320 cfs and 6,900 cfs that could exceed the pump capacity at its peak?
- What is the "backup plan" for managing peak storm drainage into the lower reservoir for a PMF if the pumps fail or do not keep up with the predicted inflow, and how would these potential events impact the present design of the outflow spillway?

DISTRICT #56

If a larger spillway is necessary based upon this analysis, the RDEIR also must consider all impacts of that spillway as well as the impacts that larger storm overflow from that spillway would cause to the downstream receiving channels, including, but not limited to erosion, redirection of the flowline and embankment destruction, and other impacts on the environment. Eagle Creek discharges sediment in the form of a large debris fan or cone in the vicinity of the Eagle Mountain town site and then forms many other channels further east that divert the largest storm flows. Also, the Colorado River aqueduct has numerous dikes along its right of way that funnel storm flows to specific crossing points before reentering existing downstream channels. The current Project plan sends drainage coming from the overflow channel downstream of the proposed spillway to one existing ephemeral channel with limited, if any, description of the existing capacity, potential impacts of anticipated discharge events (including but not limited to the 100 year design storm), or associated mitigation measures. Further discussion and analysis in the RDEIR is

DISTRICT #57

necessary to determine the impacts associated with a major flood that diverts flow to this channel as well as the other downstream receiving channels mentioned above. DISTRICT #57

Since Eagle Creek has been diverted into the east pit, each rainfall event will carry silt and sediment into the reservoir. The RDEIR must discuss and analyze potential impacts of a high level of sediment carried by storm water entering the reservoir and coming in contact with the pump turbine for the Project, and all related environmental impacts. DISTRICT #58

b. Dam and Reservoir Designs

The DEIR's discussion of the technical and permitting criteria for the proposed South and West Saddle Dams is too vague, even for a conceptual project, to allow for adequate comment on the potential impacts to safety or the environment. Without adequate geotechnical investigations, the actual width, height, embedment depths or thickness of the dams cannot be designed or their potential impacts determined. The RDEIR should identify the dam analysis performed, how appropriate that analysis is given the seismic design requirements for the design and construction of dams under criteria established by the Department of Water Resources' Division of Safety of Dams ("DSOD"), and the related environmental conditions that arise out of meeting technical and permitting requirements. DISTRICT #59

The DEIR states that the "normal freeboard was assumed to be five feet between the normal high water level crest and the dam crest" for the South Saddle Dam. However, the memorandum provides no technical explanation as to how the "normal freeboard" was estimated or calculated. Because freeboard provides a safety factor for dam operation, responsible design and analysis requires consideration of the site conditions in establishing this parameter. Without site-specific data, the memorandum's discussion of this issue is inadequate. This data would impact crest heights, freeboard and material compositions for basic elements of dam and reservoir design. These design elements significantly influence embedment requirements, the choice of lining materials for interior slopes and operational constraints for the reservoir and dam. Since the analysis does not indicate that a one-spillway design adequately protects the dam, all of these issues must be discussed in the RDEIR, along with all related environmental impacts. DISTRICT #60

Wind patterns and the ability to harness the resultant energy from wind are frequently discussed in the DEIR. However, the DEIR should discuss potential impacts of wind on the design of the dam and reservoirs, particularly with regard to the determination of crest height, overtopping and the amount of freeboard necessary. Further, since wave run-up heights and wave overtopping discharges must be considered in determining the total crest height for a dam or reservoir, the RDEIR must provide sufficient analysis regarding these design and operational aspects and their influence on design parameters such as area of the influence of roughness, slope angle, berm heights, angle of wave attack, wave run-up and wave overtopping, while addressing all related environmental impacts. DISTRICT #61

The RDEIR must provide additional analysis regarding the applicability of deterministic and probabilistic calculations used to evaluate the dam and reservoir design and must assess:

- representative wave boundary conditions;
  - technical properties such as those for required strength of foundation and side slope materials, particularly under oblique wave attack and wave overtopping;
  - wave transmission at oblique wave attack, and;
  - wave growth under extreme winds.
- DISTRICT #62

The DEIR states that roller-compacted concrete (“RCC”) will be used to construct the dams with a membrane liner and foundation grouting to control seepage. However, the DEIR does not establish the compatibility of RCC with materials to construct the foundation and side slopes but instead states that this analysis will be deferred for later study or investigation. However, this choice of materials could have significant environmental impacts. For example, if on-site materials are to be used, compatibility test trials and laboratory analyses are essential to determine the design mixes and compatibility. If off-site materials are proposed, the source and environmental constraints, such as importation of off-site materials, need to be addressed. Also, more detailed analysis is necessary regarding the specific choice of the membrane liner. Given the construction area of the dams and reservoirs, membrane material compatibility requires careful design, such as the inclusion of anchor trenches to prevent uplift and pullout and these factors affect Project economics and environmental consequences. This is just one example of many potential impacts that should be addressed in the RDEIR. Therefore, a compatibility review and further discussion of the membrane liner and all related environmental impacts will be necessary in the RDEIR.

DISTRICT #63

DISTRICT #64

Although the memorandum briefly mentions foundation grouting to control seepage, no site-specific information is provided to demonstrate that this construction method would be successful. The various existing geologic structural features could significantly influence the content of grouting programs and grout design and thereby cause related environmental impacts. The existing structural geology is complex, and includes several synclines, faults and stratigraphic complexities. There are many potential environmental constraints and potential impacts to depths of excavation embedment, grouting programs and related design parameters that should be addressed in the RDEIR and made available for public review and comment.

DISTRICT #65

**9. Brine Ponds May Generate Hazardous Waste**

The DEIR discusses concentration of naturally occurring harmful elements such as arsenic in the evaporation brine ponds, including the need to remove the accumulated salts every ten years. However, in Section 3.16 Hazards and Hazardous Materials, the DEIR does not assess, or even mention, the management of these potentially hazardous waste salts. This should be addressed in the RDEIR and made available for public review and comment.

DISTRICT #66

We appreciate this opportunity to comment on the DEIR. The District is concerned about the inadequate discussion and analysis of the Project’s design and operation, the failure of the DEIR to address many base line environmental conditions, as well as the inadequate evaluation of the Project’s potential significant impacts on the environment and the Landfill. Should you have any questions regarding this letter, please contact Theresa Dodge at (562) 908-4288, extension 2599.

Very truly yours,  
 Stephen R. Maguin



Grace R. Chan  
 Assistant Chief Engineer and  
 Assistant General Manager

GRC:TDD:mh

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

**Responses to Comments from the County Sanitation Districts of Los Angeles County,  
County Sanitation District No. 2 (District):**

**District #1:** The landfill will place waste in four canyons and the east, or lower, pit.

**Response to District #1:** Comment noted. The four canyons mentioned in the District's letter are located on lands in between the proposed reservoirs. The proposed Eagle Mountain Pumped Storage Project (Project) will use tunnels to convey water between the two reservoirs, and an underground powerhouse to generate power. These tunnels and powerhouse will be far beneath the proposed Eagle Mountain Landfill (Landfill). The canyons that are intended for use by the Landfill will remain available to the Landfill.

The east, or lower pit, of the proposed Landfill was not included in the Solid Waste Facility Permit, or the approvals issued by Riverside County in Specific Plan #305 or Development Agreement #64, or Waste Discharge Requirements issued by the Colorado River Basin Regional Water Quality Control Board (Colorado River Regional Board). In order to include the East Pit in the proposed Landfill as a waste disposal area, the Landfill operators would need to submit the plans to the regulatory authorities for approval. As described in Section 3.1.3.3.3 of the Final Environmental Impact Report (EIR), at this time no such plans have been submitted, and no permit applications are pending for use of the East Pit as a waste discharge area. Therefore, use of the East Pit as a waste disposal area must be considered speculative at this time.

**District #2:** The Draft EIR attempts to attribute many hypothetical and questionable "green" attributes to the Project.

**Response to District #2:** The Draft EIR does not describe the proposed Project as a renewable power generator, nor is the Project described as "green." The proposed Project is an energy storage project, defined by the State of California as "a commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy" (Assembly Bill [AB] No. 2514; Statutes 2010, Chapter 469, Skinner).

AB 2514 states that:

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

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

- (a) Expanding the use of energy storage systems can assist electrical corporations, electric service providers, community choice aggregators, and local publicly owned electric utilities in integrating increased amounts of renewable energy resources into the electrical transmission and distribution grid in a manner that minimizes emissions of greenhouse gases.
- (b) Additional energy storage systems can optimize the use of the significant additional amounts of variable, intermittent, and off-peak electrical generation from wind and solar

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

energy that will be entering the California power mix on an accelerated basis.

- (c) Expanded use of energy storage systems can reduce costs to ratepayers by avoiding or deferring the need for new fossil fuel-powered peaking powerplants and avoiding or deferring distribution and transmission system upgrades and expansion of the grid.
- (d) Expanded use of energy storage systems will reduce the use of electricity generated from fossil fuels to meet peak load requirements on days with high electricity demand and can avoid or reduce the use of electricity generated by high carbon-emitting electrical generating facilities during those high electricity demand periods. This will have substantial cobenefits from reduced emissions of criteria pollutants.
- (e) Use of energy storage systems to provide the ancillary services otherwise provided by fossil-fueled generating facilities will reduce emissions of carbon dioxide and criteria pollutants.
- (f) There are significant barriers to obtaining the benefits of energy storage systems, including inadequate evaluation of the use of energy storage to integrate renewable energy resources into the transmission and distribution grid through long-term electricity resource planning, lack of recognition of technological and marketplace advancements, and inadequate statutory and regulatory support.

The Project will provide the energy storage benefits described in AB 2514, including: providing assistance with the integration of renewable energy into the transmission grid; avoiding or deferring the need for new fossil fuel-powered peaking power plants and expansion of the transmission grid; reducing the use of electricity generated from fossil fuels to meet peak load requirements; and providing ancillary services otherwise provided by fossil-fueled generating facilities thus reducing emissions of carbon dioxide and criteria pollutants.

**District #3:** The Draft EIR seeks to substitute promises of conceptual future mitigation programs for actual identification and consideration of Project impacts or identification and consideration of specific mitigation measures that may be reviewed and commented upon by the public.

**Response to District #3:** The California Environmental Quality Act (CEQA) Guidelines require an EIR to be prepared with a “sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences (CEQA Guidelines §15151).



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According to the CEQA Guidelines, the Project description,

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

(a) The precise location and boundaries of the proposed Project shall be shown on a detailed map, preferably topographic...

(b) A statement of the objectives sought by the proposed Project...

(c) A general description of the Project's technical, economic, and environmental characteristics, considering the principal engineering proposals if any and supporting public service facilities. (Guidelines § 15124.)

The State Water Resources Control Board (State Water Board) is requiring mitigation measures that will address significant environmental impacts caused by the Project. The CEQA Guidelines (§15126.4 (a.1.B)) state that, "mitigation measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." Mitigation measures have been designed to address all possible site-specific concerns for the Project. Appropriate mitigation requirements may adjust as on-going site studies assist the State Water Board in developing a more complete picture of site. Mitigation measures (MM) are not being improperly deferred by requiring the measures to be tailored to site-specific factors that may come to light later in the development process. (Please see Response to District #14.

**District #4:** The Draft EIR fails to consider the actual impacts of the Project on the Landfill project, which is scheduled to take place at the same time and in many of the same locations as the Project, and upon the environment.

**Response to District #4:** The Draft EIR addresses potential impacts to the proposed Landfill in Sections 3.9 and 12.8.

Sections 3.9.3.3 and 12.8 have been revised in the Final EIR to reflect the additional information provided in the District's letter regarding potential conflicts in the layout between the Project and the proposed Landfill regarding: the access road to the surge tower; potential for water from the Upper Reservoir to reach the toe of the Landfill in Phase 1 in the rare event that the spillway is used; the proposed South Saddle Dam impingement on Phase 1 of the Landfill; the transmission line location in relationship to Phase 4 of the Landfill; and the potential for the switchyard and reverse osmosis facility to impinge on the Phase 1 rail yard.

**District #5:** The Draft EIR lacks a sufficient description of the most critical baseline conditions at the site to permit any effective analysis of potential environmental impacts from the Project.

**Response to District #5:** In reference to the proposed Landfill, detailed biological surveys, water resource investigations, focused geologic mapping, and numerous test explorations, geotechnical analyses, and subsurface interpretations were performed. The broad scope of

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

these investigations was deemed sufficient for an accurate characterization of the environmental conditions in the Central Project Area, where the reservoirs and powerhouse will be located, for the Project. This information was supplemented with additional analysis using aerial photography and mapping to confirm that site conditions remain in the same condition as they were at the time the Landfill studies were conducted.

CEQA Guidelines §15151 states an EIR “should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences.” Potential impacts to the Project site are addressed in the Draft EIR as a change from the baseline condition as required by CEQA Guidelines §15125(a),

An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published... This environmental setting will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant.

The Draft EIR describes the potential impacts from the Project in light of the highly disturbed, current conditions of the Central Project Area. CEQA Guidelines require that the description of the environmental setting be no longer than is necessary to an understanding of the significant effects of the proposed Project and its alternatives (CEQA Guidelines §15125). The Draft EIR meets this standard.

**District #6:** The evaluation of environmental impacts is largely based upon tabletop or desktop studies based on the works of others that were not designed or intended for this Project’s purpose, or they have attempted to defer studies entirely until after approval. Thus, the Draft EIR does not include vital studies of the site geology, surface water and groundwater, and biology.

**District #7:** Undertaking these studies now could lead to starkly different conclusions of the environmental impacts associated with the Project design and permit important public comments on its related impacts.

**District #8:** Project proponents then propose mitigation measures for potential impacts that are unknown and categorize such potential impacts as “significant” or “not significant” even though, by Draft EIR admission, there is insufficient understanding or consideration of baseline conditions or actual potential impacts at this time.

**District #9:** The environmental analysis in the Draft EIR fails to include sufficient detail about important existing natural features and conditions at the Project site.

**District #10:** The Project’s proponents seek to defer fact-based analysis of environmental impacts and mitigation measures until after it is too late for the public reviewing the Draft EIR to comment or actually understand the true impact of the Project.

**Responses to District #6, 7, 8, 9, and 10:** The description of the environmental setting is based on both extensive field surveys of those areas of the Project that were accessible, and

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

review of substantial existing information developed for the proposed Landfill for those areas of the Project that were inaccessible.

Details of the methods used to develop the Draft EIR are found in Section 3 for each resource area. Appendix C of the Draft EIR contains technical memoranda prepared specifically for the Project. Appendices A and B of the Draft EIR contain the results of the sensitive species surveys conducted for the Project. The Draft EIR was prepared by highly experienced scientists and registered professional engineers. Resumes for the authors of these materials can be found in Section 9 of the Draft EIR.

The landowner of the Central Project Area, where the reservoirs and the powerhouse will be located, for the Project has not granted the Applicant access to these lands. The Central Project Area consists entirely of previously mined lands from the Kaiser iron mine, and consists of mine pits and large mounds of mine tailings. In addition, as reported in the Draft EIR, the Central Project Area has been the subject of many years of scientific and environmental investigations for the proposed Landfill, and for previous versions of the Project. As a result, sufficient data are available for the impact assessment of the Draft EIR.

An evaluation of the environmental effects of a proposed Project need not be exhaustive. The evaluation of the environmental effects of a proposed project must be reviewed in light of what is reasonably feasible. An EIR is required to be prepared with a "sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences" (CEQA Guidelines §15151). The Draft EIR meets this standard.

The description of environmental impacts determined to be significant must include:

Relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality and public services (CEQA Guidelines §15126.2).

The Draft EIR contains sufficient detail to describe the environmental setting, the Project, and the potential environmental impacts of the Project.

Regarding mitigation measures, the CEQA Guidelines provide:

Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way (Guidelines §15126.4 (a)(1)(B)).

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

[T]he fact the entire extent and precise detail of the mitigation that may be required is not known does not undermine the final EIR's conclusion that the impact can in fact be successfully mitigated. (*Riverwatch v. County of San Diego* (1999) 76 Cal.App.4<sup>th</sup> 1428,1445-1450.)

The Draft EIR: analyzed the "worst-case" scenario; included as much detail as possible; included alternative, proposed mitigation strategies; committed to mitigating the impacts; and included performance standards. Examples of performance standards are mitigation measure (MM) GW-4 and MM GW-5, which specify the target groundwater levels for the seepage recovery wells for the Upper and Lower Reservoirs. The proposed mitigation measures will reduce most impacts to less than significant. Impacts that cannot be reduced to less than significant are specifically described in Section 3.1 through Section 3.17 in the Draft EIR.

Please see also Response to District #3 and #14.

**District #11:** The discussion of geological conditions at the site includes no detailed physical examination focused on Project design, nor site-specific geological studies regarding conditions at the Project site.

**District #12:** The Project's proponents seek the lead agency's certification through an EIR process without having validly obtained sufficient site access to perform basic geological investigations at the locations where they propose to locate large tunnels below the Landfill footprint, as well as reservoirs and dams and other massive infrastructure improvements.

**Response to District #11 and 12:** Focused geologic mapping and numerous test explorations, geotechnical analyses and subsurface interpretations have been performed on the site for construction of the proposed Landfill construction. Since this work was performed specifically for the proposed Landfill, the locations of some explorations and some of the analyses performed may not have application for investigation of the Project. However, the broad scope of the Landfill investigation was sufficient for a detailed characterization of the ground and subsurface conditions, and evaluation of the potential geologic hazards across the site for environmental assessment of the Project.

The proposed siting of the underground tunnel is based on the available geologic mapping, which is sufficient to confirm the technical feasibility of the Project. Section 12.1 of the Draft EIR outlines a geotechnical exploration program that is to be conducted once the Applicant obtains site access. Should the tunnel alignment require adjustment for physical or economic reasons (e.g., avoidance of poor quality rock identified in the exploration program), the environmental impacts of tunnel excavation described in the Draft EIR would be unchanged. MM GEO-1 and Section 12.2 of the Draft EIR describe an erosion control plan to address management of loose rock material and stormwater at the Project site. MM GW-1, MM GW-4, and MM GW-5 address seepage control and contain performance standards for groundwater levels in the Project area.

**District #13:** The Draft EIR fails to identify Eagle Creek as part of the Project's environmental setting and fails to more significantly analyze the Project's potential impacts upon the creek bed.

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

Eagle Creek must be studied and the discussion of potential Project impacts upon this stream needs to be adequately detailed

**Response to District #13:** Drainages in the Project area are described in Section 3.2.2 of the Draft EIR, and potential impacts and mitigation measures are set forth in MM GEO-1. Eagle Creek is described in the Draft EIR in Section 12.9. However, for additional clarity, Section 3.2.2 of the Final EIR has been revised to also include a description of Eagle Creek, an ephemeral stream channel in the Project boundary. Additional detail has been added to Section 3.2.3.3.3 of the Final EIR to address potential Project impacts to stormwater, and potential impacts of stormwater to Eagle Creek. Impact 3.5-9 describes potential impacts to dry desert washes in the Project area. These washes include Eagle Creek and Bald Eagle Creek.

**District #14:** Although the DEIR speculates that the Project-created surface waters may be impacted by sedimentation and metals as a result of former mining activities on site, it relies for mitigation of these impacts upon the "erosion plan," which detrimentally lacks the pertinent information identified above, and "on-site studies of acid production potential," which will be performed "when access is granted to Eagle Crest Energy Company" to collect samples. (p. 3.2-16.) Thus, by its own language, the DEIR acknowledges that the Project's proponents do not have sufficient information to identify the Project's potential impact upon water quality. Instead, studies regarding these potential impacts will be conducted after EIR certification and mitigation measures are to be adopted without public review or comment. This again constitutes deferred mitigation and does not address the important issue of water contamination by a Project involving the importation of massive quantities of water onto the Project site. These studies and mitigation measures need to be addressed instead in the RDEIR [Revised and Recirculated Draft EIR].

**Response to District #14:** The potential impact of erosion from the Project was identified as potentially significant in the Draft EIR (Impacts 3.2-1 and 3.2-3). The proposed mitigation is an Erosion Control Plan (MM GEO-1), which was prepared in consultation with the relevant resource managing agencies (United States Bureau of Land Management [BLM], U.S. National Park Service, California Department of Fish and Wildlife [CDFW; formerly known as California Department of Fish and Game], United States Fish and Wildlife Service [USFWS], and State Water Board). MM GEO-1 generally summarizes the Erosion Control Plan mitigation measure, describes implementation timing, and identifies parties responsible for implementation, monitoring, reporting, verification, and enforcement. Site-specific details of the Erosion Control Plan are found in Section 12.2 of the Final EIR.

The Erosion Control Plan contains a list of specific best management practices (BMPs) that can be applied to different types of surface disturbances for each area of the Project site. CEQA allows for mitigation measures that specify performance standards which would mitigate the significant effect of the Project and which may be accomplished in more than one specified way (Guidelines §15126.4 (a)(1)(B)). The BMPs in the Erosion Control Plan were developed based on the California Stormwater 2003 BMP Handbook published by the California Stormwater Quality Association.

The potential impact of acid production was identified in the Draft EIR as potentially significant (Impact 3.2-3). MM SW-1 describes the studies that are required to be conducted as a part of

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

engineering design on acid production potential, and specifies that water treatment to neutralize acid will be added to the reverse osmosis water treatment system to maintain water quality at a level comparable with the source water quality. MM SW-1 has been updated in the Final EIR to include the following: “As a performance standard, the proposed Project must not cause or contribute to the degradation of background water quality of the aquifer, as required by the Region 7 Colorado River Water Quality Control Plan. Water quality in the reservoirs will be maintained at the existing quality of the source groundwater.”

In *Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal.App.3d 1011 (“SOCA”), the court explained that in situations where the formulation of precise means of mitigation is truly infeasible or impractical at the time of project approval, the approving agency should commit itself to eventually working out such measures as can be feasibly devised, but should treat the impacts in question as being significant at the time of project approval:

[For] impacts for which mitigation is known to be feasible, but where practical considerations prohibit devising such measures early in the planning process...the agency can commit itself to eventually devising measures that will satisfy specific performance criteria articulated at the time of Project approval. Where future action to carry a project forward is contingent on devising means to satisfy such criteria, the agency should be able to rely on its commitment as evidence that significant impacts will in fact be mitigated. (*SOCA, supra*, 229 Cal.App.3d 1028-1029.)

**District #15:** The discussions of potential impacts and mitigation measures in the Groundwater Section are speculations based upon the proponent’s acknowledged limited information about existing conditions. The entire evaluation of potential impacts to groundwater is based upon a literature review and review of photographs rather than any actual field work at the Project site.

**Response to District #15:** The technical analysis used to develop the assessment of impacts and mitigation measures for groundwater was developed by the State Water Board, Metropolitan Water District of Southern California (MWD), and Eagle Crest Energy Company. The technical memoranda were released for public review as part of the Federal Energy Regulatory Commission (FERC) licensing process, and modified based on comments received during that public review process. The analysis included a review of the existing information for the groundwater basin, as well as development of new information based on groundwater modeling using MODFLOW and the Theiss equation.

Please see also Responses to District #5, #11, and #12.

**District #16:** While the Draft EIR concedes that seepage may impact the amount of groundwater that will need to be pumped for the Project, estimates of this seepage are created without support from actual geological studies in the areas at the proposed reservoirs or tunnels, and are, therefore, not supported by substantial evidence. Recognizing this defect, the proponents propose in the Draft EIR to conduct a “detailed reconnaissance” of areas where leakage and seepage is expected to occur during the Project’s “final engineering design” as part of their seepage control efforts.

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

**Response to District #16:** The Draft EIR (Section 12.5) presents detailed seepage analyses using the SEEP/W computer program, which is standard engineering practice for estimating seepage. The development of the model and material properties was based on the best available geotechnical and site-specific information, including geotechnical and geological information from investigations and studies conducted by GeoSyntec Consultants, GSi/Water, and GeoPentech in support of studies for the proposed Landfill project.

Information used in the Draft EIR includes borehole data and hydraulic conductivity tests developed for the Lower Reservoir rock material and borehole data and Rock Quality Index (RQI) testing results developed for the Upper Reservoir materials. Studies conducted for MWD in the Chuckwalla Aquifer (Upper Chuckwalla Groundwater Basin Storage, GeoPentech, 2003) address hydrocompaction concerns and were used to assess the Project's potential to result in hydrocompaction near the Colorado River Aqueduct (CRA).

The seepage evaluation in Section 12.5 of the Draft EIR presents substantial information including: the hydraulic conductivity of the liner materials that were developed based on several field and laboratory tests; the depths of liner material assumed for each analysis; the location and placement of each mitigation measure; the limitations of the mitigation measures; and the assumed effectiveness of each mitigation measure.

The seepage analysis initially developed results for a "worse-case" scenario, in which the reservoir pool is maintained at the maximum pool level indefinitely and no seepage liner or mitigation measures are in place. However, the "worst-case" scenario will not occur in reality for many reasons, including: both reservoirs can never be completely full at the same time; reservoir levels will cycle up and down in response to energy demands and hydroelectric operations of the reservoirs; and seepage control will be implemented as a component of Project design.

The seepage analysis also reviewed the effectiveness of various seepage control measures, including: reservoir liners of 3-, 5-, and 8-feet; grouting; and roller compacted concrete or soil treatment. It was concluded that the estimated total reduction in average annual seepage volume from the Upper Reservoir, using both grouting and blanket liner, ranged from about 36 to 41 percent, depending on the liner thickness. The estimated total reduction in average annual seepage volume from the Lower Reservoir using a blanket liner, grouting rock fractures, and treatment of alluvium, ranged from about 37 to 59 percent, depending on the liner thickness. Seepage control is included as a required element of the Project's design (MM GW-4 and MM GW-5).

Leakage or seepage that is released from the reservoir will be collected through the seepage recovery system prior to reaching drainage channel or the proposed Landfill elevations, as described in MM GW-4 and MM GW-5. As such, seepage from the Project is not expected to conflict with the proposed Landfill.

Based on this information, the seepage mitigation measures contain adequate detail to assess the validity of each alternative and the associated environmental impacts. Refinement of the seepage mitigation measures will be completed during the final engineering design of the Project, including detailed geotechnical investigations, development of an implementation

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schedule, estimated costs, consultation records and specifications for the operations and maintenance of the seepage mitigation measures.

**District #17:** The Draft EIR relies again upon delayed analysis and deferred mitigation with respect to the biological impacts of the Project rather than analysis of existing conditions.

**Response to District #17:** The landowner of the Central Project Area, where the reservoirs and powerhouse will be located, has not granted site access to the Applicant. Neither the State Water Board nor FERC can require that access be granted in advance of Project approvals. However, the Central Project Area is comprised entirely of previously mined lands from the Kaiser iron mine, and consists of mine pits and large mounds of mine tailings. In addition, as reported in the Draft EIR, the Central Project Area has been the subject of many years of scientific and environmental investigations for the proposed Landfill, and for previous versions of the Project. Available existing data were used in the impact assessment for the Draft EIR. This information includes the 1992 Biological Opinion (BO) issued by USFWS for the Landfill that covers much of the Central Project Area.

The conclusions in the Draft EIR are based on extensive field studies of the Central Project Area conducted during permitting for the proposed Landfill. Those studies were used as the basis for development of BO 1-6-92-F-39 (USFWS, 1992) for the proposed Landfill, issued by the USFWS on September 10, 1992. Those studies included a Biological Assessment (BA) for the Landfill prepared by RECON, dated April 8, 1992, and a Biological Technical Report prepared by Circle Mountain Biological Consultants, dated February 1996. The BA concluded that the Landfill does not extend into desert tortoise habitat, and therefore no direct construction impacts to desert tortoise habitat will occur in the Landfill site area. The Biological Technical Report noted that developed portions of the existing mine are mostly denude of vegetation, and are not representative of the plant communities that once occurred.

Recent (2008) aerial photography was also used to assess current conditions on the Central Project Area. Figure District-1 is an example of the aerial photography used to review current site conditions. This review determined that conditions on the Central Project Area remain substantially unchanged since the time of the field studies for the proposed Landfill project. Conditions in the Central Project Area are highly disturbed from past mining activities, and remain denuded of vegetation. The Central Project Area does not provide habitat for desert tortoise.

Review of the mitigation measures contained in the 1992 BO for the Landfill confirms that the Project will not interfere with implementation of mitigation measures required for the proposed Landfill (see Table 3.9-3 of the Final EIR for a complete list of mitigation measures in the Landfill BO, and the effect of the Project on these mitigation measures).



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

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

An Environmental Impact Statement (EIS) on the Landfill was issued in 1996 (BLM, 1996). USFWS submitted a comment letter on that EIS on September 30, 1996, wherein it re-affirmed the conclusions of the 1992 BO. The letter references the 1992 BO and reiterates the conclusion that the mitigation measures proposed by BLM, the Project proponent, and the terms and conditions of the BO, adequately offset impacts to proposed desert tortoise critical habitat. The letter further states that,

New survey information of desert tortoise in new areas in the Project vicinity and the recent designation of critical habitat shall be investigated, but at present the Service sees no need to reinstate consultation pursuant to Section 7 of the Act (letter from the Field Supervisor, Carlsbad office of the USFWS to the District Manager, California Desert District Office, BLM, dated September 30, 1996).

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Therefore, the State Water Board concludes that the information in the Final EIR on potential impacts to wildlife in the Central Project Area qualifies as the best available data, adequately characterizes conditions in this extremely disturbed environmental setting, and is sufficient to support informed decision-making.

Please see also Response to District #14.

**District #18:** The Draft EIR fails to establish either a baseline or ongoing monitoring and management program for dealing with ravens throughout construction, operation and maintenance of the Project.

**Response to District #18:** A draft Raven Management Plan was developed in consultation with CDFW, USFWS, and BLM and is included in Section 12.14 of the Draft EIR. MM TE-5 of the Draft EIR requires implementation of the plan, which is now referred to as the Predator Monitoring and Control Plan.

In January 2012, FERC released the Final EIS for the Project. The Final EIS recommended a modification to MM TE-5 to include other tortoise predators, including coyotes, wild dogs, and gulls. Consequently, MM TE-5 was revised in the Final EIR, as shown below, to include the modifications recommended by FERC, as follows (new text in red).

**MM TE-5. Predator Monitoring and Control Program.** The **Predator Monitoring and Control Program** is found in its entirety within Section 12.14. Proposed projects on federal lands that may result in increased **desert tortoise predator** populations must incorporate mitigation to reduce or eliminate the opportunity for raven proliferation. **One of the most significant desert tortoise predators are ravens.** The USFWS has developed a program to monitor and manage raven populations in the California desert in an effort to enhance desert tortoise recovery. In order to integrate monitoring and management, the USFWS has agreed to an “in-lieu” fee to replace quantitative raven monitoring on new projects in the range of the desert tortoise. The **Licensee** will pay in-lieu fees to the USFWS that will be directed toward a future quantitative regional monitoring program aimed at understanding the relationship between ongoing development in the desert region, raven population growth and expansion and raven impacts on desert tortoise populations. The vehicle for this program is a Memorandum of Understanding between the **Licensee**, CDFW, and USFWS.

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

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

- A suite of construction and operations measures to reduce food scavenging and drinking by ravens (e.g., trash containment, minimization of pooling water on roadways and construction right-of-ways)
- Roadkill removal

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- Qualitative monitoring of raven use of the **Project** site during operations, conducted on a pre-determined schedule by the on-site Project environmental compliance officer
- Breeding season nest surveys
- **Baseline and post-construction surveys for other desert tortoise predators, including coyotes, wild dogs, and gulls**
- **Mitigation measures to be implemented if the number of predators increases**
- **A schedule for post-construction surveys during the second year of Project operation, followed by surveys once every 5 years**

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

**District #19:** There is an unsubstantiated assumption made in the Draft EIR. Regarding timing of the two projects; that is, the Project will be implemented and completed in the Central Project Area before the Landfill reaches that portion of the Project site. First, the Draft EIR fails to consider that the Project will be subject to many of the same delays as the Landfill in obtaining entitlements, because the Project faces organized opposition from not only the opponents of the Landfill, but also possibly from the Metropolitan Water District, the District and Kaiser.

**Response to District #19:** Section 12.8 of the Draft EIR discusses the timing of the landfill the Project. This analysis concludes that the Project is likely to be built and operational prior to initiation of landfill construction at Eagle Mountain. It is speculative to assume that the Project would be delayed as a result of organized opposition.

**District #20:** The Draft EIR fails to consider the activities necessary to comply with any closure and post-closure requirements when the energy project is complete.

**Response to District #20:** At the time that the FERC license is due to expire, FERC will engage in a re-licensing proceeding. This proceeding may result in: the Project being re-licensed; a federal takeover of the Project; issuance of a non-power license; or license surrender. It would be speculative to presume what the outcome of this proceeding would be 50 years into the future.

The Project evaluated by the State Water Board at this time is not the retirement of the pumped storage plant, but rather it is the construction and operation of the Project. “[W]here future development is unspecified and uncertain, no purpose can be served by requiring an EIR to engage in sheer speculation as to future environmental consequences.” (See *Laurel Heights Improvement Assn. v. Regents of University of California* 47 Cal.3d 376, 395.) Future impacts that may result following Project retirement, if that is the alternative selected at the time of the license expires, may be evaluated in a subsequent environmental document. At this time, the Project’s retirement will not create significant impacts to the physical environment or to the Landfill. Further, it is not foreseeable that the end of the Project would preclude or interfere with the Landfill’s operations or closure/ post-closure responsibilities.

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FERC Guidelines (FERC, 2008) require that Project retirement be considered as an alternative to be evaluated in the National Environmental Policy Act (NEPA) document for re-licensing. Therefore, during re-licensing, the alternative of license surrender will be examined as part of the NEPA proceeding at that time.

FERC typically includes a license article such as the following if the Project is not completed or the license is surrendered:

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

**District #21:** The Draft EIR did not consider that the District is likely to a change the phasing of the Landfill based on engineering considerations.

**Response to District #21:** Specific Plan #305 for the proposed Landfill (1997) and the EIR for the Landfill describe the proposed phasing of the Landfill. The land use compatibility evaluation in the Draft EIR is based on the phasing described in these permitting documents for the Landfill. The proposed Landfill's waste discharge requirements (WDR) (Colorado River Regional Board WDR 99-061) specifies the construction sequencing of the landfill (starting with Phase 1 and ending with Phase 4) and requires the written approval of the Colorado River Regional Board's Executive Officer for significant deviations in sequencing. The landfill has never requested any other specific sequence of phasing. It would be speculative to assume that planned or proposed projects would be constructed in alternative or previously un-described phasing.

**District #22:** The Draft EIR did not consider the Landfill capacity losses due to the Project infringement into the Landfill footprint, limiting fill height and flattening fill slopes with resulting impacts to the economic viability of the Landfill.

**Response to District #22:** Sections 3.9.3.3 and 12.8 of the Final EIR were revised to include a discussion of minor design modification to the Project which will eliminate any impact on Landfill capacity. . As a result, the landfill compatibility analysis continues to indicate that the projects are compatible.

The Mitigation Program for the Project has been revised to clarify that coordination between the proposed Landfill and the Project will be necessary during design, construction, and operation of

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the Project and proposed Landfill to eliminate conflicts between the projects. PDF LU-4 has been revised in the Final EIR, as follows (revisions in red):

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

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

**District #23:** The Draft EIR fails to address a myriad of obvious physical conflicts with various Landfill components. The consultants did not engage an expert with sufficient or competent experience in landfill construction and operation. The Project's proponents failed to make a good faith effort to consider the Project's impacts upon the Landfill and the related environmental impacts.

**Response to District #23:** The proposed Project facility locations and designs have been modified based upon identification of potential conflicts with the proposed Landfill. The Draft EIR contains analysis of Landfill compatibility, and stipulates mitigation measures to resolve potential conflicts between the projects throughout Project design as described in PDF LU-4.

Please see also Responses to District #4, #19, #22, and #25.

**District #24:** Further discussion in the RDEIR is needed of the site-specific factors included in the choice of tunneling methods and potential impacts upon the Landfill and the environment that is located above the tunnels. The discussion of ground subsidence impacts in connection with the Project in Section 3.1.3.3.2 fails to address potential impacts of subsidence from tunneling activities during construction and from seepage from the tunnels during operation.

**Response to District #24:** Please refer to Section 3.9 of the Final EIR regarding Project timing.

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As discussed in Section 3.1 of the Draft EIR, and in PDF GEO-1, final engineering studies and subsurface investigations and evaluations will be conducted to evaluate the appropriate tunneling method and tunnel support system for the construction. Such studies will be performed after the Applicant obtains site access. Enough data are currently available to determine that Project tunnel construction appears feasible with no known “fatal flaws” and that potential impacts to the Landfill from subsidence or rock disturbance during tunneling can be avoided or mitigated as necessary (e.g., ground treatment) with current tunneling technology.

Whether tunneling is performed with drill-and-blast methods, use of a Tunnel Boring Machine (TBM), or some combination of methods, appropriate construction measures will be employed to prevent tunnel collapse. These measures may include rock-bolting, concrete lining, and installation of steel supports based on the materials encountered. The tunnel support requirements will be identified in a Geotechnical Baseline Report (GBR) prepared as part of the final design process. The GBR will be prepared by an experienced and licensed tunnel design expert, based on detailed subsurface investigations, sampling, and laboratory testing of rock materials. Although there are risks involved in tunneling, there is no basis to suggest that tunneling tens or hundreds of feet below ground will translate into changes in the ground surface of the hard-rock geology in the area, particularly when subsurface conditions are well understood and appropriate measures are planned to prevent tunnel collapse. Even if a tunnel collapse occurs, it is very unlikely the collapse would result in a change to the ground surface, or an impact to the proposed Landfill.

The nature of the hard rock at the Kaiser Mine site was described in the WDR prepared for the proposed Landfill (Colorado River Regional Board WDR 99-061). This document describes,

...a series of interconnected tunnels ... excavated during the operation of the Kaiser Eagle Mountain Mine. These tunnels were mined between 1966 and 1972 to access iron ore veins. The tunnels underlie the Landfill footprint in the southern portion of Phase 2 of the Landfill...Except at the portals, the adit is not reinforced, having only an intermittent thin veneer of shotcrete covering the wall and crown rock. The working levels are unreinforced... The dischargers report that the waste-related additional stresses will not have any impact on the existing tunnels for the following reasons:

- a. The competent nature of the granitic and meta-sedimentary bedrock in which the tunnels are mined. These rocks are extremely hard, resulting in the high shear strength of the rock mass,
- b. The thickness of the bedrock cover, except near the portals, and
- c. The arching mechanism which results in stress redistribution around the tunnel.

Many tunnels have been constructed successfully world-wide in rock types similar to those present at the site without causing damage to surface features. Two recently completed hard-

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rock tunneling projects in Southern California (San Vicente Pipeline Tunnel and Arrowhead Tunnels of the Inland Feeder System) are described in the following paragraphs. Both of these projects have been completed in more-challenging geologic settings than those expected at the Project, and neither of these tunneling projects produced any surface deformations (*source: [www.jacobssf.com](http://www.jacobssf.com) ; webpage last visited December 2012*).

### **San Vicente Pipeline Tunnel**

The San Vicente Pipeline Tunnel is part of the San Diego County Water Authority's (SDCWA) Emergency Storage Project, the largest element of a \$1.2 billion Capital Improvement Program. This project involves the construction of a pipeline connecting San Vicente Reservoir, one of San Diego County's major water storage facilities, and the Second Aqueduct, which delivers water from Northern California to San Diego County. In an emergency, this new connection will allow water to be distributed to agencies in the southern half of the county.

Most of the pipeline is being constructed in a tunnel about 11 miles (17.1 km) long with a finished inside diameter of 102 inches (8.5 feet). This high-pressure water conveyance facility will have internal hydrostatic pressures ranging from about 200 to 250 pounds per square inch (1.38 to 1.72 megapascals).

Various tunneling methods were used on different reaches of the tunnel: an 11.5-foot hard rock tunnel boring machine to bore through 5,255 feet of granitic rocks; two 12-foot digger shields to excavate remaining sedimentary formations; drill-and-blast methods in one reach; and the New Austrian Tunnel Method for a mixed face reach. Tunnel excavation was staged from three shafts and one portal. Various rock support methods were employed, including rock dowels, steel sets, and expanded precast segments. The final lining consists of butt welded steel pipe.

### **Arrowhead Tunnels of the Inland Feeder System**

The Arrowhead Tunnels project consists of two 19-foot excavated-diameter tunnels: the 6-mile East and 5-mile West contracts. These tunnels are a key segment of the MWD's Inland Feeder. This 44-mile water conveyance system of tunnels and pipelines will extend from the termination of the State Water Project in San Bernardino to the CRA. Tunnel excavation was challenging, with highly variable ground conditions. The tunnel alignments cross active splays of the San Andreas fault in three locations, encountering sheared rock and raveling and squeezing ground. Controlling groundwater inflows was critical to meet environmental requirements.

The design incorporates several unique features critical to meet environmental requirements. The lining design will allow the tunnel

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to withstand a magnitude 8.0 earthquake. A special lining, where the alignments cross the fault's active splays, will accommodate fault rupture. The initial lining withstood a pressure of over 900 feet of hydrostatic head during excavation, the highest pressure considered in the design of a precast segmental tunnel lining at the time. The 12-foot inside-diameter final lining consists of welded steel pipe and reinforced concrete cylinder pipe.

The Draft EIR contains a discussion regarding the likely timing of the Project construction *versus* the proposed Landfill's construction (see Section 3.9, page 3.9-24). It is understood that on-going litigation related to the Landfill and permitting may change many of the assumed circumstances in the discussion; as such, there is a reasonable likelihood that tunnel excavation and stabilization for the Project will be completed prior to significant construction in the affected areas of the Landfill (Phases 3 and 4), thereby precluding the possibility for detrimental (and highly unlikely) subsidence to impact the Landfill.

**District #25:** Insufficient information is provided in the Draft EIR to assess modifications that have or will be made to the Project to be compatible with the proposed Landfill or what the environmental impacts of these modifications will be. Likely land use conflicts are not addressed.

**Response to District #25:** Analysis of Landfill compatibility in the Draft EIR is based on the Report of Waste Discharge (dated December 17, 1992, with supplemental information submitted in 1993, 1997, and 1998) which contains a number of drawings and sketches. Drawings by GeoSyntec, dated November 1992, and a set of drawings called "Eagle Mountain Site Development Plan," dated April 1993, were examined. These information sources, filed with the State Water Board, provided the bulk of the information used to assess potential conflicts and identify measures or Project facility locations to avoid conflicts between the Project and the proposed Landfill. The "Eagle Mountain Landfill Specific Plan, Riverside County" dated January 1997, shows different locations for certain Landfill facilities.

An overlay of the two projects was developed for the Draft EIR (Section 12.8) to assess potential conflicts between the projects. This overlay was revised in the Final EIR (Section 12.8 Figure 4) based on additional information submitted in the comments and the Landfill site plan as shown on the most current drawing publically available, dated October 1997. The revised overlay indicates some small areas of facility and infrastructure of the proposed Landfill and Project overlap, which will be resolved during final Project design. The Final EIR (see Section 12.8) was revised to discuss the potential conflicts and the potential impacts of these conflicts on the proposed Landfill.

The Mitigation Program for the Project has been revised to clarify that coordination between the proposed Landfill and the Project will be necessary during design, construction, and operation of the projects to address conflicts between the projects. In addition, PDF LU-4 was revised in the Final EIR to require detailed coordination as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations. See complete text of PDF LU-4 in Response to District #22.



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The Final EIR (including preliminary Project design) provides extensive detail on the Project facility which allows for meaningful assessment of potential land use effects. Please refer also to Responses to District #4, #19, and #22.

**District #26, 27, and 28:** The Landfill's container handling yard, equipment washing facilities, intermodal rail yard, and other facilities immediately south of the Landfill Phase 3 area are in the same area shown for the Project's reverse osmosis plant and associated buildings. The Draft EIR shows the rail yard in the wrong location east of the East Pit.

**Response to District #26, 27, and 28:** Section 12.8 of the Final EIR contains a revised Landfill compatibility overlay using the most-current, publically available Landfill design drawings (dated October 1997). Based on this Project layout, the railyard and operations center would be located on the east side of the proposed Landfill. However, other, older drawings from the proposed Specific Plan 305 show the railyard to be located south of the East Pit for the early years of Landfill development. The ideal location for the Project switchyard and reverse osmosis (RO) facilities and structures is the one currently shown on the Project drawings. Therefore, further discussions between the Applicant and Landfill interests will be required as final planning and design of both projects proceed. In the event that the Project's staging, storage and administration area, RO facility, and switchyard are modified to reduce any remaining conflicts with Landfill facilities, these minor adjustments (a slight shifting of Project facilities) would not result in any additional environmental impacts (see Section 12.8 for a detailed description of the location of these facilities). In addition, PDF LU-4 was revised in the Final EIR to require detailed coordination as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations. See complete text of PDF LU-4 in Response to District #22.

**District #29:** Conflict between Phase 3 Landfill and rail yard with the Project transmission line.

**Response to District #29:** The low-voltage transmission line from the powerhouse to the switchyard is carried in an access tunnel to a shaft, then up to an overhead transmission line to the switchyard. The current alignment of the transmission line crosses over a small corner of the proposed Landfill. The transmission line alignment from the shaft to the switchyard can be shifted in order to avoid most of the Landfill. This would involve running the transmission line from the access tunnel portal along the toe of the Landfill rather than across a portion of the Phase 3 Landfill as currently shown. Phase 3 of the Landfill is planned to be developed in approximately year 35, after the completion of Phases 1 and 2.

The District points out that the current transmission line alignment for the Project passes through the proposed railyard area for Landfill Phases 1 and 2 and may conflict with railyard and solid waste off-loading operations. Modification to the transmission line alignment will be made, as required, during final design of the Project, when more detailed information about the proposed Landfill design and more-detailed site mapping are available. It is anticipated that required adjustments will be relatively minor in nature (involving shifting of Project facilities) and will not result in any additional environmental impacts. In addition, PDF LU-4 was revised in the Final EIR to require detailed coordination as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations. See complete text of PDF LU-4 in Response to District #22.

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Please see also Responses to District #4, #19, and #22.

**District #30:** The water pipeline corridor selected in the Draft EIR is also within the transmission line alignment and will conflict with Landfill facilities and operations. The location of the corridor shown in the Draft EIR will reduce the size of the Phase 3 fill area and could jeopardize the stability of the fill in that area by reducing the buttress (or “toe”) portion of the fill. Also, the land use impacted by the water pipeline will not be merely “undeveloped desert” as described on pages 3.9-30 of the Draft EIR, but rather areas to be used for maintenance of the proposed Landfill access road, rail yard and supporting facilities as well as the Phases 3, 4 and 5 fill areas of the Landfill.

**Response to District #30:** Section 12.8 of the Final EIR includes an updated technical memorandum resolving potential conflicts between the proposed Landfill and the Project. In order to accommodate the Landfill (and similar to the transmission line adjustment discussed in Response to District #29), the Project’s water pipeline alignment may have to be shifted to accommodate the proposed Landfill facilities. This adjustment will be made during final design. This modification will not result in any additional environmental impacts. PDF LU-4 was revised in the Final EIR to require detailed coordination as the Project progresses in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations. See complete text of PDF LU-4 in Response to District #22.

**District #31:** The upper reservoir dam will overlap a large portion of the Phase 1 Landfill. The spillway and access road will also impact the Landfill. The environmental and economic impacts to the Landfill must be considered.

**Response to District #31:** Section 12.8 of the Final EIR was modified to elaborate on the minor adjustments to the orientation of the Upper Reservoir Dam axis that can be made to minimize land use impacts to the proposed Landfill. Such a minor modification would alter the current dam footprint and the dam volume. The volume of material required to construct the dam is expected to be slightly smaller if the dam axis orientation is changed as described. The proposed Project boundary would not need modification. Final engineering designs of the Upper Reservoir dams will be developed based upon final Landfill design, if available, so that the two projects can minimize or avoid conflicts.

Based on available design drawings (contained in the Project record), Landfill Phase 1 would not extend into the drainage feature where the Project’s Upper Reservoir spillway and access road would be located. The access road to the Upper Reservoir along the drainage channel will be designed so that it will not intersect with the Landfill Phase 1 footprint or present any technical issue with respect to proposed Landfill’s slope stability. As the Project progresses into the final design phase, the Project layout will be designed to accommodate the Landfill as configured. In order to resolve other potential conflicts between the two facilities, coordination between the Project proponents will facilitate compatible final designs and operation. Due to the coordination, the Project should not have environmental or economic impacts on the Landfill.

**District #32:** Impact of a water tunnel and potential leakage on the Landfill liner system is not addressed in the Draft EIR.

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**Response to District #32:** It is unlikely that leakage from the tunnels will have sufficient upward pressure gradient through the bedrock to cause impacts to the Landfill. Although the final details of the design of the tunnels and their lining will not be developed until the final engineering design is developed, performance standards in MM GW-1, MM GW-4, and MM GW-5 will ensure that tunnel lining is adequate to reduce potential environmental impacts to groundwater levels and the Landfill liner to a less than significant level.

Potentials for leakage from the tunnel (and into the tunnel when it is dewatered) will be important tunnel design considerations. As described in Section 2.4.4 of the Draft EIR, leakage from the tunnel will be minimized to the maximum extent, for a number of reasons, including the value of water and the desire to minimize changes to historic groundwater levels in the area. All water tunnels are assumed to be concrete lined and the penstocks and draft tubes near the powerhouse are assumed to be steel lined, primarily because of high velocities of water flowing in them. Throughout the entire alignment, the water tunnels will be located below the proposed Landfill.

**District #33:** Draft EIR describes migration of water from the upper reservoir and the time it would take for the seepage to reach the liner, implying that contact is inevitable. The RDEIR must include an analysis of how the Project will maintain the minimum separation distance requirements set forth in Title 27 as well as a description of seepage prevention measures for the upper reservoir and the impacts of construction, operation and removal of those prevention systems.

**Response to District #33:** Seepage modeling shows that groundwater will stay below the natural ground surface as shown on plots contained in Section 12.5 of the Draft EIR. Those plots show steady-state seepage levels for various assumptions of reservoir lining, from no lining to full treatment. The text of Section 12.5 discusses the time required to reach steady-state seepage. The comment that seepage will reach the liner is not correct based on the seepage analysis performed in Section 12.5 of the Draft EIR. Groundwater levels will remain more than five feet below the natural ground surface in the vicinity of the Landfill and therefore below the Landfill liner, assuming that steady-state seepage conditions are developed. This conclusion is based on examining available mapping and the assumption that the Landfill liner will be located close to the natural ground surface. The time to reach steady-state seepage is provided to indicate how long it will take for seepage to raise the groundwater level to the maximum it is predicted to attain if no seepage controls are used.

Seepage prevention measures are described in the Draft EIR in Section 12.5. Seepage prevention is a required element of Project design, as specified in PDF GW-1 of the Draft EIR.

**District #34:** The Project provides for the location of a large body of water up-gradient from and behind lined Landfill slopes as well as subsurface tunnels beneath an operating Landfill. However, the Draft EIR does not discuss the impact of these tunnels upon the Landfill's ability to meet the requirements of California Code of Regulations (CCR) Title 27. The location of these items in the same vicinity would significantly modify the geotechnical conditions on the site and would require new slope stability and subgrade analyses for the Landfill and new waste discharge requirements for operating the Landfill. The economic and environmental impacts of these facilities upon the Landfill, and its ability to maintain or obtain needed permits to operate

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

must be considered in the RDEIR and all related environmental impacts disclosed. This analysis is critical to assess the Landfill viability if the Project were to go forward.

**Response to District #34:** Title 27 of the California Code of Regulations (§20240(c)) mandates a minimum five-foot separation above the highest anticipated elevation of groundwater for site selection, design, construction, and operation of landfills. The seepage analysis contained within the Section 12.5 of the Draft EIR indicates that, with proposed mitigation in place, seepage will not result in groundwater within five feet of the landfill liner. Mitigation to ensure that the landfill is not affected includes groundwater level monitoring throughout the Project area, and requirements to undertake corrective actions to avoid adverse impacts on the Landfill, MWD's facilities, and other facilities. PDF LU-4 describes coordination between the Project and the proposed Landfill to eliminate conflicts in project facilities overlap, operations, and permitting.

**District #35:** The potential impacts of the Project's use of tailings that would otherwise be used by the Landfill, and a potential shortage of fill for the Landfill, must be addressed in the RDEIR.

**Response to District #35:** If there is a shortage of fine tailings for use by the Project and the proposed Landfill (for final cover), the Project will need to use other means of seepage control. As described in Sections 2.4.1 and 2.4.2 of the Draft EIR, the Project reservoirs will be made as water-tight as possible, because of the value of water and the potential adverse impacts of unchecked seepage. A multi-pronged seepage control program is envisioned for the reservoirs, including grouting, lining, soil cement, and use of more-impervious materials to line the reservoirs. The tunnels will be grouted and lined with concrete (or steel) where required. These measures will be designed based on on-site geologic and geotechnical field programs.

**District #36:** The northern perimeter road proposed for O&M (operations and maintenance) for the Project requires further analysis because its existence would interfere with Landfill construction and operation.

**Response to District #36:** As described in Section 12.8 of the Draft EIR, the existing access road will be used to access the Project facilities, specifically the pumped storage surge tank and shaft. However, in the event that the proposed Landfill is constructed and operational before the end of the Project's license term, a north perimeter access road will be constructed by the Landfill owner, in collaboration with the Applicant, for Landfill access. The Project will then use the north perimeter maintenance road for access to the surge tank and shaft to avoid impacts to Phases 2 and 3 of the Landfill. The Project will coordinate with the Landfill on the use of this access road, as described in PDF LU-4.

**District #37:** The analysis and accounting of the groundwater balance for the Chuckwalla Valley Groundwater Basin fails to sufficiently explain the basis for its assumptions that the pumping effects of the Project will actually result in a water surplus by the end of the assumed 50-year operation period. This updated information, which is completely contrary to the information supplied in the Draft EIR, must be analyzed and the true environmental impacts associated with this deficit must be analyzed in the RDEIR.

**Response to District #37:** Section 12.4 of the Draft EIR details the assumptions made in the development of the water balance, which is summarized in Section 3.3 of the Draft EIR.

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Proposed Project water use, combined with existing water uses, does not exceed the estimated recharge rate for groundwater in the Chuckwalla aquifer. Therefore, at the end of the 50-year license period, if no other water demands were placed on the system, groundwater levels would increase slightly over the life of the proposed Project. However, proposed Project water use, combined with existing water uses and proposed future water uses (primarily solar power generation), does exceed the estimated recharge rate, as described in the cumulative impact analysis in Table 5-5 of the Draft EIR. (Note that an errata sheet was issued on August 31, 2010, to correct a misprint for Table 5-5.) Table 5-5 was revised in the Final EIR to correct a minor calculation error related to future water use by the prisons. The resulting minor adjustments to the water balance estimates did not change the conclusion that the Project will have a less than significant impact individually, but will contribute to a cumulatively significant impact when other proposed projects (solar) are considered.

**District #38:** The site investigation plan discussed in Technical Memorandum 12.1 requires more information about the geology of the Project site and the portions of the Project that underlie the Landfill. The proposed Phase 1 geotechnical investigation plan shows that only five borings are planned. The RDEIR must explain how the geologic/geotechnical information generated from such widely spaced borings will permit the design and construction of tunnels that will not impact the Landfill located above. The Project's proponents must document the properties of the subgrade to determine the impacts of any seepage of the upper reservoir up on the Landfill and address how the Project would be compatible with the Landfill. The Phase 1 program must include investigation of the impacts of the Project upon the static and seismic stability of the Landfill slopes.

**Response to District #38:** Section 12.1 of the Final EIR has been revised to include a more complete description of the Phase 1 and Phase 2 site investigation program. The Phase I program, coupled with previous work on the site conducted for other purposes, will provide the information needed to finalize the location of the Project features and basic facility design concepts and to plan investigations during the Phase II program to support final design of the Project. In addition to investigations to support design of the pumped storage facilities, the Phase II program will also include field investigations and modeling to support detailed evaluation of potential seepage from the Project features (reservoirs and water conveyance tunnels). Seepage evaluations will include groundwater modeling to refine plans for seepage control, seepage recovery, and monitoring as required to avoid potential adverse impacts on the local groundwater regime and water quality, the CRA, and the proposed Landfill. The Phase 2 program will be implemented in a number of progressive steps with subsequent field work planned based on what is learned from the preceding field work.

The geologic and geotechnical analyses to support Project designs will include the full complement of static and seismic analyses required by the design standards for projects of this type and magnitude. These analyses are required by FERC and the California Department of Water Resources Division of Safety of Dams (DSOD), and are also part of the normal "standard of care" for large civil works projects.

See Response to District #22 for coordination with the proposed Landfill and Responses to District #33 and #34 for compliance with Title 27 requirements related to the Landfill liner.

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**District #39:** The plan to use mine tailings to help control seepage is inconsistent with site-specific observations of the properties of these tailings.

**Response to District #39:** As stated by GeoSyntec (1997), field and laboratory data indicate that fine tailings material exists on-site with properties suitable for use as the low-permeability soil liner.

Hydrophobic and sodic soils typically cause water to collect and runoff the surface of the material, rather than infiltrate into the soil. According to the United States Department of Agriculture (USDA) Soil Conservation Service and United States Salinity Laboratory, sodic soils may have much reduced permeabilities. This is because of certain physical-chemical reactions associated with the colloidal fraction of soils, which are primarily manifested in the slaking of aggregates and the swelling of clay minerals. Because clay particles are plate-like in shape and parallel in their orientation, such swelling reduces the size of the inter-aggregate pore spaces in the soil, and reduces permeability accordingly. The exchangeable sodium enters between the parallel platelets of the oriented clay particles of the subaggregates where it creates the repulsion forces between adjacent platelets, which lead to swelling. Repulsed clay platelets or slaked subaggregate assemblies can lodge in pore interstices, also reducing permeability. Thus, high proportions of sodium salts adversely affect permeability.

The physical-chemical properties of sodic soils generally reduce the soil's infiltration rate, and therefore produce material that can be suitable as a liner material. Conversely, some sodic soils with considerably high clay content relative to the exchangeable sodium cations content can show dispersive properties that can potentially increase hydraulic conductivities because the clay particles in the soil are pushed apart when wetted without the voids being filled by the exchangeable sodium.

Several laboratory tests were performed by GeoSyntec (1997) that provided detailed geotechnical characterization of the actual fine tailings material. The results of the laboratory tests indicate that the fine tailings have clay contents that range from about 15 to 25 percent, which indicates minimal dispersive properties. Furthermore, GeoSyntec performed a Pin-Hole Dispersion Test in accordance with ASTM D 4647 on the fine tailings material and the results indicated little or no dispersion (Geosyntec, 1997). Therefore, dispersion is not likely to increase the soil permeability of the fine tailings. In addition, construction of a prototype fill was performed, which indicated that the fine tailings can be placed to meet or exceed a hydraulic conductivity of at least  $1 \times 10^{-7}$  centimeters per second (cm/s) (Geosyntec, 1997).

To conclude, the detailed geotechnical characterization of the fine tailing materials performed by GeoSyntec indicate the existing material could be highly suitable as a liner material. During final design, further geotechnical testing will be performed. If the fine tailings are found to be unsuitable as reservoir lining materials due to their dispersive properties, they will not be used and other methods will be selected.

As indicated in Response to District #35, reservoir seepage and leakage will be effectively controlled, and as described in the revised PDF LU-4, the Project will coordinate with the proposed Landfill on this and other matters of Project compatibility.

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**District #40-1:** The RDEIR should address in detail the viability and technical feasibility of SEEP/w models to accurately predict seepage and groundwater distribution using only Ksat as input parameters and discuss all related environmental impacts.

**Response to District #40-1:** When performing steady-state seepage analyses with SEEP/W only the hydraulic conductivity functions (K) are required. SEEP/W only requires the addition of the volumetric moisture content functions when performing transient seepage analyses (time varying). The seepage analyses performed for the Draft EIR used steady-state and transient analyses; therefore, hydraulic conductivity functions and volumetric moisture content functions were developed and used to model the groundwater conditions. The volumetric moisture content functions used in the Draft EIR analyses were developed based on several of the typical volumetric moisture content functions provided by the SEEP/W model for different typical soils types. The volumetric moisture content functions were modeled as Fredlund-Xing functions, where the volumetric water content is related to the pore water pressure. The sand materials were modeled as a typical medium-grained sand, and the rock materials were modeled as a compacted glacial till following the standard approach in SEEP/W to be conservative and to account for fractures in the bedrock. These volumetric water content functions are considered applicable and appropriate for this level of design. During final engineering, the values used in the SEEP/W analyses will be confirmed or adjusted.

**District #40-2:** The SEEP/w modeling output provided in the Draft EIR does not include important model components and explanations, which must be included in the RDEIR.

**Response to #40-2:** Please see response to individual items below.

**District #40-2A:** The finite element mesh architecture needs to be presented, including, but not limited to, the number of mesh elements/element nodes and the aspect ratio and geometry of mesh elements.

**Response to District #40-2A:** Section 12.5 of the Final EIR has been revised to provide the mesh elements, aspect ratio, nodes, and geometry. They are provided on figures in the Appendix of Section 12.5.

**District #40-2B:** Any utilized nodal boundary conditions need to be defined in the text and their locations need to be located in the appropriate model cross-sections.

**Response to District #40-2B:** No internal nodal boundary conditions were used in the seepage models. External boundary conditions shown in the seepage model cross sections in Section 12.5 of the Draft EIR include location and groundwater elevation.

**District #40-2C:** Quantification of flux quantities and rates assigned to significant boundary nodes and an explanation of their quantities and any flux rates assigned to constant flux rate boundary nodes to reflect the regional groundwater flow.

**Response to District #40-2C:** All of the flux section locations and flux rates used in the analysis are shown on the provided figures in Section 12.5 of the Draft EIR. The flux quantities and rates are explained in the text and provided in Tables 3 through 6 in Section 12.5 of the

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Draft EIR. Constant flux rates at external boundary nodes were not developed; therefore regional groundwater flow rates and quantities were not evaluated.

**District #40-2D:** An explanation of how the models are being calibrated is needed.

**Response to District #40-2D:** The calibration efforts for the provided seepage analyses included developing an existing groundwater condition model for each of the evaluated cross-sections, and then comparing the modeled groundwater elevations to the groundwater elevations measured in the nearby boreholes and groundwater monitoring wells. In all cases, the modeled groundwater elevations matched closely with the groundwater elevations measured in the surrounding boreholes and groundwater monitoring wells (within 5 to 15 feet), therefore the seepage models are considered valid for preliminary design purposes.

**District #40-2E:** An explanation of the color-contouring scheme in terms of seepage rates or water content distributions is needed.

**Response to District #40-2E:** The coloring contouring scheme shown on the results figures illustrates the “Total Head” through the cross-section. This is a very common way to present the results for seepage. This explanation was added to the figures in Section 12.5 in the Final EIR.

**District #40-3:** The SEEP/w model output shown implies that near-surface seepage to the east of the upper reservoir will result from filling the reservoir. This implies that the proposed project conflicts with the Landfill because seepage water may be situated too close to the Landfill liner.

**Response to District #40-3:** The results shown in Section 12.5, Figure 6 of the Draft EIR represent a “worst-case” scenario, in which the reservoir pool is maintained at the maximum pool level indefinitely and no seepage liner or mitigation measures are in place. The Project includes PDF GW-1, MM GW-1, MM GW-3, MM GW-4, and MM GW-5 to limit seepage to the extent feasible in the Lower Reservoir and Upper Reservoir, and maintain groundwater levels within a prescribed range. In addition, the maximum pool level will not be maintained indefinitely. Reservoir levels will fluctuate between maximum and minimum pool (generally on a weekly basis). The results shown in Figure 6 are for a “worst-case” unmitigated condition that is not representative of the State Water Board’s recommended mitigation program for seepage control.

Operation of the Project will likely result in a significantly lower groundwater surface than what is shown on Figure 6. The SEEP/W modeling was also conducted with varying thickness of liners, grouting, and roller-compacted concrete (RCC) controls in place. The results of this modeling are shown in Figures 10 and 11 of Section 12.5 of the Draft EIR. If a seepage blanket and grouting of rock fractures are used at the Upper Reservoir, the average annual seepage volume from the Upper Reservoir could potentially be reduced to 700 acre-feet (AF) and the average groundwater elevations were estimated to be a minimum of 125 feet below the existing ground surface. Similarly, if a seepage blanket, grouting of rock fractures and RCC or soil cement treatment are used on the alluvium on the east wall of the Lower Reservoir, the average annual seepage volume from the Lower Reservoir could potentially be reduced to 900 AF and the average groundwater elevations were estimated to be a minimum of 265 feet below the existing ground surface.



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Even under the “worst-case” scenario, the maximum groundwater surface elevation is estimated to be a minimum of 50 feet below the shown ground surface (see Section 12.5 of the Draft EIR). The Project should not conflict with the proposed Landfill project due to the elevated groundwater level. The existing ground surface was assumed to be approximately the same as the bottom of the proposed Landfill. Permit drawings for the Landfill, dated March 1994, indicate that the Landfill liner would be constructed on top of a foundation layer on natural ground or on fill material. The Landfill liner is therefore expected to be at, or more likely above, the existing ground surface.

**District #40-4:** The SEEP/w model output shown also predicts that groundwater will be close to the ground surface once the lower reservoir is filled.

**Response for District #40-4:** The results shown on Figure 7 in Section 12.5 of the Draft EIR are for a “worst-case” scenario, in which the reservoir pool is maintained at the maximum level indefinitely and no seepage liner or mitigation measures are in place. The Project includes PDF GW-1 to limit seepage to the extent feasible in the Lower Reservoir and Upper Reservoir. The maximum pool level will not be maintained indefinitely. Reservoir levels will fluctuate between maximum and minimum pool. Even for the “worst-case” scenario, the maximum groundwater surface elevation was estimated to be a minimum of 50 feet below the ground surface, and does not have the potential to conflict with the proposed Landfill liner. The existing ground surface was assumed to be approximately the same as the bottom of the proposed Landfill. Permit drawings for the Landfill, dated March 1994, indicate that the Landfill liner would be constructed on top of a foundation layer on natural ground or on fill material. The Landfill liner is therefore expected to be at, or more likely above, the existing ground surface. The brine ponds will be lined with geomembrane materials to prevent seepage.

**District #40-5:** The SEEP/w model output suggests that filling the upper reservoir may cause groundwater to seep into drainage channels and Eagle Creek.

**Response to District #40-5:** The results shown on Figure 8 in Section 12.5 of the Draft EIR are for a “worst-case” scenario, in which the Upper Reservoir pool is maintained at the maximum pool level indefinitely with no seepage liner or mitigation measures in place. The Project includes PDF GW-1 to limit seepage to the extent feasible in the Lower Reservoir and Upper Reservoir. The maximum pool level will not be maintained indefinitely. Reservoir levels will fluctuate between maximum and minimum pool. The results shown in Figure 8 are therefore not intended to indicate conditions expected for the Project, which will include implementation of seepage control design features. Seepage volume will be collected through the seepage recovery well system surrounding the Project. Since Eagle Creek and the drainage channels currently drain into the existing East Pit (Lower Reservoir), in the unlikely event that seepage from the Upper Reservoir does enter into the drainage channels, these flows would be routed to the Lower Reservoir.

**District #40-6:** Figure 11 displays the modeling output representative of groundwater levels after filling a lower reservoir lined with mine tailings and roller-compacted concrete. The RDEIR needs to explain what boundary conditions were introduced into the model to reflect water seeping through the reservoir liner materials and to discuss any related environmental impacts.

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**Response to District #40-6:** No boundary conditions were introduced or modified in the seepage analyses to reflect the liner materials. Following standard modeling practices, the liners were incorporated into the analyses by modifying the geometry to include a liner layer and by applying the developed material properties and hydraulic conductivities to the liner layer. The modifications to the fine tailings liner material properties are described in Section 12.5 of the Final EIR. The RCC materials properties were developed based on several published references and are considered adequate for this level of design. Further development of the liner material properties will be developed during final Project design. MM GW-4 and MM GW-5 specify the performance standard of the seepage control program.

**District #40-7:** Clarification of the relationship between saturated hydraulic connectivity of bedrock and the seepage modeling. The Draft EIR discussions of this relationship require more information to assess potential environmental impacts of the Project upon the Landfill.

**Response to District #40-7:** Please see individual responses below:

**District #40-7A:** Estimated Ksat values are based on limited published packer testing results, but packer testing alone may not yield accurate values. The Ksat of bedrock must be more definitively assessed in the RDEIR through pump testing that would provide regionally representative data on the hydraulic properties of bedrock.

**Response to District #40-7A:** Packer testing results can yield accurate Ksat (hydraulic conductivity) values. At this level of study, the Ksat values obtained through packer testing are considered applicable and appropriate. During the final Project design, detailed field investigations and pump testing will be performed to confirm or to adjust the Ksat values used in the EIR seepage analyses.

**District #40-7B:** SEEP/W modeling using Ksat as the main input parameter should include sensitivity analyses of the effects of the bedrock fracturing, fracture densities, fracture infilling and cementation as well as aperture widths to be meaningful for public comment.

**Response to District #40-7B:** The SEEP/W analyses presented in Section 12.5 of the Final EIR are based on available published data, empirical data correlations, field and laboratory testing, borehole logs, and engineering judgment. The analyses presented in the Final EIR provide an applicable and appropriate level of detail for evaluating seepage potentials and developing conceptual designs for seepage monitoring and control measures.

A sensitivity analysis performed during the preliminary stages of design provides limited information. Typically, detailed sensitivity analyses are performed during the later stages of design, when the impacts of varying design parameters may influence the selection of specific design components. Sensitivity analyses that vary the material properties and hydraulic conductivities will be performed during the final Project design.

The Final EIR contains performance standards for seepage control (MM GW-4 and MM GW-5), which will ensure that seepage from Project reservoirs will not have a significant impact on the environment.

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**District #40-7C:** The Ksat values of alluvial soils presented in the Draft EIR are based upon “empirical correlations between grain size and permeability,” which can only be considered rough approximations and may not provide a realistic picture of modeling of specific groundwater conditions. These values must be based on the results of pumping tests in the RDEIR.

**Response to #40-7C:** The estimates of hydraulic conductivity for the various geologic materials present at the site were developed based on the available results of field permeability tests, laboratory permeability tests, correlations with published values based on material descriptions and gradations, and empirical correlations between grain size and permeability.

The value for hydraulic conductivity of the rock in the Lower Reservoir was based on packer pressure testing conducted in five boreholes (Borings 2, 3, 5A, 11 and 12) (Section 12.5 of the Final EIR). None of these boreholes were located within the Lower Reservoir, but are considered to be representative of the rock unit surrounding and within the reservoir. The calculated hydraulic conductivities ranged from  $1 \times 10^{-6}$  cm/s to  $1 \times 10^{-4}$  cm/s, with a geometric mean of  $1 \times 10^{-5}$  cm/s. The geometric mean was selected to represent the rock at the Lower Reservoir.

Based on Borings CH-10 (located in Upper Reservoir) and CH-5A (located on rim of Lower Reservoir), the rock at higher elevations is considered to be more fractured, which typically increases the hydraulic conductivity. Because the rock at the Upper Reservoir is considered to be more fractured than the rock in the Lower Reservoir, the hydraulic conductivity was increased by an order of magnitude to account for increased fracturing.

The alluvial deposits will have the highest conductivity and are represented by the sand category in the Final EIR, Section 12.5, Table 1. The hydraulic conductivity used for the sand category was based on the average of 17 empirical correlations between grain size and permeability. Empirical correlations may only provide rough approximations of actual Ksat values. However, the values developed using these empirical correlations provide very conservative (higher) hydraulic conductivities relative to the laboratory tests because they do not account for the higher density of the in-situ materials. The range of hydraulic conductivities for the sand category was between  $1 \times 10^{-2}$  cm/s to  $1 \times 10^{-5}$  cm/sec, with an average of  $5.0 \times 10^{-3}$  cm/s. The reference source used was Principles of Geotechnical Engineering Fifth Edition, by Braja M. Das, with the relevant pages included in Section 12.5 of the Final EIR.

Overall the developed seepage analyses are conservative. During the final Project design, detailed field investigations and pump testing will be performed to confirm or to adjust the Ksat values used in the EIR.

**District #40-7D:** The Ksat values used to model the proposed reservoir liner materials were derived from published laboratory testing data, but the Draft EIR does not state whether hydraulic loading conditions from repeated reservoir filling and emptying were considered.

**Response to District #40-7D:** The Ksat values used to model the proposed reservoir liner materials were derived from laboratory testing data that followed ASTM D 2434 and ASTM D 5084 testing procedures. The developed Ksat values are considered applicable and

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appropriate. Adjustments to the developed Ksat values due to variations in effective consolidation pressures will be performed during final Project design.

**District #40-7E:** An undesignated table in Section 12.5 lists an unreferenced “Chuckwalla Report” in support of Ksat values for alluvium near the model area. The RDEIR must explain how these Ksat values were developed and how representative these Ksat values are for alluvium in the region.

**Response to District #40-7E:** The Chuckwalla Report (GeoPentech, 2003) is referenced in Section 12.5 of the Final EIR. The Ksat values were developed from laboratory testing data that followed ASTM D 5084/EPA 9100 testing procedures. The test specimens used to develop the Ksat values are considered applicable and representative of the alluvium material in the region because numerous test samples were collected at several locations throughout the Chuckwalla Valley. Therefore, the developed Ksat values for the alluvium are directly related to the alluvium in the region.

**District #40-7F:** Another undesignated table in Section 12.5 relates grain size distribution to Ksat values for alluvial soils, but the hydraulic conductivity of alluvium ought to be determined using laboratory or field-testing since the potential impacts of the Project upon the Landfill may be dependent upon the assumptions used. The results of this analysis should be included in the RDEIR.

**Response to District #40-7F:** Please see Response to District #40-7C.

**District #40-7G:** A third undesignated table in Section 12.5 lists Ksat values for mine tailing materials that were apparently determined using unspecified “field” and “lab” tests.

**Response to District #40-7G:** The Ksat values for the mine tailings materials were developed based on an extensive field and laboratory testing program performed by GeoSyntec (1997). The following are responses numbered in accordance with the District #40-7 G comment. (1) The number of samples analyzed was not directly specified in the GeoSyntec 1997 report. However, given the extensive testing program, which included a wide range of tests, and various ranges of testing results, the number of samples analyzed is considered to be adequate to perform seepage analyses and the preliminary Project design. (2) Field tests performed on the mine tailings materials include hydraulic conductivity field tests using Two-Stage Boutwell Permeameter, Air-Entry Permeameter, and Sealed Double-Ring Infiltrimeter. (3) The Ksat values were derived from laboratory testing data that followed ASTM D 2434 and ASTM D 5084 testing procedures. (4) Adjustments to the developed Ksat values due to variations in effective consolidation pressures will be performed during final Project design.

**District #41-A:** The Draft EIR estimates the time required for development of “full seepage volumes,” “steady-state groundwater profiles” and “steady-state groundwater levels.” These estimates are provided to contrast predicted groundwater level increases to their impacts on the regional groundwater piezometric surface and the Colorado River Aqueduct. These estimates are unsupported by calculations or analysis.

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**Response to District #41-A:** The Draft EIR (Section 12.5) estimated the time required to develop the “full seepage volumes,” “steady-state groundwater profiles,” and “steady-state groundwater levels” based on the SEEP/W model transient analysis function using a one-second time step for a minimum duration of 50 years. The results shown in Section 12.5 of the Final EIR (Figures 6 through 9) present the fully developed steady-state “worst-case” seepage scenarios. Presenting the groundwater profiles for multiple time steps for each geologic section would be excessive. Therefore, only the final results were provided. The reservoirs can never be completely full at the same time. Reservoir levels will cycle up and down in response to energy demands and hydroelectric operations.

**District #41-B:** The Draft EIR does not provide sufficient detail regarding the means by which seepage flow rates were calculated.

**Response to District #41-B:** A description of how the seepage flow rates were calculated is provided on page 5 of the technical memo, found in Section 12.5 of the Draft EIR. Discussions regarding the unit width of the geologic section, unit width seepage rates and water surface elevation average top widths are described throughout the text. Specifically, the unit seepage rates are presented in Tables 3 through 6 in Section 12.5 of the Final EIR, and the water surface elevation average top widths are presented in Table 2 in Section 12.5 of the Final EIR. The calculation method used to develop the seepage quantities is simple and does not require lengthy discussion. The seepage analyses were developed based on the best available geologic information of actual site conditions and geologic materials. The presented analyses are adequate and sufficient to assess the potential for seepage and the associated potential environmental impacts.

**District #42:** The Draft EIR does not state, and the RDEIR must explain how groundwater rising to a depth of 80 feet is a “worst case” condition and at what depth and location the near-surface zones in the Project area are susceptible to hydrocompaction.

**Response to District #42:** The “worst-case” condition is described in Section 12.5 of the Draft and Final EIRs. To clarify, the “worst-case” condition was developed assuming the Lower Reservoir is maintained at the maximum water surface elevation indefinitely, and no seepage liners or mitigation measures are put in place. The “worst-case” condition would not occur because seepage mitigation measures will be implemented. Both reservoirs can never be completely full at the same time, and the reservoir levels will cycle up and down in response to energy demands and hydroelectric operations.

As noted in the analysis, the locations of the near-surface zones in the Project area that are susceptible to hydrocompaction are the areas where fan deposits were placed by flash-flood-type events. In particular, the Aeolian and/or debris flow deposits of native soils such as silty sands, sandy silts and clayey sands in the area east of the Project reservoirs. Hydrocompaction is of greatest concern if soils up to 100 feet in depth are wetted, as these soils are unsaturated and have the greatest potential for hydrocompaction if wetted again.

**District #43:** The RDEIR must provide detailed calculations to substantiate the estimated reduced seepage rates that the Draft EIR assumes will result from seepage mitigation measures

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described in the Draft EIR in order for the public to be able to meaningfully comment on the validity of these measures.

**Response to District #43:** The estimated reduction in seepage rates and the associated seepage mitigation measures described in the technical memo (Section 12.5 of the Draft and Final EIRs) are presented in sufficient detail to preliminarily estimate the effectiveness of each alternative. The seepage mitigation measures described present substantial information including the hydraulic conductivity of the liner materials that were developed based on field and laboratory tests, the depths of liner material assumed for each analysis, the location and placement of each mitigation measure, the limitations of the mitigation measures, and the assumed effectiveness of each mitigation measure. The required calculations are described in the text and presented in the appendix. Sufficient information is provided to assess the validity of each alternative and the associated environmental impacts. Further development of the seepage mitigation measures will be completed during the final Project design.

**District #44:** The underlying assumptions used in the modeling of seepage recovery included in this memorandum need to be clarified. The model grid is unclear.

**Response to District #44:** By convention the most accurate area of a groundwater model is in the center of the model. Near the edges of the model the results may be affected by boundary conditions. Therefore, a larger model area was selected such that the area of interest, near the Lower Reservoir was in the center of the model area. Information on the mesh elements, nodes, and geometry used in the modeling has been added to Section 12.5 in the Final EIR in response to the commenter's request.

**District #45:** The Draft EIR briefly discusses the hydraulic conductivity values of alluvial deposits that were included in the model, but the values used appear to have been determined from investigations other than any done to develop the Draft EIR.

**Response to District #45:** Hydraulic conductivity is discussed in the Draft EIR, Section 12.5, Page 4, and describes the permeability test results performed in the area for the proposed Landfill. The results are on the order of 0.02 to 7.1 feet/day, which is considered to be very low permeability based on the description provided of the sediments from borehole logs and exposures of coarse fanglomerates in the eastern face of the Lower Reservoir. A conservative approach was taken by using a higher hydraulic conductivity value (25 feet/day), which allows for greater seepage from the reservoir. A range of hydraulic conductivities for coarse grained soils was quoted.

As indicated in MM GW-4 and MM GW-5 (Section 3.3 of the Final EIR), aquifer testing (a pumping well with multiple observation wells) will be performed during final engineering to confirm the aquifer characteristics (hydraulic conductivity, storativity and transmissivity). Adjustment to the final Project design will be made if necessary so that the maximum allowable changes in drawdown and water elevation described in Table 3.3-10 of the Final EIR will be accomplished.

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

**District #46:** The MODFLOW model assumptions regarding geologic conditions need to be justified by facts and appropriate documentation in the RDEIR with a discussion of any related environmental impacts in order to permit informed public comment.

**Response to District #46:** The MODFLOW model assumed that there are three geologic layers beneath the sediments opposite the Eagle Mountain mine, as shown on Figures 3.3-5 and 3.3-6 of the Final EIR. The configuration of the third layer, as stated in Section 12.4 of the Draft EIR, page 3, is based on geophysical surveys and, as indicated on page 3, second paragraph, no wells have penetrated into the layer. The thicknesses are approximated based on the geophysical survey results as presented on the geologic sections referenced above. As indicated on page 3, second paragraph, one well penetrated over 900 feet of clay that was modeled as Layer 2, and was consequentially given a low permeability of  $3 \times 10^{-6}$  feet/day. Also described on page 3, third paragraph, the lower coarse grained sediments modeled as Layer 3 were deposited in a bowl surrounded by bedrock and capped by Layer 2. With this configuration, water cannot flow out of the bowl, nor can water flow into it if it is fully saturated. Therefore, a low permeability was also assigned to Layer 3, to simulate this no flow potential. The model layers were configured to simulate the geology in the area and to allow easy modification of the model when additional hydraulic test information is gathered during final Project design testing.

**District #47:** Although the Draft EIR discusses “seepage recovery” from the upper reservoir through a geologic evaluation of the “major faulting pattern” in the vicinity of the reservoir, the discussion fails to consider that faults may serve as hydraulic barriers and whether a clayey fault gouge is present, as well as the potential impact of these conditions on water transmissibility.

**Response to District #47:** The host rock in part reflects whether clayey gouge can develop along the faults, or whether broken rock will be present. Rocks that are feldspar rich would have a higher likelihood to form clayey gouge since feldspar weathers to clay. The faults cross the Lower Quartzite (98 to 99 percent silica which cannot weather to clay); Meta-arkose (a sandstone with significant feldspar which could weather to clay after broken by faulting and exposed to water); Lower Marble (a metamorphosed limestone which may contain small amounts of clay); and Middle Quartzite (which is similar to the Lower Quartzite and cannot weather to clay). Because of the hardness of the rock, the low clay content, or low potential for weathering to a clay after being crushed and exposed to water, the faults are likely to represent zones of crushed rock where water could migrate. It appears the District’s consultants also considered the faults as potential conduits of groundwater, because monitoring wells (MW-3, MW-7, MW-9, and MW-13) appear to have been drilled in or in close proximity to the faults.

The analysis in the Draft EIR contains the conservative assumption that the: faults would be permeable; faults would be composed of zones of crushed rock; and fractures in the crushed rock would connect to the faults. In this way, the Draft EIR estimated a “worst-case” scenario in order to assess potential environmental impacts.

**District #48:** The RDEIR needs to present an analysis showing that the wells will maintain the proper water level if operated at this pumping rate and that the wells will pump at this rate, or what will happen if the wells fail to meet this rate, along with all related environmental impacts.

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**Response to District #48:** As stated in MM GW-5, a testing program will be conducted for the seepage recovery wells for the Upper Reservoir to assess the pumping extraction rate and the interconnectedness of the fractures to the reservoir. MM GW-5 has been modified in the Final EIR to clarify the performance standards that will apply, as follows (new text shown in red):

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

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

*Performance Standard:* Seepage from the Upper Reservoir will be maintained at least five feet below the bottom elevation of the liner of the proposed landfill so that the landfill will comply with title 27 CCR Section 20240, subdivision (c). Target levels have been assigned to the monitoring wells as shown in Table 3.3-10.

**District #49:** Draft EIR should consider potential preventative and mitigation measures to protect the cut and fill slopes of the Phase 1 Landfill from breaches of the upper reservoir.

**Response to District #49:** Design and construction of the Upper Reservoir dams will be under the regulation of the FERC Division of Dam Safety and California DSOD. Dam safety is a critical part of FERC's hydropower program and receives top priority. Before projects are constructed, FERC staff reviews and approves the designs, plans, and specifications of dams, powerhouses, and other structures. During construction, FERC staff engineers frequently inspect a project, and once construction is complete, FERC engineers continue to inspect the Project on a regular basis. (<http://www.ferc.gov/industries/hydropower/safety.asp>)



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California DSOD engineers and engineering geologists review and approve plans and specifications for the design of dams and oversee their construction to ensure compliance with the approved plans and specifications. Reviews include site geology, seismic setting, site investigations, construction material evaluation, dam stability, hydrology, hydraulics, and structural review of appurtenant structures. In addition, DSOD engineers inspect dams on a yearly schedule to ensure they are performing and being maintained in a safe manner.

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

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

There are no known federal, state, or local regulations or standard-of-care considerations that require dam owners to design mitigation to protect facilities against damage that could be caused by a hypothetical breach of an existing or new dam.

As described in the Final EIR in the revised PDF LU-4, detailed coordination between the Project and the proposed Landfill will occur in order to eliminate conflicts of facility locations, supporting infrastructure, designs, permits, and operations, including consideration of potential impacts to the Landfill's Phase 1 cut and fill slopes.

**District #50:** The possibility of fire or explosion in the tunnels for the Project should be considered in the RDEIR as well as the potential impacts to the Landfill located above them should these events occur.

**Response to District #50:** As stated in the Draft and Final EIRs, the Project will be constructed and operated in accordance with all applicable laws, ordinances, regulations, and standards (LORS). Applicable LORS include those for electrical safety as well as for aspects of the water conveyance facilities.

The Project has been designed with defenses against explosion of electrical components and sudden failure of water-conveying structures and equipment. Electrical system design guidance and standards for hydroelectric power plants are published by the United States Army Corps of Engineers (USACE) and others. The USACE's *Manual No. 1110-2-3006: Engineering and Design of Hydroelectric Power Plants – Electrical Design*, dated June 30, 1994, is one of several examples of design standards and guidance. Standards for protection and safety of electrical systems are published in the National Fire Protection Association's (NFPA) National

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Electrical Code (NEC) Current Edition 2011. The distance and hard-rock between the proposed Landfill and the underground facilities will provide protection to the Landfill in the unlikely event of an underground fire or explosion.

The chance of the sudden failure of water conveyance facilities is minimized by designing the tunnels, penstocks and turbines with factors of safety against pressure surges and by providing a surge control chamber and shaft as part of the water conveyance system. The USACE's Engineer Manual (EM) 1110-2-4205 Engineering and Design – Hydroelectric Power Plants – Mechanical Design, dated June, 30 1995, and many similar documents and references published by the USACE and United States Bureau of Reclamation (BOR), among others, govern the design of high-head water conductors and pressure surge control facilities and help to ensure that water conveyance facilities are designed to prevent failure.

**District # 51:** The EIR needs to present stress-strain behavior of the geologic materials located under the Landfill caused by construction of the tunnels. Assess likelihood of loosening bedrock around the tunnels and sudden rock bursts, as well as mitigation measures.

**Response to District #51:** Whether tunneling is performed with drill-and-blast methods or Tunnel Boring Machine (TBM), appropriate measures will be undertaken to prevent tunnel collapse through use of various support methods and lining installation as tunneling progresses, as needed based on the geotechnical baseline developed during final design. These support measures include: rock-bolting, concrete lining, and installation of steel supports, based on the materials encountered. The support requirements will be identified in a Geotechnical Baseline Report (GBR) prepared as part of the final Project design process. The GBR will be prepared by an experienced and licensed tunnel design expert, based on detailed subsurface investigations, sampling, and laboratory testing of rock materials. Although there are risks involved in tunneling, there is no basis to suggest that tunneling tens or hundreds of feet below ground will change the ground surface in the hard-rock geology of the area. Appropriate measures will be included in the final Project design and implemented to prevent tunnel collapse.

Many tunnels have been constructed successfully world-wide in the rock types similar to those present at the site without causing damage to surface features. Two recently completed hard-rock tunneling projects in Southern California are the San Vicente Pipeline Tunnel and the Arrowhead Tunnels of the Inland Feeder System, described in more detail in Response to District #24. These tunnels are presented as examples of recent tunnel projects in Southern California, which were constructed in more challenging geologic settings than those expected at the Project, neither of which produced any surface deformations.

**District #52:** The RDEIR needs to discuss the Project proponents' plan for decommissioning and closing the Project's infrastructure such that there would be no related limitation on the development and operation of the Landfill.

**Response to District #52:** CEQA does not require the discussion of closure and post-closure requirements for FERC licensed hydropower projects. FERC Guidelines (FERC, 2008) require that Project retirement be considered as an alternative to be evaluated in the NEPA document for FERC re-licenses. Therefore, during re-licensing, the alternative of license surrender would be examined in a complete CEQA and NEPA proceeding to be conducted at that time.

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However, a project that has not yet been constructed cannot be retired; therefore, this is not an alternative that is considered in the CEQA document.

See Response to District #20 for more on FERC's requirements regarding license surrender and decommissioning.

Project retirement will not create significant impacts to the physical environment. In order to retire the Project, the water would be slowly drained from the reservoirs, using the Lower Reservoir spillway. This water would be allowed to seep into the ground, and ultimately into the Chuckwalla Aquifer, thus returning the water to where it came from. The Project tunnels would be sealed, and the transmission lines and other unneeded structures would be removed. The mining pits would then be empty and available for mining or other purposes, as desired.

**District #53:** The Draft EIR does not present adequate information about the drainage capacities and methods to handle flood events and project outflows and potentials for adverse environmental effects. Analysis should be provided for: capacity of the creeks, methods of calculating peak discharges, inflow rates, over-pumping potentials, and the PMF.

**Response to District #53:** The Project drawings and supporting design report are contained in Exhibit F of the Final License Application submitted to FERC. Exhibit F addresses the concerns raised in District #53. This information is deemed Critical Energy Infrastructure Information (CEII). It can be provided to the District with approval from FERC. FERC provides an electronic CEII request form, which is available online at: <http://www.ferc.gov/help/filing-guide/ceii-request.asp>. The Applicant submitted this information to FERC and State Water Board for use in the environmental review process.

The reservoirs, spillways, and channel improvements have been planned to ensure a hydrologically-safe and reliable Project, consistent with FERC and California DSOD criteria. Final designs of the Project facilities will meet all of the dam safety requirements of FERC and DSOD.

FERC's *Engineering Guidelines for the Evaluation of Hydropower Projects* (see <http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide.asp>) must be followed to obtain FERC's design review approval prior to Project construction. The DSOD does not publish design standards. However, a staged review process will be followed with the DSOD. Design standards and analyses will be agreed upon with the DSOD during the design process to ensure eventual acceptance by the DSOD of the facilities under its review and inspection jurisdiction.

**District #54:** Stage-discharge and stage-storage relationships for the upper reservoir should be included in the EIR.

**Response to District #54:** Please see Response to District #53. These relationships exist in Exhibit F of the Final License Application, which is CEII and is not public. The Applicant submitted this information to FERC and State Water Board for use in the environmental review process. The information can be provided to the District with approval from FERC. FERC

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provides an electronic CEII request form, which is available online at:

<http://www.ferc.gov/help/filing-guide/ceii-request.asp>

**District #55:** Comment related to District Comments #53 and #54. EIR should include all of the 100-year flood modeling and other hydrologic and hydraulic modeling performed for the Project.

**Response to District #55:** Please see Responses to District #53 and #54. Technical Memorandum 12.9 of the Final EIR provides some of the information that has been developed to plan the Upper Reservoir spillway, channel hydraulic analyses, channel protection measures, and other hydraulic elements of the Project. The complete set of information is part of the CEII for the Project in Exhibit F of the Final License Application (on-file with the State Water Board.) Hydraulic modeling was performed using the USACE HEC-RAS program. Runoff for the 100-year flood and Probable Maximum Flood (PMF) was estimated using the HEC-1 program, an earlier version of HEC-HMS.

**District #56:** Suggests that the Draft EIR needs to consider the likely condition where the Lower Reservoir is full and the PMF occurs, thereby requiring pumping to handle the runoff entering the lower reservoir. Then, the questions are asked “what if the pumps fail,” what is the peak flow potential if the pumps fail, and what is the “backup plan” if the pumps fail or cannot keep up with the predicted inflow and how would this impact the outflow spillway from the lower reservoir? Would not the PMF peak flow potential be the combination of 6,900 cfs and 15,320 cfs?

**Response to District #56:** The likelihood of the PMF occurring when the Lower Reservoir is full is no greater than the PMF occurring when the Lower Reservoir is fully drawn down. The PMF is a multiple-day event, not a sudden occurrence. Failure of the pumps during the PMF event could result in greater than planned outflows from the Lower Reservoir. The likelihood of a loss of all pumping capacity simultaneously with a PMF event when the Lower Reservoir is full is extremely small and is not considered a reasonable design scenario. The Project will follow the design standards for large hydraulic structures like dams and spillways. Designs for dams and other such structures are based on consideration of loadings from extreme events, such as an earthquake or the PMF, but not both occurring at the same time. This approach is consistent with guidance presented in Chapter 3 of the *Engineering Guidelines for the Evaluation of Hydropower Projects* published by the FERC (see <http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide/chap3.pdf>).

The key factor in assessing the PMF is the flood volume rather than the peak flow. The flood peaks were estimated for purposes of evaluating channel capacity and the peak inflow into the Lower Reservoir from Eagle Creek will not occur at the same time as the peak inflow from Bald Eagle Creek. The Lower Reservoir, even if it is full, provides storage in the freeboard that will allow the pumps to keep up with inflows as described in Section 12.9 of the Draft EIR.

The Final EIR contains additional information in Section 2.4.3 to describe spillway operations. This information is summarized below. Impact 3.1-4 has not been revised from the Draft EIR as it adequately describes the potential impact of the Project on soil erosion.

**Spillway Use:** The Lower Reservoir spillway is intended to be used following very large flood events, such as the 100-year event up to and including the Probable Maximum Flood (PMF) – a

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statistical 1- in 10,000-year or less frequent event – to drain excess stormwater from the Lower Reservoir. Precipitation events producing inflows less than 200 acre-feet (AF) may be stored in the reservoirs to reduce the amount of make-up water needed. Normal operations can continue with inflow volumes up to 200 AF, as 200 AF can be stored in the Lower Reservoir without overtopping the spillway crest. Note that the figure of 200 AF is based on the Lower Reservoir being full after a generating cycle. If the Lower Reservoir has not been refilled or if water were pumped to the Upper Reservoir, additional flood storage space could be created in the Lower Reservoir.

The frequency of occurrence of large flood events on Eagle Creek is extremely low. The limited available flow record for the United States Geological Survey (USGS) stream gage on Eagle Creek (7.7 square miles) extends only from 1961 to 1967 (after which USGS data collection at this location were apparently terminated). During that period, there were two flood events: peak flows of 380 cubic feet per second (cfs) in August 1961; and 190 cfs in August of 1965. The estimated flood volumes for these events are 40 AF and 15 AF, respectively, which were estimated based on the daily average flows reported by USGS. Neither event lasted more than 24 hours or produced sufficient runoff volume to have caused an alteration of Project operations or use of the spillway if the Project existed at that time.

In the rare flood events that require use of the spillway, water will be conveyed from the Lower Reservoir through a rock armored (“riprap”) lined channel and then discharged through a structure that will spread flow such that the flow depth and velocity are sufficiently low to prevent erosion and scour. The Lower Reservoir Spillway discharge point is at an existing natural fluvial channel. Water velocity will be reduced to approximately 3 feet per second (fps) with a flow depth of approximately 0.5 feet. The resulting flow width will be approximately 300 feet (peak discharge 460 cfs). This velocity is typical of those used for design of stable unlined canal sections in sandy soils in the desert southwest. The water released from the Lower Reservoir will flow downstream, across the alluvial fan in existing washes and channels, seeping into the ground and evaporating as it moves downstream. The 460 cfs flow is similar to the peak flow experienced in Eagle Creek in 1961.

Although the spillway has a maximum capacity of 460 cfs, the spillway can be operated to release much lower levels of discharge. If scouring is noted during actual Project operations as a result of water released from the Lower Reservoir through the spillway channel, the rate of release from the Lower Reservoir will be adjusted downward.

Release of stormwater from the Lower Reservoir will help to maintain the channel morphology of the desert washes in downstream areas, as would occur under natural conditions.

**District #57:** If a larger spillway is needed based on Comment #56, the EIR must consider its effects on the environment downstream of the lower reservoir and on the CRA.

**Response to District #57:** A larger spillway or outflow channel is not required. Please see Response to District #56.

Section 12.9 of the Final EIR describes the attempt to maintain the benefits of the “un-natural” condition created by excavating the East Pit and using it for detention of Eagle Creek flood

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flows. If the mine pits were not in place (i.e., the natural pre-mining condition was reestablished), the peak flood flows reaching the debris fan would be substantially higher.

Additional design detail regarding the Project's stormwater management was filed with the FERC as CEII. This information is also on file with the State Water Board. The information can be provided to the District with FERC's approval. FERC provides an electronic CEII request form, which is available online at: <http://www.ferc.gov/help/filing-guide/ceii-request.asp>.

**District #58:** Sediment and silt into reservoir causing impacts to the pump turbines and all environmental impacts.

**Response to District #58:** The Lower Reservoir has a "dead pool" below the minimum intake level as described in Sections 2.4.4 and 3.5.2.3 of the Final EIR. The dead pool will prevent sediments and debris from entering the pump-turbine unit. Stormwater will enter the reservoir away from the pump-turbine intake allowing for coarse sediments that could reach the intake area to settle out. The intake to the pump-turbines will be equipped with trash racks to keep large debris out of the system (Section 2.4.2 of the Draft EIR).

**District #59:** Discussions of the upper reservoir dams are too vague.

**Response to District #59:** The dams are depicted on drawings and described in Exhibit F (CEII) of the Final License Application. These drawings are on-file with the State Water Board and FERC. Please see Response to District #53 for additional information on obtaining CEII information from FERC.

**Districts #60 and 61:** Need to know how normal freeboard was determined. Is a one-spillway design adequate?

**Responses to District #60 and 61:** The dam freeboard was estimated based on a preliminary estimate of potential wave run-up and engineering judgment. This information is included in Exhibit F of the Final License Application, which is CEII and is not public. The Applicant submitted this information to the FERC and the State Water Board for use in the environmental review process. The information can be provided to the District with approval from the FERC. The FERC provides an electronic CEII request form, which is available online at: <http://www.ferc.gov/help/filing-guide/ceii-request.asp>.

Further study will be performed in final Project design and the freeboard may be increased or decreased. Modifying the freeboard of the dams does not pose the potential to alter the analysis of environmental impacts.

A single spillway is adequate for the Upper Reservoir. Based on FERC guidance (*Engineering Guidelines for the Evaluation of Hydropower Projects* published by the FERC on <http://www.ferc.gov/industries/hydropower/safety/guidelines/eng-guide.asp>), a service spillway is designed for routine flood events and a second or auxiliary spillway is provided to handle very rare flood events. The spillway proposed at the Project's Upper Reservoir will be designed to the standards for a service spillway and it will have adequate capacity to handle the PMF inflow to the Upper Reservoir without overtopping of the Upper Reservoir dams.

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**District #62:** Applicability of deterministic and probabilistic calculations used to evaluate the dam and reservoir for wave run-up must be presented.

**Response to District #62:** Detailed engineering evaluations for the dam and reservoir will be prepared as a part of the final Project engineering design, and are not required as a basis for the environmental impact assessment. A conservative cross-section and a likely acceptable freeboard were defined for Project planning and developing cost estimates as described in Exhibit F of the Final License Application, which is CEII and is not public. Please see Response to District #53 for additional information on obtaining CEII information from FERC.

**Districts #63 and 64:** The appropriateness of selecting an RCC dam, with a synthetic membrane liner on the upstream face, has not been established by required tests and analyses.

**Responses to District #63 and 64:** Detailed engineering evaluations for dam design will be prepared as a part of final Project engineering design, and are not required as a basis for environmental impact assessment. A number of RCC dams have been constructed recently in California on similar granitic foundations with similar aggregate materials. Projects include: the 318-foot-high Olivenhain Dam owned by the San Diego County Water Authority (SDCWA), which was completed in 2003; and the ongoing San Vicente Dam Raise Project, which is now being implemented by SDCWA to raise the existing concrete dam to a total height of 337 feet. Both dams are founded on granitic bedrock. Tests are needed to confirm that suitable aggregates for RCC dam construction can be mined on-site. If such aggregates are not available, which is not likely based on available data, the fall-back design will be a rockfill embankment dam with an upstream concrete facing for seepage control. It is anticipated that aggregates for dam construction will not be imported from off-site due to cost considerations.

The membrane liner has been tentatively selected as appropriate, based on the use of the Carpi membrane liner systems at Olivenhain Dam and San Vicente Dam. The final selection of seepage control measures for the RCC dam will be made based upon the final Project engineering design.

Selection of the upstream dam facing is not required to assess potential environmental impacts of the Project. Similarly, RCC mix designs are usually performed during the design phase of a project, rather than during the permitting phase of a dam project.

Finalization of design details are not required to assess environmental impacts. MM GW-4 and MM GW-5 establish performance standards for the seepage control program to ensure that the impact of seepage on the physical environment will be less than significant.

**District #65:** No information is provided to show that dam foundation grouting will be successful. There are many site features (synclines, faults, etc.) and complexities to consider.

**Response to District #65:** For the purposes of assessing costs and potential environmental impacts of the Project, a basic "footprint" was selected for the Upper Reservoir dams. A phased dam site field investigation program will provide the information needed to determine the details of dam foundation excavation and grouting requirements. These details are not necessary in order to assess environmental impacts associated with dam construction. MM GW-4 and MM

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GW-5 establishes performance standards for the seepage control program to ensure that the impact of seepage on the physical environment will be less than significant.

**District #66:** Section 3.16 of the Draft EIR. The Draft EIR does not address brine pond waste disposal adequately, especially if the waste is hazardous due to naturally occurring elements like arsenic in the brine waste left after evaporation.

**Response to District #66:** Section 3.16 of the Final EIR has been revised to address this issue, as has the text of PDF GW-2, as follows (modifications in red):

**PDF GW-2. Water Treatment Facility.** In order to maintain TDS at a level consistent with existing groundwater quality, a water treatment plant using a RO desalination system and brine disposal lagoon will be constructed as a part of the Project to remove salts and metals from reservoir water and maintain TDS concentrations equivalent to the source groundwater.

Treated water will be returned to the Lower Reservoir while the concentrated brine from the RO process will be directed to brine ponds. In addition to removing salts from the water supply, other contaminants, nutrients, and minerals, if present, would be removed as well, preventing eutrophication from occurring.

Salts from the brine disposal lagoon will be removed and disposed of at an approved facility when the lagoons become full, approximately every 10 years. The lagoons will be maintained in a wetted condition, to maintain air quality in the Project area.

The Clean Water Act Section 401 Water Quality Certification will require compliance with California Code of Regulations, Title 27, Environmental Protection Regulations. These regulations cover solid waste disposal and include regulatory authority of brine ponds.

As described in Section 3.16 of the Final EIR, Riverside County (County) Ordinance 615 relates to establishments where hazardous waste is generated, stored, handled, disposed, treated, or recycled. Ordinance 615 is a program for the purpose of monitoring establishments where hazardous waste is generated, stored, handled, disposed, treated, or recycled. Ordinance 615 is used to regulate the activities of establishments that generate hazardous waste through the issuance of permits. As such, the Project will be required to have a permit for the storage, handling, disposal, treatment, and recycling of hazardous waste and will be subject to periodic inspections by the County's Department of Environmental Health (Riverside County Ordinance 615 Section 4 (a)).