

**UNITED STATES OF AMERICA**  
**FEDERAL ENERGY REGULATORY COMMISSION**

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EAGLE CREST ENERGY COMPANY )  
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PROJECT NO. P-13123

**METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA'S**  
**COMMENTS REGARDING DRAFT LICENSE APPLICATION**

The Metropolitan Water District of Southern California ("Metropolitan") submits the following comments regarding Eagle Crest Energy Company's Draft License Application (DLA) for the proposed Eagle Mountain Pumped Hydroelectric Storage Project, FERC Project No. P-13123 ("Eagle Mountain Project").

1. Metropolitan is a public agency created in 1928 by vote of the electorates of several southern California cities. Metropolitan is one of the country's largest wholesale water suppliers, delivering supplemental water for domestic and municipal use to more than 18 million people through its 26 member agencies. Metropolitan's service area encompasses the six-county region of southern California (Los Angeles, Orange, Riverside, Ventura, San Diego, and San Bernardino), an area covering nearly 5,200 square miles. Metropolitan supplies an average of 1.7 billion gallons of water per day and more than 2 billion gallons on a hot day. Over the course of the year, Metropolitan imports on average from 1.5 to 2.1 million acre-feet of water.

2. Metropolitan's imported water is derived from two primary sources: the Colorado River Aqueduct ("CRA") and the California State Water Project ("SWP"). Metropolitan constructed, owns, and operates the CRA, which brings water from the Colorado River into southern California. The second major water supply for Metropolitan is the SWP, which captures and stores runoff from the Sacramento/San Joaquin Delta watershed in northern California and delivers the water to areas of need in northern, central, and southern California. Metropolitan is the largest of the 29 contractors that purchase water through the SWP.

3. Eagle Crest Energy Company ("ECEC") proposes to develop the Eagle Mountain Project as a 1,300 MW pumped storage hydroelectric project consisting of an upper and lower reservoir, intake and outlet structures, a powerhouse, a 500 kV transmission line, and other appurtenant features. ECEC intends to site the development of the Eagle Mountain Project in the Chuckwalla Valley region of Riverside County, California, on land controlled by the Bureau of Land Management and on private property owned by Kaiser Eagle Mountain, LLC. ECEC proposes to fill and replenish the reservoirs with water obtained from dedicated groundwater wells.

4. The CRA lies immediately east of the proposed location for the Eagle Mountain Project. In the past, ECEC sought Metropolitan's consent to use CRA water to fill its reservoirs. Metropolitan declined the request, as such water has been required to meet the water supply demands of its member agencies. Moreover, Section 131 of the Metropolitan Water District Act (Cal. Stat. 1969, Chapter 209) precludes Metropolitan from selling water outside of its service area, unless such sale is made to the federal government or for the purpose of generating electric power which is used directly or indirectly, through exchange,

for pumping, producing, treating or reclaiming water for use within the district. The Eagle Mountain Project is located outside Metropolitan's service area, and Metropolitan has entered into long-term power contracts that provide ample electric power for operation of the CRA.

5. ECEC previously obtained preliminary permits for its Eagle Mountain Project, later applying for a hydroelectric license. The Commission, however, denied the earlier application. In June 2004, ECEC again applied to the Commission for a preliminary permit for the Eagle Mountain Project, FERC Project No. 12509. The Commission granted the preliminary permit in March 2005 and granted the request to use the traditional licensing process March 4, 2008.

6. Pending now before FERC is ECEC's Draft License Application (DLA). Metropolitan submits the following comments regarding the DLA.

#### Water Supply Alternatives

7. The DLA makes reference to discussions between ECEC representatives and Metropolitan staff regarding potential water exchanges to provide water from the CRA for initial fill of the project reservoirs. (Ex. E, section 10.2.2., p. 10-3.) Metropolitan has made no commitment whatsoever to supply water for the proposed project.

#### General Comments

8. In general, the DLA recognizes the potential impacts to the CRA and the local groundwater basin and indicates possible mitigation measures. However, this information is presented too generally, and no information is provided that evaluates either the likely occurrence of these impacts or the effectiveness of the mitigation measures presented.

9. ECEC should dedicate a separate specific analysis for the CRA with a complete description of all the potential water quality and structural impacts and proven mitigation measures to be employed. Metropolitan staff will provide any appropriate information to facilitate such necessary technical analyses.

10. ECEC should conduct risk analyses of worst case scenarios. For example, how will a reservoir or lagoon/pond breach be prevented or mitigated? What are the impacts of over-pumping on groundwater levels and subsidence? A much more detailed plan needs to be developed to address these scenarios.

11. The DLA indicates that monitoring will be conducted to determine seepage amounts, water quality impacts, etc. However, once an impact is detected through monitoring, it could be too late to prevent or effectively mitigate those effects. ECEC should propose a detailed plan of how such impacts will be detected, prevented, and mitigated.

#### Water Quality

12. The DLA does not specify the likely location of proposed project supply wells. Also, limited groundwater quality data and analyses are presented. Identification and further details about the proposed wells will be necessary to conduct a thorough assessment of the project's impacts on groundwater quality. Detailed analyses should be conducted on the impacts of pumping and aquifer water quality.

13. ECEC should investigate in detail the full range of constituents that are contained in the ore bodies. It is not clear that all possible sources of contaminants have been identified. For example, if magnetite-rich sands exist in the east wall of the lower reservoir, would pyrite and possibly gypsum (other constituents of the ore body along with the

magnetite) be proportionally also “rich” in these sands? Would their presence in these more permeable deposits along the east wall of the lower reservoir lead to more acidic leachate and potentially a greater risk of groundwater contamination?

14. The DLA states the potential for acidic leachate seepage water is low due to the low percentage of pyrite in the ore bodies. However, the USGS report that is referenced in ECEC’s application (Force, 2001) also notes that 10-50% pyrite occurs locally in the lower ore in the upper reservoir. What bearing would these higher percentages have on the potential for leachate acidity and the groundwater contamination assumptions presented in the ECEC application?

15. The DLA does not adequately analyze the potential for cumulative water quality impacts of the project in conjunction with the future Eagle Mountain Landfill Project. The potential for reservoir seepage next to a municipal landfill exacerbates water quality concerns for local groundwater. Comprehensive geotechnical and hydrogeologic studies are necessary to address this issue, with close coordination with the landfill project to ensure that cumulative impacts are avoided.

#### Groundwater Levels, Hydrocompaction, and Structural Impacts to CRA

16. The DLA does not provide sufficient data to indicate how much groundwater levels may rise from reservoir seepage to evaluate potential structural CRA settlement due to hydrocompaction. Even if sufficient data is available to predict the rise in groundwater levels, ECEC should analyze these potential hydrocompaction questions. Also, while the DLA identifies potential mitigation measures, it does not provide adequate information to evaluate the effectiveness of these measures.

17. For example, the DLA suggests the use of extensometers to monitor settlement. More information should be provided to address the effectiveness of this instrument at this particular site and how extensometers would be used as part of an overall comprehensive deformation program, considering the depth to bedrock. Also, if settlement is detected, what (if any) mitigation measures would ECEC employ? Other tools should also be identified that will measure subsidence and hydrocompaction for the specific site conditions. The effectiveness of these tools should be clearly identified and analyzed.

18. The DLA indicates that a detailed seepage control investigation will be conducted as well as a mitigation program established. More details and data regarding the hydrogeology in the immediate area of the project will be needed. A geotechnical investigation of the soils underlying and in proximity to the CRA should be conducted, likely including groundwater simulations, soil testing, seepage flow models, etc. This is of particular concern because the east end of the lower reservoir, also closer to the CRA, is in alluvial material with seepage control measures proposed at that location.

19. Much of the discussion is based on the performance of groundwater supply wells not in the vicinity of the Eagle Mountain Mine. Without identification of the location of the proposed supply wells, there would be insufficient information to assess the likely potential for subsidence and CRA settlement based on groundwater pumping. Even if the location of the wells were identified, detailed analysis regarding the potential for subsidence should be performed.

20. Water level and modeling information adjacent to the CRA has not been provided in the DLA. To enable comprehensive impacts analysis, ECEC should provide hydrographs of projected groundwater levels for key wells in the basin, particularly those

adjacent to proposed well sites and adjacent to the CRA, and a contour map projecting water level impacts. As discussed below, Metropolitan believes that the water level impacts are greater than indicated by the project proponents. Metropolitan is particularly concerned with the potential for land subsidence as a result of the groundwater withdrawal. Metropolitan's CRA is an unreinforced cut and cover conduit in this area and its tolerance for lateral or horizontal displacement is on the order of 0.25 inches per 200 feet. Any activity which lowers the groundwater table in this area may cause subsidence depending on the soil characteristics. Subsidence modeling should be performed to address Metropolitan's concerns and verify that the proposed operation would not cause excessive displacement of the CRA. These reports will need to be reviewed by Metropolitan to ensure compliance with Metropolitan's hydrogeologic criteria.

21. Metropolitan disagrees with the statement on page 2-33 (Section 2.6.3) that "[i]nelastic subsidence may occur when groundwater levels are lowered below historic levels." This statement is not correct. Subsidence can occur whenever groundwater levels decline, regardless the relation to historic levels. Further evaluation is needed to address this critical issue to Metropolitan's infrastructure.

22. The DLA does not address the potential for groundwater reaching the surface (i.e., "day-lighting") above the CRA rather than infiltrating into the ground as a result of seepage. It would be helpful to understand if additional seepage would impact the CRA.

23. Metropolitan disagrees with the groundwater characteristics assumptions made by ECE in the DLA. Groundwater impacts of the proposed project are substantially more complex than the DLA suggests. Data from monitoring wells constructed by Metropolitan adjacent to the CRA suggest that the Chuckwalla Valley is more confined and

is less transmissive than previously understood. The transmissivity of 147,000 gpd/ft (hydraulic conductivity of 110 ft/day) assumed by ECEC in the DLA is optimistic for this area. Metropolitan is concerned that the assumptions in Table 2-1 on page 2-5 to Exhibit E are not conservative enough given the uncertainty in the hydrogeology of the area. Previous modeling by Metropolitan suggests that the average hydraulic conductivity in Chuckwalla Valley is approximately 25 ft/day, significantly less than the estimates provided in the DLA.

24. Therefore, Metropolitan believes that the projected drawdowns and water level impacts could be substantially more than assumed in the DLA. Using a hydraulic conductivity of 25 ft/day, estimated drawdowns during the 2-year fill period could exceed 150 feet at the wellhead, assuming a 70 percent efficiency factor. Regional impacts could be as much as 30 feet. In the long-term, regional impacts could be more than 50 feet, which could result in a substantial subsidence risk. It is also important to note that the well capacities proposed would be insufficient to produce the makeup water requirements during the 8-hour off-peak periods even if operating continuously during these periods (after allowing for downtime and maintenance requirements). Additional wells will likely be needed. Additional evaluations should be performed to assess these issues.

25. The DLA proposes to use three feet of fine tailings in the reservoirs to reduce seepage and estimates a total seepage rate of 600 acre-feet per year. Fine tailings are expected to range from silty sand to clayey silt. Given that the permeability of the tailings proposed is relatively high even for the proposed sealing material, seepage rates could be substantially higher than estimated. As such, potential adverse impacts from the seepage are not adequately addressed. These seepage could have impacts upon water quality and structural integrity of the CRA.

26. The DLA refers to reverse osmosis (RO) treatment of the higher-TDS water that would be generated through evaporative losses within the reservoirs. A brine line would be constructed with the brine stored in lagoons or ponds in close proximity to the CRA. Very few details are provided on the use of these lagoons or ponds for brine storage. What is the potential of failure from these lagoons or ponds? How will failure be prevented and what specific mitigation measures would protect the adjacent CRA?

Construction Impacts

27. Metropolitan's CRA conduit was not designed for AASHTO H-20 loading in this area, and any vehicle crossings should be restricted to the existing paved roadways which have protective slabs in place to distribute this loading away from the pipeline. Any vehicles or equipment which would likely cross the conduit as part of the construction and operation of the proposed project will need to be reviewed and approved by Metropolitan prior to traversing the CRA.

28. ECEC should identify the specific mitigation measures that will be in place during construction. How could the specific construction operational activities potentially impact the CRA, groundwater quality (i.e., mobility of metals), etc.? Greater detail should be provided regarding these activities along with a detailed mitigation plan.

Respectfully submitted



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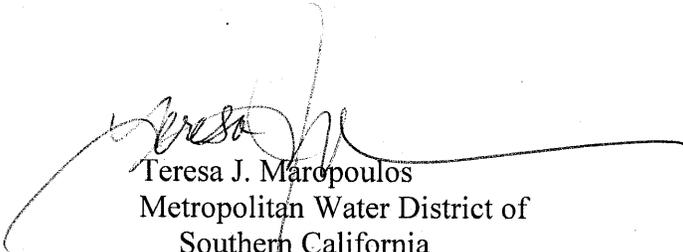
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## CERTIFICATE OF SERVICE

I hereby certify that I have, this 15<sup>th</sup> day of September 2008, served a copy of the foregoing document by first class mail, postage prepaid and/or by electronic mail, on each person designated on the service list compiled by the Secretary in this proceeding.



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