



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Supplement to 8-3

August 14, 1992

To: Board of Directors (Engineering and Operations Committee--Information)
(Finance and Insurance Committee--Information)

From: General Manager

Subject: Report on the Special Joint Meeting of the Engineering and Operations and Finance and Insurance Committees on August 11, 1992, to Receive and Consider Presentations Regarding Metropolitan's Proposed Repairs to Garvey Reservoir

Report

At the regular meeting of the Engineering and Operations Committee held on July 13, 1992, representatives of the City of Monterey Park (City) requested an opportunity to express concerns relative to environmental compliance on the pending Board action entitled "Appropriation No. 640 for \$28,000,000 to Finance All Estimated Costs for Repair of Garvey Reservoir, Certification of Final Environmental Impact Report, and Delegation of Power to Award Contracts." The City indicated that its presentation would take 1 to 1-1/2 hours. After discussion among the committee members, it was decided that there was insufficient time at the regular committee meeting to adequately hear the City's presentation. At the suggestion of the Engineering and Operations Committee, the City's representatives agreed to return for a special meeting of the Engineering and Operations and Finance and Insurance committees to make the presentation. It was also intended for the committees to consider the General Manager's recommendation in accordance with the pending Board action.

The Engineering and Operations Committee requested that the City submit its presentation materials in writing so that they could be distributed and reviewed by committee members prior to the special meeting. The following documents were received from the City by the Executive Secretary:

- Letter of July 29, 1992 from Mr. Sam K. Kiang, Mayor of the City of Monterey Park
- Letter of July 23, 1992 from Ms. Judy Chu, Councilperson for the City of Monterey Park

- Letter of July 29, 1992 from Mr. Thomas I. McKnew, Jr. of Brown, Winfield, and Canzoneri, Attorneys at Law
- Letter of July 27, 1992 from Mr. James E. Slosson, Mr. Thomas L. Slosson, and Mr. Jeffrey A. Johnson of Slosson and Associates, Consulting Geologists
- Letter of July 27, 1992 from Mr. Jeffrey A. Johnson of Slosson and Associates, Consulting Geologists
- Resumes for Mr. James Edward Slosson, Mr. Jeffrey Allen Johnson, Mr. Bing C. Yen, and Mr. Glenn D. Tofani
- A report of July 1992 entitled "Preliminary Evaluation of the Seismic Stability of the Garvey Reservoir Embankment, Volume I - Text and Figures and Volume II - Appendices" by Bing Yen and Associates, Inc.

Upon consultation with City personnel, it was agreed that all submitted documents, with the exception of Volume II - Appendices of the report prepared by Bing Yen and Associates, would be reproduced by Metropolitan and sent to all directors. The documents were sent on August 3, 1992.

The special committee met in the Board Room on August 11, 1992, commencing at 9:30 a.m. and adjourned at approximately 4:00 p.m. The meeting began with a summary description of the project and the California Environmental Quality Act (CEQA) process by District staff (staff), followed by comments from the State of California Division of Safety of Dams (DSOD) and extensive technical presentations from representatives of the City. At the request of committee members, the staff, District consultants, and DSOD responded to the City's presentations. The City's representatives and their consultants then gave concluding comments. Finally, the meeting concluded with five individual comments from the public.

Due to insufficient time, the attached transcript of the meeting (see Exhibit A) has not been reviewed or corrected and has been transmitted as it was received from the court reporter. For the same reason, most of the copies of color slides presented by the staff and the City have been reproduced on paper in black and white rather than color (see Exhibits B through E). A set of color reproductions is available for your review in the Executive Secretary's office.

The City also submitted Resolution No. 9682 passed by its City Council on August 10, 1992, entitled "Resolution of the City Council of the City of Monterey Park, California," opposing the proposed repair of Garvey Reservoir and certification of the FEIR (see Exhibit F).

This report summarizes the five key issues raised by the City and presents staff's responses to those issues. The five key issues are:

1. The cause of the tension cracking

The City contends that the Garvey Reservoir area is subject to horizontal torquing of the earth's crust caused by seismic activity which in turn induces cracks in the reservoir. The City also contends that the hills around the site form a pressure ridge (simply stated is a hill formed by the branching of a strike-slip fault) which results in the concentration of seismic energy at the reservoir site. The City alleged that the studies performed by the District's consultant did not properly identify and clarify the origin and cause of the tension cracks observed at the bottom of the reservoir.

Staff and District consultants reviewed the City's technical material and continue to maintain the position that the origin of the tension cracks is from randomly situated, geologically old fracture patterns in the foundation material associated with regional tectonic uplift. The development of the tension cracks was exacerbated by the 1987 Whittier Narrows earthquake. Regardless of the origin of the cracking, the preliminary design and anticipated material performance for the geosynthetic liner system are valid and the current reservoir repair concept would not change.

2. The appropriateness of the selected design earthquake criteria

The City selected a design earthquake with a magnitude of 7.5 and an average peak ground acceleration of 0.8 g (g = the acceleration rate

of gravity) as a more appropriate criteria for the analysis of the Garvey Reservoir embankment.

Staff, District consultants, and DSOD have reviewed the City's analysis and all agree that their values are excessively high and are not appropriate for the analysis of the embankments at Garvey Reservoir. These parties and a special Consulting Review Board retained by DSOD have determined that a design earthquake with a magnitude of 7.0 and peak ground acceleration of 0.6 g is the proper design criteria for the analysis of the embankments.

3. The likelihood of a saturated embankment

In the seismic analysis performed by Bing Yen and Associates, Inc., for the City, it is assumed that the entire lower portion of the embankment is saturated. Staff and District consultants believe this assumption to be inaccurate. The actual area of saturation indicated by two piezometers that were cited by the City indicates a highly localized temporary condition in the northwest portion of the property and is not indicative of the main embankment. For example, six piezometers located directly in the center of the main embankment showed no such saturation even during the recent episode of increased groundwater elevation from the leak in the reservoir. High water level readings in the piezometers and borings are attributed to periods of above average rainfall and excessive irrigation water migrating down along the outside of the piezometer pipes. As part of the proposed project, the areas that currently collect rainwater, such as the area surrounding the piezometers that are affected by heavy rainfall, will be regraded so that water will drain away freely.

4. The dynamic analysis performed by the City

The City contends that, due to the intensity of the shaking which can be anticipated at the site and the magnitude of the embankment deformations which could result from that shaking, a significant potential exists for the tearing or

rupturing of the reservoir liner, and/or the failure of the reservoir embankment. The City also stated that the dynamic model utilized by the District's consultant is inappropriate and may yield nonconservative results.

The staff and District consultants have reviewed the City's dynamic analysis, and have concluded that the input design parameters (including design level earthquake, soil properties, etc.) were inappropriate resulting in flawed conclusions. The dynamic analysis from the City's consultant was performed using a computer program based on 20-year old technology. This method of analysis simulates the soil embankment as an elastic material, which results in severely conservative results, where in reality the soil embankment is a nonelastic material. Additionally, the City's calculated embankment deformations were determined by a post-process computer program which provides yet another overly simplistic analysis adding an additional layer of conservatism. The City's consultant calculated embankment deformations along finite (slip) planes, which is a totally inaccurate deformation mode. The City's consultant analyzed an embankment cross section through a localized valley to yield the deepest section possible. Although this may seem appropriate, no provisions were made in the analysis to account for any lateral constraints provided by the adjacent foundation material, adding further to the overly conservative results.

The embankment analysis by the District consultant is based on state-of-the-art numerical modeling techniques. These techniques have been verified by the California Institute of Technology through grants from the National Science Foundation. The cross section used by the District's consultant is more representative of the entire dam embankment and its actual deformations.

5. **The appropriate level of design that should be completed prior to certification of the FEIR**

The City contends that the FEIR is legally deficient because it fails to contain an adequate project description which would require specific technical details of the proposed multilayer liner and leakage monitoring system, the materials-testing program, and the piezometer-monitoring system. In support of this contention, the City cites CEQA Guideline Section 15124 for the proposition that the project description shall supply all the detail required to evaluate and review the environmental impacts associated with the project. However, Section 15124 states, in part, that the description of the project shall contain a general description of the project's technical, economic, and environmental characteristics, considering the principal engineering proposals, if any, and supporting public service facilities, but not extensive detail beyond that needed for evaluation and review of the environmental impact.

It is the District's position that the FEIR contains the information required by Section 15124. Moreover, DSOD has stated that, for purposes of its review prior to certification of the FEIR, it does not require nor desire completed details that represent final design of the project. Completed details are based on approved final design parameters which can only be developed during the final design phase of the project, following certification of the FEIR.

In summary, the information provided by the City does not change the basic findings presented in the FEIR. The General Manager's recommendation, in accordance with the Board letter of June 26, 1992, pertaining to Appropriation No. 640 for \$28,000,000 to finance all estimated costs for repair of Garvey Reservoir, certification of FEIR, and delegation of power to award contracts, is hereby confirmed.

The Engineering and Operations Committee and the Finance and Insurance Committee chose not to take action at the special committee meeting but to wait for their regularly scheduled meetings.

Board Committee Assignments

This letter is referred for information to:

The Engineering and Operations Committee because of its jurisdiction over the initiation, scheduling, contracting, and performance of construction programs pursuant to Administrative Code Section 2431(b); and

The Finance Insurance Committee because of its jurisdiction over appropriations pursuant to Administrative Code Section 2441(d).

Recommendation

For information only.


for Carl Boronkay

GJH:atr
(brd:garvey-8152)
Attachments