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Dam - FERC File

New York Power Authority

Memorandum

June 10, 2004

TO: S. DeCARLO

FROM: W. BRODERICK

SUBJECT: SEEPAGE IN PIEZOMETER TERMINAL WELL #1
UPPER RESERVOIR DIKE
BLENHEIM-GILBOA POWER PROJECT

Ponding water in the Upper Reservoir Piezometer Terminal Well #1 (MH#1), located on the downstream slope at Station 21+50, was reported by the Project in November 2002. This situation makes collecting piezometer data difficult and also poses a concern about potential internal erosion of the dike. EPG has worked together with the Site Civil Engineer, Ty Hinkley, to investigate the cause and possible mitigation of the problem. This memo provides a summary of our preliminary evaluation.

It is believed that two reasons contribute to the water accumulated in MH#1. One is that seepage water is percolating out of a 6-inch diameter metal pipe on the upstream concrete wall of MH#1. Normally, this seepage water was able to drain out of the well through a floor drain. However, the floor drain was clogged prior to the quarterly piezometer readings in October 2002. The floor drain was cleaned out during the spring of 2003, but was again clogged by October 2003.

Fan Xi, Senior Civil/Geotechnical Engineer, has performed three field inspections (July 24, 2003, March 8, 2004 and June 4, 2004) in MH#1 and its immediate vicinity with the concern that the seepage water might be a telltale sign of an on-going internal erosion problem in the Upper Reservoir Dike. During this period, EPG requested increased monitoring of the piezometers in MH#1 and more frequent visual inspections of the dike in the vicinity of the well. At this time, there are no visual indications of dike slope depression, cracking, or sinkholes. No surface seepage above or below the location of MH#1 has been observed.

Quantitative seepage flow rate measurements have been made and water quality testing was performed. Based on preliminary evaluation of the data, Fan Xi performed the third field inspection along with Ty Hinkley and

an outside dam safety engineering consultant, Rich Donnelly of Acres International, Inc. on June 4, 2004.

Based on the June 4th field inspection and review of relevant project information, the Consultant has verbally stated that he does not believe the seepage observed in MH #1 poses any immediate threat to the safety of the Upper Reservoir Dike due to internal erosion. However, more in-depth engineering analyses and evaluation of the implications of the observed seepage are currently being conducted by the Consultant. The Consultant is expected to submit a draft evaluation report regarding this matter by June 15, 2004. The Consultant has been requested to propose mitigation measures to control the conduit leakage and possibly to replace the floor drain.

Upon evaluating the data and information from the field inspections, Fan Xi and this writer concur with the Consultant's preliminary assessment. We do not recommend initiation of Emergency Action Plan (EAP) notification at this time. We recommend continued enhanced visual surveillance of this area until further notice.

We plan to also consult with Alton P. Davis regarding this matter. Al is very familiar with the dikes and instrumentation systems, since he was a construction engineer at the project and later served for many years as the FERC approved Independent Part 12 Consultant for the Project. This consultation should be complete in early July.

EPG will provide final conclusions along with recommendations and remediation alternatives at the end of this investigation.

I would like to commend Ty Hinkley and other personnel at the Project Site, first for alerting EPG about this potential problem, and, secondly for assisting us with the investigation. This situation has potential dam safety implications. We need to remain vigilant and to react to these situations in a timely manner.

If you have any questions, or wish to discuss this matter in further detail, do not hesitate to contact me.

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