

UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

MAY 1 2 1981

Docket Nos.: 50-483/486

MEMORANDUM FOR:	George Lear, Chief Hydrologic and Geotechnical Engineering Branch, DE
THRU:	Lyman W. Heller, Leader Geotechnical Engineering Section Jury Hydrologic and Geotechnical Engineering Branch, DE
FROM:	Dinesh C. Gupta, Geotechnical Engineering Section Hydrologic and Geotechnical Engineering Branch, DE

SUBJECT: TRIP REPORT ON SITE VISIT TO CALLAWAY PLANT - APRIL 27, 1981

A. Purpose of Visit

The purpose of the subject site visit to Callaway Plant on April 27, 1981 was to familiarize myself with the ultimate heat sink pond facility, evaluate the need for a clay liner around the perimeter of the pond and at its bottom by observing the presence of any sand or silt lenses in its vicinity, obtain information related to the field seepage test conducted by the applicant for the pond, observe the settlement monuments in various plant facilities, and to discuss the response submitted by the applicant to the staff Q-1's on April 3, 1981.

B. People Contacted

Mr. Bill Zvanut, Union Electric Company
Mr. Ken W. Kuechenmeister, Union Electric Company
Mr. Pry Veatch, Union Electric Company
Mr. Gerald Brown, Bechtel
Mr. A. Sanver, Bechtel
Mr. D. Saran, Dames & Moore
Mr. Ed Frank, Dames & Moore
Mr. Bill Hansen, NRC resident inspector

C. Visit Activities

The activities at the Callaway Plant site consisted of a walking tour around the ultimate heat sink pond and inside the essential service water pumphouse to observe the location of the pond level sensor mechanism. Other category I buildings were also visited to observe the settlement

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monuments where the readings are being taken to monitor the settlement of these buildings. The walking tour was followed by an office discussion with Union Electric Company representatives and their consultants to discuss the responses submitted by the applicant on April 3, 1981, to NRC staff Q-1s.

D. Information Gained and General Observations

The ultimate heat sink retention pond is an excavation in natural soils and contains water for use as makeup water for category I mechanical draft cooling tower system during an emergency safe shutdown. It is 334 ft. by 684 feet in plan dimensions, with 3:1 side slopes. The retention pond is designed to provide 30 days' supply for essential service water systems. The normal depth of the water in the pond is 18 feet at elevation 836.0 feet. After 30 days of operational use of water from the pond, the water level will decrease to elevation 823 feet, assuming that there is no pond replenishment during that time. The design invert elevation of the essential service water structures pumphouse is 25 feet below the design pond water level and the invert of the discharge pipes is 17 ft below the design water surface.

In Section 2.6 of the Callaway Safety Evaluation Report dated August 1975, it is stated that the side slopes and bottom of the ultimate heat sink retention pond will be sealed with compacted clay liner. Subsequently the applicant indicated in Sections 2.5.4.6 and 2.5.5.1 of the Callaway FSAR that the pond seal is unnecessary. To evaluate the need for planned clay lining, the pond was examined by the applicant at the site. At the time of my site visit the pond was full of water so the bottom and slopes of the pond could not be seen. I was informed that the water in the pond was approximately 1 ft below the final design elevation. It will finally be raised to elevation 836.0 ft. The sides of the pond were covered by riprap, extending from the top of the slope to an 8-ft. horizontal bench at elevation 828 feet. Since the pond is filled with water, and the top sides are covered by riprap, it was agreed that photographs of the pond slope and bottom excavation may be examined to verify that there is no potential excess seepage threat without a clay liner around the perimeter of the pond.

Next we went into the essential service water pumphouse to examine the location of the pond level sensor designed to control the pond water level at 836.0 ft. I was told that the automatic pond level control mechanism will be installed at that location to maintain the level of water in the pond at the design elevation.

After observing the pond and the pumphouse we went around the reactor containment building, and noted the settlement monuments outside the building. We also saw some of the survey benchmarks. Both the benchmarks as well as monuments seemed properly protected from accidental hits.

After the walking tour of the facilities, an office discussion was held regarding the responses submitted by the applicant to the staff Q-1's. The Union Electric Company representatives (UEC) and its consultants provided a detailed explanation of the responses and their position on various issues raised by the staff. In addition, they agreed to provide the following additional information in support of their responses to Q-1s:

- a sketch showing the extent and location of areas where Category I Granular Structural Fill and Backfill were used as a substitute for Category I cohesive fill.
- (a) report by Bechtel on the analysis of pond seepage calculations using flow nets, "Ultimate Heat Sink retention pond, Soil Engineering Studies, Callaway Plant Units 1 and 2, Missouri," September 1977.
 - (b) photographs showing the excavated pond (side slopes as well as bottom). These include Dames and Moore photographs as well as photos taken by Daniel International Corporation and show the entire excavation. UEC will clearly identify the date on which photographs were taken and the plan location of the ground shown on each photo. UEC will also identify probable sand and silt seams shown on each photograph.
 - (c) The following Dames & Moore reports about the analysis of the excavated pond:
 - "Results of Preservice Inspection, Ultimate Heat Sink Retention Pond, Callaway Plant, Units 1 and 2" Dames & Moore, June 1980.
 - "Results of Inspection During Filling, Ultimate Heat Sink Retention Pond, Callaway Plant, Units 1 and 2," Dames & Moore, August 1980.
- UEC said that they will update the settlement data every three months until the staff SER is issued. The first such update would include survey data taken in April of 1981.

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4. UEC said they will provide to the staff a reference to the paper that they said justifies the use of the value of coefficient of earth pressure at rest which they gave in the Callaway Plant FSAR.

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It was agreed that the above material will be mailed by UEC to Alex Dromerick, Project Manager, DL as soon as practically possible.

Dinesh C. Gupta Geotechnical Engineering Section Hydrologic and Geotechnical Engineering Branch Division of Engineering

cc: J. Knight L. Heller M. Fliegel A. Dromerick D. Gupta

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bcc: Applicant & Service List

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