SUMMARY AND EVALUATION REPORT

Report Title: Diablo Canyon Unit I Independent Design Verification Program

Soil - Outdoor Water Storage Tanks

Report No. ITR-16, P105-4-839-016, Revision 0

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INTRODUCTION

The Sixteenth Interim Technical Report (ITR-16) for the Diablo Canyon IDVP has been reviewed by BNL.

ITR-16 contains a description of the soils work associated with the Outdoor Water Storage Tank (OWST) that was performed by Harding Lawson Associates (HLA). Other soils work performed by HLA associated with other facilities are or will be covered in other ITR's.

SUMMARY OF REPORT

This ITR presents a review of the soils work conducted for the OWST. This includes reviewing the HLA geophysical surveys, boring location plans and descriptions, laboratory testing program and reports. From this data, a description of the soil/rock profile (lithology) is presented and compared with that presented by HLA.

A detailed description of the boring and test pit location plans is presented, together with a description of the discrepancies noted between the field logs and HLA reports. All of these discrepancies in locations were satisfactorily resolved by RLCA. The HLA soil profiles and rock depths were corroborated by RLCA.

Similar conclusions were reached for the rock strength data, obtained from two triaxial tests conducted by HLA. One of the test results were plotted and compared with the strength parameters recommended by HLA for use in bearing capacity calculations. Correlation was excellent.

From these strength parameters together with rock modulus (and Poisson's ratio) data obtained from HLA geophysical data, allowable bearing capacity values were estimated including the consideration of both safety factor and tank settlement. From these results, the design tank contact pressure of 80 ksf was found to be acceptable (anticipated tank settlements of about 0.5 inches were estimated).

Therefore, all the results of the HLA soil/rock analyses were verified and found to be acceptable.

EVALUATION

The following comments can be made about ITR-16:

1. All of the discrepancies in boring locations noted by RLCA were checked, verified and corrected. However, in Table 1 of ITR-16, one discrepancy can be noted in the location of boring 12 which was not mentioned either in an EOI or in the report itself. There is an apparent 16 foot discrepancy in the plan location of the boring. This discrepancy, however, should have negligible impact on the soil profiles shown in the report since the boring is located immediately east of the Fuel Handling Building, where the bedrock surface is fairly horizontal.

2. The settlement analyses estimates were made using the moduli data obtained from the geophysical test data. These moduli values, however, are assoicated with extremely small rock strains, smaller than usually encountered in standard foundation analyses. No comparison is made with moduli values obtained from the two triaxial strength tests mentioned in the reports. It would yield smaller values of moduli and corresponding higher values of anticipated settlements of the tanks subjected to the design foundation loads of 80 ksf. Since the computed settlements already mentioned are 0.5 inches for the tanks, any significantly lower value of rock modulus could lead to unacceptable settelments.

3. The strength values mentioned for the rock are well within the normal range quoted for this foundation materials.

4. All of the discrepancies mentioned in the report of boring locations and depth to bedrock are all extremely minor and well within variations normally encountered in field exploration work.