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 Alameda/NAS
 6 JUN 1985

California Regional Water Quality Control Board
 San Francisco Bay Region
 1111 Jackson Street, Room 6040
 Oakland, CA 94607

Attention: Gloria Fulton

Your order number 83-35 of 21 September 1983 specified closure requirements for the Navy's proposed closure of the Alameda Naval Air Station Solid Waste Disposal Site and established a schedule of compliance. In accordance with the order, the slurry trench cut-off wall along the west shoreline was constructed and seawall repairs were completed by 1 October 1984. It was believed that the contractor had completed placement of the one foot of impermeable cover at that time as well. However, the results of quality control test borings indicated that the cover was inadequate (less than one foot thick) and unacceptable to the Navy. The contractor has agreed to return to the site by 1 August 1985 to correct the deficiency with anticipated completion by 30 September 1985. The reason for the contractor's delay in returning to the site is that the source of cover material is currently saturated with water. Major construction equipment can be remobilized and the fill material should have dried out by 1 August 1985 to allow the resumption of work.

A report discussing the results of our consultant's seismic stability studies to evaluate the stability of the seawall is provided as an enclosure. We hope that the report satisfactorily addresses your concerns regarding seawall integrity during a moderate earthquake.

A meeting has been scheduled with Ms. Gloria Fulton of your staff for 13 June 1985 to discuss a monitoring program for evaluating the effectiveness of our interim closure measures. At that time, we can discuss any other concerns the Board may have regarding the closure of the disposal site.

Questions regarding this matter may be directed to Louise T. Lew at (415) 877-7497.

ALEX E. DONG
 HEAD, ENVIRONMENTAL OPERATIONS SECTION

Encl: (1) Seismic Stability Studies, Retention Dike and Seawall

Copy to:
 NAS Alameda
 Blind copy to:
 09A2A.40, 405.1, 05, 09B, 11, 114, 1142E





November 19, 1984.

2176,060.01

Western Division
Naval Facilities Engineering Command
P.O. Box 727
San Bruno, California 94066

Attention: Mr. Fred Paat, Code 405.1

Gentlemen:

Seismic Stability Studies
Retention Dike and Seawall
Naval Air Station
Alameda, California

This letter presents the results of our seismic stability studies for the solid waste disposal retention dikes and the seawall at the Naval Air Station in Alameda, California.

The purpose of this study was to evaluate the stability and to estimate the deformations of the retention dikes and the seawall in the event of strong ground shaking.

SLOPE CONFIGURATION

Two slope configurations were selected for analysis. Slope Configuration 1 corresponds to the case of existing dike with crest elevation of +122 feet and no slurry behind the dike (see Plate 1), and Configuration 2 corresponds to existing dike raised to a crest elevation of 126 feet with slurry fill behind the dike to elevation of +123 feet (see Plate 2).

SOIL PARAMETERS

The soil strengths and unit weights used in our analyses are shown on Plates 1 and 2. The basic parameters were obtained from previous soil investigations performed by HLA and were appropriately modified to account for increase in strength due to consolidation resulting from load of the fill and seawall.

November 19, 1984
2176,060.01
Mr. Fred Paat, Code 405.1
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Naval Facilities Engineering Command
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SEISMIC INPUT

Based on our seismic studies for other projects in the vicinity of the site and located on similar soil conditions, we have estimated the peak ground surface accelerations at the disposal site to be in the order of 0.20 g and 0.25 g for the lower and upper level earthquakes, respectively. The lower and upper level earthquakes are events with 50 and 10 percent probability of exceedance during a 50-year life. For slope deformation analysis, Richter magnitude of 7.25 and 8 were assumed for lower and upper level earthquakes, respectively.

RESULTS OF ANALYSES

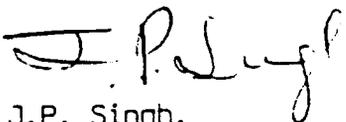
Pseudostatic stability combined with slope deformation (References 1 and 2) analyses were performed to evaluate the seismic stability of the dikes and seawall. The yield acceleration, which is the average acceleration at which a condition of incipient failure is induced in the potential sliding mass, was found to be approximately 0.1g for both slope configurations. Because the yield acceleration of 0.1g is lower than the accelerations estimated for the lower and upper level earthquakes, the slope displacements were estimated to be about 1.5 to 2.5 feet and 4.5 to 6.5 feet for lower and upper level earthquakes, respectively.

DISCUSSION

The displacements computed above are the average displacements for the entire sliding mass. These displacements will manifest as cracking in the fill at the head and within the slide mass. Furthermore, as the muds gain strength with time, the magnitude of slope displacements for the same risk will become smaller with time. Because the slope movements will manifest in terms of slope displacement rather than a catastrophic slope failure, we do not expect any leachate leakage into the bay.

Yours very truly,

HARDING LAWSON ASSOCIATES



J.P. Singh,
Principal Engineer

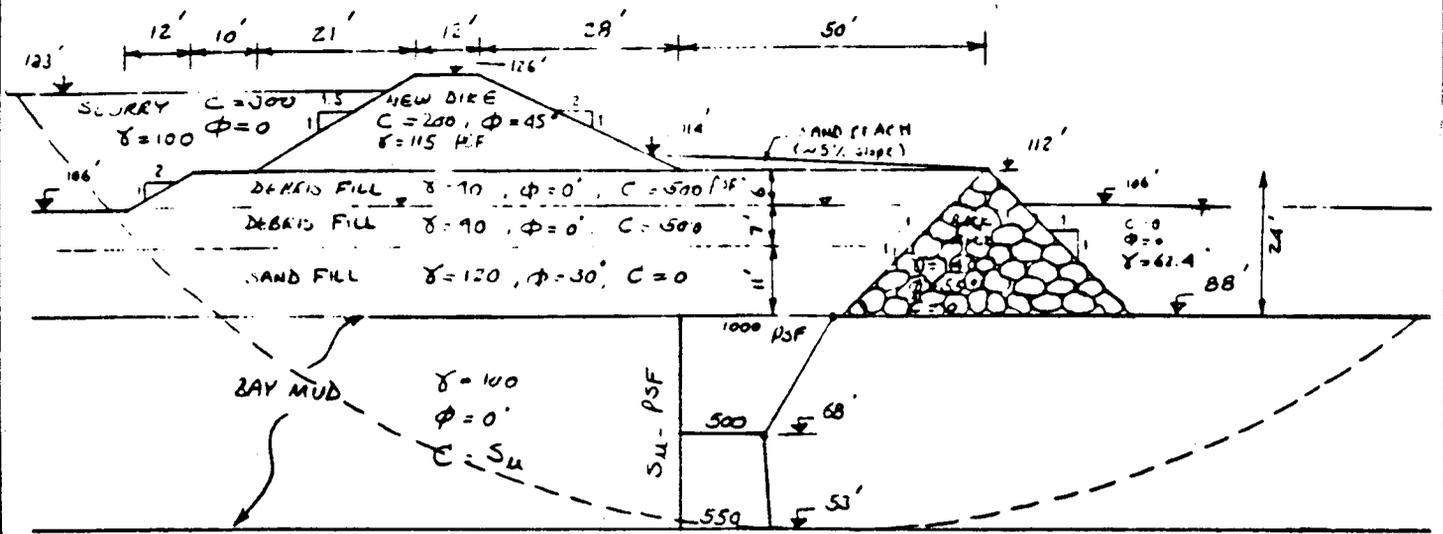
MT/JPS/dm

Attachments: References
Seismic Stability Analysis

REFERENCES

Makdisi, F.I. and Seed, H.B., 1978, "Simplified Procedure for Estimating Dam and Embankment Earthquake Induced Deformations," Journal of the Geotechnical Engineering Division, ASCE, Vol. 104, No. GT7.

_____, 1979, "Simplified Procedure for Evaluating Embankment Response," Journal of the Geotechnical Engineering Division, ASCE, Vol. 105, No. GT12.



Harding Lawson Associates
 Engineers, Geologists
 & Geophysicists

Slope Configuration I
Retention Dike and Seawall
 Alameda Naval Air Station
 Alameda, California

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
JLB	02176,006.01	<i>HLA</i>	11/84		

