UNION OIL COMPANY OF CALIFORNIA

515 Hutton Building, Spokane 1, Washington

AIR MAIL

May 3, 1949

Headquarters, United States Army, Alaska
APO 942, c/o Postmaster
Seattle, Washington

Attention: Donald C. Thomas
1st Lt., A.G.D.

Gentlemen:

With reference to your letter of 31 March 1949 relative to dikes around the tank farms of the Army and of this company at the Port of Whittier, Alaska, we have the following to offer:

(1) In making our recommendations for dikes around tankage, we usually follow the specifications of the National Board of Fire Underwriters', unless exceptional conditions supervene.

(2) Under the specifications of the National Board of Fire Underwriters, dikes normally would be required around installations such as those at the Port of Whittier.

(3) At the Port of Whittier, however, unusual circumstances and conditions are encountered which lead us to conclude that dikes cannot be justified around either installation. These conditions include the following:

(a) The surface structure consists of an unconsolidated conglomorate typical of glacial moraines. During fair weather, when the earth is not frozen, any oil discharges resulting from overflows, which are unlikely, or from line or tank rupture, which are highly improbably except as a result of enemy action or sabotage, will drain through this formation with little or no horizontal surface travel. Diking would be totally ineffective in retaining such oil discharge unless the diked areas were bottomed with a reinforced concrete floor, integral with tank foundations and the dike walls.

(b) During the winter season, when the surface structure is frozen and might, therefore, be expected to retain commodity spills, the diked area will be filled with packed snow and, therefore, will have no oil capacity.

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(c) Since freezing weather is encountered during an average of six months out of the year with a possible maximum of eight months, and since a 32 ft snowfall with a 16 to 18 ft pack is not uncommon, it is not practicable to install fog or foam fire fighting equipment for extinguishing possible fires or protecting exposures. Rapid dispersion of commodity spills, therefore, is important to protect adjacent exposed tanks.

(d) Except as a result of enemy action or sabotage, or major disasters such as that at Texas City, none of which can be provided for in industrial installations, fire or rupture incidence in properly constructed and maintained tankage is so low as to be negligible. Careful analysis shows approximately one fire per tank per 50,000 years of operation. The National Bureau of Standards in Handbook No. H-40 on Lightning Protection states that, when minimum plate thicknesses of 3/16 inch is used, lightning is not a factor in tank fire protection. Similarly, experience gained in the 1933 earthquake in Southern California, and confirmed by experience in the recent eight intensity quake in the North Pacific Coast area, indicates that present tank construction standards employed by this company are adequate to present damage from high-intensity quakes.

Our conclusion, concurred in by a former operating manager in the Alaska area and by the Supervising Engineer who designed and constructed the facility at the Port of Whittier, is that diking of either facility at the Port would be a waste of money and would serve no useful purpose.

If the Engineer, U. S. Army, Alaska, has any date or statistics which would indicate a contrary conclusion, we would be glad to examine them for our own edification.

Yours very truly,

EMPLOYEE RELATIONS DEPARTMENT

/s/ James E. Hill by CNVM

J. E. Hill, Training & Safety Supervisor

CHVM:phs
cc: W. A. Scott, Seattle
R. S. Bond, Seattle

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