Fansteel
Metals

November 17, 1978

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OFFICE OF THE SECRETARY

11257

United States
Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Earl G. Wright
Radioisotopes Licensing Branch
Division of Fuel Cycle and
Material Safety

40-7580

Re: License No. SMB-911
Control No. 09170

Gentlemen:

I have attached a report by Muskogee Engineering Company in support of the previous answers to questions 371.17 and 371.9. My conversation of November 10th with M. Fliegel indicated a need for further clarification on these two questions. In the interest of time, I have also sent a copy of this report directly to Mr. Fliegel.

Concerning item 371.9, I answered in the September report that the inside of the pond was the upstream side. However, in the case of flood the outside of the pond can be considered the upstream. Our plan is to provide a heavy cover of Bermuda grass which can readily be maintained on the 3 to 1 slope.

Very truly yours,

James A. Pierret

JAMES A. PIERRET
Plant Manager

JAP:nj
Enclosures (2)

cc: M. Fliegel
C. Brown

7904040171 781117
PDR ADOCK 04007580
C PDR

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MUSKOGEE TESTING LABORATORY, INC.

[illegible] EASTSIDE BLVD.
PHONE [illegible]
MUSKOGEE, OKLAHOMA 74401

Soils & Concrete Testing - Concrete Coring - Foundation Investigation Drilling

November 14, 1978

Mr. James A. Pieret
Project Manager
Fansteel Metals, Inc.
Ten Tantalum Place
Muskogee, Oklahoma

Re: Retention Pond Study
Fansteel, Inc.
Muskogee, Oklahoma

Dear Mr. Pieret:

As per our conversation of November 10, 1978, we have reviewed the question concerning the maximum probable flood elevation. As previously stated by Hemphill Corporation, we have utilized the following data in relation to our analysis:

Standard Project Elevation - - - 517
Maximum Probable Flood Elevation 525
Maximum Discharge - - - - 1,500,000 cfs.

It is noted that this program has not been run by the U. S. Corps of Engineers due to the flood of record for this area was in 1926, and it reached the high water elevation of 517± at the U. S. Highway 62 bridge.

We have plotted sections for this area and utilized Mannings formula of

$$Q = a\ 1.486\ R^{2/3}\ S^{1/2}$$

$$R = a/p - \frac{\text{gross sectional area of waterway}}{\text{wetted perimeter.}}$$

S = Slope of Hydraulic Grandient.

The X section which controls the flow is Section C-C., therefore, the Q. or volume of water flowing would be as follows:

$$Q = \frac{(346{,}000\ s.f.)\ (1.486)\ (4.2)\ (0.01673)}{.025}$$

$$Q = 1{,}445{,}107\ cfs.$$

$$V = Q/A = \frac{1{,}445{,}107}{346{,}000} = 4.8\ fps.$$

These calculations did not include the Maynard Bayou which would have the following capacity:

$$Q = \frac{(92,800)(1,486)(0.1)(0.0044)}{.033}$$

$Q = 553,377$ cfs.

$V = 3.8$ fps.

This Bayou will act as a relief valve for the total flow which will be 1.8 million cubic feet per second.

Based upon the above computations, it is concluded that the Elevation 325.0 is a very realistic estimate for the maximum probable flood.

In our conversation, we discussed Item 9, which is "Document the Ability of the Upstream Embankment Face to Withstand Severe Wind-Wave Action".

The top of the dike is elevation 333, therefore, the minimum estimated freeboard is 8 feet. The pond is located in semi-protected location with regard to the flow of the river.

An estimated total height of wave is 6 feet from valley to crest, therefore, the minimum freeboard would be 5 feet below the top of the pond dike. Since the dike has a 3 to 1 slope, the erosion effect of the wave will be minimized to a resultant force. Since the toe of the slope of dike is 321 elevation, a 6" stabilized soil layer with heavily seeded Bermuda grass on the outside faces of the pond should be adequate to withstand the temporary wave forces. A study of wave action and flood resultant forces have revealed that a deposit of silt would be the apparent effect upon this area from the flood, rather than erosion.

We wish to express our appreciation for the opportunity to perform these services.

Yours truly,

SOILS ENGINEERING TESTING LABORATORY, INC.

Carl D. Galeo, P.E.