



OCT 18 1977

MEMORANDUM FOR: Bernard Singer, Chief, Radioisotopes Licensing
Branch, NMSS

FROM: Lyman W. Heller, Leader, Geotechnical Engineering
Section, Geosciences Branch, DSE

THRU: J. Carl Stepp, Chief, Geosciences Branch, DSE

SUBJECT: WASTE RETENTION POND - GEOTECHNICAL ENGINEERING CONCERNS
(TAC 4655)

PLANT NAME: Fansteel Metals, Muskogee, Oklahoma
LICENSING STAGE: Application for source materials license
DOCKET NUMBER: 040-7580
RESPONSIBLE BRANCH: Radioisotopes Licensing Branch, E. G. Wright

On October 6, 1977, NRC representatives Earl Wright, FCRL, NMSS, Myron Fliegel and Terry Johnson, HES, HMB, NRR and Richard Turnbull, GES, GB, NRR visited Fansteel Metals, Muskogee, Oklahoma. The purpose and summary of this visit are covered on the enclosed memo. Upon field inspection of the existing waste retention ponds, Richard Turnbull of our staff observed certain pond and embankment retention conditions that we feel should be brought to your attention.

Two of the existing 8 waste retention ponds at the Fansteel site contain radioactive residues. In both these ponds which are numbered 1 and 2 by Fansteel, solid residues approach the embankment crest at depths closer than the state imposed minimum 3 ft. freeboard. Such conditions when combined with concentrated heavy rainfall could lead to overtopping of the embankment and possible uncontrolled release of the radioactive materials. In addition, rills on the order of 1 ft. deep by 1 1/2 ft. wide that have resulted from moderate to severe erosion regularly dissect the embankment crest and slopes of both ponds. Such features increase the possibility of breaching the embankment and loss of residues.

The undesirable conditions existing in ponds 1 and 2 were discussed with Mr. Carlile of Fansteel Metals who indicated that repair of the eroded embankment crest and slope surfaces was now scheduled and would shortly be completed. It is our recommendation that an inspection by NRC personnel be arranged to insure that:

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- 1) The retention embankments for ponds 1 and 2 be repaired as soon as possible and protected with a suitable cover to prevent further erosion.
- 2) The discharge into ponds containing radioactive materials will not exceed a level above the required 3 foot minimum freeboard.

Joseph A. Kane
for

Lyman W. Heller, Leader
Geotechnical Engineering Section
Geosciences Branch
Division of Site Safety and
Environmental Analysis

Enclosure:

As stated

cc: w/enclosure

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

OCT 14 1977

MEMORANDUM FOR: J. Carl Stepp, Chief, Geosciences Branch, DSE

FROM: Richard Turnbull, Geotechnical Engineer
Geotechnical Engineering Section, Geosciences Br., DSE

THRU: Lyman W. Heller, Leader, Geotechnical Engineering
Section, Geosciences Branch, DSE

SUBJECT: SITE VISIT - GEOTECHNICAL ENGINEERING (TAC NO. 4655)

PLANT NAME: Fansteel Metals
LICENSING STAGE: Application for source materials license
DOCKET NUMBER: 040-7580
RESPONSIBLE BRANCH: Radioisotopes Licensing Branch, Earl G. Wright

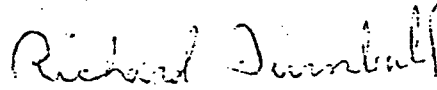
Fansteel Metals, Muskogee, Oklahoma was visited by members of the NRC staff on October 6, 1977. NRC representatives Earl Wright, FCRL, NMSS, Myron Fliegel and Terry Johnson, HES, HMB, NRR, and Richard Turnbull GES, GB, NRR met with Fansteel plant manager James A. Pierret and plant services manager Thomas S. Carlile, Jr. The site visit was requested by NRC representatives to facilitate review of the submitted geology report and to gather information regarding the proposed waste retention pond for mill residues.

The morning session included a brief discussion of the purpose of the NRC staff visit, followed by a summary of mill plant operations and the tailings disposal system by the Fansteel managers. It was revealed that the waste retention pond whose design we were originally asked to evaluate was already built. However, this existing basin will not receive radioactive residues as originally intended. Another waste retention pond is proposed to accommodate future radioactive residues and the design of this basin will subsequently be submitted to NRC.

We then inspected the 8 existing waste retention ponds including the site for the future pond. General aspects of geotechnical engineering and geology were discussed with the managers. Erosion rills over 1 ft. wide and up to 1 ft. deep were observed on unvegetated embankment crests and slopes. Methods of protecting the existing embankments from further

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deterioration by surface runoff erosion were discussed. In the afternoon, we discussed the kinds of information we would need to perform a geotechnical engineering review. I presented to the Fansteel managers a draft of geotechnical engineering questions regarding the originally proposed pond which listed the major areas of our concern.



Richard Turnbull
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