3.500 Jefferson
Combustion Engineering

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DIVISION OF ENVIRONMENTAL QUALITY
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PRIORITY ROUTING

FILE

January 27, 1989

James A. Rhode, Plant Manager
Combustion Engineering, Inc.
P.O. Box 107
Highway P
Hematite, Missouri 63047

Dear Mr. Rhode:

On December 22, 1988 an investigation was made of the condition and operation of the wastewater facilities serving Combustion Engineering, Inc. in Jefferson County, Missouri. The inspection was conducted by Ms. Lois J. Wardell of this office and Mr. Richard Laux of the Department's Central Office with the assistance of Mr. Howard Eskridge of Combustion Engineering, Inc.

In conjunction with this investigation, the Department's files were reviewed to asses the NPDES permit compliance status. This review covered the two year period immediately preceding the inspection. The summary of this review and the field observations are listed below.

FINDINGS:

1. A layer of floating sludge covered the clarifier and chlorine contact chamber in the sanitary waste treatment facility.

2. The skimmer in the clarifier was not functioning properly.

3. Sludge deposits and dead minnows were observed in the receiving stream immediately below outfall 001.

4. The stormwater pond appeared relatively clear with some vegetative growth. The discharge over the dam (outfall 002) appeared clear.

5. Dozens of barrels labeled "Radioactive LSA" as well as numerous other containers, including acid barrels, were being stored outside within a fenced area which is not bermed.

6. What appeared to be a former evaporation pond was observed within a fenced area. Mr. Eskridge stated that the pond was presently being decommissioned. NRC License Number SMM-33 requires the decommissioning of two evaporation ponds.

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7. The facility's NPDES files appeared complete. All discharge monitoring reports were complete and on file.

8. Effluent data presented on the discharge monitoring reports indicate consistent compliance for all permitted limits for both outfalls.

DISCUSSION:

The Combustion Engineering Company is engaged in the production of low-enriched (< 4.1% U-235) ceramic fuel. The main operations at the Hematite plant include a UF_6 to UO_2 conversion process, a UO_2 pelletizing process and a scrap recovery process. The plant has a total of 64 employees and operates three shifts per day. All sanitary wastewaters are treated in a mechanical sewage treatment plant and are discharged through outfall #001. The site pond receives stormwater runoff, laundry wastes, demineralizer regeneration wastewater, cooling tower blow down, steam condensate, and wastewater from laboratory sinks. The site pond is also fed by a spring on site. Outfall #002 is the pond discharge over the dam.

The floating sludge layer in the clarifier and chlorination chamber of the sewage treatment plant was evidently reaching the receiving stream. Sludge had accumulated along the bottom of the stream branch from the discharge pipe of outfall #001 to the point where the flow joined the stream resulting from the pond overflow. Dead minnows and clusters of sludge worms laid at the bottom of this branch. The cause of the bulking sludge was not apparent at the time of the investigation. Immediate steps must be taken to resolve operational problems and prevent loss of sludge to the creek.

During the inspection it was learned that waste sludge is removed from the plant only every several years. This is not adequate. A plant of this type operates efficiently only when the mixed liquor suspended solids is maintained within an optimum range. In order to stay within that range routine removal of excess sludge solids must occur. The optimum range and the frequency of removal or wasting of excess sludge must be determined based upon operational testing procedures carried out by your operator. We would expect sludge wasting to be needed at least several times during the year. You must ensure that operational testing and sludge removal occurs as needed to keep this facility operating efficiently.

Mr. Laux inquired about the status of buried low-level radioactive wastes on site. Mr. Eskridge explained that no wastes have been buried on site by Combustion Engineering and any such disposal would have been performed by previous owners of the site. Mr. Laux then explained the forthcoming regulations concerning stormwater runoff in contact with these areas. The outdoor barrel storage area and the decommissioned evaporating pond areas will be of concern in future permits.

Mr. Eskridge stated that all work, storage and disposal of radioactive materials is performed in accordance with NRC guidelines.

All monitored effluent values reviewed indicate good compliance with all currently permitted limits. No deficiencies were noted.

RECOMMENDATIONS:

1. Repair the skimmer in the sewage treatment plant so that it functions dependably.

2. Determine the cause and solution for the bulking sludge in the sewage treatment plant.

3. Perform the operational testing necessary to determine optimum mixed liquor suspended solids concentrations and waste sludge routinely in order to stay within the optimum range.

We trust that you will direct your attention to the contents of this report and that you will proceed to carry out the recommendations presented. If you have any questions please contact Tom Welton at the St. Louis Regional Office.

Please thank Mr. Eskridge for his assistance during the inspection.

APPROVED:

F. Donald Maddox
Regional Administrator
St. Louis Regional Office

PREPARED BY:

Lois J. Wardell
Environmental Engineer
St. Louis Regional Office

FDM/LJW/cj

cc: CO - WPCP
NRC
Jefferson County Health Department