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ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM:

DATE: May 2, 1977

SUBJECT: PSD Determination of Applicability -
UMD Coal Gasification Plant

FROM: Director, (EN-341)
Division of Stationary Source Enforcement

TO: David A. Ullrich, Acting Chief
Air Enforcement Branch - Reg. V

This is in response to your memo dated April 15, 1977, concerning the coal gasifier proposed for the University of Minnesota Duluth (UMD) Campus and its applicability to the Prevention of Significant Deterioration (PSD) regulations.

This office in conjunction with the Control Programs Development Division (CPDD) has decided that the facility is not subject to the requirements of PSD. The determination was based on the following:

1. The coal gasifier proposed for UMD does not constitute a fuel conversion plant as contemplated by section 52.21 (d) (1) (XVIII), but rather is a modification of the existing heating plant.

2. It is not the intent of the PSD regulations to include under fuel conversion plants the type and size facility contemplated at UMD.

This information has already been communicated to Bruce Varner of your staff. If you have any additional questions on this matter, please contact Rich Biondi (755-2564) of my staff.

Edward E. Reich

cc: Mike Trutna DSSE:RBiondi; amd 4/28/77
Ken Malmberg
Dianne Smith

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: April 15, 1977

SUBJECT: PSD Determination of Applicability -
UMD Coal Gasification Plant

FROM: David A. Ullrich, Acting Chief
Air Enforcement Branch

TO: Edward E. Reich, Director
Division of Stationary Source
Enforcement (EN-341)

The Energy Research and Development Administration (ERDA) and the University of Minnesota are jointly planning to retrofit a Foster Wheeler Stoic two-

stage coal gasifier unto existing boilers at the University of Minnesota Duluth (UMD) Campus heating plant. Region V has made an initial determination that this gasifier is a fuel conversion plant subject to the Federal Prevention of Significant Deterioration (PSD) regulations, 40 CFR Section 52.21. However, the only emissions will be from the existing boilers. We plan to meet with ERDA and UMD officials in Minneapolis on April 27, 1977, to discuss this matter. Please review the attached two letters and the attached 2-volume Program Opportunity Notice, and furnish your verbal determination on whether or not this gasifier is subject to PSD, to Mr. Bruce Varner at 353-2086 or Mr. Eric Cohen at 353-2090, by April 26. Mr. Varner has discussed this matter with your Mr. Richard Biondi.

Relevant technical information on the gasifier is contained in Volume 1 of the attached Program Opportunity Notice as follows:

pp. 4-5	Coal specifications
pp. 16-22	Process description
p. 29	Mass and heat balances
Appendix A-4, pp. 6 and 7	Oil and gas flow diagrams
Appendix A-6, all	Equipment drawings
Appendix A-9, p. 7	Emission estimates

Should you determine that this plant is subject to PSD, we will undoubtedly request assistance from the Office of Air Quality Planning and Standards in determining Best Available Control Technology (BACT) for particulate and sulfur dioxide. However, any BACT guidance you can furnish by April 26 would be most appreciated.

David A. Ullrich

Attachments

-2-

cc: Michael Trutna
NSR Focal Point, CPDD
(MD-15)
(w/attached 2 letters only)

UNIVERSITY OF MINNESOTA Physical Plant Maintenance and Operations
TWIN CITIES 200 Shops Building
 Minneapolis, Minnesota 55455

March 8, 1977

Mr. Erick Cohen
Compliance Section
Air Enforcement Branch
Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois 60604

Dear Mr. Cohen:

I am forwarding a copy of our proposal on coal gasification as informative material on the unit to be installed at the University of Minnesota Duluth Campus Heating Plant. In addition, we have received your correspondence on Application for Approval to Construct, and we will be submitting a formal response within ten days.

Since the proposal details the Technical Requirements, Design Approach & Methodology, Environmental Considerations and Socio-Economic Impact of the installation, it is submitted as background information.

It is the intent of this State of the Art demonstration plant to prove that low Btu coal gasification, as a front-end system for steam boiler operation, can be a cost effective process as well as being environmentally sound.

All on-site coal storage, coal handling, ash storage and ash handling will be completely housed. Dust control equipment will be installed in the coal unloading and ash loading facility.

Stack emissions from the boilers burning the low Btu gas will be below present-day regulations on stack emissions for both particulate and sulphur oxides.

In addition to instrumentation and metering equipment for evaluating the gasifier and the gas cleanup equipment, the best in shelf item monitoring equipment will be installed for the analysis of stack emissions. We will request the approval of the Minnesota Pollution Control Agency in the selection of the monitoring equipment.

As we progress through the detail design of this installation, we are copying the MPCA with all drawings. If your office desires copies of drawings other than final drawings, please inform me by letter or phone, 373-4521.

Yours very truly

W. E. Soderberg
Director, Physical Plant

WES:VP

cc: Russ Bardos, ERDA
Edward Wiik, MPCA
Frank Blackhall, MPCA
Del Bress, FWEC
C. H. Goldsmith, OSM
A. R. Potami, UM
N. L. Rick, UMD
Joseph Roback, UM
Richard Lewis, UM

UNIVERSITY OF MINNESOTA
TWIN CITIES

Physical Plant Maintenance and Operations
200 Shops Building
Minneapolis, Minnesota 55455

March 15, 1977

Mr. James O. McDonald, Director
Enforcement Division
U.S. Environmental Protection Agency, Region V
230 South Dearborn Street
Chicago, Illinois 60604
ATTN: Air Compliance Section

Dear Mr. McDonald:

This is an inquiry letter asking for clarification on the need for an EPA "Approval to Construct" for a modification to the University of Minnesota Duluth Campus heating plant. We have previously submitted a copy of the University of Minnesota ERD Proposal as background information.

The modifications at the Duluth plant include the following:

1. Installation of a fixed bed, two-stage coal gasifier (FW-Stoic).
2. Gas cleanup equipment.
3. Burner modifications on two boilers.
4. Add-on coal storage and oil storage facilities.

Presently, the plant is limited to gas/oil firing due to the type of boilers

and the lack of stack emission cleanup equipment. As we project to the near future, the plant will be further restricted to oil firing only. We further project limit supplies of fuel oil that could jeopardize the continuity of Campus operation.

The retrofit of this plant is a partnership venture between ERDA and the University of Minnesota. It is the goal of this program that the addition of a close coupled gasifier as an extension of the boilers will create no environmental deterioration and will be an environmental and cost effective method of retrofitting existing gas/oil fired boilers.

As I review the source subject, the only classification that seems to apply is Identification 18 - Fuel Conversion Plants. I would like to list the following comments for your review:

1. The normal points of emission will be the same as a conventional coal-fired boiler plant, exit flue gas from boilers and ash residue. The minor add-on point is a small gas flare for startup and shutdown of the gasifier.
2. Gas generation will be limited to in-plant use.

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March 15, 1977

To: James O. McDonald, US EPA

Re: "Approval to Construct" for a modification to the UMD heating plant.

3. This is a relatively small demonstration unit (3 tons/hr., maximum) that will be closely monitored and evaluated for not only efficiency and cost effectiveness, but also changes in the environment of the involved Community.

In conclusion, we are continuing in the preparation of an application for approval to construct as well as working with the Minnesota Pollution Control Agency on the needs for the application of a permit for construction. We are aware that one of the two Agencies will be involved in the issuing of a permit for this installation.

Your comments will be greatly appreciated.

Yours very truly,

W. E. Soderberg
Director, Physical Plant

WES:VP

cc: Russ Bardos, ERDA
Edward Wiik, MPCA
Richard Starns, MPCA
Richard Lewis, U of M

3/17/77: Cohen