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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JAN 23 2002

Mr. Roy Spears
NEPA Document Manager
U.S. Department of Energy
626 Cochrans Mill Road
Box 10940
Pittsburgh, PA 15236-0940

**RE: EPA Review and Comments of
Draft Environmental Impact Statement
Kentucky Pioneer Integrated Gasification Combined
Cycle Demonstration Project
CEQ No. 010426**

Dear Mr. Spears:

Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has reviewed the subject Draft Environmental Impact Statement (DEIS). The document provides information on the construction and operating of a 540 megawatt integrated gasification combine-cycle (IGCC) plant to be situated in Trapp, Kentucky, near the city of Lexington. The document evaluates environmental impacts of a Clean Coal Technology Program demonstration proposed to be partially funded by the Department of Energy (DOE). This technology uses fuel in the form of pelletized municipal solid waste heated with high sulfur coal and limestone forming a gas which is scrubbed of its sulfur prior to combustion in the IGCC turbines. The IGCC Demonstration Project is described as a waste minimization facility whereby inert ash from the gasification process would be converted into small amounts vitrified "frit", a glass-like waste material formed as slag in the bottom of the gasifying reactor vessels. Waste hydrogen sulfide discharge is converted into elemental sulfur of sufficiently purity as to be suitable for sale to commercial users. A two-megawatt molten carbonate fuel cell, a unit that generates electric power without using turbines and having negligible gaseous discharge to the environment, is also proposed as part of the project. The DEIS reports that there would be no significant waste stream associated with the molten carbonate fuel cell component of the Project.

EPA has the following comments about the IGCC project.

Wetlands - The DEIS states that there are no wetlands associated with the proposed site. The IGCC and gasification plant will be located on a previously-cleared and graded site that was to hold a conventional power plant which was never built because of lack of anticipated demand.

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While the plant site itself harbors no wetlands, attendant structures such as transmission lines may impact wetlands (see below).

Transmission Lines and Towers - The East Kentucky Power Cooperative (facility owners) would have to build approximately 17 miles of 138 kV transmission lines to support the IGCC Project. The environmental impacts of these lines may be excluded from NEPA review under the U. S. Department of Agriculture's Rural Utility Service (RUS) policies and procedures allowing transmission lines of less than 230 kV and less than 25 miles to be categorically excluded from the requirement to prepare an EIS. To address environmental issues, the RUS normally requires an Environmental Report (ER) that provides an environmental assessment for the application process for this size of transmission line.

EPA requests that the ER provides an examination of threatened and endangered (T & E) species that may be impacted by the 138 kV power transmission lines and associated towers associated with the proposed Project. Volant endangered species indigenous to Kentucky include the gray bat, the Indiana bat, the Virginia big-eared bat, American eastern peregrine falcon, arctic peregrine falcon, Bachman's warbler, Kirkland's warbler, and the ivory billed woodpecker. EPA encourages DOE's coordination with the U. S. Fish & Wildlife Service (FWS) on T & E issues as appropriate. There may also be wetland impacts associated with the construction of the transmission line towers as well; coordination with the Louisville Army Corps of Engineers should be advised to determine if Section 404 jurisdictional wetlands might be impacted.

The following comments relate to specific items found in the DEIS.

Cooling Tower Discharge - The document did not clearly identify how much cooling tower discharge will be produced, and how the discharge blow-down will be disposed. The proposed IGCC plant will use 1 million gallons per day (mgd) for condenser cooling and 3 mgd in process and cooling water makeup. To prevent mineral buildup within the system, cooling towers must regularly discharge mineralized water, and in conventional fossil fuel plants, blow-down is often discharged with the condenser cooling water. The final EIS would be improved if the means of disposal cooling tower blow-down were clarified.

Need to Reference Final Permit in the Final EIS - DOE references the "Draft PSD/Title V" permit issued for the project. The Kentucky Division for Air Quality (KDAQ) issued a final permit for prevention of significant deterioration (PSD) purposes on June 7, 2001. The final permit should be referenced in the final EIS. Any conclusions or recommendations in the DEIS based on the draft permit should be reviewed in comparison with the conditions of the final permit and revised as needed.

Restatement of Wind Direction Data - In Section 4.7.1 (page 4-20), DOE refers to six months of meteorological data collected in 1979 at a location near the Kentucky Pioneer site. Based on these data, winds at the site are described as "predominantly" from the south-southwest or northeast. Generally speaking, six months of meteorological data are not enough to establish

1/07

Comment No. 1

Issue Code: 07

The exact location of transmission line structures will be determined during the detailed design stage of the project. Typically, transmission lines can span sensitive areas such as floodplains and wetlands. If it were necessary to place structures in floodplains or wetlands, EKPC would apply for the necessary permits from the USACE.

2/08

Comment No. 2

Issue Code: 08

A NEPA document will be prepared in accordance with RUS NEPA regulations that will assess the potential impacts to threatened and endangered species from the transmission line. This assessment should be coordinated with the U.S. Fish and Wildlife Service (USFWS). Prior to transmission line construction, the NEPA document will be submitted to the USFWS for comment and/or concurrence.

1/07
(cont.)

Comment No. 3

Issue Code: 07

KPE states that the specific details on the cooling tower and associated blowdown cannot be identified until the plant design is in more advanced stages. However, KPE states that the volume of cooling tower blowdown is accounted for in the estimated 1.5 MLD (0.4 MGD) of wastewater produced by the plant. Cooling tower blowdown typically contains elevated levels of trace metals and salts. This waste stream would be treated along with all wastewater prior to discharge into the Kentucky River. Impacts to river biota are unlikely, as discussed in Section 5.8, Ecological Resources, of the EIS. Pollutant discharge limitations would be set by the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water's Water Resources Branch and would be identified in the KPDES permit. These limitations would be established based on site-specific computer modeling of the expected effect on water quality of the Kentucky River at the proposed discharge point and in the mixing zone immediately downgradient. The limits specified in the permit would protect existing water quality.

3/07

4/06

5/06

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wind direction predominance. DOE could state simply that the most common wind directions during the period of measurement were south-southwest and northeast, consistent with the alignment of the valley where the meteorological tower was located.


Inappropriate Citation - In Section 6.1.2 (page 6-3), DOE cites the general Kentucky regulation governing construction and operating permits for air emission sources. The citation is 401 KAR 50:035. This regulation no longer exists. DOE should consult the current set of Kentucky regulations and cite the appropriate regulation.

Need to Reassess BACT - When EPA Region 4 reviewed the draft PSD/title V permit for the project, our main concern was KDAQ's proposal to allow operation without the use of selective catalytic reduction (SCR) as best available control technology (BACT) to control emissions of nitrogen oxides. In the final permit, KDAQ allowed the facility owner to operate initially without SCR. After sufficient operating data have been obtained, however, the owner will be required to re-assess BACT for nitrogen oxides emissions and re-propose BACT for continued operation. DOE may wish to acknowledge this requirement in the final EIS.

Summary - Based on this review, EPA rates the draft EIS "EC-2", that is, environmental concerns about the project have been identified, and more information is needed to fully assess project impacts. Coordination should be done with FWS on T & E species potentially impacted by the proposed Project transmission line. Additional details of disposal of mineralized cooling tower blow-down is requested. Conclusions or recommendations in the DEIS based on the draft PSD/title V permit should be reviewed in comparison with the conditions of the final permit and revised as needed. Section 4.7.1 might be edited to simply state that the most common wind directions during the period of measurement were south-southwest and northeast, consistent with the alignment of the valley where the meteorological tower was located. After sufficient operating data have been obtained for nitrogen oxides, the owner will be required to re-assess BACT for nitrogen oxides emissions and re-propose BACT for continued operation; DOE may wish to acknowledge this requirement in the final EIS.

Thank you got the opportunity to review this project. If you have any questions or require technical assistance you may contact John Hamilton of my staff (404) 562-9617, or Jim Little at (404) 562-8576 for questions on air quality.

Sincerely,



Heinz Mueller, Chief
Office of Environmental Assessment

Comment No. 4

Issue Code: 06

Appropriate revisions have been made in the Final EIS. Additional text has been added in Section 5.7.4 of the EIS to reflect changes made in the final permit.

5/06
(cont.)

Comment No. 5

Issue Code: 06

Appropriate revisions to Section 4.7 have been made in the Final EIS.

6/21

Comment No. 6

Issue Code: 21

Comment noted. Section 6.1 has been revised.

7/06

Comment No. 7

Issue Code: 06

The Best Available Control Technology (BACT) study condition added in the Final PSD/Title V Permit has been referenced in the Final EIS. In addition, monitoring requirements identified in the Final PSD/Title V Permit have also been summarized.

8/21

2/08 (cont.)

3/07 (cont.)

4/06 (cont.)

Comment No. 8

Issue Code: 21

Appropriate sections have been revised throughout the EIS.

5/06 (cont.)

7/06

(cont)