

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FEB 4 1983

MEMORANDUM

SUBJECT: KPL Applicability Determination

FROM: Director  
Stationary Source Compliance Division  
Office of Air Quality Planning & Standards

TO: Carl M. Walter, Chief  
Air Branch, Region VII

I wish to address your December 13, 1982 request for an applicability determination concerning Kansas Power and Light Company's (KPL) power plant in Hutchinson, Kansas. The plant was constructed in the mid 1960's, burns natural gas with fuel oil as standby, and has a rated output of 190 MW.

KPL has the opportunity to obtain petroleum coke from a nearby refinery. The coke would be slurried with water to a consistency of No. 6 fuel oil and pumped to the plant site to be burned as fuel. At least 20% of the heat input would have to be from natural gas at all times. Whether KPL actually uses petroleum coke depends on whether such use will subject the boilers to federal regulations under NSPS and PSD.

Your memorandum first asks if petroleum coke is a fossil fuel. Fossil fuel is defined at §60.41(b) and §60.41a as "natural gas, petroleum, coal and any form of solid, liquid or gaseous fuel derived from such material for the purpose of creating useful heat." Petroleum coke, a finely divided powder of high carbon content, and usually high sulfur content, comes from the coker and is a by-product in the refining process. In the past it has been used as a material to construct anodes and cathodes for use in aluminum reduction processes. Since petroleum coke is a by-product and is not produced for the purpose of creating useful heat, it cannot be considered a fossil fuel. The facility is not subject to the Subpart D NSPS when burning petroleum coke because §60.40(b) precludes such coverage: "Any change to an existing fossil fuel-fired steam generating unit to accommodate the use of combustible materials, other than fossil fuels as defined in the subpart, shall not bring that unit under the applicability of this subpart."

I do wish to point out that the boilers could become subject to the subpart D standard at a later date. This would occur if the boilers switched to burning an alternative fossil fuel which they were not designed to accommodate before the August 17, 1971 Subpart D applicability date.

Regarding the term "capable of accommodating" in §52.21(b)(2)(iii)(e) as it applies to KPL's proposed change, an analysis must be performed, for Prevention of Significant Deterioration applicability purposes, to determine whether the boilers were capable of accommodating the alternate fuel before January 6, 1975. The determination in this situation should be based on an inspection of the design specifications of the boilers.

According to Charles Whitmore, the boilers have never had the physical capability of handling bottom ash. The design specifications also do not contain any such provisions. The boilers, thus, are not considered capable of accommodating petroleum coke as an alternative fuel. This determination is unaffected by the type of fuel burned, since the PSD regulations do not limit their applicability to fossil fuel firing (although a steam electric plan burning non-fossil fuel must have the potential to emit 250 tons per year to be considered a major source).

It appears from your memo that no additional changes to the power plant are necessary to accomplish the fuel switch; therefore, the PSD analysis will be focused on the boilers themselves. Since these boilers are not capable of accommodating the alternative fuel, it must next be determined whether this change would result in a significant net increase in emissions at the plant. If the answer to this question is yes, then PSD will apply.

Once PSD applicability has been affirmed, it is then necessary to undertake a BACT analysis as required under 52.21(j). That section, unedr paragraph 3, requires that a major modification apply best available control technology for each pollutant subject to regulation under the Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit. This section clearly intends that technology review be assessed on an emissions unit rather than on a plant-wide basis.

In addition to the BACT analysis, an air quality analysis must be conducted for all pollutants emitted in significant amounts as a result of the conversion. This analysis must demonstrate that the emissions will not cause or contribute to a violation of any NAAQS or of any applicable maximum allowable increase over baseline concentration in any area. The requirements of paragraph (k) of 40 CFR 52.21 apply to

significant net increases of the relevant criteria pollutant, taking into account all contemporaneous emissions changes at the source.

This determination has received the concurrence of the Office of General Counsel, the Control Programs Development Division, and the Emission Standards and Engineering Division. Please contact Robert Myers at 382-2875 if you require additional information.

Edward E. Reich

cc: Earl Salo  
Walt Stevenson  
Larry Jones  
Jack Farmer  
Charles Whitmore  
Mike Alushin  
Peter Wyckoff  
Sara Schneebery  
Mike Trutna

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

December 13, 1982

Subject: Request for Determination of Applicability of NSPS and PSD

From: Carl M. Walter  
Chief, Air Branch

To: Edward Reich, Director  
Stationary Source Enforcement Division

The Kansas Power and Light Company (KPL) has requested a determination of the applicability of NSPS and PSD to an existing power plant if petroleum coke is used as a fuel. The plant located in Hutchinson, Kansas will not impact any non-attainment area. It was constructed in the mid 60's, burns natural gas with oil as standby and has a rated output of 190 MW.

KPL has the opportunity to obtain petroleum coke from a nearby refinery. The coke would be slurried to a consistency of No. 6 oil and pumped to the plant site. At least 20% of the head input would have to be from gas at all times.

Several questions arise as to whether the source would be "modified" by this action. These questions are addressed below.

1. Is petroleum coke a fossil fuel? If not, it appears, Subpart "D" of 40 CFR 60 would not apply.
2. What is the effect of the term "capable of accommodating" in 52.21(b)(2)(iii)(e)? Is the unit "capable of accommodation" the fuel if the existing oil fuel system is used? What happens if the oil burning system must be modified? What about the installation of equipment to handle the expected 300-500 pounds of bottom ash per day?
3. Are there other considerations which affect the applicability of either NSPS or PSD?

Please call Mr. Charles Whitmore at FTS 758-6525 for additional information.