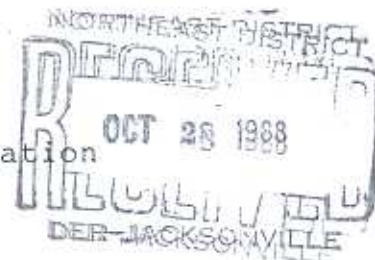


Best Available Control Technology (BACT) Determination  
Griffin Industries  
Bradford County



The applicant plans to install an auxiliary 26,000 lbs/hr boiler at their facility in Hampton, Florida. The new boiler will fire No. 6 fuel oil and is scheduled to operate 3,432 hours per year.

This BACT determination is required for both the new and existing boilers as set forth in the Florida Administrative Code Rule 17-2.600(6) - Emission Limiting and Performance Standards.

BACT Determination Requested by the Applicant:

The applicant did not request a BACT determination.

BACT Determined by DER:

The amount of particulate and sulfur dioxide emissions from the boilers will be limited by the firing of new [1] No. 6 fuel oil having a sulfur content not to exceed 1.5%, by weight.

[1] The term "new" means an oil which has been refined from crude oil and has not been used.

BACT Determination Rationale:

Sulfur in fuel oil is a primary air pollution concern in that most of the fuel sulfur becomes  $\text{SO}_2$ . The emission factors for  $\text{SO}_2$  and particulate emissions from oil burning are related to the sulfur content. The emission factors used by the applicant and the Department are from AP-42, Table 1.3-1.

The amount of particulate emissions when firing the 2.5 percent sulfur content fuel will have a minimal impact on air quality. The sulfur dioxide emissions, however, may result in an exceedance of the ambient air quality standard (AAQS) for sulfur dioxide.

Using the stack parameters given by the applicant, the sulfur dioxide concentrations obtained by using the PTPLU screening model, assuming maximum design firing rate and based on 12 hours per day operation, are shown as follows.

1-hour maximum - 385  $\text{ug}/\text{m}^3$   
3-hour maximum - 347  $\text{ug}/\text{m}^3$   
24-hour maximum - 77  $\text{ug}/\text{m}^3$

The 24-hour maximum concentration is less than both the 91  $\text{ug}/\text{m}^3$  PSD increment, and the AAQS of 260  $\text{ug}/\text{m}^3$ .

Although the air quality impacts analysis does not indicate exceedances of the standards when firing the proposed 2.5% sulfur fuel oil, the economic impact of using lower sulfur content fuels needs to be addressed. A review of previous BACT determinations for boilers of similar size which fire No. 6 fuel oil indicates that the sulfur content has generally been limited to 1.5%.

In accordance with the 1.5% sulfur content limitation which is generally required for this type of boiler, the cost of fuel switching can be determined. Recent discussions with fuel suppliers have indicated that the cost of using fuel oil with a 1.5% sulfur content would amount to an additional 3 cents per gallon.

Assuming the maximum firing rate, the additional hourly cost of using the 1.5% sulfur content fuel oil instead of the proposed 2.5% sulfur content No. 6 fuel oil would be \$6.33. The sulfur dioxide reductions from switching to the 1.5% sulfur fuel oil are estimated to be 34 pounds per hour. Based on this reduction, the hourly cost per pound of sulfur dioxide removed is approximately 19 cents which is less than the EPA guideline of up to \$1.00 per pound (\$2,000 per ton) for sulfur dioxide removal.

Based on the information presented in this analysis, the Department has determined that BACT is represented by the firing of No. 6 fuel oil with a sulfur content not to exceed 1.5%, by weight.

The term "new oil" disallows the use of re-refined and waste oils or any non-fossil fuels which were not considered in this BACT analysis.

Details of the Analysis May be Obtained by Contacting:

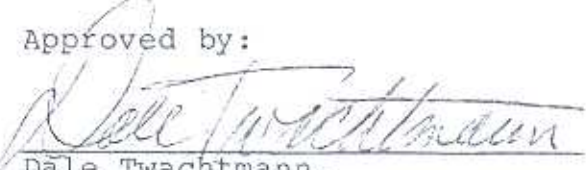
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Recommended by:

  
C. H. Fancy, P.E.  
Deputy Bureau Chief, BAQM

October 21, 1988  
Date

Approved by:

  
Dale Twachtmann,  
Secretary

October 21, 1988  
Date