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August 8, 1991

Hamilton S. Oven, Jr.,
Siting Coordination Section
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399

Re: Pinellas County Resource Recovery Facility PSD-FL-098
PA 83-18; OGC File No. 85-4070

Dear Mr. Oven:

As you know, Pinellas County has a resource recovery (waste-to-energy) facility which was certified pursuant to the Florida Electrical Power Plant Siting Act (PPSA). See DER File No. PA 83-18 and OGC File No. 85-0470. Pinellas County believes the conditions of certification for the resource recovery facility should be modified slightly to resolve an issue that has arisen with regard to the proper interpretation of those conditions. Accordingly, Pinellas County hereby formally requests the Department to modify the conditions of certification and PSD permit for the facility to state that the sulphur dioxide (SO_2) emissions from the plant shall be limited to "170 lbs/hr each unit, calculated as the average of three units". The remainder of this letter describes the factual background to this issue and explains why Pinellas County's request should be granted.

Factual Background

In April 1979, Pinellas County received site certification pursuant to the Florida Electrical Power Plant Siting Act (PPSA) for the construction and operation of a resource recovery facility with two 1,000 ton per day (tpd) combustion units (Units 1 and 2). The facility was expanded in 1984, when the County added another 1,000 tpd unit (Unit 3). The emission limits for the facility are established in the "Final Order Modifying Conditions of Certification" (Final Order), which describes the facility's sulphur dioxide emission limit as follows: "SO_2-170 lbs/hr each unit". A copy of the Final Order is attached hereto.

The Pinellas County resou . recovery facility consists o1 .ree "mass burn" combustion units. Household refuse and other waste materials are dumped into a large pit located within an enclosed facility. The material in the pit is mixed with an orange-peel bucket and then it is fed into three separate hopper chutes that lead into the three individual combustion units. Each combustion unit is followed by a separate electrostatic precipitator (ESP) that removes particulate matter from the exhaust gases.

The Pinellas County resource recovery facility, like the facilities utilized by the City of Tampa and Hillsborough County, does not have acid gas scrubbers. Refuse is a heterogeneous mixture, unlike coal and oil which have a predictable sulphur content. Consequently, the sulphur dioxide emissions from the facility fluctuate in direct relation to the sulphur content of the refuse that is being combusted. Sulphur dioxide emissions are indicative of the sulphur content of the fuel, but they are not indicative of whether the plant is operating properly.

At Pinellas, sulphur dioxide emissions from the plant are checked in annual stack tests. Pursuant to DER and EPA approved procedures, the County conducts three one-hour tests for each unit and then calculates an average sulphur dioxide emission rate for each unit. The stack test data show that the facility consistently complied with all of its emission limits, including the emission limit for sulphur dioxide, prior to 1990.

Last year the County conducted its annual stack tests on April 3-6, 1990. The tests for Unit No. 1 were conducted on April 3 and 4, 1990, and they showed an average sulphur dioxide emission rate of 177 lbs/hr, which is based on emissions of 117, 123 and 290 lbs/hr in the three separate test runs. The tests for Unit No 2 were conducted on April 5 and they showed an average SO_2 emission rate of 153 lbs/hr, with individual tests of 105, 123, and 231 lbs/hr. The tests for Unit No 3 were performed on April 6, 1990, and they showed an average SO_2 emission rate of 92 lbs/hr, which resulted from test rates of 72, 76, and 126 lbs/hr. The tests demonstrated that the average SO_2 emission rate for the resource recovery facility was 140 lbs/hr (92 + 153 + 177 divided by 3 = 140), based on the average rate for the three units.

The County retested Unit No. 1 within one week after verbally receiving the preliminary test data. The retest was conducted on May 16, 1990, and the average sulphur dioxide emission rate for Unit No. 1 was 142 lbs/hr resulting from three-one hour tests of 87, 141, and 197 lbs/hr.

The County's resource covery facility was tested aga in April 1991. The 1991 tests confirmed once more that the facility is operating within its permit limits. The average SO_2 emission rates were 80, 113, and 61 lbs/hr for Units 1, 2, and 3 respectively. Unit 1 had test results of 66, 70, and 105 lbs/hr. Unit 2 had emissions of 82, 107, and 149 lbs/hr. Unit 3 had emissions of 52, 65, and 67 lbs/hr. The average emission rate for the facility as a whole was 85 lbs/hr.

On August 3, 1990, Pinellas county received a DER warning notice (WN90-0032AP52SWD) which indicated that the Department was concerned about the April 3, 1990 test for Unit 1. During subsequent discussions with the Department's Southwest District Office, Pinellas County was advised that the Department believes the SO_2 emission limit of 170 lbs/hr should be enforced for each unit separately. We respectfully disagree with this approach, but to resolve this dispute, we agreed to file this formal request for modification of the facility's permit conditions.

Basis for Pinellas County's Request

Pinellas County believes the SO_2 emission limit for its resource recovery facility should be based on the average value of the SO_2 emissions from the entire facility (i.e., all three units). There are several reasons why this approach is appropriate. Each of these reasons is discussed separately below.

1. Measuring the SO_2 emissions from any one combustion unit does not produce meaningful plant emission data. As previously noted, the SO_2 emissions from an individual unit simply reflect the amount of sulphur in the fuel supplied to that particular unit at the time when the emissions are measured. The SO_2 emissions may fluctuate upward or downward in relation to the sulphur content of the fuel, but these fluctuations are not the result of a malfunction or improper operation. Consequently, the SO_2 data for an individual unit should not be used for the purpose of determining whether the plant is in compliance and, for an uncontrolled emission such as SO_2, only total plant emissions have meaning. By adopting the wording change proposed by Pinellas, nine-one hour tests would be averaged. This is the logical method of plant performance concerning SO_2.

2. The County recognizes that it is appropriate to have emission limitations for each unit when DER is evaluating controlled emissions (e.g., particulate, opacity, etc.). With regard to controlled emissions, the "per unit" limitation allows the Department to assess the performance of the separate pollution control equipment for each combustion train. This logic is not applicable to the SO_2 emission limit, however, because the emissions are uncontrolled and there is no equipment to evaluate.

3. It should be remembered that Pinellas County has no financial incentive or other reason to increase the SO_2 emissions from any particular unit. The County has always used its best efforts to operate the plant properly and the County will continue to do so in the future.

4. In the instant case, the emission average for Unit 1 slightly exceeded the 170 lbs/hr limit in April 1990, only because one of the three hourly tests had a dramatically elevated level of SO_2 (290 lbs/hr). This one test was 25% and 59 lbs/hr higher than the second highest SO_2 emission rate measured in 1990 (231 lbs/hr). It is almost 100% greater than the highest SO_2 emission rate measured during the 1991 tests (149 lbs/hr). The County believes the increased SO_2 emissions in Unit 1 in April 1990, were attributable solely to an anomalous condition. Although we cannot conclusively identify the cause of the increased emissions, Pinellas County believes that they resulted from the disposal of wallboard (gypsum) in a load of other waste materials. Wallboard normally is not processed through resource recovery. However, wallboard sometimes is mixed with other wastes in the community and deposited in the refuse pit at the resource recovery facility. To minimize this potential problem, the County uses its best efforts to screen the refuse before it is placed in the pit. Further, the County removes any wallboard that is discovered in the refuse pit. Nonetheless, a relatively small amount of wallboard could have caused the elevated SO_2 emissions in Unit 1 because wallboard produces a great deal of SO_2 when burned.

   It is worth noting that relatively small fluctuations in the waste composition may upset the SO_2 emission rate from a single unit, but these fluctuations normally are offset or balanced when the entire facility is viewed as a whole. Even when one unit is experiencing an elevated emission rate, the other units usually have lower emission rates, which bring the facility as a whole into compliance with the emission limits set in the conditions of certification. Indeed, the facility has always complied with the SO_2 emission limit when the emissions were evaluated from the facility as a whole.

5. The use of a facility-wide average for SO_2 eliminates the likelihood that one anomalous test could result in a DER finding of noncompliance, as occurred in this case. The use of an average emission rate should be appropriate because EPA and DER already recognize that averages should be used when evaluating the emissions for each unit As previously noted, EPA and DER test methods require that three one-hour tests be conducted when measuring SO_2 and then the results are reported as the average of the three tests. Clearly, SO_2 emission calculated by averaging nine separate one hour tests are statistically more significant for compliance purposes.

6. Based on our review of the operating permits for other resource recovery facilities, it is our understanding that the Department has evaluated SO_2 emissions from the City of Tampa and Hillsborough County facilities on the basis of facility-wide emissions, rather than per unit emissions.

The City of Tampa's permit contains an SO_2 emission limit of 170 lbs/hr per 1000 tons per day of refuse fired (the same as the emission limit for each Pinellas unit). However, compliance with the permit limit is established by totalling the SO_2 emissions from the City's four units each rated at 250 tpd. The Department's stipulation of this approach for the City of Tampa's permit confirms our belief that it is an acceptable method and reflects more current thinking concerning uncontrolled emission.

Hillsborough County was only required to test SO_2 emissions at the time of the plant's initial start-up. Subsequent annual SO_2 compliance tests are not required. Start-up compliance test protocol provide that SO_2 emissions were measured from only one unit of the facility (which contains three units). The protocol expressly recognized that the facility's SO_2 emissions would simply reflect the fuel's sulphur content and it was implicitly recognized that extensive or annual testing of SO_2 emissions would not provide meaningful information about whether the facility was operating properly. Since Hillsborough's testing protocol and test data were accepted by DER as proof that the facility was in compliance with its SO_2 emission limit, we believe the Hillsborough County case supports our request for this permit modification.

The timing of the Hillsborough County case is noteworthy. The original conditions of certification for Hillsborough County's resource recovery facility provided that each unit within the facility would be tested annually. See Conditions of Certification II. A.3.c (revised 11/6/84), DER File PA 83-19. However, when the PSD permit for the Hillsborough County facility was issued on July 7, 1986, it did not require annual tests for SO_2. Apparently DER and EPA recognized in 1986 that annual tests for SO_2 were unproductive and unnecessary because SO_2 emissions are fuel-related. We believe this same attitude could have been applied to Pinellas County's facility, which was certified before the Hillsborough County facility.

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When determining compliance with SO_2 emission limits, we are unaware of any rational basis for differentiating between the Pinellas County, Hillsborough County, and City of Tampa facilities. All three of these facilities use mass burn technology and electrostatic precipitators for pollution control. None of the facilities have controls for sulphur dioxide. Since they are fundamentally similar facilities, the Department should use the same procedure when calculating whether the facilities have complied with their SO_2 emission limits.

PSD-FL-086

We recognize that the precise language used in the permits for these three facilities is slightly different. We have tried to determine whether there was any factual or legal justification for the different language used in the different permits at the times they were issued. So far as we have been able to determine, there was none.

7. By using a facility average to determine compliance, the Department would avoid the illogical results that would be reached in the instant case by applying per unit emission limits. The conditions of certification for Pinellas County's resource recovery facility indicate that the facility can emit 170 lbs/hr of SO_2 from each of the county's three combustion units. Thus, the facility can lawfully emit 510 lbs/hr (170 x 3 = 510). In the instant case, however, under the Department's "per unit" approach, DER would penalize the County and impose monetary fines based on actual emissions of only 422 pounds per hr. (177 + 153 + 92). The citizens of Pinellas County would be fined even though the facility's emissions were 118 pounds less than the amount authorized by the County's certification. We believe these facts make it clear why DER's approach is inappropriate. In light of DER's willingness to use a facility-wide emission limit for the Tampa and Hillsborough County facilities, DER's actions in this case are unfair and inconsistent.

Conclusion

For all of the reasons described above, we believe the Department should modify the conditions of certification and PSD permit for the Pinellas County resource recovery facility. The modification would simply clarify the method by which the County and the Department would determine compliance with the SO_2 emission limits for the facility.

Please call us if you need any additional information. Thank you for your cooperation and assistance with this matter.

Sincerely,

Robert Van Deman

Robert Van Deman, P.E., Director
Solid Waste Management

RVD:rvt
1869V

cc: Fred E. Marquis
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