

APPENDIX D

**IPL PETERSBURG POWER GENERATING STATION
EVALUATION
FOR
30-DAY ROLLING AVERAGE EMISSION LIMITS**

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Assessment Protocol
30-day rolling average for Indianapolis Power and Light (IPL) facilities using Flue Gas Desulfurization (FGD) for Sulfur Dioxide (SO₂) Control

Step 1: Modeled Limits

Identify 1-hour limits that when modeled show attainment of the 1-hour SO₂ National Ambient Air Quality Standard (NAAQS). The current modeled values are: 0.15 lbs/MMBtu for IPL - Petersburg Generating Station Unit 1 (Pete 1) and Unit 2 (Pete 2), 0.37 lbs/MMBtu for Unit 3 (Pete 3), and 0.35 lbs/MMBtu for Unit 4 (Pete 4). IDEM's modeling of these emission rates, as well as the Hoosier Energy - Ratts Generating Station plus background, shows a result of 194.8 µg/m³, meeting the 196.2 µg/m³ standard.

Step 2: Compile Representative Emission Data Set

The data set selected and compiled is the 2006 through 2010 hourly CEM SO₂ emissions for the Pete 2 FGD stack. This data was selected as it is from a FGD controlled unit where the data set shows a relative consistency in the emission level achieved over a long period of time (five years). The emission variability in this data set is most representative of the emissions variability expected once the projected SIP limits are in affect and the facility is utilizing FGD controls on all 4 units to meet the emission limits associated with compliance with the one-hour standard.

The available data represents the lbs/MMBtu for each hour and the MMBtu for each hour as well as the operating time for each hour. This data was used to also calculate the lbs/hour SO₂ value for each hour.

Step 3: Calculate 30-day rolling averages.

The specific protocol used in this calculation was to sum the lbs SO₂/hour values over the previous 720 hours (30 days) and divide by the sum of the MMBtu/hour over the past 720 hours yielding the average lbs SO₂/MMBtu for each hour for each 30-day period. By doing the calculations in this manner, any hours showing zero emissions would not be counted. This calculation is consistent with the data requirements for 30-day averaging in the Mercury and Air Toxics Standard (MATS) rule. It should be noted that there are no values computed for the first 30 days in the overall data set since 30 days had not yet accumulated during this period of time.

Step 4: Calculate the 99th percentile values

The 99th percentile was determined for the 1-hour lb SO₂/MMBtu values compiled in step 2 over the five-year period. The result was 0.233 lbs SO₂/MMBtu. Similarly the 99th percentile of the 30-day rolling averages was determined from the calculations performed in Step 3. The result was 0.185 lbs SO₂/MMBtu

Step 5: Compute the ratio of 99th percentile 30-day and 1-hour values

This step merely involved dividing the 99th percentile values for the 30-day rolling data and 1-hour data developed in Step 4. The result was 79.7%

Step 6: Determine the 30-day rolling average limit.

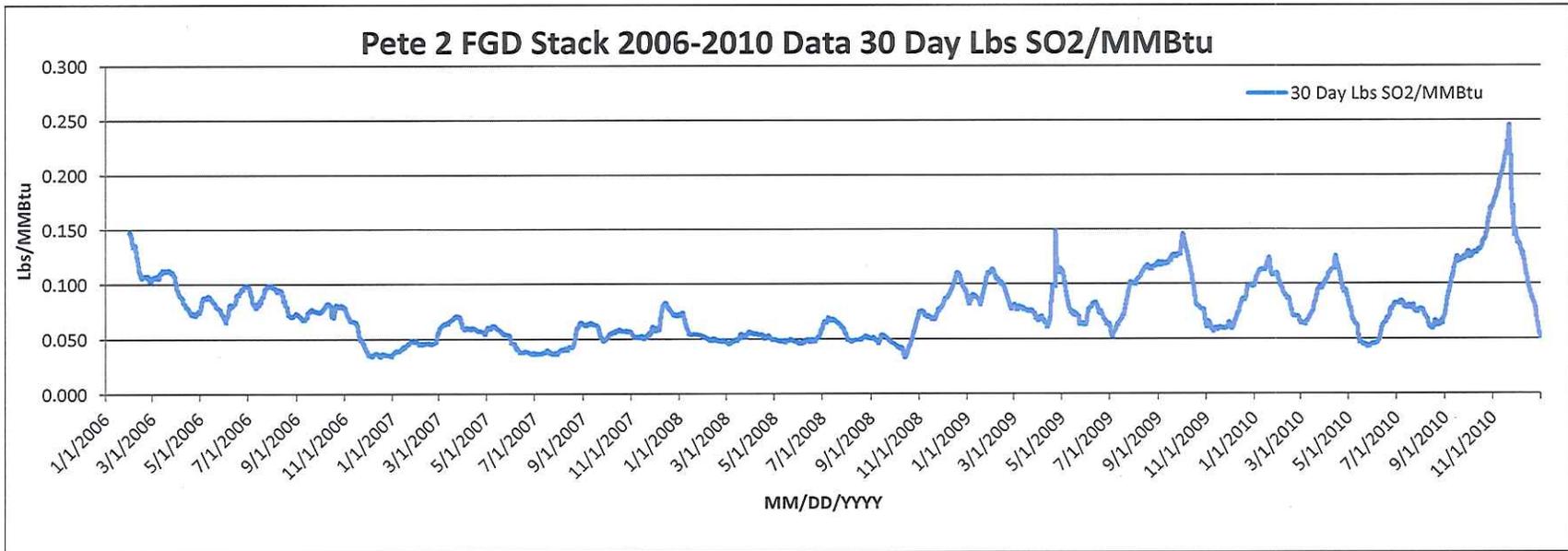
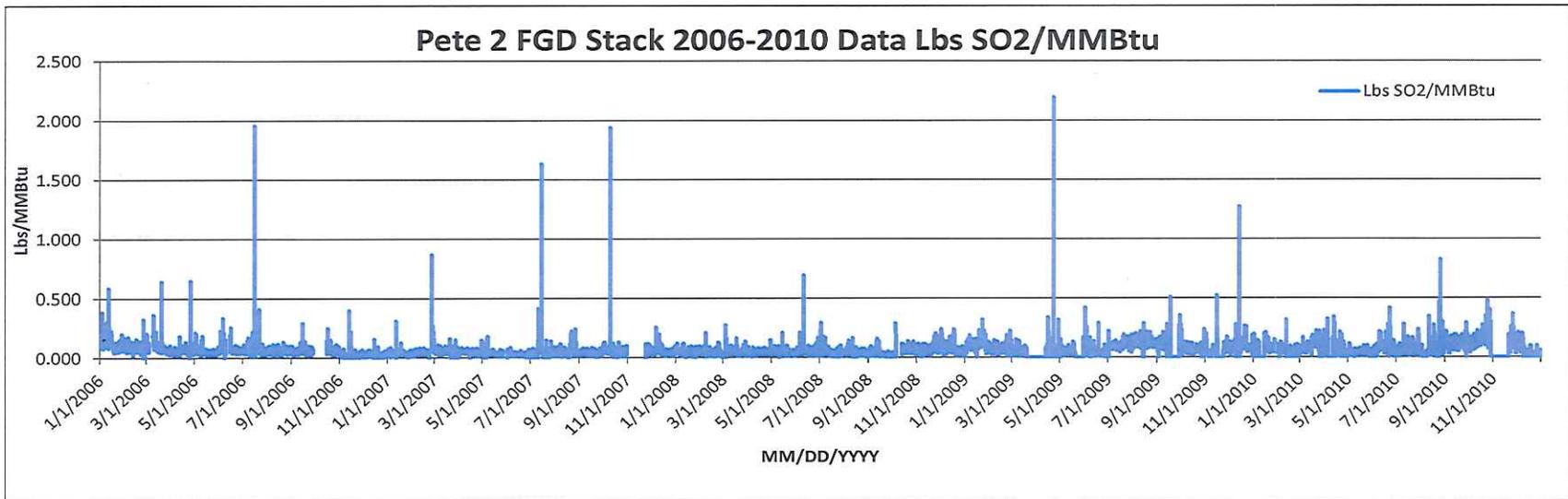
This step merely involved multiplying the modeled values, determined in Step 1, by the ratio determined in Step 5. The proposed 30-day rolling average limits for the four units are as follows:

Pete 1: $0.15 \text{ lbs/MMBtu} \times 79.7\% = 0.12 \text{ lbs SO}_2\text{/MMBtu}$

Pete 2: $0.15 \text{ lbs/MMBtu} \times 79.7\% = 0.12 \text{ lbs SO}_2\text{/MMBtu}$

Pete 3: $0.37 \text{ lbs/MMBtu} \times 79.7\% = 0.29 \text{ lbs SO}_2\text{/MMBtu}$

Pete 4: $0.35 \text{ lbs/MMBtu} \times 79.7\% = 0.28 \text{ lbs SO}_2\text{/MMBtu}$



Pete 2 FGD Stack 2006-2010 Data Lbs SO₂/MMBtu vs. Percentile

