**Engineering Evaluation**
**Mirant Potrero, LLC**
**Plant No. 26**
**Application No. 8260**
**Regulation 2, Rule 9**
**Alternative Compliance Plan**

## BACKGROUND

This application is for an Alternative Compliance Plan (ACP), which would allow Mirant Potrero to utilize existing Interchangeable Emission Reduction Credits (IERCs) to demonstrate compliance with the new, more stringent, NOx limits, for source S-1, Boiler 3-1, at the Mirant Potrero facility.

Mirant currently owns and operates three power plants in the District. These facilities are Plant No. 12 (Pittsburg), Plant No. 18 (Contra Costa), and Plant No. 26 (Potrero). These three power plants are subject to Regulation 9, Rule 11, which limits nitrogen oxide (NOx) emissions from utility power generating facilities. At these three facilities, there are ten sources subject to Reg. 9-11. These sources comply with Reg. 9-11 using an Advanced Technology Alternative Emission Control Plan (ATAECP "system-wide emissions bubble"), per Section 9-11-309. Under the ATAECP, the individual boilers are not required to comply with a specific emission limit, but rather a system-wide average. The current system-wide average $NO_x$ limit is 0.057 lb/MMBtu for 2003. Future limits will be ratcheted down over the years to 0.037 in 2004 and to the final limit of 0.018 lb/MMBtu in 2005 and thereafter. These emission rate limits are on a clock-hour basis.

The IERCs that will be used for this ACP were approved under application number 6473. These IERCs were generated from source S-1, Boiler 3-1, at Mirant Potrero, for the following three credit generation periods: Apr. 1 through Dec. 31, 2000; Jan. 1 through Dec. 31, 2001; and Jan. 1 through Sep. 30, 2002. These IERCs were generated because S-1 operated with emissions below the applicable system-wide NOx emission limit in Reg. 9-11 during each of the credit generation periods.

## MIRANT'S ALTERNATIVE COMPLIANCE PLAN CONCEPT

Mirant has requested this ACP to use IERCs toward compliance with Reg. 9-11 for only source S-1 at the Potrero facility. This ACP will restrict the use of IERCs to only S-1 at Potrero. IERCs cannot be used to balance excess emissions from any other source under the Reg. 9-11 ATAECP.

Under the ATAECP, Mirant monitors the NOx concentration and calculates NOx emissions on an hourly basis for all ten sources that are included in the ATAECP. Mirant also records fuel usage and calculates the total heat input to all ten sources (million BTUs). By dividing the hourly NOx emissions (lbs) by the hourly heat input (MM BTU), Mirant calculates the hourly average emission rate (lb NOx/MM BTU) for all ten sources. If this emission rate is less than or equal to the Reg. 9-11 limit, then all ten sources under the ATAECP are in compliance for that hour. If this emission rate is greater than the Reg. 9-11 limit, the sources are in violation.

Mirant requests to use IERCs when both the system-wide average emission rate exceeds the Reg. 9-11 limit of 0.037 lb/MMBTU, AND the emission rate at S-1 at Potrero exceeds the same system-wide limit. IERCs may not be used under this plan to offset excess emissions at other facilities. If emissions from S-1 (Potrero) are less than or equal to the Reg. 9-11 limit, then no

IERCs can be used for that hour, even if the system-wide average exceeds the Reg. 9-11 limit. In this case, the system-wide average may still be non-complying, even after the use of IERCs.

The following table describes the three general emission scenarios, and indicates whether or not IERCs can be used in each situation.

**Table 1 – System-Wide Average NOx Emission Rates and IERC Use**

| Scenario | Can IERCs be used? |
|---|---|
| Hourly average NOx emission rate for all ten sources in ATAECP is *less* than or equal to Reg. 9-11 limit. The hourly NOx emission rate from S-1 (Potrero) may or may not be less than the Reg. 9-11 limit. | ***IERCs are not necessary***, because all sources comply directly with Reg. 9-11 system-wide average under the existing ATAECP |
| Hourly average NOx emission rate for all ten sources in ATAECP is *greater* than Reg. 9-11 limit (non-complying); AND hourly NOx emission rate from S-1 (Potrero) is less than or equal to Reg. 9-11 limit | ***IERCs cannot be used***, because the emission rate for S-1 (Potrero) alone does not exceed the Reg. 9-11 limit. Therefore, S-1 (Potrero) is not contributing to the overall system-wide exceedence of Reg. 9-11. |
| Hourly average NOx emission rate for all ten sources in ATAECP is *greater* than Reg. 9-11 limit (non-complying); AND hourly NOx emission rate from S-1 (Potrero) is greater than Reg. 9-11 limit | ***IERCs can be used*** toward compliance with Reg. 9-11. The amount of IERCs is limited to the amount of excess emissions from S-1 (Potrero) relative to the Reg. 9-11 limit. (Note: If sources other than S-1 also have emissions greater than the Reg. 9-11 limit, the IERCs used for S-1 may not be sufficient to reduce the system-wide average to a complying level) |

## AVAILABLE IERCS

Mirant Potrero has generated and banked IERCs from S-1. Under Application Number 6473, the District approved and issued the IERC Banking Certificates listed in Table 2.

**Table 2 – Available IERCs for Mirant Potrero**

| Certificate No. | Amount (Tons of NOx) | Expiration Date |
|---|---|---|
| 6E | 70.91 | 12/31/05 |
| 6F | 94.21 | 12/31/06 |
| 6G | 34.32 | 9/30/07 |

The issuance of the above IERCs is currently under appeal by several community and environmental groups. In the absence of a District Hearing Board order that grants the appeal, the IERCs are valid.

## ALTERNATIVE COMPLIANCE PLAN

Under the Alternative Compliance Plan (ACP), Mirant will use IERCs from one or more of the Banking Certificates above to compensate for excess emissions from S-1 at the Potrero facility. S-1 at Potrero is also part of an ATAECP for compliance with Reg. 9-11, along with 9 other sources at different facilities. Regulation 9-11-309 limits the system-wide average NOx emission

rate from these 10 sources on an hourly basis. Therefore, the ACP must also show hourly compliance. On an hourly basis, Mirant shall perform the following calculations:

***Actual emissions for a source with a CEM***

For S-1 at Mirant Potrero, and for each of the other nine sources under the ATAECP, perform the following:

1. Measure the hourly average NOx ppm concentration ($C_{NOX}$) using continuous emission monitors (CEMs).

2. Measure either the hourly average percent oxygen ($\%O_2$) or percent carbon dioxide ($\%CO_2$) using CEMs;

3. Calculate the emission rate using the appropriate formula in 40CFR75, Appendix F. Example:
   - $E= 1.194 \times 10^{-7} \times C_{NOX} \times 8710 \times [ (20.9) / (20.9 - \%O2)]$ lb/MMBTU
   - $E = 1.194 \times 10^{-7} \times C_{NOX} \times 1040 \times 100/\%CO_2$ lb/MMBTU

4. Measure hourly fuel usage, and convert to heat (H) in MMBtu.

5. Multiply the heat (H) times the emission rate (E) to obtain the emissions (EM) in lbs.

***Total Emissions and System-wide Emission Rate***

6. Sum all emissions from individual sources (calculated in step 5), using the following equation, where subscripts 1 through 10 represent individual sources under the ATAECP (In this and subsequent calculations, source S-1 at Potrero will be designated with a subscript 1, and the remaining 9 sources under the ATAECP will be designated with subscripts 2 through 10). :

$$EM_{total} = EM_1 + EM_2 + \ldots + EM_{10} \text{ (pounds)}$$

7. Sum all heat release from individual heat release from all sources (calculated in step 4):

$$H_{total} = H_1 + H_2 + \ldots + H_{10} \text{ (MMBTU)}$$

8. Divide total emissions by total heat release to obtain system-wide emission rate

$$E_{system} = EM_{total} / H_{total} \text{ (lb/MMBTU)}$$

***Is System-wide Average in Compliance?***

9. For any given hour, if $E_{system}$ is less than or equal to the system-wide emission rate limit in Reg. 9-11-309, the entire system is in compliance, and no IERCs are needed. On the other hand, if $E_{system}$ is greater than the system-wide emission rate limit in Reg. 9-11-309, then IERCs will be needed to comply with Reg. 9-11. determine which of the following statements is true.

   9a. $E_{system} \leq 0.037$ lb/MMBTU (for 2004, or 0.018 lb/MMBTU for 2005 and beyond); OR

   9b. $E_{system} > 0.037$ lb/MMBTU (for 2004, or 0.018 lb/MMBTU for 2005 and beyond)

***If 9a. is true***, then all sources comply with Reg. 9-11-309 and ***NO IERCs ARE NEEDED***. Stop here.

***If 9b. is true***, then ***proceed with step 10*** to determine the amount of excess emissions from the entire system.

10. Calculate allowable emissions ($EM_{allow}$) by multiplying the total heat input ($H_{total}$ from Step 7) by the Reg. 9-11-309 limit. Subtract the allowable emissions from total emissions ($EM_{total}$ from Step 6) to obtain the excess emissions form the entire system ($EM_{system\text{-}excess}$).

$$EM_{system\text{-}excess} = EM_{total} - EM_{allow} \text{ (pounds)}$$

***May IERCs be Used?***

11. For source S-1 at the Potrero facility, compare the emission rate ($E_1$, that was determined in step 3 above) with the limit in Reg. 9-11-309. Determine which of the following statements is true.

    11a. $E_1 \leq 0.037$ lb/MMBTU (for 2004, or 0.018 lb/MMBTU for 2005 and beyond); OR

    11b. $E_1 > 0.037$ lb/MMBTU (for 2004, or 0.018 lb/MMBTU for 2005 and beyond)

***If 11a. is true***, then source S-1 (Potrero) does not, by itself, exceed the Reg. 9-11 limit, and therefore, does not contribute to the system-wide average exceeding the Reg. 9-11 limit. In this case, ***NO IERCs CAN BE USED***. The system-wide average emission rate exceeds the Reg. 9-11 limit, and the ***SOURCES ARE IN VIOLATION***. Stop here.

***If 11b. is true***, then S-1 at Potrero contributes to the system-wide average exceeding the Reg. 9-11 limit. ***IERCs may be used*** towards compliance. ***Proceed with steps 12 through 16*** to determine the amount of IERCs that may be used toward compliance for that hour.

***Determine Amount of IERCs***

12. The *maximum* amount of IERCs that *may* be used is equal to the amount of excess emissions ($EM_{1\text{-}Excess}$) from S-1 at Potrero. To calculate excess emissions from S-1, multiply the heat release from S-1 ($H_1$ from Step 4) by the difference between the actual emission rate for S-1 ($E_1$ from Step 3) and the Reg. 9-11 limit.

$$EM_{1\text{-}Excess} = H_1 \times (E_1 - 0.037^*) \text{ (pounds)}$$

(* Note: Use 0.037 for 2004, and 0.018 starting 1/1/05)

13. If the system-wide excess is not as large as the excess from S-1 (because one or more of the other 9 sources operated below the system-wide emission rate limit), it is not necessary to use the maximum possible amount of IERCs ($EM_{1\text{-}Excess}$). Rather, only use the amount necessary to achieve compliance ($EM_{system\text{-}excess}$).

    If the system-wide excess is greater than the excess from S-1, the amount of IERCs is limited to the excess from S-1. In this case, there are not sufficient IERCs to achieve compliance.

    In either case, the amount of IERCs that can be used towards compliance in any given hour is the lesser of either $EM_{1\text{-}Excess}$ or $EM_{system\text{-}excess}$.

$$\text{IERCs} = \text{lesser of } EM_{1\text{-}Excess} \text{ or } EM_{system\text{-}excess}$$

14. Determine the IERC-adjusted system-wide emission rate ($E_{system\text{-}adjusted}$) by subtracting the IERCs from the total system emissions ($EM_{total}$ from Step 6), then dividing by the total heat release ($H_{total}$ from Step 7).

$$E_{system\text{-}adjusted} = (EM_{total} - \text{IERCs}) / H_{total} \text{ (lb/MMBTU)}$$

15. Compare the IERC-adjusted system-wide emission rate ($E_{system\text{-}adjusted}$) with the limit in Reg. 9-11-309.

$$\text{If } E_{system\text{-}adjusted} \text{ is} \leq \text{Reg. 9-11-309 limit (COMPLIANCE)}$$

If $E_{system\text{-}adjusted}$ is > Reg. 9-11-309 limit (VIOLATION)

**Include Environmental Benefit Surcharge**

16. The amount of IERCs calculated in Step 13 is just the amount of IERCs needed for compliance with Reg. 9-11. In addition, Reg. 2-9-306 requires a 10% Environmental Benefit Surcharge on the use of IERCs. In other words, a facility must surrender 10% more IERCs than needed for compliance with Reg. 9-11. Therefore, the total amount of IERCs needed in any hour ($IERC_{+10\%}$) is:

$$IERC_{+10\%} = IERCs \times 1.1 \text{ (pounds)}$$

## STATEMENT OF COMPLIANCE

An Alternative Compliance Plan must satisfy the requirements of Regulation 2, Rule 9-303 in order to comply with a NOx rule in Regulation 9-11. Mirant's ACP complies with Regulation 2-9, Section 303 as indicated below.

***303.1 Only IERCs that have been generated, approved, and banked in accordance with this rule may be used in an ACP.***

The IERCs that will be used under this ACP will include only those generated, approved and banked in accordance with the provisions of Reg. 2-9. Mirant currently possesses 199.44 tons of NOx IERCs, which were issued under application number 6473.

***303.2 NOx emissions from each source or group of sources (if grouping is allowed under the applicable emission standard) in the ACP, less IERCs applied, shall not exceed that amount or level of NOx emissions, which would result if the affected source or sources complied with the applicable BARCT requirements of Regulation 9 on a daily basis.***

The ACP will track actual and allowable emissions on an hourly basis. If actual emissions exceed allowable, Mirant will be required to provide IERCs for the difference, plus an environmental benefit surcharge of 10%. Because the amount of IERCs that may be used in any hour is limited to the amount of excess emissions from S-1 at Potrero, Mirant would not be able to comply with Reg. 9-11-309 if the system-wide excess emissions are greater than the excess emissions from S-1 at Potrero. In this event, Mirant would be in violation of Reg. 9-11.

***303.3 The ACP must be reviewed and approved by the APCO on an annual basis.***

The initial review of this ACP is being conducted under this application. The ACP will be reviewed annually hereafter.

***303.4 The ACP must include methods for demonstrating compliance on a daily basis, by listing:***

***4.1 All sources covered by the ACP;***

This ACP covers S-1 at the Mirant Potrero facility. Note that S-1 at Potrero is also part of an ATAECP along with nine other sources at different Mirant facilities. However, IERCs may only be used to "offset" excess emissions from S-1 at Potrero. Therefore, this ACP is only for S-1 at Potrero (District plant number 26).

***4.2 Maximum firing rate (higher heating value) of each source;***

The proposed ACP includes maximum firing rate (higher heating value) for each source.

***4.3 Type(s) of fuel and heat content (higher heating value) of each fuel combusted in each source;***

The propose ACP includes the type(s) of the fuel and heat content (higher heating value) of each fuel combusted in each source (see below).

| | |
|---|---|
| Source No: | S-1 |
| Boiler No. | 3-1 |
| Max. Firing rate: | 2150 MMBTU/hr |
| Fuel type: | natural gas only |
| Higher Heating Value: | 1040 BTU/CF |

***4.4 NOx emission rate for each type of fuel combusted in each source;***

The NOx emission rate will be determined on an hourly basis using data from the CEMS on Boiler 3-1. The emission rates will be calculated using its NOx Compliance Monitoring System computer.

***4.5 A comparison of the actual nitrogen oxide emission rate and the nitrogen oxide emission rate that would be allowed under the applicable BARCT provision(s) of Regulation 9, in the absence of this rule, for each source, or group of sources (if grouping is allowed under the applicable emission standard),***

The attached Table 3 shows hypothetical exemplar compliance tracking data for Regulation 2-9. Each hour, the actual total mass NOx emissions for the boiler will be listed in the table and compared to the allowable amount under BARCT (0.037 lb/MMBU for 2004). The IERCs required (including the 10% surcharge required by Regulation 2-9-306) for hourly compliance and the running balance of available IERCs are shown in the next columns. This spread sheet will be kept at the power plant and will be available for District inspection.

***4.6 Detailed calculation of the amount of IERCs required for BARCT compliance, in accordance with the procedure in Section 2-9-605;***

Actual hourly NOx mass emissions and fuel throughput are taken from the Continuous Emission Monitoring System. Compliance with Rule 9-11 will be determined based on hourly calculation of the total NOx mass emission rate (lb) of the affected boiler divided by the actual fuel throughput (MMBTU). Allowable hourly mass emissions are determined by multiplying the actual throughput (MMBTU) by the allowable emission (0.037 lb NOx (as $NO_2$)/MMBTU for 2004). For each hour in which actual emissions are not greater than allowable emissions, no IERCs are needed to achieve compliance. For each hour in which the opposite is true, the amount of IERCs needed to comply with Regulation 2-9 and Reg. 9-11 will be determined using the calculation procedure described above.

The daily total IERCs will be determined by summing up the hourly totals. The attached Table 3 illustrates all of the above calculations. Start-up and shutdown allowances all will be treated as provided in Regulation 9-11.

The hourly IERCs will be totaled on a monthly basis. Mirant will submit quarterly status reports regarding the ACP. Following the end of the 1-year ACP period, Mirant will be required to surrender the amount of IERCs needed for compliance within 30 days.

***303.6 Failure to comply with any emission calculation, emission testing, monitoring, record keeping or reporting provision of an approved plan, or failure to surrender***

***sufficient IERC banking certificates within 30 days following the end of the ACP period, shall constitute a violation of the applicable Regulation 9 BARCT Rule(s).***

**Regulation 2, Rule 9, Section 502 Alternative Compliance Plan Record Keeping and Reporting**

***Section 502.1: The information required in subsection 2-9-303.4 shall be available for inspection by the APCO on each production or operation day.***

The owner/operator shall keep information of each operating day on site and make such information be available for inspection by the District inspection staff.

***Section 502.2: The person submitting the ACP shall retain records for five years from the date the record was made and shall submit such information as required by the APCO to determine compliance with the ACP.***

The owner/operator shall keep all records on site for at least 5 years.

***Section 502.3: The ACP shall include [a requirement for] quarterly reports submitted to the APCO, within 30 days following the end of each calendar quarter, or other 3-month interval established in the plan.***

In each quarterly report the owner/operator shall include:
3.1 A summary of the amount of IERCs used during the preceding quarter;
3.2 A running total of all IERCs used during the current ACP period;
3.3 A projection of the amount of IERCs that will be needed for the entire ACP period, based on the IERCs usage rates calculated in Section 502.3.1 and 502.3.2; and
3.4 Certification that the facility possesses IERCs equal to the amount projected in Section 502.3.3 or a description of how the facility will adjust its operation so that the amount of IERCs needed does not exceed the amount of IERCs possessed by the facility.

The owner/operator shall submit these quarterly reports within 30 days following the end of each calendar quarterly and shall include all the above information.

***Section 502.4: Within 30 days following the end of the ACP period, the owner/operator of the facility shall submit an annual reconciliation report summarizing the amount of IERCs used during the preceding 12-mont ACP period, and shall surrender the banking certificate(s) for all IERCs used during the ACP period plus the applicable environmental benefit surcharge.***

The owner/operator shall submit annual reconciliation reports within 30 days of the end of each 12-month ACP period, and banking certificates shall be surrendered as required.

## CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Environmental Quality Act (CEQA) requires environmental review for projects developed or approved by California state, regional, or local government. Mirant has submitted this permit application to the District for approval. This permit application does not qualify under any of the CEQA exemptions contained in Regulation 2-1-311 (ministerial exemption), Regulation 2-1-312 (categorical exemption), or Section 15061 of the State CEQA Guidelines. The District is not aware of any other public agency that will be preparing a Negative Declaration or EIR for this project. Accordingly, the District is the Lead Agency for this project under CEQA.

The District has received from the applicant a completed, signed and dated preliminary environmental study as required by Regulation 2-1-426.1, with information equivalent to that contained in Appendix H of the State CEQA Guidelines. Therefore, the application is deemed complete for CEQA purposes.

The District prepared an Initial Study on this proposed project. The purpose of an Initial Study is to provide the District with information to use as the basis for deciding whether to prepare an EIR or Negative Declaration under CEQA. Based on the Initial Study, the District determined that there is no substantial evidence that the project or any of its aspects may cause a significant effect on the environment. Pursuant to the State CEQA Guidelines Sections 15063 (b)(2) and 15064 (f)(3), the District prepared a Negative Declaration for this project.

The District circulated the CEQA documents for public review as part of the regular 30-day public notice stating the preliminary decision of the APCO. The notice was published on December 19, 2003, and the comment period ended on January 19, 2004. All comments received on the CEQA documents were considered. No changes were made to the evaluation as a result of comments.

## PERMIT CONDITIONS

1. The owner/operator shall operate a continuous emission monitor system (CEMS) to measure the NOx and the $O_2$ concentrations from source S-1, Boiler 3-1 at Potrero Power Plant, and each of the other nine sources operating under the Advanced Technology Alternative Emission Control Plan (ATAECP) or Reg. 9-11.

2. The owner/operator shall calculate the following on an hourly basis, for each of the ten sources operating under the ATAECP:
   a. NOx emissions (lbs)
   b. heat release (million BTU, MMBTU)
   c. emission rate (lb/MMBTU)
   d. total emissions form all sources (lbs)
   e. total heat release from all sources (MMBTU)
   f. system-wide average emission rate (lb/MMBTU)
   g. excess emissions from S-1 Potrero, relative to Reg. 9-11-309 limit (lbs)
   h. total excess emissions from system, relative to Reg. 9-11-309 limit (lbs)
   i. amount of IERCs used for the hour (lbs) to comply with Reg. 9-11
   j. adjusted system-wide emission rate after deducting IERCs (lb/MMBTU)
   k. compliance determination with Reg. 9-11-309
   l. amount of IERCs including 10% Environmental Benefit Surcharge
   m. running total of Remaining IERCs available for use

   The procedures in Reg. 9-11-309.2 shall be used for startup, shutdown, out of service, natural gas curtailment and testing.

3. To show compliance with this ACP and with Rule 9-11, the owner/operator shall keep a spreadsheet of the above calculations, in a District approved format. (Table 3 of the Engineering Evaluation Report AN 6811 in an example of a District approved daily summary spreadsheet format).

4. The owner/operator shall maintain the records of continuous emission monitoring (NOx and $CO_2$) and fuel usage records for all ten sources under the ATAECP for a period of at least five (5) years. Such records must be retained for a minimum of 5 years from date of entry and made available to the APCO upon request. These records must include, but are not limited to:

i. The continuous emission monitoring measurements for NOx in ppmvd and pound per hour, and $CO_2$ in percent.
ii. The type, quantity (Btu/hr), and higher heating valve of fuel burned on an hourly basis.
iii. The results of any performance testing, calibrations checks, zero adjustments, and maintenance of any continuous emission monitors.
iv. The date, time, and duration of any start-up, shutdown, or malfunction in the operation of the unit, emission control equipment, or emission monitoring equipment.

5. The owner/operator shall submit quarterly reports to the APCO, within 30 days following the end of each calendar quarter or other 3-month interval established in the plan. Each quarterly report must include:

i Summary of the amount of IERCs used during the preceding quarter;
ii A running total of all IERCs used during the current ACP period;
iii A projection of the amount of IERCs that are needed for the entire ACP period, based on the IERC usage rates calculated in Section 502.3.1 and 502.3.2; and
iv Certification that the facility possesses IERCs equal to the amount projected in Section 502.3.3 or a description of how the facility will adjust its operation so that the amount of IERCs does not exceed the amount of IERCs possessed by the facility

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6. The owner/operator shall submit an annual reconciliation report to the APCO within 30 days of the end each 12-month ACP period, and surrender the banking certificate(s) for all IERCs used during that ACP period plus the applicable environmental benefit surcharge.

**RECOMMENDATION**

Staff recommends that the APCO approve the Preliminary Decision to approve the Alternative Compliance Plan (ACP) to allow Mirant Potrero to use IERCs to comply with the NOx emissions limits in Regulation 9, Rule 11.

by: _____ Date: February 23, 2004
Greg Stone, Supervising Air Quality Engineer

**Table 3 -- Example Spreadsheet for Daily Compliance with ACP and Reg. 9-11**
**Mirant Potrero (Application Number 8260)**

For this example, S-1 is source S-1 at Mirant Potrero
sources 2 through 10 are the other nine sources under Mirant's ATAECP for Reg. 9-11.
For simplicity, emissions and heat input for S2 through S10 are added in a single column, rather than listed individually

Reg. 9-11-309 limits: 0.037 lb/MMBTU for 2004
0.018 lb/MMBTU for 2005 and beyond

| Date/Time | S1 Nox lbs | S1 Heat MMBTU | S1 Em Rate lb/MMBTU | S2-10 Nox lbs | S2-10 heat MMBTU | Total Nox lbs | Total Heat MM BTU | System Em rate lb/MMBTU | Max Available IERCs lbs | System Excess lbs | IERCs Used lbs | Adjusted System Em Rate lb/MMBTU | Comply w/ Reg 9-11 Yes/No | IERC Used w/ 10% lbs | IERC Balance 398880.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/1/04 0:00 | 60 | 2000 | 0.030 | 450 | 13500 | 510 | 15500 | 0.0329 | | | | | YES | 0.0 | 398880.0 |
| 1/1/04 1:00 | 75 | 1905 | 0.039 | 475 | 14000 | 550 | 15905 | 0.0346 | | | | | YES | 0.0 | 398880.0 |
| 1/1/04 2:00 | 85 | 2109 | 0.040 | 500 | 14210 | 585 | 16319 | 0.0358 | | | | | YES | 0.0 | 398880.0 |
| 1/1/04 3:00 | 80 | 1993 | 0.040 | 450 | 13001 | 530 | 14994 | 0.0353 | | | | | YES | 0.0 | 398880.0 |
| 1/1/04 4:00 | 95 | 1889 | 0.050 | 487 | 14500 | 582 | 16389 | 0.0355 | | | | | YES | 0.0 | 398880.0 |
| 1/1/04 5:00 | 100 | 1955 | 0.051 | 503 | 13850 | 603 | 15805 | **0.0382** | 27.7 | 18.2 | 18.2 | 0.0370 | YES | 20.0 | 398860.0 |
| 1/1/04 6:00 | 85 | 2000 | 0.043 | 521 | 12670 | 606 | 14670 | **0.0413** | 11.0 | 63.2 | 11.0 | **0.0406** | NO | 12.1 | 398847.9 |
| 1/1/04 7:00 | 70 | 1900 | 0.037 | 550 | 13030 | 620 | 14930 | **0.0415** | 0.0 | 67.6 | 0.0 | **0.0415** | NO | 0.0 | 398847.9 |
| 1/1/04 8:00 | 66 | 1850 | 0.036 | 501 | 14010 | 567 | 15860 | 0.0358 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 9:00 | 63 | 1800 | 0.035 | 470 | 13988 | 533 | 15788 | 0.0338 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 10:00 | 65 | 1750 | 0.037 | 430 | 13100 | 495 | 14850 | 0.0333 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 11:00 | 69 | 1770 | 0.039 | 449 | 13660 | 518 | 15430 | 0.0336 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 12:00 | 72 | 1850 | 0.039 | 489 | 14400 | 561 | 16250 | 0.0345 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 13:00 | 68 | 1944 | 0.035 | 520 | 15550 | 588 | 17494 | 0.0336 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 14:00 | 65 | 1993 | 0.033 | 550 | 16770 | 615 | 18763 | 0.0328 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 15:00 | 63 | 2080 | 0.030 | 40 | 15110 | 103 | 17190 | 0.0060 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 16:00 | 62 | 2033 | 0.030 | 534 | 14797 | 596 | 16830 | 0.0354 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 17:00 | 59 | 2100 | 0.028 | 530 | 14190 | 589 | 16290 | 0.0362 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 18:00 | 68 | 1992 | 0.034 | 500 | 13850 | 568 | 15842 | 0.0359 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 19:00 | 66 | 1945 | 0.034 | 490 | 13400 | 556 | 15345 | 0.0362 | | | | | YES | 0.0 | 398847.9 |
| 1/1/04 20:00 | 69 | 1897 | 0.036 | 500 | 13000 | 569 | 14897 | **0.0382** | 0.0 | 17.8 | 0.0 | **0.0382** | NO | 0.0 | 398847.9 |
| 1/1/04 21:00 | 80 | 1935 | 0.041 | 480 | 12600 | 560 | 14535 | **0.0385** | 8.4 | 22.2 | 8.4 | **0.0379** | NO | 9.2 | 398838.6 |
| 1/1/04 22:00 | 90 | 1987 | 0.045 | 460 | 12500 | 550 | 14487 | **0.0380** | 16.5 | 14.0 | 14.0 | 0.0370 | YES | 15.4 | 398823.2 |
| 1/1/04 23:00 | 68 | 2079 | 0.033 | 460 | 12400 | 528 | 14479 | 0.0365 | | | | | YES | 0.0 | 398823.2 |