

## TECHNICAL RESPONSE MEMORANDUM

TO: Robert P. Haynes, Hearing Officer

THROUGH: Marjorie A. Crofts, Division Director *MAC 9.24.09*  
Ali Mirzakhali, P.E. Program Administrator *AM 9.19.09*  
Paul E. Foster, P.E., Program Manager II *PF*  
Joanna L. French, P.E., Managing Engineer *JLF*

FROM: Thomas I. Lilly, P.E., Engineer IV *TIL*

SUBJECT: Indian River Power, LLC, Indian River Generating Station  
Report on Public Hearing Held August 12, 2009  
**Construction Permit Applications for APC-81/0660, 82/0149, 2009/0105,  
2009/0106, and 2009/0107**

DATE: September 17, 2009

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Provided are the Air Quality Management Section's (AQMS) responses to the comments made at the public hearing held on ~~July 15, 2008~~ *August 12, 2009 JLF* regarding the Indian River Power, LLC, Indian River Generating Station located at Power Plant Road, P. O. Box 408, Millsboro, Delaware.

Other than the comments supportive of approval of the applications, there were two comments made at the Public Hearing on August 12, 2009 that require clarification/response by the Department. These comments are:

- In the permit applications, the Company calculated the potential to emit for nitrogen oxides (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) for Generating Unit No. 4 that are higher than the annual limits stated in Regulation No. 1146. The correct annual limits for NO<sub>x</sub> and SO<sub>2</sub> need to be included in the construction permits.
- There is no ambient air monitoring station in the vicinity. Ambient air monitoring should be performed to ascertain improvements to air quality associated with the project.

Regulation No. 1146 sets annual emissions limits for NO<sub>x</sub> and SO<sub>2</sub> on an individual unit basis for all units affected by the regulation. The annual limits for Unit 4 are 2,032 tons of NO<sub>x</sub> as stated in Table 4-1 and 3,657 tons of SO<sub>2</sub> as stated in Table 5-1. The construction permit application for Unit 4 identifies the potential to emit (maximum possible emissions) as 2,230 tons of NO<sub>x</sub> and 4,460 tons of SO<sub>2</sub>. The annual limits from Regulation No. 1146 for Unit 4 of 2,032 tons of NO<sub>x</sub> and 3,657 tons of SO<sub>2</sub> have been included in the draft construction permit associated with Unit 4 (APC-82/0149).

A copy of Regulation No. 1146 is attached which sets the annual emissions limits for NO<sub>x</sub> and SO<sub>2</sub> on an individual unit basis.

There is no ambient air monitoring station in the vicinity. At the Public Hearing, the Company indicated that it is working with the Department to voluntarily perform ambient monitoring of particulate matter to help address public concerns over this matter. The Company estimated that the construction associated with the permits would result in a reduction of NO<sub>x</sub> by 70% and a reduction of SO<sub>2</sub> by 85 to 90%. The Company estimated that construction on these permits could be completed by December of 2011.

Ambient air monitoring does not have a direct tie-in to the construction permits under consideration. Evaluation and consideration of an ambient monitoring station to generate reliable information, by AQMS, as the Company has proposed prior to issuance of the construction permits could result in significant delay at attaining the previously stated emissions reductions. Therefore, AQMS does not believe that the construction permits should be linked to an ambient monitoring station.

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AQMS will continue working with the Company, as a separate issue, to perform ambient monitoring of particulate matter in the vicinity of the Indian River Generating Station.

The draft construction permits are attached.

AQMS has performed dispersion modeling using the EPA model SCREEN 3 and the downwind concentration of NO<sub>x</sub>, SO<sub>2</sub>, and PM after construction is complete will be less than applicable Ambient Air Quality Standards. The proposed reductions in air contaminants will have a positive impact on public health and the environment.

**Recommendation**

AQMS recommends that the draft permits be approved for issuance.

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pc: Dover File

September --, 2009

**Permit: APC-2009/0106-CONSTRUCTION Five (5) Lime Storage Silos with Baghouses  
APC-2009/0107-CONSTRUCTION One (1) Byproduct Storage Silo with a Baghouse**

Indian River Power LLC  
Indian River Generating Station  
P.O. Box 408  
Millsboro, Delaware 19966

ATTENTION: Mr. John Robertson  
Plant Manager

Dear Mr. Robertson:

Pursuant to 7 **DE Admin. Code** 1102, Section 2, approval of the Department of Natural Resources and Environmental Control (the Department) is hereby granted for the construction of five (5) storage silos (nominally 63000, 2800, 2800, 7900, and 7900 cubic feet) with baghouses and one (1) nominal 120,000 cubic foot CDS byproduct storage silo with a baghouse, located at the Indian River Generating Station in Millsboro, Delaware, in accordance with the application submitted on Form Nos. AQM-1, 2, 3.7, 4.6, and 5.0, dated April 15, 2009, signed by John Robertson, Plant Manager and the letter dated May 18, 2009, signed by David Bacher, Regional Manager, NRG Energy, Inc.

This permit is issued subject to the following conditions:

**1. General Provisions**

- 1.1 This permit expires on December 31, 2011. If the equipment covered by this permit will not be constructed by December 31, 2011, a request to extend this construction permit must be submitted by November 16, 2011.
- 1.2 The project shall be constructed in accordance with the application described above. If any changes are necessary, revised plans must be submitted and supplemental approval issued prior to actual construction.
- 1.3 Representatives of the Department may, at any reasonable time, inspect this facility.
- 1.4 This permit may not be transferred to another location or to another piece of equipment or process.
- 1.5 This permit may not be transferred to another person, owner, or operator unless the transfer has been approved in advance by the Department. Approval (or disapproval) of the permit transfer will be provided by the Department in writing. A request for a permit transfer shall be received by the Department at least thirty (30) days before the date of the requested permit transfer. This request shall include:

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- 1.5.1 Signed letters from each person stating the permit transfer is agreeable to each person.
- 1.5.2 An Applicant Background Information Questionnaire pursuant to 7 Del. C., Chapter 79 if the person receiving the permit has not been issued any permits by the Department in the previous five (5) years.
- 1.6 The applicant shall, upon completion of the construction, installation, or alteration, request in writing that the Department grant approval to operate.
  - 1.6.1 A separate application to operate pursuant to **7 DE Admin. Code** 1102 does not need to be submitted to the Department for the equipment or process covered by this construction permit. Upon a satisfactory demonstration by an on-site inspection that the equipment or process complies with all of the terms and conditions of this permit, the Department shall issue a **7 DE Admin. Code** 1102 Operating Permit for this equipment or process.
  - 1.6.2 The provisions of **7 DE Admin. Code** 1102 Sections 2.1 and 11.3 shall not apply to the operation of equipment or processes for the purposes of initially demonstrating satisfactory performance to the Department following construction, installation, modification, or alteration of the equipment or processes. The applicant shall notify the Department sufficiently in advance of the demonstration and shall obtain the Department's prior concurrence of the operating factors, time period, and other pertinent details relating to the demonstration.
- 1.7 The owner or operator shall submit a complete application for a significant permit modification to AQM-005/00001 pursuant to **7 DE Admin. Code** 1130 Section 7(e)(3): within twelve (12) calendar months of requesting permission to operate. The application shall address all applicable requirements including those of 40 CFR Part 64 (Compliance Assurance Monitoring) if applicable.
- 1.8 The owner or operator shall not initiate construction, install, or alter any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department pursuant to **7 DE Admin. Code** 1102, and, when applicable **7 DE Admin. Code** 1125, and receiving approval of such application from the Department; except as exempted in **7 DE Admin. Code** 1102 Section 2.2.

**2. Emission Limitations**

- 2.1 Air contaminant emission levels shall not exceed those specified in the State of Delaware "**Regulations Governing the Control of Air Pollution**" and the following:
  - 2.1.1 PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions

Total PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions shall not exceed 4.62 tons per twelve (12) month rolling period. This limit shall be verified based on stack testing results as feasible.

    - 2.1.1.1 PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the 63,000 cubic foot lime silo with a baghouse shall not exceed 0.32 tons per twelve (12) month rolling period.
    - 2.1.1.2 PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the two (2) 2,800 cubic foot and two (2) 7,900 cubic foot lime silos with baghouses shall not exceed 1.1 tons per twelve (12) month rolling period.
    - 2.1.1.3 PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the CDS byproduct storage silo with a baghouse shall not exceed 3.2 tons per twelve (12) month rolling period.

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**2.1.2 Particulate Emissions**

Particulate emission levels shall not exceed 0.2 grain per dry standard cubic foot of exhaust air from all of the process equipment in the Facility.

2.2 No person shall cause or allow the emission of visible air contaminants and/or smoke from a stationary or mobile source, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour period, or more than fifteen (15) minutes in any twenty-four (24) hour period.

2.3 Odors from this source shall not be detectable beyond the plant property line in sufficient quantities such as to cause a condition of air pollution.

**3. Operational Limitations**

3.1 The owner or operator shall comply with the following operational limits:

3.1.1 The maximum silo loading rates shall not exceed the following:

3.1.1.1 100 tons per hour each for the 63,000 cubic foot lime storage silo and the 120,000 cubic foot CDS byproduct storage silo.

3.1.1.2 35 tons per hour each for the two (2) 2,800 cubic foot and two (2) 7,900 cubic foot lime storage silos.

3.1.2 The rolling twelve (12) month period usages shall not exceed the following:

3.1.2.1 250,000 tons for the 63,000 cubic foot lime storage silo.

3.1.2.2 250,000 total tons for the two (2) 2,800 cubic foot and two (2) 7,900 cubic foot lime storage silos.

3.1.2.3 438,000 tons for the 120,000 cubic foot CDS byproduct storage silo.

3.1.3 The pressure drop across each baghouse shall be within the appropriate operating range as recommended by the manufacturer that represents best engineering practices.

3.2 At all times, including periods of start-up, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

3.3 All structural and mechanical components of the equipment or process covered by this permit shall be maintained in proper operating condition.

**4. Testing and Monitoring Requirements**

4.1 Within ninety (90) days after achieving the maximum production rate at which the facility will be operated, but not later than 180 days after initial startup of such facility, the owner or operator shall conduct performance test(s) and furnish the Department with a written report of the results of such performance test(s) in accordance with the following general provisions:

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- 4.1.1 One (1) original and two (2) copies of the test protocol shall be submitted a minimum of forty-five (45) days in advance of the tentative test date to the address in Condition 6.3. The tests shall be conducted in accordance with the State of Delaware and Federal requirements.
- 4.1.2 The test protocol shall be approved by the Department prior to initiating any testing. Upon approval of the test protocol, the Company shall schedule the compliance demonstration with the Air Surveillance and Engineering & Compliance Branches. The Department must observe the test for the results to be considered for acceptance.
- 4.1.3 The final results of the testing shall be submitted to the Department within sixty (60) days of the test completion. One (1) original and two (2) copies of the test report shall be submitted to the addresses below:

Original and One (1) Copy to:  
Engineering & Compliance Branch  
Attn: Engineer/Scientist Name  
156 South State Street  
Dover, DE 19901

One (1) Copy to:  
Air Surveillance Branch  
Attn: Engineer/Observer Name  
715 Grantham Lane  
New Castle, DE 19720

- 4.1.4 The final report of the results must meet the following requirements to be considered valid:
    - 4.1.4.1 The full report shall include the emissions test report (including raw data from the test) as well as a summary of the results and a statement of compliance or non-compliance with permit conditions;
    - 4.1.4.2 Summary of Results and Statement of Compliance or Non-Compliance  
The owner or operator shall supplement the report from the emissions testing firm with a summary of results that includes the following information:
      - 4.1.4.2.1 A statement that the owner or operator has reviewed the report from the emissions testing firm and agrees with the findings.
      - 4.1.4.2.2 Permit number(s) and condition(s) which are the basis for the compliance evaluation.
      - 4.1.4.2.3 Summary of results with respect to each permit condition.
      - 4.1.4.2.4 Statement of compliance or non-compliance with each permit condition.
  - 4.1.5 The results must demonstrate to the Department's satisfaction that the emission unit is operating in compliance with the applicable regulations and conditions of this permit; if the final report of the test results shows non-compliance the owner or operator shall propose corrective action(s). Failure to demonstrate compliance through the test may result in enforcement action.
- 4.2 The owner or operator shall conduct stack testing to determine PM, PM<sub>10</sub> and PM<sub>2.5</sub> emissions while operating (filling) the lime storage silos and byproduct storage silo. The stack test shall be conducted and data reduced in accordance with Reference Methods set forth in Appendix A, 40 CFR Part 60. The emissions obtained from stack testing will be used to establish and replace the emissions limits stated in Condition No. 2.1.1. When the Company provides information that, the Department determines, confirms that particulate testing cannot be performed for each silo while filling the individual silo the testing will not be required for the specific silo(s).

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- 4.3 The Company shall conduct an annual modified Reference Method 9 visible emission test in accordance with Regulation No. 20 Section 1.5(c) on the 63,000 and 120,000 cubic foot storage silos.
- 4.4 The Company shall monitor the following:
  - 4.4.1 The pressure drop across each silo baghouse continuously.
  - 4.4.2 The loading rate of each silo hourly.
  - 4.4.3 Lime usage and byproduct sent to the on-site landfill, daily and monthly.
  - 4.4.4 For the baghouses, the Company shall:
    - 4.4.4.1 Monitor visible emissions once each day and record observations in a daily log. If not normal, the Company must identify and correct the cause(s) of the emissions within 48 hours.
    - 4.4.4.2 For all visible emissions that are not normal, record the cause(s) of the violation and all corrective action(s) in the daily log.
    - 4.4.4.3 Monitor visible emissions and record the results in the daily log immediately following any corrective action(s). If not normal, a modified Reference Method 9 test shall be conducted in accordance with Regulation No. 20 Section 1.5(c). The results shall be recorded in the daily log.
    - 4.4.4.4 Repeat actions required by 4.4.4.2 and 4.4.4.3 above until the excess emissions are eliminated.

**5. Record Keeping Requirements**

- 5.1 The owner or operator shall maintain all records necessary for determining compliance with this permit in a readily accessible location for five (5) years and shall make these records available to the Department upon written or verbal request.
- 5.2 The following information shall be recorded, initialed and maintained in a log:
  - 5.2.1 Monthly and twelve (12) month rolling cumulative processing totals for the lime storage silos and byproduct storage silo.
  - 5.2.2 Continuously, the operation and pressure drop of the storage silo baghouses.
  - 5.2.3 Each month, all maintenance performed on silos and baghouses.
  - 5.2.4 Annual Reference Method 9 visible emission test for the 63,000 and 120,000 cubic foot storage silos. in accordance with Regulation No. 20, Section 1.5(c).
  - 5.2.5 The monitoring of Condition No. 4.4.4.
  - 5.2.5 Compliance with Condition Nos. 2.3, and 3.2 shall be recorded, initialed and maintained in a daily log.
- 5.3 The rolling twelve (12) month total emissions shall be calculated and recorded each month in a log for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>.

**6. Reporting Requirements**

- 6.1 Emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department immediately upon discovery by calling the Environmental Emergency Notification and Complaint number, (800) 662-8802.
- 6.2 In addition to complying with Condition 6.1 of this permit, any reporting required by 7 Del.C §6028 "**Reporting of a Discharge of a Pollutant or an Air Contaminant**", and any other reporting requirements mandated by the State of Delaware, the owner or operator

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shall, for each occurrence of excess emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department in writing with the following information:

- 6.2.1 The name and location of the facility.
- 6.2.2 The subject source(s) that caused the excess emissions.
- 6.2.3 The time and date of the first observation of the excess emissions.
- 6.2.4 The cause and expected duration of the excess emissions.
- 6.2.5 For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions.
- 6.2.6 The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

6.3 One (1) original and one (1) copy of all required reports shall be sent to the address below:

Air Quality Management Section  
Division of Air and Waste Management  
156 South State Street  
Dover, DE 19901

**7. Administrative Conditions**

- 7.1 This permit shall be made available on the premises.
- 7.2 Failure to comply with the provisions of this permit may be grounds for suspension or revocation.

Sincerely,

Paul E. Foster, P.E.  
Program Manager  
Engineering & Compliance Branch

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pc: Dover Title V File  
Joanna L. French  
Thomas I. Lilly

September --, 2009

**Permit: APC-2009/0105-CONSTRUCTION**

Indian River Power LLC  
Indian River Generating Station  
P.O. Box 408  
Millsboro, Delaware 19966

ATTENTION: Mr. John Robertson  
Plant Manager

Dear Mr. Robertson:

Pursuant to 7 DE Admin. Code 1102, Section 2, approval of the Department of Natural Resources and Environmental Control (the Department) is hereby granted for the construction of the 90,000 gallon aqueous ammonia storage system for the Generating Units No. 3, and 4 selective catalytic reduction (SCR) systems, located at the Indian River Generating Station in Millsboro, Delaware, in accordance with the application submitted on Form Nos. AQM-1, 2, 3.1, and 5.0, dated April 15, 2009, signed by John Robertson, Plant Manager.

This permit is issued subject to the following conditions:

**1. General Provisions**

- 1.1 This permit expires on December 31, 2011. If the equipment covered by this permit will not be constructed by December 31, 2011, a request to extend this construction permit must be submitted by November 16, 2011.
- 1.2 The project shall be constructed in accordance with the application described above. If any changes are necessary, revised plans must be submitted and supplemental approval issued prior to actual construction.
- 1.3 Representatives of the Department may, at any reasonable time, inspect this facility.
- 1.4 This permit may not be transferred to another location or to another piece of equipment or process.
- 1.5 This permit may not be transferred to another person, owner, or operator unless the transfer has been approved in advance by the Department. Approval (or disapproval) of the permit transfer will be provided by the Department in writing. A request for a permit transfer shall be received by the Department at least thirty (30) days before the date of the requested permit transfer. This request shall include:
  - 1.5.1 Signed letters from each person stating the permit transfer is agreeable to each person.

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- 1.5.2 An Applicant Background Information Questionnaire pursuant to 7 Del. C., Chapter 79 if the person receiving the permit has not been issued any permits by the Department in the previous five (5) years.
- 1.6 The applicant shall, upon completion of the construction, installation, or alteration, request in writing that the Department grant approval to operate.
  - 1.6.1 A separate application to operate pursuant to 7 **DE Admin. Code** 1102 does not need to be submitted to the Department for the equipment or process covered by this construction permit. Upon a satisfactory demonstration by an on-site inspection that the equipment or process complies with all of the terms and conditions of this permit, the Department shall issue a 7 **DE Admin. Code** 1102 Operating Permit for this equipment or process.
  - 1.6.2 The provisions of 7 **DE Admin. Code** 1102 Sections 2.1 and 11.3 shall not apply to the operation of equipment or processes for the purposes of initially demonstrating satisfactory performance to the Department following construction, installation, modification, or alteration of the equipment or processes. The applicant shall notify the Department sufficiently in advance of the demonstration and shall obtain the Department's prior concurrence of the operating factors, time period, and other pertinent details relating to the demonstration.
- 1.7 The owner or operator shall submit a complete application for a significant permit modification to AQM-005/00001 pursuant to 7 **DE Admin. Code** 1130 Section 7(e)(3): within twelve (12) calendar months of requesting permission to operate. The application shall address all applicable requirements including those of 40 CFR Part 64 (Compliance Assurance Monitoring) if applicable.
- 1.8 The owner or operator shall not initiate construction, install, or alter any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department pursuant to 7 **DE Admin. Code** 1102, and, when applicable 7 **DE Admin. Code** 1102, and receiving approval of such application from the Department; except as exempted in 7 **DE Admin. Code** 1102 Section 2.2.

**2. Emission Limitations**

- 2.1 Air contaminant emission levels shall not exceed those specified in 7 **DE Admin. Code** 1100 and the following:
  - 2.1.1 Ammonia (NH<sub>3</sub>) Emissions  
Ammonia emissions shall not exceed 0.1 tons per twelve (12) month rolling period.
- 2.2 No person shall cause or allow the emission of visible air contaminants and/or smoke from a stationary or mobile source, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour period, or more than fifteen (15) minutes in any twenty-four (24) hour period.
- 2.3 Odors from this source shall not be detectable beyond the plant property line in sufficient quantities such as to cause a condition of air pollution.

**3. Operational Limitations**

- 3.1 The owner or operator shall comply with the following operational limits:
  - 3.1.1 The maximum ammonia usage shall not exceed 3,700,000 gallons per twelve (12) month rolling period.

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3.1.2 The storage tank shall be operated with functional relief valve.

3.1.3 A vapor balance system shall be used during all tank filling operations.

3.2 At all times, including periods of start-up, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

3.3 All structural and mechanical components of the equipment or process covered by this permit shall be maintained in proper operating condition.

**4. Testing and Monitoring Requirements**

4.1 The Department reserves the right to require that the owner or operator perform emission tests using methods approved in advance by the Department.

4.2 The owner or operator shall monitor the following:

4.2.1 The type of liquid stored.

4.2.2 The vapor pressure of the liquid stored.

4.2.3 For each relief valve:

4.2.3.1 An annual physical inspection and cleaning and repair or replacement as warranted by the inspection.

4.2.3.2 Within seven (7) months of each annual inspection perform a visible, audible, and olfactory inspection.

4.2.4 For each storage tank filling operation, perform a visible, audible, and olfactory inspection of the vapor recovery system. Any leaks discovered shall be repaired immediately.

**5. Record Keeping Requirements**

5.1 The owner or operator shall maintain all records necessary for determining compliance with this permit in a readily accessible location for five (5) years and shall make these records available to the Department upon written or verbal request.

5.2 The following information shall be recorded, initialed and maintained in a log form:

5.2.1 The monitoring of Condition 4.2.

5.2.2 The dimensions of the storage vessel(s) and an analysis showing the capacity of the storage system.

5.2.3 Records of leaks discovered and repaired.

5.2.4 The ammonia usage and emissions monthly and for each twelve (12) month rolling period.

**6. Reporting Requirements**

6.1 Emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department immediately upon discovery by calling the Environmental Emergency Notification and Complaint number, (800) 662-8802.

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6.2 In addition to complying with Condition 6.1 of this permit, any reporting required by 7 Del C §6028 "**Reporting of a Discharge of a Pollutant or an Air Contaminant**", and any other reporting requirements mandated by the State of Delaware, the owner or operator shall, for each occurrence of excess emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department in writing with the following information:

6.2.1 The name and location of the facility.

6.2.2 The subject source(s) that caused the excess emissions.

6.2.3 The time and date of the first observation of the excess emissions.

6.2.4 The cause and expected duration of the excess emissions.

6.2.5 For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions.

6.2.6 The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

6.3 One (1) original and one (1) copy of all required reports shall be sent to the address below:

Air Quality Management Section  
Division of Air and Waste Management  
156 South State Street  
Dover, DE 19901

**7. Administrative Conditions**

7.1 This permit shall be made available on the premises.

7.2 Failure to comply with the provisions of this permit may be grounds for suspension or revocation.

Sincerely,

Paul E. Foster, P.E.  
Program Manager  
Engineering & Compliance Branch

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pc: Dover Title V File  
Joanna L. French  
Thomas I. Lilly

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**Permit: APC-81/0660-CONSTRUCTION-Amendment 8 Unit 3**  
**Permit: APC-82/0149-CONSTRUCTION-Amendment 7 Unit 4**

Indian River Power LLC  
Indian River Generating Station  
P.O. Box 408  
Millsboro, Delaware 19966

ATTENTION: Mr. John Robertson  
Plant Manager

Dear Mr. Robertson:

Pursuant to 7 **DE Admin. Code** 1102, Section 2, approval of the Department of Natural Resources and Environmental Control (the Department) is hereby granted for the construction of selective catalytic reduction systems, circulating dry scrubber systems with baghouses and appurtenances for Generating Units No. 3, and 4, and combining exhaust flow into one stack, located at the Indian River Generating Station in Millsboro, Delaware, in accordance with the application submitted on Form Nos. AQM-1, 2, 3.2, 4.6, 4.9, and 5.0, dated April 15, 2009, signed by John Robertson, Plant Manager.

This permit is issued subject to the following conditions:

**1. General Provisions**

- 1.1 This permit expires on December 31, 2011. If the equipment covered by this permit will not be constructed by December 31, 2011, a request to extend this construction permit must be submitted by November 16, 2011.
- 1.2 The project shall be constructed in accordance with the application described above. If any changes are necessary, revised plans must be submitted and supplemental approval issued prior to actual construction.
- 1.3 Representatives of the Department may, at any reasonable time, inspect this facility.
- 1.4 This permit may not be transferred to another location or to another piece of equipment or process.
- 1.5 This permit may not be transferred to another person, owner, or operator unless the transfer has been approved in advance by the Department. Approval (or disapproval) of the permit transfer will be provided by the Department in writing. A request for a permit transfer shall be received by the Department at least thirty (30) days before the date of the requested permit transfer. This request shall include:
  - 1.5.1 Signed letters from each person stating the permit transfer is agreeable to each person.

- 1.5.2 An Applicant Background Information Questionnaire pursuant to 7 Del. C., Chapter 79 if the person receiving the permit has not been issued any permits by the Department in the previous five (5) years.
- 1.6 The applicant shall, upon completion of the construction, installation, or alteration, request in writing that the Department grant approval to operate.
- 1.6.1 A separate application to operate pursuant to **7 DE Admin. Code** 1102 does not need to be submitted to the Department for the equipment or process covered by this construction permit. Upon a satisfactory demonstration by an on-site inspection that the equipment or process complies with all of the terms and conditions of this permit, the Department shall issue a **7 DE Admin. Code** 1102 Operating Permit for this equipment or process.
- 1.6.2 The provisions of **7 DE Admin. Code** 1102 Sections 2.1 and 11.3 shall not apply to the operation of equipment or processes for the purposes of initially demonstrating satisfactory performance to the Department following construction, installation, modification, or alteration of the equipment or processes. The applicant shall notify the Department sufficiently in advance of the demonstration and shall obtain the Department's prior concurrence of the operating factors, time period, and other pertinent details relating to the demonstration.
- 1.7 The owner or operator shall submit a complete application for a significant permit modification to AQM-005/00001 pursuant to **7 DE Admin. Code** 1130 Section 7(e)(3): within twelve (12) calendar months of requesting permission to operate. The application shall address all applicable requirements including those of 40 CFR Part 64 (Compliance Assurance Monitoring) if applicable.
- 1.8 The owner or operator shall not initiate construction, install, or alter any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department pursuant to **7 DE Admin. Code** 1102, and, when applicable **7 DE Admin. Code** 1125, and receiving approval of such application from the Department; except as exempted in **7 DE Admin. Code** 1102 Section 2.2.

## **2. Emission Limitations**

- 2.1 Air contaminant emission levels shall not exceed those specified in the State of Delaware "**Regulations Governing the Control of Air Pollution**" and the following:
- 2.1.1 **Nitrogen Oxides (NOx) Emissions**
- 2.1.1.1 By no later than December 31, 2011, NRG shall operate Units 3 and 4 in a manner such that NOx emission rates do not exceed 0.10 lbs/mmBtu per unit on a 24-hour rolling basis. NRG will take all necessary actions to incorporate this NOx limit into its operating permits. The emissions rates apply at all times including periods of start-up, shutdown, and malfunction.
- 2.1.1.2 After December 31, 2011, the annual NOx mass emissions from Unit 3 shall not exceed 834 tons and emissions from Unit 4 shall not exceed 2,032 tons.
- 2.1.2 **Sulfur Dioxide (SO<sub>2</sub>) Emissions**
- 2.1.2.1 By no later than December 31, 2011, NRG shall operate Units 3 and 4 in a manner such that SO<sub>2</sub> emission rates do not exceed 0.20 lbs/mmBtu per unit on

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a 24-hour rolling basis. NRG will take all necessary actions to incorporate this SO<sub>2</sub> limit into its operating permits. The emissions rates apply at all times including periods of start-up, shutdown, and malfunction.

2.1.2.2 After December 31, 2011, the annual SO<sub>2</sub> mass emissions from Unit 3 shall not exceed 1,668 tons and emissions Unit 4 shall not exceed 3,657 tons.

**2.1.2 Particulate Emissions**

Particulate emissions from Units 3 and 4 shall not exceed 0.075 lbs/mmBtu per unit.

2.2 No person shall cause or allow the emission of visible air contaminants and/or smoke from a stationary or mobile source, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour period, or more than fifteen (15) minutes in any twenty-four (24) hour period.

2.3 Odors from this source shall not be detectable beyond the plant property line in sufficient quantities such as to cause a condition of air pollution.

**3. Operational Limitations**

3.1 The owner or operator shall comply with the following operational limits:

3.1.1 By May 1, 2011, NRG shall make reasonable efforts to operate Units 3 and 4 in a manner so that NO<sub>x</sub> emissions do not exceed 0.10 lbs/mmBtu on a 24-hour rolling basis; however, NRG's compliance obligations shall be pursuant to Condition 2.1.1.1.

3.1.2 NRG shall make reasonable efforts by May 1, 2011, to operate Units 3 and 4 in a manner so that SO<sub>2</sub> emissions do not exceed 0.20 lbs/mmBtu per unit on a 24-hour rolling basis; however, NRG's compliance obligations shall be pursuant to Condition 2.1.2.1.

3.1.3 The ammonia slip from the individual SCR's shall not exceed 10 parts per million.

3.1.4 The sulfur content of the coal combusted shall not exceed three point five (3.5) percent by weight on a monthly basis.

3.2 The owner or operator shall comply with the following operational limits:

3.2.1 The Company shall install, calibrate, operate, and certify NO<sub>x</sub> and SO<sub>2</sub> continuous emissions monitoring systems (CEMS) for each unit in accordance with 40 CFR Part 75 (May 18, 2005 amendment) or other method approved by the Department and the Administrator, and meeting the requirements of 40 CFR Part 96, subpart HH (April 28, 2006 amendment).

3.2.2 The Company shall monitor SCR and CDS inlet and/or outlet gas parameters (temperature, NO<sub>x</sub> concentrations, etc.) to determine the quantity of ammonia and lime to be added to the systems to properly operate the systems and minimize emissions.

3.2.3 The Company shall continue operating the SNCR Systems until it is demonstrated that the SCR systems alone will meet nitrogen oxides emissions limitations.

3.2.4 The Units shall be operated with properly maintained low NO<sub>x</sub> burner systems, overfire air systems, and electrostatic precipitator (ESP) systems.

3.2.5 The Company shall operate the respective SCR and CDS for each Unit during all periods of operation of each Unit. The Company shall operate the equipment in accordance with Condition 3.4.

3.2.6 The CDS baghouse shall operate continuously with a pressure drop within the appropriate operating range as recommended by the manufacturer that represents best engineering practices.

- 3.2.7 The Company shall install, calibrate, operate and maintain an ammonia CEM's for each SCR System or perform annual ammonia slip testing for each system.
- 3.3 The owner or operator shall dispose of wastes in accordance with all applicable Department regulations and permits.
- 3.4 At all times, including periods of start-up, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- 3.5 All structural and mechanical components of the equipment or process covered by this permit shall be maintained in proper operating condition.

#### **4. Testing and Monitoring Requirements**

- 4.1 Within 120 days of start of operation of each SCR and CDS system, the owner or operator shall conduct performance tests and furnish the Department with a written report of the results of such performance test(s) in accordance with the following general provisions:
- 4.1.1 One (1) original and two (2) copies of the test protocol shall be submitted a minimum of forty-five (45) days in advance of the tentative test date to the address in Condition 6.5. The tests shall be conducted in accordance with the State of Delaware and Federal requirements.
- 4.1.2 The test protocol shall be approved by the Department prior to initiating any testing. Upon approval of the test protocol, the Company shall schedule the compliance demonstration with the Air Surveillance and Engineering & Compliance Branches. The Department must observe the test for the results to be considered for acceptance.
- 4.1.3 The final results of the testing shall be submitted to the Department within sixty (60) days of the test completion. One (1) original and two (2) copies of the test report shall be submitted to the addresses below:

Original and One (1) Copy to:  
Engineering & Compliance Branch  
Attn: Assigned Engineer/Scientist  
156 South State Street  
Dover, DE 19901

One (1) Copy to:  
Air Surveillance Branch  
Attn: Engineer/Observer  
715 Grantham Lane  
New Castle, DE 19720

- 4.1.4 The final report of the results must meet the following requirements to be considered valid:
- 4.1.4.1 The full report shall include the emissions test report (including raw data from the test) as well as a summary of the results and a statement of compliance or non-compliance with permit conditions;
- 4.1.4.2 Summary of Results and Statement of Compliance or Non-Compliance  
The owner or operator shall supplement the report from the emissions testing firm with a summary of results that includes the following information:

- 4.1.4.2.1 A statement that the owner or operator has reviewed the report from the emissions testing firm and agrees with the findings.
- 4.1.4.2.2 Permit number(s) and condition(s) which are the basis for the compliance evaluation.
- 4.1.4.2.3 Summary of results with respect to each permit condition.
- 4.1.4.2.4 Statement of compliance or non-compliance with each permit condition.

4.1.4.3 The Test Report shall be certified by a Responsible Official as to truth, accuracy, and completeness. Such certification shall be signed by a Responsible Official and shall contain the following language:

"I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

- 4.1.5 The results must demonstrate to the Department's satisfaction that the emission unit is operating in compliance with the applicable regulations and conditions of this permit; if the final report of the test results shows non-compliance the owner or operator shall propose corrective action(s). Failure to demonstrate compliance through the test may result in enforcement action.
- 4.2 The Company shall perform testing for particulate emissions using methods approved by the Department. Operational parameters to determine ongoing compliance shall be determined and approved by the Department prior to testing. These parameters may include but are not limited to type of coal being combusted, boiler steam flow, and electrical load.
- 4.3 The Company shall monitor the following:
  - 4.3.1 The NO<sub>x</sub> and SO<sub>2</sub> emissions hourly and for each rolling twenty four (24) hour average.
  - 4.3.2 The parameters of the SCR's and CDS's used to determine the ammonia and lime feed rates.
  - 4.3.3 The ammonia and lime feed rates for each system each hour.
  - 4.3.4 The pressure drop across each CDS baghouse continuously.
  - 4.3.5 The pressure drop across the air preheaters for Units 3 and 4 a minimum of once per shift.
  - 4.3.6 The sulfur content of the coal based on coal supplier analysis reports.
  - 4.3.7 The low NO<sub>x</sub> burners with overfire air, SNCR's, and ESP's for Units 3 and 4 in accordance with **Permit: AQM-005/00001**.

## **5. Record Keeping Requirements**

- 5.1 The owner or operator shall maintain all records necessary for determining compliance with this permit in a readily accessible location for five (5) years and shall make these records available to the Department upon written or verbal request.
- 5.2 The following information shall be recorded, and maintained for each unit and/or baghouse:
  - 5.2.1 For each period of operation of each SCR and CDS system the date, time, and hours of operation.
  - 5.2.2 The type of coal being combusted.
  - 5.2.3 The boiler steam flow and electrical load.

- 5.2.4 The flue gas operating temperature for each system
- 5.2.5 The NOx and SO2 emissions in lb/mmBtu on an hourly and 24-hour rolling basis.
- 5.2.6 The NOx and SO2 emissions monthly and annually.
- 5.2.7 Each month:
  - 5.2.7.1 Baghouse conditions to ensure proper operation.
  - 5.2.7.2 All routine and non-routine maintenance perform on each CDS system baghouse including dates and duration of outages.
- 5.2.8 The testing and monitoring of Condition No. 4.
- 5.2.9 The progress at completion of construction.
- 5.2.10 Compliance with Condition Nos. 2.3, 3.4, and 3.5 shall be recorded, and maintained in a log.
- 5.2.11 Maintenance performed in accordance with SCR and CDS manufacturer's recommendations.

## **6. Reporting Requirements**

- 6.1 Emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department immediately upon discovery by calling the Environmental Emergency Notification and Complaint number, (800) 662-8802.
- 6.2 In addition to complying with Condition 6.1 of this permit, any reporting required by 7 Del C §6028 "**Reporting of a Discharge of a Pollutant or an Air Contaminant**", and any other reporting requirements mandated by the State of Delaware, the owner or operator shall, for each occurrence of excess emissions, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department in writing with the following information:
  - 6.2.1 The name and location of the facility.
  - 6.2.2 The subject source(s) that caused the excess emissions.
  - 6.2.3 The time and date of the first observation of the excess emissions.
  - 6.2.4 The cause and expected duration of the excess emissions.
  - 6.2.5 For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions.
  - 6.2.6 The proposed corrective actions and schedule to correct the conditions causing the excess emissions.
- 6.3 After January 1, 2009 and upon completion of construction, the owner or operator of a unit subject to this regulation shall submit to the Department semi-annual reports in conjunction with the Regulation No. 30 reporting requirements. The semi-annual reports shall contain, as a minimum, the following information:
  - 6.3.1 Tabulation of emission monitoring results reduced to 1-hour averages, on a clock basis, for the period in units consistent with the applicable emission standard.
  - 6.3.2 For mass emissions based on an annual limit, the calendar year-to-date summation of mass emissions through the period being reported, in units consistent with the applicable emission standard.
  - 6.3.3 Identification of any period(s) of, and cause for, any invalid data averages.
  - 6.3.4 Records of any repairs, adjustment, or maintenance to the monitoring system.

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- 6.3.5 Identification of any exceedance of any emission standard provided by this regulation, cause of the exceedance, and corrective action taken in response to the exceedance.
  - 6.3.6 Results from all tests, audits, and recalibrations performed during the period.
  - 6.3.7 Any other relevant data requested by the Department.
  - 6.3.8 A statement, "I am authorized to make this submission on behalf of the owners and operators of the affected facility or affected units for which this submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge true, accurate and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."
  - 6.3.9 Signature by the designated representative.
- 6.4 The Company shall report those efforts made to comply with Condition 3.1.1 and 3.1.2 by June 1, 2011.
- 6.5 The Company shall submit a report for approval by the Department detailing the inlet gas monitoring to the SCR's and CDS's that it desires to perform to properly determine the ammonia and lime injection rates that are required to obtain the necessary reductions and minimize ammonia emissions.
- 6.6 One (1) original and one (1) copy of all required reports shall be sent to the address below:

Air Quality Management Section  
Division of Air and Waste Management  
156 South State Street  
Dover, DE 19901

**7. Administrative Conditions**

- 7.1 This permit shall be made available on the premises.
- 7.2 Failure to comply with the provisions of this permit may be grounds for suspension or revocation.

Sincerely,

Paul E. Foster, P.E.  
Program Manager  
Engineering & Compliance Branch

PEF:JLF:TIL

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pc: Dover Title V File  
Joanna L. French  
Thomas I. Lilly

