

STATE OF DELAWARE  
DEPARTMENT OF NATURAL RESOURCES  
& ENVIRONMENTAL CONTROL  
DIVISION OF AIR & WASTE MANAGEMENT  
89 KINGS HIGHWAY  
DOVER, DELAWARE 19901



NRG Indian River  
02.B  
SOLID & HAZARDOUS WASTE  
MANAGEMENT BRANCH

TELEPHONE: (302) 739-9403  
FAX No.: (302) 739-5060

February 27, 2012

Mr. David Bacher  
Regional Manager  
Indian River Operations Inc.  
P.O. Box 408  
Power Plant Road  
Millsboro, Delaware 19966

FILE COPY

Subject: Permit for the Indian River Generating Station Phase II Landfill  
Reference: Permit SW-12/01

Dear Mr. Bacher:

The Department of Natural Resources and Environmental Control (DNREC), Solid & Hazardous Waste Management Section (SHWMS) has issued Permit SW-12/01 in accordance with Section 4.1.7 of the *Delaware Regulations Governing Solid Waste (DRGSW)*. Permit SW-12/01 incorporates the requirements of, and replaces SW-07/01. A summary of the modifications of the permit is contained in the permit synopsis on page 19 of the permit.

Please begin using the attached permit upon receipt. If you have any questions concerning the permit, please feel free to contact Avery Dalton at (302) 739-9403.

Sincerely,

A handwritten signature in black ink that reads "Bryan A. Ashby".

Bryan A. Ashby  
Environmental Program Manager I  
Solid & Hazardous Waste Management Section

BAA: AD: dtd  
Waste Facilities\Indian River Power Plant\Permit\AD12009

Attachment: Permit SW-12/01

cc: Avery Dalton, Environmental Scientist, SHWMS  
Ting Guo, Engineer, SHWMS  
Frank Gavass, Hydrologist, SHWMS

*Delaware's good nature depends on you!*

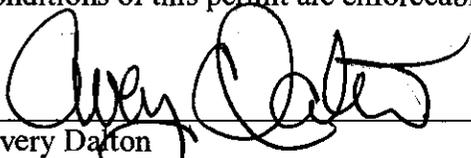


**Permit SW-12/01**  
**Permit Type: Industrial Landfill**

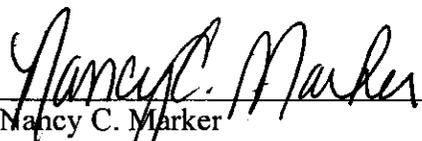
Effective Date: January 24, 2007  
Date Modified: February 27, 2012  
Expiration Date: February 27, 2022

Permittee: NRG Energy, Inc.  
P.O. Box 408, Power Plant Road  
Millsboro, Delaware 19966  
  
Indian River Power LLC  
211 Carnegie Center  
Princeton, New Jersey 08540  
  
Indian River Operations, Inc.  
29416 Power Plant Road  
Millsboro, Delaware 19966

Pursuant to 7 Del. Code, Section 6003 and the *Delaware Regulations Governing Solid Waste*, approval of the Department of Natural Resources and Environmental Control (Department) is hereby granted to operate the solid waste facility at the Indian River Generating Station located in Millsboro, Delaware, subject to the terms and conditions of this permit. All terms and conditions of this permit are enforceable by the Department.

  
Avery Dorton  
Environmental Scientist  
Solid & Hazardous Waste Management Section  
(302) 739-9403

Date 2/27/12

  
Nancy C. Marker  
Environmental Program Administrator  
Solid & Hazardous Waste Management Section  
(302) 739-9403

Date 2/27/12

## Table of Contents

<b>I. GENERAL CONDITIONS</b> .....	1
A. Permit Replaced:.....	1
B. Applicability:.....	1
C. Application Documents: .....	1
D. General Conditions:.....	2
<b>II. CONSTRUCTION</b> .....	2
A. General Requirements: .....	2
<b>III. OPERATIONS</b> .....	3
A. General Operations: .....	3
B. Protection for Surrounding Environment and Environment Protection Systems: .....	4
C. Staffing:.....	4
D. Equipment: .....	4
E. Acceptable Wastes:.....	4
F. Prohibited Wastes: .....	5
G. Excavation: .....	5
H. Storm Water Management, Erosion and Sediment Control:.....	5
I. Operational Cover: .....	6
J. Intermediate Cover: .....	6
K. Dust Control: .....	6
L. Leachate Collection, Transmission, and Storage System in Phase II: .....	7
M. Protection of Capping System: .....	7
N. Health and Safety: .....	8
O. Contingency:.....	8
P. Training: .....	8
<b>IV. MONITORING</b> .....	9
A. General Requirements: .....	9
B. Ground Water Quality Monitoring: .....	10
C. Surface Water Quality Monitoring: .....	10
D. Storm Water Quality Monitoring:.....	10
E. Leachate Monitoring:.....	10
F. Ash Characteristics Monitoring: .....	11
<b>V. REPORTING</b> .....	11
A. Financial Assurance:.....	11
B. Annual Report: .....	12
C. Additional Reports:.....	13
D. Emergency Reporting: .....	14
E. Assessment of Corrective Measures: .....	14
<b>VI. RECORDKEEPING</b> .....	15
A. General Recording and Maintenance:.....	15
<b>VII. LANDFILL CAPPING SYSTEM</b> .....	16
A. Capping Requirements: .....	16
<b>VIII. CLOSURE AND POST-CLOSURE CARE</b> .....	16
A. Closure Compliance: .....	16
B. Notification:.....	17
C. Permit Modification:.....	17
D. Closure Requirements:.....	17
E. Final Lines and Grades: .....	17
F. Final Report: .....	17
G. Post-Closure Care: .....	18
H. Post-Closure Land Use: .....	18
I. Post-Closure Care Reporting:.....	18
J. Deed Notation:.....	18

## I. GENERAL CONDITIONS

### A. Permit Replaced:

Pursuant to 7 Del. Code, Section 6003, and Sections 4.1.1.1 and 6.0 of the *Delaware Regulations Governing Solid Waste* (DRGSW), the Department of Natural Resources and Environmental Control (Department) hereby issues Permit SW-12/01 to NRG Energy, Inc., P.O. Box 408, Power Plant Road, Millsboro, Delaware 19966; Indian River Power LLC, 211 Carnegie Center, Princeton, New Jersey 08540; and Indian River Operations, Inc., 29416 Power Plant Road, Millsboro, Delaware 19966 for the continued operation and construction of the industrial landfill located at the Indian River Generating Station (IRGS), Millsboro, Delaware (The three permittees are designated as NRG in this permit.). This permit also incorporates requirements of, and replaces Permit SW-07/01.

### B. Applicability:

This permit applies to:

1. Construction of Phase II and all ancillary features outlined in NRG's application package for construction and operation of the Phase II landfill, *Phase II Coal Ash Landfill Permit Documents, NRG Energy Inc., Indian River Generating Station, Sussex County, Delaware*, prepared by Golder Associates Inc. dated May 2005 and last revised April 2008.
2. Operation and maintenance of the industrial landfill, including Phases I and II.
3. Environmental monitoring, recordkeeping, and reporting for the landfill.
4. Closure and final cover requirements.

### C. Application Documents:

This permit was issued in accordance with the following documents:

1. Secretary's Order No. 2008-A-0037, issued by the Department on September 4, 2008.
2. Permit application package for construction and operation of the Phase II landfill, *Phase II Coal Ash Landfill Permit Documents, NRG Energy Inc., Indian River Generating Station, Sussex County, Delaware*, prepared by Golder Associates Inc. dated May 2011 and last revised December 2011.
3. Other plans, letters, procedures and policy specifically referenced in this permit.
4. All previously approved and applicable documents, applications or correspondence.

D. General Conditions:

This permit is issued subject to the following general conditions:

1. Construction and operations at the Indian River Generating Station shall be conducted in compliance with all federal, state, county, and municipal environmental statutes, ordinances, and regulations, including, but not limited to: *Delaware Regulations Governing Solid Waste, Delaware Regulations Governing Hazardous Waste, Delaware Regulations Governing the Control of Water Pollution, the Delaware Surface Water Quality Standards, and Delaware Regulations Governing the Control of Air Pollution.*
2. Access to the landfill site by unauthorized persons shall be prevented by barriers, fences, and gates, or other suitable means (DRGSW, Section 6.9.2.4). Access for the purpose of disposal of solid waste shall be limited to those times when an attendant is on duty and to those persons authorized to use the site for the disposal of solid waste specified in this permit. The Department may, at any reasonable time, enter the site to verify compliance with the permit (7 Del. Code, Section 6024).
3. This permit may be revoked upon violation of any condition of the permit or any requirement of the DRGSW after notice and opportunity for hearing in accordance with 7 Del. Code, Chapter 60.
4. Permit SW-12/01 shall expire no later than February 10, 2022.
5. A copy of the most current version of this permit shall be maintained in both the weigh station and the on-site administrative office.

**II. CONSTRUCTION**

A. General Requirements:

1. The planning, design, and construction of the landfill expansion shall be consistent with the requirements of the DRGSW.
2. The landfill shall be constructed in accordance with the approved design in the application package for construction and operation of the Phase II landfill, *Phase II Coal Ash Landfill Permit Documents, NRG Energy Inc., Indian River Generating Station, Sussex County, Delaware*, prepared by Golder Associates Inc. dated May 2011 and last revised December 2011; the approved *Technical Specifications* and the approved *Construction Quality Assurance Plan*. Revisions to these documents related to leachate collection, transmission, or storage systems; storm water management systems; or environmental monitoring systems or devices shall require Department approval in writing.
3. Prior to the construction of each cell, NRG shall provide the qualifications of the

construction quality assurance (CQA) consultant team who will implement the CQA plan. The CQA consultant team must have qualified experience in monitoring the construction of the various components of the project and must include a qualified managing engineer licensed as a Professional Engineer in Delaware.

4. Prior to installation of the liner system at each cell, NRG shall provide the qualifications of the geosynthetic installer including superintendent and master seamers to the Department as specified in the *Construction Quality Assurance Plan* and required by Section 6.3.1.4 of the DRGSW.
5. NRG shall conduct an electrical geomembrane leak detection survey for all the lined area where feasible to detect any leakage from the liner system and shall repair that before proceeding to the next construction process.
6. NRG shall submit a final report for the Department approval after construction has been completed and prior to the placement of solid waste in new cells of Phase II. The final report shall certify that the construction of the cell was completed in accordance with the approved design in the application package dated May 2011 and last revised December 20 11, the approved *Technical Specifications, Construction Quality Assurance Plan*, and the Permit Drawings for the Phase II landfill dated May 26, 2011. The final report shall be certified correct by the construction quality assurance engineer, who must be a Professional Engineer registered in Delaware.
7. NRG shall not place wastes into each newly lined cell of Phase II until the Department has provided its written notification that the construction and the final report meet the requirements of the permit and the DRGSW.
8. NRG should not engage in clearing of the land between April 1st and July 31st. NRG may continue ongoing clearing operations so long as significant disturbance, resulting in at least 50 percent of the targeted land area being cleared, is performed prior to April 1st.
9. NRG should make a reasonable effort to survey, locate, and remove Box turtles from areas designated for land clearing. Box turtles removed shall be relocated to a safe location until land clearing has been completed. Surveys and relocation efforts should be performed under the guidance or consultation of the DNREC's Heritage Program between April 1<sup>st</sup> and September 31<sup>st</sup>.

### III. OPERATIONS

#### A. General Operations:

Operations at the site shall be conducted in accordance with this permit, and the *Phase II Coal Ash Landfill Operations Manual* (the Phase II Operations Plan) dated November 2010 and last revised December 2011 (The Operations Plan designates the Phase I or Phase II Operations Plan where it is applicable). Operations shall be conducted in a

manner protective of human health and the environment.

**B. Protection for Surrounding Environment and Environment Protection Systems:**

The landfill shall be operated in a manner that will preclude degradation of adjacent land, air, surface water, or ground water (DRGSW, Section 6.9.1.1). NRG shall operate the landfill in a manner that will protect the landfill liner system, the leachate collection and disposal system, and the landfill capping system. NRG shall take special precautions while placing the first lift of waste to ensure that the liner system is not damaged by operations or by waste placement.

**C. Staffing:**

Sufficient numbers and types of personnel shall be available at the site to ensure capability for operation in accordance with the DRGSW and the Operations Plan.

**D. Equipment:**

Equipment necessary to ensure the operations of the landfill in accordance with the Operations Plan and the requirements of the DRGSW shall be maintained at the site by NRG.

**E. Acceptable Wastes:**

The landfill is permitted to accept the following wastes only from the Indian River Generating Station, and the NRG Energy Center, Dover LLC (NRG Dover) facility located at 1280 W. North Street, Dover, DE 19904 for disposal at the facility in accordance with this permit and the DRGSW:

1. Non-hazardous coal fly ash.
2. Non-hazardous coal bottom ash.
3. Non-hazardous air emission control wastes generated from a dry flue gas desulfurization (FGD) process. (NRG shall demonstrate that leachate to be generated from the waste does not pose any risk of potential damage to the liner system when they perform the test runs for the new gas emission control systems scheduled for December, 2011. Failure to do so could result in revocation of this waste being acceptable)
4. NRG Dover waste shall be accepted only as a contingency plan in accordance with NRG's letter of January 4, 2007. The ash from the NRG Dover facility shall be handled and shipped according to the NRG Dover Coal Ash Handling and Disposal Procedure for Disposal at the IRGS Landfill dated December 28, 2006.
5. Non-hazardous industrial wastes generated during equipment cleaning and site

cleanup operations performed to remove ash. These wastes include and are limited to;

- a. sand blast media used to remove ash and paint from equipment. TCLP and total metals analysis shall be performed on sand blast media and reported to the Department prior to disposal. The test results shall be retained per the recordkeeping requirements of VI.A.9.
- b. soils and sediment contaminated with ash removed during cleanup of stormwater channels, structures, and stormwater ponds.

F. Prohibited Wastes:

No wastes other than those specified in the permit may be disposed of at the facility.

G. Excavation:

Ash excavation operation shall be conducted in accordance with the Operations Plan, and shall be so organized that they will not interfere with the proper ash disposal operations. No excavation shall be allowed which creates unsightliness, nuisances, health hazards, or potential safety hazards.

H. Storm Water Management, Erosion and Sediment Control:

NRG shall provide for storm water management, erosion and sediment control at the facility including those controls cited in the Operations Plan. NRG shall implement the following minimum controls:

1. NRG shall take all necessary steps to identify and prevent the discharge of pollutants from the waste and cover into surface water, and initiate corrective actions to confirm, quantify and remediate such discharges.
2. NRG shall maintain a surface water management system on the landfill to prevent erosion of the waste and cover, the collection of standing water, run-off from the waste, and minimize run-on into the waste. Run-off from active areas of Phase II where waste is exposed shall be directed to the leachate collection system.
3. NRG shall daily inspect the landfill for any erosion of the waste and cover, collection of standing water, run-off from the waste, and run-on into the waste according to the Operations Plan, and immediately after any rainfall capable of causing erosion or surface run-off. NRG shall complete an inspection/maintenance form for each inspection and include that in the facility log. NRG shall provide the correction of problems identified as well as the inspection.
4. NRG shall properly operate, manage, and maintain all devices, structures and ponds designed to monitor or manage storm water, and shall take all reasonable steps to minimize or prevent any discharge of pollutants into surface water.
5. The storm water conveyance and discharge system (SCDS) shall be kept free of

debris, waste, and sediment buildup. NRG shall inspect the SCDS at a minimum frequency of once per month, and immediately after severe rainfall (e.g. rainfall capable of destroying SCDS components or causing significant erosion or sediment run-off). SCDS inspection/maintenance forms shall be completed for each inspection and included in the facility log. NRG shall provide for the inspection of the SCDS as well as the correction of problems identified and inspections shall include:

- a. Berms and swales shall be inspected for erosion, sediment, and debris.
  - b. Silt fences shall be inspected for damage, accumulated debris and to ensure that fencing is firmly anchored.
  - c. Culverts and pipes shall be inspected for siltation, blockage and debris.
  - d. Control structures shall be inspected for siltation, debris, and damage.
6. Corrective measures to prevent further erosion and repair any damage will be initiated as soon as possible, but no later than 24 hours after discovery.
  7. NRG shall implement proper operating techniques during all three (active, inactive, and closed) landfill construction sequences to prevent erosion according to the Operations Plan.
  8. Vegetative cover shall be established and maintained on the containment berm to prevent erosion.

I. Operational Cover:

NRG shall cover areas that have not received additional waste within 30 days according to Section 4.5.1 of the Phase II Operations Plan. Cover shall consist of a minimum of six inches of compacted soil.

J. Intermediate Cover:

NRG shall place intermediate cover on areas that are completed to the interim design height according to Section 6.0 of the Phase II Operations Plan. The intermediate cover shall consist of a minimum of 12 inches of compacted soil.

K. Dust Control:

NRG shall operate the landfill in a manner to prevent dust emissions from causing a condition of air pollution (injurious to human, plant, or animal life or unreasonably interfering with the enjoyment of life and property).

1. NRG shall provide for dust controls at the facility to include dust controls cited in the Operations Plan.
2. NRG shall operate the landfill to minimize waste and soil from being tracked off-site. NRG shall inspect facility egress points at least daily to identify if the materials

are being tracked off-site, and in the event that the materials are tracked off-site, at a minimum, NRG shall provide for street cleaning of that area on the day the problem is identified.

L. Leachate Collection, Transmission, and Storage System in Phase II:

1. NRG shall operate and maintain the leachate collection, transmission, and storage system, including the alarm system in accordance with this permit and the Phase II Operations Plan. NRG shall clean-up all leachate spills immediately or within a time frame approved by the Department on a case-by-case basis.
2. NRG shall inspect the leachate collection system, leachate force main, and leachate storage facility components each operating day to verify proper functioning. NRG shall inspect all flowmeters, pumps, controls, and recording devices each operating day to ensure proper functioning. NRG shall also inspect for leakage from valves, flowmeters, connections at riser locations, and storage tanks each operating day. The results of the inspections shall be recorded in the facility log.
3. NRG shall ensure that all accessible collection pipes are cleaned at least annually with a self-propelled, high pressure jetting system. NRG shall be responsible for the identification, assessment, and reporting of all blockages encountered as well as identification of any areas found to be inaccessible during the annual cleanings. The Department may, at its discretion, waive the annual cleaning event for any particular year if, after demonstration by NRG, it determines that cleaning is not required.
4. The system shall be operated and maintained so that there is no more than one foot of head on the liner outside of the sump.
5. NRG shall prevent leachate seeps from side slopes.
6. NRG shall maintain all necessary permits and approvals for leachate management. Disposal must be done in a manner which does not cause adverse environmental impact.

M. Protection of Capping System:

1. NRG shall maintain the integrity and effectiveness of the capping system, including making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cap.
2. NRG shall reseed the cover if insufficient vegetation exists to stabilize the surface.
3. Standing water shall not be allowed on any capped portions of the landfill.
4. Open burning shall not be allowed on any capped portions of the landfill.

5. Unless approved in advance by the Department, no activity shall be conducted on any capped portions of the landfill which will disturb the integrity of the capping system.
6. NRG shall weekly inspect areas installed with cap components, complete an inspection/maintenance form for the inspection, and provide the correction of problems identified.

N. Health and Safety:

1. Employees at the site shall work under appropriate health and safety guidelines established by the Occupational Safety and Health Administration.
2. Use of personal protective equipment shall be in accordance with 29 CFR Part 1910.132 as a minimum.
3. First aid equipment shall be maintained and available in the weigh station, in the administrative office, and in the maintenance building.
4. Emergency telephone numbers of nearby ambulance, hospital, police and fire services shall be prominently displayed by at least one telephone in each of the following on-site locations: the administrative office, the maintenance building, and the weigh station.
5. Any confined space entry done by employees or contractors shall be done in accordance with 29 CFR Part 1910.146.

O. Contingency:

1. NRG shall maintain capability to react to emergencies in accordance with the *Landfill Contingency Plan* (the Operations Plan). NRG shall react to spills, fires, accidents and other emergencies so as to protect public health, safety, and the environment.
2. NRG shall appoint and maintain at least one Emergency Coordinator and at least one alternate Emergency Coordinator at the facility. The Emergency Coordinator shall be responsible for directing all emergency response measures necessary to protect human health and the environment, and NRG shall ensure that at least one Emergency Coordinator is available at all times.

P. Training:

All personnel assigned duties at the landfill shall receive, as a minimum, the training listed below. Unless otherwise specified by a nationally recognized training provider (for example, the American Red Cross as a training provider for First Aid), training shall be required initially and annually thereafter. Initial training shall be completed within 180 days of hiring:

1. Operational and contingency procedures
2. Health and safety procedure
3. Emergency first aid
4. CPR training

#### IV. MONITORING

##### A. General Requirements:

1. NRG shall maintain and protect all monitoring wells in accordance with the *Delaware Regulations Governing the Construction and Use of Wells*.
2. NRG shall notify the Solid and Hazardous Waste Management Branch at least 15 days prior to installing or abandoning any monitoring wells. The installation of new monitoring wells or abandonment of existing monitoring wells shall be performed in accordance with the *Delaware Regulations Governing the Construction and Use of Wells*.
3. All water quality samples shall be collected in a manner which minimizes sample turbidity. Samples will be field filtered when turbidity exceeds 10 NTU.
4. All water quality samples will be measured for the following field parameters at the time of sample collection:
  - (1) pH
  - (2) Specific Conductance
  - (3) Temperature
  - (4) Turbidity
5. All water quality samples will be laboratory-analyzed for the following indicator parameters:
  - (1) Alkalinity
  - (2) Arsenic
  - (3) Calcium
  - (4) Chloride
  - (5) Iron
  - (6) Magnesium
  - (7) Manganese
  - (8) Mercury
  - (9) Potassium
  - (10) Selenium
  - (11) Sodium
  - (12) Sulfate
  - (13) Total Dissolved Solids
  - (14) Total Organic Carbon
6. Test methods used for water quality analyses shall be those described in the most current legal edition of EPA Publication *SW-846*. If *SW-846* does not contain a test method for a required parameter, that parameter shall be tested according to methods described in the most recent edition of EPA Publication, *Methods of Chemical*

*Analysis for Water and Wastes or Standard Methods for Examination of Water and Wastewater.* All samples shall be collected and analyzed using approved QA/QC procedures.

**B. Ground Water Quality Monitoring:**

1. Semi-annually in April and October, NRG shall monitor water levels in the following wells:

101A	102A	103A	105A	107A	319A	326D	2B	P-3R	327C
101B	102B	103B	105B	107B	325	1A	108	103CR	328A
101C	102C	103C	105C	107C	326B	1B	P-1R	327A	328B
		104	106	109	326C	2A	P2	327B	328C

2. Semi-annually, in April and October, NRG shall collect water quality samples for laboratory analysis from the following ground water monitoring and production wells:

102A	103A	104	105C	326B	P-1R	103CR	327A	328A
102B	103B	105A	106	326C	P-3R		327B	328B
102C	103C	105B	319A	326D	PW F		327C	328C

3. Pumping rates shall be recorded for production wells A, B, C, and F.

**C. Surface Water Quality Monitoring:**

1. Semi-annually in April and October, NRG shall collect water quality samples from surface water at stream gauge SG-2 at outgoing tide for laboratory analysis.
2. Any discharge from the existing sedimentation control basin (Outfall 037) shall be sampled and analyzed for those constituents included in the NPDES permit requirements.

**D. Storm Water Quality Monitoring:**

During two storm events per year at least four months apart, as soon after a storm run-off event as practical, NRG shall collect a water quality sample for laboratory analysis from the sedimentation control basin at SW-1, and SW-2 upon construction completion.

**E. Leachate Monitoring:**

1. NRG shall measure and record the depth of leachate and the quantity of leachate pumped from each leachate sump each operating day.

2. Quarterly in January, April, July and October, NRG shall collect water quality samples from leachate collection sumps 1 and 2 for laboratory analysis.
3. Annually in October both collected leachate samples must be analyzed for the following additional chemicals of concern:

(1) Beryllium	(5) Lead
(2) Boron	(6) Molybdenum
(3) Cadmium	(7) Thallium
(4) Cobalt	(8) Vanadium
4. The Department may include any of these additional chemicals of concern in the other monitoring programs described in this Section IV based upon concentration levels detected in the leachate.

F. Ash Characteristics Monitoring:

1. NRG shall conduct all ash tests in accordance with the Operations Plan, and record the results.
2. NRG shall collect fly ash and bottom ash samples each ash haul day. NRG shall combine these samples into two composite samples representing the two types of ash semi-annually in April and October. NRG shall collect and characterize the composite ash samples according to the procedures described in *Ash and Groundwater Sampling Plan (Section 2.0)*.
3. NRG shall sample off-site ash transported to the landfill for disposal, separate from on-site ash, each haul day that it is brought to the facility. NRG shall combine these samples into two composite samples representing the two types of ash semi-annually, in April and October. NRG shall collect and characterize the composite ash samples according to the procedures described in *Ash and Groundwater Sampling Plan (Section 2.0)*.
4. NRG shall collect grab fly ash and bottom ash samples representative of both 100 percent bituminous coal operations and the maximum percentage of Powder River Basin (PRB) coal used in PRB blend operations obtainable during the sampling period once every six months, and conduct a complete TCLP and total metals analysis of the grab samples immediately after sampling.

V. REPORTING

A. Financial Assurance:

1. No later than March 31<sup>st</sup> of each year, NRG must demonstrate adequate financial assurance for closure and post-closure care of the landfill in accordance with the

requirements Section 4.1.11. of the DRGSW.

2. NRG shall submit with a proof of financial assurance, an updated and accurate cost estimate adjusted for inflation, facility expansions, and any other applicable requirements which impact the cost of closure and post-closure care.

**B. Annual Report:**

Annually, no later than March 31<sup>st</sup> of each year, NRG shall submit a report summarizing facility operations for the preceding calendar year. The report shall describe and summarize all waste disposal, environmental monitoring, and construction activities conducted for that period (DRGSW, section 6.9.4). The report shall include the following information:

1. The weight of fly ash and bottom ash placed into the landfill including that from the NRG Dover facility during the past calendar year, listed on a monthly basis with the annual total.
2. Description and dates of major activities such as excavation of ash at the landfill for a project.
3. The weight of ash removed from the landfill for the purpose of reuse, including ash sent directly to market and not landfilled, and identification of where the ash was used.
4. The estimated remaining landfill capacity in both tonnage and years.
5. Any intentional or accidental deviations from the approved Operations Plan or this permit.
6. All construction or corrective work conducted on the site in accordance with approved plans or to achieve compliance with the DRGSW and this permit.
7. A summary of any capping activities done during the year, including capping system installation and repair.
8. Results of complete TCLP and total metals analyses of the fly ash and bottom ash as described in Section IV.F.
9. Inspection results on storm water management, erosion and sediment control.
10. A hydrogeological report including the following information:
  - a. Tabulation of all data listed below from the past and all preceding years. All data should be submitted on paper and compact disc in a format that is acceptable to the Department. Data submitted shall include:

- (1) Ground water elevation and quality data including field parameters.
  - (2) Surface water elevation and quality data including field parameters.
  - (3) Rainfall data from the site weather station.
  - (4) Storm water and quality data including field parameters.
  - (5) Leachate quality data including field parameters.
- b. Graphical presentations (quality versus time plots) of ground water, surface water, storm water and leachate quality monitoring data.
  - c. Potentiometric maps for each aquifer for each sampling event for the past year.
  - d. To determine the effects of water table fluctuations in the shallow Columbia Aquifer on contaminant concentrations in ground water immediately underlying the landfill, display dual y-axis time trend plots comparing individual contaminant concentrations for arsenic and selenium to water level for monitoring wells 103C, 105C, 319A, and 326B.
  - e. A discussion of any problems encountered during field work, any deviations from the sampling procedures and of any problems with QA/QC procedures. Copies of field notes, laboratory data sheets, and chain-of-custody forms shall be maintained by NRG and made available to the DNREC within a reasonable time upon request.
  - f. A discussion of the ground, surface and storm water and leachate quality monitoring results, including whether the results indicate a contaminant release from the landfill to ground water or surface water.
  - g. Recommendations for future monitoring, maintenance or modifications needed in the current monitoring system.
  - h. The quantity of leachate generated, stored and reused on a monthly basis.

C. Additional Reports:

1. The results of ground water, surface water, storm water, leachate quality, and ash characteristics monitoring samples analyzed per Section IV of this permit shall be submitted to the Department within 60 days of the sampling date. Electronic files on compact disc containing the results of all required analysis for ground water and surface water shall accompany this submittal. The electronic files will be in a format amenable for use by both NRG and the Department.
2. The results of the potentiometric head elevations and the maps prepared for each aquifer per Section V of this permit shall be submitted to the Department within sixty (60) days of the date of sampling.
3. If NRG is unable to comply with any of the reporting requirements listed within the permit, NRG must provide written notice and justification to the Department two weeks prior to the reporting deadline.
4. Upon discovery, NRG shall report to the Department any intentional or accidental deviation from any approved plan.

D. Emergency Reporting:

1. NRG shall notify the Department immediately in the event of:
  - a. Fire or explosion involving the landfill or its control systems.
  - b. Structural damage to the dikes surrounding the landfill.
  - c. Any significant erosion of the waste or cover, or release of ash or waste run-off from the landfill.
  - d. Receipt or discovery of prohibited waste in the cell.
  - e. Leachate spills exceeding 10 gallons.
  - f. Any damage to the monitoring wells.
  - g. Any damage to the landfill liner system.
  - h. Any damage to installed cap components
2. If any event listed in Section V.D.1 of this permit occurs during business hours, NRG should report to the Department's Solid and Hazardous Management Branch by calling to 302-739-9403. At all other times, report is to be made to the Division of Air and Waste Management's TOLL-FREE 24-HOUR LINE 1-800-662-8802.
3. NRG shall submit a written notification to the Department no later than five business days following any event requiring "Emergency Reporting". The notification shall include the following:
  - a. Date and time of occurrence/discovery.
  - b. Date and time of reporting.
  - c. Agencies notified.
  - d. Materials and quantities involved.
  - e. Narrative describing how the incident occurred and the actions taken by NRG and other response personnel.
  - f. Report of injuries/damage.
  - g. Proposal for follow-up, repair, or remedial actions required and a schedule.

E. Assessment of Corrective Measures:

1. NRG shall notify the Department within seven (7) days after verified analytical data has confirmed that a release has taken place. Confirmation samples shall be collected from the appropriate monitoring points within 14 days of receipt of written approval by the Department. These samples shall be analyzed under a priority schedule for the indicator parameters and any other parameters deemed appropriate by NRG and the Department. NRG shall notify the Department of the results of the confirmation sampling within seven (7) days of receipt of the results.
2. If confirmation sampling does not indicate that a release has taken place, another round of sampling shall take place to determine whether the results of analysis from the first or second sampling events were anomalous. This re-sampling event shall take place within two (2) weeks of NRG sending written notification to the Department of their intent to re-sample. The samples shall be analyzed under a

priority schedule. NRG shall notify the Department of the results of the re-sampling within seven (7) days of receipt of the results.

3. If the re-sampling indicates that no release has taken place, no further action shall be taken by the Department, and monitoring of the sampling location(s) shall be returned to its/their normal monitoring schedule. If the confirmation or re-sampling round of sampling does indicate that a release has taken place, NRG shall perform an assessment of corrective measures within ninety (90) days of confirmation of the release. This assessment shall include:
  - a. Identification of the nature and extent of the release (which may require construction and sampling of additional wells, geophysical surveys or other measures).
  - b. Re-assessment of contaminant fate and potential contaminant receptors (wells and/or receiving streams).
  - c. Evaluation of feasible corrective measures to:
    - (1) Prevent exposure to potentially harmful levels of contaminants (exceeding performance standards).
    - (2) Reduce, minimize or prevent further contaminant releases.
    - (3) Reduce, minimize or prevent off-site migration of contaminants.

## **VI. RECORDKEEPING**

### **A. General Recording and Maintenance:**

The following information must be recorded and maintained by NRG until the end of the post-closure care period. This information must be available for inspection, with reasonable notice, by representatives of the Department:

1. Monitoring, testing, and analytical data required by this permit and the DRGSW.
2. Copies of field notes for each sample analyzed as well as laboratory data sheets for each sample analyzed.
3. The quantity and type of ash placed into the landfill.
4. The quantity and type of ash removed from the landfill for reuse.
5. Records of all inspections required by the Operations Plan and this permit.
6. Records of odor and dust complaints received by the facility manager concerning the landfill.
7. Records that document that required training has been provided to all staff.

8. Analytical test results for all coal sources used.
9. Analytical test results for all sand blast media disposed in the landfill.

## **VII. LANDFILL CAPPING SYSTEM**

### **A. Capping Requirements:**

1. Upon completion of a landfill phase or cell a capping system shall be installed that will promote vegetative cover, and minimize infiltration and percolation of water into, and prevent erosion of, the ash throughout the post-closure care period.
2. The capping system shall be in place 180 days following final waste disposal activity.
3. All components of capping system and final slopes shall be constructed in accordance with the DRGSW, and must be approved by the Department prior to installation. All components of the cap shall be constructed in accordance with a Construction Quality Assurance (CQA) plan, construction and material specifications, design drawings, closure plan, and closure schedule approved by the Department.
4. When a phase of cap construction is completed, NRG shall submit a construction certification report (CCR). The CCR shall fully document the cap construction, and shall be certified correct by the CQA engineer, who must be a Professional Engineer registered in Delaware. The CCR must be submitted to the Department within 60 days of completion of the capping system construction. When NRG is not able to meet the CCR submission deadline, NRG shall provide justification for that and be approved by the Department in advance. NRG shall also include a copy of the CCR on compact disc or other acceptable digital storage media. The Department will review the CCR, and will either:
  - a. Issue a letter of approval to certify that the phase of cap construction is in compliance with the solid waste permit, the closure plan, and all applicable regulations; or
  - b. Determine that the phase of cap construction has not been performed in compliance with the solid waste permit, or all applicable regulations; identify the areas of deficiency; and require NRG to take the necessary actions to bring the phase of cap construction into compliance.

After the phase of cap construction has been approved by the Department, the area of the landfill represented by the phase of cap construction shall be designated as a "capped portion" of the landfill.

## **VIII. CLOSURE AND POST-CLOSURE CARE**

### **A. Closure Compliance:**

NRG shall close the completed landfill or landfill cell in accordance with the DRGSW.

B. Notification:

Notification of intent to close the landfill, a final closure plan, and a proposed schedule shall be submitted to the Department at least 180 days prior to projected date when waste will no longer be accepted in the landfill.

C. Permit Modification:

NRG shall not commence closure activities before receiving the necessary permit modification to this permit.

D. Closure Requirements:

NRG shall close the landfill in accordance with the requirements of the DRGSW in a manner that will minimize the need for further maintenance and that will minimize the post-closure escape of solid waste constituents and leachate. NRG shall close the facility in accordance with the approved closure plan and the approved closure schedule.

E. Final Lines and Grades:

NRG shall close the landfill in accordance with the lines and grades shown on the Final Grading Plan which limit the elevation of the landfill to 100 feet MSL.

F. Final Report:

1. When the final phase of cap construction is completed, NRG shall submit a final CCR to the Department. The final CCR must fully document the final portion of cap construction and summarize all previous capping system CCRs. The final CCR also should summarize the condition of the entire cap at the time and provide a conclusion whether or not the landfill is capped in accordance with the permit and the DRGSW. Copies of all preceding CCRs for previously capped portions of the landfill shall be included in the final CCR on compact disc or other acceptable digital storage media.
2. The final report shall certify that the closure of the landfill was completed in accordance with the closure plan to include the Construction Quality Assurance plan, construction and material specifications, and design drawings. The final report shall be certified correct by the CQA engineer, who must be a Professional Engineer registered in Delaware.
3. The final CCR must be submitted to the Department within 60 days of completion of the cap construction. When NRG is not able to meet the CCR submission deadline, NRG shall provide justification for that and be approved by the Department in advance. The landfill will not be considered closed until the Department has

provided its written notification that the closure has met the requirements of the solid waste permit and the DRGSW.

G. Post-Closure Care:

Upon the written notification from the Department that the closure of the landfill has met the requirements of the solid waste permit, and all applicable regulations, and that the landfill is determined to be closed, NRG shall commence post-closure care activities in accordance with the DRGSW, the post-closure care plan approved by the Department, and with the permit after appropriate modification.

H. Post-Closure Land Use:

NRG shall implement the post-closure land use plan approved by the Department.

I. Post-Closure Care Reporting:

All reporting, monitoring, testing, documentation requirements and Construction Quality Assurance procedures shall be conducted in accordance with the post-closure care plan approved by the Department.

J. Deed Notation:

NRG shall record a notation on either the deed to the facility property or some other instrument that is normally examined during the title search, that will in perpetuity notify any potential purchaser of the property that the land has been used as a solid waste disposal site, and the use of the land is restricted under the *Delaware Regulations Governing Solid Waste* using the notification mechanism prescribed by the Department.

## **PERMIT SYNOPSIS**

January 24, 2007: Permit SW-07/01 was issued to NRG Energy, Inc.'s Indian River Operations, Inc. for the continued operation of the Phase I industrial landfill. This permit incorporates the requirements of, and replaces permit SW-96/04.

October 16, 2008: The Permit was modified to permit NRG to construct and operate Phase II, Cells 1 and 2. The modification was considered a major modification in accordance with Section 4.1.7 of the DRGSW.

July 12, 2011: The SHWMB modified the Permit to incorporate the revised Operations Plan which includes procedures for the disposal of non-hazardous air emissions control wastes. The modification also includes new groundwater monitoring wells. The modification was considered a major modification in accordance with Section 4.1.7 of the DRGSW.

November 29, 2011: The SHWMS modified the Permit to remove the financial assurance mechanisms specified formerly by permit condition V.A.3. NRG will need to meet the financial assurance requirements of the section 4.1.11. of the DRGSW. The modification is considered minor in accordance with Section 4.1.7 of the DRGSW.

January 20, 2012: The SHWMS modified the Permit to extend the expiration date by 120 days in order to maintain the continuity of the issued permit. The Permit is currently under a legal notice for the permit renewal. It is necessary to extend the time to prevent a lapse in permit coverage, and to allow the Department time to process administrative functions, in the events that the public requests a hearing for the permit renewal. The modification is considered minor in accordance with Section 4.1.7 of the DRGSW.

February 10, 2012: Permit SW-12/01 replaces SW-07/01 for NRG Energy, Inc.'s Indian River Operations, Inc. to cover the continued operation of the Phase II industrial landfill. The following permit conditions were revised and or added; II.A.8. was added to include limitations of land clearing in respect to bird nesting concerns from the Heritage Program, II.A.9. was added to include a survey for Box Turtles to be completed prior to land clearing, III.A was revised to remove a reference to an outdated operations plan, III.E.5. was added to include sand blast media and sediment from stormwater channels and structures as wastes acceptable disposal in the industrial landfill, VI.A.9 was added to require recordkeeping of the data from sand media analysis, and administrative changes necessary to revise the dates of documentation submitted for the renewal of Permit SW-07/01.