

**POST-CLOSURE PLAN
OPPD NEBRASKA CITY GENERATING STATION
FOSSIL FUEL COMBUSTION ASH DISPOSAL AREA**

NC1 ASH DISPOSAL AREA

Prepared for:

**OMAHA PUBLIC POWER DISTRICT
NEBRASKA CITY GENERATING STATION
OTOE COUNTY, NEBRASKA**

REVISED: December 2015

**POST-CLOSURE PLAN
NC1 ASH DISPOSAL AREA**

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Professional Engineer Certification

"I hereby certify that this Post-Closure Plan for the NC1 Ash Disposal Area at the Omaha Public Power District Nebraska City Station meets the requirements of the Coal Combustion Residual Rule 40 CFR 257.104. I am a duly licensed Professional Engineer under the laws of the State of Nebraska."

Print Name: Lori J. Calub
Signature: Lori J. Calub
Date: 12-10-2015
License #: E-9881



My license renewal date is December 31, 2017.

Section 1.0 Site Identification

1.1 Introduction

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published the final rule for the regulation and management of coal combustion residuals (CCR) under the Resource Conservation and Recovery Act (RCRA). The rule – effective on October 19, 2015 – applies to electric utilities and independent power producers that fall within NAICS code 221112, and the facility produces or stores CCR materials in impoundments or landfills. This regulation applies to Omaha Public Power District’s (OPPD’s) Nebraska City Generating Station.

OPPD has a two-unit (Unit 1 and Unit 2) fossil fuel-fired generating plant at the Nebraska City Station (Station) southeast of Nebraska City, Nebraska. This Station has two existing CCR landfills that are permitted under the current NDEQ Title 132 regulations for fossil fuel combustion ash disposal area (the NC1 Ash Disposal Area and NC2 Ash Disposal Area). The NC1 Ash Disposal Area is an unlined CCR landfill of approximately 52 acres that has historically received CCR for disposal and is permitted with the State of Nebraska. NC1 Ash Disposal Area will continue to receive CCR for disposal both before and after October 19, 2015.

This Post-Closure Plan, prepared in accordance with Nebraska Department of Environmental Quality (NDEQ) Title 132, Chapter 4 and updated to comply with the federal CCR rule, provides a description of monitoring and maintenance activities, frequencies, and post-closure use of the NC1 Ash Disposal Area. This Post-Closure Plan must be amended whenever there is a change in the operation of the CCR landfill that would substantially affect the written post-closure plan or after post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan. OPPD will not implement modifications to the design or operations of the NC1 Ash Disposal Area that would result in modifications to this Post-Closure Plan without prior approval from NDEQ.

1.2 Facility Identification

Facility: NC1 Ash Disposal Area

Location: Station property covers portions of Sections 30 and 31, Township 8 North, Range 15 East, and Sections 25 and 36, Township 8 North, Range 14 East in Otoe County, Nebraska, containing 1,600 acres more or less. The NC1 Ash Disposal Area is approximately 52 acres in Section 36 T8N, Range 14 East. The Station property is approximately 5.5 miles southeast of Nebraska City, Nebraska, along the west shore of the Missouri River.

Owner Contact Address: Omaha Public Power District
Environmental Services
444 South 16th Street
Omaha, Nebraska 68102-2247

NDEQ Permit No.: NE0054712

1.3 Key Contact

The post-closure contact for the NC1 Ash Disposal Area will be:

Attention: Environmental Affairs Administrator
Omaha Public Power District
444 South 16th Street
Omaha, Nebraska 68102-2247
Phone: 402-636-2306
Email: Environmental@oppd.com

1.4 Post-Closure Documentation, Notifications and Certification

OPPD will prepare, directly or through a contract, the documentation of post-closure care in accordance with NDEQ Title 132, Chapter 4. In accordance with current state regulations, the results of all groundwater monitoring will be reported to the NDEQ. During the post-closure care period, annual groundwater monitoring and corrective action reports required by the CCR rule will be posted to the CCR website and notification submitted to NDEQ.

In accordance with the CCR rule requirements, the following post-closure notifications will be provided to the Director of NDEQ:

- Notification that Post-Closure Plan is available and posted to the CCR website, and any amendment thereof
- Notification of completion of post-closure care, including certification by qualified professional engineer
- Notification of completion must be provided within 60 days of completion of post-closure care and include certification by a professional engineer registered in the State of Nebraska verifying that post-closure care has been completed in accordance with this or any subsequently amended Post-Closure Plan and the requirements of the CCR rule 40 CFR 257.104.

At the completion of the post-closure care period, OPPD will provide a notification as described in above.

Section 2.0 Post-Closure Plan

The Post-Closure Plan will be implemented immediately after approval of completion of final closure in accordance with NDEQ Title 132, Chapter 4 and the federal CCR rule. OPPD will conduct, or cause to be conducted, post-closure care for the NC1 Ash Disposal Area for 30 years as required by the federal CCR rule. If at the end of the post-closure care period the NC1 Ash Disposal Area is under a groundwater assessment monitoring program, then post-closure care shall be continued until the groundwater monitoring returns to detection monitoring in accordance with 40 CFR 257.95.

No person shall excavate, disturb the final cover, or remove any deposited materials from the closed NC1 Ash Disposal Area without having received prior approval from NDEQ. If such excavations are required, reference should be made to appropriate sections of NDEQ Title 132.

2.1 Planned Use During Post-Closure Period

The closed NC1 Ash Disposal Area will be designated as open space during the post-closure period and access will be controlled via fence and signage. The property is anticipated to continue as a power generating station, and will be managed to not disturb the integrity of the final cover or function of the monitoring systems.

2.2 Monitoring Schedule

This Post-Closure Plan includes a monitoring schedule, monitoring procedures, and maintenance activities, separated into component systems that are monitored and cared for during the post-closure care period. For monitoring and maintenance purposes, the NC1 Ash Disposal Area has been divided into the following components:

- Final Cover System
- Vegetative Support
- Erosion Controls
- Storm Water/Drainage System
- Groundwater Monitoring System
- Access Controls

Table 1 provides a proposed frequency of monitoring activities based on the CCR rule required 30-year post-closure period. Visual inspections will be conducted by OPPD personnel. In order to facilitate any necessary repair work, inspections will generally be conducted during the spring and fall of each year and/or after severe storms, as needed. Monitoring and maintenance activities will be adjusted in accordance with the season, climate, and weather conditions. During each inspection, descriptions of the condition of the closed facility will be recorded and placed in the operating record maintained in the OPPD offices. Table 2, located at the end of this plan, provides a general inspection checklist for recording the condition of the NC1 Ash Disposal Area. Damages to the monitoring components will be documented.

**Table 1
Post-Closure Inspection Schedule**

| Activity/Year | Frequency, per year ¹ | | | | | |
|--|----------------------------------|---|---|---|---|------|
| | 1 | 2 | 3 | 4 | 5 | 6-30 |
| Final Cover System | Q | Q | S | S | S | A |
| Vegetative Support | Q | Q | S | S | S | A |
| Erosion Controls | Q | Q | S | S | S | A |
| Stormwater/Drainage System | Q | Q | S | S | S | A |
| Groundwater Monitoring System ² | S | S | S | S | S | S |
| Access Controls | A | A | A | A | A | A |

Notes:

¹ S = 2 times per year; A = 1 time per year, Q= 4 times a year

² Detection monitoring will monitor for 40 CFR 257 Appendix III constituents, and assessment monitoring, if required will comply with the CCR rule 40 CFR 257 and NDEQ. Refer to the Groundwater Sampling and Analysis Plan (Permit – Appendix D).

Maintenance activities may or may not be periodically required, depending on the exact situation encountered. Any detected damages or deterioration will be assessed as to the cause and extent before repairs begin. Repairs will occur at the earliest possible time following detection. Temporary repairs may be performed until permanent repairs can be installed. Photographic records will be made, whenever possible, of repair activities for documentation. Repair work will be done in accordance with the Construction Quality Assurance Plan (Permit – Appendix H). All post-closure period repairs will be documented and placed in the operating record.

2.3 Final Cover System

Inspections of the final cover system include walking the closed NC1 Ash Disposal Area looking for evidence of the following items:

- Settlement and subsidence
- Surface erosion
- Vegetative damage
- Cracks or desiccation
- Biotic intrusion of the cover (burrowing rodents or animals)

Visual inspections for subsidence can include walking the cover after a major rainstorm or the beginning of snowmelt and thaw and looking for puddles or ponding. If large or radical changes in the ground surface elevation occur, these are strong indicators of settlement, which may result in damage to the infiltration layer and ponding of water or improper surface drainage. Areas observed to have significant ponding of water on the cap should be investigated for cap integrity and repaired. Eroded and cracked cover materials will be repaired and additional erosion controls (such as erosion control matting, mulching, silt fence, or other measures) installed if necessary. Burrowing rodents will be trapped and removed as necessary to ensure final cover

integrity. Repair of the final cover in damaged areas should include the following:

- Replacing soils by type
- Proper filling and compaction of the infiltration layer (to permeability no greater than 1×10^{-5} cm/sec)
- Re-grading as necessary
- Re-establishing vegetation

All repair work shall be in accordance with the Construction Quality Assurance Plan (Permit – Appendix FH). The location of all damage in the cap and the repair procedure should be clearly documented. Annual maintenance requirements may be affected by weather and other variables. The level of maintenance should decrease with time and the stability of the vegetative support system. Maintenance repairs will be seasonally adjusted based on weather and growing seasons.

2.4 Vegetative Support

Vegetation will be visually inspected for the following:

- Volunteer vegetation (such as weeds, shrubs, and trees)
- Bare spots
- Drought stress
- Insects or bugs
- Other damage or die-off

Condition of the vegetative cover will be documented as part of the scheduled inspection(s) and periodically after rainstorms for failure, and then repaired as necessary. Noxious weeds and woody vegetation will be removed on an annual basis. Bare spots or areas of cracking and vegetative die-off may be indicators of other problems, such as rodents, improper soil type (such as highly alkaline), erosion damage, or other factors. After the root problem has been corrected, vegetative cover will be re-established in these areas.

Because native grasses are used for vegetative cover, mowing is anticipated to be minimal, with an anticipated frequency of mowing two times annually for financial assurance estimating purposes.

2.5 Erosion Controls

The erosion controls will be visually inspected for the following:

- Sedimentation levels
- Erosion rills near control structures
- Damage to erosion control measures such as terraces, berms, silt fences, and hay bales
- Sedimentation leading to drainage structures or impacting vegetation

Terraces and letdown structures will be visually inspected in accordance with Table 1. Maintenance of erosion controls can include removal of accumulated sedimentation and repair or replacement of damaged erosion controls.

2.6 Storm Water/Drainage System

Periodic visual inspection of the storm water/drainage system should include the following areas:

- Culverts
- Ditches
- Monitoring/discharge structures
- Other drainage control structures

Inspection will identify any accelerated erosion in a particular area and differential settling of drainage control structures. Inspections will also look for sedimentation, clogs or obstructions, deterioration, and vegetative intrusion.

Damaged drainage control structures will be repaired, replaced, or restored to original conditions. When drainage structures become plugged or silt filled, they will be cleaned by water jetting or similar means. Silt-filled drainage channels will be cleaned, regarded and vegetated, as necessary to maintain drainage capacity.

2.7 Groundwater Monitoring System

During the semi-annual sampling events, the groundwater monitoring wells will be visually inspected for the following:

- Erosion or biotic intrusion around the base
- Condition of concrete pad
- Condition of protective casing
- Damage to locking well caps or locks
- Integrity of well seals/ well casing
- Integrity of any well markers or protective structures

Areas of erosion at groundwater monitoring wells will be filled with compatible soil materials, graded to drain, and covered with vegetative growth, as necessary. Damaged well caps, concrete pads, and well seals will be repaired and/or replaced. Dedicated pumps that are not working or are performing poorly will be repaired or replaced, or alternatively replaced by a different sampling method approved by the NDEQ. Wells damaged below grade levels may need to be evaluated further and possibly replaced.

Sampling frequency shall be in accordance with Table 1 and will be reported to the NDEQ on a semi-annual basis and a groundwater monitoring and corrective action report prepared annually in accordance with the federal CCR rule. All sampling, packaging, shipping, and testing should conform to the Groundwater Sampling and Analysis Plan (Permit – Appendix D).

At the conclusion of the post-closure monitoring period, all monitoring wells may be abandoned in accordance with the requirements of the State of Nebraska Department of Health Title 178.

2.8 Access Controls

Access will be controlled throughout the post-closure period. Access control structures and signage will be visually inspected for the following:

- Cuts or other damage in fencing
- Damage to fence posts
- Integrity of locks and gates
- Damage to or deterioration of (or missing) posted signs and warnings

All corrective actions, e.g., repair or replacement of damaged fencing, gates, and signs, will be completed within 60 days of noting the deficiency or an alternative schedule developed.

**Table 2
Post-Closure Inspection/Maintenance Checklist**

| TASK | REMARKS/ACTIONS |
|--|---|
| Final Cover System | |
| Indications of Settlement | |
| Erosion of Cap | |
| Exposed CCR | |
| Litter | |
| Cracks or Dessication | |
| Evidence of Biotic Intrusion | |
| Vegetative Support | |
| Vegetation Condition/Bare Spots | |
| Volunteer Vegetation (weeds, woody growth) | |
| Erosion Controls | |
| Terraces – Clear of Debris | |
| Terraces – Erosion | |
| Letdown Structures – Clear of Debris | |
| Letdown Structures – Erosion | |
| Condition of Other Erosion Controls (Silt Fences, Hay Bales, Etc.) | |
| Sedimentation Leading to Drainage Structures | |
| Storm Water/Drainage System – Perimeter Channels | |
| Perimeter Ditches – Clear of Debris | |
| Perimeter Ditches – Erosion | |
| Discharge Structure or Culverts Condition – Clear of Debris/Damage | |
| Groundwater Monitoring System | |
| Condition of protective casing, locking cap and lock, concrete pad, well seal/well casing, protective bollards/posts, and erosion or biotic intrusion. | See well sampling field forms for conditions of wells |
| Access Controls | |
| Fencing/Fence Posts Condition | |
| Integrity of Locks and Gates | |
| Missing or Damaged Signs | |

Date: _____

Inspector Signature: _____