PUBLIC SERVICE COMPANY OF OKLAHOMA (PSO)

NORTHEASTERN POWER STATION

FUGITIVE DUST CONTROL PLAN

Prepared By:

Public Service Company of Oklahoma
Northeastern Power Station
7300 E Hwy 88
Oologah, OK  74053-0220

and

American Electric Power Service Corporation
Environmental Services
1201 Elm Street, Suite 4100
Dallas, Texas  75270

Revision 2 – November 2018
# Table of Contents

Certification Statement .................................................................................................................. iii

1.0 Introduction ............................................................................................................................. 1

2.0 Facility Description and Contact Information ................................................................. 1

2.1 Facility Information .................................................................................................................. 1

2.2 Contact Information ................................................................................................................. 1

2.3 Activities at the Facility ......................................................................................................... 2

2.4 Site Maps ................................................................................................................................ 3

3.0 Fugitive Dust Control Selection .......................................................................................... 4

3.1 Paved and Unpaved Roadways ............................................................................................... 4

3.1.1 Overview .............................................................................................................................. 4

3.1.2 Landfill and Plant Roadways .............................................................................................. 4

3.2 Landfill ................................................................................................................................... 5

3.2.1 Overview .............................................................................................................................. 5

3.2.2 Unloading and Placement ................................................................................................. 5

3.2.3 Wind Erosion ...................................................................................................................... 5

3.4 Bottom Ash Pond .................................................................................................................... 6

4.0 Plan Assessment ....................................................................................................................... 6

5.0 Citizen Complaint Log ............................................................................................................ 7

5.1 Plant Contacts .......................................................................................................................... 7

5.2 Follow-up .................................................................................................................................. 7

5.3 Corrective Actions and Documentation .................................................................................. 7

6.0 Annual Report .......................................................................................................................... 7

7.0 Plan Amendments ..................................................................................................................... 8

8.0 Recordkeeping .......................................................................................................................... 8

8.1 Recordkeeping .......................................................................................................................... 8

8.2 Notification ............................................................................................................................... 8

8.3 Internet Site Requirements ...................................................................................................... 8
Appendices

Appendix A – OAC 252:517 - Air Criteria (Oklahoma DEQ)
Appendix B – Figure 1 Northeastern Site Map
Appendix C – Figure 2 Northeastern CCR Units
Appendix D – Landfill MOD Change of Waste ODEQ Final Waste type Tier II and Response
Appendix E – Plan Modification Documentation
Professional Engineer's Certification

By means of this certification, I certify that I have reviewed this CCR Fugitive Dust Control Plan and it meets the requirements of OAC 252:517-13-1.

David Anthony Miller
Printed Name of Registered Professional Engineer

[Signature]

26057  Oklahoma  12.11.18
Registration No.  Registration Slate  Date
1.0 INTRODUCTION

This CCR Fugitive Dust Control Plan (Plan) has been prepared pursuant to the air criteria of OAC 252:517-13-1 (see Appendix A). The Plan has been prepared in accordance with the air criteria and following good engineering practices to include measures that will effectively minimize CCR from becoming airborne at the facility. The Plan and subsequent amendments will be placed in the operating record and retained in the office of the Plant Environmental Coordinator (PEC) for the American Electric Power (AEP) – Public Service Company of Oklahoma (PSO) Northeastern Power Station (Northeastern). The Plan and subsequent amendments will also be placed on Northeastern’s publicly accessible internet website titled “CCR Rule Compliance Data and Information.” The plan will be amended whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit. Where appropriate, the Plan incorporates fugitive dust control requirements as contained in the Oklahoma Department of Environmental Quality (ODEQ) air quality rules, and the Title V air permit issued for the plant.

There is one CCR surface impoundment and one CCR landfill (Landfill) located at the Northeastern Power Station that are subject to the Plan. The surface impoundment is the bottom ash pond (BAP) which contains sluice water for the removal of bottom ash. The Landfill receives fly ash, activated carbon injection (ACI), and dry sorbent injection (DSI) byproduct, bottom ash - which is periodically removed from the bottom ash pond - and other permitted inert and Non-Hazardous Industrial Wastes (NHIW) such as gravel, sand, and dirt as permitted (See Appendix D). The Plan addresses these CCR units and the associated paved and unpaved roadways.

2.0 FACILITY DESCRIPTION AND CONTACT INFORMATION

2.1 Facility Information

Facility Information
Name of Facility:  Public Service Co. of Oklahoma, Northeastern Power Station
Street: 7300 E. HWY 88
City: Oologah
County: Rogers
Latitude: 36.43783° N  Longitude: 95.70537° W
State: OK  ZIP Code: 74053
2.2 Contact Information

Facility Operator:
Name: Public Service Company of Oklahoma – Northeastern Power Station
Attention: P. M. Barton - Plant Manager
Address: P.O. Box 220, 7300 E. HWY 88
City, State, Zip Code: Oologah, OK 74053

Facility Owner:
Name: Public Service Company of Oklahoma
Attention: Bruce Moore – Manager, Air & Water Quality – West
Address: 1201 Elm Street, Suite 4100
City, State, Zip Code: Dallas, TX 75270

Plan Contact:
Name: Sam Miller – Northeastern Power Station Environmental Coordinator
Address: PO Box 220, 7300 E Hwy 88
City, State, Zip Code: Oologah, OK 74053
Telephone number: 918-581-0063
Email address: srmiller@aep.com

2.3 Activities at the Facility

The Northeastern Power Station is located on the west bank of the Verdigris River southeast of the intersection of US Highway 169 and Oklahoma Highway 88, just outside of Oologah, Oklahoma, and consists of four electric generating units. American Electric Power (AEP) - Public Service Company of Oklahoma (PSO) owns and operates Northeastern’s nominally rated 490-megawatt Unit 3. The nominally rated 490-megawatt Unit 4 was retired in place by April 2016. Since then, Northeastern Power Station Unit 3 is capable of converting approximately 2 million tons of coal per year to electricity, powering thousands of homes, businesses, schools, and industrial facilities.

By April 2016, the existing electrostatic precipitator (ESP) transitioned from being the primary particulate matter control device, to becoming the product recovery device for ash collection. By April 2016, Northeastern Unit 3 has been equipped - downstream of the ESP - with Activated Carbon Injection (ACI) for mercury emissions control, Dry Sorbent Injection (DSI) for sulfur dioxide and
acid gas emissions control, and a Fabric Filter (FF) for particulate matter emissions control of ash, activated carbon, and dry sorbent. The ACI/DSI/FF has become the Unit 3 pollution control equipment. The Landfill is located on Plant property.

Bottom ash is produced by the two coal fired Northeastern Units and is wet sluiced to the removal area of the BAP during unit operations. In the removal area, the bottom ash drops out of the water stream before entering the body of the pond. The bottom ash is routinely reclaimed, loaded into trucks and transported to the Landfill for storage and use as a construction material, or sold for offsite beneficial reuse as a marketable material. Bottom ash that is not used for construction purposes or sold off site will be placed within the Landfill.

The fly ash handling system is an enclosed system. Fly ash removed via the electrostatic precipitators is collected in hoppers. Fly ash is pneumatically conveyed from the hoppers to a fly ash silo. At a later time, fly ash is loaded into trucks. Fly ash is then either sold and hauled off site by truck or railcar for beneficial reuse as a marketable material, or hauled by truck to the Landfill for disposal.

Since April 2016, ACI and DSI by-product have been mixed with fly ash at a 10%-15% mixture of ash to by-product via a pugmill or by mechanical mixing directly on the landfill. By-product, not mixed using the available pugmill, is transported via truck to the landfill for disposal. Alternatively, by-product can bypass the by-product silo and be collected in vacuum totes directly from ACI/DSI/FF baghouse hoppers. Properly filled vacuum totes are transported by truck and trailer rigs to the landfill.

2.4 Site Maps

A USGS site location map for the Plant showing the property boundaries, surrounding topography and receiving waters is included as Figure 1 in Appendix B. Appendix C contains a site location map for the Landfill and bottom ash pond (Figure 2).
3.0 FUGITIVE DUST CONTROL SELECTION

3.1 Paved and Unpaved Roadways

3.1.1 Overview

Trucks are used to transport fly ash, ACI and DSI byproduct mixtures from the storage silos or directly from baghouse hoppers. Bottom ash is transported from the bottom ash dewatering pile. Alternatively, as of the summer of 2018, by-product can bypass the by-product silo, instead being collected in vacuum totes, and transported to the Landfill. The CCR and ACI/DSI byproduct mixtures are hauled from the silos, pile, or in totes, to the Landfill by traveling approximately 0.5 miles over unpaved plant roadways to the Landfill entrance. CCR sold offsite for beneficial reuse is transported from the plant over paved roadways to a public roadway for approximately 0.5 miles. When reclaiming CCR from the Landfill to be sold offsite for beneficial reuse, trucks will travel the combined one-mile distance of 0.5 miles of unpaved plant roadways, and 0.5 miles over plant paved roadways, to the public roadway. When reclaiming CCR from the bottom ash dewatering pile, trucks or truck and trailer combinations will travel the half-mile of paved roadways to the public highway. Trucks may also travel approximately 0.25 miles of combined paved and unpaved roadways when transferring CCR from the fly ash silos to railcars for offsite beneficial reuse. Periodically, paved and unpaved roads traveled by trucks may be addressed to minimize airborne dust due to plant activity.

Trucks are used to transport CCR and ACI/DSI byproduct mixtures from the plant site to the Landfill. Within the Landfill entrance, the trucks travel approximately 0.5 miles over Landfill paved roadways to the disposal area, followed by a much shorter unpaved roadway that varies with the location of the active fill area. Similarly, bottom ash trucks travel approximately 0.5 miles over unpaved plant roadways to the Landfill entrance. Periodically, paved and unpaved roads traveled by trucks may be addressed to minimize airborne dust due to plant activity.

3.1.2 Paved and Unpaved Roadways

The primary appropriate and applicable airborne dust control measures for roadways are watering, sweeping, tarping, and speed controls.

a. Water trucks are used as needed based upon the daily inspections and other observations to minimize or eliminate airborne dust.

b. Chemical suppressants or stabilizers may also be used on unpaved roadways depending on specific site conditions.
c. Posted speed limits are 15 mph for paved and unpaved roads.
d. Ash, Earth, or other materials that may be deposited onto paved roadways from trucks will be promptly removed to minimize airborne emissions.
e. Implementation of control measures will not be necessary for roadways that are covered with snow and/or ice or if sufficient precipitation occurs to minimize or eliminate airborne dust.
f. Implementation of any control measures may be suspended if unsafe or hazardous driving conditions would be created by its use.

3.2 Landfill

3.2.1 Overview

The landfill receives CCR, ACI/DSI by-product, as well as miscellaneous inert waste and NHIW (as permitted) from the Northeastern Power Station. All materials may contain moisture (conditioned) but water or chemical suppressants may be added at the landfill as necessary to minimize airborne dust emissions. [Note: “conditioned” means the material has sufficient moisture content to prevent wind dispersal but will not result in free liquids.] The landfill activities are subject to ODEQ Solid Waste Permit No. FA3566010.

The Northeastern Power Station Title V Air Permit does not have a visible emission limit specific to landfills. However, the fugitive dust air quality rule [OAC 252: 100-29] - which is identical to Title V air permit condition [Specific Condition XIX A (4)] is applicable. It requires that:

“No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards.”

3.2.1 Unloading and Placement

Fly ash and the ACI/DSI mixture are unloaded from trucks, or totes, or a bottom dump trailer with skirting in the active fill area of an open landfill cell using mobile water spray systems to minimize dusting. A bulldozer, or similar equipment, is used to spread and compact the materials, and a roller may also be used for additional compaction. Bottom ash is unloaded from end dump trucks into a storage pile for use in construction, to be sold for offsite beneficial reuse as a marketable material, or for disposal within the landfill. The airborne dust control
measures for truck, tote, or trailer unloading includes the proper skirting and water mist sprays of the bottom dump trailers, mobile water spray systems, maintaining moisture in the material, and taking other precautionary measures such as minimizing drop height. The measures for spreading and compacting include maintaining vehicle speed and watering materials.

3.2.3 Wind Erosion

Generally, landfill disposal areas can be classified as closed or open. Closed areas have received final cover and vegetation has been established. Open areas contain both the active fill area and areas that have been compacted but not yet received final cover. The open area airborne dust control measures include: precautionary measures such as minimizing the amount of open area and pile height; compacting material as it is unloaded; watering; and application of chemical suppressants. The bottom ash storage pile airborne dust emissions are minimized by watering, application of chemical suppressants and pile height control.

3.3 Bottom Ash Pond

Northeastern Power Station bottom ash is produced by Northeastern Unit 3, and is wet sluiced to the removal area of the BAP during unit operations. Ash is dredged from the pond and placed adjacent to the pond where it gradually dewatered. The ash is then loaded onto trucks or trailers for transport. While the bottom ash typically remains moist, depending on the amount of moisture remaining in the ash and seasonal conditions, there may be airborne emissions from the pile or truck loading activities. A review of potential control measures concluded that the applicable and appropriate options consist of: watering, chemical suppressant application, wind barriers, minimizing drop height, and vehicle tarping. Water or chemical dust suppressant may be applied to the pile to minimize airborne emissions as needed. A berm is maintained around the pile to serve as a windbreak. The berm is constructed of bottom ash and or soil and typically covered with soil and vegetation. Water spray is applied as needed to the material handling activities and the drop from the loader into the trucks or trailers is minimized to further minimize airborne emissions. Enclosures, compaction and daily cover are not applicable given the size of the area and characteristics of the material.

4.0 PLAN ASSESSMENT

The Plan will be periodically assessed to verify its effectiveness, and if necessary, amended in accordance with Section 7.0 below. The Landfill, BAP, and associated paved and unpaved roadways are routinely evaluated. The purpose of the inspections is to determine if the control measures for each CCR unit as described
above are being implemented as necessary to minimize or eliminate airborne emissions. Records of inspections and the control measures implemented as a result of the inspections will be maintained. The PEC will review the inspection records annually to assess the effectiveness of the Plan and determine if additional or modified measures are warranted. No inspection is necessary if the surface is covered with snow and/or ice, or if precipitation has occurred that is sufficient to minimize or eliminate airborne emissions. Implementation of any control measure may be suspended if unsafe or hazardous driving conditions would be created by its use.

5.0 CITIZEN COMPLAINT LOG

5.1 Plant Contacts

Generally, complaints made to the plant are by telephone and routed to the PEC and/or the Plant Manager or his designee. In the case of a holiday, weekend day, or other times when the PEC may not be onsite or available, the plant control room may receive complaint information by telephone that is provided to the PEC at the earliest convenience. Complaints may also be made to the ODEQ, who in turn will contact either the PEC, or Northeastern Power Station management.

5.2 Follow-up

All complaints will be entered into a log by the PEC with details noted such as the nature of the complaint, date, time, and other relevant details. All complaints will be followed up which may include: checking plant operations at the time of the event, reviewing inspection records, discussing with other plant personnel, reviewing weather data, collecting samples and contacting the person making the complaint to obtain additional information.

5.3 Corrective Action and Documentation

Corrective actions will be taken as needed and documented. If it is determined that the Plan needs to be amended as a result of the corrective actions, it will be amended in accordance with the Plan. If necessary, the Plant Manager or his designee will follow-up with the complainant and/or ODEQ to explain the findings of the complaint investigation, corrective actions or sampling results. Citizen complaints will be recorded in the annual Report.

6.0 ANNUAL REPORT

The Annual CCR fugitive dust control report (Annual Report) will include the following components: description of actions taken to control CCR airborne dust; a record of all citizen complaints; and a summary of any corrective measures taken. The initial Annual Report was completed within 14 months after the filing of the
initial CCR fugitive dust control plan in the facility’s operating record. The deadline for completing subsequent reports is one year after the date of completing the previous report. The Annual Report will be deemed complete when the plan has been placed in the facility’s operating record as described in Section 8.0.

7.0 PLAN AMENDMENTS

This Plan is a “living” document and will be amended, as necessary, whenever there is a change in conditions that would substantially affect the written plan in effect. The Plan will be amended in the case of construction and operation of a new CCR unit. Amendments made to the Plan will be documented in Appendix E. The amended Plan will be placed into the facility’s operating record as described in Section 8.0.

8.0 RECORDKEEPING, NOTIFICATION and INTERNET REQUIREMENTS

8.1 Recordkeeping

The Plan and files of all related information will be maintained in a written operating record at the facility for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record or study. Files may be maintained on a computer or storage system accessible by a computer. One recordkeeping system may be used for the BAP and Landfill if the system identifies each file by the name of each unit (i.e. BAP or Landfill). The Plan (and any subsequent amendment of the plan) and the Annual Report will be kept in the facility’s operating record as they become available. Only the most recent Plan must be maintained in the record. [OAC 252:517-13-1(d)]

8.2 Notification

The ODEQ will be notified within 30 days of when the Plan (or any subsequent amended Plan) or the Annual Report is placed in the operating record and on the publicly available internet site. This notification will be made before the close of business on the day the notification is required to be completed. “Before the close of business day” means the notification must be postmarked or sent by e-mail. If the notification deadline falls on a weekend or federal holiday, the notification is automatically extended to the next business day. [OAC 252:517-13-1(d)]

8.3 Internet Site Requirements

The most recent Plan and annual Report will be placed on the facility’s CCR website titled “CCR Rule Compliance Data and Information” within 30 days of placing them in the operating record. [OAC 252:517-13-1(d)]
(a) Minimizing airborne CCR. The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities.

(b) CCR fugitive dust control plan. The owner or operator of the CCR unit must prepare and operate in accordance with a CCR fugitive dust control plan as specified in paragraphs (b)(1) through (7) of this Section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act.

(1) The CCR fugitive dust control plan must identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility. The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Examples of control measures that may be appropriate include: Locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system; reducing fall distances at material drop points; using wind barriers, compaction, or vegetative covers; establishing and enforcing reduced vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover.

(2) If the owner or operator operates a CCR landfill or any lateral expansion of a CCR landfill, the CCR fugitive dust control plan must include procedures to emplace CCR as conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture content that will prevent wind dispersal, but will not result in free liquids. In lieu of water, CCR conditioning may be accomplished with an appropriate chemical dust suppression agent.

(3) The CCR fugitive dust control plan must include procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at the facility.
(4) The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan.

(5) The owner or operator of a CCR unit must have prepared an initial CCR fugitive dust control plan for the facility no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this Chapter after October 19, 2015. The owner or operator has completed the initial CCR fugitive dust control plan when the plan has been placed in the facility’s operating record as required by OAC 252:517-19-1(g)(1).

(6) The owner or operator of a CCR unit subject to the requirements of this Section may amend the written CCR fugitive dust control plan at any time provided the revised plan is placed in the facility’s operating record as required by OAC 252:517-19-1(g)(1). The owner or operator must amend the written plan whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit.

(7) The owner or operator must obtain a certification from a qualified professional engineer that the initial CCR fugitive dust control plan, or any subsequent amendment of it, meets the requirements of this Section.

(8) The owner or operator must submit the initial CCR fugitive dust control plan, and any subsequent amendment of it, to the DEQ for approval.

(c) Annual CCR fugitive dust control report. The owner or operator of a CCR unit must prepare and submit to DEQ an annual CCR fugitive dust control report that includes a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The initial annual report must be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record. The deadline for completing a subsequent report is one year after the date of completing the previous report. For purposes of this paragraph (c), the owner or operator has completed the annual CCR fugitive dust control report when the plan has been placed in the facility’s operating record as required by OAC 252:517-19-1(g)(2).

(d) Recordkeeping. The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

[Source: Added at 33 Ok Rea 1469, eff 9-15-16]
Appendix B
Appendix C
NORTHEASTERN POWER STATION
LANDFILL AND BOTTOM ASH POND AERIAL VIEW
Appendix D
November 18, 2013

Ms. Jill Parker-Witt, P.E.
American Electric Power
502 North Allen Avenue
Shreveport, LA 71101

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Re: Tier II Permit Modification—Change of Waste Type, Additional Non-hazardous Industrial Waste Streams Public Service Company of Oklahoma, Northeastern Power Station Ash Landfill Rogers County, Permit No. 3566010

Dear Ms. Parker-Witt:

In correspondence dated August 16, 2013, the Department of Environmental Quality (DEQ) issued a draft permit modification to dispose additional waste streams in the Northeast Power Station Ash Landfill. The modification request was processed as a Tier II permit modification. Public notice of the draft permit was published October 10, 2013 in the Ooigah Lake Leader. No comments were received on the draft. In accordance with Oklahoma Administrative Code 252:4, Rules of Practice and Procedure, the permit is now issued as final.

Please read the attached permit conditions carefully. If you have any questions, please contact Patrick Riley at (405) 702-5191.

Sincerely,

[Signature]

Saba Tahmassebi, Ph.D., P.E.
Chief Engineer
Land Protection Division

ST/pcr
SOLID WASTE PERMIT MODIFICATION

The Department of Environmental Quality hereby approves the following modification:

Permit Number: 3566010
Permittee: American Electric Power
Facility: Northeastern Power Station Ash Landfill
Facility Type: Non-hazardous Industrial Waste Landfill
County: Rogers

Modification:
Revise the existing permit to allow disposal of additional waste streams in the generator owned and operated non-hazardous industrial waste (NHIW) landfill.

Conditions:
1) Only NHIW generated on-site at Northeast Power Station may be disposed in the Northeast Power Station Landfill (Landfill).

2) The following new waste streams, in addition to fly ash and bottom ash currently approved for disposal at the Landfill, may be disposed:
   a. Economizer ash
   b. Coal mill rejects and waste coal
   c. Cooling tower sediment
   d. Cooling water screenings
   e. Sand filter media sediment
   f. Demineralization resins
   g. Storm water sump sediment
   h. Fire brick and refractory materials

3) The following waste streams have been proposed for disposal but will not be generated until after Dry Sorbent Injection and Activated Carbon Injection processes are implemented at the site and after the interim liner and leachate collection system have been constructed.
   a. Dry Sorbent Injection (DSI) flue gas treatment waste
   b. Unusable DSI reagent
   c. Pin mixer washout
   d. Activated Carbon Injection (ACI) flue gas treatment waste
   e. Waste activated carbon
   f. Blasting media
   g. Sediment from dredging storm water and leachate ponds

Since the above listed wastes have yet to be generated, full characterization has not been made, and a non-hazardous determination has not been documented. The waste streams may be disposed at the landfill after full characterization, including lab analysis, documents the waste streams to be non-hazardous and results have been
submitted to DEQ. The wastes are to be disposed on areas of the landfill equipped with synthetic liner and leachate collection system.

4) Documentation that all waste disposed in the landfill has been fully characterized and documented to be non-hazardous must be maintained as part of the facility record.

5) No office trash or putrescible waste may be disposed in the landfill.

6) No liquid waste may be disposed in the landfill.

7) Waste streams associated with the DSI process must be re-characterized if the reagent changes.

8) Northeast landfill must initially perform TCLP analysis on DIS and ACI flue gas treatment waste on a quarterly basis. If, after four quarters of sampling, non-hazardous results are consistently obtained, the landfill may request a reduced frequency of testing.

9) The balance of the waste streams must be re-characterized on an annual basis, or more frequently based on variability, volume, or generation rate, of the waste stream.

The permittee is authorized to operate in conformity with the application described above. Commencing operations under this permit modification constitutes acceptance of, and consent to, the conditions contained herein.

Saba Tahmassebi, Chief Engineer
Land Protection Division

Scott Thompson, Director
Land Protection Division

Date: 11/18/13

Date: 11-18-13
<table>
<thead>
<tr>
<th>Revision Number</th>
<th>Date</th>
<th>Revision Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Oct. 2015</td>
<td>Initial Plan</td>
</tr>
<tr>
<td>1</td>
<td>Sept. 2018</td>
<td>Clarified text regarding the retirement of Unit 3. Added text regarding the secondary option of bypassing the by-product silo, loading by-product directly from baghouse hoppers into totes instead, and transporting those totes to the landfill. In Section 4, changed the inspection timeframe from “on a weekly basis” to “routinely evaluated”. Changed text from “Rev 1” to “Rev 2”</td>
</tr>
<tr>
<td>2</td>
<td>Nov. 2018</td>
<td>Clarification of the by-product silo bypass process for loading and transporting by-product, of the by-product/fly ash mixing alternatives, of dust suppression methods for unloading of CCR on the landfill, and of additional loading and transport of bottom ash directly from the bottom ash dewatering pile. Redefined dust from facility CCR operations as “airborne dust” and not “fugitive dust”. Renamed document from “Rev 1” to “Rev 2”.</td>
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