

Technical Memo



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To: Alex Bumgardner, Austin Utilities
From: Dave Parenteau, PE, Wenck Associates, Inc.
Date: December 15, 2015
Subject: Notice of Intent to Close NE Plant Pond
Wenck Project # B1463-0018

Purpose

This memorandum fulfills the requirements of 40 CFR § 257.100 Closure and Post Closure Care of Inactive Coal Combustion Residuals (CCR) surface impoundments.

Background and Applicability

Austin Utilities (Austin) has operated a coal fired power plant located at 2901 11th St. NE, approximately 1 mile north of the Austin City limits since 1971. The plant location and site layout is depicted in Figure 1. The plant was designed to burn either coal or natural gas and has a maximum electrical generating maximum capacity of 30 megawatts.

Dry ash handling equipment installation around 1996 eliminated wet ash handling operations at the plant. Until that change, coal ash was landfilled in a permitted solid waste disposal area (MPCA Permit # SW-273). In 1996, the landfill was closed and post closure care has continued since that point. Since this disposal area is inactive and was closed prior to the inception of the new CCR rules, the recently promulgated rules don't apply to this area.

Until 2005 typical annual coal combustion quantities at the plant often exceeded 60,000 tons, with 100,000 tons per year as the expected maximum annual throughput. Since that time, the Northeast Plant operations transitioned from almost continuous generation in a base load capacity to peaking operations in reduced production hours due to economic factors including fuel costs and other considerations.

In September 2011, the Austin Utilities Board of Commissioners moved to restrict the Northeast Plant operations to burn only natural gas from August 1, 2012 forward. The last coal was burned at the plant early in 2012.

The method of CCR management from the closure of the solid waste landfill until cessation of coal combustion was the operation of an incised wet pond regulated

under the NPDES program. This pond is approximately 90 feet wide in the east-west direction and 300 feet long in the north south direction. There is a smaller polishing pond immediately to the north of this pond that is not subject to this Notice of Intent to Close. Figure 2 shows the pond location. This pond is inactive and has not received CCR's since 2012, but has not been closed to date. It is this pond that is the focus of this Notice of Intent to Close.

Notice of Intent to Close

§ 257.100 has several components and this section addresses each of them. The specific subpart of the rule is shown in italics and the demonstration of compliance with the subpart, or reason for the subpart not being applicable is provided after each subpart.

- (a) *Except as provided by paragraph (b) of this section, inactive CCR surface impoundments are subject to all of the requirements of this subpart applicable to existing CCR surface impoundments.*

The pond is an inactive CCR impoundment and therefore subject to this rule

- (b) *An owner or operator of an inactive CCR surface impoundment that completes closure of such CCR unit, and meets all of the requirements of either paragraphs (b)(1) through (4) of this section or paragraph (b)(5) of this section no later than April 17, 2018, is exempt from all other requirements of this subpart.*

The following sections will demonstrate compliance with subparts (b) (1) through (4)

- (1) *Closure by leaving CCR in place. If the owner or operator of the inactive CCR surface impoundment elects to close the CCR surface impoundment by leaving CCR in place, the owner or operator must ensure that, at a minimum, the CCR unit is closed in a manner that will:*
 - (i) *Control, minimize or eliminate, to the maximum extent feasible, post- closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;*
 - (ii) *Preclude the probability of future impoundment of water, sediment, or slurry;*

- (iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system; and*
- (iv) Minimize the need for further maintenance of the CCR unit.*

Austin intends to close the impoundment by leaving residual CCR materials in place and by filling the pond with clean fill and then installing the required final cover system. Components (i) through (iv) are addressed below

- (i) The pond will be dewatered in accordance with the sites current NPDES permit and then filled with clean soil. This, combined with the final cover system, will minimize post closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere. It is also important to note that there will be very little remaining CCR in the pond at the time of closure.
 - (ii) The area will be sloped and therefore will preclude the probability of future impoundment of water, sediment, or slurry.
 - (iii) The site is an incised pond and the final cover grades will be relatively flat, therefore there is no concern related to slope stability or sloughing or movement of the final cover system; and
 - (iv) The vegetated surface of the final cover and lack of slope stability or subsidence concerns will minimize the need for further maintenance of the CCR unit.
- (2) *The owner or operator of the inactive CCR surface impoundment must meet the requirements of paragraphs (b) (2) (i) and (ii) of this section prior to installing the final cover system required under paragraph (b) (3) of this section.*
- (i) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.*
 - (ii) Remaining wastes must be stabilized sufficient to support the final cover system.*

The pond will be dewatered and the fill will be compacted in lifts such that it is capable of supporting the final cover system.

- (3) *The owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph (b)(3)(i) of this section, or the requirements of an alternative final cover system specified in paragraph (b)(3)(ii) of this section.*
- (i) *The final cover system must be designed and constructed to meet the criteria specified in paragraphs (b) (3) (i) (A) through (D) of this section.*
- (A) *The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} centimeters/second, whichever is less.*
- (B) *The infiltration of liquids through the CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.*
- (C) *The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.*
- (D) *The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.*

The final cover system will consist of the following layers from the bottom up:

- (3)(i)(A) - 12 inch thick layer of clay or clayey soils with a hydraulic conductivity of no greater than the lower of the natural subsoils present or 1×10^{-5} cm/sec, whichever is lower.

The pond is not lined with a constructed barrier layer; therefore the hydraulic conductivity of the natural subsoils will dictate the requirements. The hydraulic conductivity of the natural subsoils will be determined by a review of available historical hydrogeologic investigation for the adjacent landfill, and if that data is found to be insufficient, Shelby tubes will be pushed into the natural subsoils to collect an undisturbed sample for laboratory analysis of hydraulic conductivity. The sample collection will be done with either a

small excavator if conditions are conducive to advancement of a Shelby tube using an excavator, or a drill rig will be used.

- (3)(i)(B) The barrier layer will be overlain by an 18 inch thick layer of earthen material that will be placed in one lift and not compacted. This layer will be the infiltration layer.
- (3)(i)(C) The infiltration layer will be overlain by a 6 inch thick layer of topsoil and this will be the vegetative layer. The topsoil will be amended with fertilizer as needed and the final surface will be seeded and mulched.
- (3)(i)(D) The grades of the final surface will be such that settlement can be accommodated without disruption of the integrity of the final cover system. Grades will be a minimum of 3% which is consistent with the MPCA requirements for a MSW landfill final cover system. It is also important to note that the pond is relatively shallow (12-15' in total depth) and therefore the settlement potential is minimal as it's directly proportional to the thickness of the compressible layer, which in this case will be the 12 to 15 feet of fill placed back into the pond to bring it up to grades that match the surrounding topography at the edges.

- (ii) *The owner or operator may select an alternative final cover system design, provided the alternative final cover system is designed and constructed to meet the criteria in paragraphs (b)(3)(ii)(A) through (C) of this section.*
 - (A) *The design of the final cover system must include an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (b)(3)(i)(A) and (B) of this section.*
 - (B) *The design of the final cover system must include an erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in paragraph (b)(3)(i)(C) of this section.*
 - (C) *The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.*

At this time, the owner is not proposing an alternate final cover system, therefore subpart (b) (3) (ii) does not apply.

- (4) *The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer stating that the design of the final cover system meets either the requirements of paragraphs (b)(3)(i) or (ii) of this section.*

I am a registered professional engineer in the state of Minnesota (PE#, 41243) and the certification statement on the last page of this memorandum addresses this requirement.

- (5) *Closure through removal of CCR. The owner or operator may alternatively elect to close an inactive CCR surface impoundment by removing and decontaminating all areas affected by releases from the CCR surface impoundment. CCR removal and decontamination of the CCR surface impoundment are complete when all CCR in the inactive CCR surface impoundment is removed, including the bottom liner of the CCR unit.*

Austin does not intend to implement this closure strategy; therefore this subpart does not apply.

- (6) *The owner or operator of the CCR surface impoundment must obtain a written certification from a qualified professional engineer that closure of the CCR surface impoundment under either paragraphs (b)(1) through (4) or (b)(5) of this section is technically feasible within the timeframe in paragraph (b) of this section.*

Given the small size of this pond (approx. 0.6 acres) it is anticipated that closure activities can be achieved during the 2016 construction season. There are several qualified contractors within 50 miles of the site and the soil volumes anticipated are such that the project should take no longer than 3-4 weeks to complete, including turf restoration.

A tentative schedule is as follows:

Activity	Tentative Timeframe
1) Dewater Pond	Present to August 2016
2) Determine hydraulic conductivity of natural subsoils if field investigation necessary	Late Spring/Early Summer 2016
3) Place Fill in Pond	Late August 2016
4) Construct Final Cover System	Early September 2016
5) Turf Establishment	Late September, 2016 ⁽¹⁾

(1) If seeding cannot be performed during the recommended fall planting season, dormant seeding would be done in Nov/Dec once soil temperatures drop below 40°F.

It is possible that the construction may be deferred to the 2017 construction season. In that case, completing this work entirely during the 2017 construction season is feasible, given the small size of this project and the capabilities of the local/regional earthwork contractors.

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(7) *If the owner or operator of the CCR surface impoundment fails to complete closure of the inactive CCR surface impoundment within the timeframe in paragraph (b) of this section, the CCR unit must comply with all of the requirements applicable to existing CCR surface impoundments under this subpart.*

Austin will comply with all requirements applicable to existing CCR impoundments under this subpart if the closure is not completed within the time frame given in paragraph (b) of this section (By April 17, 2018).

(c) *Required notices and progress reports. An owner or operator of an inactive CCR surface impoundment that closes in accordance with paragraph (b) of*

this section must complete the notices and progress reports specified in paragraphs (c) (1) through (3) of this section.

- (1) No later than December 17, 2015, the owner or operator must prepare and place in the facility's operating record a notification of intent to initiate closure of the CCR surface impoundment. The notification must state that the CCR surface impoundment is an inactive CCR surface impoundment closing under the requirements of paragraph (b) of this section. The notification must also include a narrative description of how the CCR surface impoundment will be closed, a schedule for completing closure activities, and the required certifications under paragraphs (b)(4) and (6) of this section, if applicable.*
- (2) The owner or operator must prepare periodic progress reports summarizing the progress of closure implementation, including a description of the actions completed to date, any problems encountered and a description of the actions taken to resolve the problems, and projected closure activities for the upcoming year. The annual progress reports must be completed according to the following schedule:*

 - (i) The first annual progress report must be prepared no later than 13 months after completing the notification of intent to initiate closure required by paragraph (c)(1) of this section.*
 - (ii) The second annual progress report must be prepared no later than 12 months after completing the first progress report required by paragraph (c)(2)(i) of this section.*
 - (iii) The owner or operator has completed the progress reports specified in paragraph (c) (2) of this section when the reports are placed in the facility's operating record as required by § 257.105(i) (2).*
- (3) The owner or operator must prepare and place in the facility's operating record a notification of completion of closure of the CCR surface impoundment. The notification must be submitted within 60 days of completing closure of the CCR surface impoundment and must include a written certification from a qualified professional engineer stating that the CCR surface impoundment was closed in accordance*

with the requirements of either paragraph (b)(1) through (4) or (b)(5) of this section.

Austin will comply with these notification requirements and place these records in their operating record as required by § 257.105(i)(2).

- (d) *The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(i), the notification requirements specified in § 257.106(i), and the internet requirements specified in § 257.107(i)*

Austin will comply with the recordkeeping requirements as required by § 257.105, notification requirements of § 257.106(i), and internet requirements of § 257.107(i). It is understood that in order to meet the Notice of Intent to Close deadline of December 17, 2015, all three of these requirements will be met.

I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.



December 15, 2015

Dave Parenteau, P.E. 41243

Figures



AUSTIN PUBLIC UTILITIES

Site Map

WENCK
ASSOCIATES

Responsive partner. Exceptional outcomes.

DEC 2015

Figure 1



2015 Aerial Photograph (Source: Google Earth Pro)

50 25 0 50
 Feet

Path: L:\1463109\imxd\Incised Inactive CCR Pond Location Map.mxd
 Date: 12/9/2015 Time: 2:21:29 PM User: ShuJC0243

Legend

- Minor Contours
- Major Contours