To: Coal Combustion Residual's (CCR) Rule Compliance Data and Information File

From: Tony Sedlacek, Fremont Department of Utilities

Date: October 16, 2016

Subject: Closure and Post-Closure Care for CCR landfills (40 CFR part 257.102 and 257.104))

The final rule to regulate the disposal of coal combustion residuals (CCR) as solid waste under subtitle D of the Resource Conservation and Recovery Act (RCRA) was published in the Federal Register, Volume 80, NO. 74 on Friday, April 17, 2015 (CCR Rule). This final rule was effective on October 14, 2015 and is self-implementing. It is understood that the Fossil Fuel Combustion Ash (FFCA) Monofill owned and operated by the City of Fremont's Department of Utilities (FDU) and authorized by the Nebraska Department of Environmental Quality (NDEQ) under Nebraska Solid Waste Permit No. NE0203777 will be regulated under this new rule as a CCR Landfill, by definition. CCR Landfills are collectively regulated by reference as "CCR Units."

Under the new CCR Rile, closure and post closure for landfills must meet the requirements under 257.102 and 257.104, in summary, as follows:

1. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during its active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The plan must include a description of the following:

    a. A narrative description of how the CCR unit will be closed;

    b. If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance to meet the closure requirements contained in the CCR rule.

    c. An estimate of the maximum inventory of CCR ever on-site over the life of the CCR unit;

    d. An estimate of the largest area of the CCR unit ever requiring a final cover; and

    e. A schedule for completing all activities necessary to satisfy the CCR unit closure and post-closure requirements.

The CCR rule requirements imposed by the new rule and referenced above have been met by Fremont Department of Utilities through the NDEQ FFCA permitting process. The permit is renewed every five years and the most recent was issued by NDEQ effective July 16, 2016 (NE0203777). A permit renewal application will be reviewed and submitted to the permitting authority no less than 180-days prior to expiration. Any necessary changes to the already approved Closure and Post-Closure Care will be amended as needed.

Applicable excerpts pertaining to the Closure and Post-Closure Care from FDU's CCR Unit permit are attached to this memo. The permit application containing these requirements has been reviewed and certified by a Nebraska Certified Professional Engineer and approved by NDEQ.

# CLOSURE/POST-CLOSURE PLAN

# CLOSURE/POST-CLOSURE PLAN

# FOR

# FREMONT DEPARTMENT OF UTILITIES FOSSIL FUEL COMBUSTION ASH DISPOSAL SITE

## UPDATED: MARCH 2016

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## ATTACHMENTS


Attachment 1 Letter from the Fremont Wastewater Treatment Plant

# ACRONYMS

| | |
|---|---|
| CCR | Coal Combustion Residual |
| CQA | Construction Quality Assurance |
| FDU | Fremont Department of Utilities |
| NDEQ | Nebraska Department of Environmental Quality |
| Site | Fossil Fuel Combustion Ash Disposal Site |
| U.S. EPA | United States Environmental Protection Agency |

# 1.0 INTRODUCTION

This Closure/Post-Closure Plan provides a description of activities, schedules, and features incorporated into the closure of the proposed Fossil Fuel Combustion Ash Disposal Site (Site or Monofill) for the Fremont Department of Utilities (FDU) at the Lon D. Wright Power Plant (Power Plant). The Site will only accept ash from the Power Plant; as such, the fossil fuel ash disposal area represents a monofill, or for purposes of the Coal Combustion Residual (CCR) Rule at 40 CFR 257 and 261, the site meets the definition of an existing CCR landfill. This Closure/Post-Closure Plan also provides guidance for monitoring and maintaining the Site during the post-closure period. The Site is located east of the Power Plant on the east side of the City of Fremont, Nebraska (see Appendix A, Figure 1). The total disposal area on the Site is 6.7 acres. The descriptions and background information provided in this plan are supported by the Ash Monofill Disposal Site Master Plan (Appendix A), the Leachate Management Plan (Appendix E), and the construction contract documents.

FDU will not implement modifications to the design or operations of the Site that result in modifications to this Closure/Post-Closure Plan without prior approval from the Nebraska Department of Environmental Quality (NDEQ).

# 2.0 CLOSURE PLAN

## 2.1 General

Drawing C-1 in Appendix H illustrates the initial Site construction and operation of the Monofill. Filling operations will begin in Phase 1. Prior to the completion of filling operations in Phase 1, Phase 2 will be constructed. When Phase 1 is completely filled, the filling of Phase 2 will begin. Phase 1 will be closed in accordance with this Plan. The closure of Phase 1 and the construction of Phase 2 are shown in Drawing C-2 in Appendix H. When Phase 2 is complete, Phase 1 will be closed in accordance with this Plan. The closure of Phase 2 is shown in Drawing C-3 in Appendix H.

Based on the total area of both phases, it is estimated that the largest area requiring final cover at any time during the active life of the Site will be approximately 3.8 acres (see the Leachate Management Plan, Appendix E).

It is estimated that the maximum volume of ash disposed over the active life of the Site will be approximately 76,400 cubic yards when both Phases 1 and 2 are filled.

Contacts regarding the closure or post-closure care of the Site should be directed to:

Power Plant Superintendent
Fremont Department of Utilities Power Plant
400 East Military Avenue, P.O. Box 1468
Fremont, NE 68026
Phone: (402) 727-2644

The primary closure activities of the Site involve the following:

- Correcting or adjusting site grades;
- Final construction of the cap; and
- Installing vegetation.

## 2.2 Schedule of Closure and Notification

As discussed in the Ash Monofill Disposal Site Master Plan (Appendix A of this Permit Renewal Application), during the past 10 years, the amount of ash removed from Phase 1 has almost equaled the amount of ash placed in it. FDU expects that they will continue to reclaim ash from the Monofill at a rate that will result in minimal to no net gain of volume in the Monofill. Therefore, the year at which Phase 1 can be anticipated to be at capacity is indefinite.

The schedule of closure activities and notifications will include the following:

- At least 180 days prior to the initiation of closure activities on each phase, FDU will notify NDEQ in writing of the date that closure activities will begin (Notification of Intent to Closure). FDU will place a copy of this notification in the Operating Record and post it on the FDU's website in accordance with the CCR rule.
- Implementation of the closure plan for each phase will begin within 30 days after the date on which the final volume of ash is received in each phase. For each phase, FDU will notify NDEQ of the date of the deposit of the final volume of ash, the date of the initiation of closure, and the date of the installation of the final cover system. Copies of these notices will be placed in the Operating Record and posted on the FDU's website in accordance with the CCR rule.
- Final grading and placement of earthen material will be conducted following the implementation of closure activities for each phase.
- Seeding will be conducted following the completion of final grading and placement of earthen material.
- The closure activities will be completed within 180 days after the last receipt of ash for each phase or within the next construction season. FDU will provide NDEQ with a certification, prepared by an independent Professional Engineer registered in the State of Nebraska, verifying that closure has been completed in accordance with the closure plan. This certification will be placed in the Operating Record and posted on the FDU's website in accordance with the CCR rule.
- Within 90 days following final closure of the CCR Unit, FDU will record a permanent notation on the deed to the Site that will, in perpetuity, notify any potential purchaser of the following:
    - The existence of a closed fossil fuel ash disposal area on the Site;
    - The depth and location of the ash from the combustion of fossil fuel in the Power Plant;
    - The existence of any monitoring systems on the Site; or
    - Any restrictions on the use of the property that may be needed to protect the integrity of the final cover, liner, monitoring systems, or any component of the containment system.

FDU will provide NDEQ a copy of this notation and will place a copy of this record and notification in the Operating Record and posted on the FDU's website in accordance with the CCR rule.

## 2.3 Capping System

The capping system shall consist of 6 inches of compacted soil subgrade, overlain by a geosynthetic clay liner (GCL), a 60-mil HDPE geomembrane, a geotextile drainage layer, and 24 inches of earthen material suitable for supporting vegetation. Currently, the earthen material is anticipated to come from the City's property in Saunders County. The capping system will be constructed in accordance with the Construction Quality Assurance (CQA) Plan presented in

Appendix F. Personnel knowledge in grassing and seed mixtures will be included in the decision of soil and seed density, seed bed preparation, freeze/thaw depth, and root survival.

As required by the CCR Rule, the hydraulic conductivity of the final cap must be equal to or less than that of the bottom liner system. As such, an equivalency determination for the hydraulic conductivity of the GCL must be made, compared to the 2-feet of clay used in the bottom liner system.

Equation 1 of Section 257.70 of the CCR Rule was used to calculate the theoretical hydraulic conductivity requirement for the GCL. It was assumed that with a geotextile drainage layer and 2-feet of soil with vegetation, accumulated head on the geomembrane would be no greater than 6-inches; however, a detailed analysis of potential head will be required once soil for cap construction and vegetation have been selected.

$$q = k\ (h/t + 1)$$

Where:
q = flow rate per unit area
k = hydraulic conductivity of the liner (cm/s)
h = hydraulic head above the liner (cm)
t = thickness of the liner (cm)

Using 2-feet of clay with $k = 1.0 \times 10^{-7}$ cm/s; h = 15 cm; t = 60 cm

$$q = 1.0 \times 10^{-7} \text{ cm/s } (15 \text{ cm}/60 \text{ cm} + 1)$$
$$q = 1.25 \times 10^{-7} \text{ cm/s}$$

Using GCL with h = 15 cm; t = 0.635 cm; and calculated $q = 1.25 \times 10^{-7}$ cm/s

$$1.25 \times 10^{-7} \text{ cm/s} = k\ (15 \text{ cm}/0.635 \text{ cm} + 1)$$
$$k = 5.08 \times 10^{-9} \text{ cm/s}$$

The industry standard for a manufacturer's certification of hydraulic conductivity for installed GCL is $5.0 \times 10^{-9}$ cm/s. Therefore, use of the GCL will provide equivalent hydraulic conductivity for the final cap.

A preliminary estimate of veneer stability was performed with the proposed maximum 7 percent final cover slope. Actual stability of the cover system will depend heavily on the textural classification, permeability, and placement conditions for the cover soils used during construction; therefore, a site specific stability analysis will be required once the soil for final cap construction has been selected.

## 2.4 Site Grading

Final grading of the cap and sideslopes will be provided to prevent run-on and run-off from eroding or otherwise damaging the final cover and to minimize infiltration. As shown in Drawing C-2 in Appendix H, the cover for Phase 1 will be graded with a maximum 7 percent top slope extending from the top of the cover to the crest of the berm along the north side of the phase. The cover will be graded with a minimum 2 percent top slope on the south side of the phase. As shown in Drawing C-3 in Appendix H, the cover for Phase 2 will be similarly graded. These slopes are adequate for safe mowing and maintenance equipment access to the extent mowing and maintenance are required. These slopes will also promote surface water run-off without excessive erosion or infiltration.

Erosion controls will be installed as necessary in accordance with the CQA Plan in Appendix F of this permit application. Based on worst-case slopes and proposed closure contours, the Universal Soil Loss Equation predicted a soil loss of 1.3 tons per acre per year under new vegetative growth conditions and 0.6 ton per acre per year under established grass conditions, resulting in 0.02 inch of soil lost over five years using a soil density of 100 pounds per cubic foot. Appendix O includes calculations on soil loss for the first five years of post-closure. It is anticipated that post-closure for years six through thirty, as required under the CCR rule, will generate minimal amounts of soil loss with the implementation of post-closure design described in this application. No erosion control structures (i.e., terraces or let-down structures) are anticipated because the maximum soil loss is less than the U.S. EPA limit of 2 tons per acre per year. For disturbances of more than 1 acre, silt fences or other erosion control measures will be installed.

Regrading of the final cap throughout the post-closure care period to avoid ponding of precipitation and to maintain cover material integrity is expected to be minimal because the ash material will not biodegrade, settle, or consolidate.

## 2.5 Site Vegetation

Vegetation will be planted on completed caps as shown on the Landscaping Plan in Drawing C-4 of Appendix H. The planting of vegetation will consist of fertilizing, seeding, and mulching.

The fertilizer will comply with the provisions of State of Nebraska Fertilizer Act of 1995, as subsequently amended and revised. Fertilizer will include phosphate and nitrogen, recommended for grass. The fertilizer will be applied at a rate of 800 lbs/acre.

The seed mixture will be a pasture seed mix, as described in Drawing C-4 of Appendix H.

Mulch will either be dry cured native hay or threshed grain straw, or other locally available mulch material that does not contain an excessive quantity of matured seeds of noxious weeds or other species that will grow or be detrimental to seeding, or provide a menace to surrounding land. Mulch will be applied at a rate of 1 ½ tons per acre. Immediately following spreading of the mulch, the material will be anchored to the soil by a V-type wheel land packer, a soil erosion mulch tiller, or other suitable equipment that will secure the mulch firmly to form a soil-bind mulch.

## 2.6 Storm Water

The final cap will be placed such that storm water from the Site will drain into the ditches surrounding the Site. Drawing C-2 in Appendix H shows the contours of the Monofill closure for Phase 1. Drawing C-3 in Appendix H shows the contours of the Monofill closure for Phase 2.

Overall drainage will be such that any precipitation falling on the areas with final cover will drain off the cover into the storm water ditches. No storm water run-on is anticipated because the perimeter of the Monofill will be protected by earthen berms that define the extent of the Monofill. Positive surface water drainage will be maintained throughout the entire Site to minimize infiltration into the ash disposal area.

Precipitation falling on active areas with no final cover will be collected in the leachate collection system. Leachate management is discussed in the Leachate Management Plan (Appendix E).

Perimeter drainage structures and culverts already exist outside the Site property boundary. One additional culvert was constructed southeast of Phase 1 and one southwest of Phase 2 area of the Monofill. These culverts will discharge storm water into the perimeter site drainage ditches. Storm water management is discussed in the Ash Monofill Disposal Site Master Plan (Appendix A).

## 2.7 Leachate Collection

The leachate collection system consists of a 6-inch PVC perforated pipe that will carry leachate to sumps in each phase. The leachate collection system was installed during construction of Phase 1 and will be installed during construction of Phase 2 and will be maintained throughout the operation, closure, and post-closure periods. The leachate will be pumped into the leachate retention pond and evaporated or pumped into the Power Plant service water system. Excess leachate will be discharged to the sanitary sewer. Details regarding leachate management are included in the Leachate Management Plan (Appendix E).

## 2.8 Access Control and Fencing

The chain link fence will be left in place to protect the Site from unauthorized access and vandalism during the closure/post-closure period. The existing service road will remain in order to provide access to the Site for maintenance. No new roadway construction is anticipated. Lockable gates will be maintained at the access points. Signs prohibiting entrance by unauthorized personnel will be provided and maintained.

Site signs will be posted around the perimeter fence of the Site. Site entrance signs will identify fire and emergency response phone numbers.

## 2.9 Groundwater Monitoring

FDU will install markers identifying the groundwater monitoring wells prior to closure. These markers will assist in protecting wells from inadvertent damage.

## 2.10 On-Site Structures

The ash hydrovactor system will be dismantled at final closure. The pump house structure remaining at the completion of the ash disposal operations will not be modified or altered as a result of Monofill closure.

## 2.11 Closure Documentation

Following closure of the Monofill or any part of the Monofill, FDU will submit CQA documentation, a topographical survey showing final contours, and a certification to NDEQ signed by an independent professional engineer registered in the State of Nebraska verifying that closure has been completed in accordance with the approved closure plan. This closure documentation and certification will be placed in the Operating Record and posted on FDU's website in accordance with the CCR rule.

# 3.0 POST-CLOSURE MONITORING AND MAINTENANCE

## 3.1 General

Following the closure of Phase 1, the phase will be monitored and maintained until the closure of Phase 2. Following the closure of Phase 2, the entire closed Site will be monitored and maintained for a post-closure period of 30 years in accordance with the CCR rule. The post-closure plan implementation will begin immediately after final closure is complete.

The purpose of the monitoring program is to ensure that the integrity of the closure systems remains functional and that the Site is not posing an environmental liability to FDU. If at any time during the post-closure period, routine detection monitoring demonstrates a statistically significant increase over background values or groundwater protection standards, assessment monitoring and corrective action will be initiated.

Maintenance activities may or may not be periodically required depending on the exact situation encountered. Any detected deterioration will be assessed as to the cause and extent of deterioration before repairs begin, and repairs will occur at the earliest possible time following detection. All repairs to the capping system, leachate collection system, and groundwater monitoring system will be completed in accordance with the CQA Plan, as applicable. Photographic records may be made of repair activities for documentation. All repairs will be documented, and documentation will be entered into the operating record. Documentation will include the time, date, and extent of repair and should be signed by the party responsible for making the repairs.

This post-closure plan includes a monitoring schedule (Table 1), monitoring procedures, and maintenance activities, separated into component systems that are to be monitored and cared for during the post-closure period. Table 2 provides a sample maintenance checklist to be used to record post-closure inspections, repairs, observations, and maintenance. For monitoring and maintenance purposes, the Site post-closure has been divided into the following components:

- Capping System;
- Vegetative Support;
- Storm Water / Drainage;
- Rodent, Animal, and Vector Control;
- Leachate Collection;
- Site and Access Controls; and
- Groundwater Monitoring.

## 3.2 Monitoring Schedule

The frequency of required maintenance may be affected by numerous variables, not all of which can be predicted. Table 1 provides a proposed frequency of monitoring, by component, based on a 30-year post-closure monitoring period. Based on the results of the ongoing monitoring program, the frequency and duration of long-term monitoring, by component, may be shortened or

lengthened. The performance of each monitoring activity will be recorded and placed in the Operating Record and posted on the FDU's website in accordance with the CCR rule. Monitoring and maintenance activities will be adjusted in accordance with the season, climate, and weather conditions.

**TABLE 1**

**POST-CLOSURE MONITORING SCHEDULE**

| Year after Closure | 1 | 2 | 3-6 | 7-9 | 10-12 | 13-15 | 16-18 | 19-21 | 22-24 | 25-27 | 28-30 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Activity** | | | | | | | | | | | |
| Capping System | S | S | A | A | A | A | A | A | A | A | A |
| Vegetative Support | Q | S | A | A | A | A | A | A | A | A | A |
| Storm Water / Drainage | Q | S | A | A | A | A | A | A | A | A | A |
| Rodent, Animal, and Vector Control | S | A | A | A | A | A | A | A | A | A | A |
| Leachate Collection* | Q | Q | Q | Q | Q | Q | Q | Q | Q | Q | Q |
| Inspection of Leachate Piping | | | QN | | QN | QN | | QN | | QN | QN |
| Site and Access Controls | A | A | A | A | A | A | A | A | A | A | A |
| Groundwater Monitoring | | | | | | | | | | | |
| • Indicator Parameters | S | S | S | S | S | S | S | S | S | S | S |
| • Detection Monitoring | S | S | S | S | S | S | S | S | S | S | S |

Notes:
* During the last 15-20 years, the volume of leachate generated may dramatically decrease and a decrease in the frequency of leachate collection should be considered at that time.
A = Annual, one time per year
Q = Quarterly, four times per year
QN = Quinquennial, every five years
S = Semiannual, two times per year

## 3.3 Capping System

Inspection of the Monofill cap includes walking the closed site looking for evidence of the following items:

- Settlement and subsidence;
- Surface erosion;
- Vegetative damage; and
- Biotic intrusion (burrow rodents or animals).

Timing of inspections should coincide with seasonal changes that may affect the cover system, such as the end of winter (spring thaw), after major storm events, the end of rainy season, after plants become dormant, and the start of plant growing season. Visual inspection of subsidence can include walking the cover after a major rainstorm or the beginning of snowmelt and thaw cycles and looking for puddles or ponding. Repair of the capping system in damaged areas should include the following:

- Replacing cover soil; and
- Reestablishing vegetation.

In accordance with the requirements of NDEQ Title 132, no person shall excavate, disturb the final cover, or remove any deposited materials from the closed Site without having received prior approval from NDEQ. If such excavations are required, reference should be made to appropriate sections of Title 132.

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. The ash itself is already stable. Maintenance repairs may be seasonally adjusted (e.g., cover repair in summer months and reseeding in fall months) based on weather and growing seasons.

## 3.4 Vegetative Support

Vegetation should be visually inspected for the following:

- Weeds;
- Shrubs and trees;
- Volunteer vegetation;
- Bare spots;
- Drought stress; and
- Insects and bugs.

Bald spots or vegetative die-off may be indicators of other problems, such as rodents, improper soil type, or other factors. Where such areas are observed, further investigation of the cause(s) will be required to ascertain appropriate maintenance. Vegetation maintenance may include mowing and controlling growth of weeds, trees, and shrubs. The root systems of any shrub or tree species may pose a threat to the integrity of the cover. At the time of the inspection of the Site, chemical or manual removal of volunteer weeds, shrubs, and/or tree seedlings should be performed. Mowing is anticipated to be minimal, with a projected maximum of four times annually for financial assurance estimating purposes.

Application rates for all weed and vegetation control should be applied in accordance with manufacturers' recommendation and recommendations of grass or weed control specialists.

## 3.5 Storm Water / Drainage

The slopes and grades will be visually inspected for the following:

- Surface erosion; and
- Biotic intrusion.

Inspections will identify any accelerated erosion in perimeter slopes. Surface erosion may also increase with biotic intrusion or loss of (or improper) vegetation. Maintenance of slopes and grades may include the following:

- Repairing erosion damage;
- Replacing cover soil; and
- Reestablishing vegetative cover.

If inspection indicates soil has been lost due to erosion, it should be replaced with suitable soils and topsoil or compost. Once the eroded soil is replaced, it should be revegetated.

Drainage ditches around the perimeter of the landfill will be inspected for sediment accumulation. If the observed sediment is identified to be from the CCR Unit, the drainage ditches will be cleaned as necessary. Off-site drainage ditches and culverts belong to the City. As such, maintenance of these drainage structures is not included in the maintenance of the Monofill. These drainage structures serve as part of a drainage regime that handles run-off from east Fremont. These drainage structures are, and will continue to be, maintained by the City. Two culverts constructed on the Site will discharge storm water run-off into the off-site drainage ditches. An allowance for maintenance of the Monofill interface to the off-site drainage structures will be included in the post-closure costs.

## 3.6 Rodent, Animal, and Vector Control

The entire Site will be visually inspected for burrowing animals each spring according to the monitoring schedule in Table 1. In addition, the Site will be inspected for the presence of any of the following indicators:

- Animals present on-site;
- Biotic intrusion;
- Burrows, holes, or mounds; and
- Trails or tracks.

Insects and nuisance vectors will be identified during inspections. Emphasis will be given to those insects that have the potential to damage vegetation or have significant potential to attract burrowing animals. The Monofill is not anticipated to attract vectors.

If vectors are identified, vector maintenance will include the removal or elimination of burrowing animals on site. Maintenance of the damage to the final soil cover caused by burrowing animals may include the following:

- Collapsing the burrow and refilling the holes or depression; or

- Repairing the final cover with similar material.

If the integrity of the cover is not visually apparent, excavation of the burrow may be required. If the cover has been breached, repair may include complete excavation of the impacted area or, if intrusion is well defined, filling the hole with similar material used for the final cover.

## 3.7 Leachate Collection

The leachate collection system will be inspected for the following:

- Integrity of clean-out pipe;
- Pump operation;
- Water level in sumps; and
- Integrity of sump markers or protective structures.

The frequency of inspections will correspond to the schedule in Table 1. Leachate collection piping will be visually inspected using a closed circuit television or similar means twice every five years during the post-closure period. Clogged leachate collection piping should be cleaned by water jetting or similar means. Damaged leachate collection system components should be repaired and/or replaced. The leachate collection system will be operated over the post-closure period.

The two sumps will continue to pump leachate to the leachate retention pond for evaporation. Excess leachate will be directed to either the Power Plant service water system or the City's wastewater treatment plant (WWTP). Leachate directed to the sanitary sewer system will be pumped into a tanker truck or piped to the nearest sanitary sewer manhole for subsequent treatment and disposal at the City's WWTP. Attachment 1 to this Plan contains a copy of the WWTP letter indicating capacity for and acceptance of the leachate generated by the Monofill. Refer to the Leachate Management Plan (Appendix E) for further information on leachate management. The estimated leachate generation during the first five years of post-closure period is approximately 959,000 gallons per year (see Appendix O). The amount of leachate generated from years six through thirty of post-closure, is not anticipated to generate substantial amounts of leachate after five years and therefore was not calculated. However, the annual cost to manage leachate over thirty years has been included in post-closure costs.

## 3.8 Site and Access Controls

Site and access controls will be visually inspected for the following:

- Holes, cuts, tears, or other damage in fencing;
- Burrow or erosion holes under fencing;
- Damage to fence posts;
- Integrity of locks and gates; and
- Damage to, deterioration of, or missing posted signs and warnings. Repair or replace damaged fencing, gates, and signs.

## 3.9 Groundwater Monitoring

The groundwater monitoring wells will be visually inspected for the following:

- Erosion or biotic intrusion around the base;
- Damage to locking well caps;
- Integrity of well seals; and
- Integrity of any well markers or protective structures.

The frequency of inspection will be during each sampling event. Areas of erosion at groundwater monitoring wells will be filled with compatible soil materials, graded to drain, and covered with vegetative growth. Damaged well caps, concrete pads, and well seals should be repaired and/or replaced. Dedicated pumps that are not working or are performing poorly should be repaired or replaced. Wells damaged below grade levels may need to be evaluated further and possibly replaced.

Sampling shall be in accordance with Table 1. All sampling, packaging, shipping, and testing should conform to the Standard Operating Procedures (SOPs) in the Groundwater Monitoring Plan (Appendix D). If elevated levels of contaminants are detected as a result of groundwater monitoring, it will be necessary to consult NDEQ and possibly Title 118 regulations for required remedial actions.

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

## 3.10 Notification of Completion of Post-Closure Requirements

Following the end of the post-closure care period, FDU will submit a certification to NDEQ signed by a Professional Engineer registered to practice in the State of Nebraska that post-closure care has been completed in accordance with the approved post-closure care plan.

# 4.0 FUTURE USES

Following the post-closure care period, the Site will be used either as an open, grassy area or a low-impact recreational area that will not disturb the integrity of the cover. All grazing or feeding of farm or domestic animals will be prohibited on the closed Site. Access to the Site will be controlled throughout the post-closure care period.

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# PERMIT RENEWAL APPLICATION FOR FOSSIL FUEL COMBUSTION ASH DISPOSAL AREA

# FREMONT DEPARTMENT OF UTILITIES FOSSIL FUEL COMBUSTION ASH DISPOSAL SITE

## Submittal Date: January 15, 2016

**PREPARED FOR:**
**Fremont Department of Utilities**
**400 East Military**
**Fremont, Nebraska 68026**

**PREPARED BY:**
**Tetra Tech, Inc.**
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1-15-2016
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Scott Schmoker, P.E.