

2016

Killen Station Ash Pond Annual Inspection

ODNR File No.: 8533-001

The Dayton Power & Light Company



Prepared by:
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The Dayton Power & Light Company

Date: December 21, 2016

Purpose

I have conducted the following annual inspection in compliance of the Federal CCR Rule, 40 CFR Part 257 and Ohio Department of Natural Resources ORC 1501.062.

Statement of Qualifications

I am a practicing Civil/Geotechnical Engineer registered with the State of Ohio employed by the Dayton Power & Light Company. I am experienced in the design, maintenance and operation of earthen dams and impoundments.

Review of Impoundment Documentation [§ 257.83(b)(1)(i)]

Design, History, and Operation of the Facility

The Killen Ash Impoundment is an off-stream, partially-incised, upland reservoir designed and constructed for the storage of coal combustion ash from the Killen Station generating unit and treatment of other plant waste waters. It is bordered on the north by U.S. Route 52, west by the cooling tower, switchyard, and coal storage area, south by the Ohio River and east by agricultural lands. The dam has an overall length of 14,009.6 feet. The height of earthen dam ranges from 21.0 to 77.0 feet, based on the lowest elevation point on the downstream toe. The crest is 15 feet along the north, west and south dams. Both upstream and downstream slopes are 2.5 horizontal to 1 vertical (2.5H:1V). The original design bottom of pond is at elevation 498 feet and the crest at elevation 573 feet. This pond is divided into two basins one primarily for the containment of bottom ash and one primarily for the settlement of fly ash. The upper portion of the upstream slopes of the dam is protected from erosion with filter fabric and riprap.

The bottom ash portion flows into the fly ash portion through a concrete channel equipped with steel channel stop logs to control water elevation. There is a second outlet from the bottom ash basin which returns water to the plant for process use. This is as an 8-foot diameter riser (pump station intake tower) by 58.5-foot high reinforced concrete overflow structure with a 36-inch diameter ductile iron pipe inside of a 72-inch corrugated metal pipe (CMP) outlet with invert at elevation 511.0 feet. The elevation of the overflow section cannot be adjusted and remains at 569.5 feet. A 36-inch stainless steel sluice gate at the concrete overflow structure is provided to shut off flow from this impoundment to the plant when necessary. The primary discharge structure from the fly ash portion of the pond is a concrete weir with a metal underflow baffle which discharges through a four-foot square vertical riser connected to a 36-inch ductile iron pipe which outlets into a concrete energy dissipation structure. This outlet structure also is equipped with a sluice gate which can be used to lower the pond level but cannot be used to drain the pond.

Periodic Inspections

A thorough review of 2016 weekly facility inspections was conducted. These periodic inspections do not indicate any structural weakness or concerns.

Previous Structural Assessments

Original design calculations and documents were reviewed from the Final Engineering Report prepared by Ebasco Services. Killen Station Ash Pond Initial Periodic Structural Stability Assessment prepared by Haley & Aldrich, 2016 was also reviewed.

Visual Inspection of Impoundment [§ 257.83(b)(1)(ii)]

The ash pond dam is in good structural condition based on the visual inspection. Maintenance items noted in 2015 had been corrected with the exception of erosion along bench drains at station 1 and station 4+50. Two areas were noted with minor rutting along the crest that appear to be the

result of the mowing operation. As the season was unusually dry only one seep area was noted to have indication of moist soft earth at the dam toe near station 88.

Changes in Geometry [§ 257.83(b)(2)(i)]

There were no changes to the upstream face of the dam. Rock erosion protection is in place and in good condition around the perimeter of the pond. There were no changes to the geometry of the downstream face of the dam pond or other indications of structural weakness. Slopes have no indication of deformation or other indicators of instability.

Instrumentation [§ 257.83(b)(2)(ii)]

These ponds are equipped with a staff gauges mounted on the primary outlet and the sluice water recirculation structure and eight piezometers around the perimeter. Review of data collected from piezometers does not indicate any change to the integrity of the pond.

Structural Weakness [§ 257.83(b)(2)(vi)]

No indication was found of an actual or potential structural weakness of the CCR unit or any existing condition that was disrupting or had the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.

Other Changes [§ 257.83(b)(2)(vii)]

No changes were found to the CCR unit which could affect the stability or operation of the impounding structure since the previous annual inspection.

Visual Inspection of Hydraulic Structures [§ 257.83(b)(1)(iii)]

This pond contains three hydraulic structures. All three structures were found to be in good condition with no indication of deterioration. Outlet pipes for the two structures which discharge water show no signs of leaking or problems. The third structure was grouted full and cannot be accessed. Review of the former discharging area did not indicate any evidence of seepage or leakage.

Design drawings indicate that there was a temporary drain from the impoundment during construction which was grouted closed. No indication of seepage was discovered at or around the discharge point for this pipe.

Water and Material Depths and Volumes

[§ 257.83(b)(2)(iii), § 257.83(b)(2)(iv), § 257.83(b)(2)(v)]

| Physical Parameters of Impoundment | | |
|------------------------------------|------------|---|
| Depth of water | 69.5 | Feet |
| Minimum depth of water | 69.0 | Feet |
| Maximum depth of water | 69.5 | Feet |
| Elevation of water | 567.5 | Feet (review of weekly inspection reports show normal fluctuation of the depth/water level) |
| Storage Capacity | 21,600,000 | Cubic Yards ,Crest Full Volume |
| Volume of water | 13,080,000 | Cubic Yards |
| Volume of CCR | 6,920,000 | Cubic Yards |

Appendix A

CCR Rule Requirements for Impoundment Annual Inspections

§257.83 Inspection requirements for CCR surface impoundments.

(a) *Inspections by a qualified person.*

- (1) All CCR surface impoundments and any lateral expansion of a CCR surface impoundment must be examined by a qualified person as follows:
 - (i) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit;
 - (ii) At intervals not exceeding seven days, inspect the discharge of all outlets of hydraulic structures which pass underneath the base of the surface impoundment or through the dike of the CCR unit for abnormal discoloration, flow or discharge of debris or sediment; and
 - (iii) At intervals not exceeding 30 days, monitor all CCR unit instrumentation.
- (2) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by §257.105(g)(5).
 - (i) *(2) Timeframes for inspections by a qualified person—(i) Existing CCR surface impoundments.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section no later than October 19, 2015.
 - (ii) *New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section upon initial receipt of CCR by the CCR unit.

(b) *Annual inspections by a qualified professional engineer.*

- (1) If the existing or new CCR surface impoundment or any lateral expansion of the CCR surface impoundment is subject to the periodic structural stability assessment requirements under §257.73(d) or §257.74(d), the CCR unit must additionally be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:
 - (i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §§257.73(c)(1) and 257.74(c)(1), previous periodic structural stability assessments required under §§257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections);
 - (ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures; and
 - (iii) A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.
- (2) *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:
 - (i) Any changes in geometry of the impounding structure since the previous annual inspection;
 - (ii) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;
 - (iii) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;
 - (iv) The storage capacity of the impounding structure at the time of the inspection;
 - (v) The approximate volume of the impounded water and CCR at the time of the inspection;
 - (vi) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures; and
 - (vii) Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.
- (3) *Timeframes for conducting the initial inspection—*

- (i) *Existing CCR surface impoundments.* The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this section no later than January 19, 2016.
 - (ii) *New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.* The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this section is completed no later than 14 months following the date of initial receipt of CCR in the CCR unit.
- (4) *Frequency of inspections.*
- (i) Except as provided for in paragraph (b)(4)(ii) of this section, the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by §257.105(g)(6).
 - (ii) (ii) In any calendar year in which both the periodic inspection by a qualified professional engineer and the quinquennial (occurring every five years) structural stability assessment by a qualified professional engineer required by §§257.73(d) and 257.74(d) are required to be completed, the annual inspection is not required, provided the structural stability assessment is completed during the calendar year. If the annual inspection is not conducted in a year as provided by this paragraph (b)(4)(ii), the deadline for completing the next annual inspection is one year from the date of completing the quinquennial structural stability assessment.
- (5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.
- (c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in §257.105(g), the notification requirements specified in §257.106(g), and the internet requirements specified in §257.107(g).

[80 FR 21468, Apr. 17, 2015, as amended at 80 FR 37992, July 2, 2015]

Appendix B

Reference Documents Reviewed

- ❖ Operation Maintenance and Inspection Manual
- ❖ Emergency Action Plan
- ❖ Pond Design Manual, Ebasco
- ❖ Killen Station Ash Pond Initial Periodic Structural Stability Assessment, Haley & Aldrich, 2016
- ❖ Previous inspections reports
 - Weekly from 2016
 - ODNR 2013
 - GZA 2011
 - CEC 2009
 - Pullman Outlet Structure Inspection 2013
- ❖ Drawings
 - 400-12-1021
 - 400-12-1022
 - 400-12-1080
 - 400-12-1081
 - 400-12-1082
 - 400-12-1083
 - 400-12-1084
 - 400-12-1085
 - 400-12-2167
 - SK 3848 CH-192

Appendix C
Inspection Check List

Dam Field Inspection Report

DAM/IMPOUNDMENT ANNUAL FIELD INSPECTION FORM

Unit Name: Killen Ash Pond

ODNR File No.: 8533-001

CCR Unit

ACTION

ODNR Hazard Classification: I II III IV N/A

Impoundment Type: Incised Upland Lake

Inspection Date(s): December 2 and December 7, 2016

Weather/Surface Conditions During Inspection: Temperature in the 40's both days. clear the first day and overcast the second. There was 0.7 inches of rain on the day prior to the second inspection day.

Freeboard: 5.5 feet

NONE
 MONITOR
 MAINTENANCE
 ENGINEER

UPSTREAM SLOPE Gradient: Horizontal: 2.5 Vertical: 1 (est. meas.)

VEGETATION

Trees:

DESCRIPTION AND LOCATION:

Brush:

DESCRIPTION AND LOCATION:

Ground Cover:

DESCRIPTION: stone shoreline protection

CONDITION: good

SLOPE PROTECTION

TYPE or NONE: riprap

DESCRIPTION: C/D size stone near the water line. No 2 stone above this level in some areas.

CONDITION:

EROSION:

DESCRIPTION AND LOCATION:

INSTABILITIES: (SLIDES, CRACKS, BULGES, etc.)

SLIDES/SLOUGHS:

DESCRIPTION AND LOCATION:

CRACKS:

DESCRIPTION AND LOCATION:

BULGES

DESCRIPTION AND LOCATION:

OTHER

DESCRIPTION AND LOCATION:

OTHER (rodent burrows, ruts, etc.)

DESCRIPTION AND LOCATION:

DESCRIPTION AND LOCATION:

DESCRIPTION AND LOCATION:

DESCRIPTION AND LOCATION:

CREST Length: 10' Width: 14,009.6' (est. meas.)

GROUND COVER:

DESCRIPTION: Stone aggregate

CONDITION: Good condition

EROSION

DESCRIPTION AND LOCATION:

INSTABILITIES: (SLIDES, CRACKS, BULGES, etc.)

CRACKS:

DESCRIPTION AND LOCATION:

RUTS

DESCRIPTION AND LOCATION:

| | ACTION | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| | NONE | MONITOR | MAINTENANCE | ENGINEER |
| POT HOLES: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| OTHER | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| MONITORING INSTRUMENTATION: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Settlement monuments located along the crest. | | | | |
| CONDITION: Monuments in good condition but some damage to bollards. | | | | |
| ALIGNMENT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| CONDITION: No indication of changes to the alignment of the crest | | | | |
| OTHER (rodent burrows, ruts, etc.) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DOWNSTREAM SLOPE Gradient: Horizontal: 2.5 Vertical: 1 (est. meas.) | | | | |
| VEGETATION | | | | |
| Trees: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| Brush: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| Ground Cover: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Grass | | | | |
| CONDITION: Cover is much improved since the previous inspection only note some minor rutting along the crest between stations 65 and 70 and between 86 and 92 . This appears to be the result of the mowing operation. Recommend overseeding in late winter and monitoring. | | | | |
| EROSION | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| Erosion found at old style bench drains at stations 1 and 4+50. This area was monitored through the previous year with no indication of increasing in size. Recommend continuing to monitor. | | | | |
| INSTABILITIES: (SLIDES, CRACKS, BULGES, etc.) | | | | |
| SLIDES/SLOUGHS: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| CRACKS: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| BULGES | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| OTHER | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| SEEPAGE/WET AREA | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | | | | |
| At the time of inspection only the seep at station 88 showed signs of seepage with no cloudiness or flow. Much drier than previous years due to weather conditions. Continue to monitor all areas previously identified. | | | | |
| - Station 30 to 45 at the toe. | | | | |
| - Station 56 to 59 at the toe. | | | | |
| - station 80 in the V. | | | | |
| - station 88 at the toe. | | | | |
| EMBANKMENT DRAINS: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | ACTION | | | |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| | NONE | MONITOR | MAINTENANCE | ENGINEER |
| DESCRIPTION: None present. CONDITION: | | | | |
| MONITORING INSTRUMENTATION: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: 8 Piezometers are located around the perimeter of the dam. Groundwater monitoring wells were added around the perimeter. CONDITION: Piezometers are and groundwater monitoring wells are in good condition. | | | | |
| OTHER: (rodent burrows, ruts, etc.) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION AND LOCATION: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| HYDRAULIC STRUCTURES | | | | |
| STRUCTURE: Bottom Ash inlet to plant | | | | |
| DESCRIPTION: Concrete riser with ductile iron discharge piping. Metal grating walk bridge to structure. | | | | |
| INLET | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: 8' diameter structure with anti -vortex plate and sluice gate shut-off valve. CONDITION: Structure is in good condition OBSTRUCTION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | | | | |
| CONDUIT | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Ductile iron pipe inside corrugated metal pipe with access way for inspection CONDITION: Pipe is in good condition with no evidence of leaks. SEEPAGE NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | | | | |
| OUTLET | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Piping carries water to various locations in the plant and was not inspected. CONDITION: EROSION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | | | | |
| STRUCTURE: Overflow structure from bottom ash basin to fly ash basin. | | | | |
| DESCRIPTION: Concrete channel with steel channel stop-logs. | | | | |
| INLET | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Concrete bottom and wing walls CONDITION: Good condition with little deterioration. OBSTRUCTION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: A large pipe has been run through the structure but is not impacting flow. | | | | |
| CONDUIT | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Concrete channel. CONDITION: Good condition with little deterioration SEEPAGE NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | | | | |
| OUTLET | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Concrete bottom and wing walls CONDITION: Good condition with little deterioration EROSION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | | | | |
| STRUCTURE: Principal Outlet from fly ash basin | | | | |
| DESCRIPTION: Concrete weir box with vertical riser and ductile iron outlet pipe to concrete outlet structure. | | | | |
| INLET | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| DESCRIPTION: Concrete weir with metal underflow baffle. Contains a sluice gate valve to by-pass weir and lower pond level and a discharge valve. | | | | |

| | ACTION | | | |
|---|-------------------------------------|--------------------------|--------------------------|--------------------------|
| | NONE | MONITOR | MAINTENANCE | ENGINEER |
| CONDITION: Good condition with little deterioration. OBSTRUCTION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | | | | |
| CONDUIT DESCRIPTION: Vertical concrete riser connected to 3' dia. ductile iron pipe. Ductile pipe is inside a 6' corrugated metal pipe to allow for inspection. CONDITION: Good condition with no visible deterioration. SEEPAGE NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OUTLET DESCRIPTION: Large concrete energy dissipation structure. Discharging to a riprap lined channel with parshall flume. CONDITION: Good condition EROSION NOTED: (<input type="checkbox"/> YES <input type="checkbox"/> NO) DESCRIBE IF YES: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STRUCTURE: | | | | |
| DESCRIPTION: Construction drain - Pressure grouted with cement sand grout and abandoned | | | | |
| INLET DESCRIPTION: 30" CMP riser CONDITION: OBSTRUCTION NOTED: (<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO) DESCRIBE IF YES: Pressure grouted with cement sand grout. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| CONDUIT DESCRIPTION: 24" CMP CONDITION: SEEPAGE NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OUTLET DESCRIPTION: Outlet is buried beneath river deposits. There is no indication of seepage or erosion in the area. CONDITION: EROSION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Appendix D

CCR Unit Maintenance Recommendations

1. Repair ruts and over-seed along the crest between stations 65 and 70 and between 86 and 92.

Continued Monitoring

1. Erosion at bench drains at station 1 and 4+50.
2. Damp areas along the toe of the north dam (station 30 to 45).
3. Damp areas along the toe of the east dam (station 56 to 59).
4. Seepage at mid slope at station 80
5. Seepage at the toe at stations 88.
6. Ensure vegetation is maintained.
7. Monitor for beaver activity.