CCR Rule Operating Criteria
§257.84(b)(1) Annual Inspection by A Qualified Engineer
Final

CCR Landfill
Hunter Power Plant
Castle Dale, Utah

December 16, 2021

PREPARED FOR

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PROFESSIONAL ENGINEER CERTIFICATION

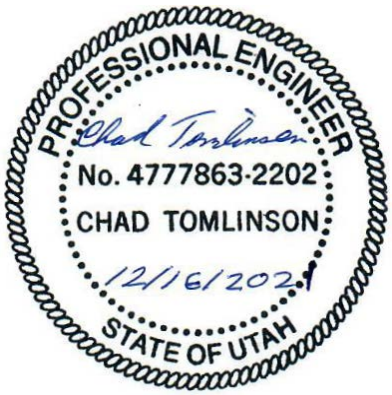
I hereby certify, as a Professional Engineer in the State of Utah, that the information in this document was assembled under my direct supervisory control. This report is not intended or represented to be suitable for reuse by PacifiCorp or others without specific verification or adaptation by the Engineer.

I hereby certify, as a Professional Engineer in the State of Utah that this report has been prepared in accordance with and meets the requirements of 40 Code of Federal Regulations §257.84(b)(1).

Chad Tomlinson

_____ December 16, 2021

Chad Tomlinson, P.E. Date



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1.0 OVERVIEW OF FINDINGS

The annual inspection and associated report is being completed for the purpose of providing due diligence by PacifiCorp and reasonable assurance, to the extent obtained by the due diligence, of its coal combustion residual facilities. The inspection was performed according to the requirements for annual inspection 257.84 (for CCR landfills) of 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, Final Rule, dated April 17, 2015 [1].

1.1 General Overview

The Hunter Power Plant (Plant) is operated by PacifiCorp and is a coal-fueled steam-electric operation with three operating units having a total generating capacity of 1,577.2 MW. Fly ash, bottom ash, and flue gas desulfurization (FGD) produced by the plant are disposed of in the CCR Landfill. These waste materials are delivered to the CCR landfill by truck.

The coal combustion residual (CCR) rules requirement for signage is not applicable to CCR landfills. They are only required for surface water impoundments. Therefore, signage for the Hunter Landfill is not required

1.2 Location

The Hunter Power Plant is located in Emery County, Utah, approximately 2.5 miles south of Castle Dale, Utah. Access to the plant is provided by Utah Highway 10 (UT-10). The CCR Landfill is located approximately 1.4 miles southeast of the plant. The majority of the CCR Landfill is used for disposal of dry bottom ash, fly ash, and FGD material with a smaller portion permitted as a Class IIIb Industrial Waste Landfill

1.3 Summary of Inspection Findings

The field inspection was performed on August 24, 2021 and found the principal project features of the Hunter CCR Landfill to be in satisfactory condition. Nothing was observed that would suggest an active or impending issue with stability of the landfill and the run-on and run-off control features were being maintained to preserve design capacity. The layout of the CCR Landfill is provided in **Figure 1**.

A completed inspection checklist and photographic log of the 2021 inspection are presented in **Appendix A** and **B**, respectively. Observations from the 2021 inspection include the following:

- Hay is being spread across the non-reclaimed ash slopes to minimize erosion and provide organic substrate for future cover. Vegetation is beginning to establish on non-reclaimed slopes.
- Culvert under access road to the Industrial Landfill had minor accumulation of ash.
- Head cutting of the run-on channel on the south side of the CCR landfill was observed.
- Standing water was observed on the downstream side of the stormwater basin discharge structure. Plant staff reported that the discharge structure did not operate during recent rains; therefore, the standing water was from direct precipitation.

Figure 1 : Hunter CCR Landfill

2.0 DESIGN AND DOCUMENTATION REVIEW

2.1 Design and Construction Information

Tetra Tech reviewed the CCR Landfill Draft Basis of Design Memorandum [2], CCR Landfill Design Documents [3], and Run-On and Run-Off Control Plan [4] to obtain information regarding the design and operation of the CCR Landfill.

The CCR Landfill occupies approximately 230 acres and includes existing an access (haul) road, perimeter ditches, and the zero-discharge stormwater retention basis (104 acre-ft) with a total landfill; capacity of 44.5 million cubic yards. A typical cross-section of the CCR Landfill is presented in **Figure 2**.

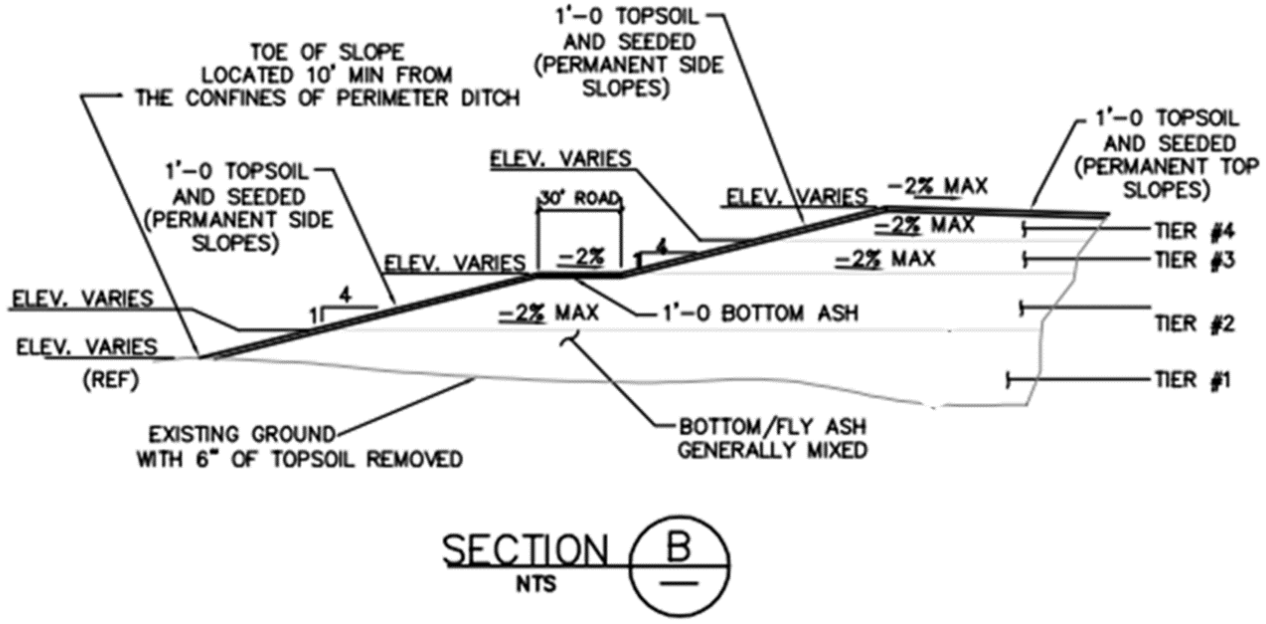

Figure 2 – Typical Cross Section of CCR Landfill

Stormwater runoff from the CCR Landfill is controlled by a perimeter ditch that discharges stormwater to the Stormwater Retention Basin. Stormwater run-on is prevented with run-on control berms and a run-on diversion channel.

2.2 Operating History

There have been no recorded incidences of slope failure or failure of the CCR Landfill's run-on and run-off control system.

2.3 Previous Periodic Structural Analyses

The Cornforth Phase 1 geotechnical study [5] was completed in 2009 and did not recommend a formal risk assessment of the landfill structure.

2.4 Results of Inspection by a Qualified Professional Engineer

The Industrial Landfill is subject to periodic inspections by the Hunter Power Plant staff. Tetra Tech reviewed the inspection reports and did not find anything that indicated that the safety of the CCR unitis compromised. These inspections are documented and retained by PacifiCorp.

Review of the results of these inspections did not identify any previously unidentified issues. It is the opinion of the author of this document that the interim inspections and reporting by plant staff are appropriate and adequate, as required by the CCR rules and industry standards, for this CCR Unit.

2.4.1 Results of Previous Annual Inspections

This is seventh annual periodic inspection conducted under CCR rules [1]. Prior to conducting the 2021 inspection, Tetra Tech staff reviewed the previous annual inspection [6,7,8,9,10, 11] to identify any areas of concern to focus on during the 2021 inspection. The previous annual inspection identified no structural deficiencies that would indicate a cause for concern associated with failure of the landfill slopes or run-on and run-off control system.

This report and other pertinent reports and data are accessible at the following website:
http://www.berkshirehathawayenergyco.com/ccr/ppw.html

3.0 FIELD INSPECTION OF EXPANSION LANDFILL

3.1 General Overview of Annual Inspection

A field inspection was conducted on August 24, 2021, by Tetra Tech staff, Chad Tomlinson, P.E. Personnel from the Hunter Plant met with Chad Tomlinson and accompanied him during the inspection. The field inspection was performed by walking along the toe of the landfill slopes and drainage features. Features and conditions were documented on the inspection checklist (**Appendix A**) and were photographed (**Appendix B**). The approximate locations of the photos are detailed in the inspection photo log overview map on the first page of **Appendix B**. In addition to documenting current features, the photograph log of existing conditions is intended to provide a baseline for future inspections.

3.2 Geometry Review

There have been no changes in the design geometry of the landfill. Once a specific portion of the landfill has reached capacity, the external slopes are being graded to 4H:1V.

3.3 Volume of CCR Stored

It is estimated the current volume of CCR stored in the landfill at approximately 17.6 million cubic yards (CY) considering approximately 769,000 CY of ash placed in the CCR Landfill since the last inspection.

3.4 Observed Changes

This is the sixth annual inspection conducted pursuant to §257.84(b)(1) for the CCR Landfill. Based on a review of the 2020 Annual Inspection Report [11], there does not appear any material changes to the condition of CCR Landfill and drainage features. A table summarizing the findings from the 2020 annual inspection and any changes observed from the 2021 inspection is presented in **Table 1**.

Table 1 – Summary of Changes from 2020 and 2021 Annual Inspections

2020 Annual Inspection Observations	2021 Observations
Gullies on south end outside perimeter berm continue to develop. Desiccation cracks are visible, and there appear to be possible tension cracks near the downstream toe of the berm at the top of the gully's sidewall where continued erosion may be occurring. The function and integrity of the perimeter berm does not appear to be compromised at present.	Head cutting of run-on ditch appears to be continuing but in the opinion of the author does not pose a risk to the landfill or adjacent perimeter road. Repairs may be needed in the future if head cutting begins to undermine run-on berm.
Observation of mild erosion and rills on bare soil cover of some slopes of CCR landfill (hay and vegetation obstructed view of possible erosion and rills beneath).	Minor rilling was still observed but appeared less than observed during the 2020 inspection.
Additional segments of the exterior slopes have partially been covered with straw. Vegetation continues to improve on straw-covered slopes observed in previous inspections.	Straw continues to be added to graded ash slopes as a temporary cover. Vegetation continues to establish on portions of the slopes.
Energy dissipation structure at downstream end of retention pond conduit still has evidence of wetness despite dry conditions. Plant personnel reported that water did not reach the slide gate at the upstream end of conduit.	Water was observed in the downstream energy dissipation structure but was not due to discharge of water from the Stormwater Retention Basin as reported by plant personnel. Water was likely from direct precipitation.
The downstream end, particularly the middle to downstream of the culvert near the north access road, appears to be partially obstructed (30 percent or less). It appears that efforts had been made to remove sediment near the ends of the culvert. AECOM assumes that sediment within the culvert could scour out during a significant storm event because both ends of the culvert had been cleared of sediment.	Deposited sediment was still observed to be accumulated at outlet of culvert up to the mid-height of the culvert.

3.5 Monitoring, Maintenance, and Repair Recommendations

Based on the results of the site inspection, there were no identified deficiencies indicative of structural weaknesses of the Industrial Landfill slopes. However, as part of PacifiCorp's operation of Industrial Landfill, Tetra Tech recommends the following:

- Clear inlet and outlet ends of culverts to preserve design flow capacity.
- Continue to monitor run-on ditch for undercutting of run-on berm on south side of CCR Landfill.

4.0 LIMITATIONS AND CONSULTANT QUALIFICATIONS

This report presents observations and conclusions drawn from a review of pertinent documents referenced in Section 5, and a field inspection of the CCR Landfill. The purpose of the review and inspection has been to assess the safety or adequacy of the facilities according to industry standards against catastrophic failure of the major constructed elements during normal operations or unusual or extreme events based on visual inspection and available information. A secondary purpose is to identify any potential deficiencies related to the CCR rules [1].

The conclusions and professional opinions presented herein were developed by the independent consultant and are in accordance with generally accepted engineering principles and practices at the time and location the services were provided. Tetra Tech makes no other warranty, either expressed or implied

4.1 Professional Engineer qualifications

The professional engineer for this inspection is Chad Tomlinson. He is licensed in the State of Utah (4777863-2202) as a civil engineer. He has over 20 years of experience in civil/structural engineering and has performed inspections and safety evaluations on landfills, dams, canals, and numerous other water containing structures.

5.0 SOURCE(S)

[1] USEPA, 2015. 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. April 17, 2015. 201 pp.

[2] URS, 2015. Hunter Power Plant, “CCR Landfill Draft Basis of Design Memorandum,” November 2015 Wyoming Department of Environmental Quality, 2015. Significant Event – Root Cause Analysis Report. April 9, 2015.

[3] URS, 2015. Hunter Plant PacifiCorp CCR Landfill Design Documents (December 2015).

[4] URS, 2016. Run-on and Run-off Control System Plan: Hunter Power Plant – Coal Combustion Residual Landfill. Revision 2. September 2016.

[5] Cornforth Consultants Inc., “Phase I Geotechnical Assessments: Scrubber Emergency Holding Pond and FGD Cell/Ash Landfill, Hunter Power Plant,” Castle Dale, Utah, 2009.

[6] URS, 2015. 2015 Coal Combustion Residuals Annual Inspection: Hunter Power Plant Landfill. December 29, 2015.

[7] URS, 2016. 2016 Coal Combustion Residuals Annual Inspection: Hunter Power Plant – Landfill. November 29, 2016.

[8] URS, 2017. 2017 Coal Combustion Residuals Annual Inspection: Hunter Power Plant Landfill. November 30, 2017.

[9] AECOM, 2018. 2018 Coal Combustion Residuals Annual Inspection: Hunter Power Plant, Hunter CCR Landfill,” December 11, 2018.

[10] AECOM, 2019. 2019 Coal Combustion Residuals Annual Inspection: Hunter Power Plant, Hunter CCR Landfill. December 18, 2019.

[11] AECOM, 2020. 2020 Coal Combustion Residuals Annual Inspection: Hunter Power Plant, Hunter CCR Landfill. December 15, 2020.

REVISIONS

Revision Number	Date	Revision Made	By Whom
B	10/28/2021	Issued to PacifiCorp for Review	Chad Tomlinson
0	12/16/2021	Issued for Use	Chad Tomlinson

APPENDIX A – ANNUAL INSPECTION CHECKLIST

Annual Landfill Inspection Report

Feature Name: Hunter CCR Landfill

Feature ID:

Date: 08/24/2021

Inspected by:	Date:	Phone No.:
Chad Tomlinson	08/24/2021	801-633-9765

Type of Inspection: ☐ Initial ☐ Periodic ☐ Follow-up ☐ Other:

Weather: ☐ Wet ☒ Dry ☐ Snow Cover ☐ Other:

Remarks:
CCR Landfill observed to be in satisfactory condition. No deficiencies identified.

Total Precipitation Last 24 hours:
None

COVER

PROBLEMS				COVER
☒ 1. None ☐ 2. Animal burrows ☐ 3. Animal damage ☐ 4. Weeds & brush	☐ 5. Vegetation >2" dia. ☐ 6. Vegetation islands ☐ 7. Poor grass cover ☐ 8. Slope stability	☐ 9. Settlement ☐ 10. Cracks ☐ 11. Erosion ☐ 12. Rills	☐ 13. Seepage ☐ 14. Ponding ☐ 15. Other:	☐ Vegetation ☐ Gravel ☐ Soil ☐ Asphalt ☒ Other: Temporar cover consisting of straw on portions of landfill slope.

Comments/Action Items: None

Actions: ☒ None ☐ Maintenance ☐ Monitoring ☐ Minor Repair ☐ Engineering

SLOPES & PERIMETER BERMS

PROBLEMS				COVER
☐ 1. None ☐ 2. Animal burrows ☐ 3. Animal damage ☐ 4. Weeds & brush	☐ 5. Vegetation >2" dia. ☐ 6. Bare spots >25 ft^2 ☐ 7. Poor grass cover ☐ 8. Slope stability	☐ 9. Settlement ☐ 10. Cracks ☒ 11. Erosion ☒ 12. Rills	☐ 13. Seepage ☐ 14. Ponding ☐ 15. Other:	☐ Vegetation ☐ Gravel ☐ Soil ☐ Asphalt ☒ Other: Temporary cover consisting of straw on portions of landfill slopes.

OBSERVATIONS			
16. Do slopes and berms provide positive drainage?	☒ Yes	☐ No	☐ N/A
17. Is there exposed waste on exterior slopes?	☒ Yes	☐ No	☐ N/A

Comments/Action Items: Minor rilling of ash slopes observed.

Actions: ☒ None ☐ Maintenance ☒ Monitoring ☐ Minor Repair ☐ Engineering

LEACHATE SYSTEM

PROBLEMS		
☒ 1. None ☐ 2. Sump	☐ 3. Piping leaking ☐ 4. Containment leaking	☐ 5. Tank leaking ☐ 6. Other:

OBSERVATIONS			
7. Is the Leachate transmission system functioning properly?	☐ Yes	☐ No	☒ N/A
8. Is the leak detection system functioning properly?	☐ Yes	☐ No	☒ N/A

Comments/Action Items: None

Actions: ☒ None ☐ Maintenance ☐ Monitoring ☐ Minor Repair ☐ Engineering

PACIFICORP

Annual Landfill Inspection Report

Feature Name: Hunter CCR Landfill

Feature ID:

Date: 08/24/2021

EROSION SEDIMENT CONTROLS

PROBLEMS				
☐ 1. None ☐ 2. Channel	☐ 3. Ditch failure ☐ 4. Ditch washouts	☐ 5. Debris ☒ 6. Sediment	☐ 7. Silt fences ☐ 8. Filter socks	☐ 9. Rip rap aprons ☐ 10. Other:

OBSERVATIONS			
11. No erosion or sediment controls.	☐ Yes	☒ No	
12. Is there exposed waste on exterior slopes?	☐ Yes	☒ No	☐ N/A
13. Are perimeter run-on diversion ditches present and in good repair?	☒ Yes	☐ No	☐ N/A
14. Are perimeter run-off diversion ditches present and in good repair?	☒ Yes	☐ No	☐ N/A

Comments/Action Items: Minor sediment accumulated at inlet and outlet of drainage culverts.

Actions: ☐ None ☒ Maintenance ☐ Monitoring ☐ Minor Repair ☐ Engineering

OTHER

OBSERVATIONS			
1. Are temporary covers functioning as intended? Straw used as temporary cover.	☒ Yes	☐ No	☐ N/A
2. Are stormwater systems functioning as intended?	☒ Yes	☐ No	☐ N/A
3. Are fences and gates in good condition?	☒ Yes	☐ No	☐ N/A
4. Are security devices in good condition?	☒ Yes	☐ No	☐ N/A
5. Are signs in good condition?	☐ Yes	☐ No	☒ N/A
6. Are reference monuments/survey monuments in good condition?	☐ Yes	☐ No	☒ N/A

Comments/Action Items: No standing water observed in stormwater retention basin even after prior weeks of heavy rain.

Actions: ☒ None ☐ Maintenance ☐ Monitoring ☐ Minor Repair ☐ Engineering

Inspector Signature: Chad Tomlinson

Date: 12/16/2021

APPENDIX B – PHOTOGRAPHIC LOG

Hunter CCR Landfill – Photographic Log Locations

Photo Number: 1	**Date:** 8/24/2021 9:49 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking south at inlet side of haul road culvert showing west ash slope, drainage ditch, and diversion berm (from left to right).

Photo Number: 2	**Date:** 8/24/2021 9:52 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking north at inlet side of culvert under haul road. Note some accumulation of ash at inlet.

Photo Number: 3	**Date:** 8/24/2021 9:55 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking south showing outlet side of culvert under ash haul road. Note no obstructions observed out outlet.

Photo Number: 4	**Date:** 8/24/2021 9:58 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking north at outlet side of culvert under ash haul road showing runoff drainage ditch, which eventually discharges to sediment pond.

Photo Number: 5	**Date:** 8/24/2021 9:59 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northwest at grating installed in ash haul road to intercept runoff. Runoff discharges in run-off drainage channel shown in Photo 4.

Photo Number: 6	**Date:** 8/24/2021 10:02 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking southeast along south slope of ash landfill at high point in drainage channel.

Photo Number: 7	**Date:** 8/24/2021 10:07 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking east along run-on ditch.

Photo Number: 8	**Date:** 8/24/2021 10:08 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northeast along southeast slope of ash landfill showing run-off ditch, perimeter road and run-on berm (from left to right).

Photo Number: 9	**Date:** 8/24/2021 10:15 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking north northeast

Photo Number: 10	**Date:** 8/24/2021 10:25 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northwest from upstream side of culvert that discharges run-off to sediment pond. Note minimal sediment accumulation.

Photo Number: 11	**Date:** 8/24/2021 10:27 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking southeast at drainage ditch between run-on berm and perimeter road.

Photo Number: 12	**Date:** 8/24/2021 10:28 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northwest showing culvert draining roadside ditch between run-on berm and perimeter road.

Photo Number: 13	**Date:** 8/24/2021 10:30 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking southeast toward outlet end of culvert discharging to sedimentation pond.

Photo Number: 14	**Date:** 8/24/2021 10:32 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northwest toward sedimentation pond. Note blue frac tank in background used to discharge water into from horizontal well dewatering system.

Photo Number: 15	**Date:** 8/24/2021 10:33 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northwest showing run-off ditch and perimeter road.

Photo Number: 16	**Date:** 8/24/2021 10:41 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking east at upstream end of sedimentation basin discharge structure and overflow pipe. Based on discussions with PacifiCorp, the discharge structure has never operated.

Photo Number: 17	**Date:** 8/24/2021 10:43 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking west at downstream side of sedimentation pond outlet structure.

Photo Number: 18	**Date:** 8/24/2021 10:45 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking west at middle portion of sedimentation basin. The site had received significant precipitation the prior week and the sedimentation pond had no standing water at the time of the inspection.

Photo Number: 19	**Date:** 8/24/2021 10:49 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northwest along crest of eastern embankment of sedimentation pond.

Photo Number: 20	**Date:** 8/24/2021 10:55 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking west at downstream side of culvert on north end of pond that routes run-off under haul road to industrial landfill. Note accumulation of sediment up to approximately mid-height in the culvert.

Photo Number: 21	**Date:** 8/24/2021 10:57 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking southwest above culvert shown in Photo 20 showing run-off ditch.

Photo Number: 22	**Date:** 8/24/2021 11:00 a.m.
Location: Hunter CCR Landfill	**Comments:** Looking northeast showing upstream end of culvert shown in Photo 20.