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, 2022

PREPARED FOR

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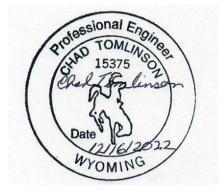
PROFESSIONAL ENGINEER CERTIFICATION

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).

Charl Tembrica

Chad Tomlinson, P.E.



December 16, 2022

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 combustionresidual 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. Theyare only required for surface water impoundments. Therefore, signage for the Hunter Ladfis 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 25, 2022 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 2022 inspection are presented in **Appendix A** and **B**, respectively. Observations from the 2022 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.



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 an existing 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**

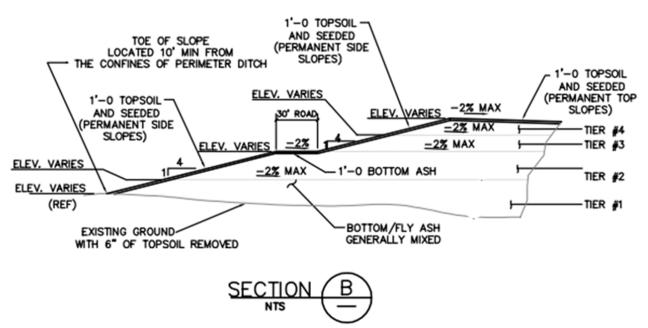


Figure 2 – Typical Cross Section of CCR Landfill

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 the eighth annual periodic inspection conducted under CCR rules [1]. Prior to conducting the 2022 inspection, Tetra Tech staff reviewed the previous annual inspection [6,7,8,9,10,11,12] to identify any areas of concern to focus on during the 2022 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: <u>Coal Combustion Residual (CCR) : PacifiCorp (brkenergy.com)</u>

3.0 FIELD INSPECTION OF EXPANSION LANDFILL

3.1 General Overview of Annual Inspection

A field inspection was conducted on August 25, 2022, 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 18.37 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 eighth annual inspection conducted pursuant to §257.84(b)(1) for the CCR Landfill. Based on a review of the 2021 Annual Inspection Report [12], there does not appear any material changes to the condition of CCR Landfill and drainage features. A table summarizing the findings from the 2021 annual inspection and any changes observed from the 2022 inspection is presented in **Table 1**.

Table 1 – Summary of Changes from 2021 and 2022 Annual Inspections

2021 Annual Inspection Observations	2022 Observations
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.	Head cutting did not appear to be visually more extensive than in 2021.

2021 Annual Inspection Observations	2022 Observations
Minor rilling was still observed but appeared less than observed during the 2020 inspection.	Extent of rilling appeared to be similar to what was observed in 2021.
Straw continues to be added to graded ash slopes as a temporary cover. Vegetation continues to establish on portions of the slopes.	Straw continues to be used as temporary cover on external ash slopes.
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.	No water was observed in location, likely due to the absence of recent precipitation.
Deposited sediment was still observed to be accumulated at outlet of culvert up to the mid-height of the culvert.	Most culverts have varying amounts of accumulated sediment. Recommend clearing inlet and outlet of culverts of debris and sediment.

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 21 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.
- 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.
- [12] Tetra Tech, 2021. CCR Rule Operating Criteria §257.84(b)(1) Annual Inspection by A Qualified Engineer. CCR Landfill. Hunter Power Plant. December 16, 2021.

REVISIONS

Revision Number	Date	Revision Made	By Whom
В	11/7/2022	Issued to PacifiCorp for Review	Chad Tomlinson
0	12/16/2022	Issued as Final	Chad Tomlinson

APPENDIX A – ANNUAL INSPECTION CHECKLIST



Annual Landfill Inspection Report

Fea	ture Name:		Feature I	D:		Date:
Hu	nter CCR Landfill		NA			08/25/2022
	bected by: Id Tomlinson			Date: 08/25/2022		Phone No.: 801-633-9765
Тур	e of Inspection: 🗌 Initial	I 🛛 Periodic 🔲 Follow-up	Other: Ann	ual Inspection	Weather: Wet	🛛 Dry 🔲 Snow Cover
	narks: R Landfill observed to be in s	satisfactory condition. No defic	ciencies identifi	ed.		
Tot Nor	al Precipitation Last 24 hou	ırs:				
NOI		PROF	BLEMS			COVER
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. Settlem 10. Cracks 11. Erosio 12. Rills	s 🛛 🗌 14. Po	epage onding :her:	 ☐ Vegetation ☐ Gravel ☐ Soil ☐ Asphalt ☑ Other: Temporary cover consisting of straw on portions of landfill slope.
	Comments/Action Items:	None				
	Actions: 🛛 None 🗌 N	Naintenance 🗌 Monitoring	Minor Repai	ir 🗌 Engineering		
		PROE	BLEMS			COVER
& PERIMETER BERMS	 1. None 2. Animal burrows 3. Animal damage 4. Weeds & brush 	 5. Vegetation >2" dia. 6. Bare spots >25 ft² 7. Poor grass cover 8. Slope stability 	9. Settlem 10. Cracks 11. Erosio	s 🛛 🗌 14. Po	epage onding :her:	 Vegetation Gravel Soil Asphalt Other: Temporary cover consisting of straw on portions of landfill slopes.
S &			OBSERVA	ATIONS		
STOPES	16. Do slopes and berm	ns provide positive drainage?				🛛 Yes 🗌 No 🗌 N/A
SL	17. Is there exposed wa	aste on exterior slopes?				Yes 🗌 No 🗌 N/A
	Comments/Action Items:	Minor rilling of ash slopes obs	erved.			
	Actions: 🛛 None 🗌 N	Naintenance 🛛 Monitoring	Minor Repai	ir 🗌 Engineering		
			PROBL			
LEACHATE SYSTEM	1. None	3. Piping leaking 4. Containment leaking	0 f. 0	ank leaking)ther:		
TE S	- - - - - - - - - -		OBSERVA	ATIONS		
CHA		mission system functioning pro	operly?			
EAC		system functioning properly?				Yes No X/A
	Comments/Action Items:			in 🗖 Encimentia -		
	Actions: 🛛 None 🗌 N	Naintenance 🗌 Monitoring	Minor Repaired Minor Minor Repaired Minor	ir 🗌 Engineering		



Annual Landfill Inspection Report

Feature Name:		Feature ID:			Date:
Hunter CCR Landfill		NA		08/25/2022	
			PROBLEMS		
รา		3. Ditch failure	1	7. Silt fences	
TRO	1. None 2. Channel	4. Ditch washouts	5. Debris 6. Sediment	8. Filter socks	9. Rip rap aprons
N O O			OBSERVATIONS	<u> </u>	
SEDIMENT CONTROLS	11. No erosion or sedi	iment controls.			🗌 Yes 🔀 No
M	12. Is there exposed w	waste on exterior slopes?			🛛 Yes 🗌 No 🗌 N/A
	13. Are perimeter run	🛛 Yes 🗌 No 🗌 N/A			
EROSION	14. Are perimeter run	🛛 Yes 🗌 No 🗌 N/A			
ROS	Comments/Action Items	: Minor sediment and debr	ris accumulated at inlet and	d outlet of drainage culver	ts.
	Actions: 🗌 None 🔀	Maintenance 🗌 Monitori	ing 🗌 Minor Repair 🗌	Engineering	
	OBSERVATIONS				
	1. Are temporary cove	ers functioning as intended	? Straw used as temporar	y cover.	🛛 Yes 🗌 No 🗌 N/A
	2. Are stormwater sys	🛛 Yes 🗌 No 🗌 N/A			
~	3. Are fences and gates in good condition?				🛛 Yes 🗌 No 🗌 N/A
OTHER	4. Are security devices in good condition?				🛛 Yes 🗌 No 🗌 N/A
0	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: None				
	Actions: 🛛 None 🗌	Maintenance 🗌 Monitori	ing 🗌 Minor Repair 🗌	Engineering	

Inspector Signature: Charl Tembinian

Date: August 25, 2022

APPENDIX B – PHOTOGRAPHIC LOG

Hunter CCR Landfill – Photographic Log Locations



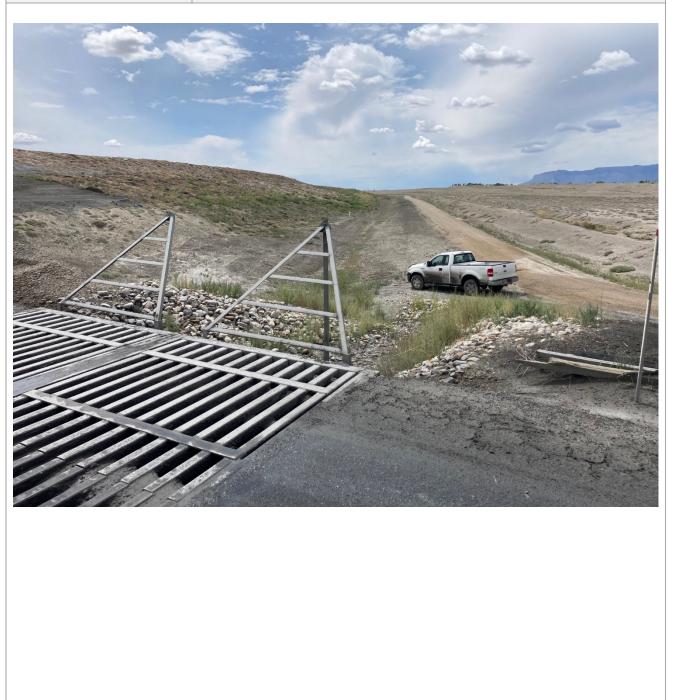
Date: 8/25/2022 1:02 p.m.

Location: Hunter CCR Landfill **Comments:** Looking southeast up at haul road grate. Road grate used to remove ash from tires and intercept stormwater running down haul road.



Date: 8/25/2022 1:03 p.m.

Location: Hunter CCR Landfill **Comments:** Looking southwest along northwest slope of landfill at run-off ditch and run-on berm..



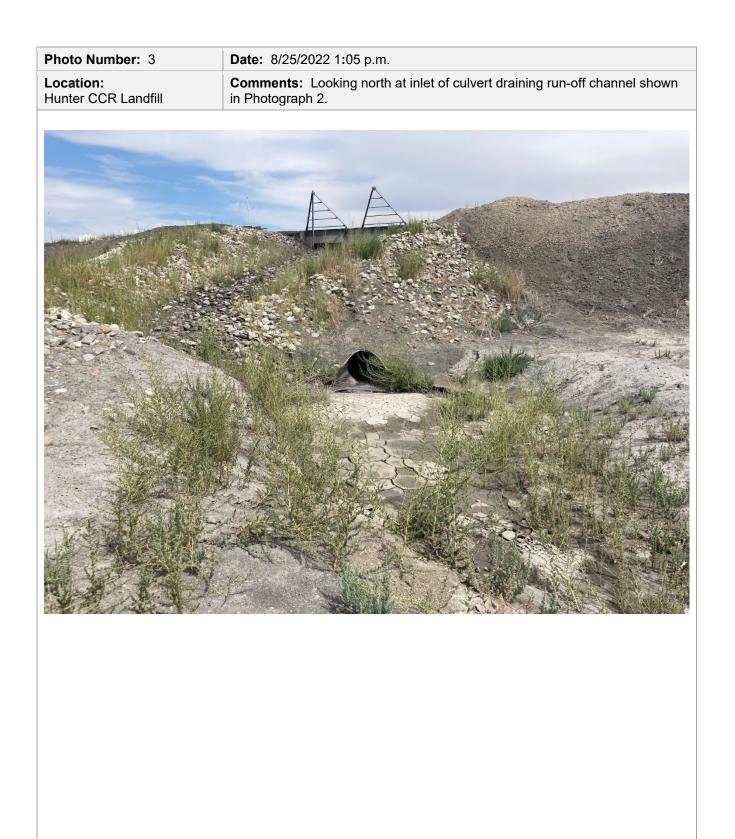
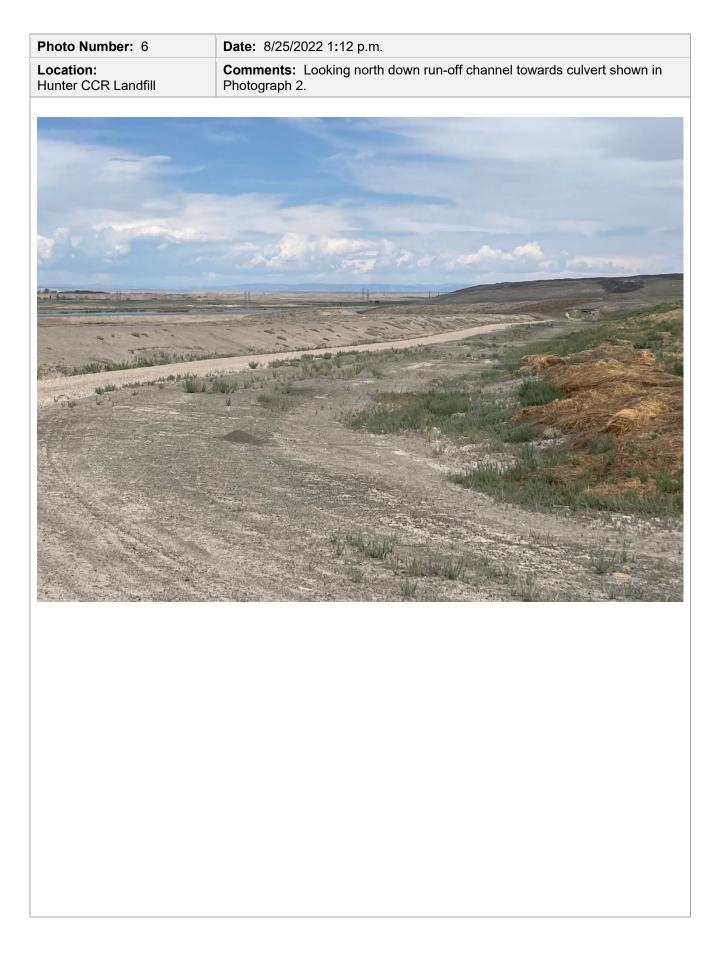


Photo Number: 4	Date: 8/25/2022 1:06 p.m.
Location: Hunter CCR Landfill	Comments: Looking north from ash haul road at discharge end of culvert and continuation of channel shown if Photographs 3 and 2, respectively.
Hunter CCR Landfill	and continuation of channel shown if Photographs 3 and 2, respectively.
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Date: 8/25/2022 1:07 p.m.

Location: Hunter CCR Landfill **Comments:** Looking south at discharge end of culver shown in Photograph 3.





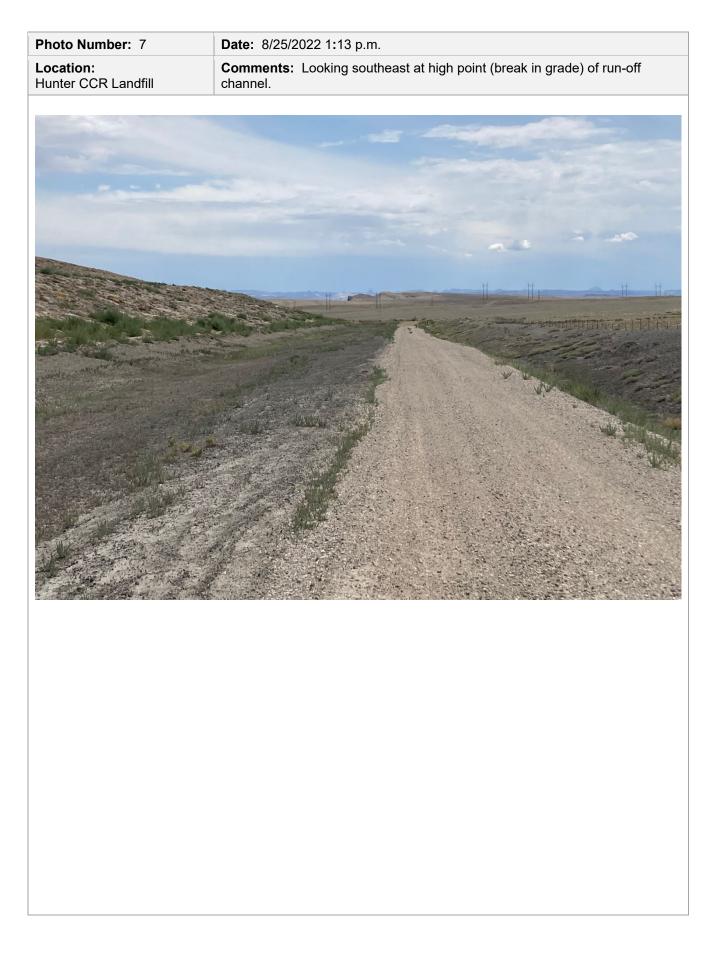


Photo Number: 8	Date: 8/25/2022 1:15 p.m.
Location:	Commente: Looking southeast on top of run on horm and perimeter read

Location: Hunter CCR Landfill





Photo	Number:	9
1 11010	Number.	5

Date: 8/25/2022 1:20 p.m.

Location: Hunter CCR Landfill **Comments:** Looking north up run-on berm and perimeter road.



Photo Number: 10	Date: 8/25/2022 1:21 p.m.
Location: Hunter CCR Landfill	Comments: Looking east down run-on berm along southwest slope of landfill.



Date: 8/25/2022 1:31 p.m.

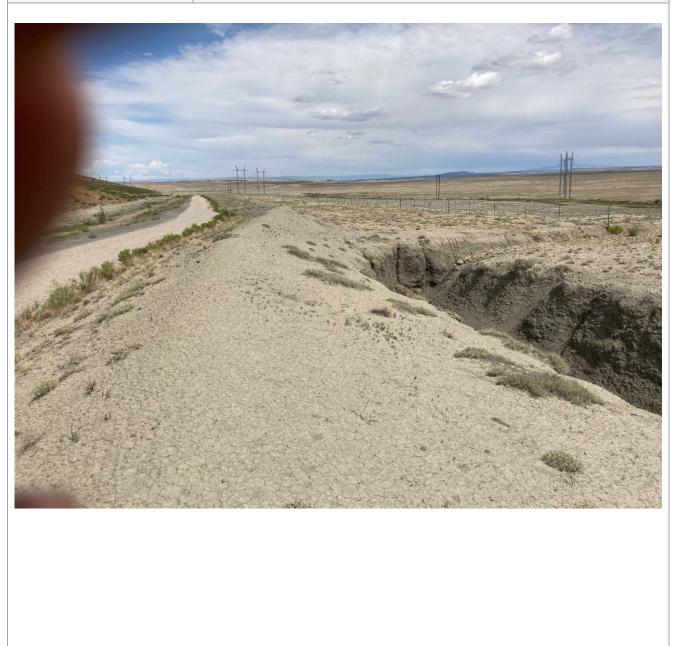
Location: Hunter CCR Landfill **Comments:** Looking west on top of run-on berm and run-on channel.



Photo	Number:	12
FIIOLO	numper.	12

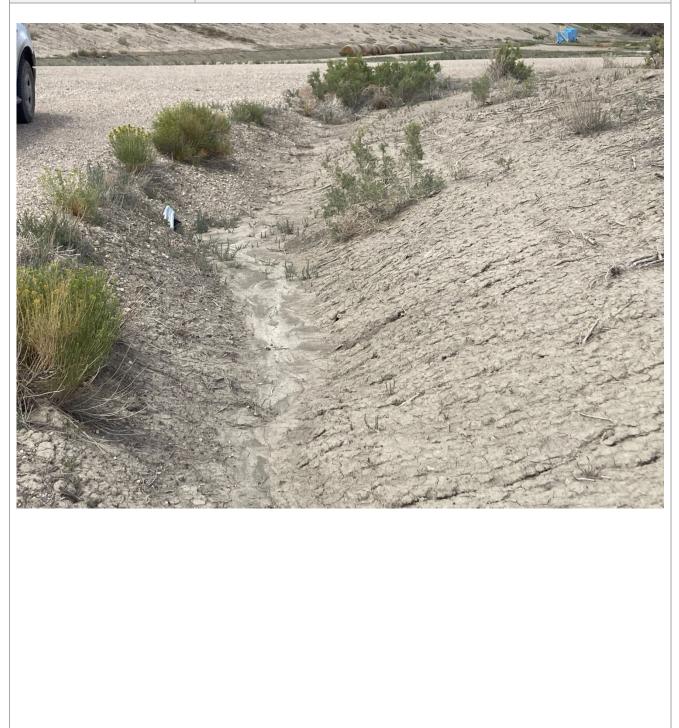
Date: 8/25/2022 1:32 p.m.

Location: Hunter CCR Landfill **Comments:** Looking northeast down run-on berm and end of run-on channel



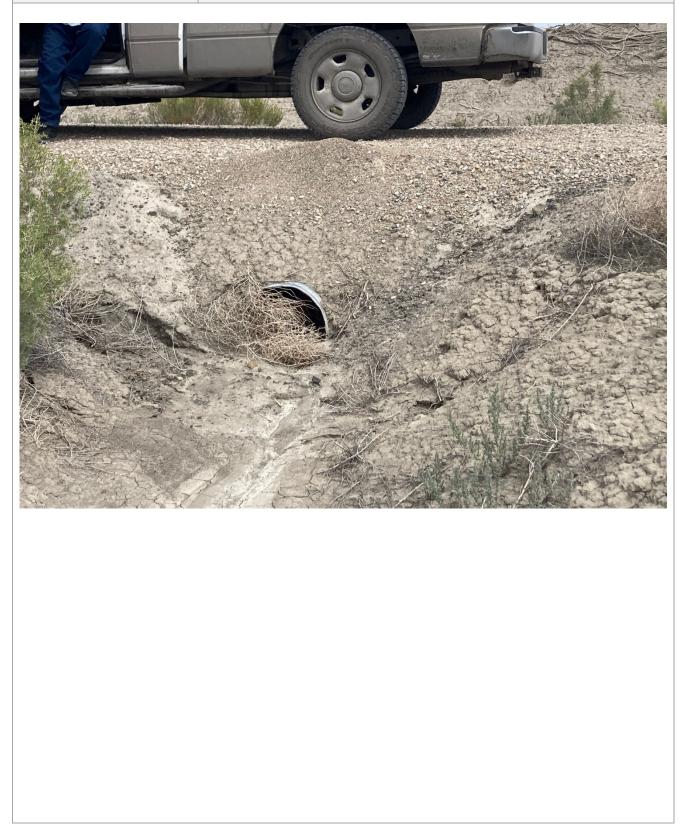
Date: 8/25/2022 1:34 p.m.

Location: Hunter CCR Landfill **Comments:** Looking north at inlet side of culvert draining run-off between perimeter road and run-on berm.



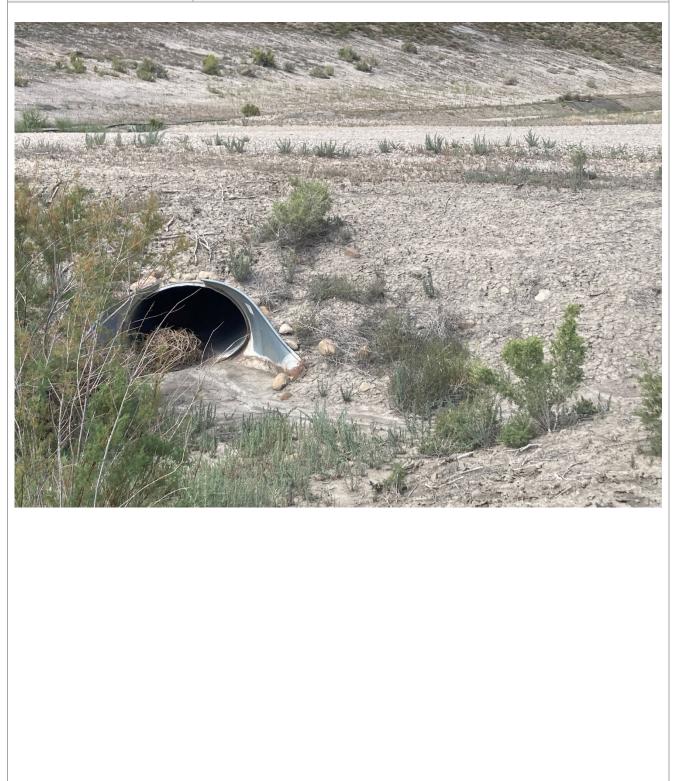
Date: 8/25/2022 1:35 p.m.

Location: Hunter CCR Landfill **Comments:** Looking northeast at discharge side of culvert shown in Photograph 13.



Date: 8/25/2022 1:36 p.m.

Location: Hunter CCR Landfill **Comments:** Looking northwest at inlet to culvert discharge to stormwater retention pond.



Date: 8/25/2022 1:40 p.m.

Location: Hunter CCR Landfill **Comments:** Looking southwest at discharge end of culvert shown in Photograph 15.



Photo Number: 17	Date: 8/25/2022 1:42 p.m.
Location: Hunter CCR Landfill	Comments: Looking north at stormwater retention pond.



Photo Number: 18	Date: 8/25/2022 1:45 p.m.
Location:	Comments: Looking east at inlet to stormwater retention pond overflow
Hunter CCR Landfill	system.



Photo Number: 19	Date: 8/25/2022 1:46 p.m.
Location: Hunter CCR Landfill	Comments: Looking west at outlet of stormwater retention pond outlet system.



Date: 8/25/2022 1:50 p.m.

Location: Hunter CCR Landfill **Comments:** Looking southwest at discharge end of culvert passing road to industrial landfill. Note some accumulation of sediment.



Date: 8/25/2022 1:53 a.m.

Location: Hunter CCR Landfill **Comments:** Looking northwest at inlet to culvert in Photograph 20. Discharge end of culvert recommended to be cleaned.

