2019 Annual Inspection Report

for Compliance with the Coal Combustion Residuals Rule (40 CFR Part 257)

Pawnee Station - North Landfill

14940 Morgan County Road 24
Brush, Colorado 80723

January 18, 2020

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Appendices

Certification

Pawnee Station - CCR Unit 2019 Annual Inspection for Compliance with the Federal Coal Combustion Residuals Rule

I hereby certify that the North Landfill, a Coal Combustion Residuals (CCR) unit at Pawnee Station meets the inspection and operation standards specified in 40 CFR Part 257.84(b) of the Federal CCR Rule. The Pawnee Station is owned by the Public Service Company of Colorado (PSCo), an Xcel Energy Company.

I am duly licensed Professional Engineer under the laws of the State of Colorado.

Matthew Rohr, PE

Colorado PE License 0053467

License renewal date October 31, 2021

1 Introduction

On April 17, 2015 the U.S. Environmental Protection Agency (EPA) published regulations under Subtitle D of the Resources Conservation and Control Act (RCRA) meant to control the safe disposal of coal combustion residuals (CCR) generated by coal fired electric utilities. The rule defines a set of requirements for the disposal and handling of CCR within CCR units (defined as either landfills or surface impoundments). As specified in 40 CFR 257.84(b), *"Existing and new CCR landfills and any lateral expansion of a CCR landfill must 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."* Pawnee Station has two CCR landfills subject to the inspection requirements: the North CCR Landfill and the East CCR Landfill. The scope of this report covers only the North CCR Landfill; the East CCR Landfill inspection is documented in a separate report.

This is the fifth annual inspection report for the Pawnee North CCR Landfill. This report must be completed and placed into the facility operating record no later than January 18, 2020.

The requirements of the annual inspection include:

- A review of available information regarding the status and condition of the CCR unit - §257.84 (B)(1)(i),
- A visual inspection of the CCR unit to identify signs of distress or malfunction - §257.84 (B)(1)(ii),
- An inspection report that includes the following:
  - Changes in geometry since the last inspection - §257.84 (B)(2)(i)
  - Approximate volume of CCR in unit at time of inspection - §257.84 (B)(2)(ii)
  - Appearance of actual or potential structural weakness of the CCR unit - §257.84 (B)(2)(iii)
  - Any other changes which may have affected the stability or operation of the CCR unit since the last inspection - §257.84 (B)(2)(iv)

2 Site Inspection

In accordance with §257.84(b)(ii) a site inspection of the Pawnee North CCR Landfill was conducted on December 5, 2019. The inspection was conducted by Matthew Rohr, a Colorado Professional Engineer of HDR Engineering Inc. and Richard Ferguson, an Xcel Energy Environmental Analyst at the Pawnee Station. Review of the associated paper work and inspection reports was conducted by Matthew Rohr and Richard Ferguson.

The landfill CCR placement started as an incised CCR unit below existing grade but has become a fill above existing grade. Through historical site operational review, PSCo has determined that only the northern portion of the overall landfill footprint, including the contact water pond, is defined as the North CCR landfill, and is subject to the CCR Rule. The area

historically used for lime disposal located to the south of the North CCR landfill is not part of the CCR Annual Inspection.

The weather during the site visit was cloudy with some light precipitation and temperatures ranging from 35 to 40 degrees Fahrenheit. The site was free of snow cover.

3 Review of Available Information

Numerous documents pertaining to the site operation and structural integrity were reviewed including:

1. The Engineering Design and Operation Plan (EDOP) document, Revision 3 dated January, 2018 and developed by HDR, was reviewed as well as the Colorado Department of Public Health and Environment acceptance letter, dated July 3, 2018 from Jace Driver, was reviewed. This revision approval letter specifically accepts, among other measures, steeper side slopes, the Closure Turf system, and the closure and post-closure cost estimates.

2. Available Weekly CCR Landfill Inspection Forms (per Section 257.84(a)).

3. As-Built topographic survey with an issue date of October 9, 2018, by Edward-James Surveying, Inc. This topographic survey only covered the northern portion of the site within the perimeter road and does not include the contact water pond to the south of the CCR landfill area. However, the contact water pond is shown on the 2016 survey with aerial topography.

4. Reportedly, there were no CDPHE inspections of the landfill in 2019.

Review of the above documents did not contain any indications of operation, safety, or structural concerns regarding the North CCR landfill.

4 Visual Inspection

Matthew Rohr, escorted by Richard Ferguson, completed a site inspection, driving and walking the perimeter of the landfill and observing all landfill slopes. As the CCR Rule pertains only to the CCR landfill itself, this report does not address existing topsoil stockpiles or earthwork outside of the landfill area.

The site inspection included an evaluation of the following CCR landfill features:

1. Interior landfill and exterior landfill perimeter road side slopes;

2. Contact water pond;

3. Access roads;

4. Active CCR fill area (CCR disposal, spreading, compaction), and;

5. Temporarily soil covered CCR landfill areas.

The following are the findings of the site inspection:

- There is a perimeter landfill access road that is incised into the native soil side slopes or is a ridge road on a constructed embankment, depending on location. The ridge road embankment sections are on the east and west side of the landfill. Both the western and eastern ridge road embankments showed no substantial signs of rill erosion, and no signs of operational or functional concern.
- The area of rill erosion mentioned in the 2017 and 2018 reports on the interior slopes above the landfill has been covered by CCR placement as the landfill now is above existing grade.
- The minor areas of rill erosion in the CCR landfill showed no signs of operational or functional concern.
- Wind-blown CCR was not observed during dumping operations.
- The capped North CCR Landfill areas appeared to have adequate soil cover and showed no signs of operational and structural concern.

5 Changes in Geometry

The Federal CCR Rule requires that site geometry changes be identified since the last inspection. The landfill footprint has not changed since the last inspection. The landfill height has increased roughly 10-15 feet since the last inspection and the side slopes have been constructed and maintained per the approved EDOP. The maximum elevation at the time of the inspection was approximately 4,386 feet in the northwest corner of the landfill with 1% grades to the southeast. The contact water pond geometry remains unchanged from the 2016 survey.

6 Approximate CCR Volume

PSCo reviewed known and extrapolated ash generation rates, reviewed known beneficial ash usage between 1996 and 2014, and calculated landfill volumes based on a prior EDOP dated February 2011, Rev. 2.0. After analyzing the calculated volumes, PSCo estimates that the total combined volume of CCR on-site as of November 2018 to be 1,802,950 CY. The additional CCR deposited in the North CCR Landfill from December 2018 to November 2019 is estimated to be 76,930 CY, assuming one cubic yard of CCR material equates to one ton. The total CCR volume in the North CCR Landfill as of November 2019 is estimated to be 1,879,880 CY.

7 Appearance of Structural Weakness

Based on the site inspection, no apparent or potential structural weaknesses were observed. Continued monitoring and minor repairs should be completed to address rill and gully erosion as it occurs.

8 Changes Affecting Stability or Operation

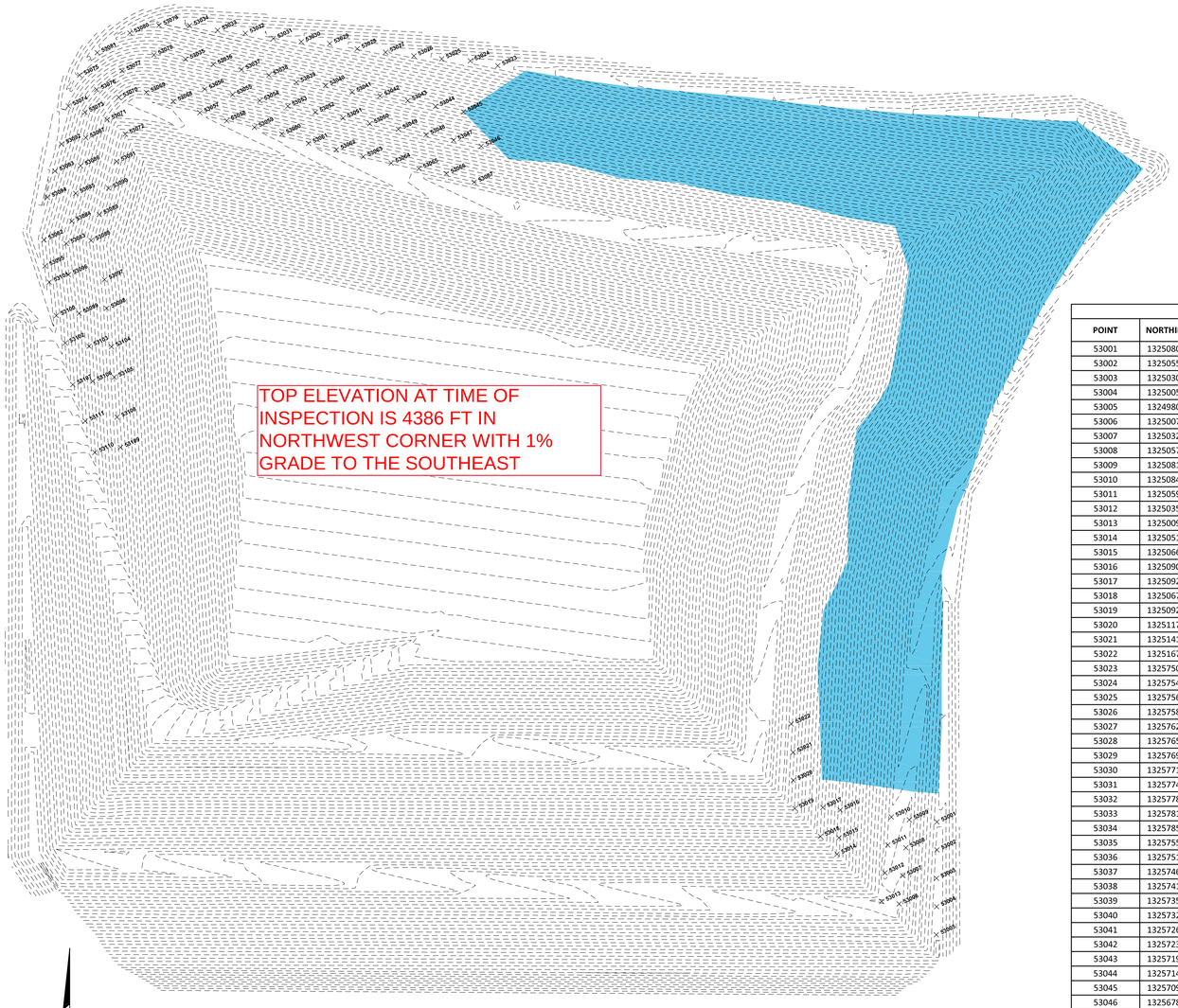
There were no observed or reported operation changes that are anticipated to impact the site's near-term or long-term stability. No areas of severe rill or gully erosion were observed that had the potential to lead to long term stability concerns. There were no new stability concerns observed or reported at the time of inspection.

Appendix A – Landfill Site Map

PAWNEE SEGS - UNIT 1

NORTH CCR LANDFILL

TOP OF CCR VERIFICATION



N

60' 0 60' 120'

SCALE: 1" = 60'

TOP OF CCR VERIFICATION 3/21/2018

GENERAL NOTES:

1. COORDINATE DATUM: PROJECT COORDINATES ARE MODIFIED COLORADO STATE PLANE NORTH 0501 ZONE NAD83 (2011) US SURVEY FEET (GROUND) COORDINATES. THE COMBINED ELEVATION/SCALE FACTOR USED TO MODIFY THE COORDINATES FROM STATE PLANE TO PROJECT COORDINATES IS 1.0002432762 APPLIED AT A 0,0 ORIGIN.
2. PROJECT BENCHMARK: PUBLIC SERVICE COMPANY OF COLORADO POINT #491. FOUND 3-1/4" BRASS CAP IN CONCRETE STAMPED "PUBLIC SERVICE COMPANY OF COLORADO NO #491 EL = 4401.32".
3. THE SURFACE ELEVATIONS IN THE TABLE HEREON WERE DERIVED FROM HDR PROJECT NO. 10025968 PAWNEE SEGS-UNIT 1_NORTH CCR LANDFILL EDOP DRAWINGS PROVIDED BY HDR ON 3/19/2018.
4. LAST FIELD INSPECTION OF THIS SITE WAS ON SEPTEMBER 12, 2018.

POINT	LATITUDE (N)	LONGITUDE (W)	
TOWER ET	N40°12'54.29009"	W103°41'47.40980"	
POINT	**STATE PLANE NORTHING**	**STATE PLANE EASTING**	
TOWER ET	1326317.72	3503628.02	
POINT	**PROJECT NORTHING**	**PROJECT EASTING**	**ELEVATION**
TOWER ET	1326640.38	3504480.37	
150	1325863.29	3506587.71	4373.01
151	1325469.79	3506574.00	4365.39
152	1324408.35	3506568.01	4373.96
153	1323332.54	3506573.65	4368.59
154	1325016.76	3507404.06	4347.50
155	1323902.24	3507399.98	4349.99
156	1325765.20	3508720.91	4323.87
157	1325379.12	3508452.91	4321.91
158	1324457.53	3508469.66	4340.59
159	1323349.65	3508430.68	4363.30

CCR VERIFICATION

POINT	NORTHING	EASTING	ELEVATION	SURFACE ELEVATION	CUT/FILL	DESCRIPTION
53001	1325080.2	3508345.8	4334.11	4334.17	F-0.06	ASH
53002	1325055.3	3508345.9	4333.78	4333.80	F-0.02	ASH
53003	1325030.2	3508345.4	4333.64	4333.55	C-0.09	ASH
53004	1325005.1	3508345.6	4333.34	4333.30	C-0.04	ASH
53005	1324980.1	3508345.3	4333.12	4333.06	C-0.06	ASH
53006	1325007.5	3508312.4	4343.92	4343.81	C-0.11	ASH
53007	1325032.4	3508315.6	4343.20	4343.06	C-0.14	ASH
53008	1325057.3	3508318.3	4342.38	4342.30	C-0.08	ASH
53009	1325081.9	3508321.4	4342.02	4342.01	C-0.01	ASH
53010	1325084.4	3508305.4	4341.34	4341.33	C-0.01	ASH
53011	1325059.7	3508302.4	4342.01	4341.98	C-0.03	ASH
53012	1325035.0	3508299.9	4342.12	4341.99	C-0.13	ASH
53013	1325009.6	3508296.8	4342.65	4342.51	C-0.14	ASH
53014	1325051.6	3508257.3	4356.64	4356.63	C-0.01	ASH
53015	1325066.1	3508259.1	4356.44	4356.33	C-0.11	ASH
53016	1325090.6	3508260.2	4356.48	4356.43	C-0.05	ASH
53017	1325092.8	3508244.7	4361.72	4361.68	C-0.04	ASH
53018	1325067.2	3508242.7	4361.98	4361.89	C-0.09	ASH
53019	1325092.0	3508219.9	4369.96	4369.90	C-0.06	ASH
53020	1325117.0	3508218.7	4370.83	4370.78	C-0.05	ASH
53021	1325141.8	3508218.5	4371.34	4371.32	C-0.02	ASH
53022	1325167.0	3508216.8	4372.42	4372.33	C-0.09	ASH
53023	1325750.1	3507957.0	4339.46	4339.39	C-0.07	ASH
53024	1325754.4	3507932.7	4340.00	4340.06	F-0.06	ASH
53025	1325756.2	3507907.4	4340.90	4340.74	C-0.16	ASH
53026	1325758.8	3507882.7	4341.51	4341.41	C-0.10	ASH
53027	1325762.0	3507857.7	4342.23	4342.11	C-0.12	ASH
53028	1325765.2	3507832.6	4342.87	4342.85	C-0.02	ASH
53029	1325769.7	3507808.2	4343.65	4343.49	C-0.16	ASH
53030	1325771.4	3507783.0	4344.43	4344.35	C-0.08	ASH
53031	1325774.2	3507758.2	4345.20	4345.14	C-0.06	ASH
53032	1325778.8	3507733.5	4345.55	4345.47	C-0.08	ASH
53033	1325781.5	3507708.9	4346.27	4346.23	C-0.04	ASH
53034	1325785.7	3507684.1	4346.92	4346.90	C-0.02	ASH
53035	1325755.9	3507680.6	4356.60	4356.64	F-0.04	ASH
53036	1325751.2	3507705.1	4356.46	4356.45	C-0.01	ASH
53037	1325746.7	3507730.0	4356.27	4356.16	C-0.11	ASH
53038	1325741.7	3507754.3	4356.12	4356.05	C-0.07	ASH
53039	1325735.4	3507778.7	4356.52	4356.38	C-0.14	ASH
53040	1325732.7	3507804.5	4355.54	4355.44	C-0.10	ASH
53041	1325726.7	3507828.1	4355.77	4355.72	C-0.05	ASH
53042	1325723.4	3507852.8	4355.12	4355.04	C-0.08	ASH
53043	1325719.2	3507877.3	4354.73	4354.67	C-0.06	ASH
53044	1325714.1	3507901.9	4354.65	4354.60	C-0.05	ASH
53045	1325709.3	3507926.6	4354.60	4354.44	C-0.16	ASH
53046	1325678.8	3507942.4	4363.35	4363.24	C-0.11	ASH
53047	1325684.1	3507917.9	4363.38	4363.25	C-0.13	ASH
53048	1325688.9	3507893.5	4363.54	4363.40	C-0.14	ASH
53049	1325693.9	3507869.0	4363.59	4363.51	C-0.08	ASH
53050	1325698.8	3507843.7	4363.79	4363.68	C-0.11	ASH
53051	1325703.8	3507820.0	4363.78	4363.72	C-0.06	ASH
53052	1325708.9	3507795.5	4363.86	4363.78	C-0.08	ASH
53053	1325714.3	3507771.1	4363.88	4363.75	C-0.13	ASH
53054	1325719.2	3507746.3	4364.02	4363.90	C-0.12	ASH
53055	1325724.5	3507722.3	4363.91	4363.87	C-0.04	ASH

CCR VERIFICATION

POINT	NORTHING	EASTING	ELEVATION	SURFACE ELEVATION	CUT/FILL	DESCRIPTION
53056	1325729.4	3507697.5	4364.14	4364.00	C-0.14	ASH
53057	1325708.5	3507693.3	4371.42	4371.35	C-0.07	ASH
53058	1325701.4	3507717.0	4372.07	4372.00	C-0.07	ASH
53059	1325695.6	3507741.5	4372.19	4372.00	C-0.19	ASH
53060	1325689.7	3507765.8	4372.33	4372.24	C-0.09	ASH
53061	1325681.3	3507789.4	4373.44	4373.29	C-0.15	ASH
53062	1325675.6	3507814.1	4373.55	4373.40	C-0.15	ASH
53063	1325669.5	3507837.9	4373.72	4373.70	C-0.02	ASH
53064	1325663.8	3507862.6	4373.81	4373.81	C-0.00	ASH
53065	1325659.0	3507887.2	4373.64	4373.64	C-0.00	ASH
53066	1325654.5	3507911.5	4373.41	4373.40	C-0.01	ASH
53067	1325647.0	3507936.1	4374.19	4374.13	C-0.06	ASH
53068	1325718.5	3507669.7	4369.55	4369.52	C-0.03	ASH
53069	1325726.5	3507645.8	4368.39	4368.37	C-0.02	ASH
53070	1325722.1	3507621.4	4367.17	4366.98	C-0.19	ASH
53071	1325702.3	3507611.2	4368.69	4368.55	C-0.14	ASH
53072	1325689.5	3507627.1	4374.47	4374.39	C-0.08	ASH
53073	1325708.9	3507591.4	4361.70	4361.60	C-0.10	ASH
53074	1325714.4	3507576.9	4356.35	4356.27	C-0.08	ASH
53075	1325741.8	3507586.7	4354.03	4353.95	C-0.08	ASH
53076	1325729.0	3507601.8	4360.67	4360.56	C-0.11	ASH
53077	1325745.7	3507624.3	4360.67	4360.61	C-0.06	ASH
53078	1325759.7	3507652.5	4357.20	4357.07	C-0.13	ASH
53079	1325785.9	3507657.0	4348.46	4348.50	F-0.04	ASH
53080	1325779.1	3507631.2	4350.28	4350.18	C-0.10	ASH
53081	1325761.7	3507602.3	4352.45	4352.33	C-0.12	ASH
53082	1325595.9	3507555.3	4359.68	4359.68	C-0.00	ASH
53083	1325592.5	3507574.9	4366.31	4366.11	C-0.20	ASH
53084	1325612.3	3507579.8	4366.27	4366.22	C-0.05	ASH
53085	1325637.1	3507583.2	4365.29	4365.19	C-0.10	ASH
53086	1325661.5	3507587.6	4364.54	4364.49	C-0.05	ASH
53087	1325686.4	3507592.2	4363.96	4363.82	C-0.14	ASH
53088	1325595.2	3507597.0	4373.24	4373.23	C-0.01	ASH
53089	1325618.3	3507604.1	4373.54	4373.52	C-0.02	ASH
53090	1325641.6	3507612.4	4374.22	4374.19	C-0.03	ASH
53091	1325665.4	3507619.5	4374.50	4374.40	C-0.10	ASH
53092	1325680.8	3507570.8	4357.42	4357.41	C-0.01	ASH
53093	1325656.7	3507564.9	4357.61	4357.60	C-0.01	ASH
53094	1325633.5	3507558.2	4357.48	4357.44	C-0.04	ASH
53095	1325572.6	3507556.1	4359.22	4359.16	C-0.06	ASH
53096	1325565.1	3507576.9	4365.94	4365.77	C-0.17	ASH
53097	1325560.6	3507608.8	4376.24	4376.13	C-0.11	ASH
53098	1325535.2	3507610.6	4375.96	4375.92	C-0.04	ASH
53099	1325530.7	3507586.3	4367.72	4367.68	C-0.04	ASH
53100	1325528.7	3507566.1	4360.97	4360.95	C-0.02	ASH
53101	1325558.3	3507560.0	4359.96	4359.92	C-0.04	ASH
53102	1325504.4	3507574.0	4363.22	4363.09	C-0.13	ASH
53103	1325501.6	3507595.1	4370.20	4370.07	C-0.13	ASH
53104	1325501.1	3507614.9	4376.80	4376.69	C-0.11	ASH
53105	1325474.2	3507617.4	4376.98	4376.98	C-0.00	ASH
53106	1325470.6	3507598.3	4370.58	4370.52	C-0.06	ASH
53107	1325467.6	3507580.6	4364.52	4364.59	F-0.07	ASH
53108	1325438.7	3507619.9	4377.15	4377.14	C-0.01	ASH
53109	1325411.9	3507622.9	4377.56	4377.61	F-0.05	ASH
53110	1325407.4	3507600.2	4369.94	4369.95	F-0.01	ASH
53111	1325435.2	3507591.7	4367.62	4367.65	F-0.03	ASH

SURVEY PROVIDED TO SUPPORT TOPOGRAPHIC CHANGES FOR ANNUAL INSPECTION REPORT. RED TEXT BOXED NOTES BY HDR ENGINEERING FOR JANUARY 2020 SUBMITTAL.

COLORADO LICENSED
DONALD R. FIELDS
38042
PROFESSIONAL LAND SURVEYOR
10/9/2018

REVISIONS NO.	DESCRIPTION	DATE

EDWARD-JAMES SURVEYING, INC.
926 Elkton Drive
Colorado Springs, CO 80907
Office: (719) 576-1216
Fax: (719) 576-1206

4732 Eagleridge Circle
Pueblo, CO 81008
Office: (719) 545-6240
Fax: (719) 545-6247

PAWNEE SEGS - UNIT 1
NORTH CCR LANDFILL

TOP OF CCR VERIFICATION

DRAWN BY	ERF
CHECKED BY	ERF
H-SCALE	1" = 60'
JOB NO.	1357-00
DATE CREATED	03/23/18
DATE ISSUED	10/09/18
SHEET NO	1 OF 1