



DESERET POWER
ELECTRIC COOPERATIVE

**BONANZA POWER PLANT
ANNUAL PROFESSIONAL ENGINEER
CCR UNITS INSPECTION**

January 2023

**Deseret Generation and Transmission Co-operative
10714 S. Jordan Gateway St. 300
South Jordan, UT 84095**

Qualified Professional Engineer Certificate

I, Tyler S. Esplin, a registered Professional Engineer (PE) in the State of Utah, certify under penalty of law that this CCR PE Inspection Report meets the requirements of Subpart D, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments pursuant to 40 CFR 257.84. It is my opinion that the information within this report is true and accurate according to the guidelines outlined in the said rule.

Dated this 10th day of January 20 23



Registered Professional Engineer
Number 323799-2202
State of Utah

Emission Source Information

Deseret Generation and Transmission Co-operative
 Bonanza Power Plant
 12500 East 25500 South
 Vernal, Utah 84078
 Phone: 435-789-9000

Responsible Official: Eric C. Olsen, PE (Plant Manager, VP Operations)
 Company Contact: Tyler S. Esplin, PE (Environmental Superintendent)

I. General

In accordance with 40 CFR 257.84(b), this report fulfills the *Annual Inspection by a Qualified Professional Engineer (PE)* for the Bonanza Power Plant's (Bonanza) existing coal combustion residual (CCR) units. Bonanza is operated by Deseret Generation and Transmission Cooperative (Deseret) and is located approximately 35 miles southeast of Vernal, Utah. Bonanza is a 500 MW gross coal fired steam turbine and generator with two CCR units classified as existing landfills under said rule. These landfills contain fly ash, bottom ash, boiler slag, and flue gas desulfurization materials.

One of the existing landfills is located to the north end of the Bonanza site and mainly contains fly ash and flue gas desulfurization (FGD) material. This CCR unit will be referred to as the Fly Ash and FGD Sludge Landfill. The other existing landfill is located to the south end of the Bonanza site and mainly contains bottom ash and boiler slag. This CCR unit will be referred to as the Bottom Ash Landfill. Refer to Appendix A, Site Maps.

II. 40 CFR 257.84(b)(1), Annual Inspection by a Qualified Professional Engineer (PE)

An onsite inspection of both existing CCR landfills was conducted on November 8, 2022. In review of the CCR regulation that requires this PE inspection, the following must be conducted during the annual inspection.

- A. 40 CFR 257.84(b)(1)(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., the results of inspections by a qualified person, and results of previous annual inspections)”**

Fly Ash and FGD Sludge Landfill:

The following items were required to be in the operating record at this time for the Fly Ash and FGD Sludge Landfill and all were reviewed:

1. *Fugitive Dust Control Plan*
2. *CCR Unit Run On / Run Off Control Plan*

3. *2016-2021 Annual Professional Engineer CCR Units Inspection*
4. *2016-2022 Fugitive Dust Control Report*

In addition, the following weekly plant documents were reviewed:

1. *Inspections by a Qualified Person*

The *Fugitive Dust Control Plan* appears to be in compliance with the said regulation for the Fly Ash and FGD Sludge Landfill. There were zero (0) fugitive dust issues and/or concerns noted the day of the inspection and record review. Records are maintained on site to demonstrate control measures that mitigate fugitive emissions. **Bonanza is in compliance with the *Fugitive Dust Control Plan* requirement.**

The *Inspections by a Qualified Person* appear to be in compliance with the said regulation. These inspections are required to be completed at intervals not to exceed seven (7) days. These inspections were reviewed from the last PE inspection starting on November 9, 2021 up through the day of the current inspection (November 8, 2022). The following items are contained on a CCR inspection checklist and were reviewed during each inspection by a qualified person:

1. Are there 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?
2. Are there any noticeable issues with the erosion controls?
3. Are there any noticeable issues with slope stability?
4. Are there any issues with the water quality monitoring systems (CCR monitoring wells)?
5. Are there any issues with the CCR landfill's fugitive emissions (dust)?
6. Is the surface water percolation minimized (i.e. ponding reduced as much as possible)?
7. Is the CCR waste placed properly in the CCR landfill?

Bonanza is in compliance with the *Inspections by a Qualified Person* requirement.

Bottom Ash Landfill:

The following items required to be in the operating record at this time for the Bottom Ash Landfill and all were reviewed:

1. *Fugitive Dust Control Plan*
2. *CCR Unit Run On / Run Off Control Plan*
3. *2016-2021 Annual Professional Engineer CCR Units Inspection*
4. *2016-2022 Fugitive Dust Control Report*

In addition, the following weekly plant documents were reviewed:

1. *Inspections by a Qualified Person*

The *Fugitive Dust Control Plan* appears to be in compliance with the said regulation for the Bottom Ash Landfill. There were zero (0) fugitive dust issues and/or concerns noted the day of the inspection and record review. Records are maintained on site to demonstrate control measures that mitigate fugitive emissions. **Bonanza is in compliance with the *Fugitive Dust Control Plan* requirement.**

The *Inspections by a Qualified Person* appear to be in compliance with the said regulation. These inspections are required to be completed at intervals not to exceed seven (7) days. These inspections were reviewed from the last PE inspection starting on November 9, 2021 up through the day of the current inspection (November 8, 2022). The following items are contained on a CCR inspection checklist and were reviewed during each inspection by a qualified person:

1. Are there 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?
2. Are there any noticeable issues with the erosion controls?
3. Are there any noticeable issues with slope stability?
4. Are there any issues with the water quality monitoring systems (CCR monitoring wells)?
5. Are there any issues with the CCR landfill's fugitive emissions (dust)?
6. Is the surface water percolation minimized (i.e. ponding reduced as much as possible)?
7. Is the CCR waste placed properly in the CCR landfill?

Bonanza is in compliance with the *Inspections by a Qualified Person* requirement.

B. 40 CFR 257.84(b)(1)(ii): “A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.”

Fly Ash and FGD Sludge Landfill:

The Fly Ash and FGD Sludge Landfill was visually inspected on November 8, 2022 for signs of distress and/or malfunctions. No signs were identified. This landfill appears to be generally in good shape as far as stability.

Bottom Ash Landfill:

The Bottom Ash Landfill was visually inspected on November 8, 2022 for signs of distress and/or malfunctions. No signs were identified. This landfill appears to be generally in good shape as far as stability.

III. 40 CFR 257.84(b)(2), Inspection Report

In review of the CCR regulation that requires this PE inspection report, the following must be included in this report.

A. 40 CFR 257.84(b)(2)(i): “Any changes in geometry of the structure since the previous annual inspection”**Fly Ash and FGD Sludge Landfill:**

Other than further build out of the landfill, no geometry changes were noted during this reporting period.

Bottom Ash Landfill:

Other than further build out of the landfill, no geometry changes were noted during this reporting period.

B. 40 CFR 257.84(b)(2)(ii): “The approximate volume of CCR contained in the unit at the time of the inspection”**Fly Ash and FGD Sludge Landfill:**

The Fly Ash and FGD Sludge Landfill contained approximately 7.68 million cubic yards of CCR material at the time of inspection on November 8, 2022. Refer to Table 1 below for volume estimates. A dry unit weight of 75 lb/cft and an estimated 80%¹ of the total unit ash was assumed for the calculations. These totals include the sulfur that was removed from the flue gas and the limestone that is used in the FGD scrubber.

Table 1, Fly Ash and FGD Sludge Landfill CCR Volume¹

Total Volume as of 11/9/2021 <i>Source: Estimated Material Mass Balance²</i>	≈ 7.58 million cyds
Volume Added to Landfill from November 2021 to November 2022 <i>Source: Estimated Material Mass Balance</i>	≈ 0.08 million cyds
Total Estimated Volume as of 11/8/2022	≈ 7.66 million cyds

NOTES:

1. The 80%/20% split between fly ash and bottom ash is based upon testing performed on Feb 26, 2018.

Bottom Ash Landfill:

The Bottom Ash Landfill contained approximately 0.817 million cubic yards of CCR material at the time of inspection on November 9, 2021. Refer to Table 2 below for volume estimates. A dry unit weight of 60 lb/cft and an estimated 20%¹ of the total unit ash was assumed for the calculations.

Table 2, Bottom Ash Landfill CCR Volume¹

Total Volume as of 11/9/2021 <i>Source: Estimated Material Mass Balance²</i>	≈ 0.82 million cyds
Volume Added to Landfill from November 2021 to November 2022 <i>Source: Estimated Material Mass Balance</i>	≈ 0.057 million cyds
Total Estimated Volume as of 11/8/2022	≈ 0.87 million cyds

NOTES:

1. The 80%/20% split between fly ash and bottom ash is based upon testing performed on Feb 26, 2018.

- C. 40 CFR 257.84(b)(2)(iii) “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”**

Fly Ash and FGD Sludge Landfill:

The Fly Ash and FGD Sludge Landfill was visually inspected on November 8, 2022 for signs of structural weakness. No signs were identified. This landfill appears to be generally in good shape as far as stability. Also, there does not appear to be any conditions that are disrupting or have the potential to disrupt the operation and safety of this CCR unit.

Bottom Ash Landfill:

The Bottom Ash Landfill was visually inspected on November 8, 2022 for signs of structural weakness. No signs were identified. This landfill appears to be generally in good shape as far as stability. Also, there does not appear to be any conditions that are disrupting or have the potential to disrupt the operation and safety of this CCR unit.

D. 40 CFR 257.84(b)(2)(iv) “Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection”

Fly Ash and FGD Sludge Landfill:

No changes were found that may affect the stability or operation of the CCR unit since the previous annual inspection.

Bottom Ash Landfill:

No changes were found that may affect the stability or operation of the CCR unit since the previous annual inspection.

Appendix A Site Maps

FLY ASH AND FGD SLUDGE LANDFILL
TOTAL ±148 ACRES



EXISTING LANDFILL (FULL)
FLY ASH AND FGD SLUDGE LANDFILL
±72 ACRES

EXISTING LANDFILL (NOT FULL*)
FLY ASH AND FGD SLUDGE LANDFILL
±76 ACRES

BOTTOM ASH LANDFILL
TOTAL ±52 ACRES

EXISTING LANDFILL (FULL)
BOTTOM ASH LANDFILL
±23 ACRES

EXISTING LANDFILL (NOT FULL*)
BOTTOM ASH LANDFILL
±29 ACRES

BONANZA POWER PLANT SITE

* A LANDFILL BASE/FOOTPRINT EXISTS. THIS LANDFILL FOOTPRINT EXISTED PRIOR TO THE CCR COMPLIANCE DATE. THE INCLUSIVE FOOTPRINT, FULL AND NOT FULL LANDFILL PORTION, IS CONSIDERED ONE EXISTING LANDFILL.

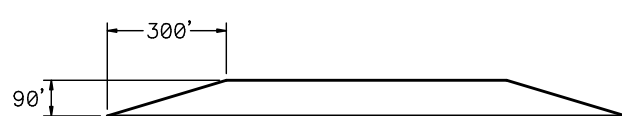
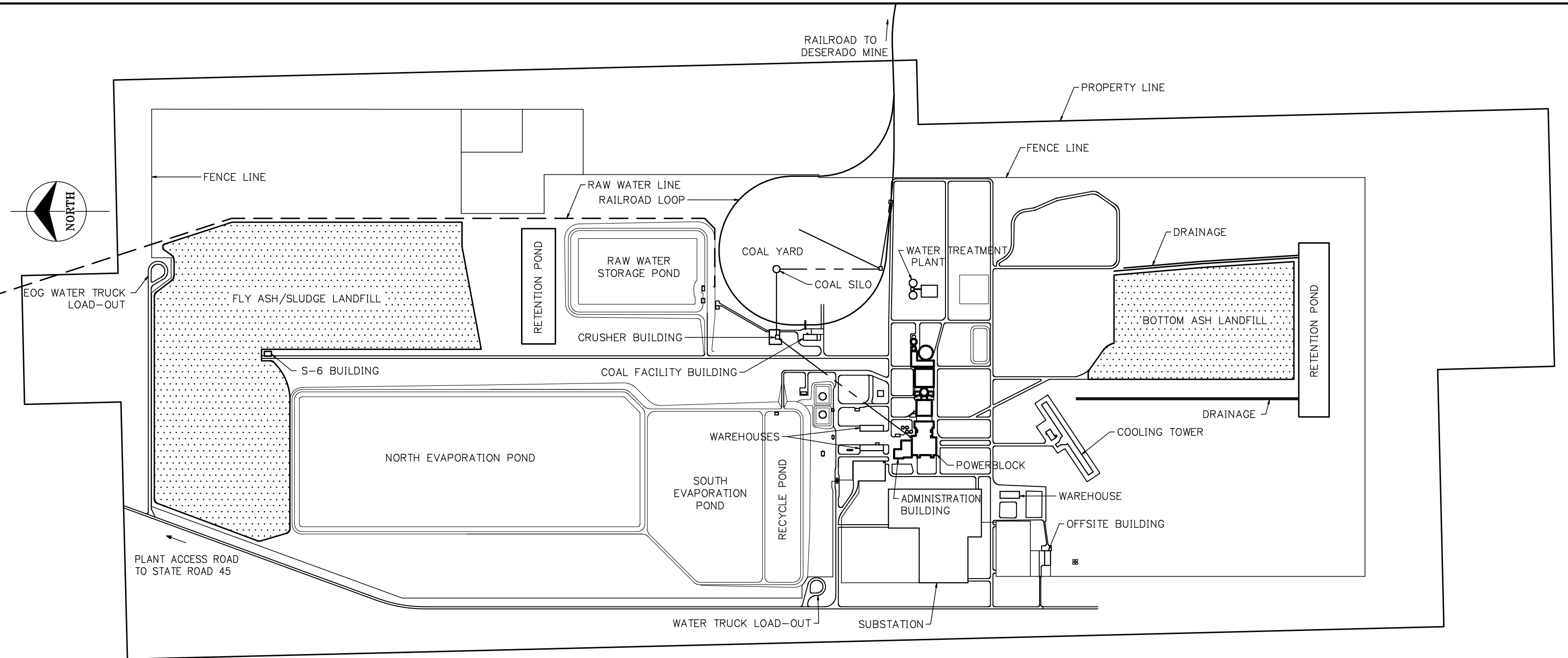


DESERET POWER
ELECTRIC COOPERATIVE

BONANZA POWER PLANT
SITE MAP

CAD FILE : ... Inspection (11-24-15).dwg

No.	REVISIONS	DATE	BY	ENGINEERING	BY	DATE	DRAFT	BY	DATE	W.O.
1	Revised to depict actual pre-2015 dimensions	12/18	TSE	ENG	ECO	1/16	DRAWN	ECO	1/16	DWG.
				APVD			CHK			
				PLOT SCALE: 1"=2000'			APVD			A-1



TYPICAL FLY ASH/SLUDGE LANDFILL CROSS SECTION



TYPICAL BOTTOM ASH LANDFILL CROSS SECTION

FLY ASH/SLUDGE LANDFILL ACREAGE	
COMPLETED LANDFILL FOOTPRINT AREA (A)	142.63 ACRES
COMPLETED LANDFILL SURFACE AREA (B)	146.06 ACRES
20' PERIMETER AROUND FOOTPRINT (C)	5.79 ACRES
TOTAL FOOTPRINT AREA (A+C)	148.41 ACRES
TOTAL SURFACE AREA (B+C)	151.85 ACRES

BOTTOM ASH LANDFILL ACREAGE	
COMPLETED LANDFILL FOOTPRINT AREA (D)	49.66 ACRES
COMPLETED LANDFILL SURFACE AREA (E)	50.00 ACRES
20' PERIMETER AROUND FOOTPRINT (F)	2.83 ACRES
TOTAL FOOTPRINT AREA (D+F)	52.49 ACRES
TOTAL SURFACE AREA (E+F)	52.83 ACRES



BONANZA POWER PLANT
VERNAL, UTAH



DESERET POWER
ELECTRIC COOPERATIVE

TITLE:
MAP – BONANZA POWER PLANT
CCR UNITS

CAD FILE NAME:20151117.DWG

ENGOLSEN11/15

DRAFTLJ9/10

W.O. No.

ENGESPLIN11/15

DRAWNKBS9/10

DWG. No.

APVD

CHKEO/TE11/15

20151117

APVD

REV.2

No.	REVISIONS	DATE	BY	APVD
2	REVISED TO SHOW ACTUAL LANDFILL FOOTPRINT PRIOR TO OCTOBER 2015.	11/15	KBS	EO/TE
1	CREATED FROM 20100901	11/15	KBS	EO/TE