In Re: Deseret Power Electric Cooperative,
Bonanza Power Plant,

Permit # V-UO-000004-2019.00

ATTACHMENT 9

[redacted]

United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

National Enforcement Investigations Center

NEICVP1483E01

NEIC CIVIL INVESTIGATION REPORT
Deseret Power – Bonanza Power Plant
12500 East 25500 South
Vernal, Utah 84078

Investigation Dates:
October 24-26, 2022

BRIAN KENNEDY
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NEIC

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INVESTIGATION OVERVIEW

PROJECT OBJECTIVE

At the request of the U.S. Environmental Protection Agency (EPA), Region 8 (Region), EPA's National Enforcement Investigations Center (NEIC) conducted a Resource Conservation and Recovery Act (RCRA) investigation of the Deseret Power – Bonanza Power Plant (Bonanza) located at 12500 East 25500 South in Vernal, Utah. The investigation was an evaluation of Bonanza's compliance with the RCRA regulations applicable to hazardous waste generators and the management of coal combustion residuals (CCR).

Table 1 lists the project team members.

Table 1. PROJECT TEAM MEMBERS

Team Member	Organization	Project Role
Brian Kennedy	NEIC	Project manager
Zachary Schlachter	NEIC	Field team member

FACILITY CONTACT INFORMATION

Table 2 lists the primary facility contacts.

Table 2. FACILITY CONTACT INFORMATION

Name, Title	Phone No.	Email Address
Tyler Esplin, P.E., Environmental Compliance Superintendent	(435) 781-5706	tesplin@deseretpower.com
Robert Hamaker, Operations Superintendent	(435) 781-5701	rhamaker@deseretpower.com
Eric Olsen, P.E., Vice President and Chief Operating Officer	(435) 781-5701	eolsen@deseretpower.com

FACILITY OVERVIEW

According to the EPA Envirofacts database, this facility has the following North American Industry Classification System (NAICS) code (**Table 3**):

Table 3. APPLICABLE NAICS CODE

NAICS Code	Description
221112	Fossil Fuel Electric Power Generation

Bonanza is a 500-megawatt (MW) coal-fired electric generating plant located approximately 35 miles southeast of Vernal, Utah. The facility is located within the Uintah and Ouray tribal reservation. Bonanza's EPA Registry Identification Number is 110015757670, and its RCRA Identification Number is UTD980960728. According to EPA's RCRAInfo database, Bonanza notified as a very small quantity generator of hazardous waste in 2014. The facility also notified as a burner of hazardous waste under the small quantity on-site burner exemption at 40 Code of Federal Regulations (CFR) § 266.108. During NEIC's inspection, Bonanza representatives stated the practice of burning small quantities of hazardous waste in the boiler ceased in 2012.

Bonanza is owned and operated by Deseret Power, a regional electric power generation and transmission cooperative based in South Jordan, Utah. Cooperative members include Mt. Wheeler Power, Flowell Electric Association, Bridger Valley Electric Association, Moon Lake Electric Association, Dixie Escalante Rural Electric Association, and Garkane Power Association. Deseret Power serves approximately 350,000 households in rural communities throughout Utah, with Bonanza representing the cooperative's primary electric generating resource. Bonanza began operations in 1985 and currently has 102 employees.

Bonanza operates two active CCR landfills subject to the requirements of Subpart D of 40 CFR Part 257. The fly ash landfill on the north side of the facility receives fly ash and flue gas desulfurization (FGD) sludge, and the bottom ash landfill on the south side of the facility receives bottom ash and boiler slag.

FACILITY OPERATIONS SUMMARY

Power Generation and Initial CCR Management

Bonanza receives coal from the Deserado mine, located several miles north of Rangely, Colorado. The mine is owned and operated by Deseret Power and produces a western bituminous coal. Coal is transported from the mine to Bonanza on a 38-mile electric railway. The coal is stockpiled in an outdoor coal yard or stored in a concrete coal silo prior to use. Two to three trains arrive per day from the Deserado mine, and Bonanza maintains a 6-month supply of coal on-site.

Bonanza burns 5,000 tons of coal per day. Coal from the coal yard or silo is first conveyed to a crusher house where it is crushed and sampled for quality. Crushed coal is then conveyed to coal bunkers in the main boiler building, also referred to as the main power block. From the coal bunkers, the coal is deposited into several pulverizers, which crush the coal into a fine powder. Pulverized coal is continuously fed into the boiler and combusted by a series of low-nitrogen-oxide natural gas burners. The boiler is constructed with a water wall furnace and produces 3 million pounds of steam per hour. Steam leaving the boiler is approximately 1,000 degrees Fahrenheit (°F) and has a pressure of 2,400 pounds per square inch. This steam is conveyed to the primary steam turbine, which generates a net 458 MW of electricity for transmission to customers.

Bottom ash and boiler slag generated in the boiler falls from the combustion zone to a submerged flight conveyor (SFC) system. The SFC system is a chain-mounted conveyor that continuously removes bottom ash and boiler slag from a quench water trough situated along the length of the boiler floor (**Appendix A**, photos 1 and 2). The SFC system carries quenched bottom ash and boiler slag outside the boiler building and deposits the material onto a concrete bottom ash loading pad. Once a day, bottom ash and boiler slag that accumulates in the initial pile is moved to a separate section of the pad where it waits to be trucked to the bottom ash landfill for disposal (**Appendix A**, photos 3 and 4). Residual quench water drains from bottom ash and boiler slag while they are staged on the loading pad. A concrete sump at the southern end of the loading pad collects this water (**Appendix A**, photos 5 and 6) and conveys it to a plant drain system and, eventually, two on-site evaporation ponds. This process is described in more detail in the "Process Water and Wastewater Management" section of this report.

Flue gas exiting the boiler is routed through a baghouse system to collect entrained fly ash. Bonanza operates a reverse pulse baghouse system with 24 compartments containing 450 bags per compartment. Bags within the compartment are pulsed with air every hour, which deposits captured fly ash into a compartment hopper. The compartment hoppers are mechanically vibrated to drop fly ash into a blower system, which carries the fly ash to a storage silo. At the time of the inspection, the NEIC field team observed loose fly ash and stormwater from a roof leak on the floor of the baghouse building and adjacent to plant drains (**Appendix A**, photos 7, 8, and 9). Bonanza representatives stated the baghouse floor is periodically vacuumed and that the collected fly ash is sent to the fly ash silo.

For the last several years, Bonanza has sold the bulk of its fly ash to Salt River Materials Group (SRMG), an Arizona-based construction material supply company. SRMG uses the fly ash in its concrete mixes. About 70% of the fly ash generated by Bonanza in 2020 and 2021 was sold for this purpose. SRMG loads fly ash onto its trucks directly from Bonanza's fly ash silo for transport off-site. Fly ash not sold to SRMG is typically mixed with FGD sludge prior to disposal in the fly ash landfill.

After the baghouse system, flue gas is routed through Bonanza's FGD system, referred to as the sulfur dioxide absorption system (SDAS). The SDAS consists of three wet scrubbers that contact flue gas with a countercurrent spray of limestone slurry. A supply of on-site limestone is sent to a ball mill before it is mixed with water in two slurry tanks. The limestone slurry is fed into the wet scrubbers, and the reaction with sulfur dioxide in the flue gas creates a calcium sulfate (gypsum) sludge. Waste gypsum sludge, also known as FGD sludge, continuously overflows from the scrubbers to an adjacent FGD sludge building. In the FGD sludge building, the FGD sludge is dewatered, thickened, and partially dried in vacuum filters. Semi-dry FGD sludge is mixed with fly ash from the fly ash silo in a pug mill. The mixture is transferred to the fly ash landfill for disposal by a series of conveyor belts.

A process flow cross-section diagram of the Bonanza plant is in **Appendix B**.

Process Water and Wastewater Management

Process water at Bonanza is sourced from wells underneath the Green River, approximately 18 miles north of the facility. The water is piped to Bonanza's raw water storage pond located north of the coal yard. Water from the raw water pond is pumped to Bonanza's cooling tower or the process water treatment plant. The water treatment plant provides water for various needs around Bonanza, including potable water, service water for pump seals and air pollution control systems, fire protection water, and boiler feed water. Boiler feed water is heavily treated prior to use in the boiler furnace, undergoing several processes, including activated carbon filtration, reverse osmosis, and demineralization.

Wastewater generated throughout the facility is collected in two primary drainage systems, plant drains and yard drains. Plant drains generally collect wastewater streams from areas throughout the main power block, including the boiler water polisher, laboratory drains, plant floor drains, the water demineralization system, and the SFC system. Yard drains collect wastewater streams from the FGD system; laboratory drains outside the main power block; certain water treatment systems, including the reverse osmosis brine water; and stormwater, among other sources. These wastewater streams lead to respective plant and yard lift stations and then are conveyed to two on-site wastewater evaporation ponds. The south evaporation pond (SEP) is located north of the main power block and is approximately 40 acres in size (**Appendix A**, photos 52, 53, and 54). The north evaporation pond (NEP) is located north of the SEP and is approximately 110 acres in size (**Appendix A**, photos 43, 44, and 45 and 48-51). Wastewater in the SEP may be pumped to the larger NEP, depending on water levels in both ponds. The SEP and NEP are constructed with bentonite clay liners and have maximum depths of approximately 15 feet.

A lack of natural water bodies near Bonanza required the construction of the SEP and NEP as the final discharge point for wastewater when the facility became operational in 1985. As a result, Bonanza does not maintain wastewater pre-treatment or National Pollutant Discharge Elimination System (NPDES) permits.

A plant water flow diagram displaying volumetric wastewater flows is in **Appendix C**.

CCR Disposal

The fly ash landfill, which receives fly ash and FGD sludge, occupies the northern perimeter of Bonanza's site and surrounds the north and northeast edge of the NEP. The landfill has an allotted footprint of approximately 152 acres, of which roughly half currently contains disposed fly ash and FGD sludge to a height of 90 feet above grade (**Appendix A**, photos 38-42, 46, 47, 48, 55, 57, and 58). Bonanza's January 2022 CCR unit inspection report stated the fly ash landfill contained an estimated 7.579 million cubic yards of fly ash and FGD sludge. As part of Bonanza's dust control plan, new fly ash and FGD sludge added to the landfill are sprayed with water and compacted to limit dust. Completed cells of the landfill receive a temporary cap consisting of 2 feet of compacted soil and vegetation. At the time of the inspection, the NEIC field team observed the temporary soil cap over the entire western cell of the landfill (directly north of the NEP) and over parts of the active cell directly east of the western cell. Bonanza's CCR stormwater control plan, dated September 2021, describes various stormwater control basins around the fly ash landfill. Most of the western cell of the landfill, including its south slope, is described as drainage basin 3. The plan states the NEP serves as the stormwater retention pond for drainage basin 3. At the time of the inspection, the NEIC field team observed the outlet of a stormwater drainage pipe at the northern edge of the NEP (**Appendix A**, photos 58 and 59). Bonanza representatives stated stormwater that accumulates on top of the completed western cell of the fly ash landfill drains through the pipe into the NEP. A photo of the stormwater drain on top of the landfill that was later provided to NEIC is on page 4 of **Appendix D**.

The bottom ash landfill occupies the southeast corner of the facility and has an allotted footprint of approximately 53 acres, of which roughly half contains disposed bottom ash and slag (**Appendix A**, photos 35 and 36). Bottom ash and boiler slag are landfilled in the unit to a height of 30 feet above grade. The January 2022 CCR unit inspection report estimated the bottom ash landfill contained 0.817 million cubic yards of bottom ash and boiler slag. The particle size and weight of bottom ash and boiler slag do not require a temporary cap like fly ash to control dust emissions. Instead, the material is compacted in place and water is used as a dust suppressant. Stormwater from the bottom ash landfill is directed to a single dry retention pond along the landfill's southern edge.

Bonanza operates a groundwater monitoring system for its CCR landfills. The fly ash landfill system currently consists of two upgradient wells and three downgradient wells; the bottom ash landfill has one upgradient well and three downgradient wells. Bonanza conducts semiannual groundwater sampling and analysis as part of its detection monitoring program, per the requirements at 40 CFR § 257.24.

Bonanza maintains a public website, "CCR Rule Compliance Data and Information," at https://apps.deseretpower.com/apex/f?p=400:40:10435747898159, per the requirements at 40 CFR § 257.107. The website contains the CCR unit inspection report and stormwater control plan described above, as well as annual groundwater monitoring reports, fugitive dust control reports, and other documents related to the CCR landfills.

Additional CCR Management Units

The sludge thickener used in Bonanza's FGD sludge building is taken out of service during plant outages or periodic malfunctions. As a backup unit, Bonanza maintains a concrete in-ground "emergency holding tank" southeast of the main power block building (**Appendix A**, photos 12, 13, and 14). Wastewater containing FGD sludge is redirected from the sludge thickener to the emergency holding tank for dewatering and thickening. The emergency holding tank is equipped with a sluiceway to separate water and FGD sludge. A small pump house near the unit sends separated water back to the FGD sludge building for use or to the SEP and NEP. Dewatered FGD sludge is dried within the tank and transferred directly to the fly ash landfill by truck. A rampway at the southeast corner of the unit allows heavy machinery to enter and exit and remove the FGD sludge. Bonanza representatives stated the emergency holding tank was constructed in October 2015. Before 2015, an "emergency holding pond" in the same footprint of the current unit was used for FGD sludge dewatering. The former pond was excavated to allow for construction of the current unit, and the excavated soil was placed in the fly ash landfill.

Fly ash and FGD sludge are transferred to the fly ash landfill by a conveyor system that leads from the FGD sludge building to the active cell of the landfill. If the conveyor system malfunctions and additional storage space for the CCR is needed, Bonanza conveys the material to an "emergency loadout pad," a concrete pad located at the southeast corner of the NEP. The loadout pad is constructed with a berm and a blind sump to collect stormwater. Bonanza representatives stated the loadout pad was constructed in October 2015 and is rarely used. During the inspection, the NEIC field team observed a small pile of CCR on the pad (**Appendix A**, photo 37).

Two additional CCR units were formerly operated at Bonanza. A "closed north pond" previously received wet FGD sludge as part of the dewatering process. The pond ceased receiving FGD sludge in 2012, and material in the pond was allowed to dry. The pond was then incorporated into the northeast corner of the fly ash and FGD landfill (**Appendix A**, photo 42). A "closed south pond," located east of the current bottom ash landfill, also previously received wet FGD sludge for dewatering. This pond ceased receiving FGD sludge in 2009, and existing sludge was allowed to dry. Afterward, the pond was capped with the dry FGD in place (**Appendix A**, photos 33 and 34).

Maps displaying areas of CCR generation, management, and disposal are in **Appendix E**.

Waste Generation and Management

Bonanza generates hazardous waste in a water quality laboratory located in the main power block building. The laboratory analyzes the quality of boiler water, turbine oil, incoming coal prior to combustion, and limestone slurry prior to use in the SDAS. Turbine oil is tested with a particle analyzer, and when the test is complete, the instrument is cleaned with toluene or trichlorotrifluoroethane solvent. Waste solvent and turbine oil is accumulated in an initial container near the fume hood before it is moved to a 55-gallon drum outside the laboratory (**Appendix A**, photos 22, 23, and 61). Bonanza has characterized its turbine oil and solvent waste with EPA hazardous waste No. F005. Boiler water chloride and sodium levels are measured using continuous monitoring systems that consume a chemical reagent in the process. The reagents used in these systems include diisopropylamine and formic acid. Residual reagent not consumed in the monitoring systems is accumulated prior to shipment off-site as a hazardous waste (**Appendix A**, photos 15-21). Bonanza has characterized diisopropylamine waste with EPA hazardous waste No. D001 and formic acid waste with EPA hazardous waste Nos. U123, D001, and D002. Hazardous waste ready for off-site shipment is staged at an outdoor concrete pad adjacent to Bonanza’s lube shop building (**Appendix A**, photos 25 and 26).

Used oil is generated from general maintenance operations and vehicle oil changes in the main power block and a heavy equipment maintenance shop. Full containers of used oil are staged for pickup at the lube shop pad. Waste lead-acid batteries are generated from facility vehicle maintenance and backup power supply units. Waste batteries are accumulated in a locked storage cage inside the main power block building (**Appendix A**, photos 29-32).

FIELD ACTIVITIES SUMMARY

On October 24, 2022, the NEIC field team conducted an opening conference and presented inspector credentials to Tyler Esplin, Bonanza’s environmental compliance superintendent. NEIC performed the following activities to accomplish the investigation objectives:

- Discussed process operations with facility personnel, including coal sourcing and combustion, CCR generation and management, wastewater process flows, and hazardous waste generation and management.
- Conducted tours of process areas to observe boiler operations, fly ash and bottom ash generation points, FGD material generation points, and laboratory and maintenance areas.
- Conducted tours of CCR management units, including the fly ash and bottom ash landfills, SFC loading pad, emergency holding tank, and emergency loadout pad.
- Photographed CCR management units and areas of waste management with global positioning system (GPS) coordinates.

- Reviewed documents on Bonanza's public CCR compliance website, process flow diagrams, and hazardous waste characterization and shipment records.

INVESTIGATION OBSERVATIONS

NEIC identified the following observations based on the RCRA compliance inspection. NEIC field team members discussed observations with facility representatives related to universal waste during the closeout meeting. Observations related to CCR and groundwater monitoring were not discussed with Bonanza because additional review of documentation was required by NEIC.

These observations are not final compliance determinations. EPA Region 8 will make the final compliance determinations based on its review of this report and other technical, regulatory, and facility information.

Bonanza is located within the Uintah and Ouray tribal reservation. EPA has direct implementation responsibilities of the RCRA Subtitle C and D regulations within the reservation. The current CFR is cited in the observations below.

Observation 1
Observation Summary: The SEP and NEP may meet the definition of existing surface impoundments. CCR, including bottom ash and FGD sludge, appears to accumulate in Bonanza's wastewater evaporation ponds in greater than *de minimis* quantities during normal operations. Material resembling CCR was observed around the discharge point into the SEP during NEIC's inspection. [redacted]
Citation: **Standards for the Disposal of CCR in Landfills and Surface Impoundments, Definitions, 40 CFR § 257.53** *The following definitions apply to this subpart. Terms not defined in this section have the meaning given by RCRA.* ***Coal combustion residuals (CCR)*** *means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.* ***CCR surface impoundment or impoundment*** *means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.* ***Existing CCR surface impoundment*** *means a CCR surface impoundment that receives CCR both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and receives CCR on or after October 19, 2015. A CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun prior to October 19, 2015.*
Evidence: **Appendix A** – Field Photographs **Appendix F** – August 13, 2018, NEP Work Order 1825725 **Appendix D** – November 11, 2022, Follow-up Response from Bonanza

Observation 1
Appendix C – Bonanza Power Plant Water Flow Diagram **Appendix G** – NEP, SEP, and Emergency Loadout Pad Satellite Image Time Series **Appendix H** – April 17, 2015, Preamble to the Final CCR Rule
Description of Observation: Wastewater generated at Bonanza is collected in the plant and yard drain systems. The plant drain system collects wastewater from the main power block, including the boiler water polisher, laboratory drains, plant floor drains, the water demineralization system, and the SFC (bottom ash and boiler slag) system. The yard drain system collects wastewater from the FGD sludge thickener, the emergency holding tank (when in use), laboratory drains outside the main power block, reverse osmosis brine water, and stormwater, among other sources. Plant and yard drain lift stations convey the wastewater to the SEP and NEP for disposal and evaporation. During the inspection, the NEIC field team observed a significant amount of material that appeared to be CCR around the discharge point into the SEP (**Appendix A**, photos 53 and 54). Bonanza representatives stated the material around the discharge point likely included carryover from stormwater and yard drains; solids in process wastewater, including FGD thickener blowdown (which meets the definition of CCR); and coal dust. The material surrounding the discharge point appeared to have multiple layers of black, brown, and tan solids. The NEIC field team observed no solid material at the wastewater discharge point into the NEP (**Appendix A**, photos 49, 50, and 51). However, Bonanza representatives stated that solids were excavated and removed from the NEP's discharge point in fall 2018 to maintain the spillway. A work order provided by Bonanza dated August 13, 2018, described the NEP work as "North evaporation pond solids removal" (**Appendix F**). [redacted] **Appendix C** displays annualized wastewater flows to the SEP and NEP under typical operating conditions. The flow diagram indicates that, on average, the evaporation ponds receive 291 gallons per minute (gpm) of wastewater from process operations. This includes 145 gpm from the SFC cooling system for bottom ash and boiler slag, 25 gpm from FGD sludge thickener blowdown, and 5 gpm from reclaim water blowdown from the SDAS system. Overall, 175 gpm or approximately 60% of the total wastewater flow into the SEP or NEP originates from CCR management operations. NEIC compiled a satellite image time series of the SEP and NEP discharge points (**Appendix G**). An image dated June 21, 2015, displays the buildup of material around the NEP discharge point. The material clearly radiates outward from the discharge point into the NEP. Additional material is visible at the NEP discharge point in images dated September 18, 2015, and October 4, 2016. Material is visible around the SEP discharge point in images dated September 3, 2017, and September 10, 2021.

Observation 1
In the preamble to the final CCR rule on April 17, 2015, EPA clarified that the definition of a CCR surface impoundment was intended to exclude those units which contain only "trace" or "de minimis" amounts of CCR (**Appendix H**, page 57, 80 *Federal Register* (FR) 21357): *However, EPA agrees with commenters that units containing only truly 'de minimis' levels of CCR are unlikely to present the significant risks this rule is intended to address...* *EPA agrees with commenters that relying solely on the criterion from the proposed rule that the unit be designed to accumulate CCR could inadvertently capture units that present significantly lower risks, such as process water or cooling water ponds, because, although they will accumulate any trace amounts of CCR that are present, they will not contain the significant quantities that give rise to the risks modeled in EPA's assessment...* *CCR surface impoundments do not include units generally referred to as cooling water ponds, process water ponds, wastewater treatment ponds, storm water holding ponds, or aeration ponds. These units are not designed to hold an accumulation of CCR, and in fact, do not generally contain significant amounts of CCR.* Although EPA intended to exclude process water ponds like the SEP and NEP from the definition of CCR surface impoundment, the exclusion is premised on the units accumulating only "trace" or "de minimis" amounts of CCR. The quantity of CCR observed in Bonanza's SEP during the inspection was not "trace" or "de minimis." [redacted] Bonanza does not consider the SEP and NEP to be CCR surface impoundments. Based on the factors above, however, the SEP may currently meet the definition of an existing CCR surface impoundment. The unit is a manmade excavation; was constructed prior to October 19, 2015; and appeared to be storing or disposing of CCR at the time of the inspection. Similarly, the NEP may meet the definition of an existing CCR surface impoundment because it is a manmade excavation; was constructed prior to October 19, 2015; and stored or disposed of CCR prior to a fall 2018 removal event. Bonanza has not demonstrated that the SEP or NEP meet the location restrictions, design criteria, operating criteria, or groundwater monitoring requirements applicable to existing CCR surface impoundments.

Observation 2
Observation Summary: Bonanza's "emergency holding tank" may be operating as a new CCR surface impoundment without meeting the required location, design, operating, and groundwater monitoring criteria.
Citation: **Standards for the Disposal of CCR in Landfills and Surface Impoundments, Definitions, 40 CFR § 257.53**

Observation 2

The following definitions apply to this subpart. Terms not defined in this section have the meaning given by RCRA.

> ***Coal combustion residuals (CCR)*** *means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.*
>
> ***CCR surface impoundment or impoundment*** *means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.*
>
> ***New CCR surface impoundment*** *means a CCR surface impoundment or lateral expansion of an existing or new CCR surface impoundment that first receives CCR or commences construction after October 19, 2015. A new CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015.*

Evidence:
Appendix A – Field Photographs
Appendix I – FGD Sludge Building Process Description and Diagrams
Appendix D – November 11, 2022, Follow-up Response from Bonanza
Appendix J – Emergency Holding Tank Satellite Image Time Series
Appendix H – April 17, 2015, Preamble to the Final CCR Rule
Appendix K – Proposed Denial of Alternative Closure Deadline for Clifty Creek Power Station, EPA-HQ-OLEM-2021-0587

Description of Observation: The primary sludge thickener in Bonanza's FGD sludge building is taken out of service during plant outages or periodic malfunctions. As a backup unit, Bonanza maintains a concrete in-ground "emergency holding tank" southeast of the main power block (**Appendix A**, photos 12, 13, and 14). When the primary thickener is out of service, FGD sludge and water is redirected from the FGD sludge building to the emergency holding tank. The unit acts as a passive settling basin, allowing FGD sludge to settle while water is gradually removed over a sluiceway at the northwest corner of the unit. Removed water is returned to the FGD sludge building or directed to the yard drain system for eventual disposal in the SEP or NEP. Dewatered FGD sludge is allowed to dry within the unit before it is transferred to the fly ash landfill for disposal by truck. A rampway at the southeast corner of the unit allows heavy machinery to enter and exit and remove dried FGD sludge.

During the inspection, the NEIC field team observed dry FGD sludge in the emergency holding tank that was actively being removed to the fly ash landfill (**Appendix A**, photo 13). Bonanza representatives stated the FGD sludge in the unit was from the sludge handling sump inside the FGD sludge building. [redacted] The current emergency holding tank was constructed in October 2015 in the footprint of the former emergency holding pond. Before 2015, the former pond was also used to dewater FGD sludge. The pond was dried and excavated to allow for construction of the current emergency holding tank.

Observation 2

Bonanza representatives stated the emergency holding tank has a capacity of 2.5 million gallons. [redacted]

Bonanza provided the following time frames when the primary FGD sludge thickener was out of service and the emergency holding tank was used to manage FGD sludge and water during the previous 3 years (**Appendix D**, page 2):

Year	*Thickener Outage*	*Total Days*
2019	*None*	
2020	*06/28/20-07/08/20*	*11*
2021	*04/16/21-05/03/21 (Plant Outage -Unit Offline)*	*18*
2022	*05/14/22-05/27/22*	*14*
2022	*07/03/22-07/13/22*	*11*

NEIC compiled a satellite image time series of the emergency holding tank (**Appendix J**). In an image dated June 21, 2015, the former emergency holding pond appears to contain process water. Construction of the current emergency holding tank is visible in an image dated September 18, 2015. In images dated October 4, 2016, and March 31, 2019, the emergency holding tank appears to contain significant amounts of process water. The period in March 2019 when the emergency holding tank contained process water was not reflected in Bonanza's response (**Appendix D**). An image dated September 10, 2021, displays a smaller quantity of water in the sloped corner of the emergency holding tank. It is unclear if the water in this image is accumulated stormwater or process water that was draining from the unit.

In the preamble to the final CCR rule, EPA stated the following regarding the definition of a CCR surface impoundment (**Appendix H**, page 57, 80 FR 21357):

> *EPA has therefore revised the definition to provide that a CCR surface impoundment as defined in this rule must meet three criteria: (1) The unit is a natural topographic depression, man-made excavation or diked area; (2) the unit is designed to hold an accumulation of CCR and liquid; and (3) the unit treats, stores or disposes of CCR.*

The emergency holding tank at Bonanza meets the definition above. The unit is a manmade excavation; it was specifically designed to hold an accumulation of CCR and water when the primary FGD sludge thickener is out of service; and it engages in the treatment of CCR by acting to separate water from FGD sludge, which meets the definition of CCR.

The concrete construction of the emergency holding tank does not exclude it from the definition of a CCR surface impoundment. On January 24, 2022, EPA issued a proposed denial of an alternative closure deadline for the Clifty Creek power station in Madison, Indiana, operated by the Indiana-Kentucky Electric Corporation (IKEC). In the proposed denial, IKEC had proposed new units to manage CCR by constructing partially below-grade concrete

Observation 2
settling tanks that would treat or store boiler slag (which meets the definition of CCR) and water. EPA stated the following regarding the proposed construction (**Appendix K**, pages 29-30): *The concrete settling tanks that IKEC plans to build appear to be a CCR surface impoundment, but IKEC has not demonstrated that the tanks meet the requirements for constructing a new CCR surface impoundment found at 40 C.F.R. § 257.72…* *The CCR regulations at 40 C.F.R. § 257.53 define a CCR surface impoundment as "a man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR." Based on the information contained in the narrative, the proposed concrete settling tanks would appear to fall squarely within this definition.* The intermittent or temporary use of the emergency holding tank also does not exclude it from the definition of a CCR surface impoundment. In the final CCR rule preamble, EPA stated the following (**Appendix H**, page 57, 80 FR 21357): *However, EPA disagrees that impoundments used for "short-term processing and storage" should not be required to comply with all of the technical criteria applicable to CCR surface impoundments. By "short-term," the commenters mean that some portion of the CCR is removed from the unit; however, in EPA's experience these units are never completely dredged free of CCR. But however much is present at any given time, over the lifetime of these "temporary" units, large quantities of CCR impounded with water under a hydraulic head will be managed for extended periods of time. This gives rise to the conditions that both promote the leaching of contaminants from the CCR and are responsible for the static and dynamic loadings that create the potential for structural instability. These units therefore pose the same risks of releases due to structural instability and of leachate contaminating ground or surface water as the units in which CCR are "permanently" disposed.* Bonanza does not consider the emergency holding tank to be a CCR surface impoundment. Based on the factors above, however, the unit appears to meet the definition of a new CCR surface impoundment in both construction and use. The unit is a manmade excavation; first received a mixture of CCR and water after October 19, 2015; and engages in the treatment of CCR. Bonanza has not demonstrated that the emergency holding tank meets the location restrictions, design criteria, operating criteria, or groundwater monitoring requirements applicable to new CCR surface impoundments.

Observation 3
Observation Summary: The groundwater monitoring system certification for Bonanza's two CCR landfills does not provide a basis supporting the determination that the system requires only the minimum number of monitoring wells at each landfill to meet the groundwater monitoring performance standard.

Observation 3
Citation: **Groundwater monitoring systems, 40 CFR § 257.91** *(a) Performance standard. The owner or operator of a CCR unit must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:* *(1) Accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:* *(i) Hydrogeologic conditions do not allow the owner or operator of the CCR unit to determine what wells are hydraulically upgradient; or* *(ii) Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and* *(1) Accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer. All potential contaminant pathways must be monitored.* *(c) The groundwater monitoring system must include the minimum number of monitoring wells necessary to meet the performance standards specified in paragraph (a) of this section, based on the site-specific information specified in paragraph (b) of this section. The groundwater monitoring system must contain:* *(1) A minimum of one upgradient and three downgradient monitoring wells; and* *(2) Additional monitoring wells as necessary to accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit and the quality of groundwater passing the waste boundary of the CCR unit.* *(f) The owner or operator must obtain a certification from a qualified professional engineer or approval from the Participating State Director or approval from EPA where EPA is the permitting authority stating that the groundwater monitoring system has been designed and constructed to meet the requirements of this section. If the groundwater monitoring system includes the minimum number of monitoring wells specified in paragraph (c)(1) of this section, the certification must document the basis supporting this determination.*
Evidence: **Appendix L** – Burns & McDonnell Groundwater Monitoring System Certification **Appendix H** – April 17, 2015, Preamble to the Final CCR Rule
Description of Observation: On October 12, 2017, Bonanza obtained a groundwater monitoring system certification from Burns & McDonnell stating the system of monitoring wells that was installed around the existing CCR landfills meets the requirements at 40 CFR § 257.91 (**Appendix L**). The certification describes the system as one upgradient and three downgradient wells for the fly ash landfill and one upgradient and three downgradient wells for the bottom ash landfill. However, the certification does not mention or document a reason why the CCR landfills at Bonanza required only the minimum number of monitoring

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wells to meet the groundwater monitoring performance standard. The certification document states only the following on pages 3 and 4:

> *The groundwater monitoring system for the Fly Ash and FGD Sludge Landfill satisfies the requirement [specified in 40 CFR §257.91(c)(1)] of having a minimum of one upgradient and three downgradient monitoring wells…*
>
> *The groundwater monitoring system for the Bottom Ash Landfill satisfies the requirement [specified in 40 CFR §257.91(c)(1)] of having a minimum of one upgradient and three downgradient monitoring wells.*

In the preamble to the final CCR rule, EPA stated the following about the groundwater monitoring system requirements (**Appendix H**, pages 99-100, 80 FR 21399-21400):

> *Because hydrogeologic conditions vary so widely from one site to another, the rule does not prescribe the exact number, location and depth of monitoring wells needed to achieve the general performance standard. Rather, the rule requires the owner or operator to install a minimum of one upgradient and three downgradient wells, and any additional monitoring wells necessary to achieve the general performance standard of accurately representing the quality of the background groundwater and the groundwater passing the waste boundary. The number, spacing, and depths of the monitoring wells must be determined based on a thorough characterization of the site, including a number of specifically identified factors relating to the hydrogeology of the site (e.g., aquifer thickness, groundwater flow rates and direction).* ***Further, any owner or operator who determines that the specified minimum number of wells is adequate must provide a factual justification for that decision*** [emphasis added]. *Factors that may substantiate a reduced density of groundwater monitoring wells includes simple geology (i.e., horizontal, thick, homogenous strata that are continuous across site, with no fractures, faults, folds, or solution channels), a flat and constant hydraulic gradient, uniform hydraulic conductivity, low seepage velocity, and high dispersivity potential…*
>
> *In essence, the rule establishes a presumption that the minimum of one upgradient and three downgradient wells is not sufficient, and requires the owner or operator to rebut that presumption in order to install only this minimum. This is fundamentally consistent with the proposed rule, which required the installation of a system that would achieve the general performance standard, as well as the "minimum" of one upgradient and three downgradient wells. The final regulation merely makes more explicit that both of these requirements must be met…*
>
> *The owner or operator is required to install a sufficient number of wells to meet the performance standard in § 257.91(a)(1) and (2), provide a justification if they determine the required minimum is adequate, and have a qualified professional engineer certify that their groundwater monitoring system has been designed and constructed to ensure that the groundwater monitoring will meet this performance standard—i.e., accurately represent the quality of groundwater that has not been affected by leakage from any CCR unit—that is, groundwater from background wells and the quality of groundwater passing the waste boundary.*

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The preamble and final regulatory language for the groundwater monitoring system requirements at 40 CFR § 257.91 make clear that if the minimum number of wells is selected, additional justification in the system certification is required. In 2018, Bonanza added an additional upgradient monitoring well, FA-UG2, to the fly ash landfill system. However, the current CCR groundwater monitoring system still operates with the minimum number of downgradient wells for the fly ash landfill and the minimum number of upgradient and downgradient wells for the bottom ash landfill, without sufficient justification.

Observation 4

Observation Summary: Historic use of the emergency holding pond to manage CCR and current use of the emergency holding tank as a potential new CCR surface impoundment may impact the ability of the upgradient groundwater monitoring well of the bottom ash landfill (BA-UG1) to accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit.

Citation:

Groundwater monitoring systems, 40 CFR § 257.91

(a) Performance standard. The owner or operator of a CCR unit must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:

(2) Accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:

(i) Hydrogeologic conditions do not allow the owner or operator of the CCR unit to determine what wells are hydraulically upgradient; or

(ii) Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and

(3) Accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer. All potential contaminant pathways must be monitored.

(d) The groundwater monitoring system must include the minimum number of monitoring wells necessary to meet the performance standards specified in paragraph (a) of this section, based on the site-specific information specified in paragraph (b) of this section. The groundwater monitoring system must contain:

(3) A minimum of one upgradient and three downgradient monitoring wells; and

(4) Additional monitoring wells as necessary to accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit and the quality of groundwater passing the waste boundary of the CCR unit.

Groundwater sampling and analysis requirements, 40 CFR § 257.93

(d) The owner or operator of the CCR unit must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the constituents required in the particular groundwater monitoring program that applies to the CCR

Observation 4

unit as determined under § 257.94(a) or § 257.95(a). Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR unit if it meets the requirements of § 257.91(a)(1).

Evidence:
Appendix L – Burns & McDonnell Groundwater Monitoring System Certification
Appendix M – 2021 Annual Groundwater Monitoring and Corrective Action Report
Appendix N – February 1992 Dames & Moore Groundwater Monitoring Report

Description of Observation: As part of its CCR landfill groundwater monitoring system, Bonanza maintains one upgradient well and three downgradient wells around the bottom ash landfill. The single upgradient well for the bottom ash landfill, BA-UG1, was installed in May 2016 and is currently sampled to represent background groundwater quality for the bottom ash landfill. BA-UG1 is located approximately 1,000 feet south-southwest of the emergency holding tank. A map of the bottom ash landfill monitoring wells is included in Burns & McDonnell's October 12, 2017, certification of Bonanza's groundwater monitoring system (**Appendix L**, page 7). The map also shows the location of the former emergency holding pond and current emergency holding tank, as marked in red by NEIC.

In the groundwater monitoring system certification, Burn & McDonnell described groundwater flow at Bonanza as follows (**Appendix L**, pages 2 and 3):

> *Based on a review of subsurface information in the Annual Review of Groundwater Levels, December 2015 through December 2016 report prepared by Loughlin Water Associates, LLC and well installation reports, [t]he natural groundwater flow direction at the Site is generally to south, mimicking the direction of surface drainage. The groundwater flow direction is also strongly influenced by the topography of the top of bedrock surface underlying the uppermost alluvial aquifer…*
>
> *Groundwater flow beneath the Bottom Ash Landfill is generally to the south. A lack of measurable groundwater in piezometers located to the northwestern and northeast of the landfill indicates that the alluvium is unsaturated in these areas.*

Bonanza's *2021 Annual Groundwater Monitoring and Corrective Action Report*, as prepared by Burns & McDonnell, also states the following regarding groundwater flow (**Appendix M**, page 10):

> *Groundwater in the Bottom Ash Landfill area generally flows south (Figure 1) at rates ranging from 0.005 ft/day to 0.046 ft/day with an average horizontal gradient of 0.004 (Appendix C).*

Page 117 in the 2021 annual groundwater monitoring report (**Appendix M**) displays the Bonanza site layout with December 2020 groundwater contours. The contour lines indicate a groundwater flow southwest from the emergency holding tank, represented as "emergency holding pond" on the map, toward well BA-UG1.

EPA Region 8 provided NEIC a February 1992 groundwater report it had received from Bonanza as part of a previous information request. The report, prepared by Dames & Moore, addresses groundwater elevation and quality around the Bonanza site, among other items. A

Observation 4

copy of the report, excluding appendices, is in **Appendix N**. In the executive summary, impacts to groundwater from the former emergency holding pond are reported (**Appendix N**, page 6):

> *Impacts to ground water quality at Bonanza are caused by seepage from the evaporation ponds* [SEP and NEP] *and the emergency holding pond. Concentrations of TDS and fluoride have been increased 2 to 3 times background at the furthest downgradient monitoring location. Based on the continuing rate of pond seepage, declining background water levels, and continuing degradation of water quality noted in several piezometers, it is probable that ground water quality will continue to degrade at the downgradient location.*

The Dames & Moore report also agreed with more current groundwater reports that groundwater flow in the bottom ash landfill area (south of the main power block) is to the south (**Appendix N**, page 9):

> *Flow directions beneath these* [evaporation] *ponds are southeasterly to southerly until these flows reach the central portion of the site in the vicinity of the fuel oil tanks. Flow direction is then to the south beneath the main power block.*

In discussing groundwater quality results, the Dames & Moore report detected impacts to groundwater quality in piezometers that were downgradient of the former emergency holding pond (**Appendix N**, pages 24-25):

> *Four of the piezometers sampled during the first round indicate highly elevated values of TDS and fluoride. These include piezometer 42 in the coal facility area, piezometer 41 downgradient of the emergency holding pond, piezometer 55 upgradient of the main power block, piezometer 57 downgradient of the main power block, and piezometer 82 near the southwest corner of the recycle pond…*
>
> *Seepage is also suggested from the emergency holding pond, as indicated in piezometer 41. TDS values continue to increase at this site as compared with previous sampling analytical results.*

Burns & McDonnell claimed to have reviewed the 1992 Dames & Moore report in its 2017 certification of Bonanza's groundwater monitoring system. However, the 2017 certification makes no mention of previously reported impacts to groundwater from the emergency holding pond or its potential to influence groundwater that may flow toward the bottom ash landfill and, consequently, well BA-UG1.

The CCR groundwater monitoring performance standards require the system to accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit. The former emergency holding pond was used to manage CCR and water until 2015. The current emergency holding tank periodically holds CCR and water, and its construction would not meet the liner requirements applicable to new CCR surface impoundments. As described above, multiple reports agree that groundwater flow is southerly or southwesterly from the area of the emergency holding tank toward the bottom

Observation 4

ash landfill and BA-UG1. The Dames & Moore report also suggests historic leakage was detected downgradient from the former emergency holding pond.

As of the date of this report, NEIC has not located a document that considered historic impacts of the emergency holding pond, or current impacts of the emergency holding tank, on background groundwater quality around BA-UG1. BA-UG1 is upgradient of the bottom ash landfill but downgradient of an historic CCR unit and a new unit that continues to manage CCR.

Observation 5

Observation Summary: The annual CCR fugitive dust control report for 2018 was not clearly identifiable or available on Bonanza's CCR rule compliance data and information website, as reviewed on November 16, 2022.

Citation:

Air criteria, 40 CFR § 257.80

(g) *Annual CCR fugitive dust control report. The owner or operator of a CCR unit must prepare an annual CCR fugitive dust control report that includes a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The initial annual report must be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record. The deadline for completing a subsequent report is one year after the date of completing the previous report. For purposes of this paragraph (c), the owner or operator has completed the annual CCR fugitive dust control report when the plan has been placed in the facility's operating record as required by § 257.105(g)(2).*

(h) *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).*

Publicly accessible Internet site requirements, 40 CFR § 257.107

(a) *Each owner or operator of a CCR unit subject to the requirements of this subpart must maintain a publicly accessible internet site (CCR website) containing the information specified in this section. The owner or operator's website must be titled "CCR Rule Compliance Data and Information." The website must ensure that all information required to be posted is immediately available to anyone visiting the site, without requiring any prerequisite, such as registration or a requirement to submit a document request. All required information must be clearly identifiable and must be able to be immediately printed and downloaded by anyone accessing the site...*

(c) *Unless otherwise required in this section, the information required to be posted to the CCR Web site must be made available to the public for at least five years following the date on which the information was first posted to the CCR Web site.*

(d) *Unless otherwise required in this section, the information must be posted to the CCR Web site within 30 days of placing the pertinent information required by § 257.105 in the operating record.*

Observation 5
(g) Operating criteria. The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site: *(2) The annual CCR fugitive dust control report specified under § 257.105(g)(2).*
Evidence: **Appendix O** – November 16, 2022, Screenshot of Bonanza CCR Compliance Data Website
Description of Observation: NEIC reviewed Bonanza's CCR rule compliance data and information website on November 16, 2022; the website did not contain Bonanza's 2018 annual CCR fugitive dust control report. Annual CCR fugitive dust control reports were available for 2021, 2020, 2019, and 2017, and the initial fugitive dust control plan from 2015 was available at the time of the website review. However, the 2018 annual report was not accessible or available to download. A full-size screenshot of Bonanza's CCR rule compliance data and information webpage taken with Google Chrome's Developer Tools application is in **Appendix O**. Bonanza's 2017 CCR fugitive dust control report is dated December 15, 2017. Bonanza's 2018 CCR fugitive dust control report was required to have been completed within 1 year of the 2017 report (December 15, 2018) and was required to have been posted on the CCR website within 30 days of completion (January 14, 2019). Following its posting to the CCR website, Bonanza was required to keep the 2018 CCR fugitive dust control report available to the public for at least 5 years.

Observation 6
Observation Summary: Bonanza generates waste lead-acid batteries, and it is unclear if the batteries are managed as hazardous waste or universal waste while accumulated on-site. If the batteries are managed as hazardous waste, Bonanza does not appear to count the batteries in its monthly hazardous waste generation rate. If the batteries are managed as universal waste, Bonanza is not meeting the applicable universal waste management standards.
Citation: **Hazardous waste determination and recordkeeping, 40 CFR § 262.11** *(a) The hazardous waste determination for each solid waste must be made at the point of waste generation, before any dilution, mixing, or other alteration of the waste occurs, and at any time in the course of its management that it has, or may have, changed its properties as a result of exposure to the environment or other factors that may change the properties of the waste such that the RCRA classification of the waste may change.* *(b) A person must determine whether the solid waste is excluded from regulation under 40 CFR 261.4.* *(c) If the waste is not excluded under 40 CFR 261.4, the person must then use knowledge of the waste to determine whether the waste meets any of the listing descriptions under subpart D of 40 CFR part 261. Acceptable knowledge that may be used in making an accurate determination as to whether the waste is listed may include waste origin, composition, the process producing the waste, feedstock, and other reliable and relevant information. If the waste is listed, the person may file a delisting petition*

Observation 6

under 40 CFR 260.20 and 260.22 to demonstrate to the Administrator that the waste from this particular site or operation is not a hazardous waste

(d) The person then must also determine whether the waste exhibits one or more hazardous characteristics as identified in subpart C of 40 CFR part 261 by following the procedures in paragraph (d)(1) or (2) of this section, or a combination of both.
  (1) The person must apply knowledge of the hazard characteristic of the waste in light of the materials or the processes used to generate the waste. Acceptable knowledge may include process knowledge (e.g., information about chemical feedstocks and other inputs to the production process); knowledge of products, by-products, and intermediates produced by the manufacturing process; chemical or physical characterization of wastes; information on the chemical and physical properties of the chemicals used or produced by the process or otherwise contained in the waste; testing that illustrates the properties of the waste; or other reliable and relevant information about the properties of the waste or its constituents…
  (2) When available knowledge is inadequate to make an accurate determination, the person must test the waste according to the applicable methods set forth in subpart C of 40 CFR part 261 or according to an equivalent method approved by the Administrator under 40 CFR 260.21 and in accordance with the following:
    (i) Persons testing their waste must obtain a representative sample of the waste for the testing, as defined at 40 CFR 260.10.
    (ii) Where a test method is specified in subpart C of 40 CFR part 261, the results of the regulatory test, when properly performed, are definitive for determining the regulatory status of the waste.

Generator category determination, 40 CFR § 262.13

(a) Generators of either acute hazardous waste or non-acute hazardous waste. A generator who either generates acute hazardous waste or non-acute hazardous waste in a calendar month shall determine its generator category for that month by doing the following:
  (1) Counting the total amount of hazardous waste generated in the calendar month;
  (2) Subtracting from the total any amounts of waste exempt from counting as described in paragraphs (c) and (d) of this section; and
  (3) Determining the resulting generator category for the hazardous waste generated using Table 1 of this section.

(c) When making the monthly quantity-based determinations required by this part, the generator must include all hazardous waste that it generates, except hazardous waste that:
  (6) Is universal waste managed under 40 CFR 261.9 and 40 CFR part 273;

Evidence:
Appendix A – Field Photographs
Appendix D – November 11, 2022, Follow-up Response from Bonanza

Description of Observations: Waste lead-acid batteries are generated during facility vehicle maintenance operations and from backup power supply units. The waste batteries are accumulated in a locked storage cage inside the main power block building. Photographs

Observation 6

taken during the inspection show the storage of waste lead-acid batteries in the storage cage (**Appendix A**, photos 29-32). The NEIC field team observed approximately 30 lead-acid batteries on the floor inside the cage and observed additional batteries in a plastic trash can within the cage. The waste batteries and trash can did not appear to be labeled or dated.

Waste lead-acid batteries typically exhibit the hazardous waste characteristic of toxicity for lead, as represented by EPA hazardous waste No. D008. At the time of the inspection, Bonanza did not appear to have made a determination if its waste lead-acid batteries were a hazardous waste and, if so, whether it would (1) manage the batteries as hazardous waste and count the waste in its monthly hazardous waste generation rate or (2) opt to manage the batteries as universal waste. The NEIC field team discussed management options for the waste lead-acid batteries with Bonanza representatives during the inspection. The management of waste lead-acid batteries in the storage cage as observed during the inspection would not meet the universal waste labeling requirements. Additionally, the EPA hazardous waste No. D008 was not represented on Bonanza's hazardous waste generator status notification as submitted to EPA in 2014.

In a follow-up response provided to NEIC on November 11, 2022, Bonanza stated the last time accumulated waste batteries were shipped off-site was July 28, 2021 (**Appendix D**, page 1). However, no documentation or details of the shipment were available. It was unclear how the long the waste batteries observed by the NEIC field team had been accumulated on-site. With certain exceptions, small quantity handlers of universal waste may not accumulate universal waste for longer than 1 year from its date of generation. The handler must also be able to demonstrate the length of time that the universal waste has been accumulated on site. Bonanza does not appear to have a system to track the length of time its waste batteries are accumulated on-site.