

MEMORANDUM

October 17, 2018

SUBJECT: Location Restriction Demonstration – Placement Above Uppermost Aquifer
Coletto Creek Power, LP
Coletto Creek Power Station
Coletto Creek Primary Ash Pond
Fannin, Texas

Coletto Creek Power, LP operates the coal-fired Coletto Creek Power Station (Plant) located in Fannin, Texas. The Coletto Creek Primary Ash Pond (Unit) is an existing coal combustion residuals (CCR) surface impoundment. This demonstration addresses the requirements of 40 CFR §257.60 *Placement Above the Uppermost Aquifer* of the US Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257 rule, effective 19 October 2015 for the Unit.

§257.60(a): New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this section that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.

Bullock, Bennett & Associates, LLC (BBA) reviewed original construction documentation and the results of other historic field investigation programs at the Unit and used that information to create a generalized stratigraphic model of the site. Elevations for the top of the uppermost aquifer as defined in the rule range from approximately El. 82 feet NAVD88 to El. 116 feet NAVD88. Base of unit elevations appear to range from El. 101 feet NAVD88 to El. 135 feet NAVD88. As a result, the separation between the base of the unit and the upper limit of the uppermost aquifer was confirmed to be greater than five feet and therefore meets the requirement of §257.60(a) for the Unit.

§257.60(b): The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this section.

I, Daniel Bullock, being a Licensed Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the CCR Unit meets the Placement Above the Uppermost Aquifer criteria as included in the CCR Rule Location Restrictions Evaluation memorandum dated 17 October 2018 and, therefore, meets the requirements of 40 CFR §257.60(a).

Signed: *Daniel B. Bullock*
Principal Engineer

Print Name: Daniel Bullock, P.E.
Texas License No.: 82596
Title: Principal Engineer
Firm: Bullock, Bennett & Associates, LLC
Texas Engineering Firm No.: F-8542



Daniel B. Bullock

10-17-2018

MEMORANDUM

October 17, 2018

SUBJECT: Location Restriction Demonstration – Wetlands
Coleto Creek Power, LP
Coleto Creek Power Station
Coleto Creek Primary Ash Pond
Fannin, Texas

Coleto Creek Power, LP operates the coal-fired Coleto Creek Power Station (Plant) located in Fannin, Texas. The Coleto Creek Primary Ash Pond (Unit) is an existing coal combustion residuals (CCR) surface impoundment. This demonstration addresses the requirements of 40 CFR §257.61 *Wetlands* of the US Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257 rule, effective 19 October 2015 for the Unit.

§257.61(a): New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in wetlands, as defined in §232.2 of this chapter, unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that the CCR unit meets the requirements of paragraphs (a)(1) through (5) of this section.

Bullock, Bennett & Associates (BBA) reviewed USGS Topographic Maps, National Wetlands Inventory data, local soil survey data, and FEMA floodplain data to evaluate whether the Unit is located in a wetland area. BBA's findings were field verified during a site visit. The Unit is not located in wetlands as defined by 40 CFR §232.2

§257.61(b): The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this section.

I, Daniel Bullock, being a Licensed Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the CCR Unit is not located in wetlands as included in the CCR Rule Location Restrictions Evaluation memorandum dated 17 October 2018 and, therefore, meets the requirements of 40 CFR §257.61(a).

Signed: *Daniel B. Bullock*
Principal Engineer

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Texas Engineering Firm No.: F-8542



Daniel B. Bullock
10-17-2018

MEMORANDUM

October 17, 2018

SUBJECT: Location Restriction Demonstration – Fault Areas
Coleto Creek Power, LP
Coleto Creek Power Station
Coleto Creek Primary Ash Pond
Fannin, Texas

Coleto Creek Power, LP operates the coal-fired Coleto Creek Power Station (Plant) located in Fannin, Texas. The Coleto Creek Primary Ash Pond (Unit) is an existing coal combustion residuals (CCR) surface impoundment. This demonstration addresses the requirements of 40 CFR §257.62 *Fault Areas* of the U.S. Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257 rule effective 19 October 2015, for the Unit.

§257.62(a): New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates by the dates specified in paragraph (c) of this section that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit.

Bullock, Bennett & Associates (BBA) reviewed available public records including the United States Geologic Survey (USGS) Earthquake Hazards Program Quarternary Fault and Fold Database, USGS Interactive Fault Map, The Geologic Atlas of Texas, and reports generated by the Texas Bureau of Economic Geology. BBA also reviewed site boring log and stratigraphy data supplemented by a site visit to perform a visual inspection. Based on the available published geologic data and information reviewed, there are no active faults or fault damage zones that have had displacement in Holocene time reported or indicated within 200 feet of the Unit.

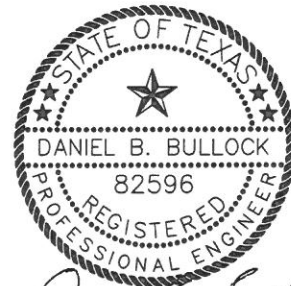
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§257.62(b): The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this section.

I, Daniel Bullock, being a Licensed Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the CCR Unit is not located within 60 meters (200 feet) of the outermost damage zone of a fault that has had a displacement in Holocene time as included in the CCR Rule Location Restrictions Evaluation memorandum dated 17 October 2018 and, therefore, meets the requirements of 40 CFR §257.62(a).

Signed: *Daniel B. Bullock*
Principal Engineer

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Daniel B. Bullock
10-17-2018

MEMORANDUM

October 17, 2018

SUBJECT: Location Restriction Demonstration – Seismic Impact Zones
Coleto Creek Power, LP
Coleto Creek Power Station
Coleto Creek Primary Ash Pond
Fannin, Texas

Coleto Creek Power, LP operates the coal-fired Coleto Creek Power Station (Plant) located in Fannin, Texas. The Coleto Creek Primary Ash Pond (Unit) is an existing coal combustion residuals (CCR) surface impoundment. This demonstration addresses the requirements of 40 CFR §257.63 *Seismic Impact Zones* of the U.S. Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257 rule, effective 19 October 2015, for the Unit.

§257.63(a): New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of a CCR unit must not be located in seismic impact zones unless the owner or operator demonstrates by October 17, 2018 that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

A Seismic Impact Zone is defined in 40 CFR §257.63 as "an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years." The 2014 U.S. Geological Survey National Seismic Hazard Map indicates that the Unit falls within the area with a maximum probable earthquake peak ground acceleration ranging from 0.02 g to 0.04g. Accordingly, the Unit is not located in a seismic impact zone and a demonstration that the structural components have been designed to resist the maximum horizontal acceleration in lithified earth material for the site is not required.

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§257.63(b): *The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this section.*

I, Daniel Bullock, being a Licensed Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the demonstration that the CCR Unit is not located in a seismic impact zone as included in the CCR Rule Location Restrictions Evaluation memorandum dated 17 October 2018 meets the requirements of 40 CFR §257.63(a).

Signed: *Daniel B. Bullock*
Principal Engineer

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Texas License No.: 82596
Title: Principal Engineer
Firm: Bullock, Bennett & Associates, LLC
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Daniel B. Bullock
10-17-2018

MEMORANDUM

October 17, 2018

SUBJECT: Location Restriction Demonstration – Unstable Area
Coleto Creek Power, LP
Coleto Creek Power Station
Coleto Creek Primary Ash Pond
Fannin, Texas

Coleto Creek Power, LP operates the coal-fired Coleto Creek Power Station (Plant) located in Fannin, Texas. The Coleto Creek Primary Ash Pond (Unit) is an existing coal combustion residuals (CCR) surface impoundment. This demonstration addresses the requirements of 40 CFR §257.64 *Unstable Area* of the US Environmental Protection Agency's (EPA's) Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities, 40 CFR Part 257 rule, effective 19 October 2015, for the Unit.

§257.64(a): An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.

§257.64(b): The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:

- (1) On-site or local soil conditions that may result in significant differential settling;*
- (2) On-site or local geologic or geomorphologic features; and*
- (3) On-site or local human-made features or events (both surface and subsurface).*

Bullock, Bennett & Associates, LLC (BBA) reviewed original construction documentation and the results of other historic field investigation programs at the Unit and used that information to create a generalized stratigraphic model of the site. In addition, BBA reviewed historic annual Unit inspection reports generated by professional engineers and the findings of the Liquefaction Assessment conducted in support of the Initial Structural Integrity Assessment. As a result of this evaluation, BBA concludes that the Unit is not located in an unstable area and therefore meets the requirement of §257.64(a) for the Unit.

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§257.64(c): The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this section.

I, Daniel Bullock, being a Licensed Professional Engineer in good standing in the State of Texas, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the CCR Unit is not located in an unstable area as included in the CCR Rule Location Restrictions Evaluation memorandum dated 17 October 2018 and, therefore, meets the requirements of 40 CFR §257.64(a).

Signed: *Daniel B. Bullock*
Principal Engineer

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Daniel B. Bullock
10-17-2018