REVISED APRIL 2019 NOTIFICATION OF INTENT TO COMPLY WITH ALTERNATIVE CLOSURE REQUIREMENTS

SCGENCO WILLIAMS STATION FGD POND
GOOSE CREEK, SOUTH CAROLINA

Prepared For:
DOMINION ENERGY SOUTH CAROLINA, INC.
COLUMBIA, SOUTH CAROLINA

Prepared By:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
PITTSBURGH, PENNSYLVANIA

CEC Project 306-309

Revised November 2020

Civil & Environmental Consultants, Inc.

Pittsburgh 333 Baldwin Road | Pittsburgh, PA 15205 | p: 412-429-2324 f: 412-429-2114 | www.cecinc.com

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1.0 BACKGROUND INFORMATION

The Williams Station is a 650 MW coal-fired electric generating station owned by South Carolina Generating Company (SCGENCO) and operated by Dominion Energy South Carolina, Inc. (DESC). The Williams Station flue gas desulfurization (FGD) Pond is a Coal Combustion Residuals (CCR) Surface Impoundment regulated per Title 40 Code of Federal Regulations (CFR), Part 257: Criteria For Classification of Solid Waste Disposal Facilities And Practices, Subpart D-Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments published in April 2015 (CCR Rule). On April 17, 2019, DESC placed in the Operating Record for the Williams Station FGD Pond a Notification of Intent to Comply with Alternative Closure Requirements (Notification) as defined in §257.103(a), which states: "The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure pursuant to §257.101(a), (b)(1), or (d) may continue to receive CCR in the unit provided the owner or operator meets the requirements of either paragraph (a) or (b) of this section." Therefore, this revised Notification is intended to fulfill the certification and documentation requirements outlined in §257.103(a) as of April 2019.

The FGD Pond is located north of the William Station power generation structure(s) and within the boundaries of the waste management impoundment complex at the facility. The impoundment complex is comprised of 6 separate ponds labeled as Ponds A through E and the Coal Pile Runoff Pond. The two acre FGD Pond was constructed within the footprint of former Pond C in 2009. Figures 1 and 2 depict the location of the FGD Pond in relation to Williams Station and the waste management impoundment complex, respectively. The FGD Pond is comprised of two approximate 700,000 gallon forebays (identified as Forebay 1 and Forebay 2) and completed construction in October 2009. The FGD Pond only accepts FGD blowdown wastewater and is an integral part of the Williams Station CCR waste management system. The FGD pond was designed, constructed and is operating in accordance with South Carolina Department of Health and Environmental Control (SCDHEC) Bureau of Water Permit Number 19263-IW. The FGD Pond discharges to Pond D which flows into Pond E and then to the NPDES permitted outfall before reaching the Cooper River in accordance with SCDHEC NPDES Permit SC0003883 (effective January 1, 2017).

As part of the CCR Rule Location Restrictions compliance demonstration dated October 2018, DESC reported that the Williams Station FGD Pond does not satisfy the requirements of §257.63(a) – Seismic Impact Zones. However, because the FGD Pond is critical to the plant operations and there is no other technically feasible on-site or off-site alternate capacity to store the FGD blowdown wastewater and corresponding FGD solids, DESC elected to continue operation of the FGD Pond in accordance with the requirements identified in §257.103. Therefore, DESC continues operating the FGD Pond while maintaining compliance with the other CCR Rule criteria and working towards developing alternate capacity.

2.0 ALTERNATIVE CLOSURE DEMONSTRATION

2.1 NO ALTERNATIVE CCR DISPOSAL CAPACITY- §257.103(A)(1)

The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure pursuant to §257.101(a), (b)(1), or (d) may continue to receive CCR in the unit provided the owner or operator meets the requirements of either paragraph (a) or (b) of this section.

(a)(1) No alternative CCR disposal capacity. Notwithstanding the provisions of §257.101(a), (b)(1), or (d), a CCR unit may continue to receive CCR if the owner or operator of the CCR unit certifies that the CCR must continue to be managed in that CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph (a)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met:

> **(i) No alternative disposal capacity is available on-site or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section;**
>
> **(ii) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under this subsection lasts only as long as no alternative capacity is available. Once alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible;**
>
> **(iii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action; and**
>
> **(iv) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the development of alternative CCR disposal capacity.**

2.1.1 No Alternative Disposal Capacity - §257.103(a)(1)(i)

(i) No alternative disposal capacity is available on-site or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section

CCR Wastestreams Description

The only wastestream placed in the FGD Pond is wet FGD blowdown. The FGD blowdown contains residual gypsum solids that are discharged from the secondary hydrocyclone overflows to the operating forebay of the FGD Pond. Each FGD forebay allows the gypsum solids to settle and provide temporary storage until removed, dewatered, and disposed in the Williams Station Highway 52 Landfill. A solids removal treatment system (i.e., Lamella clarifier with one filter press) is used to remove solids prior to discharge to the FGD Pond in an effort to extend the time between cleanouts of the online forebay. The FGD Pond is permitted to receive approximately 0.319 million gallons a day (MGD) of wastewater. There are no non-CCR wastestreams discharged to or placed in the FGD Pond.

Site Specific Conditions Supporting Alternative Capacity Approach

Williams Station discharges wastewater through six surface impoundments (identified as Coal Pile Runoff Pond and Ponds A through E) before reaching the Cooper River in accordance with SCDHEC NPDES Permit SC0003883 (effective January 1, 2017). The FGD Pond was constructed within the former Pond C footprint and is the only CCR impoundment at Williams Station regulated under the CCR Rule. Refer to Figures 1 and 2 for the FGD Pond location.

The FGD Pond operates one of the two forebays at a time. When in operation, the operating forebay receives the entire FGD wastestream for approximately 6 months before switching to the second forebay to allow for dewatering and solids removal in the first forebay. Depending on equipment availability, the FGD blowdown from the secondary hydrocyclone is first fed to a single train Lamella clarifier to remove some of the gypsum solids and extend the time between cleanouts in the forebays. Solids removed in the Lamella clarifier are dewatered in a plate and frame filter press. The Lamella clarifier system was installed to reduce the frequency of solids removal from the FGD Pond: this system does not include redundancy and other features to consistently remove CCR solids to a de minimis level for discharge. The majority of the gypsum solids are removed

via vacuum drum filters fed by the primary hydrocyclone underflow. These solids are either sold for beneficial use or landfilled depending on market conditions.

The other impoundments onsite (Ponds A, B, D, and E, and the Coal Pile Runoff Pond) are not authorized to receive CCR material and do not meet the liner requirements in the CCR Rule. There is one nearby DESC offsite impoundment, identified as the Landfill Leachate Pond, that collects leachate and contact water within the William Station Highway 52 Landfill. This impoundment is approximately 7 miles away, not authorized to receive CCR material, and does not have a composite liner that meets the requirements in the CCR Rule.

As shown in Figure 1, Williams Station is bounded by Bushy Park Road on the west and the Cooper River and its tributaries on the east. Most of the facility property is also bound by lowlands and/or wetlands. Figure 2 shows an aerial photograph of the FGD Pond and adjacent impoundments. As shown, Williams Station has significant property area constraints and/or environmental permitting requirements in close proximity to the plant and existing impoundments that limit feasible options to establish on-site alternative treatment and/or storage of the FGD solids and associated wastewater.

Options Considered Both On-Site and Off-Site to Obtain Alternative Capacity

In order to comply with §257.103(a), DESC consulted with an engineering firm to study and evaluate alternative disposal capacity options at Williams Station for the CCR wastestream managed in the FGD Pond. The evaluation determined the feasibility of options to achieve alternative capacity compliance with the referenced regulations. Feasible options were evaluated by balancing the technology, performance, schedule duration, and other risk factors, as well as considering potential Effluent Limitation Guidelines (ELG) compliance alternatives. Table 1 provides a summary of options considered, the average timing required to develop each alternative on-site and off-site capacity, and conclusions/notes related to the feasibility.

Table 1: Alternatives For Disposal Capacity

Alternative Capacity Technology	Average Time to Construct[1] (Months)	Technically Feasible at the Williams Station?	Notes
Wastewater Treatment Facility	22.3	Yes	Construction of a new wastewater treatment facility at the Williams Station is expected to take more than 3 years due to current NPDES permitting duration which is longer than the average time noted.
New CCR Surface Impoundment	31	No	Due to limited available land at the Williams Station and existing wetlands outside of the areas currently used, there is no available land for a new impoundment.
Upgrade CCR Surface Impoundment	29.8	Yes	There is potential that a site-specific evaluation of the seismic stability of the FGD Pond will result in solutions that can be considered to meet seismic safety factors.
Multiple Technology System	39.1	Yes	Williams Station will utilize its existing gypsum solids removal systems (Lamella clarifier) to reduce CCR solids placed in the active FGD Pond to allow for stabilization activities in the offline forebay. Considerable upgrades and new equipment would be required to increase the performance and reliability of the existing system to cease use of the CCR impoundment. Additionally, modifying the NPDES permit to redirect the effluent to another impoundment could take over a year.

Alternative Capacity Technology	Average Time to Construct[1] (Months)	Technically Feasible at the Williams Station?	Notes
Off-Site Disposal	Not defined	No	As USEPA explained in the preamble of the 2015 CCR Rule, it is not possible for sites that sluice CCR material to an impoundment to eliminate the impoundment and dispose of the material offsite. As noted at 80 Fed. Reg. 21,301, 21,423 (April 17, 2015), it is infeasible to provide off-site treatment of the large volume of FGD wastestream currently routed to the FGD Pond without considerable modifications and new equipment necessary to transport the CCR wastestream to an off-site disposal facility, if one were available. Currently, no known off-site facilities are available in the vicinity (<10 miles) of Williams Station that are capable of handling wastewater at the flows generated by the facility. Discharge to an off-site facility would also require an indirect discharge permit which would take several months to years to obtain.
Temporary Treatment System	12 to 20[2] (Estimate)	Yes	Temporary treatment systems to manage the FGD wastestream for Williams Station would require a chemical feed system, chemical mix tanks, clarifiers, and solids dewatering. Mobilizing a temporary clarifier system or other similar treatment systems would require obtaining a construction permit for the temporary system, as well as modifying the existing NPDES Permit to redirect the effluent to another impoundment, and is expected to require more than the average time frame.

Notes:

[1]From Table 3, Summary of Data Used in Final Rule Alternative Capacity Analysis, of the Final CCR Part A Rule (August 28, 2020).

[2]Time Represents an estimated duration needed to prepare scope, obtain and negotiate a commercial agreement, permitting mobilization, installation, and system start-up.

In terms of on-site alternative disposal capacity, there are no other CCR surface impoundments available to dispose of the FGD wastestream and the time required to design, permit, construct and initiate operations of an on-site treatment system (i.e., wastewater treatment facility, multiple technology system or temporary treatment system) will require multiple years to reach operational status. Relative to off-site disposal capacity, the ELG criteria allows for the disposal of FGD water into public treatment works or industrial facilities in the vicinity, but the wastewater must meet pretreatment standards for arsenic, mercury, selenium, and nitrate/nitrite. Constructing a treatment system to meet these requirements will take as long as the other on-site treatment methods being considered. Moreover, the sheer volume of FGD wastewater that will need to be handled on a daily basis makes off-site disposal of wet gypsum wastewater technically infeasible. For example, approximately 15 frac tanks (21,000 gallons each) would be required to store 1 day's design volume of FGD high solids wastewater, and 78 frac tanks would be needed to provide the settling time and solids storage volume provided by a single FGD Pond forebay. This number of frac tanks would require a large dedicated space within the Williams Station that is not available. In addition, approximately 25 to 43 tanker trucks (7,500-gallon capacity each) would then be required daily to haul away the wastestream depending on unit operations. The logistics to have this many trucks accessing the site, loading and leaving would not be feasible, given the current plant operations and regular vehicle traffic.

Supporting calculations are shown below.

$$Hydraulic\ residence\ time\ at\ peak\ daily\ flow = \frac{814{,}000\ gallons\ forebay\ volume}{319{,}000\ gallons\ per\ day}$$

$$= 2.55\ days$$

$$2.55\ day\ HRT\ \times 2\ Safety\ Factor\ for\ Equipment\ Availability$$

$$= 5.1\ days\ frac\ tank\ storage\ req.$$

$$\frac{5.1\ days\ \times 319{,}000\ gpd}{21{,}000\ gallons\ per\ frac\ tank} = 78\ frac\ tanks$$

$$Peak\ Daily\ Flow = 319{,}000\ gallons \div 7{,}500\ gallons\ per\ truck$$

$$= 43\ tanker\ trucks\ per\ day$$

$$Typical\ Daily\ Flow = 187{,}200\ gallons\ \div 7{,}500\ gallons\ per\ truck$$
$$= 25\ tanker\ trucks\ per\ day$$

In consideration of both the CCR and ELG Rules, the potential options examined for alternate capacity are presented in Table 2, including the conclusions related to the feasibility of each.

Table 2: Alternatives Considered for CCR Wastestream

System	Technology	Feasibility
FGD	Upgrade and close the FGD Pond to meet the seismic stability requirements. Certify closure and open the updated pond as a new pond under the CCR rule.	Feasible with the potential to be the least time to construct.
FGD	Upgrade existing solids separation treatment system.	Not technically feasible. Treatment system upgrades and permitting will be challenging to modify the system in the future to meet ELG requirements.
FGD	Install temporary solids separation treatment system.	Not technically feasible. Treatment system upgrade design, procurement, installation and permitting will require years to construct and be operational.
FGD	Install ELG compliant physical/chemical treatment.	Not technically feasible. Treatment system upgrade design, procurement, installation and permitting will require years to construct and be operational.

2.1.2 Efforts To Obtain Additional Capacity – §257.103(a)(1)(ii)

(ii) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under this subsection lasts only as long as no alternative capacity is available. Once alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible

Approach to Obtain Alternative Capacity

DESC hired F&ME in June 2017 to perform the location restriction evaluations for the FGD Pond well in advance of the required submittal date of October 2018. F&ME issued an initial report in October 2017 that concluded the pond did not meet the seismic location restriction and recommended a site-specific seismic evaluation. Afterwards, DESC and their consultants evaluated several options as part of the site alternatives, including meeting the seismic requirements or installing an alternative wastewater treatment system for the FGD Pond.

In October 2018, DESC submitted the Location Restriction for the Williams Station FGD Pond stating the pond does not satisfy the requirements of §257.63(a) – Seismic Impact Zones. In April 2019, DESC filed a Notification of Intent to Comply with Alternative Closure Requirements pursuant to §257.103(a).

As described in Section 2.1.1, DESC has and continues to subcontract with engineering firms to evaluate and determine solutions that will meet both the CCR and ELG regulations. Further, because the FGD Pond is essential to plant operations and DESC has determined that a technically feasible alternate capacity is not readily viable (as described in Section 2.1.1), DESC has developed the following multi-faceted approach to obtain alternate capacity:

1. Continue to evaluate new technology and/or modifications to plant equipment, facilities, and processes that would allow on-site treatment of the FGD wastewater.
2. Continue to identify an off-site disposal facility and potential modifications to plant equipment, facilities, and processes that would facilitate feasible use of the off-site facility.
3. Initiate engineering studies related to upgrading the FGD Pond which include: a) perform a site-specific seismic study to confirm the associated stability safety factors are below minimum criteria; and, b) assess and evaluate potential modifications to the FGD Pond berms or subsurface conditions to increase the seismic stability safety factors sufficiently to meet the criteria in the CCR Rule.

Alternate Closure Demonstration Certification

Appendix A includes a certification by DESC that the CCR must continue to be managed in this CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility.

2.1.3 Compliance Requirements – §257.103(a)(1)(iii)

(iii) The owner or operator must remain in compliance with all other requirements of this subpart, including the requirement to conduct any necessary corrective action

The FGD Pond is in compliance with all other requirements of the CCR Rule, with the exception of the Location Restrictions – Seismic Impact Zones. There are no current corrective actions necessary.

2.1.4 Annual Progress Reporting – § 257.103(a)(1)(iv)

(iv) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the development of alternative CCR disposal capacity.

DESC will provide an annual progress report in accordance §257.103(c)(2).

2.2 ALTERNATIVE CLOSURE QUALIFICATION - §257.103(C)(1)

(c) Required notices and progress reports. An owner or operator of a CCR unit that closes in accordance with paragraphs (a) or (b) of this section must complete the notices and progress reports specified in paragraphs (c)(1) through (3) of this section.

(1) Within six months of becoming subject to closure pursuant to § 257.101(a), (b)(1), or (d), the owner or operator must prepare and place in the facility's operating record a notification of intent to comply with the alternative closure requirements of this section. The notification

must describe why the CCR unit qualifies for the alternative closure provisions under either paragraph (a) or (b) of this section, in addition to providing the documentation and certifications required by paragraph (a) or (b) of this section.

CCR Rule Qualification

DESC reported in the Location Restriction for Seismic Impact Zones in October 2018 that the Williams Station FGD Pond does not satisfy the requirements of §257.63(a) – Seismic Impact Zones. Further, per §257.63(c)(4) the pond is then subject to §257.101(b)(1) Closure or Retrofit of CCR Units. Under §257.101(b)(1)(ii), except as provided in paragraph (b)(4), within 6 months of determining that an existing CCR surface impoundment has not demonstrated compliance with any location standard, the owner must cease placing CCR and non-CCR wastestreams in the impoundment and close the unit in accordance with §257.102. Ceasing placement of waste in the FGD Pond would have been required by April 2019, unless the unit complied with the exception in §257.101(b)(4). That section states the timeframe specified in paragraph (b)(1) does not apply if the owner complies with the Alternative Closure Requirements in §257.103 which allows a CCR surface impoundment to continue to receive waste if the owner meets all of the requirements in that section.

DESC will prepare the progress reports and place this document and other reports in the operating record and provide the notices as required in §257.103(c)(2) and (3) and §257.103(d).

Impact to Plant Operations Qualification

Because there are no alternative disposal capacity options for the Williams Station FGD Pond, which is critical to power generation production, the plant would be forced to cease power production should the FGD Pond be required to cease accepting FGD wastewater. Williams Station has specific power production and availability requirements to maintain grid reliability for the coastal South Carolina region. Idling the plant until an alternative disposal capacity is established is not feasible due to the grid reliability requirements.

FIGURES

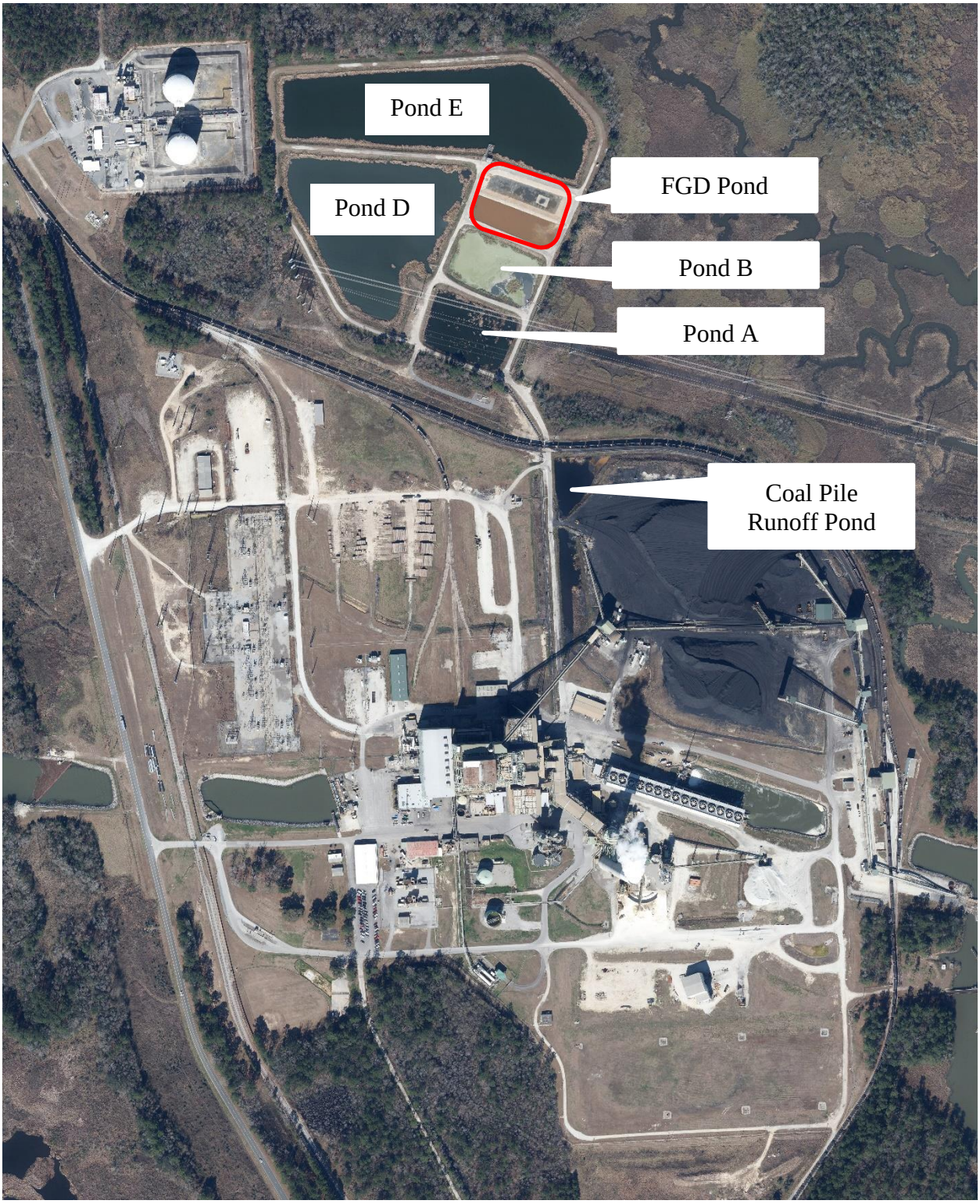

Figure 1: Williams Station Overview Map

Figure 2: Williams Station FGD Pond & Adjacent Impoundments Map

APPENDIX A

ALTERNATIVE CLOSURE DEMONSTRATION CERTIFICATION

CCR Impoundment Information

Name:	Williams Station FGD Pond
Owner/Operator:	Dominion Energy South Carolina, Inc.
Address:	2242 Bushy Park Road, Goose Creek, SC 29445

In accordance with 40 C.F.R. §257.103(a)(1) and as documented in this Notification of Intent to Comply with Alternative Closure Requirements, I, James Landreth, certify that CCR must continue to be managed in the Williams Station FGD Pond due to the absence of alternative disposal capacity both on-site and off-site of the facility..

Print Name: James Landreth, Vice President, Dominion Energy South Carolina, Inc.

Signature: 

Date: November 13, 2020