



WorleyParsons

resources & energy

EcoNomics

SANTEE COOPER

Cross Generating Station

Class 2 CCR Landfill

Notice of Intent to Close

CROSS-0-LI-044-0001

31 Dec 2015

WorleyParsons Group Inc.

2675 Morgantown Road,
Reading, PA, 19607

USA

Telephone: +1 610 855 2000

Facsimile: +1 610 855 2727

www.worleyparsons.com

© Copyright 2014 WorleyParsons



**SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL**

NOTICE OF INTENT TO CLOSE

PROJECT – CROSS GENERATING STATION

REV	DESCRIPTION	ORIG	REVIEW	WORLEY-PARSONS APPROVAL	DATE	CLIENT APPROVAL	DATE
0	Issued for Use	 F Wood	 L Catalano	 F Wood	31 Dec 2015	N/A	

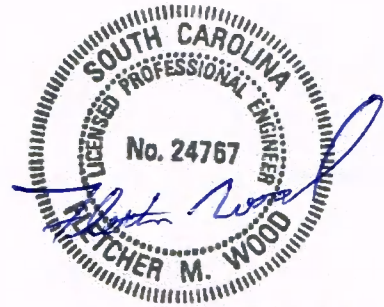


SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL

NOTICE OF INTENT TO CLOSE

CONTENTS

1	INTRODUCTION	1
2	NOTICE OF INTENT TO CLOSE	2
3	FINAL COVER SYSTEM DESIGN CERTIFICATION	3
4	CONSTRUCTION SCHEDULE	6



31 DECEMBER 2015



SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL

NOTICE OF INTENT TO CLOSE

1 INTRODUCTION

The purpose of this document is to comply with notification and certification requirements in accordance with the federal EPA Coal Combustion Residuals (CCR) rule, 40 CFR Part 257.

§ 257.102(g) requires that a notification of intent to close a CCR Unit be placed in the facility's operating record upon initiation of closure activities. **This document is intended to serve as the notice of intent to close the existing Class 2 CCR Landfill at Cross Generating Station in Pineville, SC.** Included herein is a certification by a qualified professional engineer for the design of the final cover system, as required by § 257.102(d)(3)(iii).



**SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL**

NOTICE OF INTENT TO CLOSE

2 NOTICE OF INTENT TO CLOSE

Pursuant to § 257.102(e)(1)(i):

The owner or operator must commence closure of the CCR unit no later than 30 days after the date on which the CCR unit receives the known final receipt of waste, either CCR or any non-CCR waste stream.

The known final receipt of waste at the Class 2 CCR Landfill at Cross Generating Station occurred December 31, 2015.

Furthermore, in accordance with § 257.102(e)(3)(ii):

Closure of the CCR unit has commenced if the owner or operator has ceased placing waste and ...has submitted a completed application for any required state or agency permit or permit modification.

Closure plans and details for the Class 2 CCR Landfill at Cross Generating Station were provided to South Carolina Department of Health and Environmental Control in March 2013 and amended February 2015. Because this action was previously completed, the known final receipt of waste represents the initiation of closure activities.

§ 257.102(g) requires the following:

No later than the date the owner or operator initiates closure of a CCR unit, the owner or operator must prepare a notification of intent to close a CCR Unit. The notification must include the certification by a qualified professional engineer for the design of the final cover system as required by § 257.102(d)(3)(iii), if applicable. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by § 257.105(i)(7).

Therefore, the purpose of this document is to serve as the Notice of Intent to Close the Class 2 CCR Landfill at Cross Generating Station. The above-referenced certification by a qualified professional engineer for the design of the final cover system as required by § 257.102(d)(3)(iii) is provided in the following section.



**SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL**

NOTICE OF INTENT TO CLOSE

3 FINAL COVER SYSTEM DESIGN CERTIFICATION

General

Pursuant to § 257.102(d)(3)(iii):

The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this section.

This section summarizes the final cover system design requirements as outlined in § 257.102(d)(3), describes the proposed final cover system design for the Class 2 CCR Landfill at Cross Generating Station, and provides a written certification that the proposed design satisfies the requirements.

Design Requirements

Pursuant to § 257.102(d)(3):

If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph (d)(3)(i) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(ii) of this section.

The prescriptive final cover system outlined in § 257.102(d)(3)(i) requires the following:

- final cover system permeability must be less than or equal to that of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less;
- infiltration through the final cover system must be minimized by using an infiltration layer consisting of a minimum of 18 inches of earthen material;
- erosion of the final cover system must be minimized by using an erosion layer consisting of a minimum of six inches of earthen material capable of sustaining native plant growth; and
- the disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

§ 257.102(d)(3)(ii) allows for the use of an alternative final cover system design, provided the alternative final cover system is designed and constructed to provide equivalent performance as the prescriptive final cover system outlined above with respect to infiltration, erosion, and settling and subsidence.



**SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL**

NOTICE OF INTENT TO CLOSE

Proposed Design:

The proposed final cover system design for the Class 2 CCR Landfill at Cross Generating Station includes two types of final cover. These are outlined below:

Final Cover System Type 1:

A prescriptive final cover system will be installed on the north and south slopes of the Class 2 CCR Landfill. From the bottom up, the design consists of an 18-inch thick earthen infiltration layer with a maximum permeability of 1×10^{-5} cm/sec, and a 12-inch thick earthen erosion layer capable of sustaining native plant growth. The existing landfill is unlined, with the permeability of the natural subsoils exceeding that of the final cover system infiltration layer. The design accommodates settling and subsidence in order to minimize any disruption of the integrity of the final cover system.

The proposed Type 1 final cover system design therefore meets the requirements set forth in § 257.102(d)(3)(i).

Final Cover System Type 2:

An alternate composite liner final cover system will be installed over the remainder of the Class 2 CCR Landfill (east and west slopes and top deck) in areas where the existing landfill will be “piggybacked” by future Class 3 landfill cells. From the bottom up, the design in these areas consists of a geosynthetic clay liner with a maximum permeability of 5×10^{-9} cm/sec, and a 60 mil HDPE geomembrane liner. The composite liner will meet or exceed the performance of the prescriptive final cover system with respect to minimizing infiltration. The geomembrane component of the final cover system is designed for exposure to the elements (including sun, wind, and water), and will meet or exceed the performance of the prescriptive final cover system with respect to resistance to erosion. Final grades across the top deck will be a minimum of 3%, which is consistent with MSW landfill final cover requirements for which much greater settlement and subsidence is typically anticipated. The design therefore accommodates settling and subsidence in order to minimize any disruption of the integrity of the final cover system.

The proposed Type 2 final cover system design therefore meets the requirements set forth in § 257.102(d)(3)(ii).

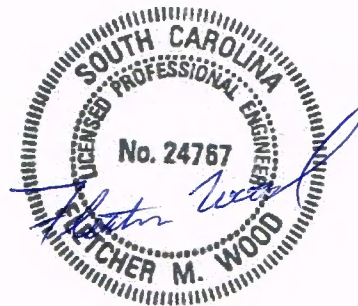


SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL

NOTICE OF INTENT TO CLOSE

Certification:

I, the undersigned Professional Engineer registered in good standing in the State of South Carolina, do hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I certify, for the above-referenced CCR Unit, that the proposed design of the final cover system meets the requirements of 40 CFR 257.102(d)(3).



31 DECEMBER 2015

Fletcher Wood
Printed Name of Professional Engineer


Signature of Professional Engineer

24767
South Carolina License #



**SANTEE COOPER
CROSS GENERATING STATION
CLASS 2 CCR LANDFILL**

NOTICE OF INTENT TO CLOSE

4 CONSTRUCTION SCHEDULE

Pursuant to § 257.102(f)(1)(i), the owner or operator must complete closure of the CCR unit:

For existing and new CCR landfills and any lateral expansion of a CCR landfill, within six months of commencing closure activities.

Final closure of the Class 2 CCR Landfill at Cross Generating Station will be completed by June 30th, 2016, in accordance with the above requirement.