COAL COMBUSTION RESIDUALS

LANDFILL CLOSURE PLAN

(40 CFR §257.102)

Prepared for:

Entergy Louisiana LLC - Nelson Coal Ash Disposal Landfill

Westlake, Louisiana

October 17, 2016

Prepared by:

Pivotal Engineering LLC
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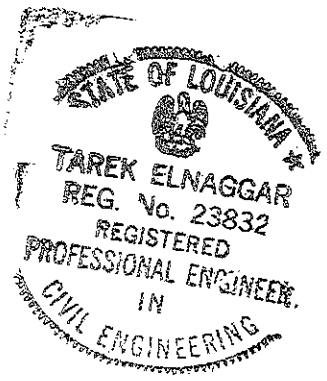
PROFESSIONAL ENGINEER'S CERTIFICATION

In accordance with §257.102, I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, 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.

This Closure Plan for the Entergy Louisiana, LLC. Nelson Coal Ash Disposal Landfill was prepared under the direction and supervision of Mr. Tarek Elnaggar, a qualified State of Louisiana registered Professional Engineer of Pivotal Engineering LLC.

Signature _____ Date 10/15/16



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1.0 CLOSURE RESPONSIBILITIES

1.1 PROPERTY TRANSFER RESPONSIBILITIES

The permanent owner of the facility is Entergy Louisiana, LLC (ELL) and the property will not be transferred to any other parties during the closure phase.

1.2 OPERATIONAL RESPONSIBILITIES

The closure activities will be performed by ELL and its designated operators.

2.0 INTRODUCTION

This document represents a closure plan for the Nelson Coal Ash Disposal Landfill located in Calcasieu Parish, Westlake, Louisiana. The facility is a State of Louisiana, Department of Environmental Quality (LDEQ), Type I industrial landfill and receives only coal ash and other non-hazardous waste produced by the facility as specified in Permit P-0018-R1-M4. The Coal Ash Disposal Landfill was permitted to accommodate disposal of the non-marketable coal combustion residuals (CCR) generated by the Nelson Coal Generating Plant.

2.1 CLOSURE

In accordance with 40 CFR §257.102 (b)(iii), closure of the landfill will be accomplished by leaving CCR in place. The maximum inventory of CCR on site at any one time is estimated at 1,991,500 tons. Closure is based on the closure of up to six cells within an area of approximately 13.1 acres. As additional cells area(s) are filled, they will be capped. A notification of intent to close will be included in the operating record no later than the date the owner or operator initiates closure of a CCR unit. The notification will include the certification by a qualified professional engineer for the design of the final cover system (40 CFR §257.102(g)). Additionally, under the Louisiana Department of Environmental Quality (LDEQ) solid waste permit P-0018-R1-M4 and in accordance with LAC 33:VII:713E.1, written notification will also be submitted to the LDEQ Office of Environmental Services at least 90 days before closure or intent to close. Necessary approvals under the above noted permit are required as part of the CCR closure activities.

In preparation for closure, ELL will insure the following performance standards at a minimum are completed as noted in CFR §257.102(d)(i-v). Control, minimize or eliminate to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere; to achieve the above, any standing water will be solidified or removed and the runoff-diversion system will be maintained until the final cover is installed. The system will be maintained and modified to prevent runoff of any contact waters from the landfill. The material disposed in the cells will be graded and compacted to the required slopes to maintain slope stability, see Figure 1. The

landfill will be capped by constructing a final cover system that meets or exceeds requirements noted in CFR §257.102(d)(3) consisting of the following elements:

- Clay layer, 2 feet with a permeability of less than 10^{-5} cm/s
- Synthetic liner, 40-mil textured HDPE geomembrane (over areas flatter than 4:1 slope)
- Topsoil, 6 inches
- Vegetative Cover

Installation will be in accordance with the Quality Assurance/Quality Control plan included in the LDEQ solid waste permit. Closure will begin no later than 30 days after the date which the CADL receives the known final receipt of CCR or non-CCR waste or removes the last known final volume of CCR for the purpose of beneficial use (40 CFR §257.102 (e)(1)). Additional time may be requested as allowed in 40 CFR §257.102(e)(2). Completion of closure activities will be completed within six months of commencing of closure as noted CFR §257.102(f). Within 30 days of completion of closure of the CCR unit, a notification of closure will be placed in the operating record as noted in CFR §257.102(h). The notification will include deed notations and the certification by a qualified professional engineer that the closure was completed in accordance with the Closure Plan and complies with 40 CFR §257.102. On closure, ELL will provide notification of disposal of solid waste by filing the required mortgage and conveyance records with the appropriate offices within Calcasieu Parish. A survey will be included to locate the boundaries of the waste disposal area in reference to permanently surveyed benchmarks.

2.2 CLOSURE SCHEDULE

It is estimated that closure will be initiated in the year 2033. However, this could vary based on plant operations and the removal of CCR for beneficial use. After closure completion, the post-closure care period will begin. The following closure activities are tentatively scheduled:

ACTIVITY	TIME FRAME	Reference
Preparation of Closure Plan	October 17, 2016	40 CFR §257.102 (b)(2)
Initiation of Closure Activities	Within 30 days of receiving last known receipt of CCR or remove the known final volume of CCR. Up to 2 additional years for removal of CCR for beneficial use.	40 CFR §257.102 (e)(1) 40 CFR §257.102 (e)(2)
Notification of Intent to Close	No later than the date closure is initiated	40 CFR §257.102 (g)
Completion of Closure and Installation of final cover system	Within 6 months of initiation of closure. (State Permit requires completion within 90 days)	40 CFR §257.102 (f) LAC 33:VII 711(E)
Notification of Closure placed in Facility Operating Record	Within 30 days of completion of closure	40 CFR §257.102 (h)
Notification of Deed restriction is placed in Parish Records	Within 30 days of completion of closure	40 CFR §257.102 (h)

2.3 REGULATORY OVERSIGHT

This Closure Plan has been developed for the Coal Ash Disposal Landfill (CADL) located at Entergy Louisiana, LLC (ELL) Nelson Coal Generating Plant in Westlake, Louisiana. The Plan addresses the requirements of the Federal Solid Waste Rules and Regulations (40 CFR §257.102) for closure of a CCR landfill.

3.0 BACKGROUND

3.1 SITE LOCATION

The facility is located in Westlake, Louisiana at 3500 Houston River Road (State Highway 379), approximately 4 miles northwest of the intersection of Highway 379 and Interstate 10. The geographical location of the center-point of the facility is located in Section 16, Township 9 South, Range 9 West, Calcasieu Parish, Westlake, Louisiana. The coal ash disposal landfill (CADL) occupies approximately 70 acres. The Closure Plan is based on the currently approved 31.77 acre cell area, see Figure 1. The Closure Plan will be updated prior to any expansion east of the area shown in Figure 1.

3.2 SITE HISTORY

Nelson Coal Unit 6 is an existing coal-fired steam electric generating facility that has been in operation since 1982. The coal-fired boiler feeds a steam turbine and generator that has a maximum generating capacity of 550 megawatts. The facility consists of a coal-fired boiler and turbine unit, storage areas, drainage areas, a treatment pond, a recirculating water system (cooling tower), and other ancillary buildings and equipment. Entergy operates the permitted CADL and a coal storage area in the west and northwest areas of the site.

The CADL is designed to accommodate the disposal of non-marketable coal residue generated during the operation of Nelson Unit 6. Unit 6 burns sub-bituminous coal.

There are no known cultural, historical, or archaeological sites, recreational areas, or habitat for endangered species located within 1,000 feet of the CADL. A typical cypress swamp, exhibiting wildlife and sensitive ecological areas is located on the northern boundary of the Nelson Station.

There is no prime farm, pasture, or range land located within the immediate area of the CADL and all the land of the Nelson Station is currently within an industrial district of West Calcasieu Parish, Louisiana.

The CADL does not impact any archaeological or historical sites, wetlands, or endangered species. Closure activities will remain confined to the currently permitted areas and not impact adjacent lands.

4.0 RESPONSIBLE PARTIES

4.1 CURRENT PROPERTY OWNERS

The facility is owned and operated by Entergy Louisiana, LLC as a Solid Waste Management Facility under Permit Number P-0018-R1-M4 issued by the Louisiana Department of Environmental Quality (LDEQ).

4.2 CHANGE OF OWNERSHIP NOTIFICATION REQUIREMENTS

The facility will not be transferred to any party and Entergy Louisiana LLC is expected to maintain ownership during the closure phase.

5.0 AMENDMENT OF THE CLOSURE PLAN

In accordance with §257.102(b)(3), Entergy may amend this closure plan at any time. Specifically, Entergy must amend the written closure plan whenever:

1. There is a change in the operation of the CCR unit that would substantially affect the written closure plan in effect; or

2. After closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.

The closure plan must be amended at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise the plan. If the plan is revised after closure activities have commenced for a CCR unit, the owner or operator must amend the written closure plan no later than 30 days following the triggering event. Entergy will obtain a written certification from a qualified professional engineer that the initial and any amendment of the written closure plan meets the requirements of §257.102(b)(3). The amended plan and certification will be placed in the facility operating record and website.

Appendix A

DEFINITIONS

The following definitions are from §257.53 of the CCR Rule and used in this Plan:

Active Life (or In Operation): the period of operation beginning with the initial placement of CCR in the CCR unit and ending at completion of closure activities in accordance with §257.102.

Active portion: that part of the CCR unit that has received or is receiving CCR or non-CCR waste and that has not completed closure in accordance with §257.102.

Coal Combustion Residues (CCR): 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 Landfill: an area of land or land excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. It also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.

CCR Unit: any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units. This term includes both new and existing units.

Closed Unit or Landfill: placement of CCR in a CCR unit has ceased, and the owner or operator has completed closure of the CCR unit in accordance with § 257.102 and has initiated post-closure care in accordance with § 257.104

Existing CCR Landfill: a CCR Landfill that receives CCR both before and after October 15, 2015, or for which construction commenced prior to October 14, 2015. A CCR landfill 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 onsite physical construction program had begun prior to October 14, 2015.

Hydraulic Conductivity: the rate at which water can move through a permeable medium (i.e., the coefficient of permeability).

Lateral Expansion: a horizontal expansion of the waste boundaries of an existing CCR landfill or existing CCR surface impoundment made after October 14, 2015.

New CCR Landfill: a CCR landfill or lateral expansion of a CCR landfill that first receives CCR or commences construction after October 14, 2015. A CCR landfill 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 onsite physical construction program had begun after October 14, 2015.

Operator: the person(s) responsible for the overall operation of a CCR unit.

Qualified Professional Engineer: an individual who is licensed by a state as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education,

technical knowledge and experience to make the specific technical certifications required under this subpart. Professional engineers making these certifications must be currently licensed in the state where the CCR unit(s) is located.

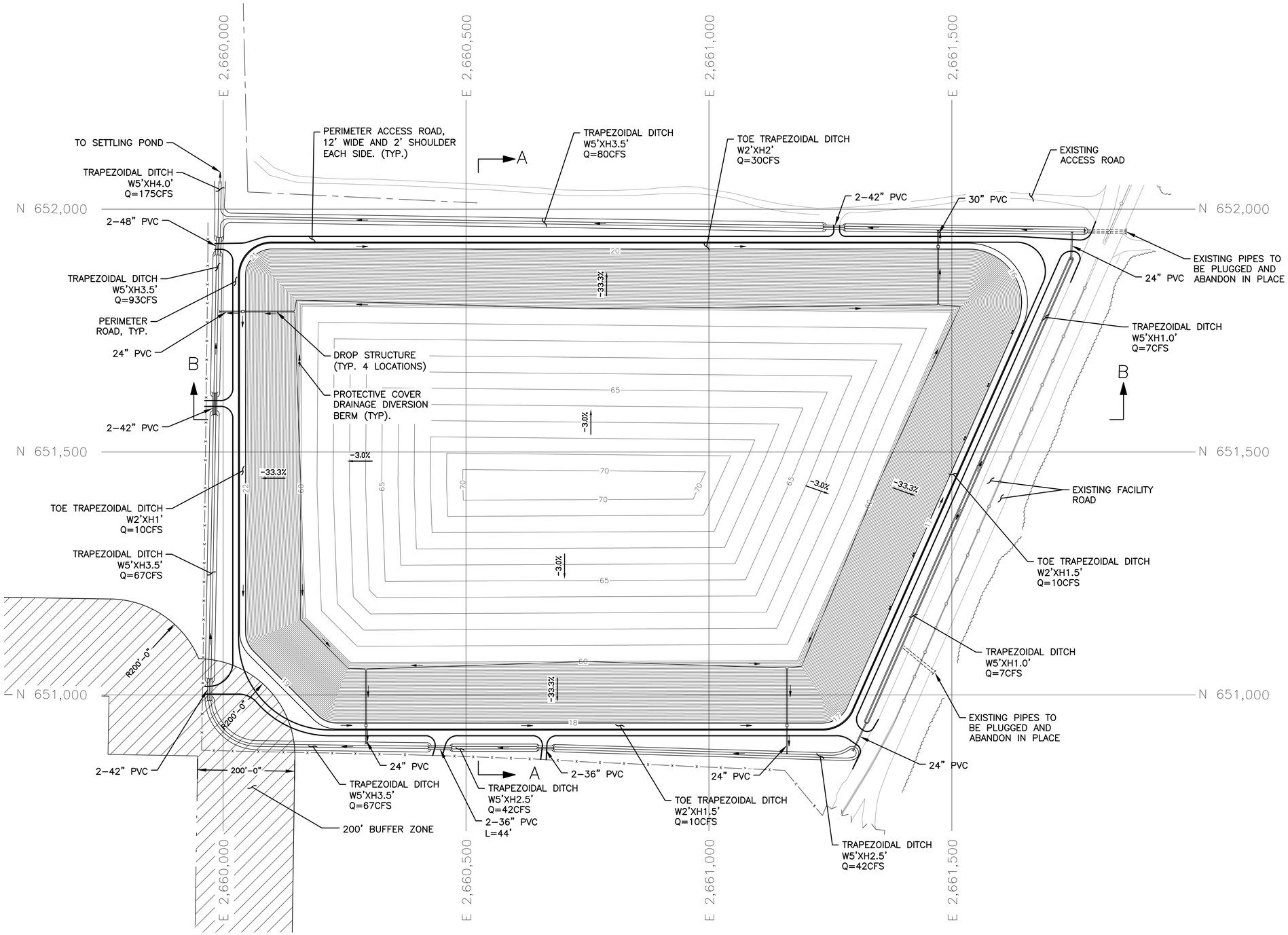
Recognized and Generally Accepted Good Engineering Practices: engineering maintenance or operation activities based on established codes, widely accepted standards, published technical reports, or a practice widely recommended throughout the industry. Such practices generally detail approved ways to perform specific engineering, inspection, or mechanical integrity activities.

Run-Off: any rainwater, leachate, or other liquid that drains over land from any part of a CCR landfill or lateral expansion of a CCR landfill.

Run-On: any rainwater, leachate, or other liquid that drains over land onto any part of a CCR landfill or lateral expansion of a CCR landfill.

Structural Components: liners, leachate collection and removal systems, final covers, run-on and run-off systems, inflow design flood control systems, and any other component used in the construction and operation of the CCR unit that is necessary to ensure the integrity of the unit and that the contents of the unit are not released into the environment.

Figure 1



100' 0 100' 200'

24" X 36" SCALE: 1" = 100'

N

SURVEY DONE BY MORRISON SURVEYING, INC ON MAY AND OCTOBER 2015.

NOTE:

1) HORIZONTAL CONTROL IS REFERENCED TO NAD 83 LA SOUTH ZONE AS PER O.P.U.S. SOLUTION AT MSI NETWORK BASE STATION.

2) VERTICAL CONTROL IS REFERENCED TO NAVD 88 GEOID 12A AS PER O.P.U.S. SOLUTION AT MSI NETWORK BASE STATION.

3) ONLY THOSE UTILITIES EVIDENT FROM A CAREFUL VISUAL INSPECTION OF THE SITE ARE SHOWN AND MAY NOT REPRESENT ALL UTILITIES PRESENT.

4) STANDARD FIELD CALIBRATIONS FOR EQUIPMENT WERE PERFORMED. THIS SURVEY AND ACCURACY RESULTS ARE WITHIN MANUFACTURER'S SPECIFICATIONS.

5) THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF THE SURVEY MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

6) STATE PLANE COORDINATES ARE REFERENCED TO NORTH & SOUTH PLANT MONUMENTS.

NORTH MONUMENT		
STATE PLANE COORDINATE	*PLANT COORDINATE*	
N 654941.39	*N 12799.99*	
E 2664674.94	*E 11995.00*	
SOUTH MONUMENT		
STATE PLANE COORDINATE	*PLANT COORDINATE*	*ELEV.*
N 654141.56	*N 11999.99*	*17.42'*
E 2664681.28	*E 11995.00*	

NAVD 88 GEOID 12A ELEV. = 15.74'

7) THIS SURVEY IS A COMPILATION OF DATA COLLECTED IN MAY 2015 & OCTOBER 2015.

8) BOUNDARY LINE AND EASEMENT DATA WAS TAKEN FROM REFERENCE MAPS PROVIDED.

COAL ASH DISPOSAL LANDFILL PROPOSED 70' (NAVD) CAP PLAN

NELSON COAL GENERATING STATION

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WESTLAKE, LOUISIANA 70669

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DATE	DESCRIPTION	BY
	REVISIONS	

SCALE: AS NOTED	DRAWN BY: Y.S.	1
DATE: AUGUST 29, 2016	CHECKED BY: T.E.	FIG. NO.
JOB NO. 15-125		