



**INITIAL RUN-ON AND RUN-OFF
CONTROL SYSTEM PLAN
Sibley CCR Landfill
Sibley Generating Station**

**33200 East Johnson Rd
Sibley, Missouri**

KCP&L Greater Missouri Operations Company

October 17, 2016

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SIBLEY GENERATING STATION

CCR LANDFILL

RUN-ON AND RUN OFF CONTROL SYSTEM PLAN REVISION HISTORY

Revision Number	Revision Date	Section Revised	Summary of Revisions

Revisions are accomplished in accordance with Section 5.

SECTION 1

BACKGROUND

The purpose of this CCR Run-on and Run Off Control System Plan (Plan) is to document, in accordance with the Coal Combustion Residuals Rule (CCR Rule)¹, how the run-on and run-off control systems for the Sibley Generating Station (Sibley) CCR Landfill have been designed and constructed with recognized and generally accepted good engineering practices and to meet the applicable requirements of 40 CFR 257.81. The following sections provide background information on the facility and related regulatory requirements.

1.1 Facility Information

Name of Facility: Sibley Generating Station

Name of CCR Unit: CCR Landfill

Name of Operator Kansas City Power & Light Company (KCP&L)

Facility Mailing Address: 33200 East Johnson Rd., Sibley, MO 64088

Location: East of and adjacent to Sibley, Missouri.

Facility Description: The Sibley Generating Station consists of three coal-fired units. CCR produced at the facility include fly ash, bottom ash as slag, and economizer ash. CCR is either shipped off-site for beneficial use or transported to the landfill from the Fly Ash Impoundment, the Fly Ash Silo, or Slag Settling Impoundment for disposal. Related landfill facilities include a groundwater monitoring system, storm water and leachate management systems, and haul/access roads. The footprint for the permitted landfill area has been constructed. The southern 3/4 (approximate) of the landfill is currently inactive. Most of the northern 1/4 of the landfill is active with vegetation over inactive areas.

1.2 Regulatory Requirements

This Plan has been developed for the Sibley Generating Station CCR Landfill in accordance with 40 CFR 257.81(c). The CCR Rule requires preparation of a Run-on and Run-off Control System Plan for all existing CCR landfills in operation as of October 19, 2015, the effective date of the CCR Rule. The plan must document how the run-on and run-off control systems have been designed and constructed to meet the applicable requirements of 40 CFR 257.81, and must be supported by appropriate engineering calculations².

The owner or operator of a CCR unit must prepare a written Plan that includes the information specified in 40 CFR 257.81(a) and (b). These items and the section of this plan responsive to each follows:

40 CFR 257.81 Run-on and Run-off Controls for CCR landfills

- (a) The owner or operator of an existing or new CCR landfill or any lateral expansion of a CCR landfill must design, construct, operate and maintain (Section 2):
 - (1) A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and
 - (2) A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm
- (b) Run-off from the active portion of CCR unit must be handled in accordance with the surface water requirements under §257.3-3 (Section 3).

Selected definitions from the CCR Rule are provided below.

Active portion means 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.

Closed means 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.

CCR (coal combustion residuals) 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 Landfill means an area of land or an 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. For purposes of this subpart, a CCR landfill 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 means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified.

Qualified Professional Engineer means 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.

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

SECTION 2

LANDFILL RUN-ON AND RUN-OFF CONTROLS

2.1 Design and Construction

The design for the Sibley CCR Landfill storm water run-on and run-off control system was completed in March 2009 by Shaw Environmental, Inc.³ The design was developed and sealed by a professional engineer licensed in the State of Missouri and in accordance with the Missouri Department of Natural Resources (MDNR) rules for Utility Waste Landfills⁴. These rules require the run-on and run-off control systems for utility waste landfills to be based on the 24-hour, 25-year storm event. The MDNR reviewed and approved the design of the landfill and storm water management system in 2009⁵.

The storm water system design for the landfill consists of benches, ditches, berms, culverts, and letdown channels designed with typical slopes of between approximately 1% and 33%; and one pond used to manage storm water run-off. The components of the storm water management system are constructed commensurate with landfill construction. An elevated landfill road and/or ditches surround the landfill area to prevent run-on. Storm water falling on active areas is contained to the active area using a perimeter berm. This water then exits the landfill via the leachate collection system.

2.2 Run-on Controls

The landfill is located in an elevated area subject to very little run-on. The landfill is additionally bounded on all sides by an elevated perimeter road and ditch system to further prevent run-on to the active and inactive landfill. The active area is protected from upstream run-on from the inactive landfill area to the south by a ditch system that diverts surface water around the active area. The ditch system is sized to protect the fill area from run-on from the 24-hour, 25-year storm event². The run-on protection system meets or exceeds the requirement to provide protection from run-on from the 24-hour, 25-year storm event.

2.3 Run-off Controls

The run-off control system designed for the landfill consists of benches, berms, ditches, culverts and letdown channels. For the current configuration explained in Section 2.1,

storm water is contained in the active area by a perimeter berm and drains from the landfill through the leachate collection system. The storm water management system components for the landfill were constructed in accordance with the plans approved by the MDNR.^{5,6} The design basis for the sizing of storm water management components was the 24-hour, 25-year storm event.

The run-off protection system meets or exceeds the requirement to provide protection from run-off from the 24-hour, 25-year storm event.

SECTION 3

RUN-OFF CONTROL FOR §257.3-3

There is no run-off from the Sibley CCR Landfill active area since storm water falling on the active area is contained and drains from the landfill through a leachate collection system. Leachate collects and is treated in a pond prior to being discharged via the NPDES-permitted outfall. Per the current NPDES permit, discharged water is tested for pollutants and the discharge meets the minimum regulatory requirements of the permit. Therefore, the facility does not cause a discharge of pollutants into waters of the United States that is in violation of the requirements of the NPDES under Section 402 of the Clean Water Act, and therefore meets the requirements of 40 CFR 257.81 (b).

SECTION 4

AMENDMENT OF RUN-ON AND RUN-OFF CONTROL PLAN

The owner or operator may amend the written run-off and run-on control system plan at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(g)(3).

The owner or operator must amend the written run-on and runoff control system plan whenever there is a change in conditions that would substantially affect the written plan in effect. Additionally, the owner or operator of the CCR unit must prepare periodic run-on and runoff control system plans every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first subsequent plan.

The owner or operator may complete any required plan prior to the required deadline provided the completed plan is placed into the facility's operating record within a reasonable amount of time.

A written certification from a qualified professional engineer that the initial and any amendment of the written run-on and run-off control system plan meets the requirements of § 257.81 must be obtained. Plan changes will be documented using the Revision History which prefaces this Plan. Changes to this plan will be certified by a Qualified Professional Engineer.

SECTION 5

ENGINEERING CERTIFICATION

Pursuant to 40 CFR 257.81 (c) (5) and by means of this certification, I attest that:

- (i) I am a Qualified Professional Engineer licensed in the State of Missouri;
- (ii) I am familiar with the requirements of the CCR Rule (40 CFR 257);
- (iii) I, or my agent, have visited and examined the Sibley Generating Station landfill;
- (iv) I do hereby certify to the best of my knowledge, information, and belief that this Run-on and Run-off Control System Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of the CCR Rule;
- (v) this Run-on and Run-off Control System Plan meets the requirements of 40 CFR 257.81 (c); and
- (vi) the pages certified herein include Pages i, ii, 1 through 7, altogether a total of 9 pages in a protected Adobe™ document.

Walter J. Martin, P.E.

Printed Name of Qualified Professional Engineer
1200 Main St, Kansas City, MO 64105, 816-556-2200

P.E. SEAL, STATE OF MISSOURI



SECTION 6

REFERENCES

1. U.S. Environmental Protection Agency, Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, 40 CFR §257, Federal Register 80, Subpart D, April 17, 2015.
2. Kansas City Power & Light Company, Support Calculations, Initial Run-on Run-off Control System Plan, Sibley CCR Landfill, Sibley Generating Station, 2016.
3. Shaw Environmental, Inc. Appendix T, Stormwater Management Calculations, Engineering Report, Construction Permit Application, Sibley Generating Station Utility Waste Landfill Expansion, Sibley Generating Station, Sibley, Missouri, March, 2009.
4. Missouri Department of Natural Resources, Code of State Regulations, Rules of Department of Natural Resources, Division 80, Solid Waste Management, Chapter 11, Utility Waste Landfill, 1997.
5. Missouri Department of Natural Resources, KCP&L Greater Missouri Operations Company, Sibley Generating Station Utility Waste Landfill Expansion, Construction Permit Number 0909502, Jackson County, September 10, 2009.
6. URS Corporation (now AECOM), Sibley Utility Waste Landfill Stage A Operating Permit Application, , November 2010.