

**JAMES RIVER POWER STATION  
UTILITY WASTE LANDFILL**

**Run-On & Run-Off Control System Plan  
In Accordance with CFR Part 257.81**

Prepared for:  
City Utilities of Springfield  
301 E. Central  
P. O. Box 551  
Springfield, MO 65801  
(417) 874-8005

Revision 1

September 16, 2016

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Appendix A: JRPS CCR Landfill Run-On and Run-Off Control Systems Site Plan

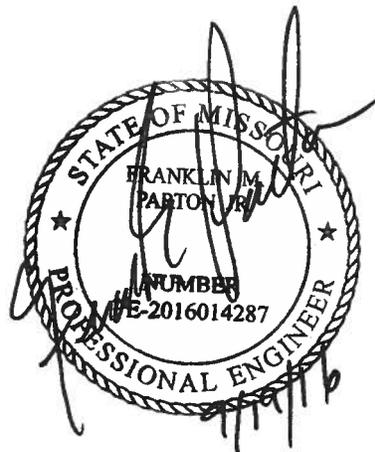
**REVISION PAGE**

<b>Rev.</b>	<b>Date</b>	<b>Reason for Revision</b>	<b>Originator</b>	<b>Checker</b>	<b>Lead Engineer</b>	<b>Project Engineer</b>
A	8/19/16	Issued for Review	FMP	WP	FMP	FMP
0	9/12/16	Final Issue	FMP	WP	FMP	FMP
1	9/16/16	Revised Final Issue	FMP	WP	FMP	FMP

**James River Power Station  
Run-On & Run-Off Control System Plan**

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I, Franklin M. Parton, Jr., do hereby certify that to the best of my knowledge this document meets the criteria established by the Code of Federal Regulations Subpart D – Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, dated April 17, 2015 (257.81(c)(5)). This certification is based on information, drawings, data, reports, calculations, visual observations, and other document provided by City Utilities, and reviewed personally by me or individuals under my direct supervision and includes documents prepared personally by me or individuals under my direct supervision.



## Run-On & Run-Off Control System Plan

### 1. Introduction

As an existing facility, the JRPS is required to prepare an initial Run-On and Run-Off Control System Plan for the CCR Landfill by October 17, 2016 under 40 CFR 257.81 (c)(3)(i).

The James River Power Station (JRPS) site is owned and operated by City Utilities of Springfield, Missouri, and is located south of the city along the James River. The plant consists of five dual-fueled coal fired (coal or natural gas) boilers. In 2015 City Utilities decided to restrict future operation to burn 100% natural gas in the affected units. Prior to 2016, when the facility burned coal as its primary fuel bottom ash was sluiced to two 19 acre on-site temporary holding ponds. The ash was stored in the ponds until an appreciable volume was reached. The ponds were then drained and the ash excavated and placed within the on-site permitted landfill (see Figure 1 for general locations). The ponds will be excavated one final time and the landfill will be temporarily covered.

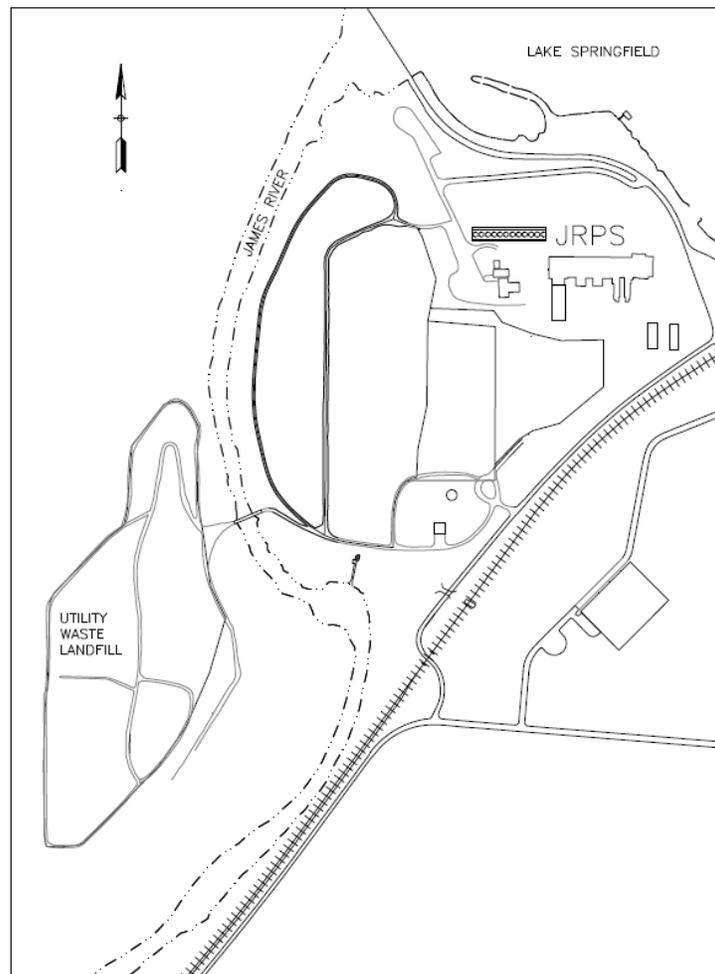


Figure 1

The landfill (17 acre footprint) was originally permitted in 1985 by the Missouri Department of Natural Resources (MDNR) under permit number 707704. In 1993 MDNR issued Permit Number 707705 (replacing 707704) for a 26 acre expansion of the original landfill. A report titled "Engineering Report for Utility Waste Landfill Addition, James River Power Station" prepared by Saul A. Nuccitelli, Inc., provides all detailed run-on and run-off control design calculations (May 1992).

The following is a general sequence of construction for the western expansion area. A perimeter clay berm was constructed around the landfill to provide a bowl for ash to be placed. The clay berm was constructed to an elevation of 1136 feet. A leachate/stormwater collection manhole and pond were also constructed within the bowl. Water collected in the manhole is pumped into one of the ash ponds and is then discharged through permitted NPDES outfall #004. This berm also served to protect the landfill in its initial stage of construction from flood waters. The ash is then placed within the bowl with a minimum slope of 1% toward the manhole/pond. As the landfill is expanded vertically the bowl shape is maintained by constructing starter berms around the perimeter. The starter berms are constructed from ash with a 24 inch clay and 4 inch topsoil cover over the ash. The manhole elevation is then raised to maintain the stormflow detention. This method of construction finalizes the side slopes of the landfill as it is expanded vertically while maintaining drainage control of contact water by use of the on-site pond and manhole.

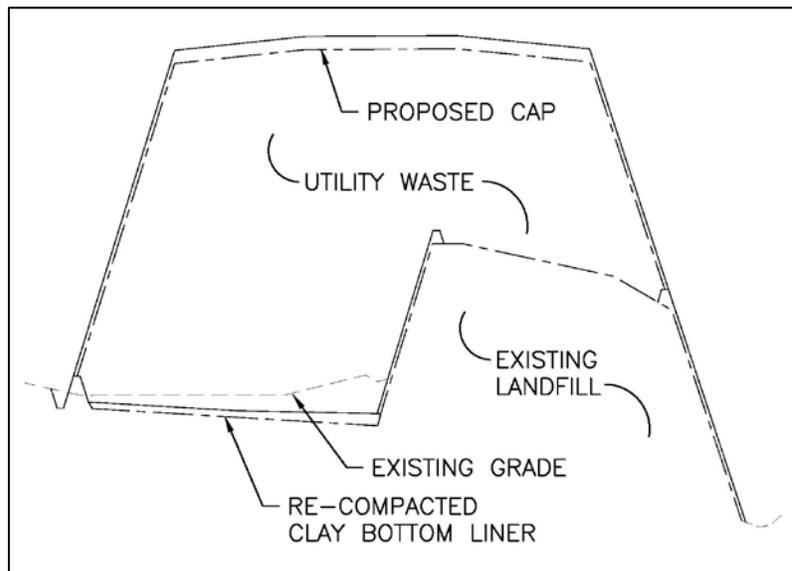


Figure 2

## **2. Regulatory Requirements**

### **2.1 Design Criteria**

The design criteria for the CCR landfill require that 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, [CFR 257.81(a)(1)]. It also requires that 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, [CFR 257.81(a)(2)].

### **2.2 Run-Off Compliance with CFR 257.3-3**

The active portion of the CCR landfill facility is designed such that contact water is collected in a pond with a collection manhole. The contact water is then pumped to the temporary ash holding pond before being discharged through NPDES Outfall #004. This system complies with 40 CFR 257.3-3. Following clean closure of the existing ash holding ponds, collection of the leachate system will be pumped directly to the on-site sewer manhole. Once the system receives city approvals for the design and build out of the new collection system, the new system will comply with the provisions of 40 CFR 257.3-3

### **3. Run-On & Run-Off Control System Plan**

#### **3.1 Landfill Run-On Control**

The Utility Waste Landfill was designed and constructed as an above grade landfill. The clay berm constructed around a portion of the landfill was to an elevation of 1136 feet. The landfill is permitted and sited adjacent to the James River. A HEC-2 analysis was performed (Saul A. Nuccitelli, Inc., 1992) for the James River to determine the 25-year and 100-year flood elevations. The 25-year flood elevation is 1134 feet and the 100-year flood elevation is 1135.5 feet. The berm elevation was set 2 feet higher than the 25-year flood elevation and 0.5 feet higher than the 100-year flood elevation. The topography of the surrounding area is such that only one side of the landfill can contribute run-on. A large swale/ ditch has been constructed on this side of the landfill to route water around the landfill. This ditch was sized to carry the run-on from a 25-year storm (Saul A. Nuccitelli, Inc., May 1992), calculations were reviewed and confirmed be applicable. See Appendix A for a layout of the landfill and ditch system.

#### **3.2 Landfill Run-Off Control**

As designed, a stormwater detention pond is maintained on the top of the landfill to collect contact water. This pond was designed to hold the 100-year storm run-off. All contact water flows to this detention pond. As the landfill is expanded vertically the pond is maintained and the collection manhole is extended upward (Saul A. Nuccitelli, Inc., May 1992). These calculations were reviewed and confirmed to be applicable. Following placement of CCR from closure of the surface impoundments an interim cover will be placed on the landfill. The interim cover will take the landfill from a bowl to a crowned landfill. Once covered with soil contact water will be eliminated.

### **4. Amendment to the Plan**

It is understood that the Run-On and Run-Off Control System Plan may be amended at any time provided that the revised plan is placed in the facility's operating record as required by [CFR 257.105(g)(3)] and that an amendment must be made whenever there is a change in conditions that would substantially affect the current plan. Technical amendments to this plan will be certified by a qualified professional engineer.

### **5. Inspection Plan**

Inspections of the CCR landfill are required under CFR 257.84. These inspections include the run-on and run-off control features of the facility. A summary of the prescribed inspections include:

- **Weekly Inspection Reports:** A qualified person will inspect for any appearance of actual or potential structural weaknesses and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR landfill.
- **Annual Inspection:** A qualified professional engineer will make an annual inspection of the CCR landfill to ensure the design, construction, operation and maintenance of the CCR landfill is consistent with recognized and generally accepted good engineering standards.

### **6. Prescribed Frequency of Revisions**

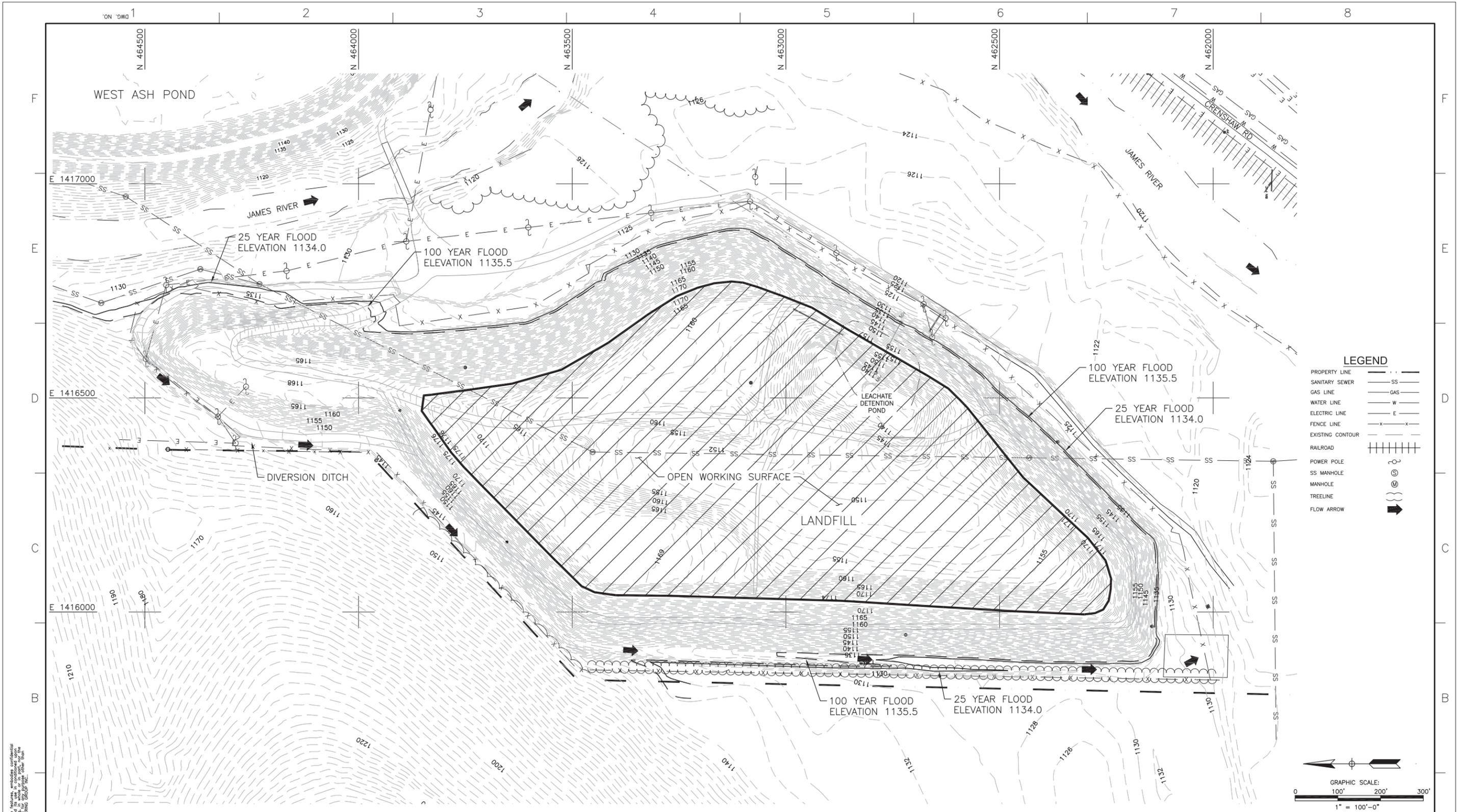
At a minimum, this Run-On and Run-Off Control System Plan will be updated every five years. The deadline for completion is five years from the date the initial plan is placed in the facility's operating record.

## **7. Record Keeping Plan**

This Run-On and Run-Off Control System Plan must comply with the recordkeeping, notification and website requirements described in 40 CFR 257.105(g)(3),(8) and (9), 257.106(g)(3) and (7) and 257.107(g)(3) and (7).

**APPENDIX A**

**JRPS CCR Landfill Run-On and Run-Off Control Systems Site Plan**



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A	ISSUED FOR	JGA						

  
 Connecting Our Community

SIGNATURE	DATE	PROJECT NO:	35DK8201
DRAWN BY: J. ASHWORTH		CAD FILE:	JRPS-01.DWG
DESIGN BY: F.M. PARTON JR			
CHECK BY:			
APPROVED:			


 125 Broadway Ave.  
 Oak Ridge, Tennessee 37830  
 Tel: 865-220-6800  
 Fax: 865-220-6170

**JRPS CCR LANDFILL  
 RUN-ON AND RUN-OFF  
 CONTROL SYSTEMS**

SCALE: 1" = 100'  
 DWG. NO: JRPS-01  
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