

**2018 JRPS LANDFILL INSPECTION REPORT**

**CITY UTILITIES OF SPRINGFIELD, MISSOURI**

**PREPARATION DATE:**

**January 11, 2019**

**TABLE OF CONTENTS**

**INSPECTION REPORT CERTIFICATION..... Page 1**

**WEEKLY LANDFILL INSPECTIONS REVIEW ..... Page 2**

**ANNUAL LANDFILL INSPECTION REVIEW ..... Page 3**

**APPENDIX A (Annual Landfill Inspection Checklist) ..... Page 6**

## JRPS LANDFILL INSPECTION REPORT CERTIFICATION

Gerard Fox, Missouri Professional Engineer, License Number 2013019048 has prepared the 2018 JRPS Landfill Inspection Report herein as required 40 CFR Section 257.84.

Name: Gerard Fox

Signature: 

Date: 1/11/19

Affix Seal Here:



## **1. WEEKLY LANDFILL INSPECTIONS REVIEW**

A City Utilities of Springfield MO (CU) qualified person performed weekly landfill visual inspections of the JRPS landfill each week in the year 2018. Inspections were completed using a Landfill Inspection Checklist prepared by CU. Inspection items include:

- Visible settlement or depressions
- Visible sign of structural weakness
- Proper function/maintenance of run-off system
- Condition present that may disrupt operation
- Surface water percolation minimized
- Adequate vegetation (Capped Areas)
- Visible erosion
- Transverse, longitudinal, or desiccation cracks
- Cap system maintained and operational (Capped Areas)
- Proper placement of waste (Uncapped Areas)
- Dust controlled
- Transverse, longitudinal, or desiccation cracks
- Visible depressions, bulges, sloughs, or slides
- Visible animal burrows
- Presence of leachate collection
- Visible sign of leachate leaving system

During this process each weekly Landfill Inspection Checklist was reviewed along with the corrective action(s) taken for each condition noted on the weekly Landfill Inspection Checklist. CU performed the weekly inspections at least every 7 days as required by the Coal Combustion Residual (CCR) rule. No major issues were reported on the weekly inspections. For the first five months of 2018 it was noted on the inspection forms that adequate vegetation had yet to be established on the newly capped portion of the JRPS Landfill. Visible erosion on the capped portion was noted a few times during the weekly inspections and repaired in a timely manner. Two animal burrows were noted on the weekly inspections for 2018. CU responded to the animal burrows by contacting the United State Department of Agriculture (USDA) to remediate the issue. Overall the weekly landfill inspections and process appears to be functional and appropriate in ensuring the JRPS landfill is operating properly.

## **2. ANNUAL LANDFILL INSPECTION REVIEW**

On January 3, 2019 a CU qualified professional engineer performed an annual inspection on the JRPS Landfill. The inspection was completed using the Landfill Inspection Checklist – Annual form. The annual inspection checklist is attached to this report. Inspection items include:

- Visible settlement or depressions

## 2018 JRPS Landfill Inspection Report

- Visible sign of structural weakness
- Proper function/maintenance of run-off system
- Condition present that may disrupt operation
- Surface water percolation minimized
- Adequate vegetation (Capped Areas)
- Visible erosion
- Transverse, longitudinal, or desiccation cracks
- Cap system maintained and operational (Capped Areas)
- Proper placement of waste (Uncapped Areas)
- Dust controlled
- Transverse, longitudinal, or desiccation cracks
- Visible depressions, bulges, sloughs, or slides
- Visible animal burrows
- Presence of leachate collection
- Visible sign of leachate leaving system
- Review of available operating records
- Review results of weekly inspections
- Review previous annual inspections
- Any visible sign of stress/malfunction of unit or structures
- Any visible changes in geometry
- Approx. volume of CCR in unit
- Liner system maintained and operational

The JRPS landfill appears to be in good working/operating condition. Results of the inspection checklist attached show no actual or potential structural weakness present in or around the JRPS landfill that will disrupt the operation and safety of the CCR unit. Since the last annual inspection, CU has established adequate vegetation on most of the temporary and final capped portions of the JRPS landfill. There are some areas on the west and south east sides capped portions where I would recommend seeding this spring to establish more growth. The water run-off system appears to be working properly in the capped areas with minimal ponding or visible signs of surface water. No fugitive dust was observed during the inspection. Visible erosion was noted on the outer crest of the landfill along the West and Southeast portions of the JRPS landfill. This was most likely caused by the heavy rains received the week before the annual inspection. I recommend these visible erosion issues be fixed promptly as some of the erosion had worn down to the clay cap of the final cover system. Upon inspection the leachate collection system is in good working condition. The temporary cap that was completed in 2017 on the top of the JRPS landfill remains in place. A determination has yet to be made whether CU will discontinue CCR placement landfill or mining of CCR into or from the JRPS Landfill.

## 2018 JRPS Landfill Inspection Report

The landfill operating records were reviewed. The landfill operating record includes daily amount of ash hauled to the landfill as well as records of any maintenance activities including but not limited to; final cover placement, seeding and mowing, outfall water releases, soil cement application, and state inspection reports. It was also noted that the JRPS landfill received two MDNR landfill inspections. One inspection was completed in April 2018 and the other in November 2018. Both inspections resulted in inspection reports stating the landfill was in compliance with MDNR utility waste landfill regulations. Per the USEPA's CCR Rule 40 CFR 257.64 a CCR unit that is located in a "unstable area" is required to demonstrate that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted. On October 16<sup>th</sup>, 2018 CU received a report titled "Landfill Stability Demonstration – James River Power Station Utility Waste Landfill." This report was the result of an investigation performed by GeoEngineers to fulfill the requirements set forth in CCR Rule 40 CFR 257.64. On May 11, 2018 CU received a response letter from the MDNR with regards to a Biennial Airspace Estimate report that was submitted by CU on January 25, 2018. The MDNR's response stated that there were two areas on the outer slopes of the JRPS landfill that exceeded the maximum airspace limit. CU began to investigate the issue and found that the JRPS landfill did indeed exceed the permitted contours by up to five feet in two areas as well as the outer embankment slopes did not meet the 3:1 slope requirements. On June 8, 2018 CU proposed that a static slope stability analysis be completed as well as a modification to the outer embankments to correct the over sloped areas. MDNR responded on June 28, 2018 to the CU proposal by only requiring the static slope stability study be performed to better understand the current state of the concerned slope. The static slope stability analysis was completed by Anderson Engineering and the report titled "Slope Stability Study, Utility Waste Landfill, James River Power Station" was submitted to MDNR on October 1, 2018. Within the Anderson Engineering report, it is stated that the results of the static slope stability study "has shown that the current or existing slopes for the critical portions of the JRPS ash landfill meet and exceed generally accepted standards for slope stability (factor of safety of 1.3 to 1.5)." CU is still awaiting a response from the MDNR as to the next steps that need to be taken in addressing the overfilled and over-sloped areas of the JRPS landfill.

As stated in the Weekly Inspection Report Review section of this report, the weekly landfill inspections were reviewed, verified and determined to be satisfactory.

The CCR rule states that any geometry changes since the last annual inspection and the previous annual inspections reports are to be reviewed as part of this report. The only change made to the geometry of the landfill during 2018 was the removal of a road that was located on top of the temporary cap of the JRPS landfill. This road was causing significant erosion to the landfill surface during heavy rains therefore CU decided to remove it. CU continues strong record keeping of the landfill activities with only minor issues coming up during weekly inspections.

As part of this annual inspection, CU is required to estimate the amount of CCR within the JRPS landfill. CU performed a landfill survey in December 2018. The permitted capacity of the JRPS landfill is

## 2018 JRPS Landfill Inspection Report

1,859,987 cubic yards if all permitted landfill lifts are completed. At the time of the survey the JRPS landfill has approximately 1,552,000 cubic yards of CCR within the landfill leaving the remaining volume of approximately 308,000 cubic yards available for CCR placement.

In conclusion the JRPS landfill appears to be in good working condition. With the exception of few visible erosion areas found during this annual inspection there are no unresolved major issues. CU continues to watch for visible erosion during heavy rainfall events and plans to remedy the situation as quickly and practicably possible. Additionally, CU will continue to address any animal burrows that become active this spring. As stated above I recommend reseeded the areas where vegetation is less established on the west and southeast sides of the landfill during the spring seeding season.

APPENDIX A  
(Annual Landfill Inspection Checklist)



**LANDFILL INSPECTION CHECKLIST-ANNUAL INSPECTION BY PROFESSIONAL ENGINEER**

The CCR landfill is visually examined by a licensed professional engineer as required by §257.84 and is recorded in the facility's operating record as required by § 257.105.

ID: JRPS Landfill	Date Inspected: 1/3/2019	Inspector: Gerad Fox PE	
	<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
<b>CAPPED (INACTIVE)</b>			
A. Visual settlement or depressions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
B. Visible sign of structural weakness?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
C. Proper function/maintenance of run-off system?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
D. Condition present that may disrupt operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
E. Surface water percolation minimized?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
F. Adequate vegetation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 1 Below
G. Visible erosion?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 1 Below
H. Transverse, longitudinal, or desiccation cracks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
I. Cap system maintained and operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 2 Below
J. Visible animal burrows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>UNCAPPED (ACTIVE)</b>			
A. Visible settlement?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
B. Signs of structural weakness?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
C. Proper function/maintenance of run-off system?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
D. Condition present that may disrupt operation?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
E. Proper placement of waste?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
F. Surface water percolation minimized?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
G. Dust controlled?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
H. Visible erosion?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
I. Transverse, longitudinal, or desiccation cracks?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
J. Visible depressions, bulges, sloughs, or slides?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
K. Visible animal burrows?	<input type="checkbox"/>	<input type="checkbox"/>	N/A-No portion of landfill is uncapped
<b>LEACHATE COLLECTION</b>			
A. Presence of leachate collection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
B. Visible sign of leachate leaving system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**LANDFILL INSPECTION CHECKLIST (continued)**

	YES	NO	COMMENTS
<b>ADDITIONAL ANNUAL INSPECTION ITEMS</b>			
A. Review of available operating records?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
B. Review results of weekly inspections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
C. Review previous annual inspections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
D. Any visible sign of stress/malfunction of unit or structures?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
E. Any visible changes in geometry?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
F. Approx. volume of CCR in unit?	1,552,000 CY		
G. Liner system maintained and operational?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

**ADDITIONAL COMMENTS:**

Note 1: Visible erosion was present on the west and southeast side of landfill. Where visible erosion was present was mainly in areas where vegetation was established but not as well as other areas on the landfill final cover system. I recommend fixing the eroded areas. My second recommendation would be to reseed the areas.

Note 2: A temporary cap system was completed in 2017 on the top of the JRPS landfill and it remains in place. A determination has yet to be made whether CU will discontinue CCR placement landfill or mining of CCR into or from the JRPS Landfill.

Inspector Signature and Seal:


