



Annual Inspection Report  
Lawrence Energy Center  
Inactive Units - Ash Pond Area 2, Ash Pond Area 3,  
and Ash Pond 4

Prepared for:  
Westar Energy  
Lawrence Energy Center  
Lawrence, Kansas

Prepared by:  
CB&I Environmental & Infrastructure, Inc.

June 2017



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## CCR Regulatory Requirements

USEPA CCR Rule Criteria 40 CFR §257.83	Lawrence Energy Center (LEC) Annual Inspection Report
<p>§257.83(b)(1)(i) stipulates:</p> <p><i>“(b) Annual inspections by a qualified professional engineer. (1) If the existing or new CCR surface impoundment or any lateral expansion of the CCR surface impoundment is subject to the periodic structural stability assessment requirements under §257.73(d) or §257.74(d), the CCR unit must additionally be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:</i></p> <p><i>(i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by §§257.73(c)(1) and 257.74(c)(1), previous periodic structural stability assessments required under §§257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections);”</i></p>	<p>Section 3.0</p>
<p>§257.83(b)(1)(ii) stipulates:</p> <p><i>“(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures;”</i></p>	<p>Section 4.1</p>



USEPA CCR Rule Criteria 40 CFR §257.83	Lawrence Energy Center (LEC) Annual Inspection Report
<p>§257.83(b)(1)(iii) stipulates:</p> <p><i>“(iii) A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.”</i></p>	<p>Section 4.2</p>
<p>§257.83(b)(2)(i) stipulates:</p> <p><i>“(2) Inspection report. The qualified professional engineer must prepare a report following each inspection that addresses the following:</i></p> <p><i>(i) Any changes in geometry of the impounding structure since the previous annual inspection;”</i></p>	<p>Section 5.1</p>
<p>§257.83(b)(2)(ii) stipulates:</p> <p><i>“(ii) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;”</i></p>	<p>Section 5.2</p>
<p>§257.83(b)(2)(iii) stipulates:</p> <p><i>“(iii) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;”</i></p>	<p>Section 5.3</p>



USEPA CCR Rule Criteria 40 CFR §257.83	Lawrence Energy Center (LEC) Annual Inspection Report
§257.83(b)(2)(iv) stipulates:  <i>“(iv) The storage capacity of the impounding structure at the time of the inspection;”</i>	Section 5.4
§257.83(b)(2)(v) stipulates:  <i>“(v) The approximate volume of the impounded water and CCR at the time of the inspection;”</i>	Section 5.5
§257.83(b)(2)(vi) stipulates:  <i>“(vi) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures;”</i>	Section 5.6
§257.83(b)(2)(vii) stipulates:  <i>“(vii) Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.”</i>	Section 5.7



USEPA CCR Rule Criteria 40 CFR §257.83	Lawrence Energy Center (LEC) Annual Inspection Report
<p>§257.83(b)(4) stipulates:</p> <p><i>“(4) Frequency of inspections. (i) Except as provided for in paragraph (b)(4)(ii) of this section, the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility’s operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility’s operating record as required by §257.105(g)(6).”</i></p>	<p>Section 1.0</p>
<p>§257.83(b)(5) stipulates:</p> <p><i>“(5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.”</i></p>	<p>Section 6.0</p>
<p>§257.83(c) stipulates:</p> <p><i>“(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in §257.105(g), the notification requirements specified in §257.106(g), and the internet requirements specified in §257.107(g).”</i></p>	<p>Section 7.0</p>



## 1.0 INTRODUCTION

CB&I Environmental and Infrastructure, Inc. (CB&I) has prepared the following Annual Inspection Report (Report) at the request of Westar Energy (Westar) for the inactive coal combustion residual (CCR) surface impoundments located at the Lawrence Energy Center (LEC) in Lawrence, Kansas. The inactive surface impoundments include the Ash Pond Area 2 (Area 2 Ponds), Ash Pond Area 3 (Area 3 Ponds), and the Scrubber Supply Pond (Area 4 Pond).

The Area 2, 3, and 4 Ponds have been deemed to be regulated, inactive CCR units by the United States Environmental Protection Agency (USEPA), through the Disposal of Coal Combustion Residuals from Electric Utilities Final Rule (CCR Rule) 40 CFR §257 and §261. On July 26, 2016 the USEPA extended the CCR Rule requirements for certain inactive CCR surface impoundments. Westar is currently in the process of conducting clean closure and removal of CCR (per §257.100(b)) within the inactive Area 2, 3, and 4 Ponds to prepare for construction of a Kansas National Pollutant Discharge Elimination System (NPDES) regulated pond system. All facility water containing CCR material is managed in settling tanks. CCR material from the Area 2, 3, and 4 Ponds is being disposed of in Industrial Landfills No. 847 and No. 600 (until 2012) at LEC. Westar intends to complete closure of the Area 2, 3, and 4 Ponds in order for construction of the NPDES regulated pond system to begin in 2018.

The regulated impoundment for the Area 2, 3, and 4 Ponds is the outer perimeter dike of an entire pond system. The ponds are separated by internal dikes that have been constructed to provide additional stilling areas that improve water quality prior to discharge. The internal dikes are not regulated impoundments and are not required for public safety requirements. This is demonstrated by the fact that the complete removal of these dikes would only connect adjacent ponds that are already contained by the regulated perimeter impoundment dike. The condition of the ponds were reviewed as part of this annual inspection because the ponds are the identified water bodies associated with the impoundment. However, the evaluation of the impoundment with respect to the CCR Rule focuses on the condition of the perimeter impoundment dike only.

In support of compliance to the CCR Rule, Mr. Richard Southorn (a qualified professional engineer with CB&I) conducted an on-site inspection of the Area 2, Area 3, and Area 4 Ponds on May 15, 2017. Prior to inspection, CB&I personnel reviewed the relevant portions of LEC's permit application and operating record in relation to this Report, under the direct supervision of Mr. Southorn. This Report meets the requirements set forth within 40 CFR §257.83(b)(1) and (b)(2), based on the review of available information and visual observation, to evaluate if the design, construction, operation, and maintenance of the Surface Impoundment is consistent with good engineering standards. The annual pond inspections have been conducted and completed in compliance with the frequency of inspection timeframe set forth in §257.83(b)(4).



## 2.0 AREA 2, AREA 3, AND AREA 4 PONDS OVERVIEW

Westar owns and operates a series of clarifying ponds for process water at LEC in Douglas County. The ponds are encompassed by a regulated impoundment under the CCR Rule. LEC is located approximately 3 miles northwest of Lawrence, Kansas, is bounded by the Kansas River and resides in Sections 13 and 14, Township 12 South, Range 19 East. The locations of the Area 2, Area 3, and Area 4 Ponds are depicted in **Figure 1**.

The Area 2, 3, and 4 Ponds stopped receiving CCR prior to October 2015. The ponds are separated into three “areas”, termed Areas 2, 3, and 4, as noted below:

- ❑ Area 2 Ponds
  - Pond 501
  - Pond 502 (dewatered and in the process of clean closure)
  - Pond 503 (dewatered to support clean closure)
  - West Pond
  - Laydown Area
  - Storm Water Settling Pond
  
- ❑ Area 3 Ponds
  - Pond 401
  - Pond 402
  - Pond 403
  - Pond 404
  
- ❑ Area 4 Pond – Scrubber Supply Pond (was clean closed in August 2016)

Historically the Area 2, 3, and 4 Ponds received CCR material from the plant, plant process water, and runoff. The CCR material traveled from the Area 2 Ponds and then to the Area 3 and 4 Ponds, before being discharged to the Kansas River via Outfall 001BV (Kansas NPDES Permit No. I-KS-31-PO09). As each pond was progressively filled, the ponds were dewatered and the CCR material was excavated and placed in the Industrial Landfill No. 847 and 600 (until 2012) Landfills. CCR material was distributed to different ponds within each area depending on the availability of capacity.

Currently a reconfiguration of the Area 2, 3, and 4 Ponds is being undertaken. With the Area 4 Pond closed, plant process water flows from the Area 2 Ponds (with the exception of Ponds 502 and 503) to the Area 3 Ponds prior to discharge to the Kansas River through Outfall 001BV. Details of the CCR removal inspection certification and reports for the Area 4 Pond can be found in **Appendix A**. The existing site topography from a 2016 survey conducted by Professional Engineering Consultants (PEC) for the Area 2, 3, and 4 Ponds is depicted in **Figure 2**.

A perimeter impoundment dike surrounds the Areas 2, 3, and 4 Ponds and was originally constructed to tie into the natural grades near the southern portion of the Area 2 Pond and the eastern portion of the Area 4 Pond. The crest of the perimeter dike is at approximately 839 feet Mean Sea Level (ft MSL) with side slopes of 3H:1V, providing a maximum height of 15 feet located in the northwest section. The crest width is approximately 30 feet.



### **3.0 REVIEW OF AVAILABLE INFORMATION**

Prior to the on-site inspection, Mr. Southorn reviewed the available information for the Surface Impoundments as provided by Westar:

- Coal Combustion Waste Impoundment Round 7 – Dike Assessment Report, March 2011, Dewberry & Davis, LLC
- Evaluation of Ash Pond Berm Stability, December 2009, Golder Associates, Inc.
- NPDES Permit No. I-KS31-PO09

Mr. Southorn verified the available information during the on-site inspection on May 15, 2017.

#### **3.1 Summary of Previous Annual Inspection Report**

Golder Associates conducted a visual inspection of the ash pond systems and berms on October 26, 2009 as described in the Evaluation of Ash Pond Stability Report. No cracking, seepage, or extreme settlement was observed at the perimeter dike crest. It was noted that the toe of the perimeter dike was generally in good condition but was heavily vegetated by grass and mature trees. It was recommended that quarterly observations on the dike crest and downstream dike slope to identify changing conditions and to ensure that the inflow and outflow structures continued to be managed in accordance with the design.

Dewberry & Davis conducted field observations on September 24, 2010 on behalf of the EPA to verify no visible parts of the embankments that had signs of overstress, significant settlement, shear failure, or other signs of instability. The thick vegetation at the site inhibited their observations in some areas. It was recommended that the portions of large vegetative growth should be removed to prevent potential seepage paths in the embankment and allow for easier inspection.



## **4.0 INSPECTION SUMMARY**

The on-site inspection focused on standard geotechnical signs of distress or malfunction of the impoundment dike. The slopes were reviewed to determine whether lumping at the toe of slopes, tensile cracking, abnormal or excessive erosion on the side slopes and drainage channels, groundwater/surface water seepage, and conveyance structure function and design were present. These visual signs are potential indicators of structural weakness or malfunction of the impoundment.

### **4.1 Visual Signs of Distress or Malfunction**

During the on-site inspection, slope appearance, slope stability, and overall site conditions of the perimeter dike and pond systems were assessed. Woody vegetation had been removed from the perimeter impoundment dike as previously recommended, allowing for a full visual examination. No erosion or sloughing was observed along the perimeter dike. No signs of distress or malfunction were observed.

Pond 502 (in the Area 2 Ponds system) and the Area 4 Pond were in the process of being closed during the inspection. The remaining Area 2 and 3 Ponds were in the process of being dewatered.

### **4.2 Review of Hydraulic Structures**

The hydraulic structures Area 2 and 3 Ponds (with the exception of Pond 502) were functioning as intended as the time of inspection. The Area 4 Pond and Ponds 502 and 503 (in the Area 2 Ponds) were dewatered and under construction at the time of annual inspection. Therefore, the hydraulic structures and stormwater conveyance systems at the Area 4 Pond and Ponds 502 and 503 were not in operation.



## **5.0 EVALUATION OF GEOMETRY, STABILITY AND OPERATIONS**

Based on a review of the available facility information and on-site inspection, the following conclusions were developed.

### **5.1 Changes in Geometry**

Westar is currently in the process of conducting clean closure and removal of CCR within the inactive Area 2, 3, and 4 Ponds to prepare for construction of an NPDES regulated pond system. Therefore, the topography has changed since the previous visual inspections conducted by Dewberry & Davis in 2010. However it can be seen most of the elevations are similar when comparing the elevations of Pond 501 in the Area 2 Ponds and the Area 3 Ponds in the 2016 survey to the elevations in the 2009 visual inspection figures.

### **5.2 Instrumentation Readings**

There are no instrumentation devices associated with the hydraulic structures, impoundment embankments, perimeter dike, or slope performance has been installed at or near the Area 2, 3, and 4 Ponds.

### **5.3 Impounded Water Elevation**

The lowest point in the Area 2 Ponds in the 2016 survey, conducted by Professional Engineering Consultants (PEC), was 822 ft MSL (located in the West Pond), 821 ft MSL in the Area 3 Ponds (Pond 404), and 837 ft MSL in the Area 4 Pond. The maximum and minimum depths of impounded water frequently changed depending on the amount of process water or stormwater in the pond systems at a given time. At the time of inspection, there was no impounded water in Pond 502, Pond 503, or in the Area 4 Pond.

In the remaining Area 2 and 3 Ponds CCR material depths vary greatly due to the continual deposit, dewatering, and dredging of CCR materials. Currently there is no maximum or minimum CCR depth in the Pond 502 or in the Area 4 Pond due to the ongoing closure of these pond systems.

### **5.4 Remaining Storage Capacity**

The Area 2 and 3 Ponds are currently inactive. Plant process water currently flows through the West, 404 and 401 Pond prior to discharge. Later this year, as construction proceeds, the plant will process water through the concrete ponds, 501, 502, 503 and 401 prior to discharge. The remaining storage capacity in the Area 2 and 3 Ponds ranges from almost zero to the highest elevation of the berm for the pond systems. The remaining CCR material storage capacity within the Pond 502 and the Area 4 Pond at the time of inspection was zero due to the ponds being in the process of clean closure. It was determined in the 2009 Westar Response to the USEPA Request for Information that the total storage capacity of the Area 2, 3, and 4 Ponds was 273 acre-ft, 185 acre-ft, and 70.5 acre-ft, respectively.



## **5.5 Impounded Water and CCR Volumes**

At the time of inspection, there was no impounded water in Pond 502, Pond 503, or in the Area 4 Pond due to the ponds being in the process of clean closure. The volume of water in the remaining Area 2 and 3 Ponds varies greatly depending on the plant operations and stormwater conditions. With the exception of the West Pond in Area 2 and Pond 404 in Area 3, all Area 2 and 3 Ponds are currently in the process of being dewatered.

In the Area 2 and 3 Ponds, CCR material is distributed to different cells within each area depending on the availability of space. This made the amount of CCR material in each pond vary from minimal to almost at capacity. There is no permanent disposal of material in the Area 2 and 3 Ponds. Additionally, due to clean closure there would be no CCR material volume within Pond 502 or the Area 4 Pond.

## **5.6 Structural Weakness and Disrupting Conditions**

At the time of this inspection, there were no signs of distress or malfunction that would indicate actual or potential structural weakness of the perimeter impoundment dike. There was no indication that existing conditions or closure activities at the Area 2, 3, and 4 Ponds have disrupted or have the potential to disrupt safety or operations.

## **5.7 Changes Affecting Stability and Operations**

There have been no changes to the perimeter dike or the Area 2, 3, and 4 Ponds from the previous site inspections that pose a threat or concern to the stability of the perimeter dike. Operations and maintenance have not deviated from the original designed plan.



## 6.0 RECOMMENDATIONS

Based on the on-site inspection performed on May 15, 2017, CB&I recommend the following actions:

- Continue to perform typical maintenance activities on the Area 2, 3, and 4 Ponds and perimeter dike; and
- Continue to monitor and maintain erosion controls.



## **7.0 RECORDS RETENTION AND MAINTENANCE**

### **7.1 Incorporation of Plan into Operating Record**

§257.105(g) of 40 CFR Part §257 provides record keeping requirements to ensure that this Plan will be placed in the facility's operating record. Specifically, §257.105(g) stipulates:

*§257.105(g): "(g) Operating criteria. The owner or operator of a CCR unit subject to this subpart must place the following information, as it becomes available, in the facility's operating record: (6) The periodic inspection report as required by §257.83(b)(2)."*

This Report will be placed within the Facility Operating Record upon Westar's review and approval.

### **7.2 Notification Requirements**

§257.106(g) of 40 CFR Part §257 provides guidelines for the notification of the availability of the initial and periodic plan. Specifically, §257.106(g) stipulates:

*§257.106(g): (g) Operating criteria. The owner or operator of a CCR unit subject to this subpart must notify the State Director and/or appropriate Tribal authority when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must: (5) Provide notification of the availability of the periodic inspection reports specified under §257.105(g)(6)."*

The State Director and appropriate Tribal Authority will be notified upon placement of this Plan in the Facility Operating Record.

§257.107(g) of 40 CFR Part §257 provides publicly accessible Internet site requirements to ensure that this Plan is accessible through the Westar Energy webpage. Specifically, §257.107(g) stipulates:

*§257.107(g): (g) Operating criteria. The owner or operator of a CCR unit subject to this subpart must place the following information on the owner or operator's CCR Web site: (5) The periodic inspection reports specified under §257.105(g)(6)."*

This Plan will be uploaded to Westar Energy's CCR Compliance reporting Website upon Westar's review and approval.



## 8.0 PROFESSIONAL ENGINEER CERTIFICATION

The undersigned registered professional engineer is familiar with the requirements of the CCR Rule and has visited and examined LEC or has supervised examination of the LEC by appropriately qualified personnel. I hereby certify based on a review of available information within the facility's operating records and observations from my personal on-site inspection (including the photographs contained in **Appendix B**), that the Area 2, 3, and 4 Ponds do not exhibit any appearances of actual/potential structural weakness that would be disruptive to the normal operations of the LEC CCR Units. The units are being operated and maintained consistent with recognized and generally accepted good engineering standards and practices. This certification was prepared as required by 40 CFR Part §257.83(b).

Name of Professional Engineer: Richard Southorn

Company: CB&I

Signature: 

Date: 6/15/17

PE Registration State: Kansas

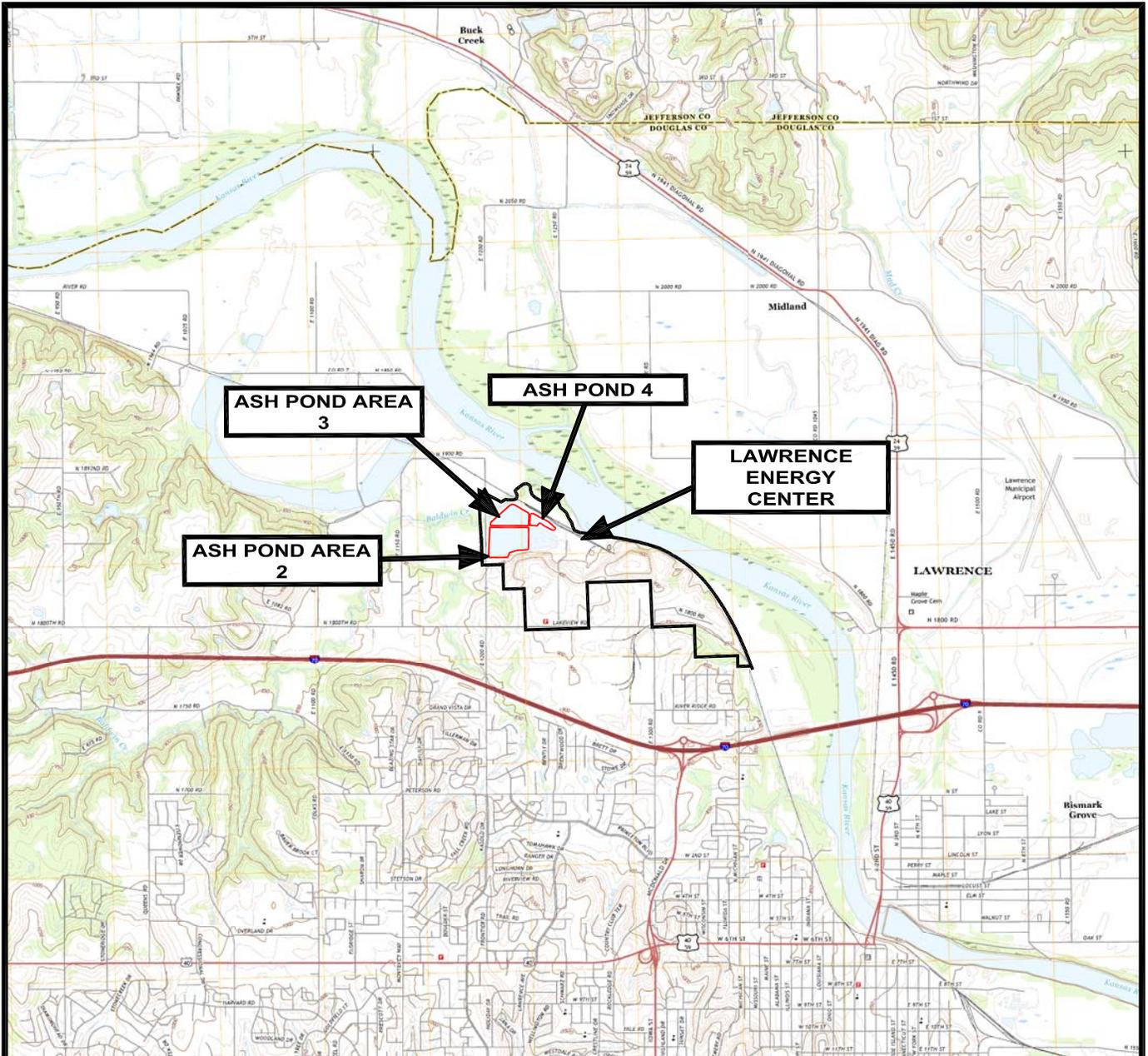
PE Registration Number: PE25201

Professional Engineer Seal:



# FIGURES

- Figure 1 – Inactive Units - Ash Pond Area 2, Ash Pond Area 3, Ash Pond 4, Site Location Plan
- Figure 2 – Inactive Units - Ash Pond Area 2, Ash Pond Area 3, Ash Pond 4, Existing Site Topography
- Figure 3 – Inactive Units - Ash Pond Area 2, Ash Pond Area 3, Ash Pond 4, Photo Log

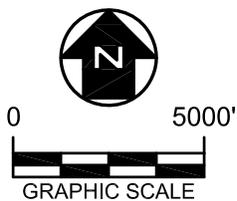


**LEGEND**

- LAWRENCE ENERGY CENTER FACILITY BOUNDARY
- CCR UNIT BOUNDARY

**NOTES**

1. AERIAL TOPO OBTAINED FROM USGS 7.5-MINUTE SERIES, LAWRENCE EAST, LAWRENCE WEST, MIDLAND AND WILLIAMSTOWN QUADRANGLE, KANSAS, 2014.
2. ALL BOUNDARIES ARE APPROXIMATE.



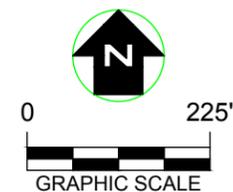
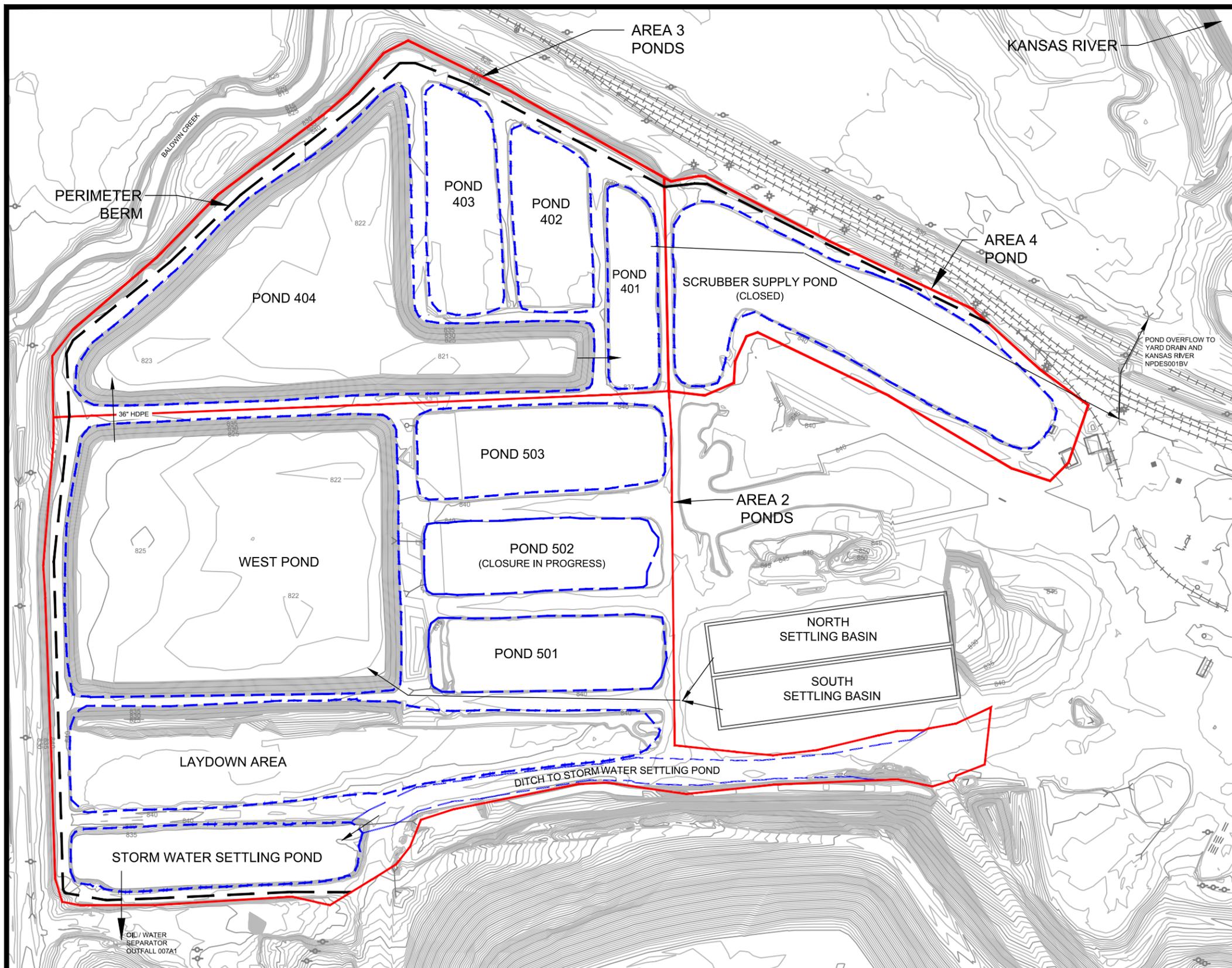
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**LAWRENCE ENERGY CENTER  
1250 N. 1800 RD., LAWRENCE, KS.**

**FIGURE 1  
INACTIVE UNITS - ASH POND AREA 2, ASH POND AREA 3, ASH POND AREA 4  
SITE LOCATION PLAN**

APPROVED BY: RDS PROJ. NO.: 631224603 DATE: JUNE 2017



**LEGEND**

- APPROXIMATE POND AREA BOUNDARY
- - - - APPROXIMATE POND BOUNDARY
- - - - APPROXIMATE PERIMETER BERM LOCATION
- WATER FLOW DIRECTION

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY PEC IN JUNE 2016.
2. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
3. ALL BOUNDARIES AND FEATURE LOCATIONS ARE APPROXIMATE.

REV. NO.	DATE	DESCRIPTION



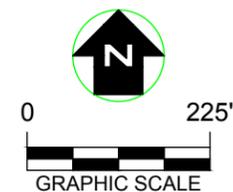
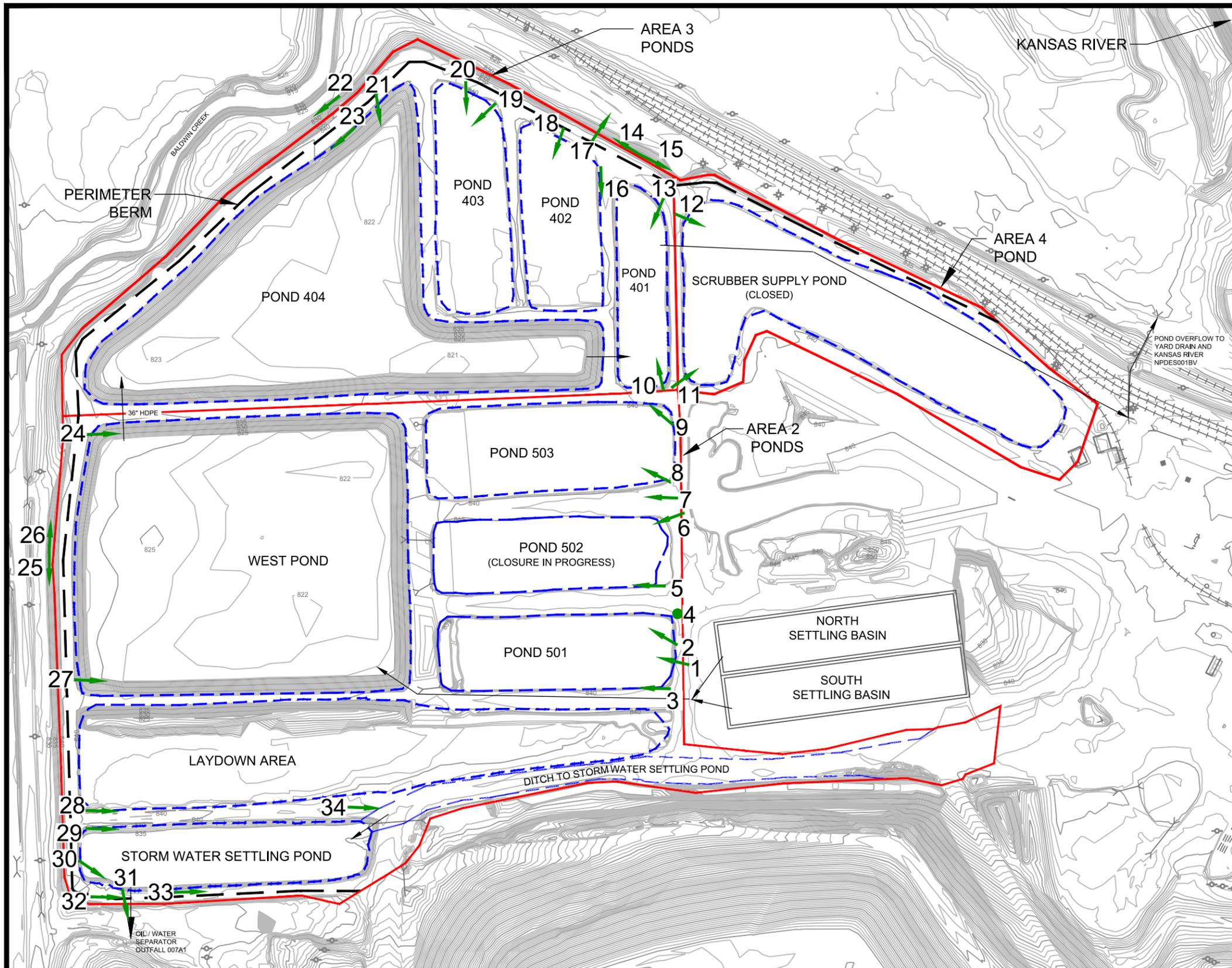
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**1250 N 1800 RD. LAWRENCE, KANSAS**

**FIGURE 2**  
**INACTIVE UNITS - ASH POND AREA 2, ASH POND AREA 3, ASH POND 4**  
**EXISTING SITE TOPOGRAPHY**

DRAWN BY:	ORC	APPROVED BY:	RDS	PROJ. NO.:	631224603	DATE:	JUNE 2017
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**LEGEND**

- APPROXIMATE AREA BOUNDARY
- - - APPROXIMATE POND BOUNDARY
- - - APPROXIMATE PERIMETER BERM LOCATION
- WATER FLOW DIRECTION

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY PEC IN JUNE 2016.
2. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.

REV. NO.	DATE	DESCRIPTION



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**LAWRENCE ENERGY CENTER**  
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**FIGURE 3**  
**INACTIVE UNITS - ASH POND AREA 2, ASH POND AREA 3, ASH POND 4**  
**PHOTO LOG**

DRAWN BY:	ORC	APPROVED BY:	RDS	PROJ. NO.:	631224603	DATE:	JUNE 2017
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# APPENDIX A

Certification of CCR Removal from the Scrubber Supply  
Pond





May 30, 2017

Westar Energy  
818 South Kansas Avenue  
Topeka, KS 66612

Subject: LEC Pond 4 – Observation of CCR Removal

Westar Energy (Westar) operates the coal-fired Lawrence Energy Center (LEC) located at 1250 North 1800 Road, Lawrence, Kansas 66049. Pond 4 was the final clarifying pond within the pond system used to manage the process water for the power plant.

Westar had designated Pond 4 as an inactive CCR surface impoundment as defined by USEPA Final CCR Rule, 40 CFR Part §257.53. Ash Pond 4 had stopped receiving CCR prior to October 2015 and Westar is in the process of closing this impoundment per the requirements of §257.102(c) *Closure by Removal of CCR*. Black & Veatch was retained to observe the excavation of the CCR material.

In accordance with the EPA final rule, Westar Energy has removed all CCR from the Ash Pond 4 and removed all equipment, structures and surrounding soils. The inactive impoundment was removed from service by redirecting plant process water. Byproduct material was then excavated from the limits of the impoundment and hauled to the on-site industrial landfill No. 847.

**PROFESSIONAL ENGINEER CERTIFICATION**

The undersigned engineer is familiar with the requirements for clean closure in accordance with §257.102 and has observed the removal of CCR materials from Lawrence Energy center Pond 4.



05/30/2017  
Gary Sommerfeld, P.E.  
Kansas 11172

---





Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>1</u>
Date	<u>9 August 2016</u>

Observation Time 9:00 a to 11:30 a  
4:00 p to 5:00 p

Weather Conditions Sunny, High 90's, Light wind

**GENERAL OBSERVATION NOTES**

Arrived at the Plant office at about 8:55 and met Paul Von Herstenberg with Westar. We discussed the work of removing the bottom ash from the pond. We walked to the bottom ash pond site. The Contractor had pushed good soil out to create a work platform for one backhoe. The backhoe was excavating around the south and east sides of the platform. There was only one 2-inch pump to remove water from the base of the excavation to an upper holding pond located to the west. There was another 2-inch pump at the upper holding pond used to remove water to another drainage area to the west. The base of the excavated area was about 5 to 6 feet below the base slab of the intake structure that is located on the east side of the pond. The base slab had been the approximate original bottom elevation of the pond, but apparently the drag line dredge had excavated below the base of the pond in some areas. The Westar employees understand that most of the drag line work was near the intake structure.

I talked to Danny Schmidtlein as he was operating the backhoe at the work platform. We agreed that the base of the pond was cleaned to the south and within about 30 feet to the west of the work platform, but there was still bottom ash near the base of the embankment along the area from about 30 feet east of the platform and farther to the west. Danny asked if I could come back this afternoon and check the base of the remaining portion of the work area.

The base of the excavation was near the ground water level and the 2-inch pump was having difficulty maintaining a suitable base to make observations. The Contractor had been placing fly ash into the base of the pond to dry up the bottom ash and make it easier to pick up with a bucket. So all the fly ash transported to the excavation was also being removed with the bottom ash.

I returned to the site at 4:00 p.m. and observed the excavation farther to the east of the work platform. The cleared area is shown on the attached figure.

DESCRIPTION:  
Bottom Ash Pond 4 Work Area. The second backhoe is on the work platform.

9 August 2016



**WESTAR - LEC**  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 9, 2016



Soil placed for backhoe. This is placed on CCR

CCR Removed 08/09

Google earth

600 ft





Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>2</u>
Date	<u>10 August 2016</u>

Observation Time 8:10 a to 11:15 a  
4:00 p to 5:00 p

Weather Conditions Sunny, High 90's, Light wind

**GENERAL OBSERVATION NOTES**

Arrived at the plant site at 8:10 and met with Paul Von Herstenberg. I asked Paul if Westar had a work schedule from the Contractor, but there is no schedule. The Contractor is to continue work until all the bottom ash has been removed.

The Contractor now has an 8-inch pump with the 2-inch pump to remove water from the base of the excavation and the more of the base area can be observed. Clean soil was being used to fill the area that had been observed as clean from the previous day. A backhoe near the intake structure was cleaning the bottom ash from the embankment area just to the west of the intake. The bottom ash was encountered to a depth between 6 feet to 8 feet below the intake's base slab and the deeper areas were on the north side of the impoundment in the approximate location of the drag line.

I continued the observation until the backhoe had excavated into the embankment to expose clean soil. I talked to Danny Schmidlein and he confirmed that they would continue to bring in good soil in the clean areas, but would leave a drainage path between the clean soil and the bottom ash on the south side of the pond. Therefore the clean soil would not come in contact with the bottom ash at the new interface. Danny said the plan is to continue to clean the area on the north side of the impoundment to provide a wider drive area for the dump trucks. The Contractor was still bringing in fly ash to mix at the bottom of the impoundment and make it easier to bucket into the dump trucks.

I returned to the site at 4:00 to observe bottom ash removal on the west side of the work platform. The backhoe was working on the impoundment within a distance of about 90 feet west of the work platform, but there were still pockets of bottom ash observed within the area. Danny Schmidlein and I agreed that the work was not fully cleaned and I plan to return tomorrow at about 11:00a to observe this area.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160810 - 1
DESCRIPTION: Excavating bottom ash at northeast corner of impoundment.		
10 August 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160810 - 2
DESCRIPTION: New fill at Northeast Corner.		
10 August 2016		

WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 10, 2016



Soil placed for backhoe. This is placed on CCR

CCR Removed 08/10

Google earth

600 ft





Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>3</u>
Date	<u>11 August 2016</u>

Observation Time 11:00 a to 12:30 p

Weather Conditions Sunny, High 90's, Light wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 11:00am and Paul was going to a meeting. I went to the excavation site to observe the bottom ash removal work. Two backhoes were working in the area west of the work platform to clear the bottom ash from the base. For this work the cleaned area was between 4 feet and 6 feet below the base slab of the intake structure. The work area was observed to be cleaned of bottom ash including at the toe of the embankment below the backhoes. I talked to Danny Schmidtlein and he was concerned that rain was expected tomorrow. We agreed to the existing limits of the work platform that had constructed prior to August 9 and that area would be excavated next. Danny said he would remove the soil from the work platform and use it on the cleaned area, but would then excavate the bottom ash under that work area.

The photos show the similar colors between the bottom ash and native soils in some locations. Also the photos show the work that has been continuing in the west area of the impoundment.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160811 - 1
<b>DESCRIPTION:</b> Two backhoes west of pump.		
11 August 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160811 - 2
<b>DESCRIPTION:</b> Cleaned Subgrade		
11 August 2016		

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160811 - 3
<p>DESCRIPTION: Similar colors of bottom ash and subgrade</p>		
11 August 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160811 - 4
<p>DESCRIPTION: Excavating bottom ash at far west side of impoundment</p>		
11 August 2016		

WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 11, 2016

CCR Removed 08/11

Soil placed for backhoe. This is placed on CCR

Google earth

600 ft





Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>4</u>
Date	<u>13 August 2016</u>

Observation Time 8:00 a to 9:30 a

Weather Conditions Sunny, Low 80's, Light wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:00 a.m. There had been rain on the previous day and there had been no excavation at the bottom ash pond. One backhoe had removed work platform area that had been placed prior to August 9. The backhoe had excavated below the clean soil and was excavating material that was partially bottom ash and partially native soil. This area was cleaned of the bottom ash including the north embankment within that area. This excavated area was about 4 to 6 feet below the concrete slab at the intake structure.

In addition, another backhoe had cleaned the bottom ash from another strip along the north side of the impoundment. The size of the strip was about 40 feet by 90 feet. This cleaned area was between 3 and 4 feet below the elevation of the concrete intake slab. With this strip, the Contractor can add more clean fill to the north side of the impoundment and build an additional haul road to get more trucks to the backhoes. Also, more bottom ash can be reached from the clean fill area.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160813 - 1
DESCRIPTION: Excavated area of the work area constructed before August 9		
13 August 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160813 - 2
DESCRIPTION: Clean base located west of August 11 area.		
13 August 2016		

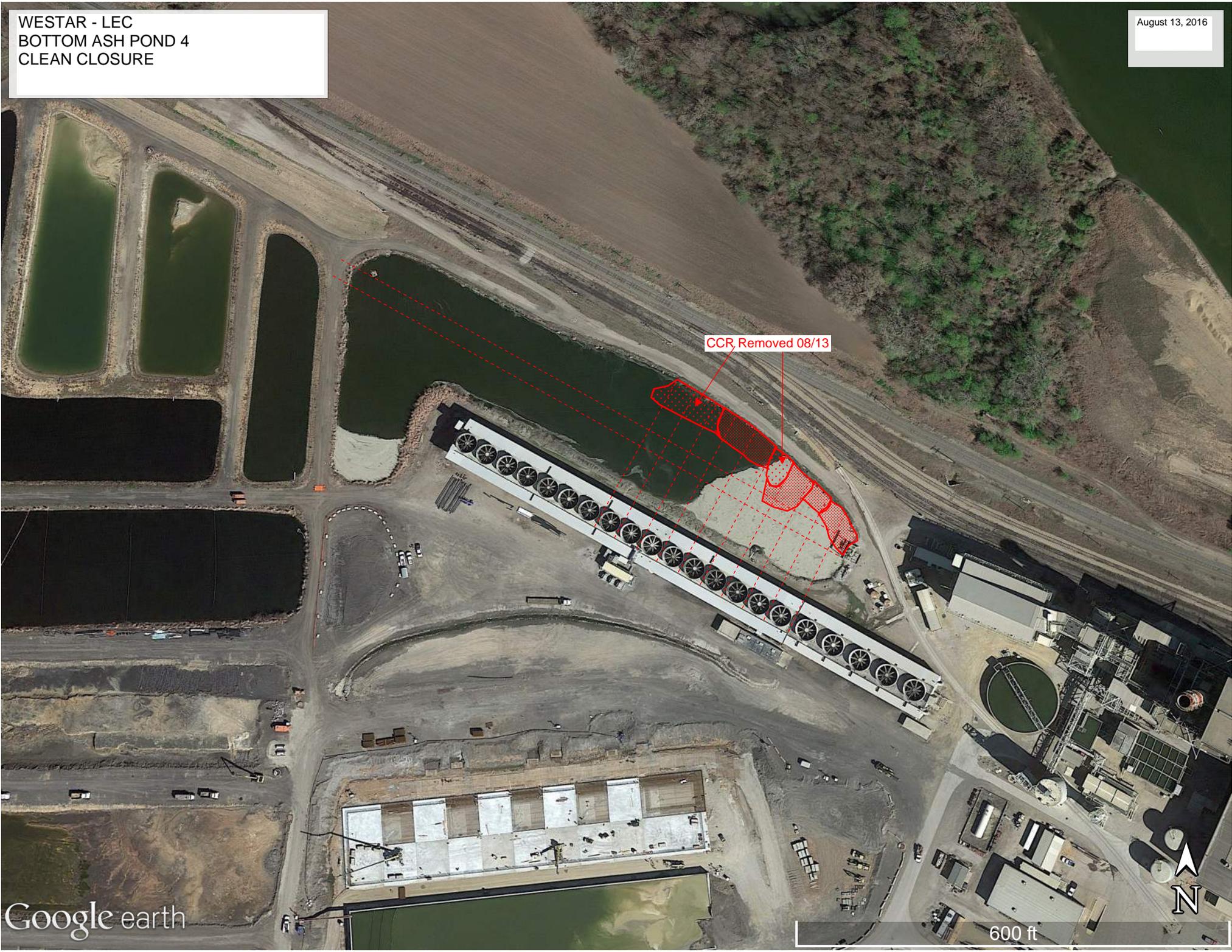
WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 13, 2016

CCR Removed 08/13

Google earth

600 ft





Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>5</u>
Date	<u>18 August 2016</u>

Observation Time 8:00 a to 9:30 a  
3:00 p. 4:00 p

Weather Conditions Sunny, Low 80's, Light wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:00 a.m. The Contractor has cleaned the base of the pond adjacent to the intake structure, but toward the south side of the impoundment. There was still some bottom ash on the south slope, but the interface between the bottom ash and native soil was easily observable. Groundwater was easily controlled in this area and the bottom of the excavation was about 3 feet to 4 feet below the slab on the intake structure

I returned to the site at 3:00 p.m. and the excavation was completed in an area along the north portion of the impoundment and farther to the west. The far south area of the impoundment and adjacent to the cooling tower still has bottom ash that can be observed next to the excavation drainage trench. This bottom ash has had sliding failures as the areas along the north have been excavated to native soil.

<p>Pond 4 Clean Closure</p>	<p>LEC – Bottom Ash Pond 4</p>	<p>Photo No: 20160818 - 1</p>
<p>DESCRIPTION: Excavated work Area adjacent to intake at southeast corner of pond.</p>		
<p>18 August 2016</p>		
<p>Pond 4 Clean Closure</p>	<p>LEC – Bottom Ash Pond 4</p>	<p>Photo No: 20160818 -</p>
<p>DESCRIPTION: Clean base located west of August 11 area.</p>		
<p>18 August 2016</p>		

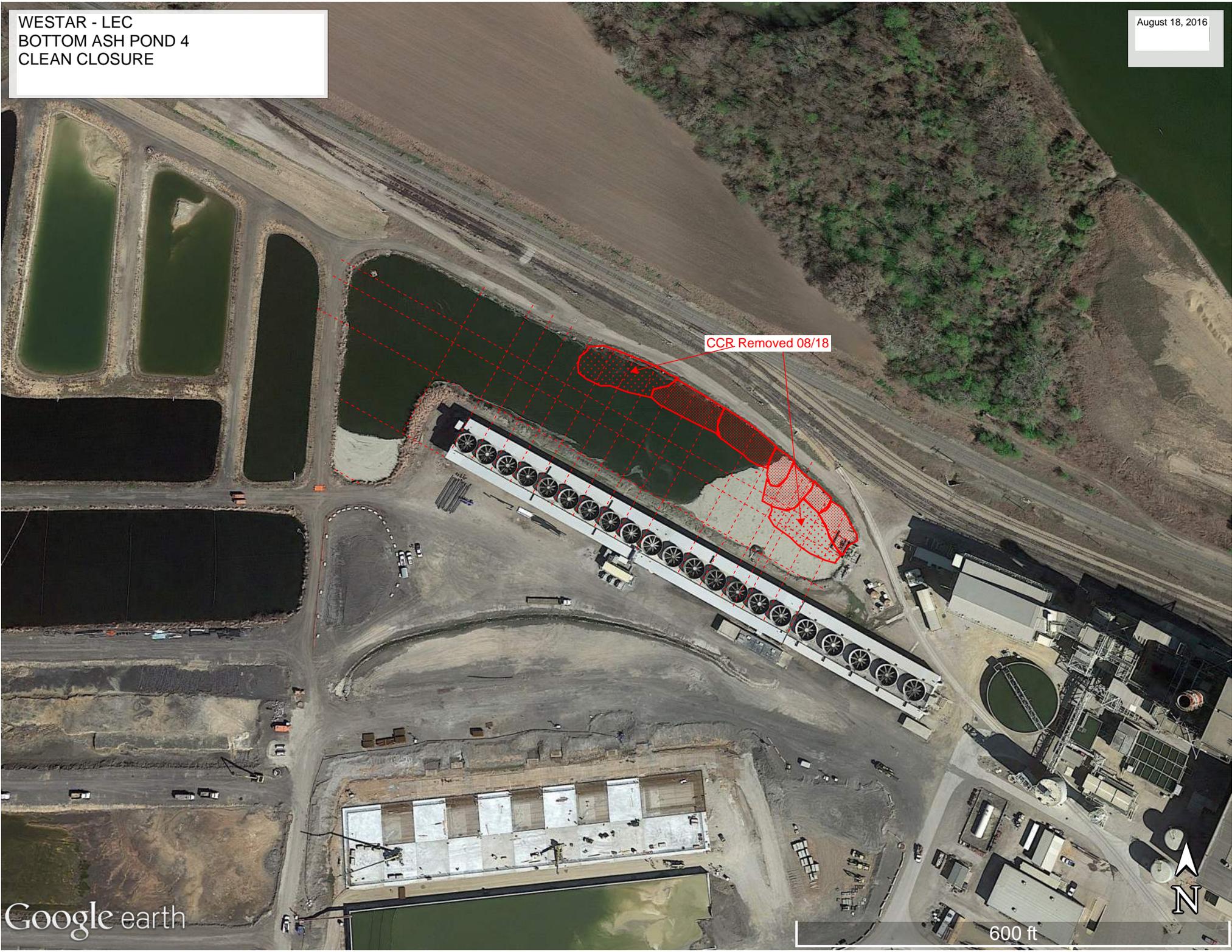
WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 18, 2016

CCR Removed 08/18

Google earth

600 ft





Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>6</u>
Date	<u>19 August 2016</u>

Observation Time 2:00 p to 4:00 p

Weather Conditions Sunny, High 90's, Light wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 2:00 p.m. The Contractor had completed the removal of bottom ash adjacent to the southeast slopes of the impoundment. This was a relatively small amount of bottom ash compared to the bottom ash that had been at the bottom of the basin. There was a small area on the west side of the previously cleaned area along the north slope of the impoundment but it was still fairly wet.

I had talked to Dan Schmidlein about the concrete structure at the west side of the bottom ash pond. Dan confirmed they would be removing this structure entirely and then fill the pipe with flowable fill. They need to add some fill in this area to get the backhoe and other equipment to the concrete structure for the demolition. That area had been cleaned to the native subgrade which was encountered at or slightly above the base of the concrete structure as would have been expected.

An area east of the concrete structure had a subgrade that was not easy to distinguish from the native soil or the native soil had been dumped or slid on top of some of the bottom ash. Dan had a backhoe excavate a pit within the area so I could observe the black material that was below a gray sandy soil. We had discussed whether the black material was native or composed of ash. As the excavation was still open, water drainage was observed seeping from the black material and the material appeared to have more sand than the underlying gray material. We agreed the black material should be considered to be bottom ash and needs to be removed.

<p>Pond 4 Clean Closure</p>	<p>LEC – Bottom Ash Pond 4</p>	<p>Photo No: 20160819 - 1</p>
<p>DESCRIPTION: Concrete structure, west side of the impoundment. To be removed.</p>		
<p>19 August 2016</p>		
<p>Pond 4 Clean Closure</p>	<p>LEC – Bottom Ash Pond 4</p>	<p>Photo No: 20160819 - 2</p>
<p>DESCRIPTION: Excavating test pits to observe bottom ash</p>		
<p>19 August 2016</p>		

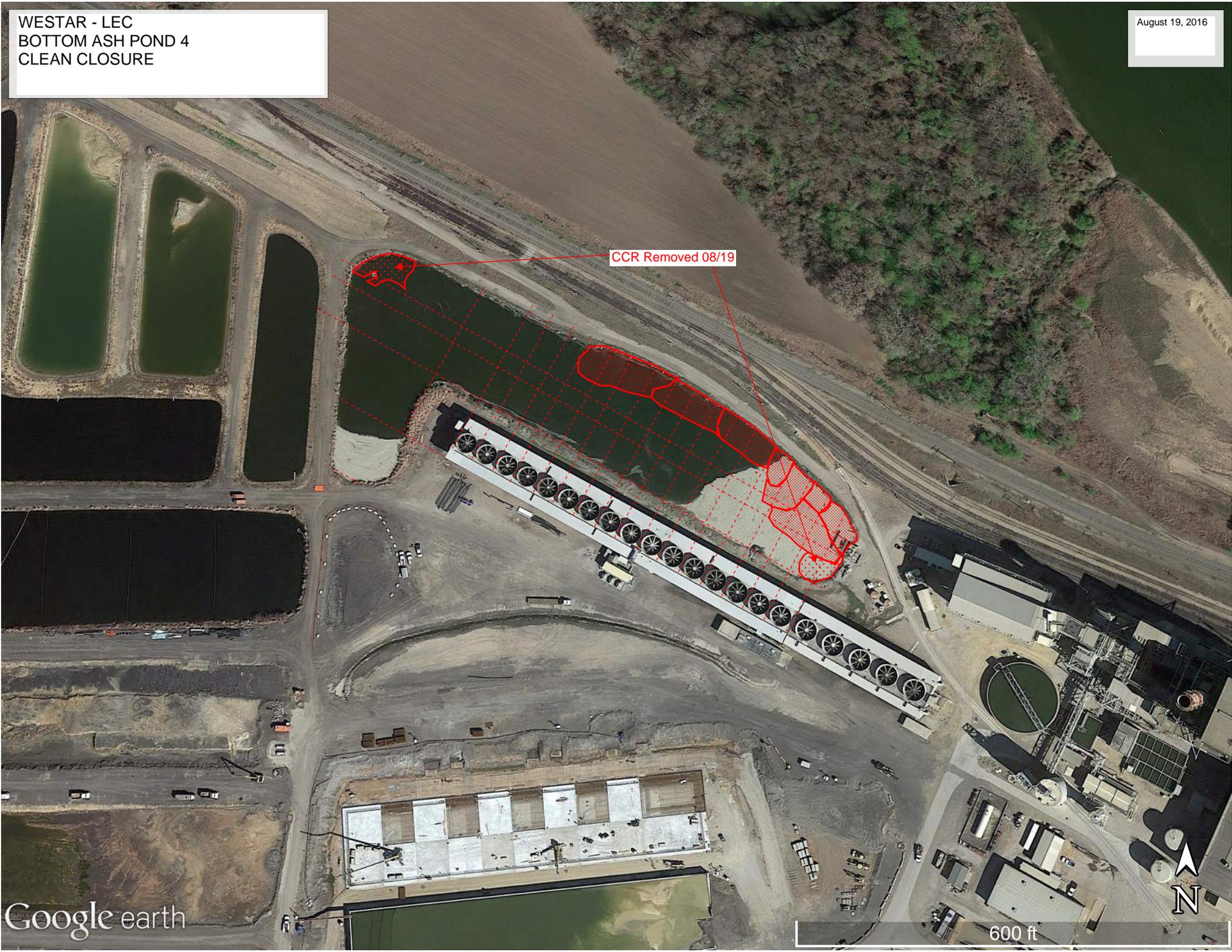
WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 19, 2016

CCR Removed 08/19

Google earth

600 ft





Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>7</u>
Date	<u>23 August 2016</u>

Observation Time 8:00 a to 9:00 a

Weather Conditions Cloudy, Low 80's, Little to no wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:00 a.m. The Contractor had removed more of the bottom ash from the south slope at the southeast corner of the impoundment. The subgrade in that location was a low-plasticity clay. Also, the Contactor was beginning the demolition of the concrete walls at the plant intake. The intent is to demo just enough of the sloped walls to be able to add reinforcing and raise the height so that two 24-inch pipes can be constructed to bring water into the plant intake.

The Contractor had excavated some dark material at the base of the excavation, but as it dried it appeared to be the native sand subgrade. The material was dark as it was laid on the slope and lighter as it air-dried. It was a sand and did not appear to have bottom ash material. Therefore this was identified as native soils and not bottom ash. With the confirmation and a review of the east-west strip of material that had been removed by the backhoes, the long area was observed to be free of bottom ash. With rain in the near forecast, the Contractor was going to begin placing clean fill in this area but still try to maintain a drainage path between the clean soil on the north and bottom ash on the south.

No additional clean fill had been placed near the concrete structure on the west side of the impoundment. Observations of the southwest slope identified two pipelines extending through the slope and into the impoundment area. The Contractor said there are actually three pipes that extend into the pond. The plan is to remove these pipes completely and backfill with clean soil. They are not to be left in place.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160823 - 1
<p>DESCRIPTION: SE Corner – Bottom ash removed to clay. Slope is clean.</p>		
23 August 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160823 - 2
<p>DESCRIPTION: Bottom ash may look dry at the surface but is still flowable below the crust.</p>		
23 August 2016		

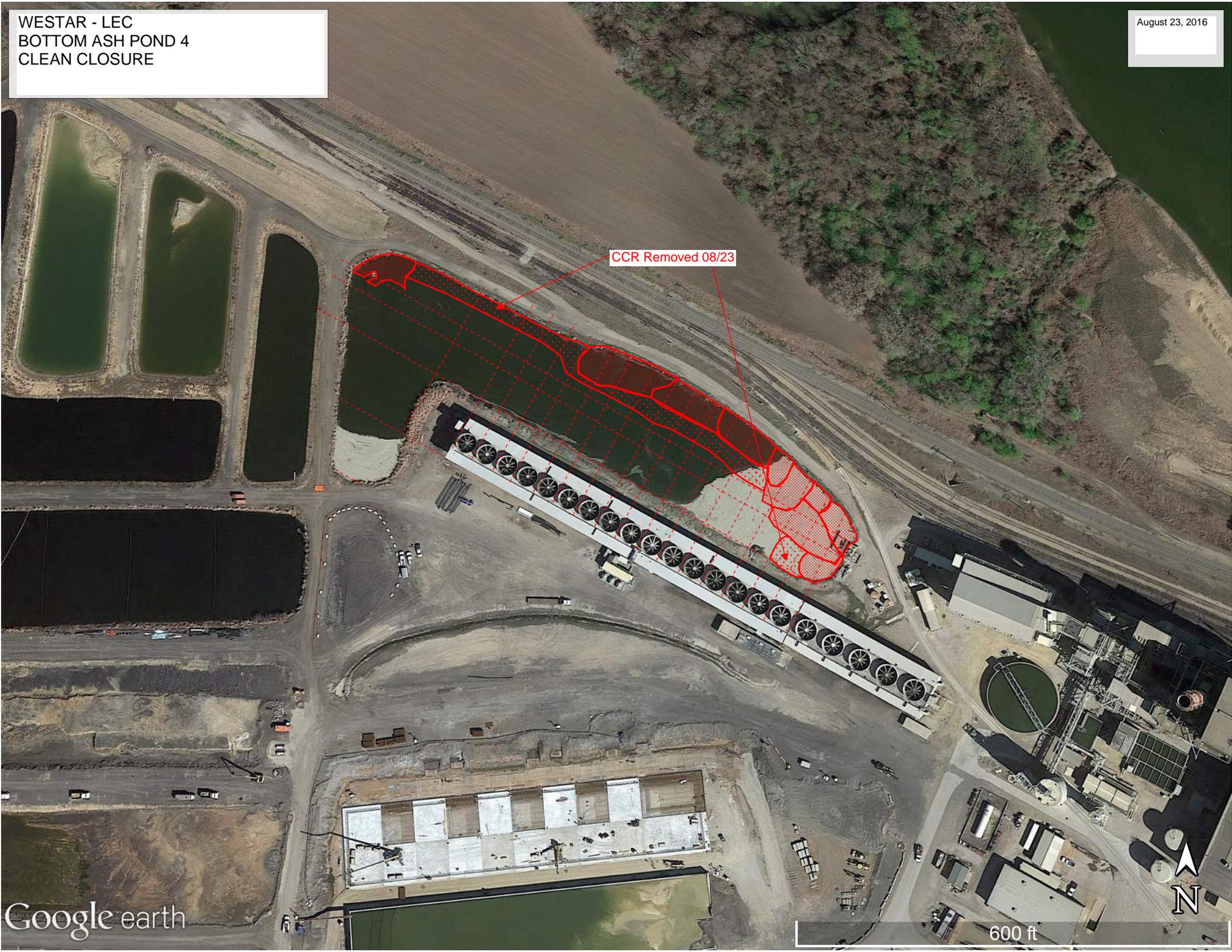
WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 23, 2016

CCR Removed 08/23

Google earth

600 ft





Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>8</u>
Date	<u>24 August 2016</u>

Observation Time 1:00 p to 2:00 p

Weather Conditions Cloudy, Low 80's, Little to no wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 1:00 p.m. The Contractor had placed the backhoes on the newly placed fill to the north side of the impoundment and was excavating the bottom ash that was on the south side of his drainage channel. One area of the bottom ash had a relatively high moisture content and continued to have slump failures into the drainage area, so the area was getting larger in size. This observation was of the area with the high slumps that were being removed after they fell into the clean area. The Contractor wanted to place clean fill in this location when the opposite slope was laid back to not fall into the area.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160824 - 1
DESCRIPTION: SE Corner – Cleaning area of bottom ash slides		
24 August 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160824 - 2
DESCRIPTION: Clean fill in Foreground		
24 August 2016		

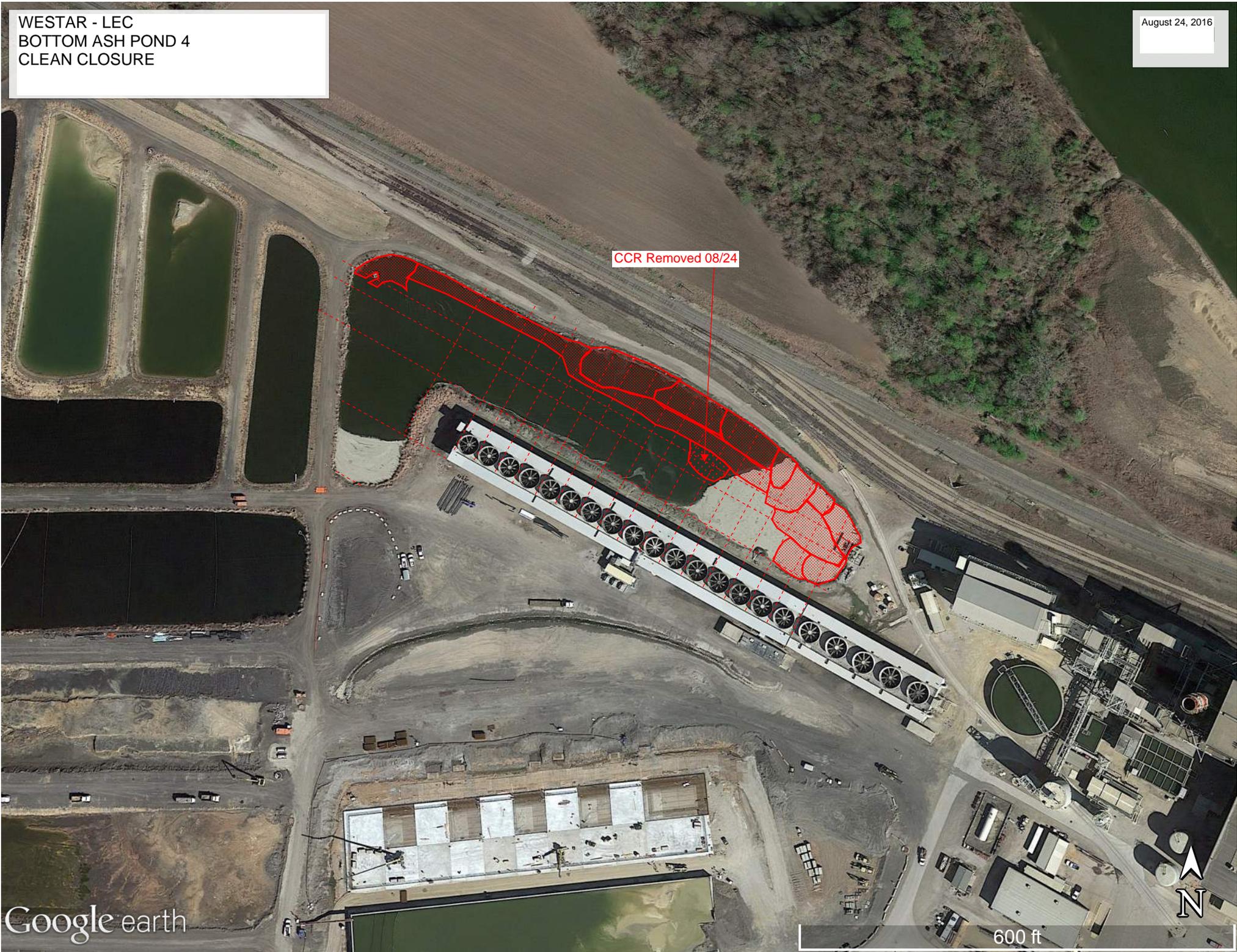
WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

August 24, 2016

CCR Removed 08/24

Google earth

600 ft





Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>9</u>
Date	<u>02 September 2016</u>

Observation Time 8:30 a to 9:30 a

Weather Conditions Sunny, Mid 70's, light wind

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:30 a.m. I met with Paul Von Hertsenberg in his office. He said they had receive permission from the State of Kansas to proceed with their Notice of Intent to construct the berm on the north side of the impoundment. This is to be the grade for the new rail spur and this work should begin within the next couple of days. I had not been to the site since August 24, but there had been several heavy rain events since that time and that delayed some of the work.

I went to the excavation site and the Contractor had cleared out a strip from the south side of the impoundment and still maintained a drainage between the clean fill on the north and the bottom ash on the south. There was a clearly identified clay or very silty sand beneath the bottom ash even though the materials are nearly the same color. Dan Schmidtein said they plan to grade the soil from the planned rail spur and use some of that as fill in the cleaned out area. It could be observed that the base of the bottom ash is at a higher elevation than the east end of the impoundment. The drag line had mostly been used on the east end of the impoundment.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160902 - 1
<p>DESCRIPTION: Encountered silty sand at base of bottom ash</p>		
02 September 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160902 - 2
<p>DESCRIPTION: Location of planned rail spur</p>		
02 September 2016		

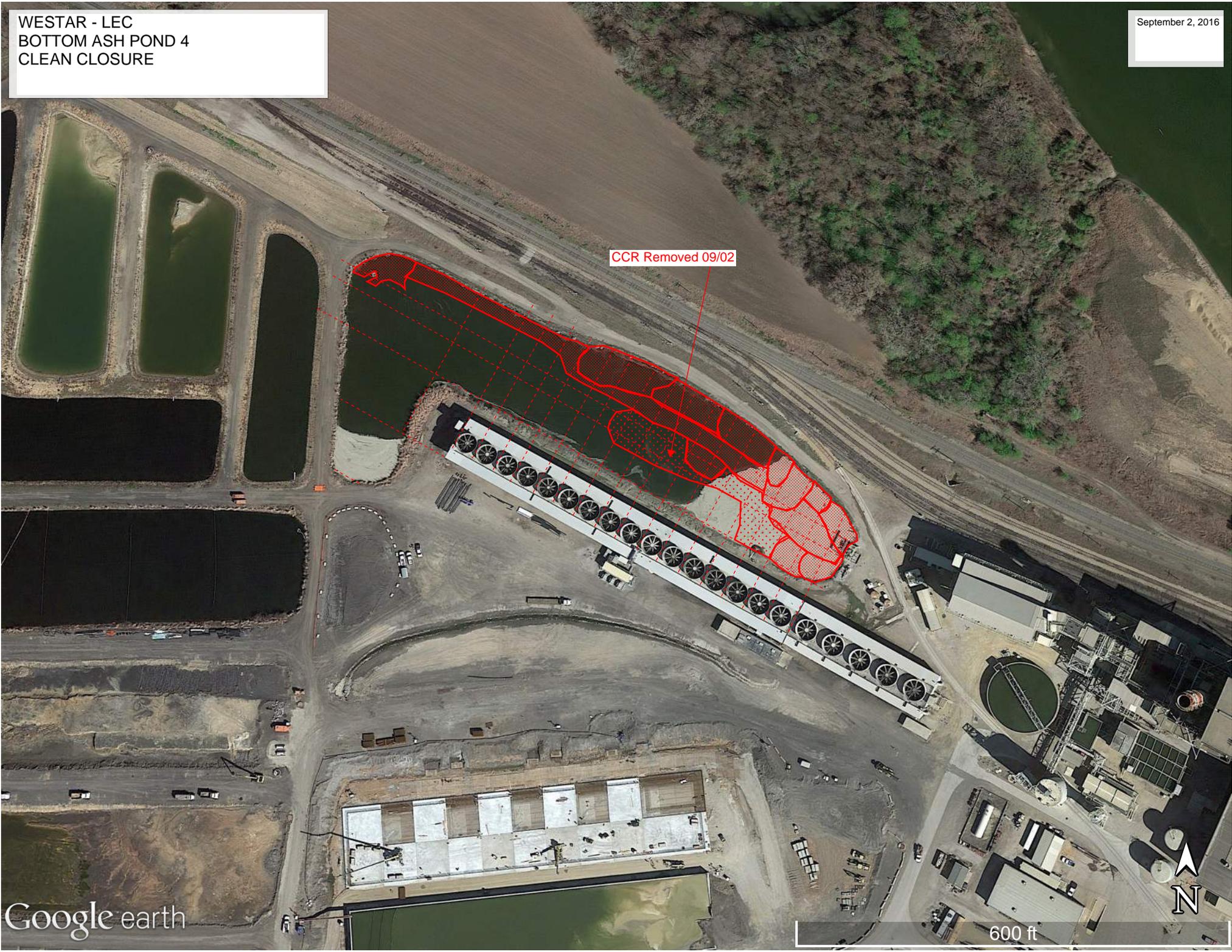
WESTAR - LEC  
BOTTOM ASH POND 4  
CLEAN CLOSURE

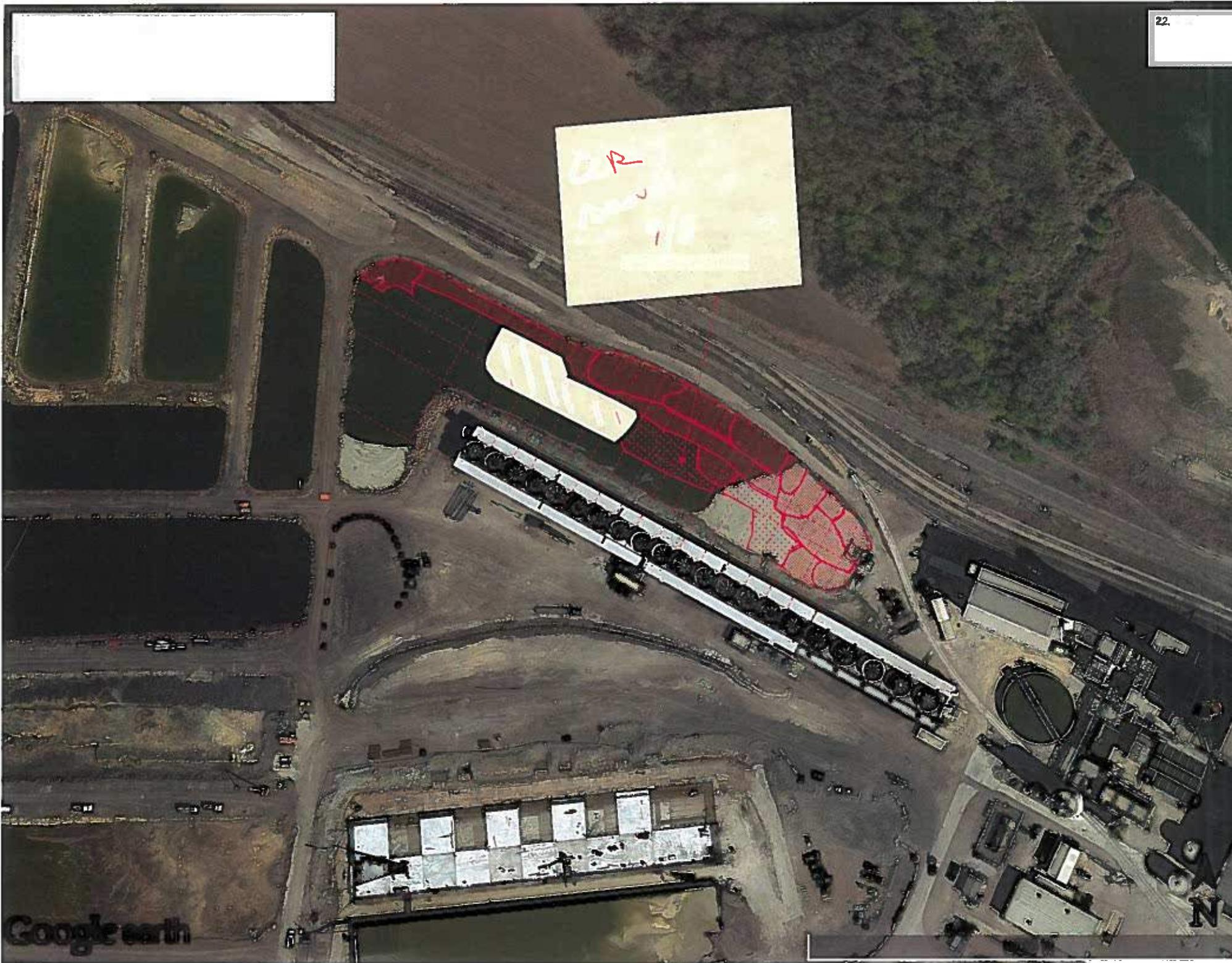
September 2, 2016

CCR Removed 09/02

Google earth

600 ft





P

[Yellow box]



Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

**BOTTOM ASH POND 4 CLEAN CLOSURE**  
Project No. 192870  
Phase 0070  
Report No. 9  
Date 13 September 2016

Observation Time 8:30 a to 9:30 a

Weather Conditions Cloudy, mist, light rain, low 70's

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:30 a.m. The contractor has moved soil from the north berm of the ash pond to the clean areas of the ash pond. The purpose was to provide the subgrade for the railroad spur along the north side of the pond location. The made for a short haul of imported soil.

The excavation of bottom ash continued along the middle north and west portions of the pond area. As the soil had been excavated on toward the southeast, the south slope of bottom ash slid into the excavation and was still being excavated at the time of the observation.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160913 - 1
<p>DESCRIPTION: Excavated area with excess water being pumped</p>		
13 September 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160913 - 2
<p>DESCRIPTION: Area to the east that has had slump failure of south embankment area</p>		
13 September 2016		



Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>10</u>
Date	<u>17 September 2016</u>

Observation Time 9:00 a to 9:30 a

Weather Conditions Sunny, light wind, mid 70's

**GENERAL OBSERVATION NOTES**

Arrived at site at 9:00 a.m. There had been more occasional rain for the previous two days. Schmidtlein Excavating had completed the removal of bottom ash that had slid down the slope along a section of the eastern area of the ash pond. This was also near a planned truck route. There was still pumping of the surface water runoff west of the cleared area, so not as much of the area could be reviewed at this time, but the areas along the slope were observed to have bottom ash removed.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160917 - 1
DESCRIPTION: Sloped cleared to native soil		
17 September 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160917 - 2
DESCRIPTION: Wet subgrade due to surface water runoff from recent rains.		
17 September 2016		



Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>11</u>
Date	<u>20 September 2016</u>

Observation Time 9:00 a to 10:00 a

Weather Conditions Sunny, light wind, low 70's

**GENERAL OBSERVATION NOTES**

Arrived at site at 9:00 a.m. Schmidtlein Excavating had completed the removal of bottom ash from the south embankment area along most of the slope adjacent to the cooling tower. There was still some infiltration water at the base of the excavation. This full length was in reach of the long-arm backhoe and therefore the slumped areas were removed to observe the soil on the slope.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160920 - 1
DESCRIPTION: Sloped cleared to native soil		
20 September 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160920 - 2
DESCRIPTION: Length of slope within reach of long-arm backhoe.		
20 September 2016		



Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

**BOTTOM ASH POND 4 CLEAN CLOSURE**  
Project No. 192870  
Phase 0070  
Report No. 11  
Date 23 September 2016

Observation Time 12:30 p to 1:30 p

Weather Conditions Sunny, light wind, low 70's

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:30 a.m. Schmidtlein Excavating had completed the removal of bottom ash from the base of the pond adjacent to the west side of the cooling tower. At this time Schmidtlein was removing the concrete intake structure at the west side of the pond.



Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

**BOTTOM ASH POND 4 CLEAN CLOSURE**  
Project No. 192870  
Phase 0070  
Report No. 12  
Date 27 September 2016

Observation Time 10:30 a to 11:30 a

Weather Conditions Sunny, light wind, mid 70's

**GENERAL OBSERVATION NOTES**

Arrived at site at 10:30 a.m. Schmidtlein Excavating had excavated along the west portion of the pond that is west of the cooling tower. The excavation appeared to be a reasonable depth, but black coal dust and bottom ash were observed at the base of the excavation. We agreed that the area was not a complete removal of the bottom ash in this area and additional excavation would be required. No additional areas of the pond were observed to be cleaned during this site visit.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160927 - 1
<p>DESCRIPTION: Found black coal dust in bottom of excvation.</p>		
27 September 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20160927 - 2
<p>DESCRIPTION: Excavating bottom ash</p>		
27 September 2016		



Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

**BOTTOM ASH POND 4 CLEAN CLOSURE**  
Project No. 192870  
Phase 0070  
Report No. 13  
Date 01 October 2016

Observation Time 8:00 a to 8:30 a

Weather Conditions Sunny, light wind, mid 60's

**GENERAL OBSERVATION NOTES**

Arrived at site at 8:00 a.m. Schmidtlein Excavating had excavated bottom ash from along the southern slope of the pond area and just west of the end of the cooling tower. This was a thin strip that provided more space for the new pipe alignment.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20161001 - 1
DESCRIPTION: Excavation at end of cleaned area		
01 October 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20161001 - 2
Excavated area looking west		
01 October 2016		



Client Westar - Lawrence Energy Center  
 Location Lawrence, Kansas  
 Engineer Gary Sommerfeld  
 Contractor Schmidtlein Excavating Inc

<b>BOTTOM ASH POND 4 CLEAN CLOSURE</b>	
Project No.	<u>192870</u>
Phase	<u>0070</u>
Report No.	<u>14</u>
Date	<u>03 October 2016</u>

Observation Time 11:00 a to 12:00 p

Weather Conditions Sunny, light wind, mid 80's

**GENERAL OBSERVATION NOTES**

Arrived at site at 11:00 a.m. Schmidtlein Excavating had excavated along the southern slope of the pond and past the dog leg portion to the south. We had some discussions about whether the darker material was bottom ash or native silty sand. Three test pits were excavated in the bottom and each showed the same material at the top of the test pit as at the base. Small smear samples of the wet soil were allowed to dry and the soil changed from dark gray to light gray and was a sand. The area was confirmed to have had the bottom ash removed.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20161003 - 1
DESCRIPTION: Excavation past end of south slope.		
03 October 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20161003 - 2
Excavation past the south slope		
03 October 2016		



Client Westar - Lawrence Energy Center  
Location Lawrence, Kansas  
Engineer Gary Sommerfeld  
Contractor Schmidtlein Excavating Inc

**BOTTOM ASH POND 4 CLEAN CLOSURE**

Project No. 192870  
Phase 0070  
Report No. 15  
Date 04 October 2016

Observation Time 9:00 a to 10:00 a

Weather Conditions Cloudy, light wind, mid 70's

**GENERAL OBSERVATION NOTES**

Arrived at site at 9:00 a.m. Schmidtlein Excavating had excavated bottom ash from along the strip at the long south slope and into the west slope. This leaves only the south leg of the pond with bottom ash. The area had some ponded water, but similar to the observation on October 3, small smears of the ash was allowed to dry to confirm it was a gray silty sand and not the dark gray bottom ash.

Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20161004 - 1
<p>DESCRIPTION: Excavation to gray sand below dark bottom ash</p>		
04 October 2016		
Pond 4 Clean Closure	LEC – Bottom Ash Pond 4	Photo No: 20161004 - 2
<p>Gray sand</p>		
04 October 2016		

# APPENDIX B

## Annual Inspection Photo Log





<p><b>Photograph No. 1</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Observing Pond 501. Some vegetation is present on the side slopes. Site road is in good condition.</p>	

<p><b>Photograph No. 2</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Observing Pond 501. Erosion is present within pond, but does not impact stability of impoundment.</p>	



<p><b>Photograph No. 3</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> West</p>	
<p><b>Description:</b> Pond 501 interior side slopes contain some vegetation. Erosion is present, but does not affect stability of regulated impoundment.</p>	

<p><b>Photograph No. 4</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> South of the Pond 501</p>	
<p><b>Description:</b> Manhole inlet where process water enters impounded pond network.</p>	



<p><b>Photograph No. 5</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> West</p>	
<p><b>Description:</b> Clean closure activities ongoing in Pond 502. Side slopes appear stable. Site road is in good condition.</p>	

<p><b>Photograph No. 6</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southwest</p>	
<p><b>Description:</b> Clean closure activities ongoing in Pond 502. Site roads surrounding Pond 502 are in stable condition.</p>	



<p><b>Photograph No. 7</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Pond 503 has been dewatered and will be undergoing clean closure in the future. Knife-gate inlet structure shown.</p>	

<p><b>Photograph No. 8</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Dewatered Pond 503. Will begin process of closure in near future.</p>	



<p><b>Photograph No. 9</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Culvert connection Pond 503 and Pond 401 that is no longer in use due to closure of Pond 503. Site roads are in stable condition.</p>	

<p><b>Photograph No. 10</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Observing Pond 401. Side slopes are stabilized with rip-rap. Piping connecting Pond 401 to Pond 503 is shown. Pond 401 underwent clean closure and construction for receipt of process water.</p>	



<p><b>Photograph No. 11</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northeast</p>	
<p><b>Description:</b> Closed Scrubber Supply Pond (Area 4 Pond). Appropriate vegetative growth present.</p>	

<p><b>Photograph No. 12</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southeast</p>	
<p><b>Description:</b> Former Scrubber Supply Pond (Area 4 Pond) that was cleaned, filled with soil fill, and vegetated.</p>	



<p><b>Photograph No. 13</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southwest</p>	
<p><b>Description:</b> Pond 401 outlet structure. Rip-rap stabilized side slopes present. Pond 401 underwent clean closure and construction for receipt of process water.</p>	

<p><b>Photograph No. 14</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northwest</p>	
<p><b>Description:</b> Impoundment outer northern side slope (north of Pond 401). Very good condition - significant vegetative growth present. No erosion present.</p>	



<p><b>Photograph No. 15</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southeast</p>	
<p><b>Description:</b> Impoundment outer northern side slope (north of Pond 401). Very good condition - significant vegetative growth present. No erosion present.</p>	

<p><b>Photograph No. 16</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> South</p>	
<p><b>Description:</b> Berm separating Pond 401 (left) and 402 (right). Mild vegetation present on side slopes of both Ponds. Site road is in stable condition.</p>	



<p><b>Photograph No. 17</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Northeast</p>	
<p><b>Description:</b> Stormwater ditch at bottom of impoundment on northern slope a rock check dam as shown. Appropriate vegetative growth and no erosion present. Good condition.</p>	

<p><b>Photograph No. 18</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southwest</p>	
<p><b>Description:</b> Pond 402 inlet. Mild to moderate vegetation present on side slopes. Moderate erosion within pond, but does not impact stability of impoundment.</p>	



<p><b>Photograph No. 19</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southwest</p>	
<p><b>Description:</b> Pond 402 outlet structure between Pond 402 (left) and Pond 403 (right). Site road is in stable condition.</p>	

<p><b>Photograph No. 20</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> South</p>	
<p><b>Description:</b> Pond 403 inlet. Moderate erosion and mud cracking within pond, but does not impact stability of impoundment.</p>	



<p><b>Photograph No. 21</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southeast</p>	
<p><b>Description:</b> Pond 404 inlet. Healthy vegetation present on the side slopes.</p>	

<p><b>Photograph No. 22</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southwest</p>	
<p><b>Description:</b> Outer slope of impoundment (near Pond 404). Well vegetated, no erosion. Good condition.</p>	



<p><b>Photograph No. 23</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southwest</p>	
<p><b>Description:</b> Pond 404 side slope and outfall. Rip-rap and mild to moderate vegetation present on side slopes. No significant erosion present.</p>	

<p><b>Photograph No. 24</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	
<p><b>Description:</b> West Pond outlet to Pond 404. Rip-rap and mild vegetation present on side slopes. No observed erosion.</p>	



<p><b>Photograph No. 25</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> South</p>	
<p><b>Description:</b> Outer slope of impoundment (near West Pond). Good condition, well vegetated, no erosion observed.</p>	

<p><b>Photograph No. 26</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> North</p>	
<p><b>Description:</b> Outer slope of impoundment (near West Pond). Moderate to significant vegetation present. No significant erosion present.</p>	



<p><b>Photograph No. 27</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	
<p><b>Description:</b> Berm separating the West Pond and Laydown Area. West Pond slope is stabilized with rip-rap. Vegetation present.</p>	

<p><b>Photograph No. 28</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	
<p><b>Description:</b> Berm separating the Laydown Area and the Storm Water Settling Pond. Mild erosion present on side slope of Laydown Area, which does not impact stability of impoundment.</p>	



<p><b>Photograph No. 29</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	
<p><b>Description:</b> Berm separating the Laydown Area and the Storm Water Settling Pond.</p>	

<p><b>Photograph No. 30</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southeast</p>	
<p><b>Description:</b> Outfall of Storm Water Settling Pond. Mild to moderate vegetation present. No significant erosion present.</p>	



<p><b>Photograph No. 31</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> Southeast</p>	 <p>A photograph showing an outfall structure with a sign that reads "OUTFALL 007A". The structure is made of metal and is surrounded by dense green vegetation and trees. A corrugated metal pipe is visible in the background.</p>
<p><b>Description:</b> Outfall 007A on south side of Storm Water Settling Pond. Healthy vegetation present near outfall.</p>	

<p><b>Photograph No. 32</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	 <p>A photograph showing a view of the outfall area with a large amount of tall grass and other vegetation. A corrugated metal pipe is visible in the foreground. The outfall structure is partially obscured by the vegetation.</p>
<p><b>Description:</b> Outfall 007A on south side of Storm Water Settling Pond. Moderate to significant vegetation present near outfall. Outfall is well maintained.</p>	



<p><b>Photograph No. 33</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	
<p><b>Description:</b> Perimeter dike on south side of Storm Water Settling Pond is in stable condition. Mild to moderate vegetation present on side slope of Pond.</p>	

<p><b>Photograph No. 34</b></p> <p><b>Date:</b> May 15, 2017</p> <p><b>Direction:</b> East</p>	
<p><b>Description:</b> Recently regraded stormwater ditch. Good condition.</p>	