



**ANNUAL CCR LANDFILL INSPECTION
SPURLOCK STATION POWER PLANT**



**EAST KENTUCKY POWER COOPERATIVE
COAL COMBUSTION RESIDUAL RULE COMPLIANCE**

JANUARY 2017

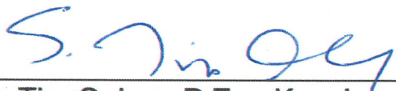
REV. 1 (3/6/2017)

CERTIFICATION

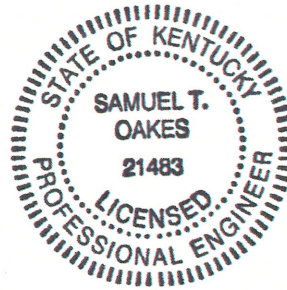
EAST KENTUCKY POWER COOPERATIVE
ANNUAL CCR LANDFILL INSPECTION
SPURLOCK POWER PLANT

CERTIFICATION

I hereby certify, as a Professional Engineer in the state of Kentucky, that the inspection and information represented in this document was prepared by me or under my direct supervision. This report is not intended for reuse without specific verification or adaptation by the Engineer.



S. Tim Oakes, P.E. – Kenvirons, Inc.



Date: 1/4/17

REV 1 (3/6/2017)

Revised Table 1-1, Volume of CCR Waste in-place at time of inspection



S. Tim Oakes, P.E. - Kenvirons, Inc.

Date: 3/6/17

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1.0 INTRODUCTION

On April 17, 2015, the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residual Rule (CCR Rule) to regulate the disposal of coal combustion residual (CCR) materials generated at coal-fired units. The rule will be administered as part of the Resource Conservation and Recovery Act [RCRA, 42 United States Code (U.S.C.) §6901 et seq.], using the Subtitle D approach.

East Kentucky Power Cooperative (EKPC) is subject to the CCR Rule and as such must have an annual inspection performed on all CCR landfills per 40 Code of Federal Regulations (CFR) §257.84. An excerpt from this rule is located in Attachment 3. This report provides the results and observations from the 2016 annual inspection performed by Kenvirons, Inc. for Spurlock Power Plant (Spurlock) Landfill located near Maysville, Kentucky. This annual inspection is the second annual inspection as required by the CCR Rule.

Table 1-1 summarizes the requirements located in 40 CFR §257.84 related to the 2016 Annual CCR Landfill Inspection Report at Spurlock Landfill. The table is to be used to reference the appropriate Section or Attachment within the 2016 Annual CCR Landfill Inspection Report for specific comments, details, photographs, etc.

TABLE 1-1 CCR COMPLIANCE SUMMARY

CCR LANDFILLS			
UNIT: Spurlock Landfill			
Description	Units		Report Reference
Approximate Volume of CCR in the landfill at time of inspection	20,186,595 Cubic Yards (Survey: 10/28/16)		See Section 2.2 and Attachment 2
Description	YES	NO	Report Reference
Review the previous 7-day and 30-day inspection reports ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section 2.2
Review the previous annual inspection reports ¹	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section 2.2
Changes in geometry of the CCR unit since previous annual inspection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section 2.2 and Attachment 2
Other changes which may have affected the stability or operation of the CCR unit since previous annual inspection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Section 2.3 and Attachment 1
Perform a visual inspection and fill out the Inspection Checklist	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section 2.3 and Attachment 1
Appearance of actual or potential structural weakness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Section 2.3 and Attachment 1
Existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Section 2.3 and Attachment 1

2.0 INSPECTION RESULTS

Per the CCR Rule (§257.84), the primary goal is to perform an inspection of the CCR landfill to “ensure that the design, construction, operation and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.” One part of this inspection included reviewing available information on the CCR landfill including previous 7-day inspections performed, in-place waste survey, construction drawings and Kentucky Division of Waste Management Permit Drawings. Construction drawings were reviewed from Spurlock Landfill’s, Area A, Area B, Area C, Phase 1 and 2 Record Drawings and Area C, Phase 3 Construction Design Drawings. At the time of the inspection, Area C, Phase 3 was under construction. Additionally, the in-place waste survey, conducted on 10/28/16, was reviewed and is located in Attachment 2. The other part of the annual inspection included a visual inspection of the CCR landfill. The visual inspection included examining the toe and crest of all slopes, side slopes, hydraulic structures and other features for any signs of distress or deficient operation of the CCR landfill. The observations made from the review of existing information and visual inspection is provided below.

2.1 Landfill Description

Spurlock landfill is located southwest of the power station. Spurlock Power Station is a coal fired combustion power plant producing fly ash, bottom ash, bed ash and gypsum. Permit drawings prepared by Kenvirons, Inc., dated 2002 and record construction drawings prepared by Kenvirons, Inc., dated 2006, 2007, 2011, 2012 and 2014, were reviewed from the Construction Progress Reports for a better understanding of the landfill design and geometry.

The final cover slopes are designed to be 4H:1V on the north, south and west slopes. The lower section below the bench, along the west and south sides of the final cover, will be 3H:1V. The east slope will be constructed at a slope of 3H:1V with benches while the very top of the landfill will consist of 15% slopes. The maximum crest elevation for the final landfill geometry is elevation 1,171 feet. The liner system for Area A, Area B and Area C, Phase 1 is made up of a 24-inch thick soil liner with a permeability of 1×10^{-7} cm/sec. The liner system for Area C, Phase 2 and 3 is made up of a 24-inch thick soil liner with a permeability of 1×10^{-7} cm/sec and 60-mil textured high density polyethylene geomembrane. Leachate for these areas is collected by leachate collection pipes within the drainage pathways along the liner system. The leachate is collected in a lined pond (Pond 1) and discharged through a permitted NPDES monitored outfall. Pond 2 located north of the landfill is utilized for stormwater runoff control for a portion of the landfill.

At the time of the inspection, portions of Area A and B were covered with temporary soil cover and vegetation. Approximately 38.2 acres of final cover were near

completion along the west and south slopes of Areas A and B. Landfill areas not covered with temporary or final cover were the north slope and peak of Area A, the peak of Area B and the entirety of Area C, Phases 1 and 2. Currently, waste is being placed in Area C, Phase 1 and Phase 2.

The Special Waste Landfill Permit Application was prepared by Kenvirons, Inc. and approved by the Kentucky Energy and Environment Cabinet, Department of Environmental Protection, Division of Waste Management on February 22, 2005.

2.2 Existing Data Review

Per the CCR Rule, previous inspections are to be reviewed as part of this report. Inspection reports reviewed included the 7-day inspections performed on October 19, 2015 through November 21, 2016 and the 2015 Annual CCR Landfill Inspection performed on September 21, 2015. These inspections noted similar observations as made during this inspection.

The CCR Rule also requires that approximate volumes of CCR in the landfill be provided in the annual inspection report. To determine this volume, an aerial survey was performed by MIKON Corporation. This survey was performed on 10/28/16. The survey provided existing topography and overall geometry of the landfill. Based on a visual review, fill areas had a maximum slope of 1.4H:1V. The area with maximum slope is limited to the landfill peak located on the western portion of the landfill. The majority of the fill has been placed at 3H:1V slopes or less. Total existing volume of CCR in the landfill is estimated to be 20,186,595 cubic yards based on the December 8, 2016 volume report from MIKON Corporation. The current maximum elevation is 1,062 feet.

As required by the CCR Rule, a discussion of any changes in geometry or changes that may affect the stability or operation of the CCR landfill is appropriate. Since the 2015 annual inspection, the facility has continued to place waste in Area C, Phase 1 and Phase 2. Recently placed exterior waste slopes have been constructed at 3H:1V and 4H:1V slopes and the working faces are sloped to provide positive drainage. The maximum vertical geometry of the fill has not increased in elevation since the November 3, 2015 survey. However, the vertical geometry in the active fill areas (Area C Phases 1 and 2) has increased by 32 feet in Phase 1 and 70 feet in Phase 2. The horizontal footprint geometry has not changed since the 2015 inspection. The fill geometry is equal to or less than the reviewed designed fill slopes based on permitted and construction design documents except for a few small isolated areas where the fill is steeper than 3H:1V. These areas are temporary and will be regraded during future filling activities.

2.3 Visual Inspection

A visual inspection was performed by Kenvirons, Inc. on November 29, 2016. The visual inspection involved walking down the drainage ditch to Pond 1, the perimeter of Pond 1, discharge location and valley side slopes. The inspection continued with walking the toe/perimeter of the landfill and along the crest and active fill areas in Area C, Phases 1 and 2. An inspection of Pond 2 was performed including inspection of the discharge point. The visual inspection report checklist including photos taken during the inspection can be found in Attachment 1. Specific conditions that were investigated were the following:

- Surface cracking along crest or slopes indicating possible movement,
- Misalignment of linear features of landfill, such as the crest or ditches, indicating possible movement,
- Displacements (slides, slumps, slips and sloughs) indicating slope instability,
- Animal burrows in cover system that create a preferential flow path for water,
- Slope erosion along the cover system or uncovered CCR material,
- CCR outside of permitted limits because of inappropriate placement or erosion,
- Seepage of leachate from landfill,
- Issues with leachate system including visual evidence of leachate outbreaks or sediment in the leachate discharge,
- Inadequate slope protection such as sparse or patchy vegetation,
- Excessive and/or woody vegetation along the cover system that would lead to preferential flow paths through the cover system,
- Debris or mounded CCR on the landfill that could lead to unaccounted loading,
- Settlement (or depressions) in landfill that could indicate internal piping of CCR or karstic subsurface,
- Outlet/overflow structure in proper working order including no evidence of piping, clear of debris that may block flow, or adequate erosion protection,

- Drainage features in proper working order including appropriate drainage of surface water,
- Signs of vandalism on landfill, and
- Signs of piping and other internal erosion.

Based on observations at the time of the visual inspection, there were no indications of structural deficiencies in the landfill such as slope instability, excessive settlement, cracking, displacements, or misalignment. No leachate outbreaks were observed and no sediment was visible in the leachate discharge. Water flowing out of Pond 1 and Pond 2 was clear. No animal burrows, debris or signs of vandalism were observed. Placement of the CCR appeared to be in general accordance with the construction drawings and acceptable practices.

Conditions requiring corrective measures observed during the inspection are as follows:

- 1) Concrete drainage ditch to Pond 1, damaged concrete at outlet due to impacts from slough on south slope above Pond 1. Repairs are planned by EKPC to take place during 2017 (Photo IMG-7472).
- 2) Soil slough above Pond 1 and concrete drainage ditch. This deficiency is currently being studied by EKPC to determine remedial measures (Photo IMG-7474). This item is located outside the landfill disposal footprint.
- 3) A slough was observed above Pond 1 on the north slope. This slough has been observed previously by EKPC and documented as moving slowly (Photo IMG-7485). This item is located outside the landfill disposal footprint.
- 4) Minor erosion :
 - Areas of uncovered CCR (Photo IMG-7547),
 - Final cover constructed on the west and south slopes (Photo IMG-7542, 7543).
- 5) Small amount of CCR material outside the northern waste limits at the access point to Area C, Phase 2 (Photo IMG-7523).
- 6) Excessively tall and woody vegetation observed on portions of the final cover (Photo IMG-7530).
- 7) Lack of vegetation on portions of the final cover (Photo IMG-7542).

There are two (2) conditions listed above that have potential to disrupt the operation and safety of the CCR unit or appurtenant structures. The sloughs observed on the north and south slopes of Pond 1 and the concrete drainage ditch have the potential to temporarily disrupt the operations of the access road, ditch and Pond 1. The anticipated disruption would be very temporary (estimated at a couple days to 1 week), minimizing the sediment and leachate storage capacity of Pond 1 and surface water/leachate conveyance capacities of the concrete drainage ditch and blocking the access road to the eastern portion of the landfill. Based on visual observations during this inspection, the north slough movement is minimal. Therefore, it is recommended that EKPC continue to visually monitor the north slope above Pond 1 until such time that corrective measures may be necessary.

3.0 RECOMMENDED CORRECTIVE MEASURES

Based on observations made at the site during the visual inspection and documented in Attachment 1, measures to correct conditions listed in Section 2.3 will need to be performed in order to prevent further erosion and possible future damage to the landfill and other associated structures. The following corrective measures are recommended for Spurlock Landfill:

- Tall and woody vegetation should be mowed.
- Establish vegetation to deter erosion on final cover.
- For areas that exhibit erosion features including rills or gullies, appropriate measures should be employed to limit erosion.
- Ongoing monitoring of the north slough and future corrective actions for the south slough upslope of Pond 1 and the drainage ditch should be performed to eliminate potential impacts to the ditch, pond and associated structures.
- Monitoring of the landfill for leachate outbreaks and the leachate discharge point for signs of sediment should be done to confirm that the leachate system is not being clogged by the CCR.

4.0 REPORT LIMITATIONS

This report is based on observations made of features that could be visually inspected at the time of the inspection, permit and construction drawings, previous inspection reports and survey information provided by EKPC. Features not visible at the surface or accessible, such as the liner systems, cover systems and the leachate system, etc. were not assessed as part of this inspection.


Landfill design and record construction drawings accepted by the Kentucky Division of Waste Management were reviewed to gain an understanding of the design geometry and aspects of the landfill. No assessment or confirmation of the design was performed as part of this inspection. No Construction Quality Assurance documents or operational placement records were reviewed as part of this inspection, other than record construction drawings. An assessment of the adequacy and state of groundwater monitoring wells or water quality was not a part of this inspection.

Any recommended corrective measures or further monitoring referenced in this report is assumed to be corrected by EKPC as soon as feasible and monitored by EKPC during the required 7-day inspection schedule currently being performed.

ATTACHMENT 1

INSPECTION CHECKLIST AND PHOTOGRAPHS

**EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84(a)
CCR Landfills
Annual Inspection Checklist Form**

Facility Name:	Spurlock Station Landfill
CCR Landfill Name / Designation #:	CCR Landfill
Date of Inspection: *	November 29, 2016
Date of Last Prior Inspection: *	September 21, 2015
Weather Conditions:	Sunny, 55 deg. F
Recent Snow/Rainfall:	Rain - 0.59 inches in last 7 days
Name of Qualified Inspector (performing inspection):	Tim Oakes, P.E.
Signature	

Area	Condition Items	YES	NO	MONITOR **	Inspector Observations and Photo Number(s)
Landfill	Surface Cracking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Misalignment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Displacements (also referred to as slides, slumps, slips and sloughs)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Animal Burrows	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Slope Erosion (final cover)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	West & south slopes, erosion rills, IMG7542, IMG7543
	Slope Erosion (active areas)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Areas of uncovered CCR, IMG7547
	Seepage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Leachate Collection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

* Inspection shall not exceed one year from previous annual inspection.

** Indicates condition to be monitored by inspector but no action is required at this time

**EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
 Regulatory Compliance Inspection – 40 CFR § 257.84(a)
 CCR Landfills
 Annual Inspection Checklist Form**

Area	Condition Items	YES	NO	MONITOR **	Inspector Observations and Photo Number(s)	
Landfill (continued)	Lacking Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Liner Distress/Cracks/Holes (If Liner is Exposed)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Inadequate Slope Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Excessive and/or Woody Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Debris	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Settlement (or depressions)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Signs of Vandalism	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Overall Status of Current Inspection (Satisfactory, Fair, Poor, Unsatisfactory, Not Rated)					
	Overall Status as Compared to Last Inspection (Similar, Improved, Deteriorated, or Unknown)					

* Inspection shall not exceed one year from previous annual inspection.

** Indicates condition to be monitored by inspector but no action is required at this time

**EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84(a)
CCR Landfills
Annual Inspection Checklist Form**

Area	Condition Items	YES	NO	MONITOR **	Inspector Observations and Photo Number(s)
	Signs of Piping and Other Internal Erosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Animal Burrows	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Excessive and/or Woody Vegetation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Signs of Seepage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Inadequate Slope Protection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Signs of Movement or Structural Damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Abnormal Discharge Discoloration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Discharge of Sediment or Debris	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Channel Lining or Stone Cover Not Intact	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Discharge Pipe Damaged or Requiring Remedial Action	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Outlet/Overflow Structure Require Remedial Action	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Overall Status of Current Inspection (Satisfactory, Fair, Poor, Unsatisfactory, Not Rated)				
	Overall Status as Compared to Last Inspection (Similar, Improved, Deteriorated, or Unknown)				

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Regulatory Compliance Inspection – 40 CFR § 257.84(a)
CCR Landfills
Annual Inspection Checklist Form**

Area	Condition Items	YES	NO	MONITOR **	Inspector Observations and Photo Number(s)
	Signs of Piping and Other Internal Erosion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Animal Burrows	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Excessive and/or Woody Vegetation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Signs of Seepage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Inadequate Slope Protection	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Signs of Movement or Structural Damage	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Abnormal Discharge Discoloration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Discharge of Sediment or Debris	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Channel Lining or Stone Cover Not Intact	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Discharge Pipe Damaged or Requiring Remedial Action	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Outlet/Overflow Structure Require Remedial Action	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Overall Status of Current Inspection (Satisfactory, Fair, Poor, Unsatisfactory, Not Rated)				
	Overall Status as Compared to Last Inspection (Similar, Improved, Deteriorated, or Unknown)				

* Inspection shall not exceed one year from previous annual inspection.

** Indicates condition to be monitored by inspector but no action is required at this time

**EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84(a)
CCR Landfills
Annual Inspection Checklist Form**

		YES	NO
1.	<p>Per observation of the above items, does there appear to be actual or potential structural weaknesses? If yes, discuss below and attach photos:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	<p>Per observation of the above items, does there appear to be conditions which are disrupting or have potential to disrupt the operation or safety of the CCR unit? If yes, discuss below and attach photos:</p> <p><u>Slough on the north slope of Pond 1 should be monitored and the slough on the south slope above Pond 1 and the concrete drainage ditch should be remediated to eliminate the potential disruption of Pond 1's sedimentation and leachate collection services for the facility.</u></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.	<p>Per observation of the above items, are there remedial actions that need to take place. If yes, discuss below and attach photos:</p> <p><u>Repair various erosion rills and provide slope protection. Mow tall/woody final cover vegetation. Establish vegetation where lacking on the final cover. BMP's to deter erosion on uncovered CCR. Remove CCR outside the waste limits. Continue observations of sloughs above Pond 1 (north and south slopes).</u></p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.	<p>Per observations at time of inspection, are there conditions that would impede performing the recommended remedial actions or conditions that performing immediate remedial action could result in damage to the unit (i.e. adverse weather conditions/wet periods/etc.). If yes, discuss below and attach photos:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

* Inspection shall not exceed one year from previous annual inspection.

** Indicates condition to be monitored by inspector but no action is required at this time

**EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84(a)
CCR Landfills
Annual Inspection Checklist Form**

5.	<p>Other concerns or comments:</p> <p><u>Monitoring of the landfill for leachate outbreaks and the leachate discharge point for signs of sediment should be done to confirm that the leachate system is not being clogged by the CCR.</u></p>
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** Inspection shall not exceed one year from previous annual inspection.*

*** Indicates condition to be monitored by inspector but no action is required at this time*



LEGEND

IMG1000 → INSPECTION PHOTOGRAPH LOCATION

--- APPROX. PERMITTED WASTE LIMITS

— APPROX. LIMITS OF DEVELOPED LANDFILL

GRAPHIC SCALE
 (SCALE IN FEET)
 1 inch = 200ft.



SPURLOCK STATION LANDFILL
 MASON COUNTY, KENTUCKY
 2016 ANNUAL CCR LANDFILL INSPECTION

DRAWN BY: SMR/STO
CHECKED BY: STO
DATE: 11/29/16
SCALE:
REVISIONS

KENVRONS, INC.
 FRANKFORT, KENTUCKY



PROJECT NO.
2016169

SHEET NO.
1 of 1

ATTACHMENT 1
INSPECTION PHOTOGRAPH PLAN

Image source: Google 2016.



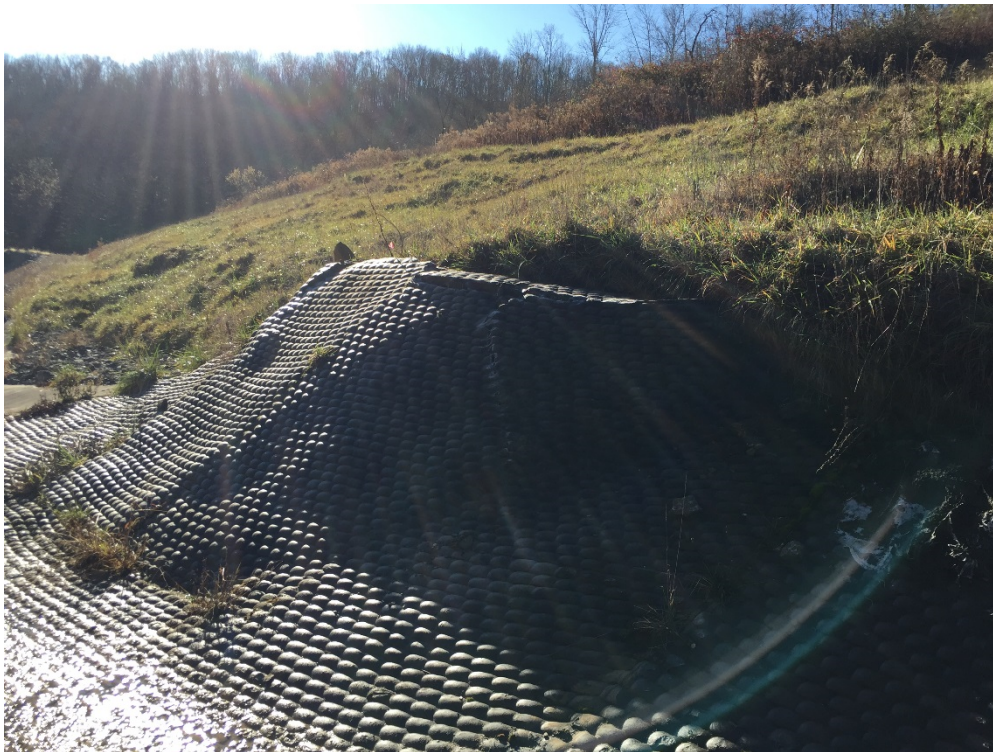
Facility Name	Spurlock Station Landfill
CCR Landfill Name	CCR Landfill
Date of Inspection	November 29, 2016
Date of Last Inspection	September 21, 2015
Name of Qualified Inspector (Performing Inspection)	Tim Oakes, P.E. (Kenvirons, Inc.)
Weather Conditions	Cloudy, 55 deg. F



EAST KENTUCKY
POWER COOPERATIVE

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84

CCR Landfills
Photographic Log



Photograph Number: IMG-7472

Description: Outside the landfill limits - Ditch damage from Pond 1 slough, south slope



Photograph Number : IMG-7474

Description: Outside the landfill limits - Slough above Pond 1 and ditch, south slope

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84

CCR Landfills
Photographic Log



Photograph Number : IMG-7485
Description: Outside the landfill limits - Evidence of slough above Pond 1, north slope



Photograph Number: IMG-7482
Description: Pond 1, looking west. Cleanout activities taking place.

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84
CCR Landfills
Photographic Log



Photograph Number : IMG-7490
Description: Pond 2, looking west



Photograph Number: IMG-7501
Description: Area C, Phase 2 working face/fill area, looking NW

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84
CCR Landfills
Photographic Log



Photograph Number: IMG-7514
Description: Area C, Phase 1 working face/fill area, looking north



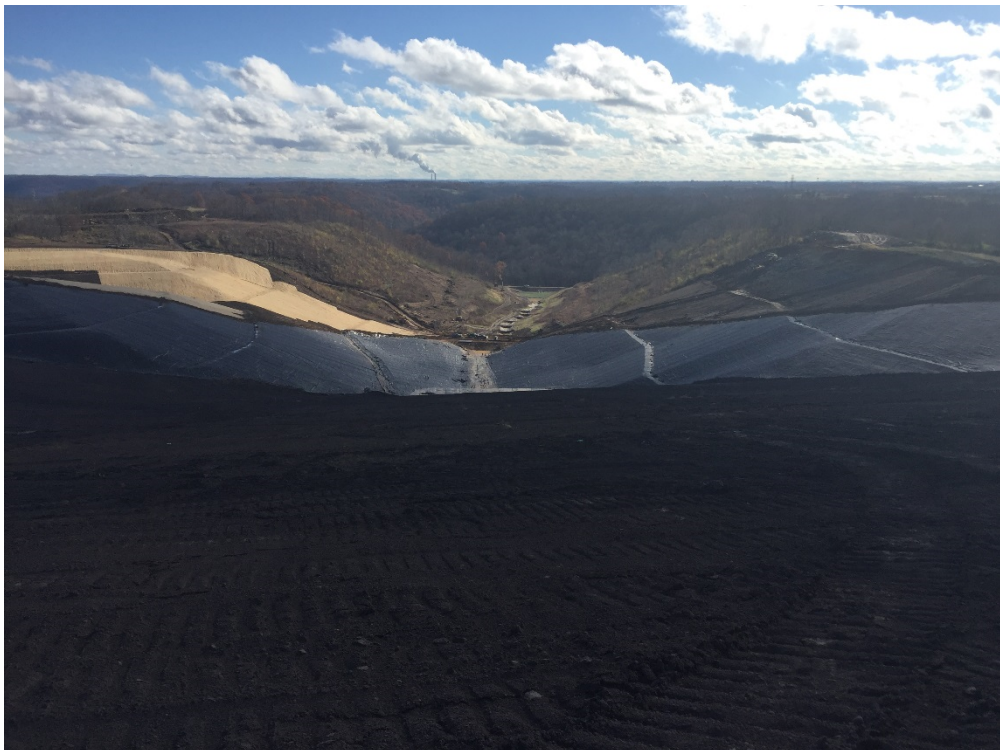
Photograph Number: IMG-7523
Description: CCR outside the north waste limits of Area C, Phase 2

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84

CCR Landfills
Photographic Log



Photograph Number: IMG-7543
Description: Final cover erosion, west and south slopes



Photograph Number: IMG-7508
Description: Area C, Phase 3 construction and east slope of Area C, Phase 2, looking east

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84

CCR Landfills
Photographic Log



Photograph Number: IMG-7530
Description: Final cover woody vegetation



Photograph Number: IMG-7542
Description: Final cover lack of vegetation

EPA - Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule
Regulatory Compliance Inspection – 40 CFR § 257.84

CCR Landfills
Photographic Log



Photograph Number: IMG-7547

Description: Minor erosion on slope, uncovered CCR

ATTACHMENT 2

LANDFILL SURVEY AND IN-PLACE VOLUMES



December 8, 2016

Mr. Mark Brewer
 East Kentucky Power Cooperative, Inc.
 4758 Lexington Road
 Winchester, Kentucky 40391

RE: Spurlock Ash Landfill

Dear Mr. Brewer:

We have completed the volume calculations of the Spurlock Ash Landfill near Maysville, Kentucky. Aerial survey with LiDAR data acquisition was performed by Kucera International working as a subcontractor for MIKON Corporation. Ground control was provided by the Client. All reported volumes are referenced to the surfaces described below per the Client and include any clay stockpiles or cover material within the project area. Following is a summary of the volume calculations.

Landfill Volumes

Date of Survey: October 28, 2016

Surface	Reference Datum	Fill (cy)	Cut (cy)	Net (cy)
Design Capacity Surface ¹	2016 Surface	21,382,016	47,208	21,334,808
2016 Surface	2015 Surface ²	1,446,323	153,879	1,292,444
2016 Surface	Base ³	20,186,595	145,293	20,041,302

- ¹ Design features (perimeter and surface contours) provided by Kenvirons via Client.
- ² Developed by MIKON Corporation in December 2014.
- ³ Provided by Kenvirons via Client.

A topographic drawing of the 2016 mapping is attached. These volumes are provided for internal planning purposes only and are not meant for use in permitting requirements. Should you have any questions regarding this report, please do not hesitate to contact us. We appreciate the opportunity to provide our services to East Kentucky Power Cooperative.

Sincerely,

MIKON Corporation

Bryan W. Davis

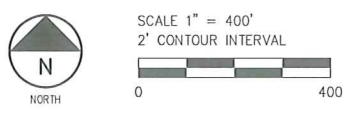
Barbara Jane Patrick

BWD/BJP:js / Attachment

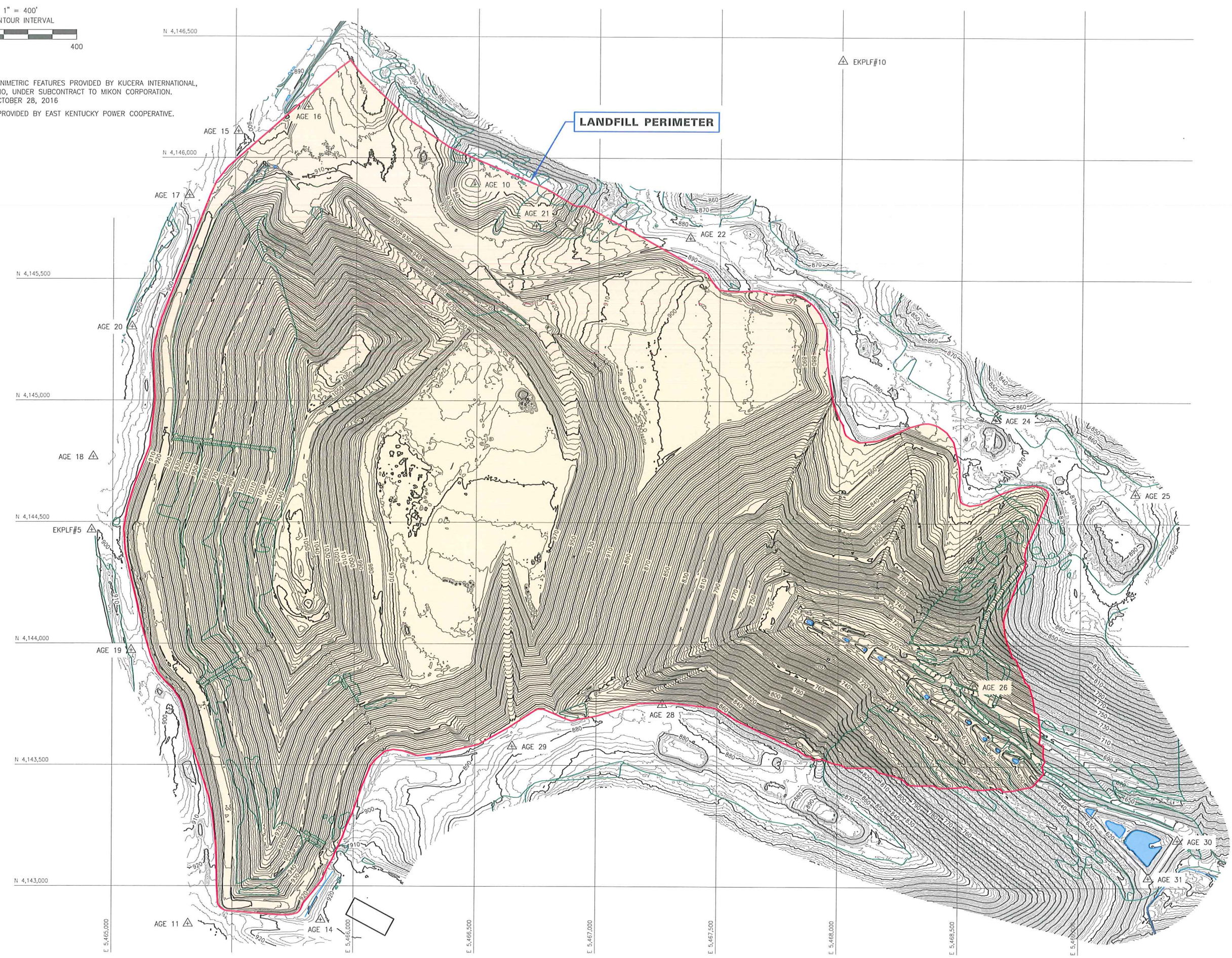
EAST KENTUCKY POWER COOPERATIVE

SPURLOCK GENERATING STATION

ASH
 LANDFILL
 TOPOGRAPHY



SHEET NOTES:
 1. TOPOGRAPHY AND PLANIMETRIC FEATURES PROVIDED BY KUCERA INTERNATIONAL, INC., WILLOUGHBY, OHIO, UNDER SUBCONTRACT TO MIKON CORPORATION. DATE OF SURVEY: OCTOBER 28, 2016
 2. LANDFILL PERIMETER PROVIDED BY EAST KENTUCKY POWER COOPERATIVE.



ATTACHMENT 3

CCR RULE (§257.84) REFERENCE

following the date of initial receipt of CCR in the CCR unit.

(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).

(ii) In any calendar year in which both the periodic inspection by a qualified professional engineer and the quinquennial (occurring every five years) structural stability assessment by a qualified professional engineer required by §§ 257.73(d) and 257.74(d) are required to be completed, the annual inspection is not required, provided the structural stability assessment is completed during the calendar year. If the annual inspection is not conducted in a year as provided by this paragraph (b)(4)(ii), the deadline for completing the next annual inspection is one year from the date of completing the quinquennial structural stability assessment.

(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.

(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).

§ 257.84 Inspection requirements for CCR landfills.

(a) *Inspections by a qualified person.* (1) All CCR landfills and any lateral expansion of a CCR landfill must be examined by a qualified person as follows:

(i) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness

and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit; and

(ii) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by § 257.105(g)(8).

(2) *Timeframes for inspections by a qualified person—(i) Existing CCR landfills.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section no later than October 19, 2015.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section upon initial receipt of CCR by the CCR unit.

(b) *Annual inspections by a qualified professional engineer.* (1) Existing and new CCR landfills and any lateral expansion of a CCR landfill must 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) 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.*, the results of inspections by a qualified person, and results of previous annual inspections); and

(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

(2) *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:

(i) Any changes in geometry of the structure since the previous annual inspection;

(ii) The approximate volume of CCR contained in the unit at the time of the inspection;

(iii) 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

(iv) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

(3) *Timeframes for conducting the initial inspection—(i) Existing CCR landfills.* The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this section no later than January 18, 2016.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill.* The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this section no later than 14 months following the date of initial receipt of CCR in the CCR unit.

(4) *Frequency of inspections.* 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)(9).

(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.

(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).

Groundwater Monitoring and Corrective Action

§ 257.90 Applicability.

(a) Except as provided for in § 257.100 for inactive CCR surface impoundments, all CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under §§ 257.90 through 257.98.

(b) *Initial timeframes—(1) Existing CCR landfills and existing CCR surface impoundments.* No later than October 17, 2017, the owner or operator of the CCR unit must be in compliance with the following groundwater monitoring requirements:

(i) Install the groundwater monitoring system as required by § 257.91;

(ii) Develop the groundwater sampling and analysis program to include selection of the statistical