

Spurlock Station - Pegs Hill Landfill

POST-CLOSURE PLAN

SPURLOCK POWER STATION EAST KENTUCKY POWER COOPERATIVE MASON COUNTY, KENTUCKY

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PERMIT No. 081-00005 (AI No. 3004)

JULY 3, 2023

PROJECT No. 2015070

KENVIRONS, INC. 770 WILKINSON BLVD. FRANKFORT, KY 40601



CERTIFICATION

EAST KENTUCKY POWER COOPERATIVE
SPURLOCK STATION – PEG'S HILL LANDFILL
POST-CLOSURE PLAN

CERTIFICATION

I HEREBY CERTIFY THAT THIS SPURLOCK STATION – PEG'S HILL LANDFILL POST-CLOSURE PLAN WAS PREPARED IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES, AND BASED ON MY KNOWLEDGE, INFORMATION, AND BELIEF, THE CONTENT OF THIS SPURLOCK STATION – PEG'S HILL LANDFILL POST-CLOSURE PLAN MEETS THE REQUIREMENTS OF 40 CFR 257.104.

S. Tim Oakes, P.E. [21,483] – Kenvirons

Date: 7/3/2023

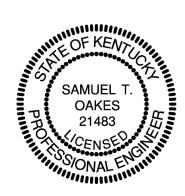


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1.0 INTRODUCTION

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 develop a Post-Closure Plan per 40 Code of Federal Regulations (CFR) §257.104. According to §257.104(a), post-closure care is required for all CCR units which are closed by leaving CCR in place. This document serves as EKPC's Post-Closure Plan for Peg's Hill Landfill (as defined in §257.53) at Spurlock Station. The Post-Closure Plan must contain the following per §257.104(d)(1):

- A description of post-closure care maintenance activities (and frequency of these activities) including the following:
 - Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover.
 - Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of §257.90 through §257.98.
 - For new CCR Landfills or any lateral expansion of a CCR Landfill, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of §257.70.
- A description of the planned uses of the property during the post-closure period.
 - O Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring system unless necessary to comply with §257.104 or if the owner or operator of the CCR unit demonstrates that the disturbance (including any removal of CCR) will not increase the potential threat to human health or the environment.
- The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period.

2.0 POST-CLOSURE PLAN

Spurlock Station (Spurlock) is owned and operated by EKPC. Spurlock is a 1,346 net megawatt (MW) coal-fired power plant located in Mason County, approximately five miles Northwest of Maysville, Kentucky. The Peg's Hill CCR Landfill (Landfill) is a CCR waste landfill currently in the process of being permitted by the Kentucky Department of Environmental Protection (KDEP Permit No. 081-00005). The Landfill is located on the west side of the plant site. Construction drawings prepared by Kenvirons, Inc., dated 2017, were reviewed along with landfill design documents to gain an understanding of the Landfill design and geometry. The final grading plans included in the design drawings can be found in Appendix A.

This Post-Closure Plan was prepared in accordance with section §257.104 of the Federal CCR Rule. The Landfill will be closed and capped in place as described in the Closure Plan and as permitted within Permit No. 081-00005. Permit drawings for landfill closure were prepared by Kenvirons, Inc. in 2015.

2.1 Post-Closure Compliance

Post-closure maintenance will be as described in Section §257.104(b) of the CCR Rule. This Section includes requirements for maintenance and inspection of the final cover and groundwater monitoring activities for a period of 30 years. The Landfill is a new landfill and is subject to the design criteria under §257.70 for new CCR landfills or lateral expansions of a CCR landfill. Therefore, the Landfill is required to maintain the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover. The Landfill is subject to design criteria under §257.70, therefore must maintain the integrity and effectiveness of the leachate collection and removal system through the post closure period.

2.2 Description of Post-Closure Activities

Final cover inspection and maintenance will be conducted for a period of 30 years after the completion of closure of the Landfill. Inspection and maintenance activities will be monitored during annual inspections that will occur throughout the post-closure care period. Inspection activities are discussed further in Section 3.2.2. Groundwater monitoring will occur separate from the annual inspections and will be as described below. If, at the end of the 30-year post-closure care period, the Landfill is operating under an Assessment Monitoring Program in accordance with §257.95, EKPC will continue to conduct post-closure care until the Landfill returns to the Detection Monitoring Program in accordance with §257.95.

2.2.1 Groundwater Monitoring

EKPC will conduct sampling of the Landfill groundwater monitoring network per Section §257.90 through Section §257.98 of the CCR Rule for the entire 30 years of post-closure care. Should any of the sampling activities cause EKPC to enter into an Assessment Monitoring Program at the end of the 30-year post-closure care period, EKPC will continue monitoring the groundwater until they are able to return to a Detection Monitoring Program per Section §257.95. Sampling for compliance with the CCR Rule will be performed according to the Sampling and Analysis Plan (SAP) for groundwater monitoring at the Landfill.

2.2.2 Site Inspections

Site inspections will be performed annually during the post-closure care period to confirm that the integrity and effectiveness of the final cover system is maintained per Section §257.104(b)(1). Maintenance of the final cover will include making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover. During the site inspections, EKPC will also inspect groundwater monitoring wells to confirm that they are in accordance with the Groundwater Monitoring Plan. In order to verify these requirements are being met, EKPC will continue annual site inspections through the entirety of the post-closure care period. The annual inspections will include the inspection checklist located in Appendix C.

2.3 Post-Closure Contact

EKPC will designate and list a contact person during the post-closure care period per §257.104 (d)(ii). The following individual will be EKPC's designated contact person for post-closure care at the Landfill:

Jerry Purvis
Vice President of Environmental Affairs
East Kentucky Power Cooperative
Address 4775 Lexington Road, Winchester, KY 40391
Phone No. (859) 744-4812
Email CCR@ekpc.coop

2.4 Property Use During Post-Closure Care Period

The Landfill will be utilized as grassland and wildlife areas during the post-closure care period. The property is located within a secured power plant facility, and will only be accessed during inspection and groundwater monitoring activities.

2.5 Completion of Post-Closure Care

No later than 60 days following the completion of the post-closure care period, a notification verifying that post-closure care has been completed will be prepared and placed in the facility's CCR Operating Record. The notification will include a certification by a qualified professional engineer in the Commonwealth of Kentucky that post-closure care has been completed in accordance with this Post-Closure Plan and the requirements of §257.104.

3.0 REVISIONS AND AMENDMENTS

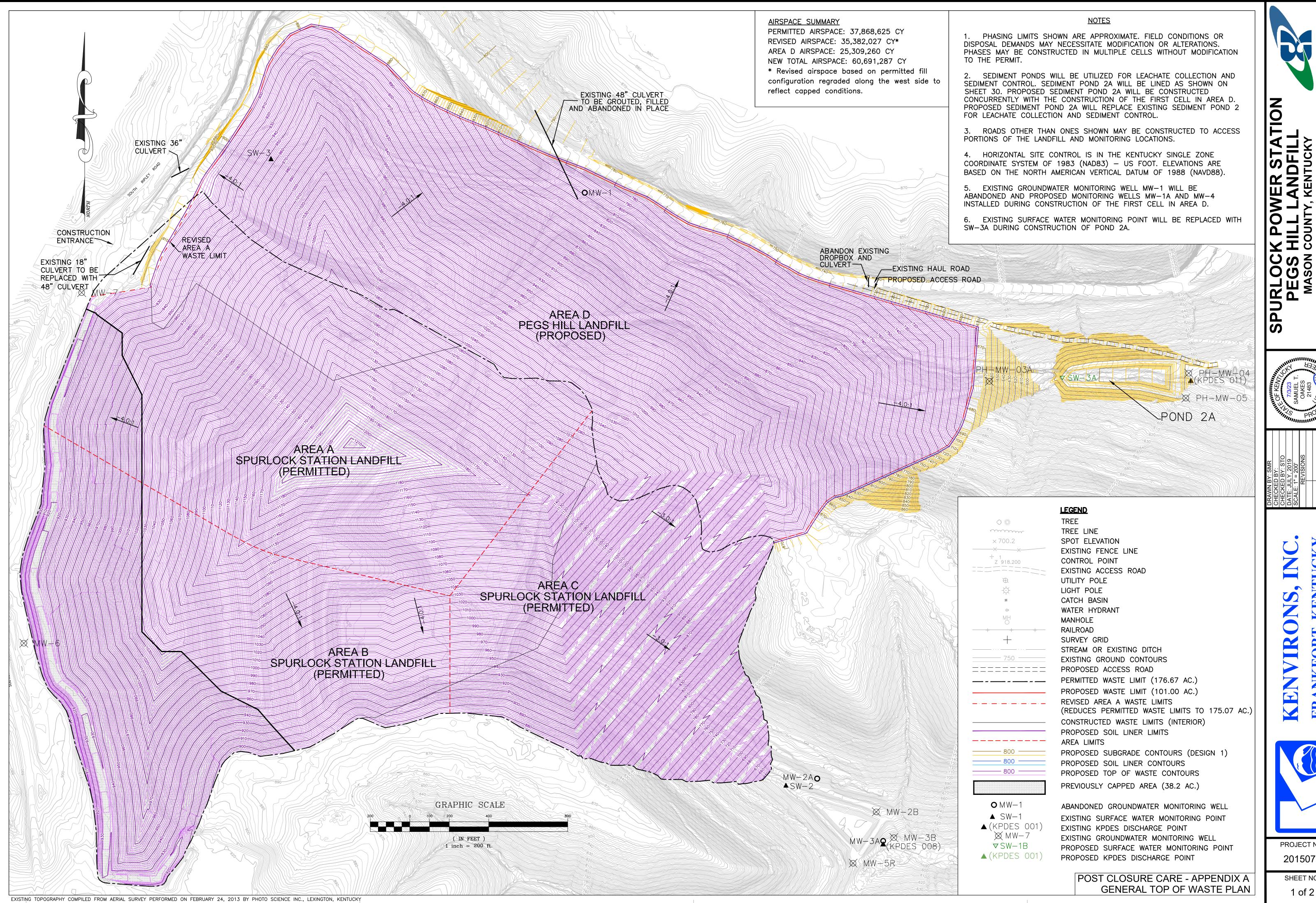
The initial Post-Closure Plan will be placed in the CCR Operating Record no later than the date of the initial receipt of CCR in the CCR unit. The plan will be amended whenever there is a change in operation of the CCR unit that affects the current or planned closure operations. The Post-Closure Plan will be amended 60 days prior to a planned change in operation, or within 60 days following an unplanned change in operation. If a written Post-Closure Plan is revised after closure activities have commenced, the written Post-Closure Plan will be amended no later than 30 days following the triggering event. The initial Post-Closure Plan and any amendment will be certified by a qualified professional engineer in the Commonwealth of Kentucky for meeting the requirements of §257.104 of the CCR Rule. All amendments and revisions will be placed on the CCR public website within 30 days following placement in the facility's CCR Operating Record. A record of revisions made to this document is included in Section 4.0 of this document.

4.0 RECORD OF REVISIONS AND UPDATES

Revision Number	Date	Revisions Made	By Whom
0	06/03/19	Issued for Initial Compliance	Kenvirons, Inc.
1	07/03/23	Issued for Final Compliance	Kenvirons

APPENDIX A

FINAL GRADING PLAN DRAWINGS

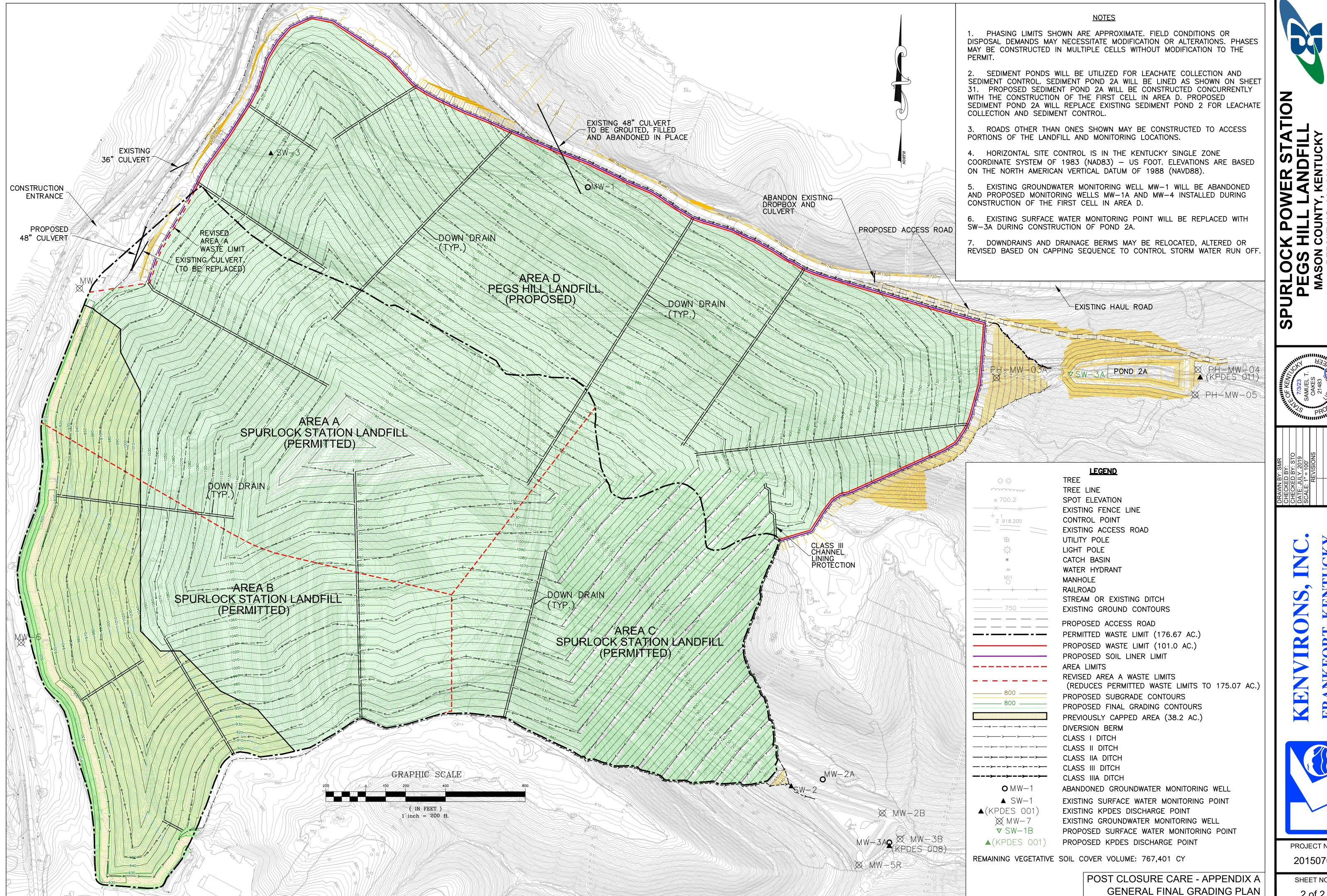






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SHEET NO. 1 of 2



EXISTING TOPOGRAPHY COMPILED FROM AERIAL SURVEY PERFORMED ON FEBRUARY 24, 2013 BY PHOTO SCIENCE INC., LEXINGTON, KENTUCKY

No.

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SHEET NO. 2 of 2

APPENDIX B

POST CLOSURE COST ESTIMATES

PEGS HILL LANDFILL 2023 POST-CLOSURE CARE ESTIMATE

The following is a breakdown of the Post-Closure Care Estimate. This estimate assumes that final grades over a 101.0 acre closure area have been achieved and that the landfill has implemented the closure plan. The post-closure care period will be for a minimum of thirty (30) years.

Groundwater Monitoring (CCR Wells)	\$501,000.00
2. Surface Water Monitoring	45,000.00
3. Leachate System Maintenance	75,000.00
Cover System Maintenance	1,073,903.00
5. Erosion and Sediment Control	260,163.00
6. Engineering Inspections	249,720.00
7. Access Road Maintenance	<u>86,941.00</u>

Total Post-Closure Care Costs

\$2,291,728.00

Notes:

- 1. Estimate assumes the sediment ponds will be removed and the KPDES permit terminated after the 5th year of post closure care when sediment controls are no longer needed and leachate generation has ceased.
- 2. Estimate is based upon the expectation that the CCR units will perform under state and federal regulations and does not include remediation costs.
- 3. Estimate is based on current regulatory requirements and assumes there will be no additional changes to environmental law.



Pegs Hill Landfill Post Closure Care Cost Estimate - Backup 2023

POST CLOSURE CARE PERIOD (CCR)	30	Years	
AREA REQUIRING CLOSURE CARE	101	Acres	
GROUNDWATER MONITORING (CCR)			
Sampling and Analysis Costs			
Number of Groundwater Monitoring Wells		5	_
Cost to Sample & Analyze Each Well		\$860.00	_See Note 1
Monitoring Events Per Year		2	_
Cost		\$258,000	_
Statistical Analysis Costs			
Cost Per Statistical Analysis		\$3,500	_See Note 4
Monitoring Events Per Year		2	_
Cost		\$210,000	_
Groundwater Monitoring System Maintenance			
Number of Groundwater Monitoring Wells		5	_
Cost to Maintain Each Well		\$220	_
Cost		\$33,000	_
	SUBTOTAL	\$501,000	
	CODICIAL	Ψ301,000	

SURFACE WATER MONITORING

Surface Water (KPDES)

Number of Surface Water Monitoring Points		1	_
Cost to Sample & Analyze Each Point		\$750	_
Monitoring Events Per Year		12	_
Cost (5 yrs)		\$45,000	See Note 7
	SUBTOTAL	\$45,000	
LEACHATE MANAGEMENT			
Leachate Collection System Maintenance			
Acres Closed		101	_
Maintenance Cost Per Acre Per Year		\$24.75	See Note 5
Cost		\$75,000	_
Leachate Disposal			
Acres Closed		101	_
Cap-Specific Generation Rate from HELP Model (Annual rate - gallons per acre per year)		0	_See Note 6
Current Per Gallon Cost for Leachate Disposal		\$0.12	_
Cost		\$0	_
Leachate Testing			

Cost \$0

SUBTOTAL \$75,000

\$0.00

11

N/A

Cost Per Monitoring Event

Monitoring Events Per Year

COVER SYSTEM MAINTENANCE

Cap Repairs

Closure Construction Cost	-	\$6,934,060	See Note 2
Expected Cap Repairs (5% of Closure Cost)	-	\$346,703.00	_
Mowing			
Acreage Requiring Mowing	-	101	_
Cost Per Acre for Mowing	-	\$120	_
Number of Times Per Year Mowing is Performed	-	2	_
Cost	-	\$727,200	_
su	JBTOTAL	\$1,073,903	
EROSION AND SEDIMENT CONTROL			
Sediment Ponds			
Number of Sediment Ponds at Facility	-	11	_
Cost for Cleaning Sediment Pond	-	\$70,000	_
Times Each Pond Requires Cleaning in Post Closure Period	-	3	_See Note 7
Cost	_	\$210,000	_
Ditch Maintenance			
Total Length of Ditches in Place at Closure	_	7,838	See Note 3

\$50,163

SUBTOTAL \$260,163

Cost

ENGINEERING INSPECTIONS

Number of Engineering Inspections Per Year	4	
Cost per inspection	\$2,081	
Cost	\$249,720	
SU	JBTOTAL \$249,720	
ACCESS ROAD MAINTENANCE		
Annual Cost of Road Maintenance	\$2,898	
Cost	\$86,941	
SU	JBTOTAL \$86,941	
GR <i>A</i>	AND TOTAL \$2,291,728	

Notes

- 1. Cost to monitor each well includes one duplicate and one field blank sample
- 2. Based on Cap Construction only, excludes borrow areas, design and miscellaneous costs.
- 3. Based on perimeter length of constructed waste area plus ditches to sediment ponds.
- 4. Based on \$700/well.
- 5. Cleanout Maint. (\$11,550.00/5 year interval)
- 6. No leachate disposal cost is included. Leachate is permitted for discharge via KPDES discharge permit.
- 7. Assumes ponds can be removed following the 5th year of post closure when sediment controls will no longer be needed and leachate generation has ceased.

APPENDIX C

POST-CLOSURE CARE ANNUAL INSPECTION CHECKLIST

Facility Name:					
CCR Landfill Name / Designation #:					
Date of Inspection:					
Weath	ner Conditions:				
Name of Qualified Inspector (performing inspection):			ning		
Signa	ture:				
Area	Condition Items	YES	NO	MONITOR *	Inspector Observations and Photo Number(s)
	Surface Cracking				
	Misalignment				
	Displacements (also referred to as slides, slumps, slips and sloughs)				
Landfill	Animal Burrows				
Lan	Slope Erosion (final cover)				
	Seepage				
	Leachate Collection				
	Lacking Vegetation				

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

Area	Condition Items	YES	NO	MONITOR *	Inspector Observations and Photo Number(s)
	Liner Distress/Cracks/Holes (If Liner is Exposed)				
	Inadequate Slope Protection				
	Woody Vegetation				
Landfill (Continued)	Debris				
	Settlement (or depressions)				
	Signs of Vandalism				
	Other (Describe)				

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

Area	Condition Items	YES	NO	MONITOR	Inspector Observations and Photo Number(s)
	Signs of Piping and Other Internal Erosion				
	Animal Burrows				
	Woody Vegetation				
	Signs of Seepage				
	Inadequate Slope Protection				
	Signs of Movement or Structural Damage				
Drainage Channels	Abnormal Discharge Discoloration				
Drainage	Discharge of Sediment or Debris				
	Channel Lining or Stone Cover Not Intact				
	Discharge Pipe Damaged or Requiring Remedial Action				
	Outlet/Overflow Structure Require Remedial Action				
	Other (Describe)				

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

Area	Condition Items	YES	NO	MONITOR	Inspector Observations and Photo Number(s)
	Signs of Piping and Other Internal Erosion				
	Animal Burrows				
	Woody Vegetation				
	Signs of Seepage				
(800	Inadequate Slope Protection				
Structure	Signs of Movement or Structural Damage				
ES Outfall	Abnormal Discharge Discoloration				
Sediment Pond 1 (KPDES Ouffall Structure 008)	Discharge of Sediment or Debris				
diment Po	Stone Cover Not Intact				
Sec	Discharge Pipe Damaged or Requiring Remedial Action				
	Outlet/Overflow Structure Require Remedial Action				
	Other (Describe)				

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

Area	Condition Items	YES	NO	MONITOR	Inspector Observations and Photo Number(s)
	Signs of Piping and Other Internal Erosion				
	Animal Burrows				
	Woody Vegetation				
	Signs of Seepage				
011)	Inadequate Slope Protection				
Structure	Signs of Movement or Structural Damage				
Sediment Pond 2A (KPDES Outfall Structure 011)	Abnormal Discharge Discoloration				
d 2A (KPC	Discharge of Sediment or Debris				
iment Pon	Stone Cover Not Intact				
Sedi	Discharge Pipe Damaged or Requiring Remedial Action				
	Outlet/Overflow Structure Require Remedial Action				
	Other (Describe)				

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

		YES	NO
1.	Per observation of the above items, are there remedial actions that need to take place. If yes, discuss below and attach photos:		
2.	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:		
3.	Other concerns or comments:		

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