Run-on and Run-off Control System Plan

SWEPCO – John W. Turk, Jr. Power Plant
Fulton, Arkansas
Permit No. 0311-S3N-R1
AFIN: 29-00506

October 2016

Terracon Project No. 35167133

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Environmental • Facilities • Geotechnical • Materials

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RUN-ON AND RUN-OFF CONTROL SYSTEM PLAN
SWEPCO – John W. Turk, Jr. Power Plant
August 2016

1.0 - Introduction

Federal Regulation Title 40, Part 257.81 require the owner or operator of an existing or new CCR landfill or any lateral expansion of a CCR landfill must comply with the following:

1. Design, construct, operate, and maintain:
    a. A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm.
    b. A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm.
2. Run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under §257.3-3
3. Prepare initial and periodic run-on and run-off control system plans for the CCR unit according to the following timeframes:
    a. For existing CCR landfills, the owner or operator of the CCR unit must prepare the initial run-on and run-off control system plan no later than October 17, 2016.
    b. The owner or operator of the CCR unit must prepare periodic run-on and run-off control system plans every five (5) years.
4. Obtain a certification from a qualified professional engineer stating that the initial and periodic run-on and run-off control system plans meet the requirements of this section.
5. 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).

This Run-on and Run-off Control System Plan presents the regulatory-required materials as noted above. It is prepared for the existing Southwestern Electric Power Company John W. Turk, Jr. Power Plant Class 3N Landfill, Fulton Arkansas. The design of run-on and run-off control measures were completed as part of previous landfill permit modification:

- The minor modification submitted to the Arkansas Department of Environmental Quality (ADEQ) in December 2015 and approved in April 2016 modified the final cover and perimeter drainage systems. The run-on and run-off calculations were performed in this submittal to the ADEQ and are available at the ADEQ.

Landfill operations has installed and is currently maintaining many of the planned storm water control measures discussed in this plan. Attached **FIGURE 1** – *Ponds and Landfill Area Overall Plan* in **APPENDIX 1** illustrates the general layout of the Class 3N Landfill and the Stormwater Run-Off Pond.

2.0 - Run-on Controls

The run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 24-hour, 25-year storm must consider site conditions around the landfill, outside of the landfill footprint, as well as site conditions within the landfill footprint.

2.1 Run-On Control Outside the Landfill Footprint

Perimeter drainage channels around the landfill provide controls to handle run-on from outside the landfill footprint. Because the area around the landfill is flat, there is limited potential storm water drainage directed toward the landfill. The series of perimeter drainage channels were designed to handle the run-off from closed landfill areas as their primary purpose. These perimeter channels are constructed along with perimeter containment berms that define the limits of the landfill ash disposal area/footprint. The perimeter channels (see **FIGURE 2)**, direct flow to the east of the landfill to the storm water pond that discharges to the north into an unnamed tributary of Bridge Creek. The storm water then flows to Bridge Creek that then flows into the Red River.

Surface water drainage calculations were performed to size the side slope benches and down-slope channels incorporated in the final grade, and the perimeter channel around the landfill footprint. Storm water drainage calculations used a 25-year, 24-hour storm event to generate storm water run-off from a vegetated final grade surface. The flow capacity of the different storm water elements is on **FIGURE 3**. The details of the different stormwater systems can be found on **FIGURE 4**.

A perimeter drainage channel system handles storm water run-off flow from the down slope channels and the final cover cap. The perimeter channels have a trapezoidal shape that was modeled to handle the 25-year, 24-hour storm event. The channels are sloped to drain into the storm water pond on the east side of the landfill.

2.2 Run-On Control Inside the Landfill Footprint

Within the landfill footprint, limited run-on controls are planned through a site-filling phasing plan that consists of five development and filling phases. This phasing plan results in constructing specific areas to accept ash waste while other areas are either un-constructed, being prepared for waste acceptance, have ash waste disposed and are in temporary closed condition, or are filled and in final closed condition. All phases incorporate perimeter containment berms that are either permanent berms or temporary internal berms to control run-on. Run-on controls are planned specific to each phase condition as detailed below and as presented on attached **FIGURE 5 through 9** in **APPENDIX 1** - *Phases 1, 2, 3, 4 & 5 Active Ash Filling Sequence*.

2.2.1 Phase 1 Active Filling

Cell 1 active filling occurs in the eastern portion of Cell 1 and will progress to the west towards future Cell 2. Run-on controls within the landfill are provided by the cell's perimeter berms. The exterior storm water is directed into the perimeter graded drainage channels on the north and south side of Cell 1 and is then directed to the east of Cell 1 into the storm water pond (see **FIGURE 5**).

2.2.2 Phase 2 Active Filling

Future Cell 2 will be constructed to the west of Cell 1. Cell 2 will tie into Cell 1's west side divider berm. Cell 2 active filling will begin in the eastern portion of Cell 2 and will progress to the west towards future Cell 3. Run-on controls within the landfills will be provided by the cell's perimeter berms. The exterior storm water is directed into the perimeter graded drainage channels on the north and south side of Cells 1 and 2 and will then be directed to the east of Cell 1 into the storm water pond. After construction of Cell 2, a partial final cover over Cell 1 will be constructed (see **FIGURE 6**). This cover will consist of the previously mentioned storm water system that will convey the storm water from the cover to the east and into the storm water pond.

2.2.3 Phase 3 Active Filling

Future Cell 3 will be constructed to the west of Cell 2. Cell 3 will tie into Cell 2's west side divider berm. Cell 3 active filling will begin in the eastern portion of Cell 3 and will progress to the west towards future Cell 4. Run-on controls within the landfills will be provided by the cell's perimeter berms. The exterior storm water is directed into the perimeter graded drainage channels on the north and south side of Cells 1, 2, and 3 and will then be directed to the east of Cell 1 into the storm water pond. After construction of Cell 3, final cover over Cell 1 and a portion of Cell 2 will be constructed (see **FIGURE 7**). This cover will consist of the previously mentioned storm water system that will convey the storm water from the cover to the east and into the storm water pond.

2.2.4 Phase 4 Active Filling

Future Cell 4 will be constructed to the west of Cell 3. Cell 4 will tie into Cell 3's west side divider berm. Cell 4 active filling will begin in the eastern portion of Cell 4 and will progress to the west towards future Cell 5. Run-on controls within the landfills will be provided by the cell's perimeter berms. The exterior storm water is directed into the perimeter graded drainage channels on the north and south side of Cells 1, 2, 3, and 4 and will then be directed to the east of Cell 1 into the storm water pond. After construction of Cell 4, final cover over Cell 2 and a portion of Cell 3 will be constructed (see **FIGURE 8**). This cover will consist of the previously mentioned storm water system that will convey the storm water from the cover to the east and into the storm water pond.

2.2.5 Phase 5 Active Filling

Future Cell 5 will be constructed to the west of Cell 4. Cell 5 will tie into Cell 4's west side divider berm. Cell 5 active filling will begin in the eastern portion of Cell 5 and will progress to the west side of Cell 5. Run-on controls within the landfills will be provided by the cell's perimeter berms. The exterior storm water is directed into the perimeter graded drainage channels on the north and

south side of Cells 1, 2, 3, 4, and 5 and will then be directed to the east of Cell 1 into the storm water pond. The storm water on the west side of Cell 5 will drain to the south and then to the east towards the storm water pond on the east side of Cell 1. After construction of Cell 5, final cover over Cell 3 and a portion of Cell 4 will be constructed (see **FIGURE 9**). This cover will consist of the previously mentioned storm water system that will convey the storm water from the cover to the east and into the storm water pond.

3.0 - Run-off Controls

The run-off control system to prevent flow (contact water) from leaving the active portion of the landfill during the peak discharge from a 24-hour, 25-year storm considers site conditions within active filling areas. Run-off control consists of the following aspects:

- Perimeter containment berms
- Leachate collection system
- Leachate collection pond
- Ash filling operation

Perimeter containment berms that are either permanent or temporary are provided around the active filling area to control run-on as discussed above, but also serve to control run-off. The landfill includes a collection system for contact water (referred to as leachate collection system) that encompasses a drainage layer and perforated collection pipe which are part of the landfill basil liner system. Collected contact water is managed by a collection system, the leachate collection pipes, conveyance pipes, leachate collection pond, and final regulated discharge outlet. The ash filling operation is managed such that contact water is directed to the collection system features. Details of the run-off control features are presented on the attached **FIGURE 4**. The following further describes the run-off control components.

3.1 Perimeter Containment Berms

The perimeter containment berms are constructed around the active-phase filling areas and are either permanent or temporary features. These berms serve to contain the limits of active ash filling and provide a barrier and collection point for run-off control. The leachate collection system and ash filling operation use the berms as part of their control systems as described below.

3.2 Leachate Collection System

The leachate collection system consists of 2-ft. thick drainage layer over the landfill floor and 1-ft. thick layer over the slopes. The leachate collection system is connected to 12-inch-diameter perforated collection pipes. The composite liner system and leachate collection pipe network slope to low points located at the containment berms where the collected run-off flows into conveyance pipes for the leachate treatment system. The leachate collection pipe network spacing is a function of the base grade liner slope, drainage layer permeability, and flow distance to collection pipes. The Hydraulic Evaluation of Landfill Performance (HELP) model was used in

evaluating the pipe spacing with respect to contact water percolation to the leachate collection drainage layer, the minimum liner slope and a selected pipe spacing or flow distance to a collection pipe.

Cell 1 was constructed with a high permeability aggregate for the drainage layer. Cells 2 through 5 will utilize on-site material for the drainage layer that will have additional gravel drains (chimney drains) installed in the drainage layer. These chimney drains allow for flow through the drainage layer and into the double-sided geocomposite. Design of the chimney drains considered a 25-year, 24-hour storm event and a drainage area of approximately 4 acres. This resulted in a controlled discharge of storm water in to the chimney drain and down to the leachate collection pipes.

3.3 Conveyance Piping to Treatment Ponds

The leachate collection systems drain toward the western and northern perimeter of the landfill area where the pipes penetrate the landfill liner and continue to drain toward leachate collection pond. The pipes outside the limits of the landfill liner are contained within an outer containment pipe. The leachate pipes exiting the landfill are 12-inch-diameter HDPE SDR 17 pipe with an outer containment pipe being 18-inch-diameter HDPE SDR 17 pipe. The conveyance pipe slope at minimum 0.25% slope or greater toward the leachate collection pond. Manholes are provided at pipe connections and bends.

3.4 Leachate Collection Pond

The leachate collection pond is on the north side of the landfill. The pond was conservatively sized to handle the runoff from the landfill based on a 100-year, 24-hour storm for when two cells are open. Hydrologic runoff analysis using Hydrocad V8.50 software program estimated a runoff rate and volume for this condition. The pond is approximately 17 feet deep to provide storage of the total storm event runoff with more than a 2-ft freeboard. The leachate is then pumped to the Process Water Pond for treatment and use by the facility.

3.5 Ash Filling Operation

The ash filling operation must be performed in a manner to provide run-off control within the disposal cells such that the contact surface water reaches the leachate collection system. This involves grading the placed ash in a controlled manner to direct contact surface water flow toward the leachate collection structures in the interior portions of the disposal area. Ash grading must be directed away from the outboard slopes unless a drainage channel at the toe of the ash slopes is utilized such that leachate is directed away from the perimeter berms and into the leachate collection structures. On the outboard slopes the contact surface water must be provided a collection point at the bottom of the slope where the drainage layer is placed up the inboard side of the containment berm; in these situations the ash placement must be kept back away from the drainage layer such that the leachate will drain toward the collection structures. In situations where the outboard slope is ready for closure, a drainage channel must be provided at the top

level of the placed closure cap to collect contact surface water and direct that flow to a location where it can enter the leachate collection system.

4.0 - Plan Review and Changes in Facility Configuration

The landfill Owner and/or Operator will review and evaluate this Plan every five (5) years from initial plan preparation and when there are changes in the facility design, construction, operation, or maintenance that materially affect the facility's potential for run-on and run-off control: Amendments to the Plan made to address changes of this nature are referred to as technical or major amendments, and must be certified by a P.E. Non-technical amendments can be performed by the facility owner and/or operator.

Technical and administrative amendments to the Plan will be documented on the Plan Review Log. Owner/Operator will make the necessary revisions to the Plan as soon as possible, but no later than six months after the change occurs. The Plan must be implemented as soon as possible following a technical amendment, but no later than six months from the date of the amendment. The Designated Person is responsible for initiating and coordinating revisions to the SPCC Plan.

Scheduled reviews and Plan amendments will be recorded in the Plan Review Log provided in **APPENDIX 2**. The log will be completed even if no amendment is made to the Plan as a result of the review.

5.0 - Professional Engineer Certification

The original plan and all reviews and amended plans must obtain certification from a qualified professional engineer stating that the initial and periodic run-on and run-off control system plans meet the requirements 40 CFR 257. This certification in no way relieves the owner or operator of the facility of his/her duty to fully implement this Plan. The Professional Engineer Certification page is provided in **APPENDIX 3**.

APPENDIX 1: FIGURES

DWG. NO. 1-30STE902

MAKE-UP WATER POND

WASTE WATER POND

LEACHATE COLLECTION POND

STORM WATER RUNOFF POND

DISPOSAL CELL "5"

DISPOSAL CELL "4"

DISPOSAL CELL "3"

DISPOSAL CELL "2"

DISPOSAL CELL "1"

E 28,000

E 29,000

E 30,000

E 31,000

N 36,000

N 35,000

N 34,000

UTILITY RIGHT OF WAY

WETLANDS

N

0 50' 100' 200' 300'

SCALE: 1" = 100'

THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEM PLAN.

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM ELEV. 301.00 = PLANT DATUM ELEV. 101.00
ALL COORDINATES, ELEVATIONS AND DIMENSIONS ARE EXPRESSED IN FEET OR DECIMAL OF A FOOT UNLESS OTHERWISE NOTED

DATE | NO. | DESCRIPTION | APPD.

REVISIONS

RUN-ON RUN-OFF CONTROL SYSTEM PLAN

SWEPCO

JOHN W. TURK JR. POWER PLANT UNIT 1

FULTON ARKANSAS

PONDS AND LANDFILL AREA OVERALL PLAN

DWG. NO. FIGURE 1 | REV. 0

PROJECT NUMBER: 216/002/35167.133

SCALE: MILLIMETERS | CIVIL

DR: TLB

CH: FDC

FAGR: DCM

ENGR: DCM

DATE: 8/25/16

APPROVED

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AEP AMERICAN ELECTRIC POWER
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1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

IGS0207

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

DWG. NO. SSA-001

E 28,000
E 29,000
E 30,000
E 31,000
N 36,000
N 35,000
N 34,000

PERIMETER DITCH
LDS 1
PERIMETER ROAD
(2) 36 Ø CMP CULVERTS
LDS 2
STORM WATER RUNOFF POND
LDS 3
LDS 6
LDS 4
LDS 5
PERIMETER DITCH
PERIMETER ROAD
WETLANDS

N

0 50' 100' 200' 300'
SCALE: 1"= 100'

PROPOSED LETDOWN STRUCTURE
PROPOSED STORMWATER DIVERSION BERM
PROPOSED STORMWATER DRAINAGE DITCH
EXISTING CULVERT
PROPOSED RIP-RAP

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM ELEV. 301.00 = PLANT DATUM ELEV. 101.00
ALL COORDINATES, ELEVATIONS AND DIMENSIONS ARE EXPRESSED IN FEET OR DECIMAL OF A FOOT UNLESS OTHERWISE NOTED

PROJECT NUMBER: 216/002/35167133

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DATE	NO.	DESCRIPTION	APPD.
REVISIONS			

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

STORMWATER MANAGEMENT PLAN

DWG. NO. FIGURE 2 REV:

SCALE: 1in=400ft CML
DR: TLB
CH: FDC
FNSR: DCM
PROJ ENGR: DCM
DATE: 8/25/2016
APPROVED BY

AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

IGS0207

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

DWG. NO. SSA-001

SUBBASIN DATA SUPPORT TABLE

Element ID	Area	Average Slope	Design Storm Event	Total Runoff	Peak Runoff
	(acres)	(%)		(inches)	(cfs)
LD1-SUB01	1.32	6.0	24HR/25YR	3.14	12.85
LD1-SUB02	3.79	6.0	24HR/25YR	3.09	31.68
LD1-SUB03	0.82	25.0	24HR/25YR	3.14	8.30
LD1-SUB04	0.53	25.0	24HR/25YR	3.14	5.32
LD1-SUB05	0.68	25.0	24HR/25YR	3.14	6.86
LD1-SUB06	0.63	25.0	24HR/25YR	3.14	6.33
LD1-SUB07	1.04	25.0	24HR/25YR	3.14	10.48
LD1-SUB08	1.66	25.0	24HR/25YR	3.14	16.53
LD1-SUB09	1.37	25.0	24HR/25YR	3.14	13.74
LD1-SUB10	1.65	25.0	24HR/25YR	3.14	16.43
LD2-SUB01	3.72	5.8	24HR/25YR	3.09	31.13
LD2-SUB02	0.83	5.8	24HR/25YR	3.14	8.22
LD2-SUB03	0.45	25.0	24HR/25YR	3.14	4.50
LD2-SUB04	0.30	25.0	24HR/25YR	3.13	3.04
LD2-SUB05	1.68	25.0	24HR/25YR	3.14	16.75
LD2-SUB06	0.90	25.0	24HR/25YR	3.14	9.12
LD2-SUB07	1.69	25.0	24HR/25YR	3.14	16.80
LD2-SUB08	1.19	25.0	24HR/25YR	3.14	11.93
LD3-SUB01	0.34	25.0	24HR/25YR	3.13	3.40
LD3-SUB02	0.07	25.0	24HR/25YR	3.13	0.67
LD3-SUB03	0.85	25.0	24HR/25YR	3.14	8.56
LD3-SUB04	0.37	25.0	24HR/25YR	3.14	3.74
LD3-SUB05	1.08	25.0	24HR/25YR	3.14	10.87
LD3-SUB06	0.67	25.0	24HR/25YR	3.14	6.78
LD4-SUB01	2.22	3.7	24HR/25YR	3.11	19.71
LD4-SUB02	1.37	3.7	24HR/25YR	3.13	13.01
LD4-SUB03	0.48	25.0	24HR/25YR	3.14	4.86
LD4-SUB04	0.40	25.0	24HR/25YR	3.14	4.06
LD4-SUB05	1.14	25.0	24HR/25YR	3.14	11.47
LD4-SUB06	1.04	25.0	24HR/25YR	3.14	10.48
LD4-SUB07	1.20	25.0	24HR/25YR	3.14	12.10
LD4-SUB08	1.25	25.0	24HR/25YR	3.14	12.54
LD5-SUB01	2.42	3.4	24HR/25YR	3.10	21.00
LD5-SUB02	4.33	3.4	24HR/25YR	3.06	32.10
LD5-SUB03	1.13	25.0	24HR/25YR	3.17	11.36
LD5-SUB04	1.09	25.0	24HR/25YR	3.14	11.02
LD5-SUB05	1.61	25.0	24HR/25YR	3.14	16.10
LD5-SUB06	1.80	25.0	24HR/25YR	3.14	17.90
LD5-SUB07	1.48	25.0	24HR/25YR	3.14	14.76
LD5-SUB08	1.65	25.0	24HR/25YR	3.14	16.47
LD6-SUB01	0.02	25.0	24HR/25YR	3.13	0.16
LD6-SUB02	0.44	25.0	24HR/25YR	3.14	4.42
LD6-SUB03	0.41	25.0	24HR/25YR	3.14	4.11
LD6-SUB04	0.96	25.0	24HR/25YR	3.14	9.65
LD6-SUB05	0.69	25.0	24HR/25YR	3.14	6.97
LD6-SUB06	0.94	25.0	24HR/25YR	3.14	9.49
Sub-47	0.78	25.0	24HR/25YR	3.14	7.90
Sub-48	2.46	25.0	24HR/25YR	3.14	24.06
Sub-49	1.34	25.0	24HR/25YR	3.14	13.42
Sub-50	0.63	1.0	24HR/25YR	4.47	6.21
Sub-51	1.06	1.0	24HR/25YR	4.46	9.81
Sub-52	0.64	1.0	24HR/25YR	4.47	6.34
Sub-53	1.50	25.0	24HR/25YR	3.14	15.03
Sub-54	0.76	25.0	24HR/25YR	3.14	7.70
Sub-55	0.05	1.0	24HR/25YR	4.46	0.51
Sub-56	0.24	1.0	24HR/25YR	4.47	2.51
Sub-57	0.52	25.0	24HR/25YR	3.14	5.26
Sub-58	0.23	1.0	24HR/25YR	4.47	2.41
Sub-59	0.53	25.0	24HR/25YR	3.14	5.35
Sub-60	0.32	1.0	24HR/25YR	4.47	3.34
Sub-61	0.99	25.0	24HR/25YR	3.14	10.00
Sub-62	0.42	1.0	24HR/25YR	4.47	4.27
Sub-63	0.67	25.0	24HR/25YR	3.14	6.81
Sub-64	0.25	1.0	24HR/25YR	4.47	2.58
Sub-65	0.90	25.0	24HR/25YR	3.14	9.04
Sub-66	0.19	1.0	24HR/25YR	4.47	2.00
Sub-67	0.82	25.0	24HR/25YR	3.14	8.28
Sub-68	0.20	1.0	24HR/25YR	4.47	2.05
TOTALS	71.20	-	-	-	682.65

CHANNEL DATA SUPPORT TABLE

Element ID	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Channel Type	Channel Height	Channel Width	Peak Flow	Max Flow Velocity	Design Flow Capacity
	(ft)	(ft)	(ft)	(ft)	(%)		(ft)	(ft)	(cfs)	(ft/sec)	(cfs)
DB1-1a	353.58	395.86	388.78	7.08	2.0000	Trapezoidal	2.000	12.10	8.19	3.61	75.22
DB1-1b	112.43	388.78	386.54	2.24	1.9900	Trapezoidal	2.000	12.10	8.17	3.55	75.03
DB1-1c	2.48	386.54	386.49	0.05	2.0200	Trapezoidal	2.000	12.10	8.17	3.55	75.48
DB1-1d	2.49	386.49	386.44	0.05	2.0100	Trapezoidal	2.000	12.10	8.17	3.54	75.32
DB1-1e	2.04	386.44	386.40	0.04	1.9600	Trapezoidal	2.000	12.10	8.16	3.51	74.43
DB1-1f	2.93	386.40	386.34	0.06	2.0500	Trapezoidal	2.000	12.10	8.16	3.57	76.07
DB1-1g	150.83	386.34	383.35	2.99	1.9800	Trapezoidal	2.000	12.10	8.12	3.54	74.84
DB1-1h	166.97	383.35	379.98	3.37	2.0200	Trapezoidal	2.000	12.10	25.37	4.72	75.52
DB1-2b	269.71	385.01	379.98	5.03	1.8600	Trapezoidal	2.000	12.10	38.14	5.09	72.59
DB1-3a	225.71	365.16	360.62	4.54	2.0100	Trapezoidal	2.000	12.10	6.31	3.37	75.36
DB1-3b	87.64	360.62	358.88	1.74	1.9900	Trapezoidal	2.000	12.10	6.28	3.32	74.96
DB1-3c	6.88	358.88	358.75	0.13	1.8900	Trapezoidal	2.000	12.10	6.28	3.24	73.07
DB1-3d	6.72	358.75	358.62	0.13	1.9300	Trapezoidal	2.000	12.10	6.28	3.27	73.93
DB1-3e	5.23	358.62	358.51	0.11	2.1000	Trapezoidal	2.000	12.10	6.28	3.38	77.09
DB1-3f	7.88	358.51	358.36	0.15	1.9000	Trapezoidal	2.000	12.10	6.28	3.25	73.34
DB1-3g	246.59	358.36	353.45	4.91	1.9900	Trapezoidal	2.000	12.10	6.21	3.34	75.01
DB1-3h	171.15	353.45	350.00	3.45	2.0200	Trapezoidal	2.000	12.10	16.00	4.21	75.47
DB1-4b	258.34	355.01	350.00	5.01	1.9400	Trapezoidal	2.000	12.10	16.44	4.21	74.02
DB1-5a	10.45	329.47	329.16	0.31	2.9700	Trapezoidal	2.000	12.10	13.72	4.67	91.55
DB1-5b	12.63	329.16	328.94	0.22	1.7400	Trapezoidal	2.000	12.10	13.71	3.83	70.16
DB1-5c	309.29	328.94	324.13	4.81	1.5600	Trapezoidal	2.000	12.10	13.56	3.72	66.29
DB1-5d	213.77	324.13	320.00	4.13	1.9300	Trapezoidal	2.000	12.10	13.50	3.99	73.88
DB1-6b	251.53	324.94	320.00	4.94	1.9600	Trapezoidal	2.000	12.10	16.34	4.22	74.49
DB2-1b	300.80	385.54	379.93	5.61	1.8700	Trapezoidal	2.000	12.10	35.14	4.99	72.59
DB2-3b	299.21	355.43	349.83	5.60	1.8700	Trapezoidal	2.000	12.10	16.62	4.18	72.72
DB2-4b	165.73	357.16	353.75	3.41	2.0600	Trapezoidal	2.000	12.10	9.07	3.71	76.25
DB2-4c	201.37	353.75	349.83	3.92	1.9500	Trapezoidal	2.000	12.10	9.04	3.63	74.16
DB2-5b	306.26	325.43	319.72	5.71	1.8600	Trapezoidal	2.000	12.10	16.67	4.17	72.58
DB2-6b	224.40	328.95	324.46	4.49	2.0000	Trapezoidal	2.000	12.10	11.88	3.93	75.19
DB2-6c	237.50	324.46	319.72	4.74	2.0000	Trapezoidal	2.000	12.10	11.79	3.91	75.09
DB3-1b	36.17	384.54	383.82	0.72	1.9900	Trapezoidal	2.000	12.10	0.67	1.90	75.00
DB3-2b	130.37	386.43	383.82	2.61	2.0000	Trapezoidal	2.000	12.10	3.39	2.87	75.21
DB3-3b	89.41	357.14	355.36	1.78	1.9900	Trapezoidal	2.000	12.10	3.74	2.93	75.00
DB3-3c	85.96	355.36	353.63	1.73	2.0100	Trapezoidal	2.000	12.10	3.73	2.93	75.41
DB3-4c	135.93	356.35	353.63	2.72	2.0000	Trapezoidal	2.000	12.10	8.53	3.61	75.19
DB3-5b	180.59	328.88	325.28	3.60	1.9900	Trapezoidal	2.000	12.10	6.76	3.41	75.05
DB3-5c	93.25	325.28	323.41	1.87	2.0100	Trapezoidal	2.000	12.10	6.75	3.39	75.27
DB3-6b	13.83	331.54	331.26	0.28	2.0200	Trapezoidal	2.000	12.10	10.86	3.82	75.63
DB3-6c	239.01	331.26	326.47	4.79	2.0000	Trapezoidal	2.000	12.10	10.81	3.85	75.25
DB3-6d	153.64	326.47	323.41	3.06	1.9900	Trapezoidal	2.000	12.10	10.77	3.81	75.02
DB4-1b	168.82	385.74	382.36	3.38	2.0000	Trapezoidal	2.000	12.10	16.96	4.28	75.21
DB4-2a	168.32	390.35	386.98	3.37	2.0000	Trapezoidal	2.000	12.10	19.58	4.42	75.21
DB4-2b	230.66	386.98	382.36	4.62	2.0000	Trapezoidal	2.000	12.10	24.17	4.87	75.23
DB4-3b	236.89	380.37	355.63	24.74	10.4400	Trapezoidal	2.000	12.10	10.45	7.05	171.78
DB4-3c	166.08	355.63	352.30	3.33	2.0100	Trapezoidal	2.000	12.10	10.41	3.80	75.27
DB4-4b	170.50	360.55	357.14	3.41	2.0000	Trapezoidal	2.000	12.10	11.42	3.89	75.17
DB4-4c	241.95	357.14	352.30	4.84	2.0000	Trapezoidal	2.000	12.10	11.37	3.89	75.18
DB4-5b	307.73	331.61	325.46	6.15	2.0000	Trapezoidal	2.000	12.10	12.44	3.99	75.15
DB4-5c	163.06	325.46	322.20	3.26	2.0000	Trapezoidal	2.000	12.10	12.38	3.95	75.16
DB4-6b	189.46	330.71	326.92	3.79	2.0000	Trapezoidal	2.000	12.10	12.05	3.94	75.18
DB4-6c	235.87	326.92	322.20	4.72	2.0000	Trapezoidal	2.000	12.10	11.98	3.94	75.19
DB5-1a	363.76	390.36	383.08	7.28	2.0000	Trapezoidal	2.000	12.10	31.77	5.04	75.20
DB5-1b	273.25	383.08	377.81	5.27	1.9300	Trapezoidal	2.000	12.10	41.84	5.27	73.82
DB5-2b	156.44	387.74	384.60	3.14	2.0100	Trapezoidal	2.000	12.10	20.88	4.50	75.31
DB5-2c	349.98	384.60	377.81	6.79	1.9400	Trapezoidal	2.000	12.10	31.69	4.95	74.04
DB5-3b	361.52	360.57	353.34	7.23	2.0000	Trapezoidal	2.000	12.10	17.69	4.36	75.17
DB5-3c	291.80	353.34	347.50	5.84	2.0000	Trapezoidal	2.000	12.10	17.52	4.33	75.20
DB5-4b	252.83	359.64	354.57	5.07	2.0100	Trapezoidal	2.000	12.10	16.01	4.24	75.27
DB5-4c	353.44	354.57	347.50	7.07	2.0000	Trapezoidal	2.000	12.10	15.78	4.23	75.18
DB5-6b	337.17	337.94	331.20	6.74	2.0000	Trapezoidal	2.000	12.10	14.62	4.15	75.15
DB5-6c	347.05	331.20	324.26	6.94	2.0000	Trapezoidal	2.000	12.10	14.41	4.14	75.17
DB6-1b	80.87	387.81	386.19	1.62	2.0000	Trapezoidal	2.000	12.10	4.42	3.05	75.23
DB6-1c	208.01	386.19	382.01	4.18	2.0100	Trapezoidal	2.000	12.10	4.38	3.08	75.35
DB6-2a	27.53	383.02	382.47	0.55	2.0000	Trapezoidal	2.000	12.10	0.16	1.33	75.13
DB6-2b	23.21	382.47	382.01	0.46	1.9800	Trapezoidal	2.000	12.10	0.16	1.33	74.83
DB6-3b	143.55	359.80	356.89	2.91	2.0300	Trapezoidal	2.000	12.10	9.62	3.74	75.68
DB6-3c	243.23	356.89	352.06	4.83	1.9900	Trapezoidal	2.000	12.10	9.57	3.72	74.91
DB6-4a	189.61	357.27	353.49	3.78	1.9900	Trapezoidal	2.000	12.10	4.10	3.01	75.05
DB6-4b	71.27	353.49	352.06	1.43	2.0100	Trapezoidal	2.000	12.10	4.08	2.99	75.29
DB6-5b	178.88	338.17	334.59	3.58	2.0000	Trapezoidal	2.000	12.10	9.45	3.71	75.20
DB6-5c	283.57	334.59	328.92	5.67	2.0000	Trapezoidal	2.000	12.10	9.37	3.71	75.16
DB6-6a	331.79	337.38	330.75	6.63	2.0000	Trapezoidal	2.000	12.10	6.89	3.46	75.14
DB6-6b	91.59	330.75	328.92	1.83	2.0000	Trapezoidal	2.000	12.10	6.88	3.40	75.14
LD1-01	120.18	379.98	350.00	29.98	24.9500	Trapezoidal	2.000	16.00	63.44	13.60	465.95
LD1-02	120.12	350.00	320.00	30.00	24.9800	Trapezoidal	2.000	16.00	95.77	15.27	466.22
LD1-03	46.50	320.00	308.42	11.58	24.9000	Trapezoidal	2.000	16.00	125.31	16.43	465.55
LD2-01	120.42	379.93	349.83	30.10	25.0000	Trapezoidal	2.000	16.00	45.96	12.39	466.42
LD2-02	120.46	349.83	319.72	30.11	25.0000	Trapezoidal	2.000	16.00	71.49	14.08	466.42
LD2-03	83.92	313.60	298.00	15.60	18.5900	Trapezoidal	2.000	16.00	99.86	13.88	402.22
LD3-01	120.87	383.82	353.63	30.19	24.9800	Trapezoidal	2.000	16.00	4.05	5.65	466.24
LD3-02	120.88	353.63	323.41	30.22	25.0000	Trapezoidal	2.000	16.00	16.31	9.03	466.45
LD3-03	78.47	323.41	303.85	19.56	24.9300	Trapezoidal	2.000	16.00	33.72	11.28	465.77
LD4-01	120.09	382.36	352.30	30.06	25.0300	Trapezoidal	2.000	16.00	40.88	11.98	466.75
LD4-02	120.59	352.30	322.20	30.10	24.9600	Trapezoidal	2.000	16.00	62.62	13.54	466.09
LD4-03	35.65	322.20	313.32	8.88	24.9100	Trapezoidal	2.000	16.00	86.97	14.85	465.60
LD5-01	120.66	377.81	347.50	30.31	25.1200	Trapezoidal	2.000	16.00	73.38	14.20	467.57
LD5-02	93.00	347.50	324.26	23.24	24.9900	Trapezoidal	2.000	16.00	106.69	15.73	466.35
LD5-03	9.08	324.26	322.10	2.16	23.7900	Trapezoidal	2.000	16.00	136.84	16.55	455.01
LD6-01	114.03	382.01	352.06	29.95	26.2700	Trapezoidal	2.000	16.00	4.54	5.98	478.11
LD6-02	88.53	352.06	328.92	23.14	26.1400	Trapezoidal	2.000	16.00	18.18	9.48	476.95
LD6-03	33.56	328.92	320.16	8.76	26.1000	Trapezoidal	2.000	16.00	34.41	11.54	476.63
Link-151	57.15	290.49	290.10	0.39	0.6800	Trapezoidal	4.000	28.00	148.68	4.98	413.33
Link-153	372.01	330.94	327.21	3.73	1.0000	Trapezoidal	2.000	12.10	16.14	3.31	53.23
Link-154	294.65	327.21	324.26	2.95	1.0000	Trapezoidal	2.000	12.10	15.91	3.27	53.19
Link-178	339.89	290.10	288.00	2.10	0.6200	Trapezoidal	4.000	28.00	225.38	5.37	393.29
Link-184	142.58	308.30	305.20	3.10	2.1700	Trapezoidal	4.000	28.00	15.44	1.99	262.32
Link-185	556.36	305.20	302.00	3.20	0.5800	Trapezoidal	4.000	28.00	20.48	1.80	134.92
Link-186	1279.29	302.00	291.97	10.03	0.7800	Trapezoidal	4.000	28.00	131.25	3.09	157.52
Link-187	236.43	302.40	301.60	0.80	0.3400	Trapezoidal	4.000	28.00	48.35	2.47	232.84
Link-188	476.64	294.17	291.70	2.47	0.5200	Trapezoidal	4.000	28.00	181.84	4.07	288.15
Link-189	712.49	297.90	294.17	3.73	0.5200	Trapezoidal	4.000	28.00	172.51	4.16	289.62
Link-190	724.38	301.60	297.90	3.70	0.5100	Trapezoidal	4.000	28.00	46.25	3.04	286.08
Link-191	603.53	291.70	288.39	3.31	0.5500	Trapezoidal	6.000	40.00	247.01	4.51	779.85
Link-192	436.06	288.39	286.00	2.39	0.5500	Trapezoidal	8.000	52.00	251.46	4.49	1578.90

CULVERT DATA SUPPORT TABLE

Element ID	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Pipe Shape	Pipe Diameter or Height	Pipe Width	Peak Flow	Max Flow Velocity	Design Flow Capacity
	(ft)	(ft)	(ft)	(%)		(inches)	(inches)	(cfs)	(ft/sec)	(cfs)
CULVERT-001	169.29	291.97	290.49	0.8700	CIRCULAR	36.000	36.00	146.27	12.99	162.15

DATE	NO.	DESCRIPTION	APPD.
REVISIONS			

SWEPCO

JOHN W. TURK JR. POWER PLANT UNIT 1

FULTON ARKANSAS

STORMWATER DATA SUPPORT SHEET

DWG. NO. FIGURE 3

REV:

PROJECT NUMBER: 216/002/35167133

Terracon
Consulting Engineers and Scientists
2559B HWY SOUTH BRYANT, AR 72022
PH. (501) 847-9292 FAX. (501) 847-9210

SCALE: MEASURABLE

DR: TLB

CH: FOC

FNGR: DCM

PROJ. ENGR: DCM

DATE: 8/25/2016

APPROVED BY

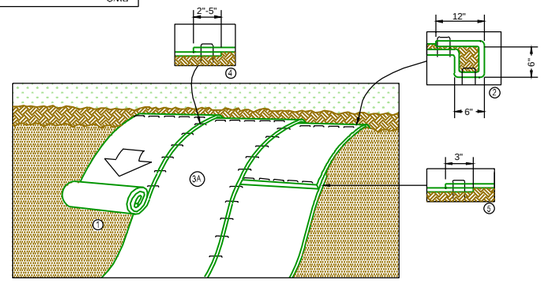
CIVIL

AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

IQS0207

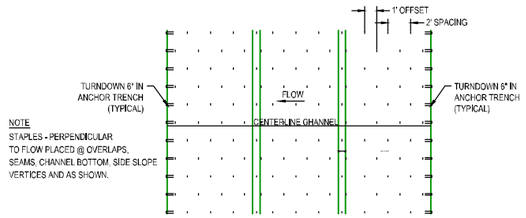
DWG. NO. 1-30STE931



SLOPE INSTALLATION OF ROLLED EROSION CONTROL PRODUCT (R.E.C.P.)

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 1' 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 10" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS DOWN THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/ STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. IN LOOSE SOIL CONDITIONS THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.



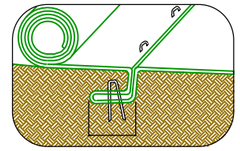
NOTE
STAPLES - PERPENDICULAR TO FLOW PLACED @ OVERLAPS, SEAMS, CHANNEL BOTTOM, SIDE SLOPE VERTICES AND AS SHOWN.

STAPLE PATTERN PLACEMENT - R.E.C.P.

SECTION D
SCALE: N.T.S. 1-30STE931 | 1-30STE931

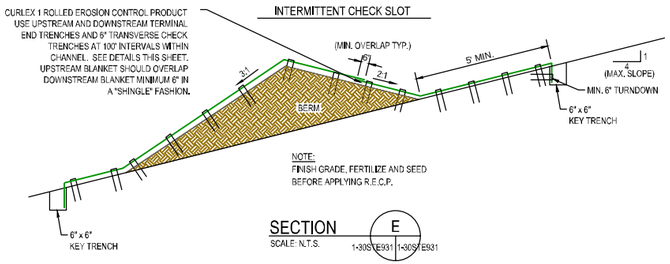
ROLLED EROSION CONTROL PRODUCT (R.E.C.P.)

DETAIL 7
SCALE: N.T.S. 1-30STE930 | 1-30STE931



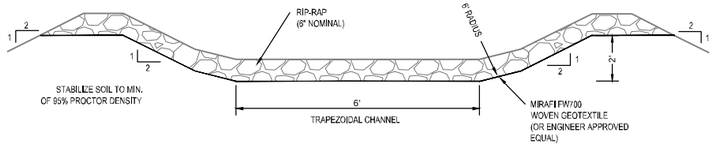
INTERMITTENT CHECK SLOT

CURLEX 1 ROLLED EROSION CONTROL PRODUCT USE UPSTREAM AND DOWNSTREAM TERMINAL END TRENCHES AND 6" TRANSVERSE CHECK TRENCHES AT 100' INTERVALS WITHIN CHANNEL. SEE DETAILS THIS SHEET. UPSTREAM BLANKET SHOULD OVERLAP DOWNSTREAM BLANKET MINIMUM 6" IN A "SHINGLE" FASHION.



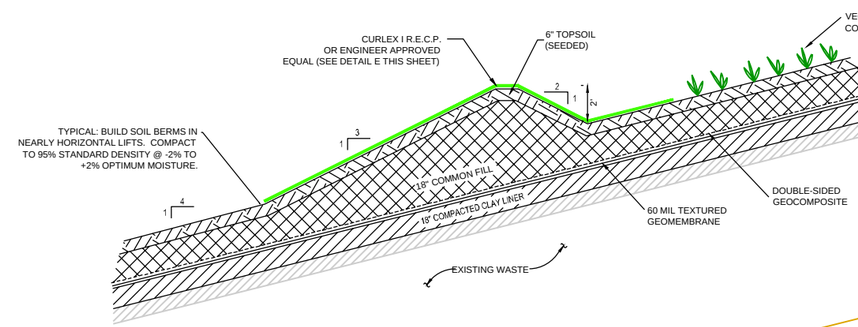
NOTE:
FINISH GRADE, FERTILIZE AND SEED BEFORE APPLYING R.E.C.P.

SECTION E
SCALE: N.T.S. 1-30STE931 | 1-30STE931



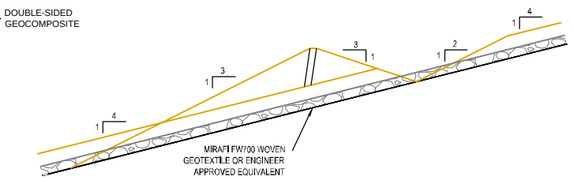
GROUTED RIP RAP LETDOWN STRUCTURE DETAIL

DETAIL 9
SCALE: N.T.S. 1-30STE930 | 1-30STE931



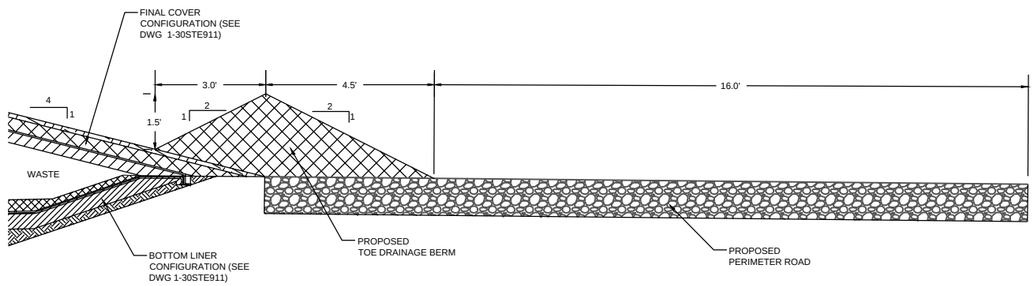
MID-SLOPE BERM DETAIL

DETAIL 8
SCALE: N.T.S. 1-30STE930 | 1-30STE931



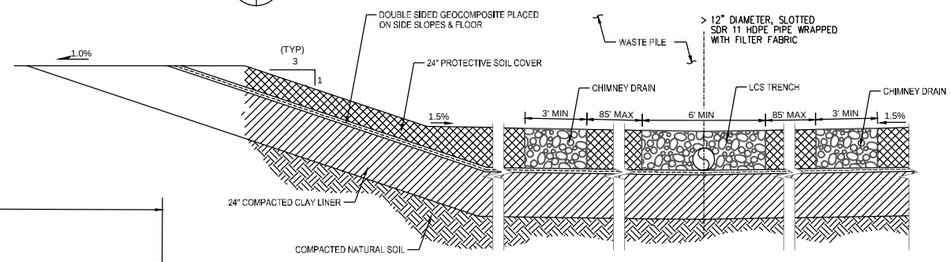
LETDOWN STRUCTURE INTERSECTION

DETAIL 10
SCALE: N.T.S. 1-30STE930 | 1-30STE931



BERM @ TOE OF LANDFILL

DETAIL 11
SCALE: N.T.S. 1-30STE930 | 1-30STE931



LCS TRENCH & CHIMNEY DRAINS

SECTION F
SCALE: N.T.S. 1-30STE931

NOTES:
1. CHIMNEY DRAINS WILL BE UTILIZED IF ON-SITE MATERIAL OR BOTTOM ASH FROM THE FACILITY ARE USED FOR PROTECTIVE COVER.
2. MAXIMUM CHIMNEY DRAIN SPACING WILL BE 85 FT SEPARATION.

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM ELEV. 301.00 = PLANT DATUM ELEV. 101.00
ALL COORDINATES, ELEVATIONS AND DIMENSIONS ARE EXPRESSED IN FEET OR DECIMAL OF A FOOT UNLESS OTHERWISE NOTED

THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

PROJECT NUMBER: 216/002/35167133

Terracon
Consulting Engineers and Scientists
2189 NW SOUTH BRYANT, AR 72022
PH: (501) 847-0892 FAX: (501) 847-9210

DATE	NO.	DESCRIPTION	APPD.
REVISIONS			

RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

SOLID WASTE LANDFILL
MISCELLANDOUS DETAILS
CIVIL SITE PLANS

DWG. NO. FIGURE 4 REV. 0

SCALE: N.T.S. CIVIL
DR: TJB
CH: FDC
FNGR: DCM
PROJ ENGR: DCM
DATE: 8/25/2018
APPROVED BY

AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

IGS0207

DWG. NO. 1-30STE925

LEACHATE COLLECTION POND

STORM WATER RUNOFF POND

DISPOSAL CELL "1"

WETLANDS

N 36,020.92
E 30,088.47
INV 274.42

INSTALL (2) 36" DIA. HDPE CULVERTS L = 170.00

INSTALL PIPE (SEE NOTE 8)

INSPECTION WELL (SEE SECTION "B")

N 35,919.87
E 30,326.30
INV 290.49
(TYP BOTH CULVERTS)

24" SLIDE GATE VALVE
N 35,985.76
E 30,910.88
INV 282.57

N 35,911.42
E 30,910.88
INV 284.00

N 35,787.78
E 30,091.21
INV 282.64
END SOLID/ BEG PERF

N 35,916.56
E 30,197.09
INV 291.97
(TYP BOTH CULVERTS)

INSTALL PIPE (SEE NOTE 6)

(TYP) 2 PLACES

END SOLID/ BEG PERF
N 35,797.89
E 30,627.04
INV 286.05

CO-1A
N 35,797.89
E 30,689.00
INV 286.98

MH-P-01-B
N 35,867.00
E 30,196.25
INV 278.59
TMH 298.40

(2)INSPECTION WELLS (SEE NOTE 7)

INSTALL PIPE (SEE NOTE 6)

MH-P-01-A
N 35,867.00
E 30,508.75
INV 283.31
TMH 298.20

INSPECTION WELL (SEE NOTE 7)

INSTALL PIPE (SEE NOTE 6)

CO-1B
N 35,787.78
E 30,016.00
INV 283.77

(TYP) 2 PLACES

N 35,797.89
E 30,352.50
INV 286.22
INSTALL CAP (TYP

N 35,787.78
E 30,352.50
INV 286.48

INSTALL 12" DIAMETER SLOTTED HDPE LEACHATE COLLECTION PIPE (TYPICAL)

N 35,787.78
E 30,196.25
INV 281.07
END PERF/ BEG SOLID
(SEE NOTE 5)

N 35,797.89
E 30,508.75
INV 284.28
END PERF/ BEG SOLID
(SEE NOTE 5)

N 35,625.01
E 30,508.75
INV 288.01

N 35,542.50
E 30,196.25
INV 287.22

N 35,372.91
E 30,508.75
INV 294.06

N 35,300.24
E 30,196.25
INV 292.07

INSTALL 12" DIAMETER SLOTTED HDPE LEACHATE COLLECTION PIPE (TYPICAL)

(TYP) 2 PLACES

END SOLID/ BEG PERF
N 34,947.87
E 30,508.75
INV 298.31
297.60

INSTALL 12" DIAMETER SOLID HDPE PIPE (TYPICAL)

END SOLID/ BEG PERF
N 34,826.83
E 30,196.25
INV 296.80

CO-1C
N 34,879.03
E 30,508.75
INV 298.41
299.00

CO-1D
N 34,749.78
E 30,196.25
INV 297.57

(TYP) 2 PLACES

N 36,000
N 35,500
N 35,000
N 34,500
E 29,500
E 30,000
E 30,500
E 31,500

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS, DRAWING INDEX AND KEY PLAN SEE DWG NO. 1-30STE901.
2. FOR ABBREVIATIONS SEE DWG NO. 1-30STE900.
3. FOR DISPOSAL CELL "1" EXCAVATION & GRADING PLAN SEE DRAWING No. 1-30STE905.
4. FOR DISPOSAL CELL "1" FINAL GRADING AND COVER PLAN SEE DRAWING No. 1-30STE906.
5. INSTALL CROSS AND FLUID-LOK DOGBONE (OR APPROVED EQUAL) TO TRANSITION TO DOUBLE CONTAINMENT PIPE, SDR 11 x 11.
6. INSTALL 12"x18" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL, SDR 11 x 11.
7. INSTALL IN-LINE INSPECTION WELL THREE (3) FEET PRIOR TO PIPE ENTERING MANHOLE, SDR 11 x 11.
8. INSTALL 18"x24" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL, SDR 11 x 11.

0 30' 60' 120' 180'
SCALE: 1"= 60'

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM INV 301.00 = PLANT DATUM INV 101.00
ALL COORDINATES, ELEVATIONS AND DIMENSIONS ARE EXPRESSED IN FEET OR DECIMAL OF A FOOT UNLESS OTHERWISE NOTED

THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN.

PROJECT NUMBER: 216/002/35167133

Terracon
Consulting Engineers and Scientists
2559 ILIO SOUTH BRYANT, AR 72022
PH: (501) 847-0292 FAX: (501) 847-0210

DATE	NO.	DESCRIPTION	APPD.
		REVISIONS	

RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

SOLID WASTE LANDFILL DISPOSAL CELL "1" PHASE 1 ACTIVE ASH FILLING SEQUENCE

DWG. NO. FIGURE 5 REV: 0

SCALE: AS SHOWN CIVIL
DR: TLB
CH: FDC
ENGR: DCM
PROJ. ENGR: DCM
DATE: 8/25/2016
APPROVED BY

AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

IGS0207

DWG. NO. 1-30STE926

LEACHATE COLLECTION POND

DISPOSAL CELL "2"

DISPOSAL CELL "1"

STORM WATER RUNOFF POND

SECURITY FENCE

WETLANDS

MH-P-02-A
N 35,979.92
E 29,810.50
INV 278.85
(REF) (JOIN)
SEE DWG 1-30STE938

MH-P-02-B
N 35,867.00
E 29,810.50
INV 281.10
TWH 300.90

INSPECTION WELL (SEE NOTE 7)

INSTALL PIPE (SEE NOTE 6)

CO-2A
N 35,784.88
E 29,582.78
INV 286.21

N 35,784.88
E 29,661.89
INV 285.02
END SOLID/
BEG PERF

N 35,784.88
E 29,810.50
INV 282.79
END PERF/
BEG SOLID
(SEE NOTE 5)

N 35,784.88
E 29,971.29
INV 285.20
END SOLID/
BEG PERF

CO-2B
N 35,784.88
E 30,015.93
INV 285.87

INSTALL 12" DIAMETER SLOTTED HDPE LEACHATE COLLECTION PIPE (TYPICAL)

CHIMNEY DRAIN

N 35,547.00
E 29,810.50
INV 288.74

LEACHATE COLLECTION TRENCH (TYP)

N 35,220.17
E 29,810.50
INV 295.43

END SOLID/
BEG PERF
N 34,666.06
E 29,810.50
INV 300.97

CO-2C
N 34,590.23
E 29,810.50
INV 301.55

INSTALL 12" DIAMETER SOLID HDPE PIPE (TYPICAL)

(TYP) A 1-30STE911 2 PLACES

(TYP) C 1-30STE911

B 1-30STE911

1 1-30STE912

A 1-30STE911

E 29,500 | E 30,000 | E 30,500 | E 31,000

N 36,000 | N 35,500 | N 35,000 | N 34,500

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS, DRAWING INDEX AND KEY PLAN SEE DWG NO. 1-30STE901.
2. FOR ABBREVIATIONS SEE DWG NO. 1-30STE900.
3. FOR DISPOSAL CELL "2" EXCAVATION & GRADING PLAN SEE DRAWING No. 1-30STE907.
4. FOR DISPOSAL CELL "2" FINAL GRADING AND COVER PLAN SEE DRAWING No. 1-30STE908.
5. INSTALL CROSS AND FLUID-LOK DOGBONE (OR APPROVED EQUAL) TO TRANSITION TO DOUBLE CONTAINMENT PIPE.
6. INSTALL 12"x18" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL.
7. INSTALL IN-LINE INSPECTION WELL THREE (3) FEET PRIOR TO PIPE ENTERING MANHOLE.

0 30' 60' 120' 180'
SCALE: 1"= 60'

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM INV 301.00 = PLANT DATUM INV 101.00
ALL COORDINATES, ELEVATIONS AND DIMENSIONS ARE EXPRESSED IN FEET OR DECIMAL OF A FOOT UNLESS OTHERWISE NOTED

THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN.

PROJECT NUMBER: 216/002/35167133

Terracon
Consulting Engineers and Scientists
2608 B30 SOUTH BRYANT, AR 72022
PH. (501) 847-9292 FAX. (501) 847-0210

DATE	NO.	DESCRIPTION	APPD.
		REVISIONS	

RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

SOLID WASTE LANDFILL
DISPOSAL CELL "2"
PHASE 2 ACTIVE ASH FILLING SEQUENCE

DWG. NO. FIGURE 6 REV. 0

SCALE: 1"=60'-0"	CIVIL
DR: TJB	
CH: FGC	
ENGR: DCM	
PROJ. ENGR: DCM	
DATE: 8/30/2016	APPROVED BY

AEP AMERICAN ELECTRIC POWER
AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

IGS0207

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

DWG. NO. 1-30STE927

MAKE-UP WATER POND

WASTE WATER POND

LEACHATE COLLECTION POND

STORM WATER RUNOFF POND

DISPOSAL CELL "3"

DISPOSAL CELL "2"

DISPOSAL CELL "1"

WETLANDS

MH-P-03-A
N 35,999.52
E 29,401.70
INV 277.39
(REF) (JOIN)
SEE DWG No.
1-30STE938

MH-P-03-B
N 35,867.00
E 29,378.33
INV 279.95
TMH 304.65

INSPECTION WELL
SEE NOTE 7

INSTALL PIPE
SEE NOTE 8

1-30STE912

CO-3A
N 35,776.71
E 29,147.60
INV 287.30

INSPECTION WELL
SEE NOTE 7

INSTALL PIPE
SEE NOTE 6

END SOLID/
BEG PERF
N 35,776.71
E 29,530.17
INV 286.12

CO-3B
N 35,776.71
E 29,565.00
INV 286.91

A
1-30STE911
(TYP)
2 PLACES

N 35,776.71
E 29,235.21
INV 285.99
END SOLID/
BEG PERF

N 35,776.71
E 29,378.33
INV 283.84
END PERF/
BEG SOLID
(SEE NOTE 5)

INSTALL 12" DIAMETER SLOTTED
HDPE LEACHATE COLLECTION PIPE
(TYPICAL)

N 35,547.00
E 29,378.31
INV 289.58

INSTALL 12" DIAMETER SLOTTED
HDPE LEACHATE COLLECTION PIPE
(TYPICAL)

CHIMNEY
DRAIN

N 35,204.65
E 29,378.33
INV 296.69

C
1-30STE911

LEACHATE
COLLECTION
TRENCH
(TYP)

CHIMNEY
DRAIN

CHIMNEY
DRAIN

END SOLID/
BEG PERF
N 34,638.03
E 29,378.33
INV 301.36

INSTALL 12" DIAMETER
SOLID HDPE PIPE
(TYPICAL)

CO-3C
N 34,561.74
E 29,378.33
INV. 302.82

A
1-30STE911

N 36,500

N 35,500

N 34,500

E 29,500

E 29,500

E 30,500

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS, DRAWING INDEX AND KEY PLAN SEE DWG NO. 1-30STE901.
2. FOR ABBREVIATIONS SEE DWG NO. 1-30STE900.
3. FOR DISPOSAL CELL 3 EXCAVATION AND GRADING PLAN SEE DRAWING No. 1-30STE914.
4. FOR DISPOSAL CELL 3 FINAL GRADING AND COVER PLAN SEE DRAWING No. 1-30STE915.
5. INSTALL CROSS AND FLUID-LOK DOGBONE (OR APPROVED EQUAL) TO TRANSITION TO DOUBLE CONTAIMENT PIPE.
6. INSTALL 12"x18" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL.
7. INSTALL IN-LINE INSPECTION WELL THREE (3) FEET PRIOR TO PIPE ENTERING MANHOLE.
8. INSTALL 18"x24" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL.

N

0 50' 100' 200' 300'

SCALE: 1"= 100'

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM INV 301.00 = PLANT DATUM INV 101.00
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THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN.

PROJECT NUMBER: 216/002/35167133

Terracon
Consulting Engineers and Scientists
25958 I-30 SOUTH BRYANT, AR 72022
PH. (501) 847-9292 FAX (501) 847-9210

DATE	NO.	DESCRIPTION	APPD.
		REVISIONS	

RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

SOLID WASTE LANDFILL
DISPOSAL CELL "3"
PHASE 3 ACTIVE ASH FILLING SEQUENCE

DWG. NO. FIGURE 7 REV: 0

SCALE: AS SHOWN CIVIL
DR: TLB
CH: FDC
FNGR: DCM
PROJ. ENGR: DCM
DATE: 8/25/2016
APPROVED BY:

AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

IOS0207

DWG. NO. 1-30STE928

MAKE-UP WATER POND

WASTE WATER POND

LEACHATE COLLECTION POND

STORM WATER RUNOFF POND

DISPOSAL CELL "3"

DISPOSAL CELL "2"

DISPOSAL CELL "1"

DISPOSAL CELL "4"

WETLANDS

E 29,500

E 30,500

N 36,500

N 35,500

N 34,500

MH-P-04
N 35,867.00
E 28,940.38
INV 283.00
TMH 308.25

MH-P-03-B
N 35,867.00
E 29,378.33
INV 278.70
(REF) (JOIN)
SEE DWG NO
1-30STE927

1
30STE912

INSTALL PIPE
SEE NOTE 8

INSPECTION WELL
SEE NOTE 7

INSTALL PIPE
SEE NOTE 6

CO-4A
N 35,769.40
E 28,707.00
INV 288.50

A
1-30STE912
(TYP)
2 PLACES

N 35,769.40
E 28,940.38
INV 283.00
END PERF/
BEG SOLID
(SEE NOTE 5)

N 35,769.40
E 28,801.11
INV 287.08
END SOLID/
BEG PERF

CO-4B
N 35,769.40
E 29,147.60
INV 288.10

N 35,769.40
E 29,086.39
INV 287.19
END SOLID/
BEG PERF

INSTALL 12" DIAMETER SLOTTED HDPE LEACHATE COLLECTION PIPE (TYPICAL)

N 35,647.00
E 28,940.38
INV 290.55

LEACHATE COLLECTION TRENCH (TYP)

N 35,102.82
E 28,940.38
INV 297.43

CHIMNEY DRAIN

C
(TYP)
30STE911

END SOLID/
BEG PERF
N 34,644.15
E 28,940.38
INV 303.01

INSTALL 12" DIAMETER SOLID HDPE PIPE (TYPICAL)

CO-4C
N 34,561.74
E 28,940.38
INV 303.84

A
30STE911

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS, DRAWING INDEX AND KEY PLAN SEE DWG NO. 1-30STE901.
2. FOR ABBREVIATIONS SEE DWG NO. 1-30STE900.
3. FOR DISPOSAL CELL 4 EXCAVATION AND GRADING PLAN SEE DRAWING No. 1-30STE917.
4. FOR DISPOSAL CELL 4 FINAL GRADING AND COVER PLAN SEE DRAWING No. 1-30STE918.
5. INSTALL CROSS AND FLUID-LOK DOGBONE (OR APPROVED EQUAL) TO TRANSITION TO DOUBLE CONTAINMENT PIPE.
6. INSTALL 12"x18" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL.
7. INSTALL IN-LINE INSPECTION WELL THREE (3) FEET PRIOR TO PIPE ENTERING MANHOLE
8. INSTALL 18"x24" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL.

N

0 50' 100' 200' 300'

SCALE: 1"= 100'

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
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THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN.

PROJECT NUMBER: 216/002/35167133

Terracon
Consulting Engineers and Scientists
25958 I-30 SOUTH BRYANT, AR 72022
PH: (501) 847-9292 FAX: (501) 847-9210

DATE	NO.	DESCRIPTION	APPD.

REVISIONS

RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

SOLID WASTE LANDFILL
DISPOSAL CELL "4"
PHASE 4 ACTIVE ASH FILLING SEQUENCE

DWG. NO. FIGURE 8 REV: 0

SCALE: MEMPHIS/AL
DR: TLB
CH: FOC
ENGR: DCM
PROJ. ENGR: DCM
DATE: 8/25/2016
APPROVED BY:

CIVIL

AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

IGS0207

CM 1 2 3 4 5 6 7

16 INCH 4 12 16

TENTHS 10 20 30

INCHES 1 2 3

DWG. NO. 1-30STE929

MAKE-UP WATER POND

WASTE WATER POND

LEACHATE COLLECTION POND

STORM WATER RUNOFF POND

DISPOSAL CELL "4"

DISPOSAL CELL "3"

DISPOSAL CELL "2"

DISPOSAL CELL "1"

DISPOSAL CELL "5"

WETLANDS

MH-P-04
N 35,867.00
E 28,940.38
INV 283.00
(REF) (JOIN)
SEE DWG No.
1-30STE928

MH-P-05
N 35,867.00
E 28,490.23
INV 287.60
TMH 311.25

CO-5A
N 36,772.73
E 28,251.23
INV 292.23

INSPECTION WELL SEE NOTE 7

INSTALL PIPE SEE NOTE 6

CO-5B
N 35,772.73
E 28,707.00
INV 291.89

N 35,772.73
E 28,647.92
INV 291.01
END SOLID/
BEG PERF

N 35,772.73
E 28,340.87
INV 290.88
END SOLID/
BEG PERF

N 35,772.73
E 28,490.23
INV 288.64
END PERF/
BEG SOLID
(SEE NOTE 5)

INSTALL 12" DIAMETER SLOTTED HDPE LEACHATE COLLECTION PIPE (TYPICAL)

N 35,547.00
E 28,490.23
INV 294.29

CHIMNEY DRAIN

LEACHATE COLLECTION TRENCH (TYP)

N 35,200.66
E 28,490.23
INV 301.20

(TYP)

END SOLID/
BEG PERF
N 34,639.52
E 28,490.23
INV 306.81

INSTALL 12" DIAMETER SOLID HDPE PIPE (TYPICAL)

CO-5C
N 34,561.74
E 28,490.23
INV 308.01

1-30STE912

A
1-30STE911

C
1-30STE911

N 36,500

N 35,500

N 34,500

E 29,500

E 30,500

NOTES:

1. FOR GENERAL NOTES, SPECIFICATIONS, DRAWING INDEX AND KEY PLAN SEE DWG NO. 1-30STE901.
2. FOR ABBREVIATIONS SEE DWG NO. 1-30STE900.
3. FOR DISPOSAL CELL 5 EXCAVATION AND GRADING PLAN SEE DRAWING No. 1-30STE919.
4. FOR DISPOSAL CELL 5 FINAL GRADING AND COVER PLAN SEE DRAWING No. 1-30STE920.
5. INSTALL CROSS AND FLUID-LOK DOGBONE (OR APPROVED EQUAL) TO TRANSITION TO DOUBLE CONTAINMENT PIPE.
6. INSTALL 12"x18" FLUID-LOK HDPE DOUBLE CONTAINMENT PIPE OR APPROVED EQUAL.
7. INSTALL IN-LINE INSPECTION WELL THREE (3) FEET PRIOR TO PIPE ENTERING MANHOLE.

N

0 50' 100' 200' 300'

SCALE: 1"= 100'

NOTE:
ALL CONTOURS SHOWN ARE TO FINISH GRADE OF ROADS, DITCHES, BERMS, PROTECTIVE SOIL COVER AND CAP

NOTE:
ALL ELEVATIONS SHOWN ARE IN NAVD 1988 DATUM
NAVD 1988 DATUM INV 301.00 = PLANT DATUM INV 101.00
ALL COORDINATES, ELEVATIONS AND DIMENSIONS ARE EXPRESSED IN FEET OR DECIMAL OF A FOOT UNLESS OTHERWISE NOTED

THIS DRAWING ISSUED FOR THE LANDFILL RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN.

DATE	NO.	DESCRIPTION	APP'D
		REVISIONS	

RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN

SWEPCO
JOHN W. TURK JR. POWER PLANT UNIT 1
FULTON ARKANSAS

SOLID WASTE LANDFILL
DISPOSAL CELL "5"
PHASE 5 ACTIVE ASH FILLING SEQUENCE

DWG. NO. FIGURE 9 REV: 0

PROJECT NUMBER: 216/002/35167133

SCALE: MINIMUM
DR: TLB
CH: FOC
FNGR: DCM
PROJ ENGR: DCM
DATE: 8/25/2016
APPROVED BY:

CML

Terracon
Consulting Engineers and Scientists
2559 HWY 5 SOUTH BRYANT, AR 72022
PH: (501) 847-5892 FAX: (501) 847-5210

AEP AMERICAN ELECTRIC POWER
AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

SYSTEM DATE= DD-MMM-YYYY
SYSTEM TIME= HOUR:MINUTE

IGS0207

APPENDIX 2: PLAN REVIEW LOG

Plan Review and Changes in Facility Configuration

Scheduled reviews and Plan amendments shall be recorded in the Plan Review Log below. This log must be completed even if no amendment is made to the Plan as a result of the review.

By	Date	Amendment Description	P.E. certification required?	P.E. Name	Licensing State: Registration No.

APPENDIX 3: PROFESSIONAL ENGINEER CERTIFICATION PAGE

Professional Engineer Certification Page

The undersigned licensed Professional Engineer (P.E.) attests that this Run-on and Run-off Control Plan has been prepared, reviewed, and/or revised in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR 257. This certification in no way relieves the owner or operator of the facility of his/her duty to fully implement this Plan.

Engineer:	David McCormick, P.E.
Registration Number:	9199
State:	Arkansas Terracon COA # 223
Date:	10/7/16

P.E. certification is required for the original Plan and Plan reviews and amendments.

