APPENDIX D –
CCR MANAGEMENT UNIT
CROSS SECTIONS

Exhibit No.

D-1

Title

Cross Section Transect Map

Client/Project

Tennessee Valley Authority
Johnsonville Fossil (JOF) Plant TDEC Order

Project Location

New Johnsonville, Tennessee

175568286

Prepared by DMB on 2023-08-17
Technical Review by MD on 2023-08-17

0 450 900 1,350 1,800 Feet

1:5,400 (At original document size of 22x34)

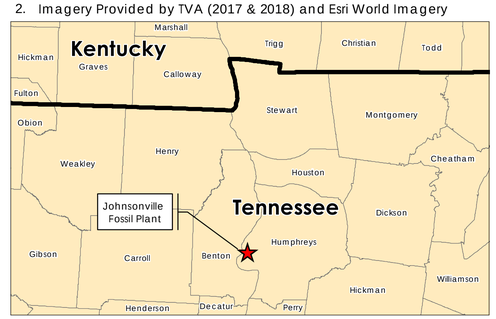
Legend

- Cross Section Alignment
- Boring
- Groundwater Investigation Monitoring Well
- Other Monitoring Well
- Temporary Well within CCR Material
- Tennessee River/Kentucky Lake Gauging Station
- 2017 Imagery Boundary
- 2018 Imagery Boundary
- CCR Management Unit Area (Approximate)
- Former Coal Yard (Approximate)
- Former Stilling Pond (Approximate)

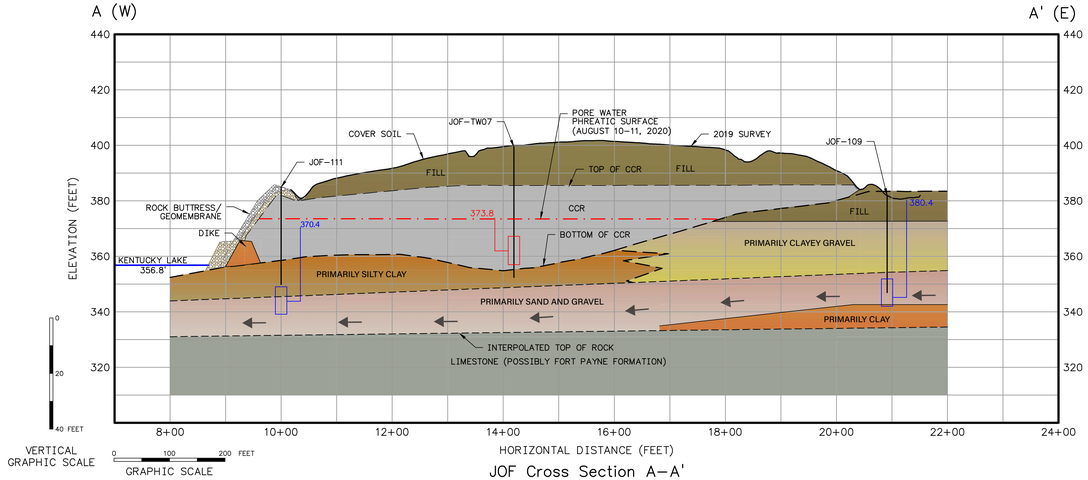
CCR: Coal combustion residuals

Notes

1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Imagery Provided by TVA (2017 & 2018) and Esri World Imagery



Stantec TVA

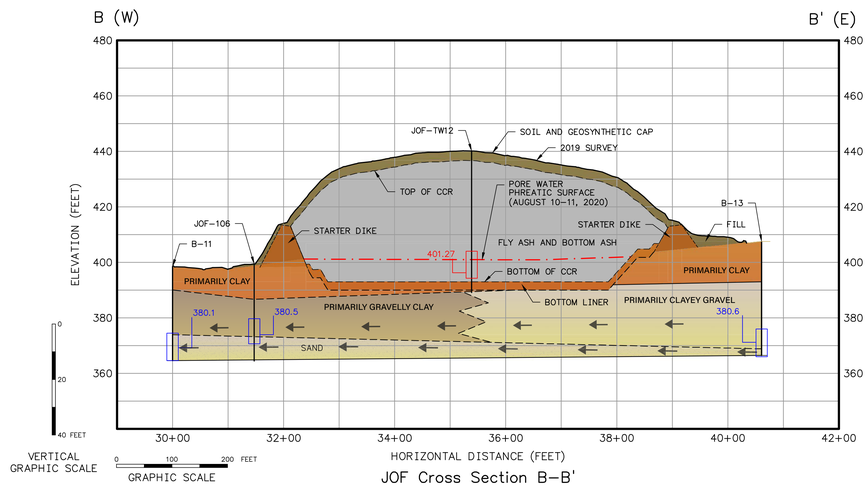


JOF Cross Section A–A'
Ash Disposal Area 1

GENERAL GROUNDWATER FLOW DIRECTION

SCREEN INTERVAL SHOWING GROUNDWATER PRESSURE EXPRESSED IN FEET OF ELEVATION (AUGUST 10–11, 2020)

SCREEN INTERVAL SHOWING PORE WATER PRESSURE EXPRESSED IN FEET OF ELEVATION (AUGUST 10–11, 2020)



JOF Cross Section B–B'
DUPONT ROAD DREDGE CELL

GENERAL GROUNDWATER FLOW DIRECTION

SCREEN INTERVAL SHOWING GROUNDWATER PRESSURE EXPRESSED IN FEET OF ELEVATION (AUGUST 10–11, 2020)

SCREEN INTERVAL SHOWING PORE WATER PRESSURE EXPRESSED IN FEET OF ELEVATION (AUGUST 10–11, 2020)

Exhibit No.

D-2

Title

CROSS SECTIONS - ASH DISPOSAL AREA 1 AND DUPONT ROAD DREDGE CELL

Client/Project

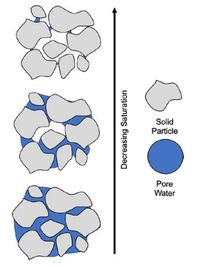
Tennessee Valley Authority
Johnsonville Fossil (JOF) Plant

Project Location

New Johnsonville, Tennessee

175568286

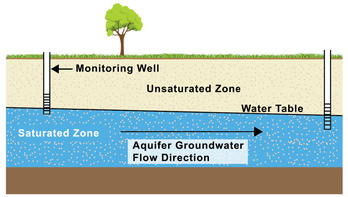
Prepared by KB on 2023-01-08
Technical Review by MD on 2023-01-08



This figure depicts how subsurface water occurs in the pore spaces in CCR material (referred to as 'pore water' in this EAR), and how saturation varies within the CCR material. The phreatic surface is the surface of pore water at which pressure is atmospheric and below which CCR material may be saturated with pore water.

Groundwater is subsurface water that occurs in pore spaces in soil or bedrock. Groundwater generally flows much more slowly than in surface stream or river water.

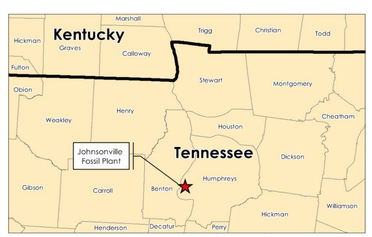
Figure Reference: Benson, C., Water Flow in Coal Combustion Products and Drainage of Free Water, Report No. 3002021963, Electric Power Research Institute , Palo Alto, CA.

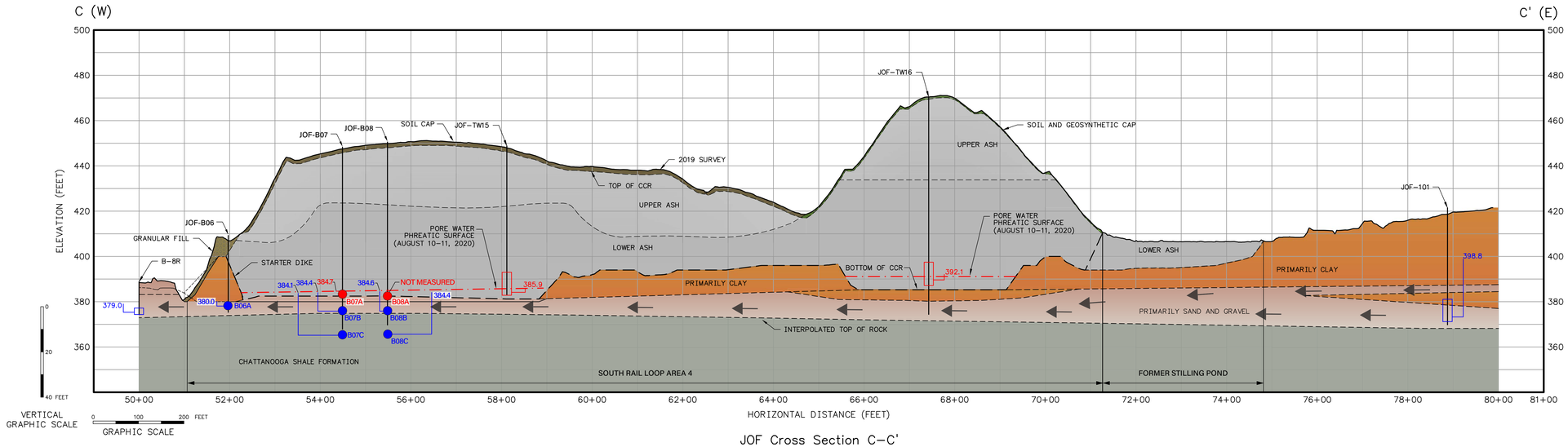


Groundwater is subsurface water that occurs in pore spaces in soil or bedrock. Groundwater level measurements taken in a well screened near the water table in an unconfined aquifer represent the water level in the aquifer. Groundwater level measurements are used to estimate directions of groundwater movement. Groundwater generally flows much more slowly than water in a surface stream or river.

Notes

1. Elevations are in feet amsl
2. Groundwater and pore water elevation data are from the CUF Plant Groundwater Investigation SAR event.
3. Complexity of bedrock not shown herein; refer to Bulletin 68 (Wilson, et al 1968) for a more detailed discussion of bedrock geology.





JOF Cross Section C–C'
South Rail Loop Area 4

GENERAL GROUNDWATER FLOW DIRECTION

SCREEN INTERVAL SHOWING GROUNDWATER PRESSURE EXPRESSED IN FEET OF ELEVATION (AUGUST 10–11, 2020)

SCREEN INTERVAL SHOWING PORE WATER PRESSURE EXPRESSED IN FEET OF ELEVATION (AUGUST 10–11, 2020)

Exhibit No.
D-3

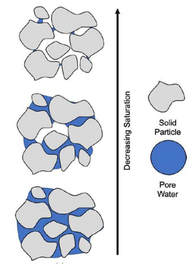
Title
CROSS SECTIONS - SOUTH RAIL LOOP AREA 4

Client/Project
Tennessee Valley Authority
Johnsonville Fossil (JOF) Plant

Project Location
New Johnsonville, Tennessee

175568286

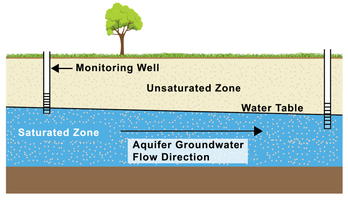
Prepared by KB on 2024-01-09
Technical Review by JD on 2024-01-09



This figure depicts how subsurface water occurs in the pore spaces in CCR material (referred to as 'pore water' in this EAR), and how saturation varies within the CCR material. The phreatic surface is the surface of pore water at which pressure is atmospheric and below which CCR material may be saturated with pore water.

Groundwater is subsurface water that occurs in pore spaces in soil or bedrock. Groundwater generally flows much more slowly than in surface stream or river water.

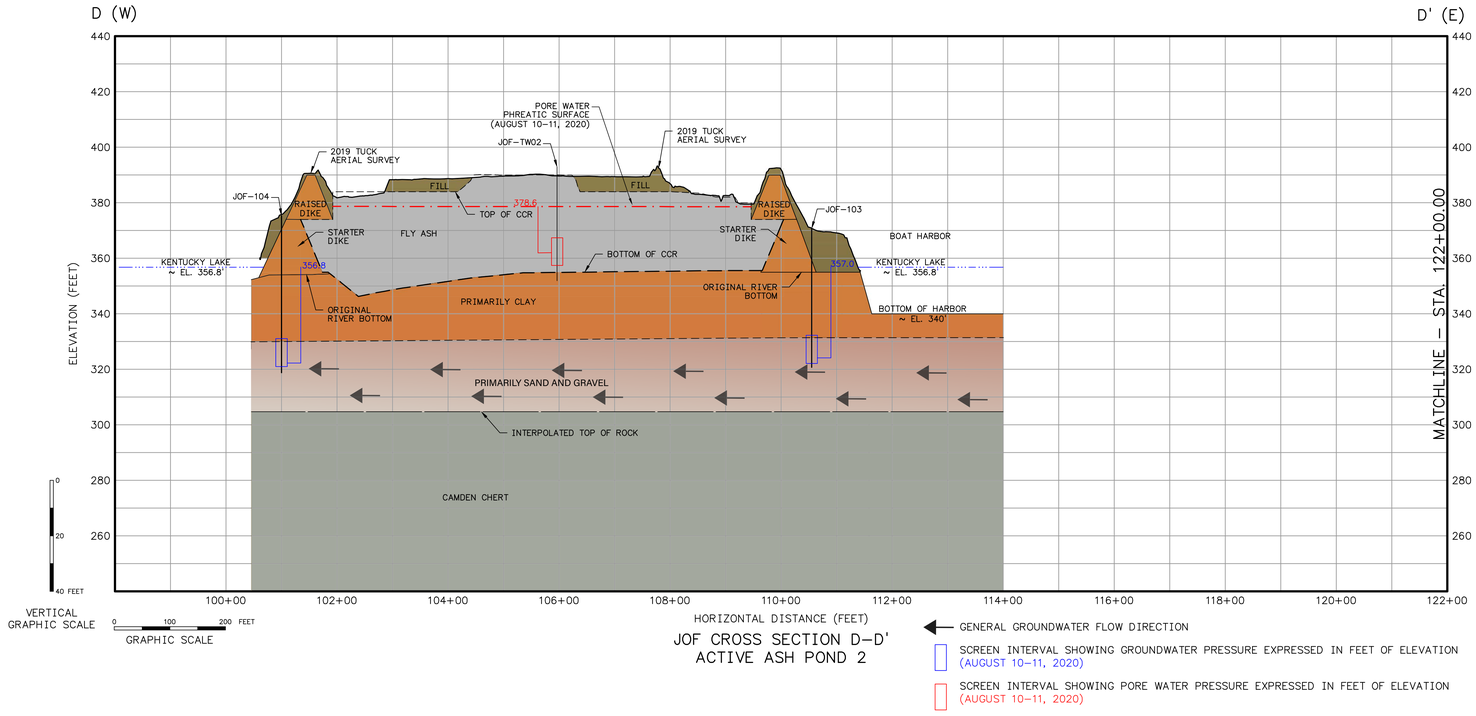
Figure Reference: Benson, C., Water Flow in Coal Combustion Products and Drainage of Free Water, Report No. 3002021963, Electric Power Research Institute , Palo Alto, CA.



Groundwater is subsurface water that occurs in pore spaces in soil or bedrock. Groundwater level measurements taken in a well screened near the water table in an unconfined aquifer represent the water level in the aquifer. Groundwater level measurements are used to estimate directions of groundwater movement. Groundwater generally flows much more slowly than in a surface stream or river.

Notes

1. Elevations are in feet amsl
2. Groundwater and pore water elevation data are from the CUF Plant Groundwater Investigation SAR event.
3. Complexity of bedrock not shown herein; refer to Bulletin 68 (Wilson, et al 1968) for a more detailed discussion of bedrock geology.



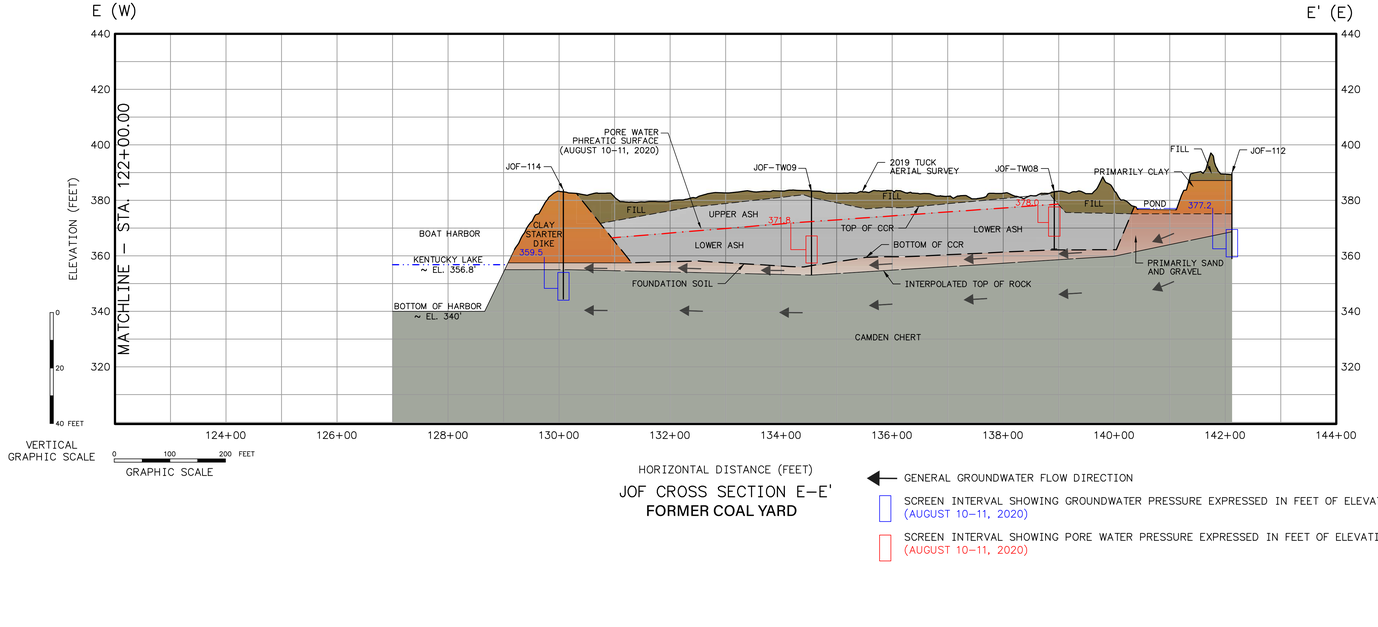


Exhibit No.

D-4

Title

CROSS SECTION - ACTIVE ASH POND 2 AND FORMER COAL YARD

Client/Project

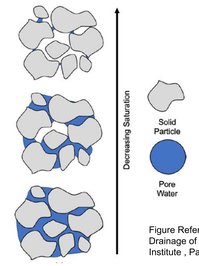
Tennessee Valley Authority
Johnsonville Fossil (JOF) Plant

Project Location

New Johnsonville, Tennessee

175568286

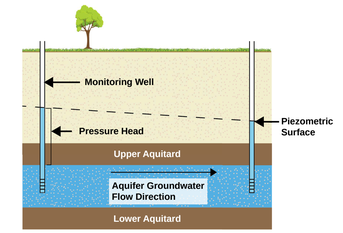
Prepared by KB on 2023-12-21
Technical Review by MD on 2023-12-21



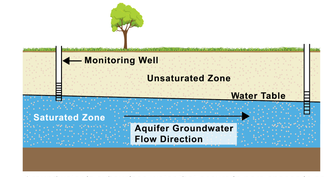
This figure depicts how subsurface water occurs in the pore spaces in CCR material (referred to as 'pore water' in this EAR), and how saturation varies within the CCR material. The phreatic surface is the surface of pore water at which pressure is atmospheric and below which CCR material may be saturated with pore water.

Groundwater is subsurface water that occurs in pore spaces in soil or bedrock. Groundwater generally flows much more slowly than in surface stream or river water.

Figure Reference: Benson, C., Water Flow in Coal Combustion Products and Drainage of Free Water, Report No. 3002021963, Electric Power Research Institute , Palo Alto, CA.



Groundwater is subsurface water that occurs in pore spaces in soil or bedrock. In a confined aquifer, measured groundwater levels rise above the top of the aquifer, but the actual level of groundwater is constrained by the upper aquitard. The difference between the measured groundwater level within the aquifer and the top of the aquifer is called the pressure head. Because the level of groundwater within a confined aquifer is constrained by the upper aquitard, groundwater in a confined aquifer is not in contact with the geologic unit located above the upper aquitard. The aquitard physically separates them. Groundwater level measurements are used to estimate directions of groundwater movement. Groundwater generally flows much more slowly than water in a surface stream or river.



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3. Complexity of bedrock not shown herein; refer to Bulletin 68 (Wilson, et al 1968) for a more detailed discussion of bedrock geology.