

Kentucky Power Company  
KPSC Case No. 2021-00421  
AG-KIUC Post-Hearing Data Request  
Dated March 2, 2022

**DATA REQUEST**

**AG-KIUC** Please provide an estimate, including all work papers, of the cost to  
**PHDR 1** decommission the entire Mitchell Plant using the definition of  
decommissioning included in the proposed Ownership Agreement.

**RESPONSE**

For the purposes of this response the Company is providing estimate of both the demolition cost, net of salvage of the plant itself, as well as costs expected to be incurred to remediate asbestos and close ash ponds which are recorded in Asset Retirement Obligations (ARO's).

Please see [KPCO\\_R\\_AG-KIUC\\_PHDR\\_1\\_Attachment1](#) for a copy of the latest demolition estimate prepared for the Company's Mitchell Plant in 2018.

Please see [KPCO\\_R\\_AG-KIUC\\_PHDR\\_1\\_Attachment2](#) for the ARO-related decommissioning costs in current dollars.

All of these amounts are total plant.

Witness: Jason A. Cash



# Mitchell Power Plant

Moundsville, WV

January 8, 2018

Conceptual Dismantlement Cost

**American Electric Power Company  
Mitchell Plant  
MOUNDSVILLE, WEST VIRGINIA**

**Dismantling Information**

**January 8, 2018**

**MITCHELL AEP POWER PLANT  
CONCEPTUAL DEMOLITION PLAN**

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**DEFINITIONS:**

**Concrete Debris**

Concrete stacks, cooling towers, and floor slabs (estimated 35,911 cubic yards)

**Construction / Demolition Debris**

Any solid waste resulting from the construction, remodeling, repair, or demolition of structures. Such wastes may include, but not limited to;

roof material/drywall/ceiling tiles/fiberglass (estimated 12,692 yards)

railroad ties (estimated 8,525 ties)

**Contractor**

The individual, partnership or corporation with which AEP Company enters into a contract to perform all of the work described in the Specification.

**Contract**

A purchase order placed by Purchaser and accepted by Contractor, together with this Specification and all other documents referred to in such purchase order, or a formal contract executed by Purchaser and Contractor, together with this Specification and all other documents referred to in such formal contract.

**Engineer**

The Engineer or his authorized representative designated by AEP Company to be assigned to this contract.

**Fill Material**

Material to be used to bring area to grade.

**Greases**

Any used or unused greases or waste containing grease.

**Hazardous Waste**

Hazardous waste as defined in 40 CFR 261.3 or as defined in any applicable state regulation.

**HAZMATs**

Any hazardous, toxic or regulated substance controlled under RCRA, CERCLA or any other Federal, State, or Local law, statute, regulation or ordinance pertaining to the handling, transportation, or disposal of any controlled substance.

**SDS**

Safety Data Sheet.

**Non-Ferrous Scrap (estimated 2,506,932 lbs)**

All non-ferrous scrap such as copper or brass

**Oils (estimated 10,000 gallons)**

Any used or unused hydraulic, lubrication, rolling, waste or other such oil or oily waste.

**OSHA**

Occupational Safety and Health Act and amendments thereto.

**PCBs**

Polychlorinated By-phenols (plant personnel verified that there are no PCB's present at the site).

**Process Materials**

Any raw materials, blended raw materials, recyclable process generated dusts (such as flue dust), fly ash, ash slurry and etc.

**SCR Unit**

Selective Catalytic Reduction Unit

**Scrap Ferrous (estimated 61,456 tons)**

All ferrous scrap designated by the Engineer to be suitable for melting at a steel processing plant.

**Structural Removal**

As in the Specification, shall mean all work of every nature described herein, implied herein, or necessary to complete the work described or implied herein, with the exception of Asbestos Abatement.

**AEP Company**

American Electric Power Company

**American Electric Power Company  
Mitchell Plant  
MOUNDSVILLE, WEST VIRGINIA**

**Information Sheets**

**Dismantling Information**

**January 8, 2018**

**MITCHELL POWER**

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1. GENERAL SCOPE OF WORK
    - 1.1. The work to be performed under the terms of this specification shall consist of the dismantling and removal of all facilities, machinery, equipment, all associated structures, foundations, debris, asbestos containing materials, hazardous substances and hazardous waste as directed by the Engineer. Upon completion each dismantling site shall be left in a neat, clean, safe condition.
    - 1.2. Work under this specification shall be performed in accordance with the terms and conditions of the Contract, entered into between AEP Company and the Contractor, and in accordance with all EPA, OSHA, Federal, State, County, and Local laws, statutes, ordinances, and regulations.
    - 1.3. The Contractor shall perform all utility disconnection and/or relocation work which is necessary to complete the proposed dismantling and removal work, without disrupting active utilities.
    - 1.4. The Contractor shall perform all excavation, back-filling, construction and closure work which is necessary to complete the proposed dismantling work.
    - 1.5. The Contractor shall provide all labor, materials, equipment, services and pay all necessary taxes, in addition to securing all required permits, to perform the dismantling.
    - 1.6. The Contractor is responsible to clean up and dispose of any and all materials which are generated as a result of a spill caused by the Contractor, or which are generated as a result of the improper handling of any materials by the Contractor. This includes all RACM, Hazardous Substances, Hazardous Waste, Special wastes, Non-process Debris, Demolition Debris, and combustible materials.
    - 1.7. Brandenburg shall not perform any work on the existing 10,000 foot deep test hole located to the southwest of the existing cooling tower.
    - 1.8. Brandenburg assumes that the existing coal contained within the existing coal storage area shall be consumed and / or removed by others prior to the commencement of the removal efforts.
    - 1.9. The existing 765 KV Switch Yard located on the west side of the existing highway shall remain intact prior to the removal efforts.
    - 1.10. The Little Broad Run asphalt haul road to the existing fly ash ponds (approximately 3 miles) shall remain intact following the removal efforts in order to assist in gaining access to the existing landfill for testing and

monitoring operations.

2. FACILITY DISMANTLEMENT AND RELATED WORK

- 2.1. Perform the environment abatement of the following:
  - 2.1.1. HAZMAT sweep of structures, tanks, and pipe in Boiler area
  - 2.1.2. Remove fluorescent light bulbs, PCB ballast, mercury vapor light, HID vapor lights and mercury containing instruments.
  - 2.1.3. Remove office, storage and maintenance building fluorescent light bulbs, PCB ballast, mercury vapor light, HID vapor lights and mercury containing instruments.
  - 2.1.4. Remove the river water make-up screen and pump house building fluorescent light bulbs, PCB ballast, mercury vapor light, HID vapor lights and mercury containing instruments.
- 2.2. Perform the building dismantling, equipment removal, concrete removal to surrounding grade elevation of the following.
  - 2.2.1. Unit 1 and 2 Boiler building and associated top hung boilers
  - 2.2.2. Turbine generator building and associated equipment
  - 2.2.3. Two (2) precipitators and associated ductwork
  - 2.2.4. The FGD & SCR unit(s)
  - 2.2.5. The existing Dry Fly Ash and pipe bridge from the Boiler Building to the fly ash storage silos.
  - 2.2.6. Two (2) hyperbolic water cooling tower structures, adjacent pump structures, adjacent condensate water tank(s) to surround grade elevation. Fill the pits and trenches to surround grade elevation.
  - 2.2.7. The Railcar dumper building, adjacent control building, the coal conveyors and coal transfer and sampling buildings.
  - 2.2.8. The tractor shed and coal handling service building.
  - 2.2.9. The temporary storage / maintenance buildings.
  - 2.2.10. The two (2) 1,500,000 gallon fuel oil storage tanks. Remove the dike wall surrounding the fuel tank to surrounding grade elevation. Remove all pumps, pipe, wires, and controls from the tank area.
  - 2.2.11. The Service Building
  - 2.2.12. The existing Gate House
  - 2.2.13. The coal barge unloader and E-Crane to the top of the concrete and sheet piling cells.
  - 2.2.14. The railroad car thawing building structure and equipment down to surrounding grade elevation.
  - 2.2.15. The concrete dock river cells shall have the sheet piling, and the concrete cap removed down to the mud line.
  - 2.2.16. Old and New Stacks
  - 2.2.17. CPS Treatment Facility
  - 2.2.18. Gypsum Storage Building
  - 2.2.19. Miscellaneous Storage tanks throughout

2.2.20. Miscellaneous structures throughout

3. WORK BY CONTRACTOR

The Contractor Shall:

- 3.1. Furnish all supervision, labor, materials, tools, supplies and equipment necessary to perform the work, including dismantling and removal of all the facilities, equipment, structures, etc. noted herein with the exception of specific structures which are designated in this Specification to remain.
- 3.2. Furnish on the site, during the performance of the work, an experienced supervisor who shall be duly authorized to represent and act for the Contractor in all matters pertaining to the work covered by this Specification.
- 3.3. Provide all written instructions, orders, and other communications delivered to the Contractor's construction office shall be considered as having been delivered to the Contractor himself.
- 3.4. Develop detailed written demolition plans for each area to be dismantled, and submit them to the Engineer for his review prior to the start of work in an area. Such plans shall include, but limited to:
  - 3.4.1. A detailed and complete schedule for the performance of the work.
  - 3.4.2. A survey of each area, identifying all materials to be disposed of other than scrap and equipment.
  - 3.4.3. Identification and protection of demolition areas.
  - 3.4.4. Termination and/or relocation of utilities.
  - 3.4.5. Handling and disposal of hazardous wastes and materials.
  - 3.4.6. Handling and disposal of oils and greases.
  - 3.4.7. Handling and disposal of non-hazardous debris and materials.
  - 3.4.8. Fire prevention and protection.
  - 3.4.9. Handling and storage locations for ferrous and non-ferrous scrap.
  - 3.4.10. Method of demolition and/or equipment removal.
  - 3.4.11. Clean-out, breaking open, and filling of basements, pits, and tunnels.
  - 3.4.12. Final grading and restoration of demolition site.
- 3.5. Clear each site of existing equipment, structures, and material designated to be removed. Each site will be left in a neat, clean, safe condition in conformity with all applicable Federal, State, or Local laws, statutes and/or regulations, including but not limited to CAA, OSHA, RCRA, SARA, TSCA, and/or CERCLA. The finished condition of each site will be approved by the Engineer.
- 3.6. Remove all structures down to final grade except where otherwise noted. Final grade will generally be the adjacent grade surrounding the facility to be removed. The removal of concrete & debris and grading will be done concurrent with the demolition work. As one area is cleared of structures, the required concrete removal work in that area will be done simultaneously with the demolition of structures in the next area of work. If the Contractor breaches the provisions of this section AEP Company reserves the right, in AEP Company's sole opinion, to stop the Contractor from doing further demolition until the concrete and debris removal is current.
- 3.7. Perform all material removal work in accordance with all applicable Federal, State, and/or Local rules, regulations and/or ordinances, which is necessary to complete the proposed removal work.
- 3.8. Perform all utility, telecommunications and telemetering disconnection and/or relocation work which is necessary to complete the proposed removal work.

- 3.9. Prior to beginning demolition of any facility, Contractor shall ascertain that no live utilities remain in the facility and identify and locate all underground utilities. It shall be the Contractor's exclusive responsibility to determine that all utility systems in each area remain isolated from active utility systems.
- 3.10. Perform all excavation, back-filling, construction and closure work which is necessary to complete the proposed dismantling and removal work.
- 3.11. Remove all debris generated as a result of the proposed removal work.
- 3.12. Break the floors of all pits, trenches and depressions sufficiently to provide drainage and to prevent the accumulation of water within the underground structure.
- 3.13. Tunnel and basement roof structures which do not support structures designated to remain and which are located less than 3 feet below finish grade elevation will be broken in. Said tunnel excavations will be filled with fill materials approved by the Site Engineer up to finish grade elevation.
- 3.14. Properly drain and capture all contents of pipelines prior to dismantling any pipelines.
- 3.15. Empty and shovel clean all pits, sumps, basements, and depressions to the satisfaction of the Engineer. Areas will be inspected by the Site Engineer prior to filling. Any pits, sumps, basements or depressions in contact with a hazardous waste or PCB shall be decontaminated in accordance with any applicable Federal and/or State rules and/or regulations.
- 3.16. Back-fill all pits, sumps, and depressions up to existing grade. Each site shall be rough graded and left in a neat, clean, safe condition. Contractor will use fill material approved by the Engineer. The final six inches of fill shall be other select fill material approved by the Engineer.
- 3.17. Furnish all fill material in accordance with the Specification. If the work activity generates more fill material than needed, the Contractor shall pay for the transportation and disposal off site. If the work activity is fill negative, the Contractor shall pay for the purchase and transportation of required fill to the site. Such purchased material shall be approved by the Site Engineer.
- 3.18. Furnish portable sanitary facilities and drinking water for Contractor's personnel in areas of removal.
- 3.19. Furnish electric power and temporary lighting in those areas of removal where active utilities are not available.
- 3.20. Provide adequate protective barriers for open pits, holes and depressions, as a result of the equipment removal work, until they are properly backfilled. Temporary barricades shall conform to all applicable Federal, State and Local, rules and regulations or standards including, but not limited to OSHA.
- 3.21. Remove above ground utility support systems such as poles, structural steel towers or guy wires which have been designated to be removed by the Engineer.
- 3.22. Remove and scrap all tanks, including supporting steel and concrete structures. Prior to removal work Contractor shall remove the contents of each tank, drain each tank and otherwise purge each tank in accordance with all applicable rules or regulations to render them safe for removal. Notify Engineer of any potentially contaminated soils. Remove of these tanks shall conform to all applicable Federal, State, and Local laws, statutes, regulations or ordinances.
- 3.23. Secure the approval of local Fire Department for the Fire Prevention Plan. Contractor shall meet with representatives of the Fire Department prior to commencement of work on each facility. Prior to the commencement of removal work, Contractor shall inspect all fire hydrants in the work area and shall notify the Engineer of those that are not in good operating condition.
- 3.24. Provide fire extinguishers and fire hoses as required to immediately control any fires resulting from the work. Implement all fire prevention measures as directed by the Fire Department. Measures required by Fire Department may include, but will not be limited to, the maintenance of pressurized fire hoses at each removal



site.

- 3.25. Attend a safety meeting with AEP Company's representatives prior to starting work in each facility or designed area.
- 3.26. Furnish all temporary or permanent supports or protective devices which are necessary to preserve active pipes, electrical lines or other structures which AEP Company designates to remain in place.
- 3.27. Abide by AEP Company Contractor Safety Responsibilities, AEP Company Energy Control-Lockout and Tryout Rules, as well as all Federal, State, and Local regulations.
- 3.28. Secure the Engineer's approval prior to using any railroad track or mobile crane movements to or from the dismantling site.
- 3.29. Schedule rail movements, order all railroad cars and be solely responsible for demurrage charges resulting from the Contractor's operations.
- 3.30. Where Contractor removes railroad track, the Contractor shall remove all wooden and concrete ties, and load and transport them to an approved disposal site approved by the Engineer. Contractor shall be responsible for the cost of all removal, loading, transportation, and disposal of such material.
- 3.31. HAZARDOUS WASTE HANDLING AND DISPOSAL
  - 3.31.1. Contractor shall provide all supervision, labor, consumable materials, tools, equipment, documentation, services and permits required to identify, remove and load any hazardous waste located in, adjacent to or forming a part of the equipment designated for removal. Contractor shall be responsible to perform all in-plant handling of such materials, including, but not limited to removal, loading, and in-plant transportation. Hazardous waste removal work shall include, but is not necessarily limited to, the work described herein.
  - 3.31.2. Contractor is required to secure samples of all materials, which are suspected of being a hazardous waste, located in the areas defined in this Specification. Samples shall be collected in accordance with all applicable regulations. Contractor shall deliver all samples of suspected hazardous waste to the Engineer. AEP Company shall secure required analyses of all such samples.
  - 3.31.3. Prepare a complete written hazardous waste removal plan for each work site that will be submitted to the Engineer for his review prior to the start of work in an area.
  - 3.31.4. Contractor shall provide all respirators, protective clothing and equipment required to protect all personnel associated with the handling or removal of any Hazardous Wastes. All said respirators, protective clothing and equipment shall conform to all applicable rules, regulations and standards, including but not limited to OSHA.
  - 3.31.5. Employ only competent persons, trained, knowledgeable and qualified in the techniques of handling and disposal of hazardous wastes and subsequent cleaning of contaminated areas. Employees who perform hazardous waste removal work shall possess current, valid licenses as required by any government agency having jurisdiction over the work. Perform all hazardous waste removal in strict accordance with all applicable Federal, State and Local laws, statutes, ordinances and regulations. Contractor shall provide timely and accurate notification in accordance with all Federal, State and Local laws, statutes, regulations and ordinances.
  - 3.31.6. Contractor shall post all appropriate warning signs at each work area, as is required by applicable regulations.
  - 3.31.7. Maintain complete and accurate records of all removal activities in accordance with all Federal, State, and Local laws, statutes, regulations and ordinances. Contractor shall submit copies of all such records to AEP Company on a weekly basis.

- 3.31.8. Perform personal monitoring as necessary to assure the safety of all persons associated with the removal of hazardous wastes and as required by Federal, State, and Local laws, statutes, regulations and ordinances. If so required, Contractor shall perform environmental air monitoring in the area of each location where hazardous waste removal work is performed. Environmental air monitoring shall comply with applicable Federal, State, and Local laws, statutes, regulations and ordinances.
- 3.31.9. AEP Company shall be responsible for disposal, the method of disposal and the disposal site for all identified hazardous waste except asbestos waste. Contractor shall load all such wastes into trucks or containers provided by AEP Company.

3.32. CONSTRUCTION / DEMOLITION WASTE

- 3.32.1. Contractor is required to perform the work described herein in a manner that will separate construction / demolition waste from ferrous scrap, combustible waste, non-ferrous scrap, ferrous scrap, process demolition waste, oils and greases, hazardous wastes, and all other materials.
- 3.32.2. Contractor shall identify all quantities of construction / demolition waste to the Engineer. The Engineer shall positively identify all such materials as being construction / demolition waste.
- 3.32.3. For all materials which have been positively identified by the Engineer as construction / demolition waste, Contractor shall use such materials as clean fill in locations approved for filling by the Engineer.
- 3.32.4. Contractor shall be responsible to perform all in-plant handling of such materials, including, but not limited to, screening, separation, from other materials, loading, crushing and transportation.
- 3.32.5. Contractor shall be responsible for any costs that are incurred as a result of his handling construction / demolition waste, including, but not limited to, sampling, analysis, permit applications, loading, on and off-site transportation, and disposal at an approved disposal site.

3.33. OILS

- 3.33.1. Contractor is required to secure samples of all oils and oily wastes located in the areas defined in this Specification. Samples shall be collected in accordance with all applicable regulations.
- 3.33.2. AEP Company shall secure analyses required by the applicable regulations, or by the disposal facility, of all such samples, including, but not limited to, analysis for PCB contamination.
- 3.33.3. For all oils which have been positively identified as being free of PCB contamination (i.e. less than 50 ppm), Contractor shall be responsible to perform all handling of such materials, including, but not limited to, removal, clean up, loading and transportation.
- 3.33.4. Contractor shall be responsible to pay for fees to dispose of all oils and oily waste in accordance with all applicable regulations. The Engineer shall approve all methods of disposal and disposal sites for all oils and oily waste.

3.34. GREASES

- 3.34.1. Contractor is required to secure samples of all greases and wastes containing grease located in the areas defined in this Specification. Samples shall be collected in accordance with all applicable regulations.
- 3.34.2. AEP Company shall secure analyses required by the applicable regulations, or by the disposal facility, of all such samples.
- 3.34.3. Contractor shall be responsible to perform all handling of such materials, including, but not limited to, removal, clean up, loading, and transportation.

- 3.34.4. AEP Company shall be responsible for the disposal of all special and hazardous greases and waste containing greases in accordance with all applicable regulations.

3.35. PROCESS MATERIALS

- 3.35.1. Contractor is required to perform the work described herein in a manner that will separate process demolition debris from ferrous scrap, combustible debris, non-ferrous scrap, construction / demolition waste, oils and greases, hazardous wastes, and all other materials.
- 3.35.2. Prior to the start of demolition in an area, Contractor shall identify all quantities of process materials to the Engineer. The Engineer shall positively identify all such materials as being process materials.
- 3.35.3. All ash process materials will remain on-site. A two foot clay cap will be utilized to cap process material areas of concern.

3.36. PCBs AND EQUIPMENT CONTAINING PCBs

- 3.36.1. Prior to dismantling, Contractor shall conduct a survey of each dismantling area to locate and identify any electrical or hydraulic equipment which has not been clearly identified as being free of PCB contamination and, therefore, may contain PCBs. Contractor shall provide the Engineer with the location and description of any surveyed equipment which may contain PCBs. Where so directed by AEP Company, Contractor shall provide AEP Company with a sample of the oil contained in the piece of equipment. AEP Company will secure analysis and provide Contractor with the written results.
- 3.36.2. Prior to dismantling the facility, the Contractor shall remove intact each piece of PCB contaminated equipment. Contractor shall transport said PCB equipment to AEP Company's designated PCB storage facility. Contractor shall schedule and coordinate said deliveries with the Engineer. Alternatively, at the direction of the Engineer, Contractor shall load PCB equipment onto vehicles provided by AEP Company. Contractor shall schedule and coordinate said loading with the Engineer. Contractor shall schedule and coordinate the pumping and removal of PCB dielectric fluid from transformers prior to loading when so directed by the Engineer.
- 3.36.3. AEP Company shall be responsible for the disposal of all PCB equipment and fluids.

3.37. PIPING SYSTEMS

- 3.37.1. Prior to the commencement of dismantling work, Contractor shall identify, plan and perform all piping shut offs, disconnections, and relocation work necessary to complete the work specified in a safe, orderly manner.
- 3.37.2. Piping shall be purged (where necessary) and shall be removed to a point of origin as designated by the Engineer.
- 3.37.3. Contractor shall submit plans, procedures and working drawings showing design details for all piping work to the Engineer for review. Contractor shall secure the Engineer's review of all designs, plans and procedures prior to the commencement of work. The correctness of the design shall remain the Contractors responsibility.
- 3.37.4. Contractor shall provide all supervision, labor, materials, tools and equipment necessary to complete all piping work required for the work as specified herein. Contractor shall be responsible for the identification of all piping construction, disconnection and relocation work which will be required to complete all work specified herein.
- 3.37.5. Contractor shall perform all piping construction, disconnection and relocation work using methods which will not interrupt AEP Company's ongoing operations.
- 3.37.6. Secure the Engineer's permission prior to any utility outage. In the absence of the Engineer's approval

of Contractor's proposed outage, Contractor shall perform the proposed work on live pressurized lines.

3.38. ELECTRICAL SYSTEMS

- 3.38.1. Prior to the commencement of dismantling work, Contractor shall identify, plan and perform all electrical shut offs, disconnections, and relocation work necessary to complete the work specified in a safe and orderly manner.
- 3.38.2. Conduit, cable, wireways, and buss shall be removed to a point of origin as designated by the Engineer.
- 3.38.3. Contractor shall submit plans, procedures and working drawings showing design details for all electrical and related work to the Engineer for review. Contractor shall secure the Engineer's review of all designs prior to the commencement of work. The correctness of design shall remain the Contractor's responsibility.
- 3.38.4. Contractor shall provide all supervision, labor, materials, tools and equipment necessary to complete all electrical, telecommunication and telemetering work required for the dismantling work specified herein. Contractor shall be responsible for the identification of all electrical, telecommunication and telemetering construction, disconnection and relocation work which will be required to complete all work specified herein.
- 3.38.5. Contractor shall perform all electrical construction, disconnection and relocation work using methods which will not interrupt AEP Company's ongoing operations.
- 3.38.6. Contractor shall secure the Engineer's permission prior to any utility outage. In the absence of the Engineer's approval of Contractor's proposed outage, Contractor shall perform the proposed work on live energized lines.

4. WORK BY PURCHASER:

AEP Company Shall:

- 4.1. Provide Safety Data Sheets (SDS) in accordance with OSHA "Right to Know" regulations for each substance listed under said regulations.
- 4.2. Provide, where available, utility services such as 460 Volt, 3 phase, 60 Hz power, 250 Volt DC current, potable water, oxygen, compressed air, or natural gas, which are deemed available by AEP Company. Contractor may, at his own expense and approval of the Engineer, make necessary connections provided there is no interruption to normal production operations. AEP Company assumes no responsibility or liability for loss of, or damage to, the equipment or materials of the Contractor or his subcontractors. Contractor will pay charges that may be assessed. The assessment of charges and/or the availability of utilities may change through the course of the contract as determined.
- 4.3. Provide existing railroad tracks, railroad tracks sidings, and roadways on plant site, if available, for Contractor's use when and where the Engineer may designate. Contractor shall keep traffic lanes free of congestion so as to avoid interference with normal plant operations.
- 4.4. Provide one copy of all available drawings necessary for the completion of the work specified. These drawings are to be used by the Contractor for reference only in the performance of the work. Said drawings are not to be construed as a complete description of the Scope of Work, nor as fully depicting existing conditions. Additional copies may be purchased by Contractor through the Purchaser.
- 4.5. Approve the selection of all subcontractors before they will be allowed to enter the job site and perform work. Subcontractors are subject to all applicable terms and conditions contained herein.

- 4.6. Provide written releases for the demolition of each specific area or facility as identified in the Schedule of Values. Demolition shall not commence without the receipt of said release.
- 4.7. Assign to Contractor ownership of each facility to be dismantled. The assignment shall include:
  - 4.7.1. All ferrous and non-ferrous scrap resulting from the dismantling work
  - 4.7.2. All ferrous and non-ferrous scrap located within each dismantling area as identified by Engineer during the site visitation.
  - 4.7.3. Spare parts and/or spare equipment.
  - 4.7.4. All railroad track designated for removal.
  - 4.7.5. All vehicles and mobile equipment located within each dismantling area as identified in the Specification.
- 4.8. AEP Company will maintain ownership of all real estate
- 5. Asbestos
  - 5.1. This conceptual estimate does not include the cost for the removal or disposal of asbestos containing materials.
- 6. Landfill
  - 6.1. This conceptual cost estimate does not include the cost for the closure or capping of any landfill(s), if present.
- 7. Ash Pond / Fly Ash Pond
  - 7.1. This conceptual cost estimate does not include the cost for any water filtering, discharge, or capping of any pond(s), if present.
- 8. Resale Equipment Value
  - 8.1. Brandenburg does not believe that any equipment holds a resale value greater than the anticipated scrap value of said equipment; therefore, no resale of equipment has been included.
- 9. Pricing

Description	Cost
General Conditions	\$221,415.00
Environmental	\$976,000.00
Unit Demolition	\$5,384,556.00
SCR Units	\$426,456.00
Miscellaneous Demolition	\$3,345,199.00
Stacks	\$872,320.00
Cooling Towers	\$840,270.00
Marine	\$3,179,000.00
Total	\$15,245,216.00



Total Cost = \$26,119,456.00

Scrap Value = \$10,874,240.00

## Volumes

<b>Demolition Material</b>	<b>Volume</b>
Concrete	35,911 yards
Demolition Debris	12,692 yards
Railroad Ties	8,525 ties
Scrap Ferrous Steel	61,456 tons
Scrap Non-ferrous Steel	2,506,932 lbs
Oils/Greases	10,000 gallons

ARO Description	Size	Percent Asbestos Remaining	Estimated Cubic yards	Estimated Cost per Cubic Yard	Estimated Cost at Date of Last Revision
	a	b	c = ((b)/100)*6.76*(a)	d	c*d
ARO Mitchell U0 Asbestos					1,200,000
ARO Mitchell U1 Asbestos	800	30	1622.4	\$2,280	3,699,072
ARO Mitchell U2 Asbestos	800	30	1622.4	\$2,280	3,699,072

ARO Description	Estimated Cost at Date of Last Revision	Support
ASH#1 Connor Run - KPCo Mitchell	9,249,013	Based on section VI.A. of the Conner Run Impoundment Transition and Joint Use Operating Agreement Dated July 2, 2015, with the assumption closure begins by June 1, 2024.
ASH#2 Mitchell Landfill	10,476,553	 Mitchell landfill
ASH#3 Mitchell Wastewater Pond	3,713,687	 Mitchell Wastewater

\* Closure cost estimates represent 100% Mitchell cost.



<b>ARO Estimate Review Checklist - 2019</b>	
Plant Name:	Mitchell
ARO Name:	CCR Landfill
Document:	GEE-19-001

ASSUMPTIONS AND ITEMS TO BE CHECKED DURING 2019 REVIEW		
1.	Is there any change to the expected Closure Method?	No
2.	Has any new area been constructed and considered In-Service?	Yes
3.	Confirm the current area to be Closed.	Yes
4.	Is the current cap system in the estimate compliant with CCR and State regulations?	Yes
5.	Have there been any Regulatory changes that would impact the estimate (confirm with Environmental)	No
6.	Are the assumptions and statements in the narrative of this document consistent with the line items and values in the detailed cost estimate sheet?	Yes
7.	Are there any significant changes to the timing of expenditures as a result of new planning documents? (e.g. Cash flow over next 10 years)	No
8.	Have there been any refined design changes resulting in changes to the quantities and/or unit costs?	No
9.	Is the contingency percentage still valid and appropriate for the current design level?	Yes
10.	<b>POST CLOSURE CARE ESTIMATE</b>	
11.	Have the number of monitoring wells been significantly increased/decreased?	No
12.	Any change is plans for water treatment?	No
13.		
14.		
15.		

<u>Brett A. Dieger</u> Checked by (Print name legibly)	<u>Brett A. Oreyer</u> Checked by (Signature)	<u>11/19/2019</u> Date
<u>Gary F. Zych</u> Reviewer Gary F. Zych	Geotechnical Engineering Department	<u>11/21/2019</u> Date

**BASIS for ESTIMATE  
ARO CLOSURE/POST CLOSURE COSTS**

**UNIT: CCR Landfill  
ARO NAME: ASH#2  
PLANT: Mitchell Power Plant  
OPERATION CO: KPCO Kentucky Power Company  
LOCATION: Moundsville, West Virginia**

**Document Number: GEE-19-001**

PREPARED BY  DATE 11/13/2019  
Mohammad Ajlouni, P.E., PhD

REVIEWED BY  DATE 11/19/2019  
Brett A. Dreger, P.E.

APPROVED BY  DATE 11/21/2019  
Gary F. Zych, P.E.  
Manager –Geotechnical Engineering Section  
AEP Service Corporation

## 1.0 INTRODUCTION

The purpose of this document is to determine and document the basis for cost estimating closure and/or post closure costs for Asset Retirement Obligations (ARO). This document shall define the basic physical parameters, regulatory requirements/criteria, method for cost estimates and assumptions.

## 2.0 ARO CRITERIA

- Cost based on the existing area that has been constructed to date.
- Cap design based on the State or Federal. The existing permitted cap design should be modified to be in compliance with CCR rule.

## 3.0 UNIT AND PHYSICAL PARAMETERS

Plant	Mitchell
ARO Unit Description	CCR landfill
ARO Name	ASH#2
Date of Estimate	November 13, 2019
Date of Review	November 15, 2019
Closure Method	<i>in-place</i>
Total Constructed Area (areas)	45
Area to be Closed (acres)	45
CLOSURE COST ESTIMATE	\$6,176,053 <i>INCREASE IN AREA</i>
POST CLOSURE CARE ANNUAL COSTS	\$143,350

## 4.0 CAP SYSTEM AND OTHER ASSUMPTIONS

The CCR Rule states that the cap system shall be no less permeable than the base liner. The base liner at the landfill was constructed as a composite liner consisting of geosynthetic clay liner and a geomembrane. Since the base liner includes a geomembrane which is less permeable than compacted clay, the cap system will need to be modified to include a geomembrane.

The modified cap to be compliant with the CCR will consist of:

- 2-feet of soils (including 6" of top soil)
- Geomembrane
- Geocomposite on slopes steeper than 10%

## 5.0 COST ESTIMATE ASSUMPTIONS

Geotechnical Engineering prepared the cost estimate for the closure of the constructed area. A copy of the unit prices is included in this report. The built capacity of the constructed area will be utilized by mid to late 2025, however, no closure would be necessary until 2024 or after. Therefore, the estimate and cash flow will be based on annual construction of cap system and is not necessary. Phase 3 of the landfill was completed in fall of 2019. This cost estimate is updated to reflect the added area in 2019 construction.

The level of project design for closure of the landfill is in the range of 50-70% complete at this stage. Therefore, a contingency of 15% based on the attached EPRI guidelines is appropriate for the closure cost estimate.

Geotechnical Engineering has discussed the cost of long term maintenance and monitoring of the landfill with plant personnel and Environmental Services. The landfill will be mowed twice (2) a year during the post closure period. The monitoring wells will be sampled and tested twice (2) as part of normal detection monitoring.

Historically, AEP has not experienced any type of erosion or other damage to a cap system across the generation fleet. Therefore, an annual allowance of \$12,000 (24 hours at a total crew rate of \$500/hr) will be included in the post closure care estimate.

Similarly, AEP has not typically replaced or performed any major repairs to monitoring wells so no specific allowance will be listed.

As of November 2019, there are 20 monitoring wells associated with the landfill that are part of the State/CCR approved monitoring network.

**6.0 SUMMARY OF ANNUAL REVIEW/REVISIONS**

Design cap system will be revised to be compliant with US EPA CCR Rule.

Annual Post Closure Care Costs for the landfill has been estimated and the care period is 30 years in duration.

**7.0 CASH FLOWS**

Currently, closure of the Landfill is assumed to be in 2025 or thereafter. The duration of the construction is expected to be 1 year.

2024 or after					
\$6,176,053					

Gary F. Zych prepared the Nov. 2009 cost estimate and Mohammad Ajlouni prepared the November 2019 cost estimate update.					
Brett A. Dreger reviewed the 2019 cost estimate.					

M.A.M 11/13/19  
 B.D 11/19/2019

Plant Mitchell  
 Facility LANDFILL  
 Area to closed (acres) 45  
 Construction duration (months) 12

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	Labor Price	Material Price	Total Unit	Total Price
1.0	<b>GENERAL</b>						
1.1	General Conditions	L.S. Month	12			\$25,000.00	\$300,000
1.2	Mobilization / Demobilization	L.S.	1			\$50,000.00	\$50,000
2.0	<b>CLEARING &amp; GRUBBING, DEMOLITION</b>						
2.1	Remove and Dispose of Miscellaneous Debris	L.S.	1			\$5,000.00	\$5,000
4.0	<b>EXCAVATION</b>						
4.1	Excavate 12 inches of soil	C.Y.	72,600	\$4.50		\$4.50	\$326,701
6.0	<b>FILL</b>						
6.1	Clayey Cover Soil	C.Y.	108,900			\$5.00	\$544,502
6.2	Topsoil	C.Y.	36,300			\$15.00	\$544,502
7.0	<b>EROSION &amp; SEDIMENT CONTROL</b>						
7.1	Seeding, Fertilizing and Mulching	S.Y.	217,801			\$1.25	\$272,251
7.2	Gravel Construction Entrance	Each	2			\$3,500.00	\$7,000
7.3	Furnish and Install Riprap	Ton	150			\$30.00	\$4,500
7.4	Water Management system during construction	Each					\$0
7.5	Temporary water treatment system	LS					\$0
7.6	silt fencing	ft	4,600			\$3.50	\$16,100
8.0	<b>SURFACE DRAINAGE SYSTEMS</b>						
8.1	Diversion Berm	ft	7,500			\$60.00	\$450,000
8.2	Outlet Structure [new]	Each	0				\$0
8.3	Outlet Structure Piping	L.F.	0			\$60.00	\$0
8.4	Remove existing structure	Each					\$0
9.0	<b>ROADS &amp; PARKING AREAS</b>						
9.1	Road fill	cy	7,750			\$25.00	\$193,750
9.2	Gravel Drive	Tons	1,722			\$25.00	\$43,056
13.0	<b>GEOTEXTILES</b>						
13.1	PVC Liner	S.Y.	217,801			\$6.00	\$1,306,805
13.2	Geocomposite	S.Y.	87,120			\$12.00	\$1,045,444
13.5	8 Oz. Non Woven Geotextile						
27.0	<b>CONSTRUCTION COSTS</b>						
	Subtotal construction costs						\$5,109,611
	Contingency	15%					\$766,442
							\$5,876,053
27.0	<b>THIRD PARTY SERVICES</b>						
27.1	QA/QC consultant	month	10			\$20,000.00	\$200,000
	Engineering & design	L.S.	1			\$50,000.00	\$50,000
27.2	Surveying Services	L.S.	1			\$50,000.00	\$50,000
	subtotal Third Party Services						\$300,000
	<b>Total</b>						<b>\$6,176,053</b>

**Mitchell PLANT - LANDFILL**  
**POST CLOSURE CARE ESTIMATE - ANNUAL MONITORING & MAINTENANCE**  
Post Closure Care Period:  
Landfill Area constructed: 30 ac

Revised GES 11/13/2019  
30 years  
45

Cap Type: 30 acre - geomembrane/geotextile/24-inches of soil cover with 3% grade  
Remaining area existing clay cap

**1.0 Ground Water Monitoring:**

- 1.1 Total Number of Monitoring Wells
- 1.2 Total Number of Samples per Year
- 1.3 Cost of Sampling
- 1.4 Laboratory testing of samples
- Total Costs for Ground Water Monitoring**

	Value	Unit	Unit Price	Cost
frequency of sampling	2	40	EA/YR	
			\$	\$950
			\$	\$700
			\$	\$38,000
			\$	\$28,000
			\$	\$66,000

**2.0 Leachate Monitoring**

- 2.1 Total Number of Samples per year
- 2.2 Unit Cost per Sample
- Total Costs for Leachate Monitoring**

quarterly sampling	15	EA/YR		
not required		\$/EA	\$1,000	
		\$		\$15,000

**3.0 Surface Water Monitoring**

- 3.1 Total Number of Samples per year
- 3.2 Unit Cost per Sample
- 3.3 Total Monitoring Costs**

collected with Leachate monitoring	4	EA/YR		
		\$/EA	\$1,000	
		\$		\$4,000

**4.0 O&M of Leachate Collection and Treatment System**

- 4.1 Inspection & Flushing of Collection and Conveyance Pipes
- 4.2 Inspection & Cleaning of Sumps/Manholes
- 4.3 Repair/Replacement of Sump and Conveyance Piping
- 4.4 Amount of Leachate Generated from HELP Model
- 4.5 Leachate Disposal Cost
- 4.6 Total Annual Leachate Disposal Cost
- 4.7 Annual Pump Electricity Costs
- Total Costs for O&M Leachate System**

annual flushing crew \$2000/day	5	days	\$2,000	\$10,000
annual visual inspection	0	LS		
		LS		
		Gallons/YR		
assume no disposal cost		\$/Gallon		
		\$		
		\$/YR/pump		
		\$		\$10,000

**5.0 O&M Ground Water Monitoring Wells**

- 5.1 Inspection & Maintenance:
- 5.2 Repair of Monitoring Wells
- Total Costs for Ground Water Monitoring Wells**

part of sample collection time	6	Each	\$1,000	\$6,000
	0	Each	\$2,500	\$0
				\$6,000

**6.0 Maintenance of Cover System:**

- 6.1 Mowing Frequency per Year
- 6.2 Unit Cost per mowing
- 6.3 Total Mowing Costs:
- 6.4 Area to be Reseeded:
- 6.5 Reseeding Unit Costs:
- 6.6 Total Reseeding Costs:
- 6.7 Cap Repairs per Year
- 6.8 Cap Repair Unit Costs
- 6.9 Total Cap Repair Costs:
- Total Costs for Maintenance of Cover System:**

	2	Each		
		\$/ac	\$115	
		\$		\$10,350
1% of seeded cap area	0	SY		
		\$/SY	\$0.50	
		\$		\$0
24 hrs/yr @ \$500/hr	24	HR		
		\$/SY	\$500.00	
		\$		\$12,000
		\$		\$22,350

**7.0 O&M of Surface Water Management System**

- 7.1 Inspection & Routine Maintenance
- 7.2 Conveyance Ditch/Piping Cleaning & Repair
- 7.3 Outlet Cleaning & Repair
- Total Costs for O&M of Surface Water System**

Included in 5.0 above	4	Each	\$0	\$0
part of maintenance above	0	LS	\$15,000	\$0
	0	LS	\$1,000	\$0
		\$		\$0

**8.0 O&M of Access Control Structures:**

- 8.1 Inspection & Routine Maintenance
- 8.2 Fence, Gate & Sign Repair
- 8.3 Roadway Maintenance
- Total Costs for O&M of Access Control Structures**

Included in 5.0 above	4	Each	\$0	\$0
no fencing at project	0	LS	\$1,000	\$0
part of maintenance above	0	LS	\$2,000	\$0
		\$		\$0

**9.0 Vector and Rodent Control:**

- 9.1 Vector and Rodent Control

part of maintenance above	1	LS/Year	\$0	\$0
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**10.0 Inspections:**

- 10.1 Annual engineering Inspections
- 10.2 Benchmark Inspection
- 10.3 Security Inspections
- Total Costs for Inspections**

based on current contracts	1	Each/YR	\$20,000	\$20,000
Included in 10.1 above	1	Each/YR	\$0	\$0
Included in 10.1 above	4	Each/YR	\$0	\$0
				\$20,000

**11.0 Final Closure**

- 11.1 Mobilization/Demobilization
- 11.2 Engineering Fees & Reports
- 11.3 Survey & Deed Notation
- 11.4 Closure Certification
- Total Costs for Final Closure**

	1	LS	\$0	\$0
	1	LS	\$0	\$0
	1	LS	\$0	\$0
	1	LS	\$0	\$0
				\$0

**TOTAL ANNUAL POST CLOSURE CARE COSTS:**

\$143,350

**Non-annual Post Closure Care Costs:**

- Replacement of Groundwater Monitoring Wells
- Total Costs for Non-annual Post Closure Costs:**
- TOTAL POST CLOSURE CARE DIRECT COSTS: (30 years)**

0 Each \$15,000 \$0  
\$0  
\$4,300,500

**TOTAL POST CLOSURE LANDFILL MONITORING & MAINTENANCE COSTS**

\$4,300,500

AMP GENERATION RESOURCES INC  
 MITCHELL PLANT NEW LANDFILL EXTENSION PROJECT  
 LANDFILL CONSTRUCTION  
 SPECIFICATION XX-XXX-XXXX

Form 1

Item	DESCRIPTION	UOM	2017 Quantity	Total Quantity	Labor Unit Price	Material Unit Price	Equipment Unit Price	Total Unit Price	Total Price
1.0	General Items								
1.1a	General Conditions - Production Months - 2017	MO-Month	7	7	45,892.80	5,263.70	20,513.78	71,670.28	501,691.96
1.1b	General Conditions - Non Production Months - 2017	MO-Month	1	1	20,983.98	2,189.45	11,726.61	34,900.04	34,900.04
1.2a	General Conditions - Production Months - 2018	MO-Month							0.00
1.2b	General Conditions - Non Production Months - 2018	MO-Month							0.00
1.3a	General Conditions - Production Months - 2019	MO-Month							0.00
1.3b	General Conditions - Non Production Months - 2019	MO-Month							0.00
1.4	Mobilization	EA-Each	1	1	17,902.67	0.00	18,656.62	36,559.29	36,559.29
1.5	Demobilization	EA-Each			25,890.63	0.00	44,024.67	71,915.32	0.00
2.0	Clearing and Grubbing								
2.1	Clearing and Grubbing - Class II - Areas With Stumps Only	AC-Acre	0	0	1,679.33	0.00	3,492.74	5,172.07	0.00
2.2	Clearing and Grubbing - Class II - Areas With Standing or Fallen Trees	AC-Acre	22	22	1,679.33	0.00	3,492.74	5,172.07	111,199.51
3.0	Stripping								
3.1	Topsoil Stripping and Stockpiling	CY-Cubic Yard	17,343	17,343	1.57	0.00	2.87	4.44	77,002.92
4.0	Excavation								
4.1	Common Excavation	CY-Cubic Yard	13,810	13,810	1.57	0.00	2.87	4.44	61,316.40
4.2	Harvest Soil Excavation	CY-Cubic Yard	139,383	139,383	1.57	0.00	2.87	4.44	618,860.32
4.3a	Rock Blasting Excavation 3'3" hole, 7x7 Pattern	CY-Cubic Yard	13,810	13,810	1.87	3.74	3.27	8.88	122,632.80
4.3b	Rock Blasting Excavation 4'0" hole, 9x9 Pattern	CY-Cubic Yard	0	0	1.81	3.26	3.21	8.28	0.00
4.3c	Rock Blasting Excavation 4'5" hole, 11x11 Pattern	CY-Cubic Yard	0	0	1.78	2.94	3.15	7.87	0.00
4.4a	Excavation from Stockpiles (Rock/Soil)	CY-Cubic Yard	43,634	43,634	1.73	0.00	2.99	4.74	206,919.96
4.4b	Excavation from Stockpiles (Cohesive Soil)	CY-Cubic Yard	9,400	9,400	1.14	0.00	2.19	3.33	31,302.00
4.4c	Excavation from Stockpiles (Isolation Zone Soil)	CY-Cubic Yard	0	0	1.29	0.00	2.44	3.73	0.00
4.4d	Excavation from Stockpiles (Topsoil)	CY-Cubic Yard	1,000	1,000	1.57	0.00	2.87	4.44	4,440.00
4.5a	Confined Excavation (Underdrains)	CY-Cubic Yard	1,000	1,000	6.98	0.00	15.23	20.20	20,200.00
4.5b	Confined / Trench Rock Excavation (Underdrains)	CY-Cubic Yard	1,000	1,000	16.54	0.00	36.81	53.35	53,350.00
4.6a	Blasting Plan	LS-Lump Sum	0	0	3,236.80	2,538.10	0.00	5,774.90	0.00
4.6b	Pre / Post Blast Survey	EA-Each	0	0	617.36	345.12	0.00	962.48	0.00
4.6c	Schematic Only	EA-Each	0	0	894.33	0.00	1,672.04	2,566.37	0.00
6.0	Fill								
6.1	Rock/ Soil Fill	CY-Cubic Yard	37,464	37,464	0.36	0.00	0.52	0.88	30,568.32
6.2	Cohesive Fill	CY-Cubic Yard	9,400	9,400	1.14	0.00	2.19	3.33	31,302.00
6.3	Isolation Zone Fill	CY-Cubic Yard	0	0	0.56	0.00	0.93	1.51	0.00
6.4	Stockpile Isolation Zone Material	CY-Cubic Yard	0	0	0.17	0.00	0.38	0.55	0.00
6.5	Stockpile Harvest Soil Material	CY-Cubic Yard	139,383	139,383	0.17	0.00	0.38	0.55	76,660.63
7.0	Erosion and Sediment Control								
7.1a	Furnish and Place R-3 Riprap Lined Channel 2'-6", 50% <3"	CY-Cubic Yard	2,008	2,008	3.68	49.51	8.44	63.63	127,769.04
7.1b	Furnish and Place R-4 Riprap Lined Channel 3'-12", 50% <6"	CY-Cubic Yard	0	0	4.01	50.20	9.42	63.63	0.00
7.1c	Furnish and Place R-5 Riprap Lined Channel 4'-18", 50% <9"	CY-Cubic Yard	394	394	8.91	50.20	19.76	78.87	31,074.78
7.1d	Furnish and Place R-6 Riprap Lined Channel 9'-24", 50% <15"	CY-Cubic Yard	0	0	8.91	50.20	19.76	78.87	0.00
7.1e	Furnish and Place G-6 Riprap Lined Channel 9'-24", 50% <15"	CY-Cubic Yard	2,239	2,239	13.07	63.98	20.57	101.02	228,204.18
7.2a	Seeding with Mulch & Tackifier	SV-Square Yd	140,409	140,409	0.12	0.14	0.18	0.44	61,779.96
7.2b	Straw Erosion Control Blanket	SV-Square Yd	9,444	9,444	0.82	0.32	0.27	1.41	13,316.04
7.3a	Furnish and Install Silt Fence	LF-Linear Ft	2,500	2,500	2.45	0.40	0.78	3.63	9,075.00
7.3b	Furnish and Install Super Silt Fence	LF-Linear Ft	200	200	3.19	2.39	1.08	6.66	1,372.00
7.3c	Furnish and Install Filter Socks, 8"	LF-Linear Ft	500	500	3.71	1.17	1.48	6.36	3,180.00
7.3d	Furnish and Install Filter Socks, 32"	LF-Linear Ft	2,000	2,000	3.98	6.32	5.86	16.16	32,220.00
7.4a	Diversion Dike	CY-Cubic Yard	1,000	1,000	2.97	0.00	5.91	8.88	8,880.00
7.4b	Diversion Ditch	CY-Cubic Yard	1,000	1,000	2.99	0.00	6.10	9.09	9,090.00
7.5	Furnish and Install Stone Check Dam	TN-Ton	1,460	1,460	6.68	30.25	9.53	46.46	67,831.60
7.6	Furnish and Install Rock Construction Entrance	SV-Square Yd	100	100	29.70	30.25	33.44	93.39	9,339.00
7.7	Inlet Protection	EA-Each	0	0	172.98	345.20	128.28	646.46	0.00
8.0	Surface/Interface Drainage Systems								
8.1a	Furnish and Install 12" Underdrain Pipe-HDPE SDR-11 Perforated	LF-Linear Ft	5,188	5,188	9.18	34.71	10.65	54.54	282,953.52
8.1b	Furnish and Install 6" Underdrain Pipe-HDPE SDR-11 Perforated	LF-Linear Ft	1,000	1,000	9.97	18.15	10.26	38.38	38,380.00
8.1c	Furnish and Install Gravel Underdrain (No pipe)	LF-Linear Ft	1,000	1,000	4.31	9.98	5.62	19.91	19,910.00
8.1d	Furnish and Install 12" Ground Water Interceptor Clean-Outs per Detail 3/215	EA-Each	0	0	212.75	337.45	232.32	1,082.72	0.00
8.2a	Furnish and Install Leachate Collection Pipe-HDPE SDR-11-Perforated	LF-Linear Ft	0	0	11.72	28.82	19.05	59.59	0.00
8.2b	Provide Existing 12" Leachate Collection Pipe-HDPE SDR-11-Perforated and Reuse	LF-Linear Ft	0	0	11.12	21.31	7.77	40.40	0.00
8.2c	Furnish and Install 12" Leachate Pipe Clean-Outs per Detail 3/215	EA-Each	0	0	473.85	694.83	351.77	1,520.45	0.00
8.3	Temporary Leachate-Bypass Pumping System	LS-Lump Sum	0	0					
8.4a	Furnish and Install HDPE Pipe 24" - PS SDR 13.5	LF-Linear Ft	233	233	36.60	113.06	54.71	204.37	47,618.21
8.4b	Furnish and Install HDPE Pipe 36" - ADS N 12 or Equivalent	LF-Linear Ft	47	47	42.35	85.94	73.28	203.87	9,581.89

CONTRACTOR: R.B. Lemans

Specification XX-XXX-XXXX, Page 8 of 8

DATE

AEP GENERATION RESOURCES INC.  
 MITCHELL PLANT NEW LANDFILL EXTENSION PROJECT  
 LANDFILL CONSTRUCTION  
 SPECIFICATION 00-K001-000X

Form 1

Item	DESCRIPTION	UOM	2017 Quantity	Total Quantity	Labor Unit Price	Material Unit Price	Equipment Unit Price	Total Unit Price	Total Price
8.4c	Furnish and Install HDPE Pipe 42" - ADS N-12 or Equivalent	LF-Linear Ft	96	96	15.00	108.08	11.22	134.90	12,950.40
8.4d	Furnish and Install Concrete Pipe 36"	LF-Linear Ft	0	0	28.24	86.37	10.30	124.91	0.00
8.5a	4' X 4' Catch Basin/Inlet	EA-Each	1	1	892.78	3,056.03	431.33	4,380.16	4,380.16
8.5b	3' x 5' Catch Basin/Inlet	EA-Each	0	0	892.78	3,803.53	434.38	5,130.91	0.00
8.5c	Manhole 20 Energy Dissipator Detail 06/258	LS-Lump Sum	1	1	649.58	4,397.64	340.05	5,387.27	5,387.27
8.5d	Manhole 21 Outlet Control Structure Detail 01/258 & 02/258	LS-Lump Sum	1	1	15,835.64	19,754.75	9,891.53	45,501.92	45,501.92
8.6a	Headwall for 34" Diameter Pipe	EA-Each	1	1	268.12	1,127.50	156.38	1,952.00	1,952.00
8.6b	Headwall for 36" Diameter Pipe	EA-Each	1	1	399.17	1,180.00	453.67	2,032.84	2,032.84
8.6c	Headwall for 42" Diameter Pipe	EA-Each	2	2	414.10	3,933.00	759.13	5,118.23	10,236.50
9.0	Roads and Parking Areas								
9.1a	Furnish and Install Class 3 Aggregate	CY-Cubic Yard	0	0	3.12	60.49	6.08	69.69	0.00
9.1b	Furnish and Install AASHTO No 2 Aggregate (Base Material)	CY-Cubic Yard	0	0	3.12	60.49	6.08	69.69	0.00
9.2	Furnish and Install Rock Safety Berm (Detail 01/266)	CY-Cubic Yard	0	0	7.22	50.20	15.30	72.72	0.00
9.3	Roadway Underdrain Pipe	LF-Linear Ft	0	0	2.55	3.05	4.09	9.69	0.00
13.0	Geotextile								
13.1a	Furnish and Install Geotextile, 16oz Nonwoven	SY-Square Yd	4,098	4,098	0.36	0.93	0.42	1.71	7,008.18
13.1b	Furnish and Install Geotextile, 16oz Nonwoven	SY-Square Yd	0	0	0.36	1.47	0.19	2.02	0.00
13.1c	Furnish and Install Geotextile, Woven	SY-Square Yd	0	0	0.36	0.93	0.42	1.71	0.00
16.0	Rock and Reel Anchors								0.00
16.1	Soil Nail Retaining Wall	LS-Lump Sum	0	0	77,569.10	93,900.30	88,874.52	260,344.12	0.00
26.0	Geomembrane Liners/GCL								0.00
26.1	Furnish and Install 30-mil PVC Liner	SY-Square Yd	0	0	1.69	3.04	1.25	5.98	0.00
26.2	Furnish and Install GCL	SY-Square Yd	0	0	1.13	7.31	0.81	9.25	0.00
26.3	Anchor Trenches	LF-Linear Ft	0	0	4.12	0.00	7.61	11.73	0.00
33.0	Loading, Hauling, Piling and Compacting Coal Combustion By-Products (CCB)								0.00
33.1	Excavate, Load, Haul and Place Bottom Ash - Landfill Stockpile	CY-Cubic Yard		0	1.78	0.00	3.52	5.30	0.00
36.0	Geocomposite Driftage Net								0.00
36.1	Furnish and Install Leachate Collection Geocomposite Drainage Net (Coal Drain)	SY-Square Yd	0	0	1.36	13.97	1.04	16.37	
<b>Total Estimated Price</b>									<b>3,130,250.26</b>



**Attachment D to ISO-New England Planning Procedure 4**

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A	Study / Simplified Estimate	1% to 15%	L: -15% to -60% H: +30% to +120%	30-50 %
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**Table 2: Cost Estimate types and relevance based on level of project definition**

Major and more complex projects may include higher contingency levels based on increased project risks and challenges. Typically, as the project is refined, the contingency should reflect

Engineering Estimate Checklist - General	
Project Name:	Mitchell Kammer Clear Water Pond ARO
Originated by:	Mohammad Ajlouni
Checked by:	Gary F. Zych
Date:	11/30/2018
Description:	GEE-18-017
	(1) - see comments

	Note: For capital improvement requisitions – see QMSU-OI-730.11	Checking Engineer's Initials
1.	Estimate's level of accuracy stated is appropriate for intended use. Level of accuracy determination needs to factor in risk management.	MZ
2.	Estimate assumptions, clarification and exceptions are stated and appropriate.	MZ-1
3.	Design basis criteria are stated.	MZ-1
4.	Drawings are included to depict design, facilitate material take-offs and clarify construction labor work scope.	NA
5.	Equipment and material quantities and costs are stated including freight costs.	NA
6.	The estimate contains an engineering labor estimate including engineering and design man-hour requirements for project planning, review, execution and close-out, labor rates and expenses for travel, document reproduction, etc. Scope of engineering support may also include construction, startup and testing support.	MZ
7.	The project schedule is appropriate and has factored in equipment lead times, engineering, construction and commissioning.	NA
8.	As required by scope of estimate, estimate includes construction spares, operating spares and alternatives and these items are clearly identified.	NA
9.	Engineering subcontractors and consultants are identified.	MZ
10.	Construction labor work scopes are identified.	MZ
11.	Costs for warranties are included as appropriated. This includes engineering labor costs to resolve warranty issues.	NA
12.	Contingencies are identified and appropriate for intended use.	MZ
13.	Appropriate interdisciplinary review complete.	NA
14.	Is cash flow schedule included?	NA
15.	Verify engineering estimate cover sheet has a title, a unique engineering estimate identification number, date, and a engineering estimate revision number.	MZ
16.	Verify revision index includes revision number and description of revision.	NA

Note: Use N/A to indicate check is not applicable.

GARY ZYCH      Gary Zych      12/5/2018  
 Checked by      Checked by      Date  
 (Print name legibly)      (Signature)

Engineering completed in accordance with E-OI-730.30 - Engineering Estimates and reviewed by:

Gary Zych      Geotechnical Engineering Section      12/13/2018  
 Engineering Manager      Department      Date

**BASIS for ESTIMATE  
ARO CLOSURE/POST CLOSURE COSTS**

**UNIT: Kammer Clear Water Pond  
ARO NAME: ASH#3  
PLANT: Mitchell Power Plant  
OPERATION CO: KPCO Kentucky Power Company  
LOCATION: Moundsville, West Virginia**

**Document Number: GEE-18-017**

PREPARED BY M. A. L. DATE 11/30/2018  
Mohammad Ajlouni, P.E

REVIEWED BY Gary F. Zyck DATE 12/13/2018  
Gary F. Zyck, P.E

APPROVED BY Gary F. Zyck DATE 12/13/2018  
Gary F. Zyck, P.E

Manager –Geotechnical Engineering Section  
AEP Service Corporation

## 1.0 INTRODUCTION

The purpose of this document is to determine and document the basis for cost estimating closure and/or post closure costs for Asset Retirement Obligations (ARO). This document shall define the basic physical parameters, regulatory requirements/criteria, method for cost estimates and assumptions.

## 2.0 ARO CRITERIA

- Cost based on the existing area that has been constructed to date.
- Closure will be completed by regarding CCR material and reshape dikes and import some soils and regrade the area to allow for gravity flow of storm water towards the Ohio River.

## 3.0 UNIT AND PHYSICAL PARAMETERS

Plant	Mitchell
ARO Unit Description	Kammer Clear Water Pond
ARO Name	ASH#3
Date of Estimate being reviewed	November 2009
Date of Review	November 2018
Closure Method	<i>In Place</i>
Area to be Closed (acres)	15
CLOSURE COST ESTIMATE	\$3,713,687
POST CLOSURE CARE ANNUAL COSTS	N/A

## 4.0 CAP SYSTEM AND OTHER ASSUMPTIONS

Mitchell's Kammer Clear Water Pond (KCWP) is not a CCR Pond, so there are no CCR requirements to meet. Similarly, cost of long-term maintenance and monitoring would not be required. However, the ash in the pond will be regraded and a 30 mil PVC liner and 2 ft of soil will be placed.

## 5.0 COST ESTIMATE ASSUMPTIONS

Geotechnical Engineering has prepared the cost estimate revision for the closure. Closure will be performed after retirement of the plant. The current assumptions for closure are: the KCWP will be closed in place; significant grading of ash will be required to provide positive drainage of the pond's bottom to the nearest drainage feature. The dikes will be lowered 5 ft for fill material as well as importing fill from landfill stockpile. The grading will involve creating a swale that is sloping from north to south with armored channel. The existing outfall structure will be modified to allow outflow to Ohio river and inflow to the swale during high river periods.

The level of project design for closure of the ash ponds is in the range of 0-15% complete at this stage. Therefore, a contingency of 25% based on the attached EPRI guidelines is appropriate for the closure cost estimate.

Since the pond is not a CCR regulated pond, there will be no long-term maintenance cost.

There are no ground water monitoring wells at KCWP, therefore there will be no ground water monitoring

cost after pond closure.

**6.0 SUMMARY OF ANNUAL REVIEW/REVISIONS**

There is a cost revision for the Closure Cost for the Kammer Clear Water Pond. This change is based on the change of the closure type of the pond from close in place to close in-place.

**7.0 CASH FLOWS**

Currently, closure of the KCWP is scheduled after the retirement of the plant (assumed 2040). The duration of the construction is expected to be 2 year.

2041	2042				
\$1,713,687	\$2,000,000				

Gary F. Zych prepared the November 2009 cost estimate and Mohammad Ajlouni prepared the 2018 revision and clarifications.	M.A	M.A
Gary F. Zych reviewed the 2018 revision/clarifications and the corresponding details of the cost estimate.	GFE	12/13/18

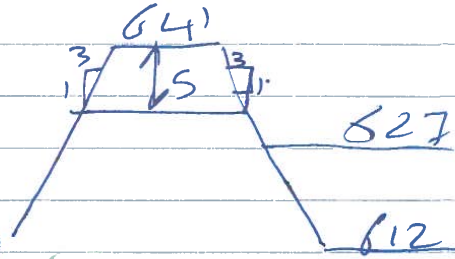
Plant **Mitchell**  
 Facility **KAMMER Clear water Pond**  
 Area to closed [acres] 15  
 Construction duration [months] 18

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	Labor Price	Material Price	Total Unit	Total Price
<b>1.0</b>	<b>GENERAL</b>						
1.1	General Conditions	L.S. Month	18			\$25,000	\$450,000
1.2	Mobilization / Demobilization	L.S.	1			\$50,000	\$50,000
<b>2.0</b>	<b>CLEARING &amp; GRUBBING, DEMOLITION</b>						
2.1	Remove and Dispose of Miscellaneous Debris	L.S.	1			\$10,000	\$10,000
<b>4.0</b>	<b>EXCAVATION</b>						
4.1	Regrade CCR Material	C.Y.	90,750	\$4.00	\$2.00	\$6.00	\$544,502
4.1	Excavate and Regrade Dikes -5 ft	C.Y.	19,444	\$3.00	\$7.00	\$10.00	\$194,444
<b>6.0</b>	<b>FILL</b>						
6.1	Place Soil (1/2 of area) imported	C.Y.	28,956	\$8.00	\$3.00	\$11.00	\$318,513
<b>7.0</b>	<b>EROSION &amp; SEDIMENT CONTROL</b>						
7.1	Seeding, Fertilizing and Mulching	S.Y.	72,600			\$1.50	\$108,900
7.2	Gravel Construction Entrance	Each	2			\$3,500	\$7,000
7.3	Furnish and Install Riprap	Ton	21,236			\$30.00	\$637,067
7.4	silt fencing	ft	8,000			\$3.50	\$28,000
<b>8.0</b>	<b>SURFACE DRAINAGE SYSTEMS</b>						
8.1	Modify existing structure	LS	1			\$50,000	\$50,000
<b>9.0</b>	<b>ROADS &amp; PARKING AREAS</b>						
9.1	Road fill	cy	500			\$25.00	\$12,500
9.2	Gravel Drive	Tons	150			\$25.00	\$3,750
<b>13.0</b>	<b>GEOTEXTILES</b>						
13.1	PVC Liner	S.Y.	72,600			\$6.00	\$435,602
13.2	8 Oz. Non Woven Geotextile	S.Y.	18,150			\$1.80	\$32,670
	<b>CONSTRUCTION COSTS</b>						
	Subtotal construction costs						\$2,882,950
	Contingency	25%					\$720,737
							\$3,603,687
<b>27.0</b>	<b>THIRD PARTY SERVICES</b>						
27.1	QA/QC consultant	month	10			\$5,000.00	\$50,000
27.2	Engineering & design	L.S.	1			\$50,000.00	\$50,000
27.3	Surveying Services	L.S.	1			\$10,000.00	\$10,000

subtotal Third Party Services \$110,000  
**Total \$3,713,687**

Closure Inplace

Pond Area 15 Acres



Ash in pond =  $\frac{1}{2}$  of the area  
 $= 0.5 \times 15 \text{ Acres} \times \left( \frac{43560 \text{ ft}^2}{1 \text{ Acre}} \right) \times 15' = 181,500 \text{ yd}^3$

Ash to be regraded =  $\frac{1}{2}$  (Ash in pond)

$= 90,750 \text{ yd}^3$

PVC liner - overall area

2 ft of soil: dike length = 3000'

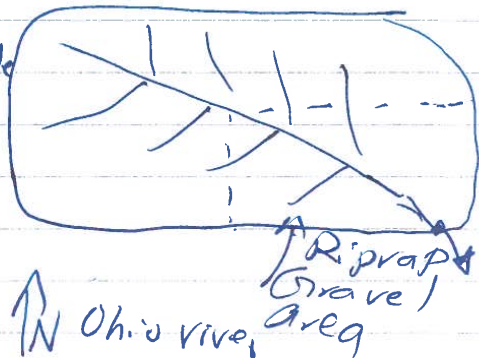
Avg. 5' cut from dikes  
 $= 5' \times \left( \frac{20+50}{2} \times 5 \right) \times 3000 / 27$   
 $= 19,444 \text{ yd}^3$

imported soil

2 ft x 15' Acre - soil cut from dike

$= 2 \times \frac{43560 \times 2}{1 \times 27} - 19,444 = 28,956$

2 ft of Gravel and Grit tile  
 over  $\frac{1}{4}$  of area



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**VERIFICATION**

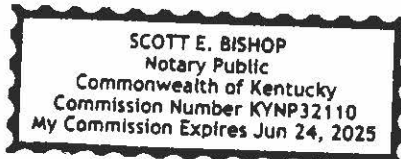
The undersigned, Jason A. Cash, being duly sworn, deposes and says he is Director Regulatory Accounting Services for American Electric Power Service Corporation, that he has personal knowledge of the matters set forth in the foregoing responses, and the information contained therein is true and correct to the best of his information, knowledge, and belief after reasonable inquiry.

  
\_\_\_\_\_  
Jason A. Cash

Commonwealth of Kentucky )  
  )  
County of Boyd                    )     Case No. 2021-00421

Subscribed and sworn before me, a Notary Public, by Jason A. Cash this 14<sup>th</sup> day of March, 2022.

  
\_\_\_\_\_  
Notary Public



My Commission Expires June 24, 2025

Notary ID Number: KYNP 32110