

**WARRIOR INVESTMENT COMPANY, INC.  
CORINTH MINE, P-3731 REVISION NO. 22**

**WARRIOR INVESTMENT COMPANY, INC.**

**CORINTH MINE, P-3731**

**REVISION NO. 22**

**ALABAMA SURFACE MINING COMMISSION**

**SURFACE MINING PERMIT APPLICATION**

**P A R T   I I I**

Prepared by:

**MCGEHEE ENGINEERING CORP.**

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**PART III - OPERATION PLAN**

2. Describe the sequence and timing of increments to be mined (as shown on permit map) over the total life of the permit. (780.11)

The timing increments are as follows:

<b><u>Increment No.</u></b>	<b><u>Acres</u></b>	<b><u>From</u></b>	<b><u>Dates</u></b>	<b><u>To</u></b>
1	59.0	Currently Bonded		Life of Mine
3	9.0	Issuance of R-21		Life of Mine
4	55.0	Currently Bonded		Life of Mine
2	13.0	Bonded		
5	1.0	Reclamation complete		

See the attached [Permit Map](#).

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3. Attach a narrative explaining the construction modification, use, maintenance, and removal of the following facilities: (780.11)

(a) Coal removal, handling, storage, cleaning and transportation structures and facilities;

Not Applicable

(b) Spoil, coal mine waste and non-coal mine waste removal, handling, storage, transportation and disposal structures and facilities;

See [Attachment III-A-3](#) & [III-B-2-A](#).

(c) Mine facilities; and

See [Attachment III-A-3](#)

(d) Water pollution control facilities.

Not Applicable

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ATTACHMENT III-A-3**

**MINE FACILITIES**

The location of injection wells shown within the permit boundary of this mine are approximate. The actual location may differ due to terrain, other surface facilities or lack of intersection of the borehole with underground old works. Injection wells may be used for decanting slurry from Slurry Impoundment No. 2 as described in Slurry Impoundment No. 2's approved detail design plans. However, the installation/construction of injection wells is not necessary for the construction of Slurry Impoundment No. 2 to be considered complete.

Permanent [sumps](#) have been constructed at locations of concentrated runoff near coal stockpiles and the plant area. The [sumps](#) are located and constructed so as to retain solids and prevent them from entering Slurry Impoundment No. 003A. Additional BMP's such as [silt fences](#), [hay bales](#) or [rock dams](#) may be used as needed to assist in removal of coal fines/sediment from the surface runoff. The permanent sumps are constructed as shown on the attached typical sump drawing. The sumps and other BMP's will be maintained so as to function for their intended purpose. Sumps will be inspected daily and cleaned out when the sediment level reaches the riprap overflow. See the attached [Permit Map](#) and [Sump Map](#) for the location of permanent sumps.

**B. Engineering Plans.**

All cross sections, maps and plans related to operations, reclamation and structures must comply with Section 780.10. Plans, appropriate calculation and conclusions shall be presented in a clear and logical sequence and shall take into account all applicable factors necessary to evaluate the proposed plan or design.

1. Existing Structures. (780.12, 786.21)

- (a) Describe each existing structure to be used, its location, current condition, approximate dates of construction and evidence (including relevant monitoring data) showing whether or not the structure meets the performance standards of Subchapter K or Subchapter B, whichever is more stringent and demonstrate whether or not the use of existing structures will pose a significant harm to the environment or public health or safety.

Not Applicable

- (b) If an existing structure requires modification or reconstruction to meet the performance standards, attach a compliance plan which includes design specifications, construction schedule, monitoring procedures, and evidence that the risk of harm to the environment or public health or safety is not significant during modification or reconstruction.

Not Applicable

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2. Ponds, impoundments, banks, dams and embankments. (780.25)

- (a) Submit a general plan which complies with Section 780.25 (a)(1) for each proposed sedimentation pond, water impoundment, and coal processing waste bank, dam or embankment to be located within the proposed permit area.

See Attachment III-B-2-A

- (b) Submit detailed design plans which comply with Sections 780.25(a)(2)(3) and 816.46, for each sedimentation pond to be constructed on the increment you currently propose to mine. If the sediment pond is to remain as a permanent water impoundment, design plans shall also comply with Section 816.49.

See Attachment III-B-2-A

- (c) Submit detailed design plans which comply with Sections 780.25(a) (2&3) and 816.49, for each temporary or permanent water impoundment to be constructed on the increment you currently propose to mine.

See Attachment III-B-2-A

- (d) Submit detailed design plans, which comply with Section 780.25(a) (2&3) and 816.81-816.85, for coal mine waste bank to be constructed on the increment you currently propose to mine.

N/A

- (e) Submit detailed plans which comply with Sections 780.25 (a)(2&3) and 816.91-816.93 for each coal mine waste dam and embankment to be constructed on the increment which you currently propose to mine.

N/A

**GENERAL ENGINEERING PLAN CERTIFICATION STATEMENT**

I, Jeffrey G. Aldridge, a registered professional engineer, hereby certify that the information, cross-sections, data, maps, etc., contained in this general plan in Attachment III-B-2-A is true and correct to the best of my knowledge and belief.

**McGehee Engineering Corp.**

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Jeff Aldridge, P.E.

Alabama Reg. No. 33959

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Date

**ADDENDUM TO THE GENERAL PLAN**

This addendum to the general plan consists of modifying Impoundment No. 003A by reducing the sediment storage volume required for certification of construction and removing the provisions for actual slurry to be pumped to Impoundment No. 003A. Slurry Impoundment No. 003A will remain designated as a slurry impoundment because it does receive coal fines runoff from the prep plant area and occasionally overflow from the prep plant thickener.

Injection Well No. 20 may be installed near Impoundment No. 003A but will not be used to decant water from Impoundment No. 003A. The location of Injection Well No. 19 is not exact and is not required to be completed in order for Slurry Impoundment No. 2 to be certified for construction. See the attached detailed modification plans for [Slurry Impoundment No. 003A](#).

BMP's will be utilized to prevent coal fines from reaching Sediment Basin 003 in addition to Slurry Impoundment No. 003A. See Attachment III-A-3 of Revision R-22 for specifications and drawings of BMP's to prevent coal fines from reaching sediment basins.

General design data for Sediment Basin 003 and Slurry Impoundment No. 003A is shown below. See attached data and watershed map for the sediment basin location and preliminary hydrologic information. Sediment Basin 003 remains permitted as a temporary water impoundment. Removal plans and additional data qualifying Basin 003 for removal will be submitted and approved by the Regulatory Authority prior to a Phase II bond release.

All surface drainage from the impoundments modified by Revision R-22 drains into Barton Creek or Baker Creeks

**GENERAL DESIGN DATA**

<b>EMBANKMENT</b>	<b>LOCATION</b>	<b>DRAINAGE AREA</b>
Slurry Impoundment No. 003A	SW/NE, Sec. 31, T. 15S. R.6W.	233 Acres
Sediment Basin 003	SE/NW, SW/NE Sec 31, T. 15S. R.6W	283 Acres

See the attached [Watershed Map](#)

**SPECIFICATIONS FOR COAL PROCESSING WASTE IMPOUNDMENTS  
IMPOUNDING LESS THAN 20 AC-FT OR LESS THAN 20 FEET HIGH**

The embankment for coal processing waste will be designed and constructed using the following as minimum criteria:

**1. EMBANKMENT REQUIREMENTS**

A) The minimum width of the top of the embankment will under no circumstance be less than twelve (12) feet.

B) The embankment will have a minimum front and back slope no steeper than the slopes listed on the detailed design sheet.

C) The foundation area of the embankment will be cleared and grubbed of all organic matter with no surface slope steeper than 1 horizontal to 1 vertical. The entire wet area, as measured from the upstream toe of the embankment to the normal pool level, will be cleared of trees and large brush.

D) A core will be constructed in a cutoff trench along the centerline of the embankment. The cutoff trench will be of suitable depth and width to attain relatively impervious material.

E) The embankment construction material will be free of sod, roots, stumps, rocks, etc., which exceed six (6") inches in diameter. The embankment material will be placed in layers of twelve (12") inches or less and compacted to ninety five (95%) percent of the standard proctor density, as set forth in ASTM. Coal processing waste will not be used in the construction of dams and embankments .

F) The embankment, foundation and abutments will be designed and constructed to be stable under normal construction and operating conditions, with a minimum static safety factor of 1.5 at normal pool level with steady seepage saturation conditions.

G) The actual constructed height of the embankment will be a minimum of five (5%) percent higher than the design height to allow for settling over the life of the embankment.

H) The design embankment height for temporary impoundments will be a minimum of one (1) foot above the maximum water level anticipated from a 10 Year - 24 Hour or a 25 Year - 6 Hour precipitation event (whichever is greater). The design embankment height for permanent impoundments will be a minimum of one (1) foot above the maximum water level anticipated from a 10 Year - 24 Hour or a 25 Year - 6 Hour precipitation event (whichever is greater).

I) For embankments constructed as point source discharges, the embankment will be constructed and abutments keyed into undisturbed, virgin, ground if at all possible. In the event

that this cannot be achieved, additional design and construction specifications will be submitted in the detailed design plans.

J) The embankment and all areas disturbed in the construction of the embankment will be seeded with a mixture of perennial and annual grasses, fertilized and mulched to prevent erosion and ensure restabilization. Hay dams, silt fences, rock check dams, etc. will be installed, where deemed necessary, as additional erosion prevention methods.

## **2. DISCHARGE STRUCTURE REQUIREMENTS**

A) The primary spillway will be designed to adequately carry the anticipated peak runoff from a 10 Year - 24 Hour precipitation event. The combination primary and secondary (emergency) spillway system will be designed to safely carry the anticipated peak runoff from a 25 Year - 6 Hour precipitation event. When waste impoundments are proposed in the drainage course of a public water supply, the spillway system will be designed and constructed to adequately carry the runoff from a 50 Year - 24 Hour precipitation event.

B) Channel linings, for secondary (emergency) spillways will be a trapezoidal open channel constructed in natural ground and planted with a mixture of both annual and perennial grasses being predominantly fescue and bermuda. In the event that the spillway can not be constructed in natural ground the spillway will be lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).

C) When consisting of pipe, the primary spillway will be installed according to Class "C" pipe installation for embankment bedding.

D) Waste impoundments with a single spillway system, such as a skimmer board, will be a trapezoidal open channel constructed in consolidated, nonerodible material and lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).

E) The primary spillway will be designed and constructed with device to eliminate floating solids from leaving the impoundment. This device will consist of a turned down elbow when using pipe or a skimmer system when using an open channel spillway.

F) When necessary, to prevent erosion of the embankment or discharge area, a splash pad of riprap, durable rock, sacrete, etc. will be installed at the discharge end of the primary spillway.

G) The combined spillway systems, for waste impoundments constructed in series, will be designed to adequately accommodate the entire drainage area.

**3. INSPECTION, MAINTENANCE AND CERTIFICATION REQUIREMENTS**

A) Inspections will be conducted regularly during construction of the slurry impoundment basin by a qualified registered professional engineer or other qualified person under the direction of a professional engineer. Upon completion of construction, the sediment basin will be certified, by a qualified registered professional engineer, to the Regulatory Authority as having been constructed in accordance with the approved detailed design plans.

B) Waste impoundments will be inspected semi-monthly for erosion, instability, etc., with maintenance performed as necessary, until the removal of the structure or until a Phase III Bond Release is granted.

C) Waste Impoundments will be examined quarterly for structural weakness, instability, erosion, slope failure, or other hazardous conditions with maintenance performed as necessary.

D) Formal inspections will be made annually, (quarterly for Slurry Impoundment No. 003A) by a qualified registered professional engineer or other qualified person under the direction of a professional engineer, including any reports or modifications, in accordance with 880-X- 10C-.20 of the Alabama Surface Mining Regulations.

E) Slurry pumping will cease when the accumulated slurry reaches the maximum allowable slurry volume as set forth in the detailed design plans.

**4. SLURRY IMPOUNDMENT REMOVAL REQUIREMENTS**

A) Each slurry impoundment will be reclaimed when slurry accumulates to the design allowable slurry volume or when mining is completed, whichever comes first. Reclamation of each slurry impoundment will take place as follows:

B) The slurry discharge pipe will be disconnected and removed from the site.

C) In the event that the slurry impoundment must be abandoned prior to the slurry level reaching its maximum design capacity, the embankment will be breached down to an elevation two feet above the existing slurry level, constructing a new spillway channel adequate to carry the anticipated flows. The impoundment will then be dewatered in an environmentally safe manner such as pumping, siphoning, etc.

D) After abandonment and/or successfully dewatering the slurry impoundment, a composite sample will be taken of the final slurry surface. Said sample will be transported to a laboratory where the sample will be analyzed for paste pH, total sulfur and neutralization potential. Using these three parameters, the acid-base account will be calculated for sample. If the results show the material to be acid forming then lime will be administered on the impoundment for 2 feet of depth. After the lime has been applied, using the approved borrow material (existing spoil

material), a working surface will be constructed on the impoundment that will permit equipment travel and provide for positive drainage. All spoil material slopes on the impoundment shall have a maximum and minimum grade of 5 percent and 1 percent, respectively.

E) All spoil material fill shall be spread in one (1) foot maximum layers with a minimum compaction of 90 percent of its maximum dry density as determined by the standard proctor compaction test. The thickness of the spoil material will be no more than is necessary to support equipment that will be working upon the impoundment surface.

Including the completion of the above mentioned working surface, the final slurry surface will be covered with a minimum of four (4) feet of the best available non-toxic, noncombustible and non-acid forming material. The area will then be reclaimed and revegetated in accordance with the approved reclamation plan.

### **SEDIMENT BASIN CONSTRUCTION SPECIFICATIONS**

Sediment basins (temporary or permanent) will be designed and constructed using the following as minimum specifications:

#### **1. EMBANKMENT REQUIREMENTS**

A) The minimum width of the top of the embankment will under no circumstance be less than twelve (12) feet.

B) The embankment will have a minimum front and back slope no steeper than the slopes listed on the detailed design sheet.

C) The foundation area of the embankment will be cleared and grubbed of all organic matter with no surface slope steeper than 1 horizontal to 1 vertical. The entire wet area, as measured from the upstream toe of the embankment to the normal pool level, will be cleared of trees and large brush.

D) A core will be constructed in a cutoff trench along the centerline of the embankment. The cutoff trench will be of suitable depth and width to attain relatively impervious material.

E) The embankment construction material will be free of sod, roots, stumps, rocks, etc., which exceed six (6") inches in diameter. The embankment material will be placed in layers of twelve (12") inches or less and compacted to ninety five (95%) percent of the standard proctor density, as set forth in ASTM.

F) The embankment, foundation and abutments will be designed and constructed to be stable under normal construction and operating conditions, with a minimum static safety factor of 1.3 at normal pool level with steady seepage saturation conditions.

G) The actual constructed height of the embankment will be a minimum of five (5%) percent higher than the design height to allow for settling over the life of the embankment.

H) The design embankment height for temporary impoundments will be a minimum of one (1) foot above the maximum water level anticipated from a 10 Year - 24 Hour or a 25 Year - 6 Hour precipitation event (whichever is greater). The design embankment height for permanent impoundments will be a minimum of one (1) foot above the maximum water level anticipated from a 10 Year - 24 Hour or a 25 Year - 6 Hour precipitation event (whichever is greater).

I) For embankments constructed as point source discharges, the embankment will be constructed and abutments keyed into undisturbed, virgin, ground if at all possible. In the event that this cannot be achieved, additional design and construction specifications will be submitted in the detailed design plans.

J) The embankment and all areas disturbed in the construction of the embankment will be seeded with a mixture of perennial and annual grasses, fertilized and mulched to prevent erosion and ensure restabilization. Hay dams, silt fences, rock check dams, etc. will be installed, where deemed necessary, as additional erosion prevention methods.

## **2. DISCHARGE STRUCTURE REQUIREMENTS**

A) The primary spillway will be designed to adequately carry the anticipated peak runoff from a 10 Year - 24 Hour precipitation event. The combination primary and secondary (emergency) spillway system will be designed to safely carry the anticipated peak runoff from a 25 Year - 6 Hour precipitation event. When sediment basins are proposed in the drainage course of a public water supply, the spillway system will be designed and constructed to adequately carry the runoff from a 50 Year - 24 Hour precipitation event.

B) Channel linings, for secondary (emergency) spillways will be a trapezoidal open channel constructed in natural ground and planted with a mixture of both annual and perennial grasses being predominantly fescue and bermuda. In the event that the spillway can not be constructed in natural ground the spillway will be lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).

C) When consisting of pipe, the primary spillway will be installed according to Class "C" pipe installation for embankment bedding.

D) Sediment basins with a single spillway system, such as a skimmer board, will be a trapezoidal open channel constructed in consolidated, nonerodible material and lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).

- E) The primary spillway will be designed and constructed with device to eliminate floating solids from leaving the impoundment. This device will consist of a turned down elbow when using pipe or a skimmer system when using an open channel spillway.
- F) When necessary, to prevent erosion of the embankment or discharge area, a splash pad of rip-rap, durable rock, sacrete, etc. will be installed at the discharge end of the primary spillway.
- G) The combined spillway systems, for sediment basins constructed in series, will be designed to adequately accommodate the entire drainage area.

### **3. INSPECTION, MAINTENANCE AND CERTIFICATION REQUIREMENTS**

- A) Inspections will be conducted regularly during construction of the sediment basin by a qualified registered professional engineer or other qualified person under the direction of a professional engineer. Upon completion of construction, the sediment basin will be certified, by a qualified registered professional engineer, to the Regulatory Authority as having been constructed in accordance with the approved detailed design plans.
- B) Sediment basins will be inspected semi-monthly for erosion, instability, etc., with maintenance performed as necessary, until the removal of the structure or until a Phase III Bond Release is granted.
- C) Sediment basins will be examined quarterly for structural weakness, instability, erosion, slope failure, or other hazardous conditions with maintenance performed as necessary.
- D) Formal inspections will be made annually, by a qualified registered professional engineer or other qualified person under the direction of a professional engineer, including any reports or modifications, in accordance with 880-X- 10C- .20[1(j)] of the Alabama Surface Mining Regulations.
- E) Retained sediment will be removed from each sediment basin when the accumulated sediment reaches the maximum allowable sediment volume as set forth in the detailed design plans.

### **4. BASIN REMOVAL REQUIREMENTS**

- A) Upon completion of mining, reclamation, restabilization and effluent standards being met, each sediment basin not proposed as a permanent water impoundment will be dewatered in a controlled manner by either pumping or siphoning. Upon successful dewatering, a determination will be made as to the retained sediment level in the basin. After determining the retained sediment level, a channel will be cut into the embankment down to the retained sediment level on the side of the embankment deemed most suitable to reach natural ground without encountering prohibiting rock. The embankment material removed from this newly constructed channel will be

spread and compacted over the previous impoundment (wet area) area to prevent erosion and ensure restabilization. The newly constructed channel will be of adequate width (minimum 30 feet) and sloped to a grade (approximately 1% to 3%) which will cause all surface drainage to travel across this area in sheet flow, minimizing the possibility of erosion. Also, where necessary, hay dams will be installed in strategic locations across the width of the channel to retain sediment and slow the water velocity to a favorable rate. Upon removal of the embankment section, all disturbed areas will be graded in such a manner to ensure slope stability, successful restabilization and to minimize erosion. All disturbed areas will be seeded with a mixture of annual and perennial grasses, fertilized and mulched. No slope, existing or created in the removal of the sediment basin, will be left on a grade that will slip or slough.

## **5. PERMANENT WATER IMPOUNDMENT REQUIREMENTS**

A) Prior to a request for a Phase II Bond Release, all sediment basins being left as permanent water impoundments will have supplemental data submitted to the Regulatory Authority concerning water quality, water quantity, size, depth, configuration, postmining land use, etc.

B) Final grading slopes of the entire permanent water impoundment area will not exceed a slope of 2 Horizontal to 1 Vertical to provide for safety and access for future water users

## **TYPICAL DRAWINGS FOR EMBANKMENT TYPE BASIN**

**[Typical Pond Plan View](#)**

**[Typical Embankment Cross Section](#)**

**[Typical Clay Liner](#)**