# TUSCALOOSA RESOURCES, INC.

EAST BROOKWOOD MINE, P-3852, R-7

ALABAMA SURFACE MINING COMMISSION

SURFACE MINING PERMIT APPLICATION

## P A R T  I I I

Prepared by:

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# PART III - OPERATION PLAN

## A. General Operation Information

1. Describe the type and method of coal mining procedures and major equipment to be used. (780.11)

   See Attachment III-A-1

   | | |
   |---|---|
   | 1 Track-hoe | 1 Blast hole drill |
   | 3 Rock trucks | 1 Fuel and service truck |
   | 4 Dozers | 2 Loaders |

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)

   See **Permit Map**

   The timing increments are as follows:

| Increment No. | Acres | Dates | |
|---|---|---|---|
| | | To | From |
| 1 | 77.0 | Mined and reclaimed | |
| 2 | 40.0 | Mined and partially reclaimed | |
| 3 | 70.0 | Mined and partially reclaimed | |
| 4 | 112.0 | Coal removal is complete | |
| 5 | 13.0 | Currently Bonded | Life of Mine |
| 6 | 85.0 | Currently Bonded under P-3256 and permitted under P-3852 as a shared facility. | |

   * The Effective Date depends on the date of issuance of permit.

   The sequence of mining operations will be generally as follows:

   1) Construction of sediment control structures
   2) Clearing and grubbing
   3) Topsoil removal, if required
   4) Overburden drilling and blasting
   5) Overburden removal
   6) Coal Recovery
   7) Grading
   8) Revegetation

# OPERATION PLAN

The surface mining method of area mining was utilized at this mined site. Preparation for mining consisted of removing timber, topsoil removal (if required), drilling and blasting of overburden, overburden removal, coal removal, regrading, topsoil replacement (if required), and revegetation.

Revision No. 7 proposes adding Slurry Impoundment No. 4 in order to store fine coal refuse produced at the Jim Walter Resources (JWR) No. 4 Mine Prep Plant, JWR's No. 5 Mine Prep Plant.

INCREMENT NO. 1 – 3

Coal removal is complete. Reclamation is in progress.

INCREMENT NO. 4

Slurry Impoundment No. 4 is proposed to be constructed in the final cut area of this increment as shown on the attached **Permit Map**.

INCREMENT NO. 5

Currently bonded as an incidental increment.

INCREMENT NO. 6

Bonded under P-3256.

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;

See **Attachment III-A-3**, Part III-A-5

(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.

See **Attachment III-A-3** & **III-B-2-A**

# SPOIL, COAL MINE WASTE AND NON-COAL MINE WASTE REMOVAL, HANDLING, STORAGE, TRANSPORTATION AND DISPOSAL STRUCTURES AND FACILITIES

## Introduction

This permit application proposes adding Slurry Impoundment No. 4 in order to store fine coal processing waste (slurry). Detailed design plans for Slurry Impoundment No. 4 are submitted as part of this revision.

Slurry to be stored in Slurry Impoundment No. 4 will be produced from the Jim Walter Resources (JWR) No. 4 Mine Prep Plant (P-3260) and/or JWR's Mine No. 5 Prep Plant (P-3256). Slurry pipeline routes from No. 4 Mine, P-3260 to No. 5 Mine and No. 7 Mine were permitted by R-21. A slurry pipeline route was also permitted by No. 7 Mine, P-3247, R-31 to connect the No. 4 Mine route to TRI East Brookwood Mine, P-3852 and No. 5 Mine Slurry No. 3. These existing permitted slurry pipeline routes under the various JWR permits and newly permitted routes by revisions under those permits will be utilized to transport slurry to Slurry Impoundment No. 4. All refuse material handling will be accomplished by pumping through "drisco" polyethylene pipeline.

## CONSTRUCTION SPECIFICATIONS FOR SLURRY IMPOUNDMENT NO. 4

Construction of Slurry Impoundment No. 4 will be in two phases. Phase 1 will consist of utilizing the current pit area below the incised elevation of 500 feet MSL for slurry and water storage. Prior to pumping slurry into the pit, seals within the current pit area will be constructed in any abandoned mine openings encountered during the surface mining. Once the seals are completed a certification letter from a licensed professional engineer will be submitted to the ASMC stating that Phase 1 has been completed. At that time slurry can be pumped into the impoundment. Phase 1 does not have an embankment or spillway. Pumps will be installed to keep the slurry/water from exceeding the elevation of 500 feet MSL.

Phase 2 will consist of the construction of an embankment and spillway system to utilize the remainder of the storage in the impoundment. Once the embankment and spillway are constructed a certification letter from a licensed professional engineer will be submitted to the ASMC stating that Phase 2 has been completed. At that time slurry/water will be allowed to exceed the elevation 500 feet MSL.

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

Coal processing waste will not be used in the construction impoundments without written approval from the regulatory authority.

All trees, shrubs, grasses, and other organic material will be cleared and grubbed from the site, and all combustibles will be removed and stockpiled before coal-processing waste is placed at the impoundment site.

All surface drainage that may cause erosion to the impoundment area will be directed away from the area. Diversions designed to divert drainage from the upstream area away from the impoundment area will be designed to carry the peak runoff from a 100 year - 6 hour precipitation event. The diversion will be maintained to prevent blockage. Adequate outlets for the discharge from these diversions will be controlled by energy dissipaters, riprap channels, and other devices where necessary to reduce erosion, prevent deepening or enlargement of the stream channel, and to minimize disturbance of the hydrologic balance. Also, all diversions delivering runoff from disturbed area must pass through an approved sediment basin.

Hydrologic studies have been performed for the Probable Maximum Precipitation (PMP), 31" of rainfall – 6 Hour Event.

All disturbed areas will be sowed with both perennial and annual grasses in order to insure erosion is minimized.

All impoundments will be inspected for erosion, etc. at 7-day intervals, except when more frequent inspections are required by on-site conditions. A formal inspection will be made annually until the removal of the structure or until the release of the performance bond by the Alabama Surface Mining Commission.

The impoundment including spillway will be maintained by repairing any damage such as erosion, or spillway damage until removal of the structure or release of the performance bond.

All impoundments will be examined weekly for erosion, or other hazardous conditions and maintenance performed as necessary. Formal inspections will be made on an annual basis, including any reports or modifications, in accordance with 880-X-l0C-.20(1(j)) of the Alabama Surface Mining Regulations.

Upon completion of mining, successful reclamation and effluent standards being met, each impoundment will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and reclaimed to approximate original contours by the following procedure: The dewatered basin area will be covered with a minimum of 4 feet of the best available non-toxic, non-combustible material. The area will be seeded with some combination of the following: Fescue, Bermuda, rye grass, canary grass, and willows. After seeding, the area will be mulched.

During construction a qualified registered professional engineer or other qualified professional specialist, under the direction of the professional engineer shall conduct regular inspections during construction and upon completion shall inspect each basin for certification purposes.

## ABANDONMENT PLAN FOR PROPOSED SLURRY IMPOUNDMENT NO. 4

A general abandonment plan is included in the detailed design plans of Slurry Impoundment No. 4. A detailed Abandonment Plan will be submitted to MSHA & ASMC for approval prior to beginning abandonment activities. The abandonment section of these detailed design plans is intended to provide a general outline of the activities that will occur during the actual abandonment of proposed Slurry Impoundment No. 4

5. Describe measures to be taken to ensure that all debris, acid-forming and toxic-forming materials and materials constituting a fire hazard are disposed of in accordance with 816.89 and 816.103; include contingency plans to prevent sustained contingency plans to prevent sustained combustion of such material. (780.18).

   Attachment III-A-5 addresses items or facilities added by this permit revision R-7.

   **Acid Forming Material (Slurry)**

   Fine refuse (slurry) is considered potentially acid forming or toxic forming when it has a pH of 4 or less or has a net potential acidity of less than 5 tons per 1000 tons of CaCO3 equivalent (equates to an acid-base account of less than negative 5).

   Representative slurry samples from each of the prep plants that will pump slurry to Slurry Impoundment No. 4 will be analyzed for pH, Neutralization Potential, Sulfur and Acid Base Account. The sample results will be submitted during the review period.

   **Other Materials**

   All other facilities added by Revision R-7 deemed to be acid-forming and toxic-forming material will either be covered with a minimum of four (4') feet the best available non-acid, non-toxic and non-combustible forming material or covered and neutralized in accordance with their approved plan.

   Any material such as oil, grease, rags etc. that may present a fire hazard will be properly disposed of in an approved landfill.

   Contingency plans to prevent sustained combustion of materials constituting a fire hazard such as coal and coarse refuse included compaction of said material by loader, truck and/or dozer to minimize oxidation and prevent combustion.

   Any non-coal waste such as office type garbage, debris, concrete, construction/demolition material, etc., will be disposed of at approved off-site landfills, which meet all applicable local, state and federal requirements.

7. Give a description of steps to be taken to comply with applicable water quality laws, regulations and health and safety standards. (780.18)

   Water Quality Laws - All disturbed surface drainage from the proposed mining area will be routed through an approved sediment structure for monitoring and treatment purposes. Monitoring and Reporting will take place as set forth in the approved Monitoring Plan (III-D & III-E) and NPDES requirements. When necessary, drainage will be chemically treated for pH or Iron with hydrated lime or caustic soda. Other treatment such as floating silt fences or flocculation bricks may be administered for Total Suspended Solids. These measures will be taken to remain in compliance NPDES requirements. Health & Safety Standards - Applicable approvals will be received prior to the construction of any sanitary absorption lines for bathhouses and offices. MSHA guidelines and regulations will be followed in all operations.

   Certification and training of all mine personnel will be current and updated by attending MSHA classes at the Walker Technology School, in Sumiton, Alabama.

   All dust, noise, and other required control test will be current and performed by certified MSHA personnel.

   All records are maintained at the mine and are available for inspection.

**B. <u>Engineering Plans.</u>**

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 that 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

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.

None Proposed

(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.

See Attachment III-B-2(e)

3. Diversions [780.29, 816.43, 816.44]

Are diversions of overflow or stream channel diversions proposed?

(XX) Yes ( ) No

If yes, complete the following:

(a) Is the diversion to be permanent? ( ) Yes (XX) No

## GENERAL ENGINEERING PLAN CERTIFICATION STATEMENT

I, Robert W. Usher, 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.**

_____ _____

Robert W. Usher, P.E. Date

Alabama Reg. No. 15917

## ADDENDUM TO THE GENERAL PLAN

This addendum to the general plan consists of adding Slurry Impoundment No. 4 for the purpose of storing fine coal processing waste (slurry) produced at Jim Walter Resources (JWR) No. 4 Mine Prep Plant, (P-3260) & JWR's Mine No. 5 Prep Plant (P-3256).

Slurry Impoundment No. 4 is located within the final pit area of the surface mine.

Slurry Impoundment No. 4 will be designed in two phases.

Slurry Impoundment No. 4 design plans have been submitted and approved by Mine Safety and Health Administration (MSHA). These plans are submitted for the ASMC review and approval. Additional plans for Phase 1 are also submitted to the ASMC for approval.

### Phase 1

Phase 1 construction of the impoundment will utilize the incised portion of the impoundment for slurry disposal.
The Johnson coal seam is the lowest (500 feet MSL elevation) outcropping coal seam at the East Brookwood Mine. Slurry impounded below elevation 500 feet MSL is considered incised by both MSHA and ASMC's definition of "incised". Drill holes and geologic cross sections are presented as part of the Phase 1 Detail Design Plans to demonstrate the incised nature of Phase 1 of Slurry Impoundment No. 4.

Previous underground mining was encountered during mining in the Lower Brookwood and Milldale coal seams. Old works openings are currently exposed in the Lower Brookwood final pit. Seals are designed and are a part of the MSHA approved plans for both the Lower Brookwood and Milldale seams.

Phase 1 will consist of the totally incised Slurry Impoundment No. 4 with a maximum slurry storage elevation of 500 feet MSL. The seals as approved in the MSHA approved plan will be constructed as part of Phase 1. Hydrologic studies were performed using the 100 year- 6 hour rainfall event to verify that the impoundment can store the runoff without discharging. It was found that the impoundment can retain this event and the PMP also. The detail design plans address the PMP rainfall event.
No spillway system is proposed for Phase 1. Upon written approval of this revision and the Slurry Impoundment No. 4 Phase 1 design plans, the seals will be constructed and certified to the Regulatory Authority as having been constructed in accordance with the approved plans. Pumping of slurry will not commence until certification of construction has been submitted to the Regulatory Authority.

The pumping of slurry will cease at Slurry Impoundment No. 4 when the slurry level reaches elevation 500 feet MSL and pumping will not resume at Slurry Impoundment No. 4 until the Phase 2 construction requirements have been met.

**Phase 2**

The proposed Phase 2 design will consist of constructing embankments and a spillway system. The detail design plans for Phase 2 are submitted for ASMC review. These plans have been submitted and approved by MSHA. Once all construction requirements for Phase 2 have been completed a letter from a licensed professional engineer will be submitted to the ASMC stating that all work was completed in accordance with the approved plans. At that time pumping of slurry can commence for this phase.

**General Watershed Facts**

During Phase 1 of construction and operation, the 103 acres that drain to the impoundment will not drain to any other facility on the permit due to no spillway being required during this phase.

Once Phase 2 construction is completed, Slurry Impoundment No. 4 will discharge into JWR No. 5 Mine, P-3256, Slurry Impoundment No. 3. Slurry Impoundment No. 3 drains into Sediment Pond 013A and 013 (MSHA impoundment). All three impoundments are permitted by TRI, East Brookwood Mine, P-3852 as shared facilities with No. 5 Mine, P-3256.
Evaluations were performed for the three impoundments to show that the addition of Slurry Impoundment No. 4 would not have an effect on the current design of the structures. The following information gives the design criteria of each structure and the evaluation performed with changing watershed conditions with Slurry Impoundment No. 4.

The design cases anticipated the worst case conditions based on JWR's operating plan. JWR is currently removing fine coal material from Slurry Impoundment No. 3 and processing this material at the fine coal plant located at No. 7 Mine, Slurry 14 site and will continue. Volume in Slurry Impoundment No. 3 will increase as fines are removed. Once Slurry Impoundment No. 4 is completed it will be used by No. 4 and No. 5 mine preparation plants and disposal of fines into Slurry Impoundment No.3 will cease. Therefore it is anticipated that Slurry Impoundment No. 4 will be filled while Slurry Impoundment No. 3 will gain volume. It is the intent to fill Slurry Impoundment No. 4 first, reclaim that area and fill and reclaim Slurry Impoundment No. 3 last.

Case 1 Spillway evaluation Slurry Impoundment No. 3 (PMP 6" in 6 hours), Sediment Pond 013A (None), Sediment Pond 013 (24.8 inches in 6 hours).
Watershed condition Slurry Impoundment No. 4 covered/graded and bare and Slurry Impoundment No. 3 still in place. See attached Case 1 Watershed map and Case 1 SEDCAD OUPTUT.

| | Peak elev. design | Peak elev. Re-evaluation | Top of Dam Elev. Design | Freeboard(ft) |
|---|---|---|---|---|
| Slurry Impoundment 3 | 575.66 | 575.97 | 580 | 4.03 |
| Sediment Pond 013 | 475.5 | 470.06 | 477 | 6.94 |
| | | | | |

Sediment Pond 013 design elevation was originally with Slurry Impoundment No. 3 covered/graded and bare. This evaluation is shown below.

Case 2 Spillway for Sediment Pond 013 with Slurry Impoundment No. 4 reclaimed and Slurry Impoundment No. 3 covered/graded and bare. Design event 24.8 inches in 6 hours. See Case 2, 3 & 4 Watershed Map and Case 2 SEDCAD output.

| | Peak elev. design | Peak elev. Re-evaluation | Top of Dam Elev. Design | Freeboard(ft) |
|---|---|---|---|---|
| Sediment Pond 013 | 475.5 | 474.34 | 477 | 2.66 |

Case 3 Evaluate Sediment Ponds 013A and 013 during the 10 year, 24 hour rainfall event with Slurry Impoundment No. 4 reclaimed, Slurry Impoundment No. 3 covered/graded and bare. See Case 2, 3 & 4 Watershed map and Case 3 SEDCAD output.

| | Peak elev. Design | Peak elev. Re-evaluation | Top of Dam Elev. Design | Freeboard(ft) | Settleable Solids Concentration (ml/l) |
|---|---|---|---|---|---|
| Sediment Pond 013A | 504.75 | 504.59 | 506.7 | 2.11 | Na |
| Sediment Pond 013 | 464.74 | 462.11 | 477 | 14.89 | 0.05 |

Case 4 Evaluate Sediment Pond 013A during the 25 year, 6 hour rainfall event with Slurry Impoundment No. 4 reclaimed, Slurry Impoundment No. 3 covered/graded and bare. See Case 2, 3 & 4 Watershed map and Case 4 SEDCAD output.

| | Peak elev. Design | Peak elev. Re-evaluation | Top of Dam Elev. Design | Freeboard(ft) | Settleable Solids Concentration (ml/l) |
|---|---|---|---|---|---|
| Sediment Pond 013A | 505.7 | 505.12 | 506.7 | 1.58 | Na |
| | | | | | |

All of the evaluations show that each impoundment and pond as designed will still meet the design criteria with Slurry Impoundment No. 4 added during all phases of operation and reclamation without any modifications.

All refuse material handling will be accomplished by pumping through “drisco” polyethylene line. Existing permitted slurry pipeline routes and pipeline routes added by this revision will be utilized to transport slurry to Slurry Impoundment No. 4.

Geologic investigations of the area indicate alternating sequences of sandstone and shale with sandstone streaks and minor amounts of bituminous coal and underclay. The coal mined by Tuscaloosa Resources, Inc. was the Guide, Brookwood, Milldale and Carter seams of the Brookwood Coal Group.

All surface drainage from the proposed slurry impoundment drains into Jimy Creek and Weldon Creek.

## GENERAL DESIGN DATA
## DURING PHASE 1 OF SLURRY IMPOUNDMENT NO. 4

| BASIN/IMPOUNDMENT | LOCATION | DRAINAGE AREA |
|---|---|---|
| Slurry Imp. No.4<br>NO. 4 | SW/NW & NW/SW, Sec. 28,<br>SE/NE & NE/SE, Sec. 29<br>all in T.20S. R.7W | 103 Acres |
| 002AE | NW/NW & NE/NW,<br>Sec. 33, T20S, R7W | 306 Acres |
| 002E | SW/NW, NW/NW & NE/NW,<br>Sec. 33, T20S, R7W | 13 Acres |
| | Total Drainage Area to Basin 002 | 319 Acres |
| 004E | NE/NE, Sec. 32, T20S, R7W<br>SE/SE, Sec. 29, T20S, R7W | 22.5 Acres |
| Slurry Imp. No. 3 | SE/NE, SW/NE, NE/SE, NW/SE, SE/SE<br>SE/NW, NW/SW, NE/SW, SE/SW<br>& SW/SW OF SECTION 29, NW/NE, NE/NE,<br>SE/NE & SW/NE OF SECTION 31, NW/NW,<br>OF SECTION 32, ALL IN, T.20S., R.7W | 268 Acres |
| 013A | NE/NW OF SEC. 32<br>T.20S., R.7W. | 86 Acres |
| 013 | SW/NE OF SEC. 32<br>T.20S., R.7W. | 202 Acres |
| | Total Drainage Area to Basin 013 | 556 Acres |

# GENERAL DESIGN DATA
# DURING PHASE 2 OF SLURRY IMPOUNDMENT NO. 4

| BASIN/IMPOUNDMENT | LOCATION | DRAINAGE AREA |
|---|---|---|
| Slurry Imp. No.4<br>NO. 4 | SW/NW & NW/SW, Sec. 28,<br>SE/NE & NE/SE, Sec. 29<br>all in T.20S. R.7W | 103 Acres |
| 002AE | NW/NW & NE/NW,<br>Sec. 33, T20S, R7W | 306 Acres |
| 002E | SW/NW, NW/NW & NE/NW,<br>Sec. 33, T20S, R7W | 13 Acres |
| | Total Drainage Area to Basin 002 | 319 Acres |
| 004E | NE/NE, Sec. 32, T20S, R7W<br>SE/SE, Sec. 29, T20S, R7W | 22.5 Acres |
| Slurry Imp. No. 3 | SE/NE, SW/NE, NE/SE, NW/SE, SE/SE<br>SE/NW, NW/SW, NE/SW, SE/SW<br>& SW/SW OF SECTION 29, NW/NE, NE/NE,<br>SE/NE & SW/NE OF SECTION 31, NW/NW,<br>OF SECTION 32, ALL IN, T.20S., R.7W | 371 Acres |
| 013A | NE/NW OF SEC. 32<br>T.20S., R.7W. | 86 Acres |
| 013 | SW/NE OF SEC. 32<br>T.20S., R.7W. | 202 Acres |
| | Total Drainage Area to Basin 013 | 659 Acres |

Slurry Impoundment No. 4 is located on the Brookwood U.S.G.S. Quadrangle in Tuscaloosa County. See the attached Watershed Map for the current mine watershed conditions and drainage area for Slurry Impoundment No. 4. The drainage area for Slurry Impoundment No. 4 was derived from recent aerial photography.