



August 18, 2014

Mr. J. Michael Harrison, P.E.
Alabama Surface Mining Commission
P. O. Box 2390
Jasper, AL 35502-2390

RE: Kodiak Mining Company, LLC
Coke Mine No. 1, P-3887, R-6
Atkins Underground Mine – Subsidence Control Plan-Part III-H

Dear Mr. Harrison:

I, Robert W. Usher, a qualified registered professional engineer, hereby certify that the information, cross-sections, data, maps, etc., contained in the Subsidence Control Plan are true and accurate to the best of my knowledge and belief. I also certify that this plan is in accordance with current, prudent mining engineering practices, and meets or exceeds the applicable parts of 880-X-8I-10 and 880-X-10D-.58.

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

McGehee Engineering Corp.

A handwritten signature in black ink, appearing to read 'Robert W. Usher', is written over the printed name.

Robert W. Usher, P.E.
Alabama Reg. No. 15917



KODIAK MINING COMPANY, LLC

COKE MINE NO. 1, P-3887, R-6

ALABAMA SURFACE MINING COMMISSION

SUBSIDENCE CONTROL PLAN

PART III-H

ATKINS UNDERGROUND MINE

Prepared by:

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LIST OF EXHIBITS

| EXHIBIT | TITLE |
|---------|---|
| 1. | Pre-Subsidence Survey Map- Sheet 1 of 3 , Sheet 2 of 3 , Sheet 3 of 3 |
| 2. | Projection and Timing Map- Sheet 1 of 3 , Sheet 2 of 3 , Sheet 3 of 3 |

SUBSIDENCE CONTROL PLAN

ATKINS UNDERGROUND MINE

KODIAK MINING COMPANY, LLC. COKE MINE NO. 1, P-3887, R-6

1.0 INTRODUCTION

McGehee Engineering Corporation has prepared this Subsidence Control Plan (SCP) for Kodiak Mining Company, LLC.'s (Kodiak) Coke Mine No. 1, Atkins Underground Mine. This mine will mine the Atkins coal seam. This SCP specifically addresses planned mining projected for the next five (5) years. The mine plan is subject to change depending on market and geologic conditions.

2.0 DESCRIPTION OF SURFACE

The Atkins Underground Mine Pre-subsidence Map [Sheet 1 of 3](#), [Sheet 2 of 3](#) and [Sheet 3 of 3](#) presents the area overlying the planned workings in the Atkins Underground Mine showing all features that could be affected.

A survey of structures, features, or renewable resource lands will be conducted as part of the Pre-Subsidence Surveys required within 6 months of mining under the property. The limits of the survey were determined by a 30⁰ angle of draw from the limits of the mining area. There are many coal bed methane gas wells, pipelines and infrastructure associated with the coal bed methane business. There are several Non-Commercial or Residential Structures within the survey area. Shelby County Road 10 is also within the survey area. An Alabama Power Company transmission line is also within the survey area. Montevallo Water Authority has a main water distribution pipeline that runs along Shelby county Road 10.

The surface overlying Atkins Underground Mine is predominantly privately owned forest/woodlands.

3.0 GEOLOGY

This mine proposes to mine the Atkins Coal Seam within the Pottsville formation. The overburden above this coal seam is composed of alternating layers of sandstones and shale.

Overburden depths range from the Atkins seam outcrop at the proposed mine entry to over 2500 feet within portions of the mine. The overburden consists of sandstone and shale. No known faults exist within the mine area. Seam heights range from 3 feet to 6 feet.

This mine site is located within the Cahaba Coal Field of the Valley and Ridge Province as shown in “Hydrologic Assessment, Eastern Coal Province Area 23, Alabama”. The Pottsville Formation is characterized as the following: Alternating beds of gray sandstone, conglomerate, siltstone, and shale with beds of coal and underclay. The proposed mine site lies in the southern portion of the Cahaba Coal Field.

The Atkins Underground Mine is located, structurally, within the Dry Creek basin of the Cahaba Coal Field. According to “*Geology of Alabama*”, Special Report No. 14 of the Geological Survey of Alabama the rocks of the Cahaba Coal Field mark the southern end of the ‘Coal Measures’ of the Appalachian region. These early Pennsylvanian rocks were deposited in a comparatively narrow trough that extends from Alabama to Pennsylvania. The strata which underlies and outcrops in this region is of the Pottsville Formation of the Pennsylvanian Age. In Alabama, the Pottsville Formation is divided into four fields: the Warrior, the Cahaba, the Coosa and the Plateau. The Cahaba Coal Field occupies nearly 400 square miles and is located between the Warrior Field (the westernmost) and the Coosa Field (the easternmost) in parts of St. Clair, Jefferson, Shelby and Bibb Counties. The structure of the Cahaba Field as stated by the above mentioned reference is a relatively narrow trough or syncline, which is faulted along its southeast side. As stated in “*Coal Reserves of Alabama*” by the Mineral Resources Group of the Southern Railway System, this narrow syncline extends from southwestern St. Clair County on the northeast to northeastern Bibb County on the southwest. This reference also states that the northwest flank of this field typically dips approximately 20 degrees toward the southeast and that an extensive thrust fault (Helena thrust fault {Butts, 1911 & 1940}) truncates the eastern limb, forming the southern and eastern boundary of this field. Some cretaceous sediment overlaps the southwestern portion of the Cahaba Coal field.

The proposed permit area is located within the Dry Creek Basin. The Dry Creek Basin is bounded on the east by the Helena thrust fault, to the south by the Piney Woods anticline and to the north by the Cahaba River.

The most common geologic structural features in the Cahaba Basin are faults and folds. The faults generally tend to be normal faults with a dominant northwest-southeast orientation. There are no known faults within or adjacent to the proposed permit area.

Several abandoned underground mines are above the proposed mine. The Jesse Creek Upper Thompson mine is approximately 970 to 1020 feet above the proposed mine. Gholson seam mines are located within the proposed mine area with separations of 710 to 780 feet. There are Clark seam mines that are on the southwest portion of the mine area. The separation between these mines and the Atkins seam are between 450 and 500 feet in this area. The Kodiak Coke seam mine is located approximately 160 above the proposed mine.

4.0 PLANNED MINING

The Atkins Underground Mine Pre-subsidence Map [Sheet 1 of 3](#), [Sheet 2 of 3](#) and [Sheet 3 of 3](#) presents the proposed mining in the Atkins Underground Mine in relation to major surface features and structures. The mains will be mined in a southeasterly direction along the dip of the coal seam. Submains and panels will be driven off of the initial set of entries as shown on the Atkins Projection and Timing Map [Sheet 1 of 3](#), [Sheet 2 of 3](#) and [Sheet 3 of 3](#) (Exhibit 3) until the projected mine area is mined out. Mine progress maps will be submitted to ASMC annually showing the actual location of mine workings. The current mine plan initially proposes rooms and entries on many different layouts. Combinations of cross cut centers will range from 70 foot center to 70 X 80, 80 X 90, 80 X 100 and 90 X 100 feet. The determination will; be based on the overburden depth at each location to provide adequate support. The minimum Factor of Safety are as follows: 2 for main entries, 1.5 for panels, and 1.3 for rooms. Entries will be 20 foot wide. Mining with the 70 X 70 foot plan creates 50 feet by 50 feet pillars and 51% of the coal to support the roof during advancing of the mine. Increasing the cross cut spacing increases the pillar sizes and coal remaining thereby increasing the support. Leaving this percentage of coal has been found to sufficiently support the roof and should prevent subsidence from causing material damage as mining advances. Pillar size and spacing may be adjusted as mining conditions change.

5.0 SUBSIDENCE

5.1 PLANNED SUBSIDENCE

There is no planned subsidence proposed for the Atkins Underground Mine. Adequate roof support is proposed by leaving coal pillars in place.

5.2 PUBLIC ROADWAYS and RELATED FACILITIES

No damage is proposed due to the room and pillar design. If subsidence were to occur, potential

damage to public roadways and related facilities is anticipated to be limited to cracking, and slight opening or closure of joints and cracks in pavements. Measures to repair damage to public roadways will be based on recommendations made by the appropriate governmental entity. No major transportation structures, such as long-span bridges or culverts, or tunnels, exist within the area to be mined. If mine subsidence damage occurs to public roadways or related facilities, qualified personnel will perform repairs at Kodiak's expense.

5.3 SURFACE WATER BODIES AND GROUNDWATER SURVEYS

A Water Resource Survey will be conducted for surface and groundwater of areas that could be affected by the mining operation. The Water Resource Survey will be completed during the Pre-Subsidence Survey.

5.4 UTILITIES AND PIPE LINES

Kodiak will notify utility/pipeline and owners of their intent to mine under the pipelines, utility lines and related structures, and public roads that cross planned panels approximately six (6) months in advance of mining. Kodiak will offer the owners access to available information concerning past experiences over completed panels and the protective measures that were selectively implemented (if any), such that the owners can determine and implement the precautions and prudent actions they deem necessary to protect their interests and the public. Kodiak will also periodically apprise the utility/pipeline owners of the status on the mining, such that the owners can better manage the potential for subsidence impact to their facilities..

Past experience has shown very little subsidence impact to pipelines, utility lines and related structures. For higher pressure and sensitive pipelines and public roads, if there should be an increased risk of subsidence impact, measures such as exposing the pipelines in open trenches or reducing line pressures as much as practical could be undertaken. The owners of potentially affected facilities will be apprised of these measures sometimes used to protect such structures from subsidence damage for their consideration when evaluating risks and making decisions concerning the use of protective measures. The companies will be notified prior to mining beneath the structure as mentioned below.

Numerous coal bed methane wells, pipelines (gas & water) and other facilities are located within the survey area. The coal bed methane companies will be notified at a minimum of six (6) months prior to mining beneath their facilities. Wells within the mine area that cannot be avoided by the mining will be abandoned and taken out of service.

5.5 PRE-SUBSIDENCE NOTIFICATION

All property owners and occupants of structures over the mine area and within the angle of draw will be notified a minimum of six (6) months in advance that mining will occur beneath or adjacent to their property. The notification will include a statement identifying the location and time for mining; and a statement indicating the Subsidence Control Plan can be reviewed at the ASMC's office in Jasper, Alabama.

5.6 PRE-SUBSIDENCE SURVEY

A pre-subsidence survey will be offered to identify type and conditions of structures within the subsidence limits and to identify any structures that are at potential risk of being damaged by subsidence. Once completed, the survey will be used to determine the measures that may be used to prevent material damage or diminution of the value or reasonable use of the surface area. A copy of pre-subsidence survey/evaluation will be provided to the property owner and Regulatory Authority. The owner shall be notified in writing the consequences under 880-X-10D-.58(1)(b)3 of denying access for a pre-subsidence survey. No protective/mitigative measures will be taken if:

1. The owner consents in writing that protective/mitigative measures not be taken.
2. Documentation shows the owner has denied access to the property to provide protective/mitigative measures.
3. Kodiak demonstrates that the costs to protect/mitigate damage to the structure exceeds the anticipated cost of repair.

This information will be included as part of the subsidence control plan, in the individual pre-subsidence surveys; on file with Kodiak and will be made available for inspection to the ASMC upon request.

5.7 SUBSIDENCE MITIGATION

Planned subsidence is not proposed at the Atkins Underground Mine.

EXHIBITS