APPLICATION FOR PERMIT REVISION

Name of Permittee: Centennial Natural Resources, LLC
License Number: L-836 Permit Number: P-3833
Permit Expiration Date: 01-02-18 Mine Name: South F Mine
Revision Number: R-11

Nature of Proposed Revision:

1) Revise the Operations Plan to redefine the alignment and direction of the mining of remaining coal within Increment 3 and Increment 5.

2) Revise the Operations Plan to include highwall mining of the final highwall after surface mining of all economically feasible recoverable coal.

Attach detailed estimate of effect of proposed revision on reclamation costs.
STATE OF ALABAMA
SURFACE MINING COMMISSION

( X ) Permit Revision Application for a Surface Coal Mine
(   ) Permit Revision Application for an Underground Coal Mine
(   ) Permit Revision Application for a Preparation Facility

PART I A. IDENTIFICATION

1. PERMIT APPLICANT
Name: Centennial Natural Resources, LLC
Street Address: 113 Hollis Crump Drive
City: Jasper State: AL Zip: 35501
Mailing Address: P. O. Box 2420
City: Jasper State: AL Zip: 35502
Telephone Number: (205) 295-2224
Social Security Number (Voluntary):
Employer Identification Number: 63-0799376
ASMC License#: L-836

2. ENTITY OR PERSON RESPONSIBLE FOR PAYING ABANDONED MINE LAND RECLAMATION FEES
Name: Applicant
Street Address:
City: State: Zip:
Mailing Address:
City: State: Zip:
Telephone Number: (____)
Social Security Number (Voluntary):
Employer Identification Number:
ASMC License#:

3. IDENTIFY THE OPERATOR FOR THIS MINE IF DIFFERENT FROM THE PERMITTEE
Name: Applicant
Street Address:
City: State: Zip:
Mailing Address:
City: State: Zip:
Telephone Number: (____)
Social Security Number (Voluntary):
Employer Identification Number:
ASMC License#:

4. CONTACT PERSON FOR PERMIT REVIEW ISSUES AND CORRESPONDENCE
Name: Pete Parrish c/o PERC Engineering Co., Inc.
Mailing Address: Post Office Box 1712
City: Jasper State: AL Zip: 35502-1712
Telephone Number: (205) 384-5553 x 100

ALSO PLEASE COPY: Sammy Roberts
Centennial Natural Resources, LLC
P. O. Box 2420
Jasper, AL 35502-2420
Telephone: (205)295-2224
**PART I.C. PROPERTY OWNERSHIP, INTERESTS AND RIGHTS**

1. **OWNERSHIP OF PROPERTY TO BE MINED AND RIGHT OF ENTRY.**

   INSTRUCTIONS: Show the property ownership boundaries of each parcel of land in the permit area on the permit map or an overlay of the same scale as the permit map. If the surface estate is severed from the mineral estate, show and describe the ownership of each estate separately. In the spaces below, identify:

   1. Every current legal or equitable owner(s) of record (as found in a standard search of title) of the property;
   2. The holders of record of any leasehold interest in the property; and,
   3. Any purchaser of record under a real estate contract of the property.

   Describe the basis of the applicant's legal right to enter and mine on all properties contained in the permit application. If the mineral estate has been severed from the surface estate, describe the basis of the legal right to enter and mine both the surface and mineral separately. Give the nature of such right (i.e. lease, deed, contract, etc.), where recorded, describe from whom, to whom, and the date executed, and whether that right is the subject of pending litigation.

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**USE ADDITIONAL SHEETS IN THE FORMAT BELOW AS NECESSARY**

<table>
<thead>
<tr>
<th>Describe Right of Entry (If deed indicate where recorded):</th>
<th>Granted From:</th>
<th>Granted To:</th>
<th>Date Granted:</th>
<th>Litigation Pending? (Yes or No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lease</td>
<td>Alabama Power Company</td>
<td>Reed Minerals Inc.</td>
<td>03/01/09</td>
<td>No</td>
</tr>
<tr>
<td>Assignment</td>
<td>Reed Minerals Inc.</td>
<td>Centennial Natural Resources, LLC</td>
<td>12/31/14</td>
<td>No</td>
</tr>
</tbody>
</table>
PART I C. (CONTINUED)

2. **OWNERSHIP OF SURFACE AND MINERAL LANDS CONTIGUOUS TO THE AREA TO BE MINED**

   **INSTRUCTIONS:**

   Provide the information below for the owners of record of all surface and mineral properties contiguous to any part of the proposed permit area.

   **USE ADDITIONAL SHEETS AS NECESSARY IN THE FORMAT BELOW**

   **PAGE 1 of 1**

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Name: Alabama Power Company
Address: P. O. Box 2641
City: Birmingham, State: AL, Zip: 35291
Interest owned (Surface, Coal or Fee Simple): Fee Simple
Type of Interest (Owner, Lease, or Other): Owner
PART I D. PERMIT AREA INFORMATION

1. Give the requested term of this permit: 5 years.

2. Give the legal description of the land upon which the applicant proposes to conduct surface coal mining operations. List each quarter-quarter section, section, township, range, and county. SE 1/4 of SE 1/4, SW 1/4 of SE 1/4 of Section 36, Township 15 South, Range 7 West, SW 1/4 of SW 1/4 of Section 31, Township 15 North, Range 6 West, NE 1/4 of NE 1/4, SE 1/4 of NE 1/4, NW 1/4 of NE 1/4, SW 1/4 of NE 1/4, of Section 1, Township 16 South, Range 7 West, NW 1/4 of NW 1/4, SW 1/4 of NW 1/4 of Section 6, Township 16, South, Range 6 West, Walker County, Alabama.

3. Give the acreage of the permit, each increment and the type of bonding.
   a. Total revision acreage: 331 acres
   b. Give the acreage and type of bond for each mining increment:

<table>
<thead>
<tr>
<th>Increment</th>
<th>Acres</th>
<th>Type Bond Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>77</td>
<td>Surety</td>
</tr>
<tr>
<td>2.</td>
<td>59</td>
<td>Surety</td>
</tr>
<tr>
<td>3.</td>
<td>120</td>
<td>Surety</td>
</tr>
<tr>
<td>4.</td>
<td>24</td>
<td>Surety</td>
</tr>
<tr>
<td>5.</td>
<td>19</td>
<td>Surety</td>
</tr>
<tr>
<td>6.</td>
<td>32</td>
<td>Surety</td>
</tr>
</tbody>
</table>
   c. Identify the increment(s) on which mining will initially begin upon issuance of this permit: Increment 3.

4. Has any acreage in the proposed permit area been previously disturbed by mining? (XX)YES ( )NO

   If yes, supply the following for any and all previously disturbed areas:
   a. Show the boundaries of the previously disturbed area(s) on the permit map and identify with an appropriate symbol.
   b. List, for each area, the permit number under which it was disturbed and the number of acres. Indicate the status of each permit as Unreleased, Grading released, or 100% released. (If no permit, indicate as such.)

<table>
<thead>
<tr>
<th>Permit</th>
<th>Acres</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-3440</td>
<td>53</td>
<td>Unreclaimed</td>
</tr>
<tr>
<td>64-4, 64-5, 64-7</td>
<td>21</td>
<td>Unreclaimed</td>
</tr>
</tbody>
</table>
   c. For each area which has not been reclaimed or received a 100% release, indicate whether you intend to assume responsibility for reclamation of the area under this permit and its performance bond(s). Centennial Natural Resources, LLC, assumes responsibility for reclamation of disturbances created under Permit P-3833 whether done by Centennial Natural Resources, LLC, or prior holders of Permit P-3833.

5. Is disturbance to be conducted within 300 feet, measured horizontally from an occupied dwelling? ( )YES (XX)NO.

   If YES, attach a signed waiver from the owner of the dwelling indicating the minimum distance disturbance will be allowed by the owner. If YES, attach a signed waiver from the owner of the dwelling indicating the minimum distance disturbance will be allowed by the owner.
Applicant: Centennial Natural Resources, LLC
Mine Name: South F Mine
Permit Number: P-3833, Revision R-11

PART I D. (CONTINUED)

6. Is disturbance proposed within 100 feet of a public road right-of-way or will a public road be closed or relocated? ( ) YES (XX) NO.
   If YES, enclose a copy of the approval granted by the government entity which has jurisdiction over the road. The approval must state the minimum distance disturbance will be allowed to the road or road right-of-way.

7. List all other licenses and permits required to conduct mining operations including, but not limited to, MSHA I.D. and NPDES. Give the identification or permit number, the name and address of the issuing authority, and the status or date of approval or issuance of each:

   Permit ID or Permit Number | Issuing Authority | Status or Date of Issuance
   MSHA ID 01-02996 | MSHA | * 11/01/99
   NPDES AL0072613 | ADEM | ** 4/01/2002

   * 1030 London Drive, Suite 400, Birmingham, AL 35211-4542
   ** 1400 Coliseum Boulevard, Montgomery, AL 36110-2059

8. Is the property in the permit covered by zoning or other land use restrictions? ( ) YES (XXX) NO.
   If yes, indicate the jurisdictional authority and zoning or land use area.
   If more than one zoning classification exists for the permit area, identify the boundaries of each permit map.

   Jurisdictional Authority | Zoning Classification | Allows mining? Yes or No
   ______________________ | ______________________ | ____________

9. Describe access to the proposed mine from a known point on the nearest public highway: From Parrish travel south on Alabama Highway 269 approximately 7.6 miles to the intersection of Alabama State Highway 269 and the Mary Lee Road, turn left onto the Mary Lee Road and travel approximately 1.3 miles to the mine entrance on the left. The boundaries of the permit area will be marked and signs will be posted.

10. Did the applicant receive assistance from the Small Operator Assistance Program in preparing this application? ( ) YES (XXX) NO
    If YES, list SOAP I.D. Number: ______________________

11. Submit a certificate of proof of Liability Insurance with this application. See AMC Master File

PART I E. PUBLIC NOTICE AND AVAILABILITY FOR INSPECTION

12. Give the name of the approved public office in which a copy of this application will be filed for public inspection following notification of completeness: A copy of the permit revision application is available for public inspection at the Alabama Surface Mining Commission website http://surface-mining.alabama.gov.

13. Enclose a copy of the notice of filing of this application which will appear in a newspaper of general circulation in the vicinity of the mine and identify the name of the newspaper: See Attachment I.-E.-13. Proposed to be published in the Daily Mountain Eagle newspaper.
PUBLIC NOTICE OF FILING OF PERMIT APPLICATION

In accordance with the provisions of Act No. 81-435 of the State of Alabama and the regulations promulgated under this act, Centennial Natural Resources, LLC., 113 Hollis Crump Drive, Jasper, AL 35501, hereby gives notice that it has filed an application with the Alabama Surface Mining Commission to revise permit P-3833 for its South F Mine located in Walker County. The area to be affected by this revision is located in the SE 1/4 of SE 1/4, SW 1/4 of SE 1/4 of Section 36, Township 15 South, Range 7 West, SW 1/4 of SW 1/4 of Section 31, Township 15 North, Range 6 West, NE 1/4 of NE 1/4, SE 1/4 of NE 1/4, NW 1/4 of NE 1/4, SW 1/4 of NE 1/4, of Section 1, Township 16 South, Range 7 West, NW 1/4 of NW 1/4, SW 1/4 of NW 1/4 of Section 6, Township 16, South, Range 6 West.

The Revision consists of changing the Operations Plan to redefine the alignment and direction of the mining of remaining coal within Increment 3 and Increment 5 and to include highwall mining of the final highwall after surface mining of all economically feasible recoverable coal.

A copy of the permit revision application is available for public inspection at the Alabama Surface Mining Commission website http://surface-mining.alabama.gov. Written comments, objections, or requests for informal conferences should be submitted to the Alabama Surface Mining Commission, P.O. Box 2390, Jasper, Alabama 35502-2390, within 30 days from the last publication of this notice.
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)

With the exception of an area of coal remaining in Increment 3 and Increment 5, mining has been completed. See Attachment III.-A.-1. for the proposed Operations Plan.

Major equipment to be used includes but may not be limited to:

- Backhoes
- Service Trucks
- Bulk Anfo Trucks
- Off Road Haulers
- Dozers
- Loaders
- Track Backhoes
- Drills
- Highwall Miner CAT HW300

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:

<table>
<thead>
<tr>
<th>Increment No.</th>
<th>Acres</th>
<th>Dates</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>77</td>
<td>Reclamation Phase</td>
<td>Phase III Release</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>59</td>
<td>Reclamation Phase</td>
<td>Phase III Release</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>120</td>
<td>Current</td>
<td>Phase III Release</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>24</td>
<td>Reclamation Phase</td>
<td>Phase III Release</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>19</td>
<td>Current</td>
<td>Phase III Release</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>Reclamation Phase</td>
<td>Phase III Release</td>
<td></td>
</tr>
</tbody>
</table>

The sequence of mining operations was 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, including auger/highwall mining
7) Regrading
8) Revegetation

With the exception of an area of coal remaining in Increment 3 and Increment 5, the remaining permit area is now in reclamation phase.
ATTACHMENT III.-A.-1.
TYPE AND METHOD OF COAL MINING PROCEDURES

The area method of surface mining will be used to mine the remaining coal in Increments 3 and Increment 5. With the exception of the introduction of highwall mining/augering of the final highwall, and a realignment of cuts for the final mining of remaining coal in Increments 3 and Increment 5, the mining process will follow that laid out in the original permit application and subsequent revisions. Mining activities in Increments 1, 2, 4, and 6 has been completed and those increments are now in the reclamation phase.

Mining within Increment No. 3 will commence on the southwestern boundary of the remaining “island” of coal, shown on the Operations Map - Attachment III.-A.-1., in the SW 1/4 of NW 1/4 of Section 6, Township 16 South, Range 6 West at a point approximately 700 feet northwest of the southernmost corner of the “island” as indicated by the 1) on the Operations Map - Attachment III.-A.-1. Mining will progress northeasterly in a “box cut” until reaching the northeastern boundary of the remaining block of coal. Spoil from the initial cuts and subsequent cuts will be disposed of in existing pits within the permit boundary created by prior mining. After the initial blasting, and while shot overburden is being removed from the initial “box cut”, drilling and blasting operations will move to the southernmost corner of the remaining block of coal as indicated by the 2) on the Operations Map - Attachment III.-A.-1. Drilling, blasting, overburden removal, and coal removal will alternate between the two areas with mining cut alignment and mining progression as indicated on the Operations Map, until stripping ratios on the remaining reserves, cubic yards of overburden per ton of coal mined, exceed economically mineable reserves. At that time highwall mining methods will be utilized to remove the remaining recoverable coal.

The maximum depth into the wall that the miner is capable of going is dependent on the hardness of the material, the consistency of the coal bed, flat or rolling, and other site conditions. The highwall miner that is proposed to be used has the capability to mine into the wall a maximum of 1,000 feet. The highwall miner head is capable of cutting a 9.5 foot wide by 2.5 foot high hole. A web pillar will remain between each opening. Barrier pillars will be left at the ends of a series of highwall miner holes. See Attachment III-A-1(a), Highwall Mining Layout for dimensions of layout for both the Pratt and American Coal Seams.

Highwall mining will be performed in such a manner as to provide adequate support pillars between each hole. Spacing of the recovery holes will vary depending on the nature of the overburden, depth of the overburden and coal seam thickness. Highwall mining will be performed on the Pratt and American Coal Seams.

Highwall miner holes shall be sealed with an impervious, non-combustible material, as contemporaneously as practicable with the highwall miner operation, as approved by the Regulatory Authority, if the holes are not discharging water containing acid or toxic-forming material. In an order to minimize disturbances of surface and ground water, each miner hole shall be sealed within 72 hours with an impervious, non-combustible material if the holes are discharging water containing acid or toxic-forming material. If sealing is not possible within 72 hours, the discharge shall be treated commencing within 72 hours after completion, to assure that water quality standards for water leaving the site are maintained and are not compromised until the holes are sealed. Each highwall miner entry will be sealed by backfilling with impervious, non-combustible clay material to a minimum of five feet above the top of the entry and compacted to provide an impervious seal. See Attachment III-A-6-3.
6. Give a description, including appropriate cross-sections and maps, of measures to be used to seal or manage mine openings, bore holes, wells and other openings within the proposed permit area. (780.18, 816.13-816.15)

See original permit and subsequent revisions for information on sealing of mine openings, bore holes, wells, and other openings. See Attachment III-A-6 for typical illustration of methods to be used to seal highwall miner holes.

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

See original P-3833 Permit Application and subsequent revisions.
PRIOR TO THE BACKFILLING THE FINAL HIGHWALL ALL HIGHWALL MINER HOLES WILL BE SEALED WITH A NON TOXIC, NON-ACID FORMING CLAY MATERIAL. THIS CLAY MATERIAL WILL BE COMPACTED IN SIX (6) INCH LIFTS TO NINETY-FIVE (95%) PERCENT OF THE STANDARD PROCTOR DENSITY, A MINIMUM OF FIVE (5) FEET ABOVE THE TOP OF THE OPENING.
In addition to completing all applicable portions of the “Permit Application for Surface and Underground Mining”, anyone who intends to conduct auger mining operations shall complete the following: (785.20, 819)

(a) Give the diameter, depth, and spacing of auger holes including width of barrier pillars to be left between holes or series of holes.

<table>
<thead>
<tr>
<th>Seam</th>
<th>Width of Highwall Miner Cut</th>
<th>Depth of Cover</th>
<th>Extraction Height</th>
<th>Web Width</th>
<th>Barrier Width</th>
<th>Number of Holes Between Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pratt</td>
<td>10'</td>
<td>195'</td>
<td>2.5'</td>
<td>3.2'</td>
<td>11.0'</td>
<td>10</td>
</tr>
<tr>
<td>American</td>
<td>10'</td>
<td>230'</td>
<td>2.5'</td>
<td>3.7'</td>
<td>12.5'</td>
<td>10</td>
</tr>
</tbody>
</table>

See Attachment III.-A.-1.(a)., Typical Highwall Mining Layout

(b) Is underground mining to be conducted in the immediate area following completion of auger mining operations?  
( ) Yes  ( X ) No

If yes, describe the steps to be taken to provide access for such operations to the remaining coal reserve.

(c) Is auger mining to be conducted contemporaneously with underground mining operations and in the same seam?

( ) Yes  ( X ) No

If yes, describe the measures to be taken to prevent ‘breaking through’ into underground workings.

(d) Is auger mining to be conducted:

(1) In conjunction with an active surface mining operation?  
(X) Yes  ( ) No

(2) In an in-active surface mine? (X) Yes  ( ) No

(3) Along a natural outcrop which has not been previously disturbed?  
( ) Yes  (X) No

(e) Describe in detail the measures to be taken to reclaim the highwall if augering is not being conducted in conjunction with a surface mining operation.

Completion of contouring, backfilling, grading, including final elimination of the highwall, shall follow the same requirements as the previously approved reclamation schedule. See Part IV for Reclamation Plan

(f) Describe and locate on the permit map all the power lines, pipelines, buildings and other facilities located above the proposed auger mining operation. If subsidence resulting from auger mining is anticipated, describe in detail the measures to be taken to prevent or mitigate adverse effects on surface structures and facilities.

No buildings and other structures exist within the area shown by the Permit Map. There are no wells or other water resources within the
boundary formed by projecting a 75 degree angle of draw from the outer perimeter of anticipated highwall mining. There are no occupied dwellings within the boundary formed by projecting a 30 degree angle of draw from the outer perimeter of anticipated highwall mining. No subsidence is anticipated due to the spacing of the holes and the barrier pillars to be left. Design of the auger hole layout was done using the NIOSH ARMPSHWM program. In the highly unlikely event that subsidence occurs and causes material damage to any renewable resources lands Centennial Natural Resources, LLC will repair the materially damaged land to its condition before subsidence or the owner will be compensated for any damage.
Narrative Description of Auger/Highwall Mining Operation

Upon completion of the final surface mining, the highwall will be faced up and the highwall miner will be brought in to remove the remaining coal. The highwall mining system to be used, CAT HW300, at the South F Mine will recover 71.53% of the remaining Pratt Seam coal to a maximum depth of 1,000 feet from the final highwall and will recover 68.59% of the remaining American Seam coal to a maximum depth of 1,000 from the final highwall. Extraction height for both Pratt and American Seams will be 2.5 feet.

Highwall mining will be performed on the Pratt and American Seams in the areas indicated on the Operations Map. The American Seam will be mined first and then sealed and backfilled. Upon completion of sealing the miner holes on the American Seam, backfilling of the pit will be done up to the Pratt Seam level and the Pratt Seam will be highwall mined, holes sealed, the pit backfilled, and the final highwall eliminated by drilling, blasting, and grading as described in the original permit and subsequent revisions.

Highwall mining will be done in a manner that provides adequate support pillars to prevent surface subsidence. Dr. Chris Mark of the US Bureau of Mines (now NIOSH) initially developed the ARMPS-HWM program to predict the possibility of subsidence due to longwall mining/highwall mining. Dr. Zach Agioutantis later developed it into a windows application. Attached are ARMPS-HWM output sheets showing minimum safety factors for each seam.

The table below shows the recommended and actual safety factors for this application as determined by the ARMPS-HWM. As shown, the highwall mining system panel design described earlier in this section is adequate to prevent subsidence.

<table>
<thead>
<tr>
<th></th>
<th>Recommended</th>
<th>Actual Pratt</th>
<th>Actual American</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>2.0</td>
<td>2.10</td>
<td>2.14</td>
</tr>
<tr>
<td>Web Pillars Only</td>
<td>1.3</td>
<td>1.32</td>
<td>1.35</td>
</tr>
<tr>
<td>Barrier Pillars Only</td>
<td>1.5</td>
<td>1.61</td>
<td>1.52</td>
</tr>
</tbody>
</table>

Drainage will be controlled from each recovery hole by allowing each hole to drain into the open pit and be pumped, if necessary, to an approved sediment basin. If required to meet effluent limits, drainage, if occurring, will be treated chemically in accordance with the surface water treatment plan of this permit.

Highwall miner holes shall be sealed with an impervious, non-combustible material, as contemporaneously as practicable with the highwall miner operation, as approved by the Regulatory Authority, if the holes are not discharging water containing acid or toxic-forming material. In an order to minimize disturbances of surface and ground water, each miner hole shall be sealed within 72 hours with an impervious, non-combustible material if the holes are discharging water containing acid or toxic-forming material. If sealing is not possible within 72 hours, the discharge shall be treated commencing within 72 hours after completion, to assure that water quality standards for water leaving the site are maintained and are not compromised until the holes are sealed. Each highwall miner entry will be sealed by backfilling with impervious, non-combustible clay material to a minimum of five feet above the top of the entry and compacted to provide an impervious seal. See Attachment III-A-6-3.

Upon completion of the highwall mining operations, the final pit will be regraded in accordance with the approved Reclamation Plan.

Highwall mining progress maps showing the highwall mining progress through December 31 of each calendar year shall be submitted to the Alabama Surface Mining Commission by January 31 of the following calendar year. Annual progress maps shall be required for each year that highwall mining is in operation.
See the following ARMPHWM Module output sheets for the Pratt and American Coal Seams and the attached ARMPHWM Suggested Minimum Stability Factors.
ARMPHWM module build: 1.3.02
Project File: Pratt.ARH

Input Units: (ft) (psi)

Centennial Natural Resources, LLC, South F Mine, P-3833, R-11, Pratt Seam Highwall Mining

Extraction Thickness..............................2.5 (ft)
Depth of Cover....................................195 (ft)
Hole Width........................................10 (ft)
Web Thickness......................................3.2 (ft)
Barrier Pillar Width..............................11 (ft)
Number of Holes..................................10

In Situ Coal Strength............................900 (psi)
Unit Weight of Overburden.....................162 (pcf)
Abutment Angle of Gob..........................21 (deg)

[ARMPS-HWM STABILITY FACTORS]
Overall...........................................2.10
Webs ONLY......................................1.32
Barrier Pillar.................................1.61

Panel width (excluding barriers)...............128.80 (ft)
Barrier pillar width-to-height ratio..........4.40
Web thickness-to-height ratio................1.28
Extraction ratio..............................71.53 %

[PILLAR PARAMETERS]

<table>
<thead>
<tr>
<th>PILLAR</th>
<th>ENTRY CENTER (ft)</th>
<th>MINIMUM DIMENSION (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier</td>
<td>21.00</td>
<td>11.00</td>
</tr>
<tr>
<td>Web</td>
<td>13.20</td>
<td>3.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILLAR</th>
<th>AREA (ft)²</th>
<th>STRENGTH (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier</td>
<td>1.10E+07</td>
<td>2.71E+03</td>
</tr>
<tr>
<td>Web</td>
<td>3.20E+06</td>
<td>1.20E+03</td>
</tr>
</tbody>
</table>
ARMPSHWM module build: 1.3.02
Project File: South F P-3833 R-11 American.ARH

Input Units: (ft) (psi)

Centennial Natural Resources, LLC, South F Mine, P-3833, R-11, American Seam
Highwall Mining

Extraction Thickness.........................2.5 (ft)
Depth of Cover................................230 (ft)
Hole Width.....................................10 (ft)
Web Thickness..................................3.7 (ft)
Barrier Pillar Width..........................12.5 (ft)
Number of Holes...............................10

[DEFAULT PARAMETERS]
In Situ Coal Strength........................900 (psi)
Unit Weight of Overburden....................162 (pcf)
Abutment Angle of Gob.......................21 (deg)

[ARMPS-HWM STABILITY FACTORS]
Overall.......................................2.14
Webs ONLY...................................1.35
Barrier Pillar...............................1.52

Panel width (excluding barriers)...........133.30 (ft)
Barrier pillar width-to-height ratio........5.00
Web thickness-to-height ratio..............1.48
Extraction ratio.............................68.59 %

[PILLAR PARAMETERS]

<table>
<thead>
<tr>
<th>PILLAR</th>
<th>ENTRY CENTER (ft)</th>
<th>MINIMUM DIMENSION (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier</td>
<td>22.50</td>
<td>12.50</td>
</tr>
<tr>
<td>Web</td>
<td>13.70</td>
<td>3.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILLAR</th>
<th>AREA (ft)*(ft)</th>
<th>STRENGTH (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier</td>
<td>1.25E+07</td>
<td>3.01E+03</td>
</tr>
<tr>
<td>Web</td>
<td>3.70E+06</td>
<td>1.30E+03</td>
</tr>
<tr>
<td>Overall SF</td>
<td>Conditions</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>Applicable to all conditions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Web pillar SF</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>When the panel width (excluding the barrier) exceeds approximately 200 ft (60 m)</td>
</tr>
<tr>
<td>1.3</td>
<td>When the panel width (excluding the barrier) is less than approximately 200 ft (60 m)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barrier pillar SF</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>When the barrier's width-to-height ratio &lt; 4.0</td>
</tr>
<tr>
<td>1.5</td>
<td>When the barrier's width-to-height ratio &gt;= 4.0</td>
</tr>
</tbody>
</table>
H. **Subsidence Control Plan** (784.20)

1. Include a survey which shows what structures or renewable resource lands exist within the proposed permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of such structures or renewable resource lands. If it is determined that no material damage will occur to surface structures or renewable resource lands from subsidence, the application shall include supporting evidence of such a finding.

A survey of the land area whose boundary was determined by projecting a 30° angle of draw from the bottom of the lowest coal seam to be highwall mined to the original ground surface found no occupied dwellings, features, or renewable resource lands exist within the area.

No subsidence is anticipated due to the spacing of the holes and the barrier pillars that will remain after highwall mining. Spacing of the highwall mining holes layout was designed using the NOISH ARMPSHWM program. This program is based on the long term stability of the web and barrier pillars. In the highly unlikely event that subsidence occurs and causes material damage to any renewable resources lands Centennial Natural Resources, LLC will repair the materially damaged land to its condition before subsidence or the owner will be compensated for any damage.
(b) Unplanned Subsidence. See Attachment III.-A.-1. Operations Map for auger/highwall mining location.

(1) Using maps, plans, and cross sections, as needed, locate the areas where coal extraction is to take place and where subsidence, if incurred, cannot be considered planned subsidence. Clearly show on a map the relationship of parts (i-v) below to critical surface features, renewable resource lands, and structures. Operations Plan Map.

(i) Provide a detailed mine plan map. Describe the methods of mining used, such as room and pillar, checker board, blind room or other methods.

(ii) Locate extraction panels, give geometric sizes, dimensions and orientation, and include details of length, width and height of panels. Give percent of coal left as support in ratio to percent of coal removed within the extraction panel. Provide information on crosscut and room dimensions, and both driven on what centers. Include similar information concerning any secondary recovery that is planned.

(iii) Provide details locating all permanent coal blocks and barrier pillars outside the actual extraction panels. Give geometric shapes, dimensions, and orientation of these blocks and barrier pillars.

(iv) Give anticipated date (month/year) in which mining will be conducted in each area and/or panel.

(v) Characterize variations in claystone layers immediately below the extracted coal seam(s). Include data on varying claystone thickness throughout the area covered by the subsidence control plan. Provide assurances that measures have been adopted concerning the maximization of mine stability as it relates to claystone flood conditions.

(2) Provide a detailed description of measures to be taken to prevent unplanned subsidence from causing material damage or lessening the value or reasonable foreseeable use of the surface. Describe how these measures are to be applied. Include the following information.

(i) Locate area(s) in which coal removal is not planned, including its relationship to overlying area(s) to be protected by leaving coal in place.

(ii) Locate area(s) to be backfilled or backstowed.

(iii) Describe measures to be taken on the surface to prevent material damage or diminution of the value or reasonable foreseeable use of the surface including, but not limited to:

(A) Reinforcement of sensitive structures or features;

(B) Installation of footers or other techniques designed to reduce damage caused by movement;

(C) Change of location of pipelines, utility lines or other features;

(D) Relocation of moveable improvements to sites outside the potential angle-of-draw;

(E) Monitoring to determine the commencement and degree of subsidence so that appropriate measures can be taken to
prevent or reduce damage; and

(F) Describe any other prevention measures to be taken.

(3) Provide a detailed description of measures that are to be taken to mitigate the effect of any material damage or diminution of value or foreseeable use of lands which may occur as a result of unplanned subsidence. Describe how these measures are to be promptly applied in accordance with 817.124. Measures include, but are not limited to, one or more of the following:

(i) Restoration or rehabilitation of damaged structures (including surface and underground agricultural drainage systems), features and lands after subsidence to a condition capable of supporting and suitable for foreseeable use including restoration of approximate land surface contours to premining conditions in order to assure proper surface drainage.

(ii) Replacement of structures, including surface and underground agricultural drainage systems destroyed or damaged by subsidence.

(iii) Purchase of structures prior to mining or purchase of damaged structures at pre-subsidence value.

(iv) Purchase of non-cancellable insurance policies, as described in 817.124(c), payable to the surface owner in the full amount of the possible material damage or other comparable measures.

(v) Describe other mitigation measures to be taken.

(4) Provide a detailed description of measures to be taken to determine the degree of material damage or diminution of value or foreseeable use of the surface, including, but not limited to such measures as:

(i) Conducting of pre-subsidence surveys of all structures and surface features which might be materially damaged by subsidence.

(ii) Monitoring to measure deformation near specified structures or features or other appropriate locations.
PART IV ADDENDUM TO RECLAMATION PLAN

1) The historic land use of the revision area is undeveloped no current use and the proposed post mining land use of the revision area is undeveloped/no current use. See the original permit application and subsequent revision applications.

2) No prime farmland exists within the permit area.

3) Completeness of contouring, backfilling, and grading shall follow the same requirements as the previously approved Reclamation Schedule. All grading and contouring shall follow the approximate original contours.

4) Topsoil handling and revegetation will follow the originally approved Reclamation Plan in the Permit P-3833. IV-C-2

5) Husbandry practices and sampling to determine success of revegetation shall be in accordance with the originally approved Permit P-3833.
A. Site Conditions (805.11)

1. Briefly describe the site conditions within the increment which you are currently proposing to mine by answering the following:

(a) Average pre-mining slope 25.6%

(b) Percent sandstone 15%

(c) Final highwall slope (average) (if applicable) 45%

(d) Acres Prime Farmland 0.0

(e) Average pH of topsoil or topsoil substitute 6.0

Note: If pH range over the increment area is greater than one pH unit (units 1 through 14), give approximate number of acres which fall within each unit.

(f) Overburden acid-base account (expressed as tons of calcium carbonate per 1,000 tons material) N/A  
(only if total sulfur exceeds 0.5%)

(g) Acres abandoned land located in proposed permit area N/A

B. Estimate of Reclamation Cost (780.18)

Give a detailed estimate of your cost of reclamation for the increment you are currently proposing to mine. Give individual cost estimates for grading, highwall elimination, topsoil (or topsoil substitute) replacement, revegetation and any other cost which may be applicable (prime farmland, hydrologic factors, etc.). Show Calculations.

Regulatory Authority will calculate bonds.
Part VI - Verification of Permit Application

I, the undersigned operator and holder of an ASMC license, do hereby submit this as my application for a permit to engage in surface coal mining operations and certify that the information in the application is true and correct to the best of my information and belief. This application is submitted in conformance with the rules and regulations of the Commission and it is agreed that any operations pursuant to the permit will be conducted in accordance with those rules and regulations. I further certify that I will keep the Commission advised of any change of facts as may pertain to the license information or this permit application.

Centennial Natural Resources, LLC
License No. L-836
Licensee:

By: Justin Burggraff, President

STATE OF ALABAMA )
) WALKER COUNTY )

Before me, the undersigned authority, personally appeared Justin Burggraff, who being duly sworn upon oath, deposed and said, that he has read the foregoing application, that he is the responsible official of the applicant who executed the application, that the facts and matters contained therein are true and correct to the best of his information and belief, and that he executed the same for the purposes therein expressed.

Sworn to and subscribed before me, this 10th day of May, 2017.

Notary Public

My Commission Expires: 9/4/2019
Commission Expires