

**APPENDIX B**

**Tract Delineation Report**

PRELIMINARY

Spruce Stomp Tract LBA (COC75916)

**Tract Delineation Report - Year 2013**

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April 2013

## ***I. General Location.***

The Spruce Stomp Tract (hereafter referred to as the SST) is located in Delta County, Colorado, 6 miles directly north of Paonia off of highway 133. The Stevens Gulch road passes through the LBA. The proposed lease covers approximately 1,789.2 acres being split between 1,332.6 acres of NFS land, 88.4 acres of BLM land and 368.2 acres of private surface all with federal minerals. All of the coal mineral estate is administered by the BLM. West Terror Creek trends west-northwest along the south side of the SST. The location of the tract is shown on Figure 1. Attachment 1 contains a legal description of the tract as applied for and determined acceptable by BLM.

## ***II. Background and History.***

The Spruce Stomp Tract was delineated in response to a competitive lease by application (LBA) filed on October 12, 2012, by Bowie Resources, LLC, (BRL). The current delineation retains the proposed boundary in the original LBA. The tract lies to the north of BRL federal leases COC37210 and COC61209. The SST lease would include the federal coal reserves in the B-Seam and all coal seams below the B-Seam within the SST.

The SST coal data is determined by data from seven drill holes within the tract and an additional six drill holes near the tract, putting the data within the range of indicated reserves. The SST was delineated in order to cover all potential mineable coal reserves. The coal seams above the B-Seam reserves were not included due to a complete lack of mineable thickness and/or being displaced by an igneous sill. There are two to four splits of the A-Seam present on the SST all being mostly two thin to be mineable; however, there may be a mineable portion in the northwest area of the SST. Because of that potential the A-Seam is included in the leasable reserves.

If BRL is the successful bidder they intend to extend their current Bowie No. 2 Mine workings into the B-Seam reserves within the SST. BRL currently operates the Bowie No. 2 underground longwall mine that occupies their federal coal leases COC37210 and COC61209 that are adjacent to the SST on its south boundary. North Mains in the B-Seam have been projected along the center of the existing property and BRL proposes to extend them on to the SST. Longwall blocks would branch out both east and west off the North Mains.

The mineable reserves in the SST could be accessed via the existing Bowie No. 2 Mine as mentioned above using their existing surface facilities that would serve for the life of mining on the SST. BRL holds both federal leases COC37210 and COC61209 in good standing and should be able to make a smooth transition from mining on that lease to mining in the SST if they were the successful bidder.

Production from the Bowie No. 2 Mine was 3.8 million tons in 2012 using the longwall mining method, and is expected to maintain that yearly production rate. Any longwall mine on the SST could operate at the 3.8 million tpy rate which BLM will use as the projected rate.

### ***III. General Description.***

The SST is located in the Paonia coal field on the north side of the North Fork valley. The formations in the area of the SST dip N-NE about 3.5 - 5 degrees. Coal in the Paonia field is found as six identified seams (generally by alphabet starting with A as the lowest seam) within the Mesaverde Group of late Cretaceous age. In the mine permit area the A, B, and D seams have hosted producing mines.

Access to the SST coal could most easily be achieved from the present Bowie No. 2 Mine surface and mine facilities near Paonia Colorado. Federal coal leases held by BRL have been and are being mined. They are adjacent on the south of the delineated SST. B-Seam overburden ranges from about 700' to 2,700' from SE to NW across the tract. About 66% of the mineable reserves are between 1,500' and 2,000' deep. About 19.5% are less than 1,500' deep while 14.5% are greater than 2,000' deep. The average depth of mineable reserves is about 1,700'. These overburden ranges pose a moderate constraint to economic recovery. The southern boundary of the SST was decided by existing federal leases COC37210 and COC61209 and the northern boundary by deep cover on the west end and known faults and sill influence on the east end. The west boundary is determined by evidence of all seams splitting into thin unmineable units. The east boundary is determined by thinner seams as well as influence from igneous sill and faulting. Coal resources exist to the north of the applied for area, but cover depths become increasingly prohibitive to mining safety and economics.

Opportunities to enhance the competitiveness of the SST during tract delineation rely on the economic value of the recoverable reserves. These reserves are of good quality but minimal in quantity and essentially locked in by virtue of limited surface access and the fact that BRL already controls adjoining federal coal. If there were a successful bidder other than BRL they would likely need to sublease back to BRL (because they would not have the advantage of existing coal handling facilities or control of adjacent coal reserves as does BRL). Subleasing would be a high-risk business proposition for an outside bidder because BRL may refuse any such sublease agreement. The coal does not outcrop on the SST, therefore no portals could be located, and there may not be any reasonable shaft locations.

The SST surface topography varies in elevation from about 7,000 feet in the SE portion to about 8,680 feet in the NW portion. As noted above, the SST is not likely to have competitive interest and if the potential reserves are not recovered as part of the BRL mining operation, they would most likely be bypassed.

The SST has been delineated to include all potentially recoverable coal reserves in the B-Seam lying within the SST as described above. All seams below the B-Seam are included in the event that any present a mineable portion within the SST. The competitive lease application submitted by BRL identified an area of approximately 1789.2 acres and will be accepted as the tract for reasons described above. The coal estate in the entire SST is managed by BLM.

#### ***IV. Geologic Data.***

Stratigraphy. The sediments underlying the tract are of Cretaceous and Tertiary age and are described in descending order:

The Ruby (Wasatch) formation overlies the Mesa Verde formation and consists of red and buff shales, red sandstones, and red to grey conglomerates. It can be 1600 ft. thick. The Mesa Verde formation contains four members. The top member is called the Barren member, can be 1500 ft. thick, and is composed predominately of buff lenticular sandstones. The Paonia member lies below the Barren member, contains two coal horizons, and ranges from 300 to 500 ft. thick. The top portion of this member is a lenticular cliff forming sandstone which can occur at slightly different stratigraphic horizons. The Bowie member is the lower coal bearing member and ranges from 270 to 350 ft. thick. It is composed predominately of grey shale and contains several coal beds in three coal horizons. The top of the member is marked by a massive buff sandstone 90 ft. thick. The Rollins sandstone member lies below the Bowie, is a massive cliff-forming buff-white sandstone 120 to 200 ft. thick, and serves as the most persistent marker horizon in the area. The Rollins clearly defines the lower limit of coal occurrences in the area. Below the Rollins Sandstone member of the Mesa Verde is the Mancos Shale formation which is approximately 4000 ft. thick. The upper portion of the formation which is exposed in the area is composed of grey marine shales and minor buff sandstones.

#### Coal Seam

BLM reviewed existing coal resource data in all the seams in the tract but found none were mineable except those applied for in the B-Seam with a minimal potential existing in the A-Seam. The C through F seams are either very thin, non-existent, or displaced by igneous sill.

The upper B-Seam is missing due to being intruded by an igneous sill or split into two thin unmineable seams throughout the SST. The lower B-Seam is approximately 85 feet above the Rollins Sandstone and consists of upper and lower splits which are coalesced or only minimally separated by a thin parting from the eastern side to the center of the SST. Continuing to the west the lower split of the lower B-Seam is mineable but thins to less than 7' beyond which it is considered unmineable. The average mineable thickness for the lower B-Seam is 9' on the the SST with very little ranging above or below that average. This seam is known to have mineable reserves extending beyond the southern boundary of the proposed lease tract on the existing BRL federal leases.

Structural Setting. The Paonia-Somerset coal field is located in the southeastern end of the Piceance Basin. The area is bounded by Laramide structural and physiographic features: Grand Mesa to the north, Gunnison Uplift to the south, the Elk and Elk Creek Mountains to the east, and the Gunnison River drainage and Uncompahgre Plateau to the west.

Structural Geology and Geologic Hazards. In the area of the SST, the Mesaverde Formation strikes N60W to N70W and dips about 3.5 - 5 degrees to the northeast. Landslide deposits are common throughout the area. Unstable colluviums materials exist in the drainages. Their potential effect on an underground mining operation such as the Bowie No. 2 mine is expected to be negligible.

Mining at the Bowie No. 2 mine, adjacent to the south of the SST, has encountered some rolls in the B-Seam coal bed as well as tectonic faults. Within the SST there are no projected fault zones. Rock spars are expected to be very minimal to none. Heavy inflow of methane could occur in the longwall gob and is expected during mining on the SST. Gob-Vent Bore Holes like those now used at the Bowie No. 2 mine would also be employed to eliminate the methane flows (and deal with the residual flows) during mining on the SST.

The B-Seam roof strata as well as portions of the upper coal in the seams are subject to having sandstone channel deposits (often called “washouts”) present. This is especially true for the immediate roof of the B-Seam. These sandstone channel deposits tend to set up stress differences in the strata which sometimes translate to roof failure any time after excavation of the coal. Also, roof and rib conditions would require extra ground support in conjunction with higher stresses resulting from the greater overburden.

## ***V. Coal Data***

The coal is ranked low-volatile B. BLM analyzed drill-hole data derived from five holes influencing the SST. The resulting analysis shows a product with somewhat less quality value than product currently being mined to the south. Some data taken in the vicinity of igneous sill showed less volatile matter but did not quite meet metallurgical coal standards.

This product does easily meet current contract specifications. There would be some out of seam dilution during mining and more so to the west because of the presence of bone and/or thin carbonaceous shale partings. Toward the east boundary the lower B-Seam splits into two separate horizons becoming unmineable due to these splits each being too thin to mine economically as a separate seam.

Coal quantity determinations were calculated by the BLM-UFO mining engineer in February 2013 for the SST LBA. Since coal thickness diminished to the east and west in the SST, only about 60% of the SST was considered in determining mineable tons.

The table shown on the following page indicates calculation parameters and shows the mineable thickness related to its area of influence, in-place tons, mineable tons, and recoverable tons. Total mineable acres and the breakdown of those acres by overburden ranges are also shown.

<b>Estimated Recoverable B-Seam Tons - Spruce Stomp LBA</b>				
Calculations made using areas of average thickness, 1830 tons per acre-ft., 75% of In-Place is mineable, 60% of Mineable is Recoverable.				
From DH data and Map		BLM Calculations		
Thickness	Acres	In-Place	Mineable	Recoverable
7' or less	709.3	5,190,000	None	-
9	1054.2	17,360,000	13,020,000	7,810,000
10.5	25.7	490,000	360,000	210,000
Totals:	1789.2	23,040,000	13,380,000	8,020,000
	1079.9	Total Mineable		
	154	> 2000 ft. OB		
	208	< 1500 ft. OB		
	717.9	1500 to 2000 ft. OB		

Narrative Description of Calculation Data & Methods First, underground longwall mining was considered the method of extraction. Then all in-place reserves that presented no coal seam greater than 7' thick was dropped from consideration. The remaining in-place tons were considered to be 75% mineable which allows for possible losses due to geologic conditions. After that the longwall recovery of 60% was applied to mineable reserves.

BLM reviewed existing coal resources in all the seams in the SST but found none were currently economically mineable except those included in the B-Seam with the possibility of minimal recovery from the A-Seam.

Estimated Recoverable Reserves As tabulated above, the estimated recoverable reserves in the delineated SST is **8.02 million tons**.

## ***VI. Mining Considerations***

Surface Facilities BRL could access the SST from their existing Bowie No. 2 mine portals on their fee property 3.1 miles SE of the delineated SST. They also have existing coal handling facilities including a train load-out which serves the Bowie No. 2 mine. That train load-out facility could also serve the SST. Mining the coal on the delineated SST could be well accomplished using the surface coal handling facilities already available for the operation of the Bowie No. 2 mine.

If the SST were not acquired by BRL it is not likely that its coal resources would be accessed by a different mining company. When viewed as a stand-alone property the SST is considered relatively small and its coal resources difficult to access therefor unattractive to coal investors other than BRL.

Mining Method & Mine Life Geologic constraints dictate that underground mining be employed to

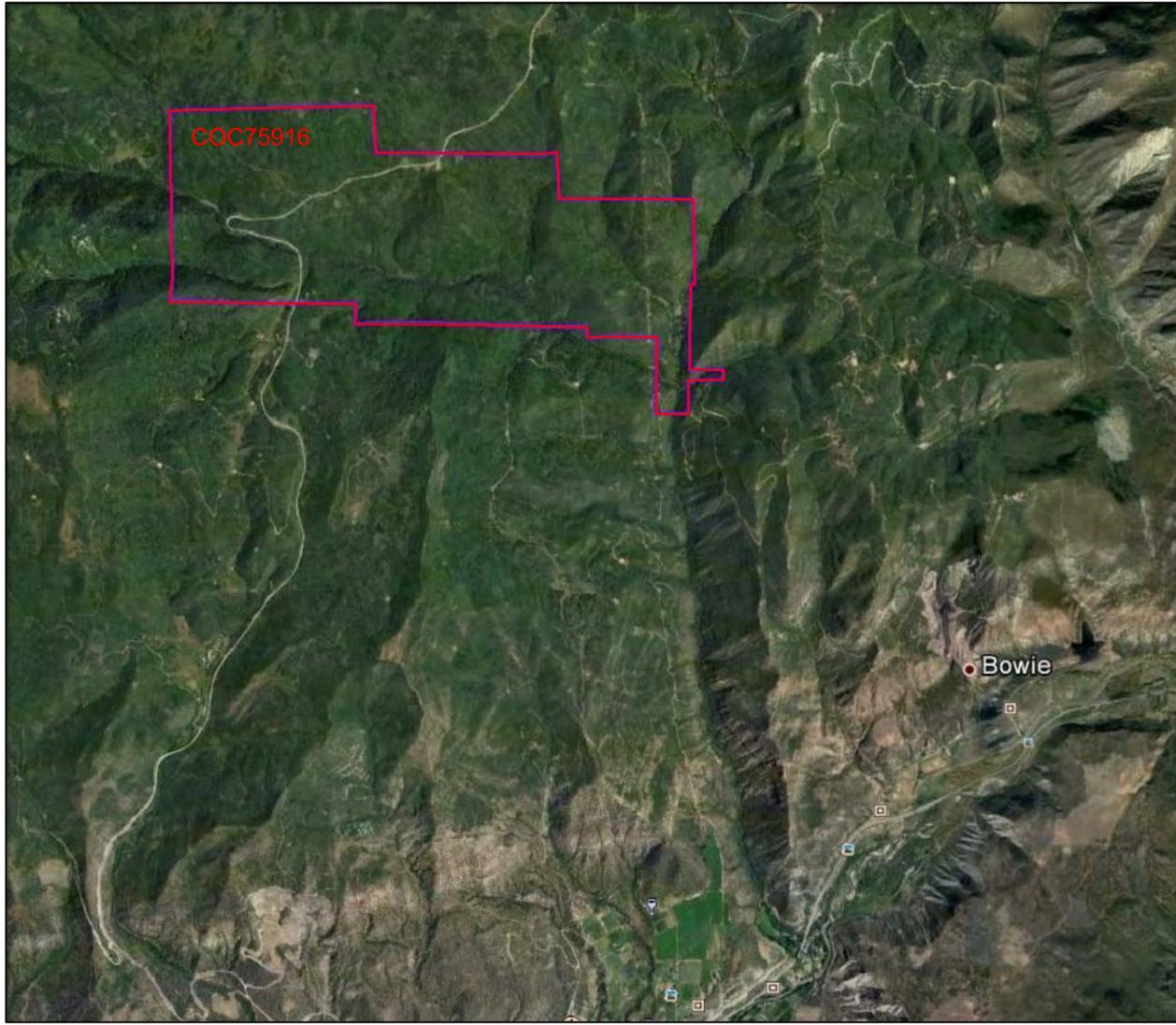
extract the coal from the SST. For BRL, that method is restricted to the longwall method of mining due to their commitment to employ that method in all their mining ventures. BRL would use continuous miner equipment to develop mains and gate roads to provide access for longwall extraction from the coal reserves. The operation in the Bowie No. 2 mine adjacent to the SST successfully mines coal using continuous miners to develop longwall panels.

Mining Equipment The following is a list of longwall equipment projected for use by BRL and is typical for an underground longwall operation:

Typical Longwall Mining Equipment List					
Continuous Miners	3	Roof Bolters	3	Main Mine Fan	2
Shuttle Cars	9	Utility Loaders	4	Shield Haulers	2
Lube Truck	1	Utility Mantrips	6	LW Face Shields	180
Timber Truck	1	Auxiliary fans	14	Shearer	2
60" Belt Drives	2	72" Belt Drive	7	LW Pan Line	2

Employment Requirements Production from the SST could proceed with a no increase in the level of employment requirements if BRL were the successful bidder. The life of the existing coal operations would have been extended; however, which could allow for an extended period of employment for the existing office, surface, and underground employees. The projected employment level is approximately 320 employees with a low of about 290 and a high of about 340. Those levels include contractors which range in number from 10 to 50.

***Figure 1.***

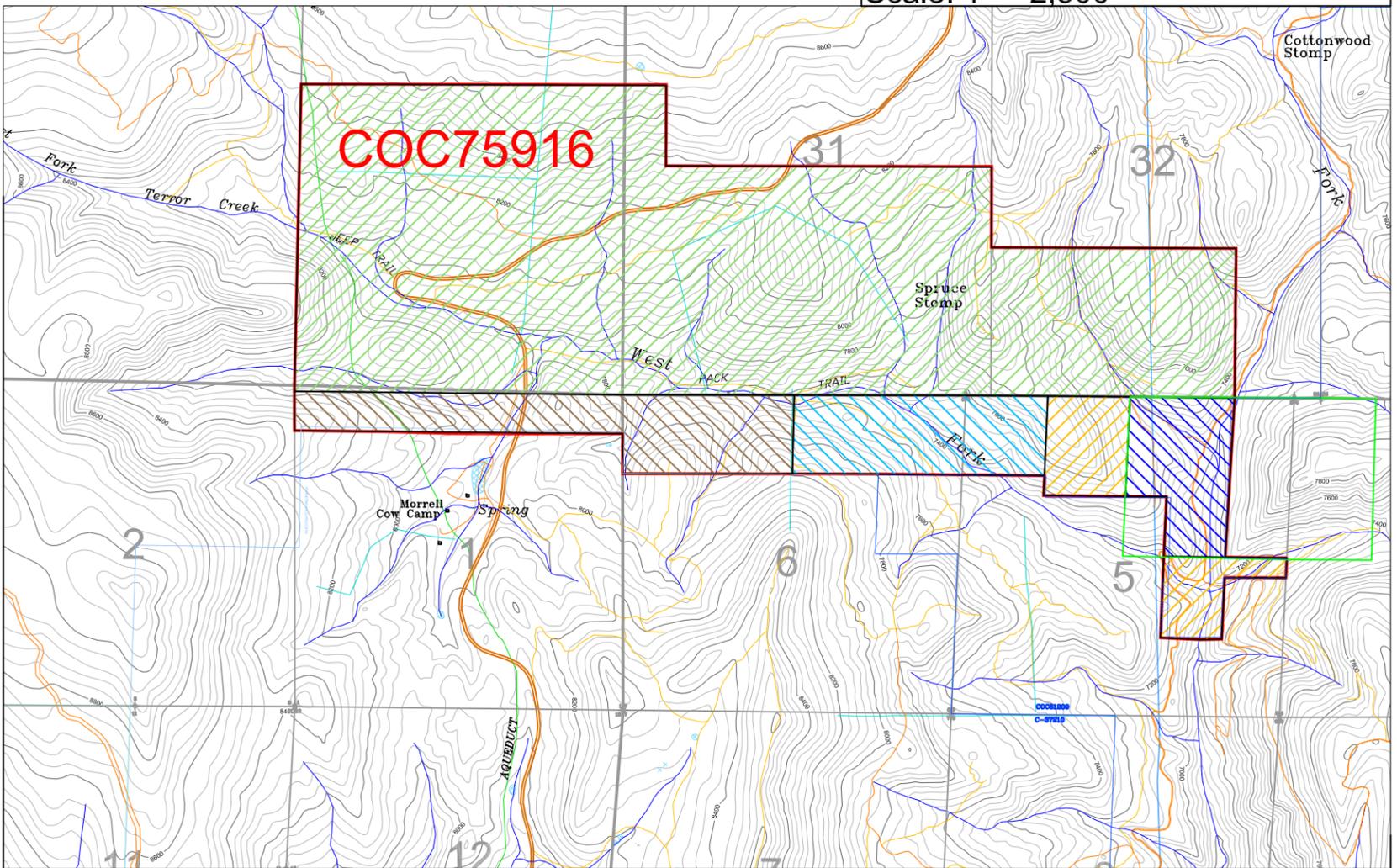


Google Earth View

Scale: 1" = 5,000'

Topo View

Scale: 1" = 2,500'



**Bowie Resources, LLC - Spruce Stomp LBA - COC75916**

Google Earth and Topo

Scale Shown Above

Legend:

- Proposed Coal LBA**
- 74.5% United States Forest Service
- 4.9% Bureau of Land Management
- 6.8% Bowie Resources LLC
- 8.9% Turkey Track Ranch
- 4.8% Brian Hughes

Topo Contours on 200' Intervals

Drawing by BLM Date: April 2013

Fig. 1 (BLM TD Report)

Attachment 1. Legal Description of the Spruce Stomp Tract.

The legal description for the COC75916 lease tract as applied for by Bowie and accepted by BLM by virtue of delineation is as follows:

COC75916

Township 12 South, Range 91 West, 6<sup>th</sup> P. M

Section 31: Lots 11 through 26 inclusive

Section 32: Lots 10 through 15 inclusive

Township 12 South, Range 92 West, 6<sup>th</sup> P.M.

Section 36: S2

Township 13 South, Range 92 West, 6th P.M.

Section 1: Lots 5 through 8 inclusive

Township 13 South, Range 91 West, 6th P.M.

Section 5: lots 2, 3, 4, 10, & 11, W/2W/2NENE, NWNE, NESWNE, SESWNE, N/2NWSWNE, N/2NW,N/2N/2SEW, E/2NW/SE, W/2W/2NESE, N/2NENESE, NENWNESE;

Section 6: Lots 1 through 4 inclusive

\*containing 1,789.2 acres more or less

Note: The proposed lease covers approximately 1,332.6 acres of National Forest System (NFS) land, 88.4 acres of BLM land and 368.2 acres of private surface. All of the coal mineral estate is administered by the BLM. The Spruce Stomp LBA tract will be referred to hereafter as the LBA.

## Attachment 2 Bibliography

2012 Bowie Resources, LLC, Mine and Reclamation Plan.

2012 Production Verification & Inspection and Enforcement Plan, BLM-UFO.

2012 Bowie Resources, LLC, Competitive Coal Lease Application, Spruce Stomp Tract. .

2012 Bowie Resources, LLC, Proposed Action, Spruce Stomp Tract.

2012, Geologic and Engineering / Maximum Economic Recovery Report, Bowie Lease Modifications – COC61209 and COC37210, BLM-UFO.

2000 North Fork Coal Environmental Impact Statement and Record of Decision.