QUALITY COAL CO., INC.
SPARKS BRANCH NO. 2 MINE

ATTACHMENT IV-C-2
TOPSOIL VARIANCE
APPLICATION

SUBMITTED BY:
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ABSTRACT

Mining by the surface method on the Mary Lee Group has occurred frequently within and around the McCollum area by pre-law and regulated coal companies. In most instances where pre-law operators regraded overburden, it was without regard for existing topsoils. Also, even though in many instances pre-law operators didn't revegetate, natural revegetation occurred on these sites with surprising success. This fact contributed to the Regulatory Authority granting topsoil variances to mine sites in the McCollum area such as the Drummond Company, Inc. - Cedrum No. 5 Mine (ASMC permit P-3745) and other permits such as P-3187, P-3194, P-3462, P-3568, P-3602, and P-3814. More recently, and because of revegetation success, ASMC granted a topsoil variance to Quality Coal Co., Inc. at the adjacent - Sparks Branch MIne (P-3907). Revegetation success in these areas are largely due to a highly consistent lithology of silty to sandy shale with some sandstone, which, when fractured during mining, results in a medium which is favorable for both pine tree and perennial grass growth.

When taking these facts into consideration, it has been proved in many prior applications that heterogeneous overburden can be superior to the native topsoils as a medium for post mine revegetation in moderate to steep slope areas when proper management practices are implemented. When taking into consideration the fact that a majority of the topsoil variance area is occupied by Sunlight-Townley complex, 15 to 45 percent slopes, which has been shown in prior applications to be of poor quality,

it will be shown in this application that heterogeneous overburden at this site is superior to the native topsoils as a medium for post mine revegetation. The purpose of this paper is to compare not only on-site topsoils to heterogeneous overburden materials to demonstrate the superiority of the overburden, but to also compare relevant issues such as similarities between lithology and geochemistry at the Sparks Branch No. 2 Mine to the original Sparks Branch Mine (which has a topsoil variance) to demonstrate the likelihood of replicating prior revegetation success at this mine site.

SITE CONSIDERATIONS

Quality Coal Co., Inc.'s - Sparks Branch No. 2 Mine site is located in Section 14, 15, 22, and 23, Township 14 South, Range 8 West, Walker County, Alabama as seen from the Jasper, Alabama quadrangle (See Mine Site Location Map). The proposed mine site will occupy 447 acres of which approximately 432 will be mining area. The attached soil map shows the original mine site location, the soil types within the permit area, previously mined areas that lack topsoil, drill hole locations, and topsoil and overburden collection sites. Soils present within the permit area are as follows:

Map Symbol	Soil Name
BPE	Brilliant and Palmerdale extremely channery loams, 6-60% 6-60% slopes
SpB**	Spadra-Whitwell complex, 0 to 3 percent slopes, occasionally flooded.

StE	Sunlight-Townley complex, 15 to 45 percent slopes
ToD	Townley silt loam, 6 to 15 percent slopes

* * Denotes prime farmland soil.

It should be noted that **soil SpB is not included in the Topsoil Variance Application**. The adjacent previously disturbed areas used for overburden sampling sites for this report are from either pre-law mining on-site and/or from the adjacent Quality Coal Co., Inc. - Sparks Branch Mine (P-3907). Slope conditions at the Sparks Branch No. 2 Mine site are predominantly steep.

LAND USE

The premining land use for the permit area is 98 acres of previous disturbance with the balance of 334 acres of mining area in undeveloped mixed pine and deciduous forest. The post mining land use for the permit area is classified as 'no current use or land management' utilizing perennial grasses as post mining revegetation.

TOPSOIL DESCRIPTIONS

The following descriptions were obtained from the Walker County Soil Conservation Service whose survey was issued in March of 1992. As stated above, soil SpB is not included in the Topsoil Variance and as such will not be described below.

BPE-Brilliant & Palmerdale Extremely Channery Loams, 6-60 % Slopes

These deep, somewhat excessively drained, sloping to very steep soils are in areas of unreclaimed or partly reclaimed surface mine spoil deposits. They are in the older, shallow strip mining areas where deep sediments derived from sandstone, siltstone, and shale have been uncovered and redeposited. Slopes generally are short and very complex. Short, steep side slopes, high walls and water filled pits are common. The more recent areas of mine spoil have longer, smoother slopes with or without high walls and water filled pits. Individual areas are long and narrow on ridges with very steep side slopes or are large, broad areas. They range from 40 to more than 300 acres in size. They are about 60 percent Brilliant soil and 30 percent Palmerdale soil. The two soils occur as areas so small and so intricately mixed that mapping them separately is not practical at the selected scale. Typically, the Brilliant soil has a surface layer of grayish brown extremely channery loam about 5 inches thick. The underlying material to a depth of 60 inches or more is dark grayish brown extremely channery loam. Large boulders can occur throughout the soil.

Important properties of the Brilliant soil:
Permeability: Moderately Rapid
Available Water Capacity: Low
Soil Reaction: Medium Acid to Moderately Alkaline
Organic Matter Content: Very Low
Natural Fertility: High to Low
Depth to Bedrock: More than 6 Feet
Root Zone: Same as Depth to Bedrock
Depth to the Water Table: More than 6 Feet
Flooding: None

Typically, the Palmerdale soil is grayish brown extremely channery loam throughout. The surface layer is about 6 inches thick, and the underlying material extends to a depth of 60 inches or more.Important properties of the Palmerdale soil:

Permeability: Moderately Rapid
Available Water Capacity: Low
Soil Reaction: Extremely Acid to Strongly Acid
Organic Matter Content: Very Low
Natural Fertility: High to Low
Depth to Bedrock: More than 6 Feet
Root Zone: Same as Depth to Bedrock
Depth to the Water Table: More than 6 Feet
Flooding: None

Included with these soils in mapping are small areas of most of the other soils in the survey area, which are adjacent to the mined areas. Also included are small areas of soils that have a pH of more than 8.0. These soils are in areas where mining has extended to a great depth. The included soils and areas of escarpments, high walls, and bedrock outcrop make up about 10 percent of this map unit. Individual included areas are generally less than 5 acres in size. Most of the acreage in this map unit is woodland or idle land. The unit generally supports mixtures of annual hardwoods. Some of the older reclaimed areas are planted to grasses and legumes, which help to control erosion, and later are replanted to pine trees. Most plant nutrients, except for nitrogen, are available in the amounts needed for plant growth.

These soils are poorly suited to pasture and are unsuited to cultivated crops. The suitability is limited because of excessive amounts of rock fragments, the low available

water capacity, and the slope. The hazard of erosion is very severe, especially when soil material is redeposited during surface mine reclamation. The suitability of these soils for the production of loblolly pine is fair or good. Other species that grow on this map unit include sycamore, Virginia pine, eastern cottonwood, royal paulownia, and eastern red cedar. On the basis of a 50 year site curve, the mean site index for loblolly pine is 85. Loblolly pine can yield 120 cubic feet, or 600 board feet, per acre per year, as measured when the mean annual increment culminates. Areas where the pH value is more than 6.5 cannot support pine trees and should be planted to other tree species. The understory vegetation is mainly honeysuckle, sumac, Pennsylvania smartweed, spiny amaranth, common lambs quarters, broom sedge, and little barley. The main concerns in managing timber on this map unit are the hazard of erosion, the equipment limitation, and seedling mortality. Erosion is especially severe when topsoil is replaced on the surface of bare areas. Management should include measures that control erosion, such as water bars, drainage dips, and a protective cover of vegetation. Conventional methods of harvesting trees can be used in the more gently sloping areas, but the steeper slopes restrict the use of equipment. Tracked equipment can be used on the steeper slopes. Droughtiness, which is caused by the large number of coarse fragments in the soils, increases the seedling mortality rate. This rate can be partly offset by increasing the number of seedlings that are planted. Rocks on the surface can interfere with harvesting and planting. These soils are poorly suited to urban development. The main limitations are the slope, large stones, and unstable fill. These soils have poor potential for openland wildlife habitat, fair potential for woodland

wildlife habitat, and very poor potential for wetland wildlife habitat. The openland and woodland wildlife habitat can be improved by planting desirable vegetation or maintaining the existing plant cover.

Prescribed burning every 3 years can increase the amount of palatable browse and seeds available to deer, quail, and turkeys. The burning should be rotated among several small tracts. Small, isolated areas may be suitable for the construction of shallow water areas, which improve the wetland wildlife habitat. The capability subclass is VIIs, and the woodland suitability group is 8R.

StE--Sunlight-Townley complex, 15 to 45 percent slopes

These shallow and moderately deep, well drained, moderately steep to very steep soils are on highly dissected ridgetops, side slopes, and the lower slopes. Slopes are short and are complex and convex. Individual areas are irregular in shape and conform to the configuration of the rough landscape. They range from 60 to 500 acres in size. They are about 45 percent Sunlight soil and 40 percent Townley soil. The two soils occur as areas so intricately mixed and so small that mapping them separately is not practical at the selected scale. Typically, the Sunlight soil has a surface layer of dark brown channery silt loam about 3 inches thick. The upper part of the subsoil is yellowish brown channery silty clay loam. It extends to a depth of 5 inches. The lower part is strong brown very channery silty clay loam. It extends to a depth of 12 inches. It is underlain by yellowish brown, weathered, fractured shaly siltstone and sandstone.

Important properties of the Sunlight soil:

Permeability: Moderate
Available water capacity: Very low
Soil reaction: Very strongly acid or strongly acid
Organic matter content: Low
Natural fertility: Low Depth to bedrock: 10 to 20 inches
Root zone: Same as depth to bedrock
Depth to the water: More than 6 feet
Flooding: None

Typically, the Townley soil has a surface layer of very dark grayish brown silt loam about 3 inches thick. The subsurface layer is brown gravelly loam. It extends to a depth of 7 inches. The upper part of the subsoil is strong brown clay. It extends to a depth of 27 inches. The lower part is strong brown and brownish yellow clay. It extends to a depth of 36 inches. It is underlain by brown, red, and gray, weathered siltstone and shale.

Important properties of the Townley soil:

Permeability: Slow
Available water capacity: Moderate
Soil reaction: Extremely acid to strongly
Organic matter content: Low
Natural fertility: Low
Depth to bedrock: 20 to 40 inches
Root zone: Same as depth to bedrock
Depth to the water table: More than 6 feet
Flooding: None

Included with these soils in mapping are small areas of Montevallo, Nauvoo, and Sipsey soils. Montevallo soils do not have a well developed subsoil. They are in positions on side slopes similar to those of the Sunlight and Townley soils. Nauvoo

soils have a thick, red subsoil. They are on the upper ridgetops. Sipsey soils do not have a significant number of coarse fragments in the subsoil. They are on side slopes. The included soils make up about 15 percent of this map unit. Individual included areas are generally less than 5 acres in size. Most areas are wooded. A few areas areused as pasture. These soils are poorly suited to cultivated crops. In the steeper areas the slope severely limits the use of equipment. Erosion may be severe if the soils are tilled and are not protected. The Sunlight soil is droughty, and crops are adversely affected because of the lack of adequate moisture during the growing season. These soils are fairly well suited to pasture. The slope limits the use of equipment, thus limiting most needed management practices, including weed control, haying, and the application of plant nutrients needed for productive forage. This map unit is well suited to the production of loblolly pine. Other species of oak and hickory. On the basis of a 50-year site curve, the mean site index for loblolly pine is 70 on the Sunlight soil and 80 on the Townley soil. Loblolly pine can yield 93 cubic feet, or 465 board feet, per acre per year on the Sunlight soil and 110 cubic feet, or 550 board feet, per acre per year on the Townley soil, as measured when the mean annual increment culminates. The understory vegetation is mainly honeysuckle, blackberry, flowering dogwood, and bluestem. The main concerns in managing timber on this map unit are a severe equipment limitation and a severe erosion hazard caused by the slope. On the Sunlight soil, the hazard of windthrow is severe and seedling mortality is moderate. Plant competition is moderate on the Townley soil. Conventional methods of harvesting trees can be used in the less sloping areas but are difficult to use in the

steeper areas. Tracked equipment can be used in the steeper areas. Logging roads, skid trails, and landings can be protected against erosion by construction diversions and by seeding disturbed areas. Because the clayey Townley soil is sticky when wet and has a limitedload-supporting capacity, most planting and harvesting equipment should be used only during dry periods. Trees are subject to windthrow because of the limited rooting depth of these soils. Heavy thinning should be avoided. Droughtiness and the shallowness to bedrock increase the seedling mortality rate, especially on the Sunlight soil. This rate can be partly offset by increasing the number of seedlings that are planted. Plant competition hinders tree growth and prevents adequate reforestation. It can be controlled by mechanical methods, herbicides, or prescribed burning. These soils are poorly suited to urban development. The slope limits the installation of septic tank absorption fields. The absorption lines should be installed on the contour. Many absorption fields do not function properly because of the slow permeability in the Townley soil. Increasing the size of the absorption field helps to overcome this limitation. Erosion is a hazard. Only the part of the site that is used for construction should be disturbed. Any excavations during construction can expose the shale, siltstone, and sandstone bedrock. Properly designing buildings and roads helps to offset the effects of the limited load-supporting capacity in the Townley soil. These soils have poor or fair potential for openland wildlife habitat, fair or good potential for woodland wildlife habitat, and very poor potential for wetland wildlife habitat. The openland and woodland wildlife habitat can be improved by planting suitable seed and forage crops, maintaining the existing plant cover, and promoting the

regeneration and establishment of desirable plants. Prescribed burning every 3 years can increase the amount of palatable browse and seeds available to wildlife. The burning should be rotated among several small tracts. These soils are poorly suited or fairly well suited to the reclamation of surface-mined areas. The Sunlight soil does not have an adequate amount of soil material for stockpiling. The Townley soil has more soil material, but it is clayey. Because of the rolling to very steep landscape, reclamation is difficult. The capability subclass is VIIe. The Sunlight soil is in woodland suitability group 6D, and the Townley soil is in woodland suitability group 8R.

ToD--Townley silt loam, 4 to 12 percent slopes

This moderately deep, well drained, gently sloping to strongly sloping soil is on ridgetops, side slopes, and toe slopes. Slopes are complex and convex. Individual areas are irregular in shape and range from 20 to 200 acres in size. Typically, the surface layer is very dark grayish brown silt loam about 3 inches thick. The subsurface layer is brown loam about 2 inches thick. The subsoil is strong brown and red clay. It is mottled in the lower part. It extends to a depth of 36 inches. It is underlain by mottled, level-bedded, weathered shale.

Important properties of the Townley soil--
Permeability: Slow
Available water capacity: Moderate
Soil reaction: Extremely acid to strongly acid
Organic matter content: Low
Natural fertility: Low

Depth to bedrock: 20 to 40 inches
Root zone: Same as depth to bedrock
Depth to the water table: More than 6 feet
Flooding: None

Included with this soil in mapping are a few small areas of Montevallo, Nauvoo, Sipsey, and Sunlight soils. Montevallo, Sipsey, and Sunlight soils have a loamy subsoil. They are on the steeper side slopes. Nauvoo soils have a red, loamy subsoil. They are in the higher positions on ridgetops. Also included are small areas of soils that are similar to the Townley soil but have a solum that is more than 40 or less than 20 inches thick or have a yellower subsoil and soils that have less than 35 percent clay and have bedrock within a depth of 40 inches. The included areas make up about 20 percent of this map unit. Individual included areas are generally less than 5 acres in size. The Townley soil is used mainly as woodland. Some small areas are used as pasture or cropland or for urban development. The suitability of this soil for cultivated crops is fair or poor. The main management concern is the hazard of erosion. Because of the hazard of erosion and the complex slopes, the steeper areas are not suited to the crops commonly grown in the county. Measures that can control erosion in the less sloping areas include minimum tillage, contour farming, suitable cropping systems, and terraces, diversions, and grassed waterways. This soil is well suited to hay and pasture. The use of equipment is limited in the more complex sloping areas. Proper grazing practices, weed control, and fertilizer are needed for maximum forage quality and yields. The soil is better suited to perennial grasses and legumes than to

other forage plants. Tillage and seedbed preparation can increase the hazard of erosion. This soil is well suited to the production of loblolly pine. Other species that grow on this map unit include various species of oak and hickory, sweetgum, and Virginia pine. On the basis of a 50-year site curve, the mean site index for loblolly pine is 80. Loblolly pine can yield 110 cubic feet, or 550 board feet, per acre per year, as measured when the mean annual increment culminates. The understory vegetation is mainly honeysuckle, dewberry, huckleberry, flowering dogwood, brackenfern, and bluestem. The major concerns in managing timber on this map unit are a moderate equipment limitation, moderate windthrow and erosion hazards, and moderate plant competition. The equipment limitation is caused by the slope. Using conventional harvesting equipment when the soil is wet causes rutting and compaction. Conventional methods of harvesting trees can be used in the more gently sloping areas but are difficult to use in the steeper areas. Logging roads and landings can be protected against erosion by construction diversions and by seeding disturbed areas. Trees are subject to windthrow because of the restricted rooting depth. Heavy thinning should be avoided. Plant competition hinders tree growth and can prevent adequate natural or artificial reforestation. It can be controlled by mechanical methods, herbicides, or prescribed burning. This soil is poorly suited to most kinds of urban development. The major limitations are the slope, the depth to bedrock, the slow permeability, the shrink-swell potential, and low strength. Many septic tank absorption fields do not function properly because of the slow permeability in the subsoil. Increasing the size of the absorption field can help to overcome this limitation.

Properly designing buildings and roads helps to offset the limited load-supporting capacity and helps to prevent the damage caused by shrinking and swelling. The hazard of erosion increases if the soil is exposed during site development. Most excavations expose the underlying shaly bedrock, which generally can be dug or ripped by heavy machinery. This soil has good potential for openland and woodland wildlife habitat and very poor potential for wetland wildlife habitat. The openland and woodland wildlife habitat can be improved by planting suitable seed and forage crops, maintaining the existing plant cover, and promoting the regeneration and establishment of desirable plants. Prescribed burning every 3 years can increase the amount of palatable browse and seeds available to wildlife. The burning should be rotated among several small tracts. This soil is fairly well suited or poorly suited to the reclamation of surface-mined areas. Topsoil can be stockpiled fairly easily in the less sloping areas. More care is needed in the steeper areas. The soil is clayey, and compaction and crusting occur when the soil material is reapplied to the surface-mined areas. These areas should be mulched and seeded as soon as possible after the soil material is reapplied to the surface. The capability subclass is VIe, and the woodland suitability group is 8R.

GEOLOGIC DESCRIPTION

A geologic description of the strata overlying the target coal seams at the Quality Coal Co., Inc. - Sparks Branch No. 2 Mine is by qualified personnel of PERC Engineering

Co., Inc. and was from drill holes within and adjacent to the permit area and is as follows: According to 'Depositional Settings of the Pottsville Formation in the Black Warrior Basin', structurally, this site is located within the Warrior Coal Basin. The strata which underlies and outcrops in this region is of the Pottsville Formation of the Pennsylvanian Age. The Warrior Basin is the southern most of a series of Pennsylvanian basins of the Appalachian Plateau. The Pottsville Formation in this area consists of thin to thick bedded sandstones, siltstones, shales, clays, and coal seams. Structurally, the Warrior Basin is formed by a large gentle syncline that extends from north-central Mississippi in the west to north-central Alabama in the east. The syncline is tilted southwestward with a regional dip of 30 to 200 feet per mile. Toward the interior of the Warrior Basin, the regional southwest dip of Pottsville strata is modified by a series of three synclines and two anticlines. Of these, the major structures are the Warrior and Coalburg synclines, and the Sequatchie anticline. The fold axes are parallel to the Appalachian system in a northeast-southwest direction and plunge to the southwest with the regional dip.

Locally, the strata which outcrops in the immediate vicinity of the mine site includes sandstones, shales, underclays, and coal seams associated with the Mary Lee Coal Group. According to 'Depositional Settings of the Pottsville Formation in the Black Warrior Basin', the Mary Lee Group lies approximately 40 to 130 feet above the Black Creek Coal Group and from 140 to 400 feet below the Pratt Coal Group. The target seams at this facility, in descending order, are the New Castle, Mary Lee, and Blue

Creek Seams of the Mary Lee Coal Group. The Blue Creek Seam outcrops within the permit area at approximately 360 ft. MSL and averages approximately 15.2 inches thick. The Mary Lee Seam outcrops an average of approximately 12.9 ft. above the Blue Creek Seam and averages approximately 22.2 inches thick. The New Castle Seam outcrops an average of approximately 21 ft. above the Mary Lee Seam and averages 9.9 inches thick. The Jagger Coal Seam of the Mary Lee Group was not identified within the permit boundary during the drilling program.

The overburden above the Blue Creek Seam reaches a maximum thickness of approximately140 ft. within the proposed permit area. Overburden above the Blue Creek Seam consists of, in descending order, surface material approximately 5 ft. thick, followed by an interval of weathered sand and clay approximately 5 ft. thick, followed by approximately 5 ft. of weathered sandstone and shale, followed by an interval of sandy shale approximately 25 ft. thick, followed by an interval of shale approximately 65 ft. thick, followed by the New Castle Seam. The New Castle Seam is approximately 12 inches thick and is underlain by an interval of shale approximately 4 ft. thick, followed by an interval of sandy shale approximately 15 ft. thick, followed by an interval of shale 0.6 ft. thick, followed by the Mary Lee Seam. The Mary Lee Seam is approximately 24 inches thick and is underlain by an interval of shale approximately 5 ft. thick, followed by an interval of sandy shale 8 ft. thick, followed by the Blue Creek Seam. The Blue Creek Seam is approximately 12 inches thick and is underlain by an interval of sandy shale 4.4 ft. thick. The above description was

taken from QCS2MW-2, and is a result of site-specific drilling within the proposed permit area but is typical in nature and the intervals described above may vary in thickness or content depending upon their location within the permit area. It should be noted that the Blue Creek Seam does not exsist within approximately half of the proposed permit.

Information provided in the geochemical analysis revealed that there are four intervals of potentially acid-forming materials present at this site. The four acid forming layers are 106 - 110 and 137.6 -140.6 in QCS2MW-2, 100 - 105 in QCS2MW-4, and 121.8 - 125 in QCS2DH-6. The intervals from QCS2MW-2 and QCS2DH-6 are adjacent to a coal seam and the samples were found to be contaminated with coal. The interval from QCS2MW-4 is also adjacent to the coal seam and could have been contaminated from the adjacent coal seam, although no coal was observed. Due to the fact that all overburden at this site does not occupy similar areas, intervals shown in the attached results of geochemical analysis which are located in the upper portions of the drill logs occupy a smaller volume than intervals which are located closer to the bottom, consequently, their acid-base accounts do not contribute as substantially to the overall chemistry of the overburden. In an attempt to more accurately describe the acid-base potential of the overburden at the Sparks Branch Mine No. 2 site, a spreadsheet which was developed at the Pennsylvania Dept. of Environmental Resources, Bureau of Mining and Reclamation was employed. This spreadsheet not only takes into account the volume occupied by each interval tested, but also the amount of coal lost into the

spoil. The results of this method from geochemical analysis sites QCS2MW-2, QCS2MW-4, and QCS2DH-6 is favorable: overburden at the Sparks Branch Mine No. 2 contains 9.93 (tons CaCO3/1000 tons overburden) excess neutralization potential. This excess neutralization potential in the overburden will neutralize any of the acid forming layers described above. Another important consideration is that previous mining on the Mary Lee Coal Group in the surrounding area and throughout Walker County has illustrated that the mining of this Coal Group has not historically created acid mine drainage problems.' See Appendix 1 for drill-hole lithologies, and determination of the acid-base account.

SAMPLING TECHNICS

Information utilized to describe the orientation, lithology, and geochemistry of the Sparks Branch Mine No. 2 and adjacent areas include geochemical analysis sites QCS2MW-2, QCS2MW-4, QCS2DH-6; monitoring wells QCS2MW-1, QCS2MW-3, QCS2MW-5; and exploratory drill hole QCS2DH-8. Personnel of PERC Engineering Co., Inc. drilled holes QCS2MW-1, QCS2MW-2, QCS2MW-3, QCS2MW-4, QCS2MW-5, QCS2DH-6, and QCS2DH-8 during August and November 2009 with a Drilltech D40K utilizing a 6 and 3/4 inch drill bit. Samples were collected from drill cuttings by personnel of PERC Engineering Co., Inc. every 5 ft. or change in lithology. Collected samples were cataloged and stored in plastic reclosable bags for later inspection and testing. These samples were transported to the PERC Engineering Laboratory.

Lithologic logs were constructed from the drill cuttings by a Geologist. Samples collected from QCS2MW-2, QCS2MW-4, and QCS2DH-6 were utilized for geochemical analysis, including paste pH, total sulfur, and neutralization potential by the PERC Engineering Laboratory and conducted according to ASTM guidelines.

Soil and overburden samples were taken at locations in the attached Soil Map by personnel of PERC Engineering in March of 2010. Four samples of soil type StE were collected along with two samples of spo; type ToD and six heterogeneous overburden samples from previously mined areas within and adjacent to the proposed permit area. Three of the six heterogeneous overburden samples were from pre-law disturbance within or adjacent to the proposed permit area and three were from 'new' overburden collected at the adjacent Sparks Branch Mine. Each sample collected was selected as the most representative of the area in both texture and vegetative cover (which reflects chemical suitability). All samples were taken by digging a cylindrical to slightly conical shaped hole 6 inches deep with a spade. All contents of this section are included in the sample. Soil samples taken lack the top 3 inches of organic matter so they will more accurately reflect topsoil that is cleaned of vegetative cover and stockpiled for soil redistribution.

Sieve analysis was conducted on oven-dried samples by PERC Engineering Co., Inc. to determine coarse fragment and soil percentages. Results of this analysis is in Appendix 2. The minus 2mm (or soil) fraction of all samples were then sent to Auburn

University Soil Testing Laboratory for the following analyses: Soil fertility, pH, recommendations for post mining revegetation, % sand, silt, and clay, CEC, available water capacity, neutralization potential, maximum potential acidity, % organic matter, and ppm of nitrate nitrogen in the soil. Results of this analysis are given in Appendix 3. Note: available water capacity conducted by Auburn University Testing Laboratory is determined on only the soil (-2mm) fraction of the sample obtained in the field. To obtain the "Total" available water capacity, the AWC will be added to the available water capacities of the larger coarse fragments as shown in Appendix 4.

Senders sample designations as listed in Appendix 3 are as follows:

7099 - Soil StE-1	7093 - OB-1
7100 - Soil StE-2	7094 - OB-2
7101 - Soil StE-3	7095 - OB-3
7102 - Soil StE-4	7096 - OB-4
7103 - Soil ToD-1	7097 - OB-5
7104 - Soil ToD-2	7098 - OB-6

OVERBURDEN VS TOPSOIL COMPARISON

Cumulative results from Appendix 2 & 3 are as follows:

	SOIL (AVE.):	OVERBURDEN (AVE.):
$pH_{(median)}$	4.60	6.80
	Fertility ratings for P, K, & Mg:	
Phosphorus	71	8
Potassium	171	221
Magnesium	750	1,726

	SOIL (AVE.):	OVERBURDEN (AVE.):
Recommendations for Limestone, N, P_2O5, K_2O:		
Limestone (Tons/Acre)	3.17	0.25
N (Lbs./Acre)	60	60
P_2O5 (Lbs./Acre)	45	87
K_2O (Lbs./Acre)	27	13
Sulfur (percent)	0.0305	0.1408
Maximum Potential Acidity*	0.9526	4.4010
Neutralizing Potential*	0.2333	7.6367
Acid-Base Account*	-0.7193	+3.2356
Percent Organic Matter	4.12	3.12
Nitrate Nitrogen (ppm)	6.97	11.93
Sand Percentage	37.72	40.42
Silt Percentage	39.80	32.19
Clay Percentage	22.48	27.39

	SOIL (AVE.):	OVERBURDEN (AVE.):
Available Water Capacity (In. H_2O/In. Soil)	0.1383	0.1300
Course Fragment Percentage	32.93	43.28
Soil Percentage	67.07	56.72
"Total" Available H_2O Capacity (in. H_2O/in. soil)	0.1160	0 .1072
Soil Erodibility (K)	0.25	0.20

*Tons CaCo3 Equivalent/1000 tons material

The above comparison resulting from physical and chemical analysis conducted on topsoil and overburden samples taken at locations indicated on the attached soils map reveal that overburden at the proposed Sparks Branch No. 2 Mine site is equal to or more suitable for sustaining revegetation and is the best available to support revegetation and therefore satisfies the criteria set forth in 880-X-10C-.08-(5).

The pH of the overburden samples were much closer to an optimum pH for the proposed post mining revegetation than the native soil samples. Auburn Soil Testing Laboratory uses a target pH of 6.5 for this type of vegetation as the optimum value.

The topsoil samples were analyzed having an median pH of 4.60 S.U., which is classified as "very strongly acid" by the USDA Soil Conservation Service while the heterogeneous overburden samples were analyzed having an median pH of 6.80 S.U., which is classified as "neutral". As a result, the Auburn Soil Testing Laboratory recommends 2.92 tons per acre more lime on native topsoils than on the overburden sampled.

Overburden at the Sparks Branch No. 2 Mine is also more fertile than the native topsoils. Overburden was rated higher in the macronutrient categories: potassium and magnesium whereas the native soil was rated higher in phosphorus. As a result, Auburn University's Soil Testing Laboratory reported that the native topsoils require an average of 28 lbs/acre less additional nutrients than the overburden.

The acid-base accounts of both of the media were positive and neither of the two represents a danger of being forming acid, however, the average acid-base potential of the heterogeneous overburden was positive while the average acid-base potential of the native topsoils was negative (+3.2356 vs. -0.7193). Also, overburden contained less organic matter and more nitrate nitrogen than the native topsoils.

Textural analysis, performed by the PERC Engineering Laboratory revealed that the native topsoil samples contained more soil and less coarse fragments than the overburden samples, as expected. Typically, as soil percentage increases, so does

available water capacity, and this is what has occurred during this analysis. The heterogeneous overburden was also found to have a higher percentage of sand than the native topsoil samples in the soil sized material, less silt than the native topsoil samples in the soil sized material, and more clay than the native topsoil in the soil sized material. The result was that the available water capacity of the soil sized material in the soil was greater. However, when the total available water capacity for both media is calculated as shown in Appendix 4, the total available water capacity of the heterogeneous overburden was very close in value to the total available water capacity of the native topsoils (0.1160 in/in versus 0.1072 in/in). A difference of less than **nine thousandths** of an inch per inch exists. When considering that the thickness of the revegetation media is only 6 inches, this difference is only 0.0528 inches of water (less than 6/100th of an inch) and is hardly significant. During periods of low or no rainfall, the amount of soil moisture in the root zone of the plants has a direct affect on whether or not the plant survives. However, during drought conditions, *water that is available to plants is most usually found deeper in the root zone than six inches*. It is plant water found much deeper in the root zone that will allow the revegetation to survive. In either case (soil versus overburden), the water utilized by the plants during drought conditions will be from heterogeneous overburden.

It should also be noted that three of the heterogeneous overburden samples collected for this report were 'new' (collected from the adjacent Sparks Branch Mine which only has a highwall release). The native topsoil is essentially completely weathered

while many of the coarse fragments in the overburden will eventually break down into soil sized material and increase its total available water capacity causing the difference in total available water capacity to be less and less as time advances.

Also, as is typical for comparisons between topsoils and overburden materials, regraded topsoils exhibit a greater tendency to erode than regraded overburden, especially in steeper slope areas, due to the fact that 'new' overburden typically contains more coarse fragments which resists rainfall impact and erosion due to overland flow. Many of these coarse fragments will eventually break down into soil sized material, adding to the soil percentage, while 'protecting' the mixture from erosion in the early stages of reclamation in outslope areas where slopes are steeper whereas the native soils are more likely to erode from a lack of coarse fragments and will probably not increase the amount of soil contained in this medium, due to it already being weathered. As shown on the Topsoil Variance Map accompanying this report, the dominant soil type within the proposed topsoil variance area (other than previously disturbed areas) is: Sunlight-Townley complex, 15 to 45 percent slopes. This confirms the steepness of the proposed permit area, and magnifies the need for the utilization of heterogeneous overburden at this site. As stated earlier, Sunlight-Townley complex has been shown in prior applications to be of poor quality for reclamation. The above information suggests that the overburden at the proposed Sparks Branch No. 2 Mine is equal to or more suitable than the native topsoils for post mining revegetation.

PROPOSED VARIANCE AREA VS. ADJACENT SITE SIMILARITIES

As stated previously, several surface mining operations exist in the McCollum area, including Uptown Motors - McCollum Mine, Quality Coal - McCollum Mine, Haley Bros Coal - Sugartown Mine, the Dixie Springs Mine, several Drummond - Cedrum Mines, and more recently, the Quality Coal - Sparks Branch Mine.

Revegetation success at these sites are largely due to a consistent lithology of silty to sandy shale, which, when mixed during mining, results in a medium which is favorable for both pine tree and ground cover growth. Many other regulated mine sites that recover coal from the Mary Lee Coal Seam, and are located in the McCollum area, have been awarded topsoil variances in the past and have exhibited adequate revegetation and particle size performance to warrant bond releases by the Regulatory Authority. Lithologies from all of the above stated mine sites are shown in the ASMC permit file, and almost exclusively show shale as the dominant lithology. The geochemistries of the these sites are also very similar. All have low sulfur values, similar acid-base accounts, and have similar maximum highwall heights. A comparison between the acid-base accounts and lithologies of both the Sparks Branch Mine overburden and the Sparks Branch No. 2 Mine overburden (see Appendix 1) reveals many similarities. Both mine sites will recover coal from the same target coal seams, utilize the same lithologic intervals for revegetation, have similar highwall heights, have similar mining techniques, utilize the same machinery, and the same personnel performing

reclamamtion and revegetation tasks. Due to these many similarities it is not unreasonable to assume that revegetation success at the Sparks Branch No. 2 Mine will be very similar to that of the original Sparks Branch Mine (see attached photos for reclamation success at the original Sparks Branch Mine).

In addition, a majority of these sites contain the soil type StE (Sunlight-Townley complex, 15 to 45 percent slopes) as their dominant soil type, which has been shown in prior applications to be of poor quality for reclamation due to low fertility and high erosion values.

RESULTS AND CONCLUSIONS

The conclusion of all the data represented in this report is that the overburden is physically and chemically equal to or superior to the topsoil in a majority of the parameters tested and is therefore the preferred medium for conducting reclamation and revegetation operations. The overburden sampled at the Sparks Branch No. 2 Mine was observed to be superior to the native topsoils in the following parameters: pH, fertility, liming rate, neutralization potential, acid-base account, nitrate nitrogen content, clay percentage in soil sized material, and soil erodibility. The parameters the native soils were superior in was phosphorus content, organic matter content, sulfur content, percent sand and silt, percent soil sized material, and soil available water capacity. It should be noted that the only reason that the native topsoil's total

available water capacity is higher than the overburden's total available water capacity is due to the disparity in amount of soil sized material. There is much more soil sized material in the native topsol samples than in the heterogeneous overburden. There are two reasons for this disparity. One reason is the fact that one half of the heterogeneous overburden samples were collected from 'new' overburden. The other reason is that the percentage of soil sized material in the ToD soil samples were very high. The average amount of soil sized material in the ToD soil samples was 90.30 percent while the average amount of soil sized material in the StE soil samples was 55.97 percent. As stated above, the native topsoil is essentially completely weathered while many of the coarse fragments in the overburden will eventually break down into soil sized material and increase its total available water capacity. This suggests that reclamation at the Sparks Branch No. 2 Mine will be more successful utilizing heterogeneous overburden as the vegetative medium.

REDISTRIBUTION PLAN

The mining method used at the Sparks Branch No. 2 Mine is a Dozer/Loader operation. Overburden will be rough graded by Caterpillar type dozers. Once overburden has been rough graded, farm-type tractors will be used to disc the overburden to its final contour, decrease compaction, and increase the mechanical breakage of the surface layer. Rocks 24" in diameter that remain upon the surface, if any, will be collected and buried. At this time the following criteria will be used to evaluate the textural quality

of the graded overburden:

a) Rocks of a size greater than 10" shall not exceed 10% by weight of the substitute material.

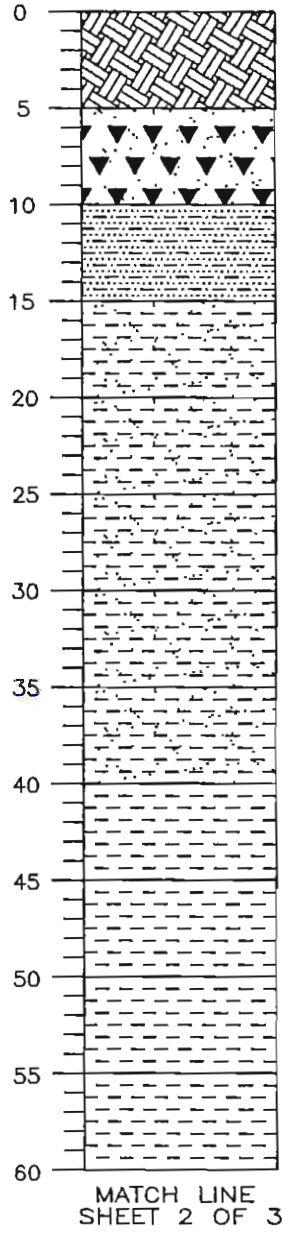
b)The substitute material shall not contain more than 10% by weight of materials between 10 and 3 inches in size.

c)The substitute material shall not contain more than 50% by weight of materials between 3 and .75 inches in size.

d)At least 30% by weight of the substitute material shall be of a size less than 2 millimeters.

Sampling frequency shall be 1 sample/10 Acres. Overburden sampling shall be identical to the guidelines set forth in the "Sampling Technics" section of this report. If this criteria is not met, Quality Coal Co., Inc. shall redisc the overburden and resample. If increasing the mechanical breakage will not enhance the texture of the graded overburden to a satisfactory level, additional soil sized material will be hauled and spread on site or rocks recovered from the surface and buried until the above criteria is achieved. The final texture samples taken shall be sent to the Auburn University Soil Laboratory (or other equally qualified laboratory) where the following tests shall be conducted: %sand, silt, & clay, textural classification, pH, total sulfur, acid-base account, fertility ratings for phosphorus, potassium, and magnesium, and amendment recommendations for post mining revegetation for limestone, nitrogen, P_2O and K_2O. Results of this analysis will be used to determine the amount of soil amendments, if

any, to be applied to the plant medium. Results of all analyses shall be supplied to the Regulatory Authority for review. Any toxic forming materials encountered will be removed or covered with 4 feet of non-toxic non-acid forming material. Approved seed mixtures will be planted and hay used as mulch will be blown upon the seeded overburden according to ASMC guidelines. The above reclamation procedures will be conducted by track equipment, where feasible, and all traffic except pond monitoring vehicles and reseeding equipment shall be prohibited from reclaimed areas to reduce compaction. The preceding report suggests that the post mining productivity of the proposed permit area will be enhanced by the utilization of overburden for a plant medium in conjunction with the above stated reclamation procedures.



INTERVAL:	DESCRIPTION:
0 – 5	Surface Material, clay, sand, light to medium orange, soft
5 – 10	Weathered sand and clay, light brown to dark orange, soft
10 – 15	Weathered Sandstone with Shale, light brown to dark orange, soft
15 – 20	Weathered sandy Shale, light brown, soft
20 – 25	Weathered sandy Shale, light brown, soft to medium hard
25 – 30	Sandy Shale, light to medium gray, soft to medium hard
30 – 35	Sandy Shale, light to dark gray, soft to medium hard
35 – 40	Sandy Shale, light to dark gray, soft to medium hard
40 – 45	Shale, light to dark gray, medium hard to hard
45 – 50	Shale, light to dark gray, medium hard to hard
50 – 55	Shale, light to dark gray, medium hard to hard
55 – 60	Shale, light to dark gray, medium hard to hard

SHEET 1 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ±505.00 ft. MSL

PERC ENGINEERING CO., INC.
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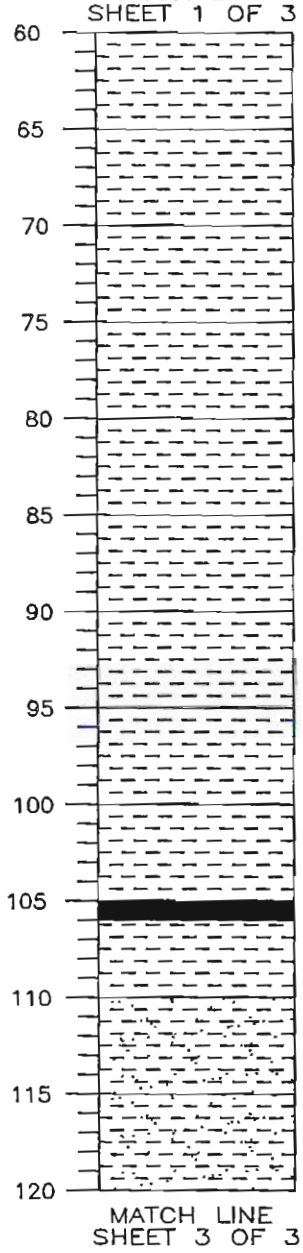
Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2MW-2

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-23-09
APPROVED BY: TST	SCALE: 1" = 10' vertical



INTERVAL:	DESCRIPTION:
60 – 65	Shale, light to dark gray, medium hard to hard
65 – 70	Shale, light to dark gray, medium hard to hard
70 – 75	Shale, light to dark gray, medium hard to hard
75 – 80	Shale, light to dark gray, medium hard to hard
80 – 85	Shale, light to dark gray, medium hard to hard
85 – 90	Shale, light to dark gray, medium hard to hard
90 – 95	Shale, light to dark gray, medium hard to hard
95 – 100	Shale, light to dark gray, medium hard to hard
100 – 105	Shale, light to dark gray, medium hard to hard
105 – 106	New Castle Seam (12 inches)
106 – 110	Shale, light to dark gray, medium hard to hard (contaminated with coal)
110 – 115	Sandy Shale, light to dark gray, medium hard to hard
115 – 120	Sandy Shale, light to dark gray, medium hard to hard

SHEET 2 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ±505.00 ft. MSL

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(205) 384-5913 Office (205) 384-5921 Fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2MW-2

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-23-09
APPROVED BY: TST	SCALE: 1" = 10' vertical

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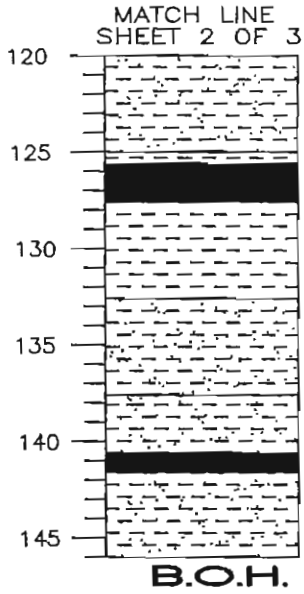

INTERVAL:	DESCRIPTION:
120 – 125	Sandy Shale, light to dark gray, medium hard to hard
125 – 125.6	Shale, light to dark gray, medium hard to hard, contaminated with Coal
125.6 – 127.6	Mary Lee Seam (24 inches)
127.6 – 132.6	Shale, light to medium gray, medium hard to hard
132.6 – 137.6	Sandy Shale, light to medium gray, medium hard to hard
137.6 – 140.6	Sandy Shale, light to medium gray, medium hard to hard, (contaminated with Coal)
140.6 – 141.6	Blue Creek Seam (12 inches)
141.6 – 146	Sandy Shale, light to medium gray, hard

SHEET 3 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ±505.00 ft. MSL

PERC ENGINEERING CO., INC.
1604 Highway 78 West Jasper, Alabama 35501
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(205) 384-6691 Office (205) 384-6691 Fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2MW-2

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-23-09
APPROVED BY: TST	SCALE: 1" = 10' vertical

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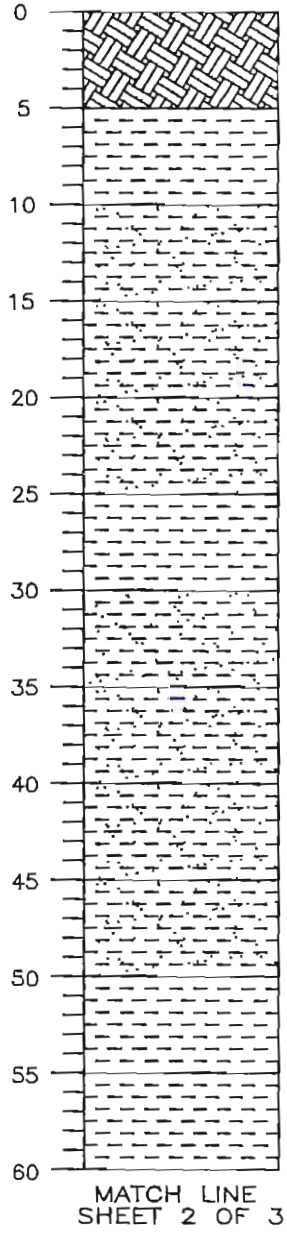

INTERVAL:	DESCRIPTION:
0 – 5	Surface Material, sandy Shale, light to medium orange
5 – 10	Weathered, Shale, light to medium orange
10 – 15	Weathered sandy Shale, light to medium orange
15 – 20	Weathered sandy Shale, light to medium orange, medium hard to hard
20 – 25	Weathered sandy Shale, light to medium orange, hard
25 – 30	Shale, light to dark gray, medium hard to hard
30 – 35	Sandy Shale, light to dark gray, medium hard to hard
35 – 40	Sandy Shale, light to dark gray, medium hard to hard
40 – 45	Sandy Shale, light to dark gray, soft to medium hard
45 – 50	Sandy Shale, light to dark gray, soft to medium hard
50 – 55	Shale, light to dark gray, soft to medium hard
55 – 60	Shale, light to dark gray, soft to medium hard

SHEET 1 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ±564.00 ft. MSL

PERC ENGINEERING CO., INC.
1804 Highway 78 West, Jasper, Alabama 35501
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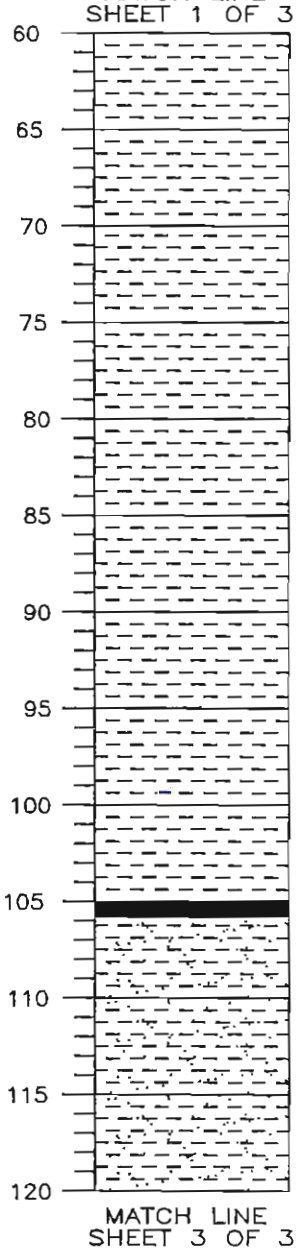
(205) 384-2883 Office (205) 384-9401 Fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCSBMW-4

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-23-09
APPROVED BY: TST	SCALE: 1" = 10' vertical



INTERVAL:	DESCRIPTION:
60 – 65	Shale, light to dark gray, medium hard to hard
65 – 70	Shale, light to dark gray, medium hard to hard
70 – 75	Shale, light to dark gray, medium hard to hard
75 – 80	Shale, dark gray, hard
80 – 85	Shale, light to dark gray, hard
85 – 90	Shale, light to dark gray, hard
90 – 95	Shale, light to dark gray, medium hard to hard
95 – 100	Shale, light to dark gray, hard
100 – 105	Shale, light to dark gray, hard
105 – 105.8	New Castle Seam (9.6 inches)
105.8 – 110	Sandy Shale, light to dark gray, medium hard to hard
110 – 115	Sandy Shale, light to dark gray, hard
115 – 120	Sandy Shale, light to dark gray, hard

SHEET 2 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ±564.00 ft. MSL

PERC ENGINEERING CO., INC.
1908 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-5983 office (205) 384-5991 fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2MW-4

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-23-09
APPROVED BY: TST	SCALE: 1" = 10' vertical

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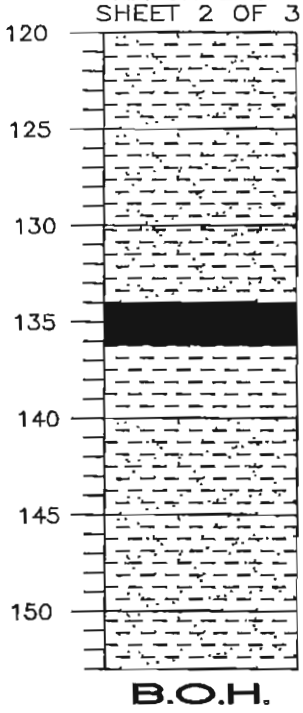

INTERVAL:	DESCRIPTION:
120 – 125	Sandy Shale, light to dark gray, hard
125 – 130	Sandy Shale, light to dark gray, medium hard to hard
130 – 134	Sandy Shale, light to dark gray, medium hard to hard
134 – 136.2	Mary Lee Seam (26.4 inches)
136.2 – 140	Shale, medium to dark gray, medium hard to hard, contaminated with Coal
140 – 145	Sandy Shale, medium to dark gray, hard
145 – 150	Sandy Shale, light to medium gray, hard
150 – 153	Sandy Shale, light to medium gray, hard

SHEET 3 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ±564.00 ft. MSL

PERC ENGINEERING CO., INC.
1606 Highway 78 West, Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-8553 Office (205) 384-6191 Fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2MW-4

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-23-09
APPROVED BY: TST	SCALE: 1" = 10' vertical

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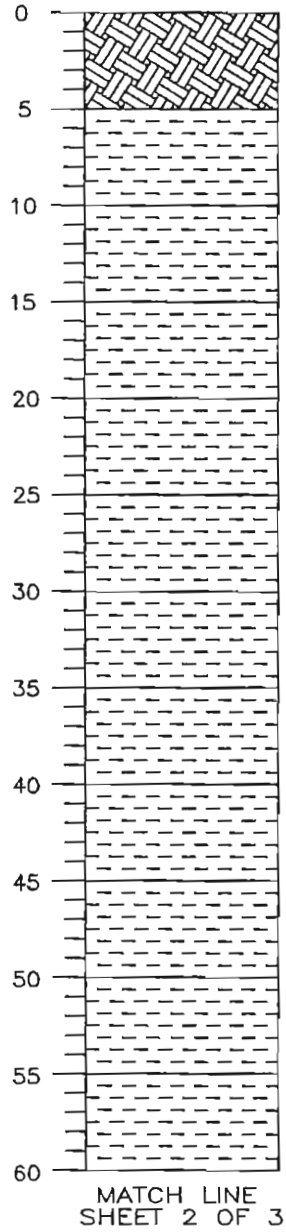

INTERVAL:	DESCRIPTION:
0 – 5	Surface Material
5 – 10	Weathered Shale, light to medium orange, soft
10 – 15	Weathered Shale, light to medium orange, soft
15 – 20	Weathered Shale, light to medium orange, soft
20 – 25	Weathered Shale, light to medium orange, soft
25 – 30	Weathered Shale, light to medium orange, soft
30 – 35	Shale, light to medium gray, soft to medium hard
35 – 40	Shale, light to medium gray, soft to medium hard
40 – 45	Shale, light to medium gray, soft to medium hard
45 – 50	Shale, light to medium gray, soft to medium hard
50 – 55	Shale, light to medium gray, medium hard to hard
55 – 60	Shale, light to medium gray, medium hard to hard

SHEET 1 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ± 527.00 ft. MSL

PERC ENGINEERING CO., INC.
1808 Highway 78 West Jasper, Alabama 35501
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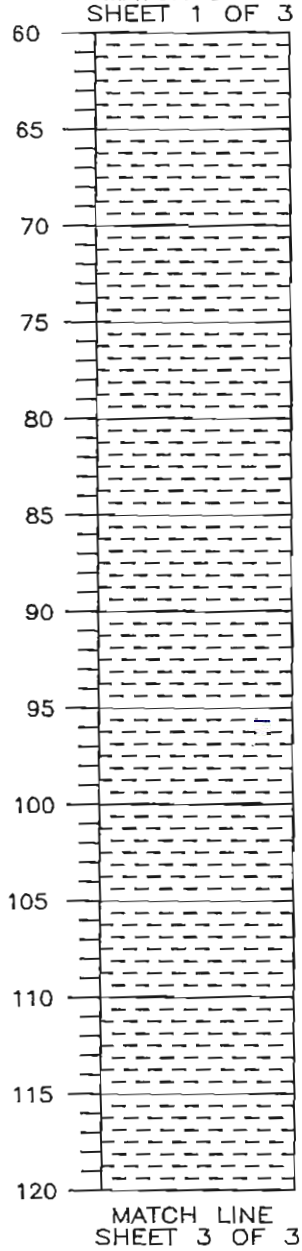
(205) 384-6810 Office (205) 384-6481 Fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2DH-6

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-24-09
APPROVED BY: TST	SCALE: 1" = 10' vertical



INTERVAL:	DESCRIPTION:
60 – 65	Shale, light to medium gray, medium hard to hard
65 – 70	Shale, light to medium gray, medium hard to hard
70 – 75	Shale, light to dark gray, medium hard to hard
75 – 80	Shale, light to dark gray, medium hard to hard
80 – 85	Shale, light to dark gray, medium hard to hard
85 – 90	Shale, light to dark gray, medium hard to hard
90 – 95	Shale, light to dark gray, medium hard to hard
95 – 100	Shale, light to dark gray, medium hard to hard
100 – 105	Shale, light to dark gray, medium hard to hard
105 – 110	Shale, light to dark gray, medium hard to hard
110 – 115	Shale, light to dark gray, medium hard to hard
115 – 120	Shale, light to dark gray, medium hard to hard

SHEET 2 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ± 527.00 ft. MSL

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1404 Highway 78 West Jasper, Alabama 35501
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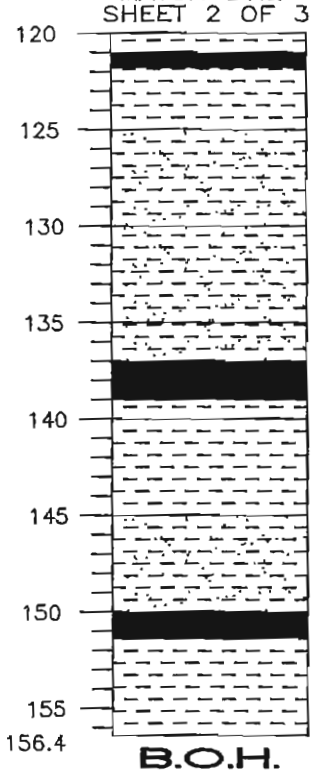
(205) 384-0810 office (205) 384-4491 fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2DH-6

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-24-09
APPROVED BY: TST	SCALE: 1" = 10' vertical



INTERVAL:	DESCRIPTION:
120 – 121	Shale, light to dark gray, medium hard to hard
121 – 121.8	New Castle Seam (9.6 inches thick)
121.8 – 125	Shale, light to dark gray, medium hard to hard, contaminated with Coal (contaminated with coal)
125 – 130	Sandy Shale, light to dark gray, medium hard to hard
130 – 135	Sandy Shale, light to dark gray, medium hard to hard
135 – 137	Sandy Shale, light to dark gray, medium hard to hard
137 – 139	Mary Lee Seam (24 inches thick)
139 – 140	Shale, light to dark gray, medium hard to hard, contaminated with Coal
140 – 145	Shale, light to dark gray, medium hard to hard
145 – 150	Sandy Shale, light to dark gray, medium hard to hard, contaminated with Coal
150 – 151.4	Blue Creek Seam (16.8 inches thick)
151.4 – 156.4	Shale, medium to dark gray, medium hard to hard

SHEET 3 OF 3
DRILL: DRILLTECH D40K
SURFACE ELEVATION: ± 527.00 ft. MSL

PERC ENGINEERING CO., INC.
1806 Highway 78 West Jasper, Alabama 35501
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(205) 384-5810 office (205) 384-5811 fax

Quality Coal Co., Inc.
Sparks Branch Mine No. 2
Lithologic Description for
QCS2DH-6

DRAWN BY: JNG DWG. NAME: QCSB2LITH	DATE: 11-24-09
APPROVED BY: TST	SCALE: 1" = 10' vertical

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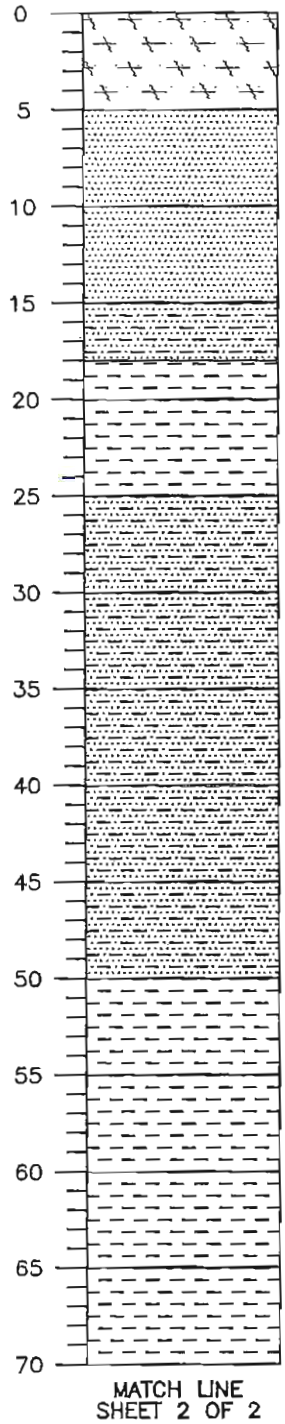

INTERVAL:	DESCRIPTION:
0 – 5'	Surface Material, unconsolidated, highly weathered, brown
5 – 10'	SANDSTONE, very fine grained, highly weathered, brown
10 – 15'	SANDSTONE, very fine grained, highly weathered, brown
15 – 18'	SHALE, medium hard, gray, SANDSTONE, very fine grained, highly weathered, brown
18 – 20'	SHALE, medium hard, gray
20 – 25'	SHALE, medium hard, gray
25 – 30'	SHALE, medium hard, gray, SANDSTONE, very fine grained medium hard, gray
30 – 35'	SHALE, medium hard, gray, SANDSTONE, very fine grained medium hard, gray
35 – 40'	SHALE, medium hard, gray, SANDSTONE, very fine grained medium hard, gray
40 – 45'	SHALE, medium hard, gray, SANDSTONE, very fine grained medium hard, gray
45 – 50'	SHALE, medium hard, gray, SANDSTONE, very fine grained medium hard, gray
50 – 55'	SHALE, medium hard, gray
55 – 60'	SHALE, medium hard, gray
60 – 65'	SHALE, medium hard, gray
65 – 70'	SHALE, medium hard, gray

SHEET 1 OF 2

NOTE:
DRILL: REED SK35
6-3/4" DRILL BIT
SURFACE ELEVATION: ±585.00 ft. M.S.L.

PERC ENGINEERING CO., INC.
1600 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-3333 Office (205) 384-8491 Fax

Quality Coal, Inc.
Sparks Branch Mine
Lithologic Description for
QCSBMW1A

DRAWN BY: C.M.O. DWG. NAME: QCSBMW1A	DATE: 1/17/08
APPROVED BY: W.K.M.	SCALE: 1" = 10' vertical

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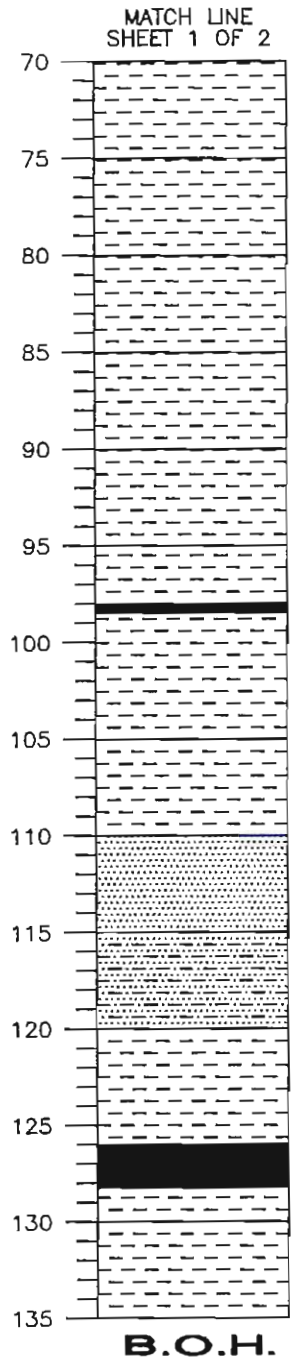

INTERVAL:	DESCRIPTION:
70 – 75'	SHALE, medium hard, gray
75 – 80'	SHALE, medium hard, gray
80 – 85'	SHALE, medium hard, gray
85 – 90'	SHALE, medium hard, gray
90 – 95'	SHALE, medium hard, gray
95 – 98'	SHALE, medium hard, gray
98 – 98.5'	NEW CASTLE COAL SEAM (6 inches thick)
98.5 – 105'	SHALE, medium hard, dark gray, contaminated with COAL
105 – 110'	SHALE, medium hard, dark gray
110 – 115'	SANDSTONE, very fine grained, medium hard, gray
115 – 120'	SANDSTONE, very fine grained, medium hard, gray, SHALE, medium hard, dark gray
120 – 126'	SHALE, medium hard, dark gray
126 – 128.25'	MARY LEE COAL SEAM (27 inches thick)
128.25 – 130'	SHALE, medium hard, dark gray
130 – 135'	SHALE, medium hard, dark gray

SHEET 2 OF 2

NOTE:
DRILL: REED SK35
6–3/4" DRILL BIT
SURFACE ELEVATION: ±585.00 ft. M.S.L.

PERC
ENGINEERING CO., INC.
1606 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 384-3553 Office (205) 384-8491 Fax

Quality Coal, Inc.
Sparks Branch Mine
Lithologic Description for
QCSBMW1A

DRAWN BY: C.M.O. DWG. NAME: QCSBMW1A	DATE: 1/17/08
APPROVED BY: W.K.M.	SCALE: 1" = 10' vertical

T:\CAD\WKM\QCSBMW1A.dwg 02/15/08 09:16

APPENDIX 1

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ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.
MINE NAME: Sparks Branch No. 2
DRILL HOLE: QCS2MW-2

COLLECTED BY: JDC
DATE COLLECTED: 11/13/2009
ANALYZED BY: JLR
DATE ANALYZED: 02/01/2010

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	5.00	4.380	0.063	1.969	0.500	-1.469	N
5.00	10.00	4.570	0.076	2.375	2.500	0.125	N
10.00	15.00	5.020	0.063	1.969	4.500	2.531	N
15.00	20.00	6.310	0.071	2.219	8.000	5.781	N
20.00	25.00	6.790	0.098	3.063	10.250	7.188	N
25.00	30.00	7.280	0.114	3.563	18.500	14.938	N
30.00	35.00	7.380	0.133	4.156	19.250	15.094	N
35.00	40.00	7.510	0.132	4.125	20.000	15.875	N
40.00	45.00	7.610	0.184	5.750	19.250	13.500	N
45.00	50.00	7.730	0.144	4.500	19.500	15.000	N
50.00	55.00	7.710	0.282	8.813	25.000	16.188	N
55.00	60.00	7.670	0.580	18.125	23.000	4.875	N
60.00	65.00	7.670	0.688	21.500	24.000	2.500	N
65.00	70.00	7.710	0.759	23.719	23.500	-0.219	N
70.00	75.00	7.650	0.745	23.281	22.750	-0.531	N
75.00	80.00	7.810	0.509	15.906	23.000	7.094	N
80.00	85.00	7.970	0.306	9.563	20.250	10.688	N
85.00	90.00	8.100	0.288	9.000	21.500	12.500	N
90.00	95.00	7.750	0.212	6.625	20.250	13.625	N
95.00	100.00	7.860	0.184	5.750	24.000	18.250	N
100.00	105.00	6.940	0.783	24.469	20.250	-4.219	?
105.00	106.00 Coal		2.300	71.875 Coal		COAL	***
106.00	110.00	7.040	0.645	20.156	13.750	-6.406	Y
110.00	115.00	7.440	0.422	13.188	16.500	3.313	N
115.00	120.00	7.840	0.188	5.875	19.000	13.125	N
120.00	125.00	7.960	0.248	7.750	18.000	10.250	N
125.00	125.60	8.010	0.260	8.125	22.250	14.125	N
125.60	127.60 Coal		0.565	17.656 Coal		COAL	***
127.60	132.60	7.980	0.167	5.219	7.000	1.781	N
132.60	137.60	8.100	0.162	5.063	6.750	1.688	N
137.60	140.60	7.850	0.365	11.406	5.250	-6.156	Y
140.60	141.60 Coal		3.660	114.375 Coal		COAL	***
141.60	146.00	7.850	0.211	6.594	6.250	-0.344	N
**AVERAGE		5.553	0.301	9.411	16.173	6.762	N

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

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(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.
MINE NAME: Sparks Branch No. 2
DRILL HOLE: QCS2MW-4

COLLECTED BY: JDC
DATE COLLECTED: 11/09/2009
ANALYZED BY: JLR
DATE ANALYZED: 11/11/2009

All analysis is performed according to EPA standards.

INTERVAL			PASTE pH	% SULFUR	MAX. POT. *ACIDITY		NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	5.00		3.910	0.032	1.000		1.250	0.250	N
5.00	10.00		4.670	0.034	1.063		2.250	1.188	N
10.00	15.00		6.180	0.037	1.156		3.000	1.844	N
15.00	20.00		6.670	0.031	0.969		7.000	6.031	N
20.00	25.00		5.990	0.032	1.000		7.250	6.250	N
25.00	30.00		7.260	0.074	2.313		7.000	4.688	N
30.00	35.00		7.620	0.096	3.000		15.250	12.250	N
35.00	40.00		8.100	0.086	2.688		22.000	19.313	N
40.00	45.00		8.230	0.099	3.094		16.750	13.656	N
45.00	50.00		8.380	0.093	2.906		20.500	17.594	N
50.00	55.00		8.530	0.115	3.594		24.500	20.906	N
55.00	60.00		8.500	0.143	4.469		73.500	69.031	N
60.00	65.00		8.540	0.289	9.031		47.500	38.469	N
65.00	70.00		8.730	0.537	16.781		76.250	59.469	N
70.00	75.00		8.500	0.684	21.375		20.000	-1.375	N
75.00	80.00		8.480	0.299	9.344		24.500	15.156	N
80.00	85.00		8.460	0.135	4.219		20.000	15.781	N
85.00	90.00		8.480	0.262	8.188		18.000	9.813	N
90.00	95.00		8.590	0.155	4.844		20.500	15.656	N
95.00	100.00		8.560	0.129	4.031		24.250	20.219	N
100.00	105.00		8.150	0.972	30.375		20.000	-10.375	Y
105.00	105.80	Coal		1.090	34.063	Coal		COAL	***
105.80	110.00		8.240	0.193	6.031		7.250	1.219	N
110.00	115.00		8.360	0.164	5.125		13.000	7.875	N
115.00	120.00		8.420	0.118	3.688		16.250	12.563	N
120.00	125.00		8.310	0.099	3.094		12.250	9.156	N
125.00	130.00		8.350	0.098	3.063		14.250	11.188	N
130.00	134.00		8.190	0.081	2.531		15.250	12.719	N
134.00	136.20	Coal		0.428	13.375	Coal		COAL	***
136.20	140.00		8.150	0.093	2.906		9.750	6.844	N
140.00	145.00		8.150	0.126	3.938		8.000	4.063	N
**AVERAGE			5.288	0.184	5.762		19.743	13.981	N

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

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(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

MINE NAME: Sparks Branch No. 2

DRILL HOLE: QCS2DH-6

COLLECTED BY: JDC

DATE COLLECTED: 11/13/2009

ANALYZED BY: JLR

DATE ANALYZED: 02/08/2010

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	5.00	4.080	0.017	0.531	0.001	-0.530	N
5.00	10.00	4.140	0.020	0.625	0.500	-0.125	N
10.00	15.00	4.860	0.021	0.656	2.000	1.344	N
15.00	20.00	4.930	0.021	0.656	3.250	2.594	N
20.00	25.00	4.640	0.018	0.563	3.500	2.938	N
25.00	30.00	4.930	0.014	0.438	3.500	3.063	N
30.00	35.00	7.220	0.076	2.375	13.000	10.625	N
35.00	40.00	7.400	0.084	2.625	16.500	13.875	N
40.00	45.00	7.560	0.087	2.719	17.500	14.781	N
45.00	50.00	7.500	0.119	3.719	18.250	14.531	N
50.00	55.00	7.850	0.107	3.344	18.750	15.406	N
55.00	60.00	7.790	0.159	4.969	18.750	13.781	N
60.00	65.00	8.090	0.096	3.000	18.750	15.750	N
65.00	70.00	7.980	0.169	5.281	20.000	14.719	N
70.00	75.00	7.820	0.511	15.969	22.250	6.281	N
75.00	80.00	7.700	0.734	22.938	21.250	-1.688	N
80.00	85.00	7.920	0.582	18.188	22.500	4.313	N
85.00	90.00	8.270	0.271	8.469	23.750	15.281	N
90.00	95.00	8.240	0.286	8.938	18.750	9.813	N
95.00	100.00	8.320	0.158	4.938	20.000	15.063	N
100.00	105.00	8.280	0.236	7.375	21.750	14.375	N
105.00	110.00	8.170	0.172	5.375	22.500	17.125	N
110.00	115.00	7.790	0.315	9.844	21.250	11.406	N
115.00	120.00	6.890	0.730	22.813	19.750	-3.063	N
120.00	121.00	6.740	0.687	21.469	19.250	-2.219	N
121.00	121.80 Coal		1.910	59.688 Coal		COAL	***
121.80	125.00	6.010	0.693	21.656	8.500	-13.156	Y
125.00	130.00	7.870	0.069	2.156	16.250	14.094	N
130.00	135.00	8.230	0.041	1.281	16.250	14.969	N
135.00	137.00	8.090	0.073	2.281	12.750	10.469	N
137.00	139.00 Coal		0.511	15.969 Coal		COAL	***
139.00	140.00	8.380	0.110	3.438	11.750	8.313	N
140.00	145.00	8.370	0.094	2.938	6.250	3.313	N
145.00	150.00	8.270	0.049	1.531	6.250	4.719	N
150.00	151.40 Coal		1.130	35.313 Coal		COAL	***
151.40	156.40	8.400	0.091	2.844	5.000	2.156	N
**AVERAGE		5.147	0.196	6.138	14.282	8.144	N

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

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Web Address: www.percengineering.com

COMPANY NAME: Quality Coal, Inc.
MINE NAME: Sparks Branch Mine
DRILL HOLE: QCSBMW1A

COLLECTED BY: Client
DATE COLLECTED: 08/08/2007
ANALYZED BY: BS
DATE ANALYZED: 09/28/2007

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
0.00	5.00	4.090	0.050	1.563	11.250	9.688	N
5.00	10.00	4.630	0.040	1.250	11.250	10.000	N
10.00	15.00	5.150	0.060	1.875	12.500	-0.250	N
15.00	18.00	5.190	0.050	1.563	12.500	10.938	N
18.00	20.00	5.400	0.020	0.625	20.000	19.375	N
20.00	25.00	7.320	0.080	2.500	40.000	37.500	N
25.00	30.00	7.180	0.080	2.500	45.000	42.500	N
30.00	35.00	7.920	0.080	2.500	47.500	45.000	N
35.00	40.00	6.880	0.160	5.000	46.250	41.250	N
40.00	45.00	7.940	0.040	1.250	47.500	46.250	N
45.00	50.00	7.940	0.290	9.063	48.750	39.688	N
50.00	55.00	7.720	0.290	9.063	17.500	8.438	N
55.00	60.00	7.760	0.900	28.125	32.500	4.375	N
60.00	65.00	7.750	0.760	23.750	48.750	25.000	N
65.00	70.00	7.990	0.430	13.438	48.750	35.313	N
70.00	75.00	7.790	0.090	2.813	48.750	45.938	N
75.00	80.00	7.390	0.140	4.375	48.750	44.375	N
80.00	85.00	7.760	0.200	6.250	49.370	43.120	N
85.00	90.00	8.000	0.110	3.438	49.370	45.933	N
90.00	95.00	7.440	0.260	8.125	47.500	39.375	N
95.00	98.00	5.950	0.460	14.375	46.250	31.875	N
98.00	98.50 Coal		0.690	21.563 Coal		COAL	***
98.50	105.00	7.710	1.610	50.313	47.500	-2.813	N
105.00	110.00	8.020	0.440	13.750	48.750	35.000	N
110.00	115.00	8.000	0.060	1.875	44.370	42.495	N
115.00	120.00	7.780	0.090	2.813	45.000	42.188	N
120.00	126.00	8.260	0.040	1.250	47.500	46.250	N
126.00	128.25 Coal		0.520	16.250 Coal		COAL	***
128.25	130.00	8.070	0.090	2.813	31.250	28.438	N
130.00	135.00	8.510	0.080	2.500	40.000	37.500	N
**AVERAGE		5.349	0.273	8.526	39.784	31.258	N

*Calculated in tons CaCo3 per 1000 tons of material.
**Averages do not include coal seam to be mined or intervals below lowest seam.
***Not analyzed

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR **Quality Coal Co., Inc.**

PERMIT NO: DRILL HOLE: **QCS2MW-2**

COUNTY: **Walker** TOWNSHIP:

THRESHOLI	SULFUR	NP	FIZZ
VALUES:	0	0.00	0

CLAY	CL	3450	
SHALE	SH	3700	
SILTSTONE	ST	3750	ALK ADD(tns/ac CaCO3):
SANDSTONE	SS	3670	COAL SEAMS:
LIMESTONE	LS	3670	STATE PLANE ZONE:
COAL	CO	1800	FEET (NORTH/SOUTH):
CARBONOLIT	CB	2580	FEET (EAST/WEST):
OTHER	OT	3670	SURFACE ELEV. (FT):

BOTTOM DEPTH (FT)	THICKNESS FEET	ROCK TYPE	FIZZ RATING	SULFUR %	NP	DEFICIENCY /EXCESS	ACREAGE	UNIT WT TONS/AC-FT	FRACTION SPOILED	TONS MPA	TONS NP	NET NP (TONS)	TONS OF OVERBURDEN
5.00	5.00	CL	0	0.06	0.50	-1.47	1.66	3450	1.00	56.29	14.30	-41.99	28592
10.00	5.00	CL	0	0.08	2.50	0.13	3.32	3450	1.00	135.81	142.96	7.15	57185
15.00	5.00	SS	0	0.06	4.50	2.53	4.97	3670	1.00	179.64	410.61	230.97	91247
20.00	5.00	SH	0	0.07	8.00	5.78	6.63	3700	1.00	272.14	981.25	709.11	122657
25.00	5.00	SH	0	0.10	10.25	7.19	8.29	3700	1.00	469.55	1571.54	1101.99	153321
30.00	5.00	SH	0	0.11	18.50	14.94	9.95	3700	1.00	655.45	3403.72	2748.28	183985
35.00	5.00	SH	0	0.13	19.25	15.09	11.60	3700	1.00	892.14	4132.00	3239.86	214649
40.00	5.00	SH	0	0.13	20.00	15.88	13.26	3700	1.00	1011.92	4906.27	3894.35	245313
45.00	5.00	SH	0	0.18	19.25	13.50	14.92	3700	1.00	1586.87	5312.57	3725.70	275978
50.00	5.00	SH	0	0.14	19.50	15.00	16.58	3700	1.00	1379.89	5979.52	4599.63	306642
55.00	5.00	SH	0	0.28	25.00	16.19	18.23	3700	1.00	2972.51	8432.65	5460.14	337306
60.00	5.00	SH	0	0.58	23.00	4.88	19.89	3700	1.00	6669.46	8463.32	1793.85	367970
65.00	5.00	SH	0	0.69	24.00	2.50	21.55	3700	1.00	8570.64	9567.23	996.59	398634
70.00	5.00	SH	0	0.76	23.50	-0.22	23.21	3700	1.00	10182.43	10088.52	-93.91	429299
75.00	5.00	SH	0	0.75	22.75	-0.53	24.86	3700	1.00	10708.51	10464.15	-244.36	459963
80.00	5.00	SH	0	0.51	23.00	7.09	26.52	3700	1.00	7804.04	11284.42	3480.38	490627
85.00	5.00	SH	0	0.31	20.25	10.69	28.18	3700	1.00	4984.85	10556.15	5571.30	521291
90.00	5.00	SH	0	0.29	21.50	12.50	29.84	3700	1.00	4967.60	11867.04	6899.44	551955
95.00	5.00	SH	0	0.21	20.25	13.63	31.49	3700	1.00	3859.85	11798.05	7938.19	582620
100.00	5.00	SH	0	0.18	24.00	18.25	33.15	3700	1.00	3526.38	14718.81	11192.43	613284
105.00	5.00	SH	0	0.78	20.25	-4.22	34.81	3700	1.00	15756.60	13039.94	-2716.66	643948
106.00	1.00	CO		2.30	0.00	-71.88	35.14	1800	0.17	754.66	0.00	-754.66	10500
110.00	4.00	SH	0	0.65	13.75	-6.41	36.47	3700	1.00	10878.12	7420.73	-3457.39	539690
115.00	5.00	SH	0	0.42	16.50	3.31	38.12	3700	1.00	9300.83	11637.06	2336.23	705276
120.00	5.00	SH	0	0.19	19.00	13.13	39.78	3700	1.00	4323.65	13982.87	9659.22	735940
125.00	5.00	SH	0	0.25	18.00	10.25	41.44	3700	1.00	5941.19	13798.88	7857.70	766605
125.60	0.60	SH	0	0.26	22.25	14.13	41.64	3700	1.00	751.03	2056.66	1305.63	92434
127.60	2.00	CO		0.57	0.00	-17.66	42.30	1800	0.08	223.97	0.00	-223.97	12685
132.60	5.00	SH	0	0.17	7.00	1.78	27.06	3700	1.00	2612.86	3504.68	891.81	500668
137.60	5.00	SH	0	0.16	6.75	1.69	28.08	3700	1.00	2630.21	3506.94	876.74	519547
140.60	3.00	SH	0	0.37	5.25	-6.16	28.70	3700	1.00	3633.17	1672.25	-1960.92	318525
141.60	1.00	CO		3.66	0.00	-114.38	28.90	1800	0.17	991.23	0.00	-991.23	8667

TOTAL OVERBURDEN VOL.(ACRE-FT):	3062	TOTAL (TONS):	128683.47	204715.08	76031.60	11287001
PERCENT SANDSTONE:	1%	TOTAL (TONS/THOUSAND):	11.4010	18.1372	6.74	
NP/MPA RATIO:	1.59					
TONS/ACRE REQUIRED (1:1):	2631 EXCESS					

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR **Quality Coal Co., Inc.**

PERMIT NO: DRILL HOLE: **QCS2MW-4**

COUNTY: **Walker** TOWNSHIP:

THRESHOLI	SULFUR	NP	FIZZ
VALUES:	0	0.00	0

CLAY	CL	3450	
SHALE	SH	3700	
SILTSTONE	ST	3750	ALK ADD(tns/ac CaCO3):
SANDSTONE	SS	3670	COAL SEAMS:
LIMESTONE	LS	3670	STATE PLANE ZONE:
COAL	CO	1800	FEET (NORTH/SOUTH):
CARBONOLIT	CB	2580	FEET (EAST/WEST):
OTHER	OT	3670	SURFACE ELEV. (FT):

BOTTOM DEPTH (FT)	THICKNESS FEET	ROCK TYPE	FIZZ RATING	SULFUR %	NP	DEFICIENCY /EXCESS	ACREAGE	UNIT WT TONS/AC-FT	FRACTION SPOILED	TONS MPA	TONS NP	NET NP (TONS)	TONS OF OVERBURDEN
5.00	5.00	SH	0	0.03	1.25	0.25	2.86	3700	1.00	52.97	66.22	13.24	52974
10.00	5.00	SH	0	0.03	2.25	1.19	5.73	3700	1.00	112.57	238.38	125.81	105947
15.00	5.00	SH	0	0.04	3.00	1.84	8.59	3700	1.00	183.75	476.76	293.01	158921
20.00	5.00	SH	0	0.03	7.00	6.03	11.45	3700	1.00	205.27	1483.26	1277.99	211894
25.00	5.00	SH	0	0.03	7.25	6.25	14.32	3700	1.00	264.87	1920.29	1655.42	264868
30.00	5.00	SH	0	0.07	7.00	4.69	17.18	3700	1.00	735.01	2224.89	1489.88	317841
35.00	5.00	SH	0	0.10	15.25	12.25	20.04	3700	1.00	1112.44	5654.93	4542.48	370815
40.00	5.00	SH	0	0.09	22.00	19.31	22.91	3700	1.00	1138.93	9323.35	8184.42	423789
45.00	5.00	SH	0	0.10	16.75	13.66	25.77	3700	1.00	1474.98	7985.77	6510.78	476762
50.00	5.00	SH	0	0.09	20.50	17.59	28.63	3700	1.00	1539.54	10859.58	9320.04	529736
55.00	5.00	SH	0	0.12	24.50	20.91	31.50	3700	1.00	2094.11	14276.38	12182.27	582709
60.00	5.00	SH	1	0.14	73.50	69.03	34.36	3700	1.00	2840.71	46722.69	43881.98	635683
65.00	5.00	SH	1	0.29	47.50	38.47	37.22	3700	1.00	6219.43	32711.18	26491.75	688656
70.00	5.00	SH	1	0.54	76.25	59.47	40.09	3700	1.00	12445.48	56549.28	44103.81	741630
75.00	5.00	SH	0	0.68	20.00	-1.38	42.95	3700	1.00	16984.65	15892.07	-1092.58	794604
80.00	5.00	SH	0	0.30	24.50	15.16	45.81	3700	1.00	7919.55	20765.64	12846.09	847577
85.00	5.00	SH	0	0.14	20.00	15.78	48.68	3700	1.00	3799.20	18011.01	14211.82	900551
90.00	5.00	SH	0	0.26	18.00	9.81	51.54	3700	1.00	7806.98	17163.44	9356.46	953524
95.00	5.00	SH	0	0.16	20.50	15.66	54.41	3700	1.00	4875.22	20633.20	15757.98	1006498
100.00	5.00	SH	0	0.13	24.25	20.22	57.27	3700	1.00	4270.99	25692.18	21421.19	1059471
105.00	5.00	SH	0	0.97	20.00	-10.38	60.13	3700	1.00	33790.51	22248.90	-11541.62	1112445
105.80	0.80	CO		1.09	0.00	-34.06	60.59	1800	0.21	619.15	0.00	-619.15	18177
110.00	4.20	SH	0	0.19	7.25	1.22	63.00	3700	1.00	5904.30	7097.40	1193.10	978952
115.00	5.00	SH	0	0.16	13.00	7.88	65.86	3700	1.00	6244.26	15839.10	9594.84	1218392
120.00	5.00	SH	0	0.12	16.25	12.56	68.72	3700	1.00	4688.16	20659.69	15971.53	1271366
125.00	5.00	SH	0	0.10	12.25	9.16	71.59	3700	1.00	4097.17	16223.16	12125.98	1324339
130.00	5.00	SH	0	0.10	14.25	11.19	74.45	3700	1.00	4218.02	19626.71	15408.69	1377313
134.00	4.00	SH	0	0.08	15.25	12.72	76.74	3700	1.00	2874.88	17320.24	14445.36	1135753
136.20	2.20	CO		0.43	0.00	-13.38	78.00	1800	0.08	312.94	0.00	-312.94	23398
TOTAL OVERBURDEN VOL.(ACRE-FT):		5305				TOTAL (TONS):				138826.06	427665.68	288839.62	19584583
PERCENT SANDSTONE:		0%				TOTAL (TONS/THOUSAND):				7.0885	21.8369	14.75	
NP/MPA RATIO:		3.08											
TONS/ACRE REQUIRED (1:1):		3703	EXCESS										

OVERBURDEN ANALYSIS SPREADSHEET
OPERATOR **Quality Coal Co., Inc.**
PERMIT NO: DRILL HOLE: QCS2DH-6
COUNTY: **Walker** TOWNSHIP:

THRESHOLI	SULFUR	NP	FIZZ
VALUES:	0	0.00	0

CLAY	CL	3450	
SHALE	SH	3700	
SILTSTONE	ST	3750	ALK ADD(tns/ac CaCO3):
SANDSTONE	SS	3670	COAL SEAMS:
LIMESTONE	LS	3670	STATE PLANE ZONE:
COAL	CO	1800	FEET (NORTH/SOUTH):
CARBONOLIT	CB	2580	FEET (EAST/WEST):
OTHER	OT	3670	SURFACE ELEV. (FT):

BOTTOM DEPTH (FT)	THICKNESS FEET	ROCK TYPE	FIZZ RATING	SULFUR %	NP	DEFICIENCY /EXCESS	ACREAGE	UNIT WT TONS/AC-FT	FRACTION SPOILED	TONS MPA	TONS NP	NET NP (TONS)	TONS OF OVERBURDEN
5.00	5.00	OT	0	0.02	0.00	-0.53	5.94	3670	1.00	57.95	0.11	-57.84	109082
10.00	5.00	SH	0	0.02	0.50	-0.13	11.89	3700	1.00	137.47	109.97	-27.49	219947
15.00	5.00	SH	0	0.02	2.00	1.34	17.83	3700	1.00	216.51	659.84	443.33	329921
20.00	5.00	SH	0	0.02	3.25	2.59	23.78	3700	1.00	288.68	1429.66	1140.98	439894
25.00	5.00	SH	0	0.02	3.50	2.94	29.72	3700	1.00	309.30	1924.54	1615.24	549868
30.00	5.00	SH	0	0.01	3.50	3.06	35.67	3700	1.00	288.68	2309.45	2020.76	659841
35.00	5.00	SH	0	0.08	13.00	10.63	41.61	3700	1.00	1828.31	10007.60	8179.29	769815
40.00	5.00	SH	0	0.08	16.50	13.88	47.56	3700	1.00	2309.45	14516.51	12207.07	879789
45.00	5.00	SH	0	0.09	17.50	14.78	53.50	3700	1.00	2690.92	17320.84	14629.92	989762
50.00	5.00	SH	0	0.12	18.25	14.53	59.45	3700	1.00	4089.64	20070.18	15980.54	1099736
55.00	5.00	SH	0	0.11	18.75	15.41	65.39	3700	1.00	4044.97	22682.05	18637.09	1209709
60.00	5.00	SH	0	0.16	18.75	13.78	71.33	3700	1.00	6557.17	24744.06	18186.88	1319683
65.00	5.00	SH	0	0.10	18.75	15.75	77.28	3700	1.00	4288.97	26806.06	22517.09	1429657
70.00	5.00	SH	0	0.17	20.00	14.72	83.22	3700	1.00	8131.17	30792.60	22661.43	1539630
75.00	5.00	SH	0	0.51	22.25	6.28	89.17	3700	1.00	26342.11	36703.68	10361.57	1649604
80.00	5.00	SH	0	0.73	21.25	-1.69	95.11	3700	1.00	40360.30	37391.02	-2969.29	1759577
85.00	5.00	SH	0	0.58	22.50	4.31	101.06	3700	1.00	34002.46	42064.89	8062.44	1869551
90.00	5.00	SH	0	0.27	23.75	15.28	107.00	3700	1.00	16764.10	47013.71	30249.61	1979524
95.00	5.00	SH	0	0.29	18.75	9.81	112.95	3700	1.00	18674.89	39178.09	20503.20	2089498
100.00	5.00	SH	0	0.16	20.00	15.06	118.89	3700	1.00	10859.89	43989.43	33129.54	2199472
105.00	5.00	SH	0	0.24	21.75	14.38	124.83	3700	1.00	17032.16	50230.43	33198.27	2309445
110.00	5.00	SH	0	0.17	22.50	17.13	130.78	3700	1.00	13004.38	54436.92	41432.55	2419419
115.00	5.00	SH	0	0.32	21.25	11.41	136.72	3700	1.00	24898.71	53749.59	28850.88	2529392
120.00	5.00	SH	0	0.73	19.75	-3.06	142.67	3700	1.00	60210.54	52127.48	-8083.06	2639366
121.00	1.00	SH	0	0.69	19.25	-2.22	143.86	3700	1.00	11427.22	10246.24	-1180.98	532272
121.80	0.80	CO		1.91	0.00	-59.69	144.81	1800	0.09	1151.28	0.00	-1151.28	19288
125.00	3.20	SH	0	0.69	8.50	-13.16	148.61	3700	1.00	38105.85	14956.41	-23149.44	1759577
130.00	5.00	SH	0	0.07	16.25	14.09	154.56	3700	1.00	6165.39	46463.84	40298.44	2859313
135.00	5.00	SH	0	0.04	16.25	14.97	160.50	3700	1.00	3804.40	48250.91	44446.51	2969287
137.00	2.00	SH	0	0.07	12.75	10.47	162.88	3700	1.00	2749.61	15367.71	12618.09	1205310
139.00	2.00	CO		0.51	0.00	-15.97	165.26	1800	0.08	791.66	0.00	-791.66	49575
140.00	1.00	SH	0	0.11	11.75	8.31	166.45	3700	1.00	2116.99	7236.26	5119.27	615852
145.00	5.00	SH	0	0.09	6.25	3.31	172.39	3700	1.00	9368.37	19932.71	10564.34	3189234
150.00	5.00	SH	0	0.05	6.25	4.72	178.34	3700	1.00	5051.91	20620.05	15568.13	3299207
151.40	1.40	CO		1.13	0.00	-35.31	180.00	1800	0.12	1906.11	0.00	-1906.11	53978

TOTAL OVERBURDEN VOL.(ACRE-FT):	13426	TOTAL (TONS):	380027.50	813332.81	433305.31	49544077
PERCENT SANDSTONE:	0%	TOTAL (TONS/THOUSAND):	7.6705	16.4163	8.75	
NP/MPA RATIO:	2.14					
TONS/ACRE REQUIRED (1:1):	2407 EXCESS					

OVERBURDEN ANALYSIS SPREADSHEET
OPERATOR: Quality Coal Co Inc.
PERMIT NO: DRILL HOLE: QCSBMW1A
COUNTY: Walker

THRESHOLD VALUES: SULFUR 0 NP 0.00 FIZZ 0
NUMBER OF INTERVALS: (enter; Alt A; Alt B [1)A15..A2)A15..A] 11

CLAY	CL	3450	
SHALE	SH	3700	
SILTSTONE	ST	3750	ALK ADD(lns/ac CaCO3):
SANDSTONE	SS	3670	COAL SEAMS:
LIMESTONE	LS	3670	STATE PLANE ZONE:
COAL	CO	1800	FEET (NORTH/SOUTH):
CARBONOLIT	CB	2580	FEET (EAST/WEST):
OTHER	OT	3670	SURFACE ELEV. (FT):

BOTTOM DEPTH (FT)	THICKNESS FEET	ROCK TYPE	FIZZ RATING	SULFUR %	NP	DEFICIENCY /EXCESS	ACREAGE	UNIT WT TONS/AC-FT	FRACTION SPOILED	TONS MPA	TONS NP	NET NP (TONS)	TONS OF OVERBURDEN
5.00	5.00	CL	0	0.050	11.25	9.69	1.00	3450	1.00	26.95	194.06	167.11	17250
10.00	5.00	SS	0	0.040	11.25	10.00	4.33	3670	1.00	99.25	893.22	793.98	79398
15.00	5.00	SS	0	0.060	12.50	10.63	6.54	3670	1.00	225.18	1501.20	1276.02	120096
18.00	3.00	SH/SS	0	0.050	12.50	10.94	8.32	3670	1.00	143.11	1144.91	1001.80	91593
20.00	2.00	SH	0	0.020	20.00	19.38	9.43	3700	1.00	43.60	1395.35	1351.74	69767
25.00	5.00	SH	0	0.080	40.00	37.50	10.98	3700	1.00	507.85	8125.60	7617.75	203140
30.00	5.00	SH/SS	0	0.080	45.00	42.50	13.20	3670	1.00	605.48	10898.61	10293.14	242191
35.00	5.00	SH/SS	0	0.080	47.50	45.00	15.42	3670	1.00	707.22	13437.27	12730.04	282890
40.00	5.00	SH/SS	0	0.160	46.25	41.25	17.63	3670	1.00	1617.94	14965.96	13348.02	323588
45.00	5.00	SH/SS	0	0.040	47.50	46.25	19.85	3670	1.00	455.36	17303.62	16848.26	364287
50.00	5.00	SH/SS	0	0.290	48.75	39.69	22.07	3670	1.00	3670.18	19743.03	16072.85	404985
55.00	5.00	SH	0	0.290	17.50	8.44	24.29	3700	1.00	4072.02	7863.22	3791.20	449327
60.00	5.00	SH	0	0.900	32.50	4.38	26.51	3700	1.00	13791.32	15936.63	2145.32	490358
65.00	5.00	SH	0	0.760	48.75	25.00	28.72	3700	1.00	12620.49	25905.22	13284.73	531389
70.00	5.00	SH	0	0.430	48.75	35.31	30.94	3700	1.00	7691.90	27905.49	20213.59	572420
75.00	5.00	SH	0	0.090	48.75	45.94	33.16	3700	1.00	1725.33	29905.75	28180.42	613451
80.00	5.00	SH	0	0.140	48.75	44.38	35.38	3700	1.00	2863.36	31906.02	29042.66	654482
85.00	5.00	SH	0	0.200	49.37	43.12	37.60	3700	1.00	4346.96	34337.51	29990.55	695514
90.00	5.00	SH	0	0.110	49.37	45.93	39.81	3700	1.00	2531.87	36363.21	33831.34	736545
95.00	5.00	SH	0	0.260	47.70	39.58	42.03	3700	1.00	6317.80	37090.37	30772.57	777576
98.00	3.00	SH	0	0.460	46.25	31.88	43.81	3700	1.00	6989.71	22488.62	15498.91	486240
98.50	0.50	CO	0	0.690	0.00	-21.56	44.58	1800	0.33	285.50	0.00	-285.50	13241
105.00	6.50	SH	0	1.610	47.50	-2.81	46.13	3700	1.00	55823.15	52702.60	-3120.55	1109529
110.00	5.00	SH	0	0.440	48.75	35.00	48.68	3700	1.00	12384.20	43907.63	31523.42	900669
115.00	5.00	SS	0	0.060	44.37	42.50	50.90	3670	1.00	1751.37	41444.46	39693.09	934065
120.00	5.00	SH/SS	0	0.090	45.00	42.19	53.12	3670	1.00	2741.52	43864.35	41122.83	974763
126.00	6.00	SH	0	0.040	47.50	46.25	55.56	3700	1.00	1541.80	58588.35	57046.55	1233439
128.25	2.25	CO	0	0.520	0.00	-16.25	57.39	1800	0.10	377.70	0.00	-377.70	23243
128.50	0.25	SH	0	0.090	31.25	28.44	58.00	3700	1.00	150.89	1676.56	1525.67	53650
										146109.04	601488.85	455379.81	13449087
										10.86	44.72	33.86	

TOTAL OVERBURDEN VOL.(ACRE-FT): 3654
PERCENT SANDSTONE: 8%
NP/MPA RATIO: 4.12
TONS/ACRE REQUIRED (1:1): 7851 EXCESS

TOTAL (TONS):
TOTAL (TONS/THOUSAND):

PERC ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: OB-1

ANALYZED BY: JLR

SAMPLE WEIGHT: 4191.6 (GRAMS)

LAB ID: 7093

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	100.0	100.0	0.0	0.00	0.00	100.00
1/2"	438.2	100.0	338.2	8.07	8.07	91.93
1/4"	633.5	100.0	533.5	12.73	20.80	79.20
3/16"	258.7	100.0	158.7	3.79	24.59	75.41
2 MM	404.3	100.0	304.3	7.26	31.84	68.16
SOIL	2956.9	100.0	2856.9	68.16	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 31.84

% OF SAMPLE THAT IS SOIL : 68.16

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COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: OB-2

ANALYZED BY: JLR

SAMPLE WEIGHT: 4476.6 (GRAMS)

LAB ID: 7094

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	100.0	100.0	0.0	0.00	0.00	100.00
1/2"	547.1	100.0	447.1	9.99	9.99	90.01
1/4"	1044.4	100.0	944.4	21.10	31.09	68.91
3/16"	344.2	100.0	244.2	5.46	36.55	63.45
2 MM	623.0	100.0	523.0	11.68	48.22	51.78
SOIL	2417.9	100.0	2317.9	51.78	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 48.22

% OF SAMPLE THAT IS SOIL : 51.78

PERC ENGINEERING CO., INC.

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Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: OB-3

ANALYZED BY: JLR

SAMPLE WEIGHT: 4157.9 (GRAMS)

LAB ID: 7095

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	249.2	100.0	149.2	3.59	3.59	96.41
1/2"	421.5	100.0	321.5	7.73	11.32	88.68
1/4"	663.1	100.0	563.1	13.54	24.86	75.14
3/16"	315.8	100.0	215.8	5.19	30.05	69.95
2 MM	342.3	100.0	242.3	5.83	35.88	64.12
SOIL	2766.0	100.0	2666.0	64.12	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 35.88

% OF SAMPLE THAT IS SOIL : 64.12

PERC ENGINEERING CO., INC.

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(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: OB-4

ANALYZED BY: JLR

SAMPLE WEIGHT: 4513.9 (GRAMS)

LAB ID: 7096

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	100.0	100.0	0.0	0.00	0.00	100.00
1/2"	763.8	100.0	663.8	14.71	14.71	85.29
1/4"	813.5	100.0	713.5	15.81	30.52	69.48
3/16"	362.2	100.0	262.2	5.81	36.33	63.67
2 MM	671.5	100.0	571.5	12.66	48.98	51.02
SOIL	2402.9	100.0	2302.9	51.02	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 48.98

% OF SAMPLE THAT IS SOIL : 51.02

PERC
ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: OB-5

ANALYZED BY: JLR

SAMPLE WEIGHT: 4611.1 (GRAMS)

LAB ID: 7097

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	164.0	100.0	64.0	1.39	1.39	98.61
1/2"	719.7	100.0	619.7	13.44	14.83	85.17
1/4"	1031.3	100.0	931.3	20.20	35.03	64.97
3/16"	410.9	100.0	310.9	6.74	41.77	58.23
2 MM	639.4	100.0	539.4	11.70	53.47	46.53
SOIL	2245.8	100.0	2145.8	46.53	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 53.47

% OF SAMPLE THAT IS SOIL : 46.53

PERC
ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: OB-6

ANALYZED BY: JLR

SAMPLE WEIGHT: 4207.2 (GRAMS)

LAB ID: 7098

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	100.0	100.0	0.0	0.00	0.00	100.00
1/2"	405.3	100.0	305.3	7.26	7.26	92.74
1/4"	686.1	100.0	586.1	13.93	21.19	78.81
3/16"	338.0	100.0	238.0	5.66	26.85	73.15
2 MM	704.7	100.0	604.7	14.37	41.22	58.78
SOIL	2573.1	100.0	2473.1	58.78	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 41.22

% OF SAMPLE THAT IS SOIL : 58.78

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Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: STE-1

ANALYZED BY: JLR

SAMPLE WEIGHT: 4581.3 (GRAMS)

LAB ID: 7099

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	503.0	100.0	403.0	8.80	8.80	91.20
1/2"	576.0	100.0	476.0	10.39	19.19	80.81
1/4"	637.4	100.0	537.4	11.73	30.92	69.08
3/16"	332.5	100.0	232.5	5.07	35.99	64.01
2 MM	417.5	100.0	317.5	6.93	42.92	57.08
SOIL	2714.9	100.0	2614.9	57.08	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 42.92

% OF SAMPLE THAT IS SOIL : 57.08

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(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: STE-2

ANALYZED BY: JLR

SAMPLE WEIGHT: 4098.3 (GRAMS)

LAB ID: 7100

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	152.4	100.0	52.4	1.28	1.28	98.72
1/2"	342.0	100.0	242.0	5.90	7.18	92.82
1/4"	637.8	100.0	537.8	13.12	20.30	79.70
3/16"	297.6	100.0	197.6	4.82	25.12	74.88
2 MM	394.2	100.0	294.2	7.18	32.30	67.30
SOIL	2874.3	100.0	2774.3	67.67	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 32.30

% OF SAMPLE THAT IS SOIL : 67.70

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Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: STE-3

ANALYZED BY: JLR

SAMPLE WEIGHT: 3761.2 (GRAMS)

LAB ID: 7101

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	548.4	100.0	448.4	11.92	11.92	88.08
1/2"	668.5	100.0	568.5	15.11	27.03	72.97
1/4"	467.7	100.0	367.7	9.78	36.81	63.19
3/16"	287.7	100.0	187.7	4.99	41.80	58.20
2 MM	377.8	100.0	277.8	7.39	49.19	50.81
SOIL	2011.1	100.0	1911.1	50.81	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 49.19

% OF SAMPLE THAT IS SOIL : 50.81

PERC ENGINEERING CO., INC.

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Facsimile: (205) 295-3114 - Main Building
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: STE-4

ANALYZED BY: JLR

SAMPLE WEIGHT: 3842.8 (GRAMS)

LAB ID: 7102

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	635.0	100.0	535.0	13.92	13.92	86.08
1/2"	674.0	100.0	574.0	14.94	28.86	71.14
1/4"	616.7	100.0	516.7	13.45	42.31	57.69
3/16"	224.5	100.0	124.5	3.24	45.55	54.45
2 MM	337.5	100.0	237.5	6.18	51.73	48.27
SOIL	1955.1	100.0	1855.1	48.27	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 51.73

% OF SAMPLE THAT IS SOIL : 48.27

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Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: ToD-1

ANALYZED BY: JLR

SAMPLE WEIGHT: 2967.7 (GRAMS)

LAB ID: 7103

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	100.0	100.0	0.0	0.00	0.00	100.00
1/2"	111.8	100.0	11.8	0.40	0.40	99.60
1/4"	131.2	100.0	31.2	1.05	1.45	98.55
3/16"	115.9	100.0	15.9	0.54	1.99	98.01
2 MM	137.8	100.0	37.8	1.27	3.26	96.74
SOIL	2971.0	100.0	2871.0	96.74	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 3.26

% OF SAMPLE THAT IS SOIL : 96.74

PERC ENGINEERING CO., INC.

Telephone: (205) 384-5553
Facsimile: (205) 295-3114 - Main Buildin
(205) 295-3115 - Water Lab
Web Address: www.percengineering.com

COMPANY NAME: Quality Coal Inc.

DATE SAMPLED: 3/24/2010

MINE NAME: Sparks Branch No. 2

DATE ANALYZED: 4/12/2010

SOIL / OVERBURDEN: ToD-2

ANALYZED BY: JLR

SAMPLE WEIGHT: 3077.2 (GRAMS)

LAB ID: 7104

TOPSOIL VARIANCE SIEVE ANALYSIS

SIEVE NUMBER	WT. SIEVE + SAMPLE (GRAMS)	WT. SIEVE (GRAMS)	WT. SAMPLE RETAINED (GRAMS)	PERCENT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT PASSING
1"	100.0	100.0	0.0	0.00	0.00	100.00
1/2"	119.2	100.0	19.2	0.62	0.62	99.38
1/4"	217.4	100.0	117.4	3.82	4.44	95.56
3/16"	180.4	100.0	80.4	2.61	7.05	92.95
2 MM	380.1	100.0	280.1	9.10	16.15	83.85
SOIL	2680.1	100.0	2580.1	83.85	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 16.15

% OF SAMPLE THAT IS SOIL : 83.85

(62)

Report on Soil Test

Auburn University Soil Testing Laboratory

Auburn University, AL 36849-5411

Perc Engineering Corp Inc
P O Box 1712
Jasper, AL 35502

County:Walker
District:1
Test Date:04/14/10

				SOIL TEST RESULTS					RECOMMENDATIONS			
L A B No.	Sample Designation	Crop	Soil Group*	pH**	Phosphorus P***	Potassium K***	Magnesium Mg***	Calcium Ca***	LIME-STONE	N	P_2O_5	K_2O
					Pounds/Acre				Tons/Acre	Pounds/Acre		
16986	Sparks Branch Mine No 2 PO 17623 7093 See Comment 1	Revegetation	4	5.9	VL 5	M 161	H 1262	H 2130	0.0	60	90	40
16987	7094 See Comment 1	Revegetation	4	6.8	VL 4	M 157	H 1673	H 2132	0.0	60	90	40
16988	7095 See Comment 1 See Comment 2	Revegetation	4	5.5	L 25	H 247	H 2141	H 1951	1.5	60	70	0
16989	7096 See Comment 1	Revegetation	4	7.0	VL 0	H 220	H 1606	H 2237	0.0	60	100	0
16990	7097 See Comment 1	Revegetation	4	7.3	VL 18	H 232	H 1589	H 2255	0.0	60	70	0
16991	7098 See Comment 1	Revegetation	4	6.8	VL 0	H 307	H 2086	H 2692	0.0	60	100	0
16992	7099 See Comment 1 See Comment 2	Revegetation	4	4.0	L 19	M 146	H 1293	M 247	2.5	60	70	40
16993	7100 See Comment 1 See Comment 2	Revegetation	4	4.0	L 36	H 202	H 1172	H 419	4.0	60	50	0

* 1. Sandy soil (CEC < 4.6 $cmol_c kg^{-1}$)
* 2. Loams and Light clays (CEC = 4.6-9.0 $cmol_c kg^{-1}$)
* 3. Clays and soils high in organic matter (CEC > 9.0 $cmol_c kg^{-1}$)
* 4. Clays of the Blackbelt (CEC > 9.0 $cmol_c kg^{-1}$)

** 7.4 or higher - Alkaline - - - - - - - - - - - - - - 6.6-7.3 - Neutral - - - - - - - - - - - - - 6.5 or lower - Acid - - - - - - - - - - - - -5.5 or lower - Strong Acid

*** Extractable nutrients in pounds per acre

If soil group = 1, 2 or 3. Method of Analysis = Mehlich-1. If soil group = 4, Method of Analysis = Miss/Lancaster.

Approved by:

Print Date: 05 May 2010

Report on Soil Test

Auburn University Soil Testing Laboratory

Auburn University, AL 36849-5411

Perc Engineering Corp Inc

P O Box 1712

Jasper, AL 35502

County:Walker

District:1

Test Date:04/14/10

				SOIL TEST RESULTS					RECOMMENDATIONS			
L A B No.	Sample Designation	Crop	S o i l Group*	pH**	Phosphorus P***	Potassium K***	Magnesium Mg***	Calcium Ca***	LIME-STONE	N	P_2O_5	K_2O
					Pounds/Acre				Tons/Acre	Pounds/Acre		
16994	7101 See Comment 1 See Comment 2	Revegetation	4	4.8	L 20	H 208	H 598	H 735	3.0	60	70	0
16995	7102 See Comment 1 See Comment 2	Revegetation	4	4.6	VL 17	M 163	H 452	H 472	3.0	60	80	40
16996	7103 See Comment 1 See Comment 2	Revegetation	4	4.6	H 90	M 127	H 310	H 525	3.0	60	0	40
16997	7104 See Comment 1 See Comment 2	Revegetation	4	4.9	VH 242	M 178	H 674	H 2797	3.5	60	0	40

Comment No.1: For perennial winter grass pasture, apply N, P, and K as recommended by September 1. Repeat N application in February. If grass is to be cut for hay, in February apply up to 40 pounds N and 35 pounds K2O per ton of anticipated hay yield.

Comment No.2: Soil acidity (low pH) can be corrected with either dolomitic or calcitic lime.

The number of samples processed in this report is: 12

For further information call your county agent: (205) 221-3392

* 1. Sandy soil (CEC < 4.6 $cmol_c kg^{-1}$)

* 2. Loams and Light clays (CEC = 4.6-9.0 $cmol_c kg^{-1}$)

* 3. Clays and soils high in organic matter (CEC > 9.0 $cmol_c kg^{-1}$)

* 4. Clays of the Blackbelt (CEC > 9.0 $cmol_c kg^{-1}$)

** 7.4 or higher - Alkaline - - - - - - - - - - - - - - 6.6-7.3 - Neutral - - - - - - - - - - - - - 6.5 or lower - Acid - - - - - - - - - - - - -5.5 or lower - Strong Acid

*** Extractable nutrients in pounds per acre

If soil group = 1, 2 or 3, Method of Analysis = Mehlich-1. If soil group = 4, Method of Analysis = Miss/Lancaster.

Approved by:

Print Date: 05 May 2010

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co., Inc
PO Box 1712
Jasper, AL 35502
County: Walker

ALFA Agricultural Service & Research Building
961 S. Donahue Dr.
Auburn University, Auburn, AL 36849-5411
Phone (334) 844-3958
Soillab@auburn.edu

Mine Name and Location: Quality Coal Inc-Sparks Branch Mine No.2 **Special Analysis #: S1849-S1854** **PO #: 17623 7093**

Lab ID	Sample ID	Sulfur (S) %					Organic Matter (OM) %	Nitrate Nitrogen (NO_3-N) ppm	Neutralizing Potential Tons $CaCO_3$ per 1000 Tons material	Maximum Potential Acidity (MPA)	Particle Size				H_2O Availability cm/cm
		Rep 1	Rep 2	Rep 3	Rep 4	Avg					% Sand	% Silt	% Clay	Textural Class	
16986	7093	0.047	0.038	0.040	0.035	0.040	4.2	6.4	4.78	1.24	27.5	48.75	23.75	Loam	0.16
16987	7094	0.064	0.108	0.073	0.068	0.078	4.6	4.3	7.16	2.44	45	27.5	27.5	Clay Loam/Sandy Clay Loam	0.12
16988	7095	0.047	0.045	0.045	0.045	0.046	4.3	3.9	4.07	1.43	30	41.87	28.12	Clay Loam	0.15
16989	7096	0.202	0.050	0.176	0.055	0.121	1.6	10.7	7.40	3.78	47.5	25	27.5	Sandy Clay Loam	0.12
16990	7097	0.363	0.209	0.293	0.189	0.264	2.2	8.4	11.68	8.24	48.75	23.75	27.5	Sandy Clay Loam	0.11
16991	7098	0.317	0.259	0.283	0.323	0.296	1.8	37.9	10.73	9.25	43.75	26.25	30	Clay Loam	0.12

ppm: Stands for parts per million. One part per million is equivalent to 1 pound of an element dissolved in 1,000,000 pounds of water. One part per million is the same as one milligram per liter (mg/L).

Approved by: Gobena Huluka Date: 5-4-10

APPENDIX 3

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co., Inc
PO Box 1712
Jasper, AL 35502
County: Walker

ALFA Agricultural Service & Research Building
961 S. Donahue Dr.
Auburn University, Auburn, AL 36849-5411
Phone (334) 844-3958
Soillab@auburn.edu

Mine Name and Location: Quality Coal Inc-Sparks Branch Mine No.2 **Special Analysis #: 10.S1855-S1860** **PO #: 17623 7093**

Lab ID	Sample ID	Sulfur (S) %	Organic Matter (OM) %	Nitrate Nitrogen (NO_3-N) ppm	Neutralizing Potential Tons $CaCO_3$ per 1000 Tons material	Particle Size				H2O Avail. cm3/cm3
						% Sand	% Silt	% Clay	Textural Class	
16992	7099	0.0343	1.0	8.2	<1.0	50.0	25.0	25.0	Sandy Clay Loam	0.11
16993	7100	0.0287	2.5	8.9	<1.0	30.0	42.5	27.5	Clay Loam	0.15
16994	7101	0.0310	4.4	12.8	<1.0	40.0	37.5	22.5	Loam	0.13
16995	7102	0.0274	4.5	2.1	<1.0	25.0	55.0	20.0	Silt Loam	0.16
16996	7103	0.0260	4.8	3.2	<1.0	53.8	31.3	15.0	Sandy Loam	0.12
16997	7104	0.0355	7.5	6.6	1.4	27.5	47.5	25.0	Loam	0.16

ppm: Stands for parts per million. One part per million is equivalent to 1 pound of an element dissolved in 1,000,000 pounds of water. One part per million is the same as one milligram per liter (mg/L).

Approved by: Gobena Huluka Date: 5-4-10

APPENDIX 4

Determination of the "Total Available Water Capacity."

Note: Soil & Overburden percentages taken from Appendix 2

SOILS (AVE) :

SAMPLE NUMBER	PERCENT OF SAMPLE 1"	½"	1/4"	2mm
Soil StE-1	8.80	10.39	11.73	12.00
Soil StE-2	1.28	5.90	13.12	12.00
Soil StE-3	11.92	15.11	9.78	12.38
Soil StE-4	13.92	14.94	13.45	9.42
Soil ToD-1	0.00	0.40	1.05	1.81
Soil ToD-2	0.00	0.62	3.82	11.71
AVE:	5.99	7.89	8.83	10.22

5.99% x .0389 in./in. = .0023
7.89% x .0492 in./in. = .0039
8.83% x .0603 in./in. = .0053
10.22% x .1149 in./in. = .0117

< 2mm average from Appendix 2: 67.07

Average available water capacity of < 2mm from Appendix 3 = 0.1383

67.07% x 0.1383 in./in. = .0928

Ave. TAWC for soils = .1160 in./in.

APPENDIX 4 (Continued)

OVERBURDEN (AVE.):

SAMPLE NUMBER	PERCENT OF SAMPLE			
	1"	½"	1/4"	2mm
OB-1	0.00	8.07	12.73	11.05
OB-2	0.00	9.99	21.10	17.15
OB-3	3.59	7.73	13.54	11.02
OB-4	0.00	14.71	15.81	18.47
OB-5	1.39	13.44	20.20	18.44
OB-6	0.00	7.26	13.93	20.03
AVE:	0.83	10.20	16.22	16.03

0.83% x .0389 in./in. = .0003
10.20% x .0492 in./in. = .0050
16.22% x .0603 in./in. = .0098
16.03% x .1149 in./in. = .0184

< 2mm average from Appendix 2 = 56.72

Average available water capacity of < 2mm from Appendix 3 = .1300

56.72% x .1300 in./in. = .0737

Ave. TAWC for overburden = .1072 in./in.

*Available water capacity values (in./in.) were obtained from Table 1 "A Method of Comparing Soil Materials for Plant Available Water" which was supplied by the Regulatory Authority.

Exhibit 1: Picture of Overburden Sampling site showing texture of overburden.

Exhibit 2: Another picture of Overburden Sampling site showing texture of overburden.

Exhibit 3: Picture of old existing highwall at mine site showing ability of overburden to sustain vegetation.

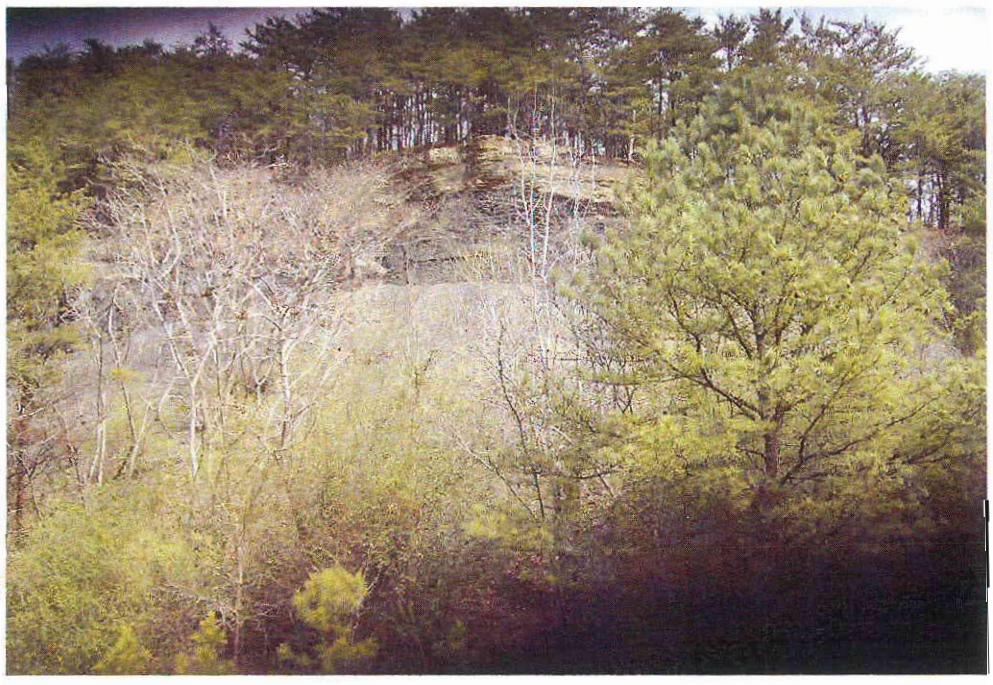


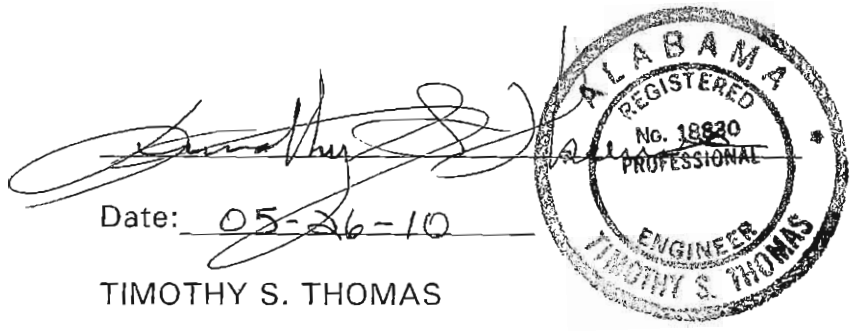
Exhibit 4: Another picture of old highwall at mine site showing revegetation capability of overburden.

Exhibit 5: Picture of Native soil Sampling site showing soil texture and amount of coarse fragments.

Exhibit 6: Picture of existing highwall at Sparks Branch mine showing lithology of overburden at this site.

CERTIFICATION STATEMENT:

The preceding geologic information submitted in the Topsoil Variance Application prepared for Quality Coal Co., Inc. at the Sparks Branch No. 2 Mine site was by a qualified professional and I hereby certify that it is true and correct to the best of my knowledge or belief.



Date: 05-26-10

TIMOTHY S. THOMAS

PROFESSIONAL ENGINEER

LICENSE NO. 18830

OVERBURDEN RESTABILIZATION PLAN

All overburden shall be backfilled, compacted, and graded so that the post mining slope shall approximate the pre-mining slope (See Attachment IV-B-3) and in a timely manner (See Part IV-B-2). Overburden will be rough graded by Caterpillar type dozers. Once the overburden has been rough graded, farm-type tractors will be used to disc the overburden to its final contour, decrease compaction, and increase the mechanical breakage of the surface layer. Rocks 24" in diameter that remain upon the surface, if any, will be collected and buried. At this time the following criteria will be used to evaluate the textural quality of the graded overburden:

a) Rocks of a size greater than 10" shall not exceed 10% by weight of the substitute material.

b) The substitute material shall not contain more than 10% by weight of materials between 10 and 3 inches in size.

c) The substitute material shall not contain more than 50% by weight of materials between 3 and .75 inches in size.

d) At least 30% by weight of the substitute material shall be of a size less than 2 millimeters.

Sampling frequency shall be 1 sample/10 acres. Overburden sampling shall be identical to the guidelines set forth in the "Sampling Technics" section of Attachment IV-C-2.

If this criteria is not met, Quality Coal Co., Inc. shall redisc the overburden and resample. If increasing the mechanical breakage will not enhance the graded overburden to a satisfactory level, additional soil will be hauled and spread on site or rocks collected and buried until the above criteria is achieved.

C.Revegetation

(1) Outline procedures for soil testing required to determine type and amount of soil amendments to be applied and to evaluate results of topsoil handling and replacement. (780.18, 816.25)

Once the texture criteria for final graded overburden has been met as outlined on Attachment IV-C-2, the final texture samples taken shall be sent to the Auburn University Soil Testing Laboratory where the following tests shall be conducted: % sand, silt, & clay, textural classification, pH, total sulfur, acid-base account, fertility ratings for phosphorus, potassium, and magnesium, and amendment recommendations for post mining revegetation for limestone, nitrogen, P_2O_5 and K_2O. Results of this analysis will be used to determine the amount of soil amendments, if any, to be applied to the plant medium and will be submitted to the Regulatory Authority for review.

(2) Are selected overburden materials to be used as a supplement or substitute for topsoil?

(XXX) Yes ( ) No

If, yes, provide results of analysis, trials, and tests required under Section 816.22(e). (779.21)

See Topsoil Variance Application (Attachment IV-C-2)