Post Office Box 1549
Jasper, Alabama 35502-1549

Telephone: (205) 387-0501
Facsimile: (205) 384-2456

DRUMMOND COMPANY, INC.

July 18, 2012

Mr. Bill Kitchens
Alabama Surface Mining Commission
P. O. Box 2390
Jasper, AL 35502

RE: Shannon, LLC
Shannon Mine No. 3
P-3948/Revision R-7

Dear Mr. Kitchens:

Shannon, LLC is proposing to add 191 acres to its currently permitted Shannon Mine No. 3 permit area. Of the 191 acres; 4 acres are existing roads, 8 acres are proposed sediment basins, 91 acres have been disturbed by previous surface mining, 60 acres have been previously clear cut, replanted and thinned, and 28 acres are undisturbed. Due to the previous disturbance from surface mining and timber cutting activities, no new soil or overburden samples were taken. The soils present in the revision area are the same as the original permit area. The soil and overburden samples from the original Topsoil Variance Application are representative of the area being added by this revision.

As shown on the attached Topsoil Variance Map the soils and overburden material located within the area added by this revision are the same as described in the original Topsoil Variance Application. The area to be added and disturbed by this revision will be used as spoiling area to facilitate mining operations only 4 new mining acres are being added. The only soil present in the newly added area is the Montevallo-Nauvoo association, steep soil, (Soil 29) as described in the "Soil Survey of Jefferson County, Alabama, issued in August of 1982. Attached, please find data of the native soils and overburden material to be used as a substitute material from the original Topsoil Variance Application. As shown in the attached data, the heterogenous overburden at the Shannon Mine No. 3 was observed to be equal to or more suitable for sustaining revegetation than the native soils. Therefore we are requesting to extend the Topsoil Variance to cover 183 acres for spoiling area of the additional 191 acres added by this revision. Please process as necessary.

If you have any questions or require additional information, please feel free to call.

Sincerely,

Keith Madison

Keith Madison, P. G.
Manager of Permitting
For Shannon, LLC

29-Montevallo-Nauvoo association, steep

This map unit consists of soils on strongly dissected areas of sandstone and shale plateaus in the northern and western parts of the county. Extensive surface and deep mining of coal occur in this area. The underlying layers of sandstone, siltstone, shale, and coal are nearly level. The ridges are commonly underlain by sandstone, and the side slopes are generally underlain by shale and siltstone. The soils are in a regular pattern that is closely related to landscape position and underlying parent material. Areas of this map unit are large. Slope ranges from 6 to 55 percent.

Montevallo soils, on the steep sides of ridges, make up about 40 percent of the map unit. Typically, the surface layer is very dark gray shaly silt loam and dark grayish brown shaly silt loam about 6 inches thick. The subsoil is yellowish brown very shaly silt loam about 10 inches thick. The underlying material is weathered siltstone and shale. The slope of Montevallo soils in this map unit is generally more than 15 percent.

Nauvoo soils, on ridgetops and ridge sides, make up about 25 percent of most areas. Typically, the surface layer is dark grayish brown fine sandy loam about 6 inches thick. The subsoil is about 36 inches thick. The upper 6 inches is yellowish brown fine sandy loam, and the lower 30 inches is yellowish red clay loam. The underlying material is soft, highly weathered sandstone. The slope of Nauvoo soils in this map unit is generally 6 to 15 percent. The available water capacity is very low for Montevallo soils and

moderate for Nauvoo soils. In most years, there are periods in which soil moisture is not adequate for optimum plant growth. These periods are longer for Montevallo soils. Both soils are moderately permeable and have a low shrink-swell potential. Surface runoff is rapid for Montevallo soils and moderately rapid for Nauvoo soils. If these soils do not have a plant cover, sheet and rill erosion is a very severe hazard for Montevallo soils and a severe hazard for Nauvoo soils. The surface layer of both soils is strongly acid to very strongly acid. Nauvoo soils can be tilled within a wide range in moisture content. Minor soils in this association are Allen, Docena, Gorgas, Holston, State, Sullivan, and Townley soils. Also some areas have sandstone bedrock outcrop, and a few areas have been surface mined for coal. Allen and Holston soils are on fans, foot slopes, and toe slopes. Docena, State, and Sullivan soils are in depressions, drainageways, and on flood plains. Gorgas soils are on side slopes. Townley soils, the most extensive of the minor soils, are on ridgetops and upper sides of ridges; slope ranges from 10 to 25 percent. These minor soils and Rock outcrop make about 35 percent of the map unit. The soils of this map unit are used primarily for woodland. Many small areas have been altered by surface mining of coal. A few small areas are used for cultivated crops and pasture. Montevallo soils are not suited to cultivated crops, pasture, or hay because of steep slopes, the hazard of erosion, and shallow soil depth. Areas of Nauvoo soils and the minor Townley soils are suited to these uses, but they are limited by slope and the hazard of erosion. Areas of these soils are generally long and narrow, small, and poorly accessible. The soils of this map unit are suited to woodland use. Suitable species, productivity potential, and management problems are variable. Montevallo soils are suited to coniferous trees, and the potential productivity is moderate. However, the steep slopes and shallow soil depth

are limitations. During wet seasons, windthrow of trees is a moderate hazard. Constructing and maintaining roads for logging, loading areas, and fire lanes is difficult on these soils. Poor harvesting techniques can cause severe erosion. Nauvoo soils are well suited to coniferous and deciduous tress, and the potential productivity is moderate to high. There are no significant management concerns. These soils are well suited to constructing and maintaining roads for logging, loading areas, and fire lanes. If grading is necessary for loading areas, stockpiling of the surface layer material and respreading it after harvest will help vegetation restoration. Montevallo soils are not favorable for residential and industrial uses because of steep slopes and shallow soil depth. Septic tank effluent may flow out to the surface because of pressure caused by elevation difference, or it may flow laterally or downslope through rock cracks, and then surface around residential units at a lower elevation. Plant growth is difficult to maintain on the steep, shallow Montevallo soils. Extensive excavation is needed to prepare dwelling sites on these soils, and potential soil loss is severe. Nauvoo soils are favorable for residential and industrial uses, but slope is a limitation. Also, areas of Nauvoo soils and the included Townley soils are generally long and narrow and are poorly accessible. The soils of this map unit are suited to most low traffic recreation uses. Nauvoo soils are better suited to most recreation facilities than Montevallo soils. A few sites are suitable for pond construction. Many areas of Montevallo soils have suitably shaped basins. However, these soils are shallow in depth and have poor reservoir basins. In such basins, excessive seepage may occur through rock cracks and old root channels. Also, suitable soil material for dams is not available. Surface and subsurface mining of coal is extensive in many areas of these soils. Reclaiming these soils after surface mining operations is

difficult because of the remaining steep slopes, the droughty nature of rock spoil, and the wide variation of reaction. Grading and reapplying topsoil will help reduce these problems. Most of the needed topsoil can be stockpiled on site before mining. Montevallo soils are a poor source of topsoil because they are shallow and have steep slopes. A much thicker layer of topsoil can be obtained from some minor soils, primarily Nauvoo, Allen, and Holston soils. The loamy subsoil of these soils can be modified for suitable rooting medium by applying lime and fertilizer and by minimizing tillage. The Montevallo soils are in capability subclass VIIe and in woodland ordination group 4d. The Nauvoo soils are in capability subclass IVe and in Woodland ordination group 2o.

35-Palmerdale complex, steep

This complex consists of steep, somewhat excessively drained Palmerdale soils and other soils on surface mining spoil piles. The sediment-producing slope and highwalls have convex slopes. The sediment-receiving benches, drainageways, and basins have concave slopes. Slope ranges from 15 to 60 percent in most areas. Areas are 40 to 1,000 or more acres and irregular in shape. The areas of Palmerdale soils and other soils in this complex are so intricately mixed, or so small, that mapping them separately was not practical. Palmerdale soils and similar soils make up about 70 percent of the map unit. Typically, Palmerdale soils are more than 60 inches thick. The soil is dark gray very shaly silt loam. In places, soils are similar to Palmerdale soils except that they are medium acid to moderately alkaline, or they have slopes of less than 15 percent. Other

soils on benches, in drainageways, and in basins make up about 20 percent of the map unit. These soils are more than 60 inches thick. Typically, they have a silt loam surface layer about 10 inches thick. The underlying material is very shaly silt loam. The available water capacity for Palmerdale soils is low. There are lengthy periods in which soil moisture is not adequate for optimum plant growth. Palmerdale soils are moderately rapidly permeable and have a low shrink-swell potential. These soils are subject to subsidence. Surface runoff is very rapid. The hazard of rill and channel erosion is very severe. The surface layer is strongly acid in Palmerdale soils and medium acid to moderately alkaline in soils similar to Palmerdale soils. Included in mapping are areas of Montevallo, Nauvoo, and Townley soils. The included soils and areas of escarpments, highwalls, and bedrock outcrop make up about 10 percent of the map unit. The soils are not suited to cultivated crops, pasture, and have because of steep slopes, fragments on the surface, and the droughty nature of the soils. Present land use of these soils is oriented primarily towards reclamation and establishment of trees. Reclaiming Palmerdale soils is difficult because of steep slopes, the hazard of erosion, droughtiness, and the acidity of the soil. In addition, north facing slopes are subject to soil freezing to a depth of several inches and "frost heave" during thawing. Some of the problems of reclamation can be minimized by applying topsoil from other soils and adding lime and fertilizer. Palmerdale soils are suited to coniferous and deciduous trees; the potential productivity is moderate. Coniferous trees are generally favorable trees establish on these soils. Management concerns include a severe erosion hazard, a severe equipment use limitation, and a severe seedling mortality rate. Some areas are not accessible because of slope gradients and the location of highwalls. Other soils on benches and toe slopes and

in basins and drainageways have a higher potential productivity than Palmerdale soils. The alkaline soils are poorly suited to most trees, especially pines. The soils of this map unit are in capability subclass VIIs and in woodland ordination group 3x.

CHEMICAL ANALYSIS COMPARISON

A comparison of the physical and chemical analysis between the average of the topsoil and overburden samples collected within the proposed permit area reveals that the selected overburden at the Shannon Mine No. 3 is more suitable as a plant growth medium than the native soils present. The median pH of the native topsoils was 4.70 and the previously mined overburden averaged 5.80 and 7.77 on the selected overburden material. As a result, the Auburn Soil Testing Laboratory has recommended an average of 1.70 tons/acre of limestone on the native topsoils and 0.50 tons/acre of limestone on the previously mined overburden.

Overburden at the Shannon Mine No. 3 is more fertile than the native topsoils. Overburden was rated higher in magnesium and potassium, while the native topsoils were rated higher in phosphorus. Auburn University's Soil Testing Laboratory recommends an average of 60 lbs/acre of N on the native topsoils and 60 lbs/acre of N on the previously mined overburden, an average of 58.3 lbs/acre of P_2O_5 on the native topsoils and 53.3 lbs/acre of P_2O_5 of on the previously mined overburden, and average of 56 lbs/acre of K_2O on the native topsoils and 36.7 lbs/acre of K_2O on the previously mined overburden. As a result the overburden requires an average of 8 lbs/acre more additional nutrients than the native topsoils.

The average acid-base account of the previously mined overburden material was +0.61 and the selected overburden material was +13.78. The average acid-base account of the

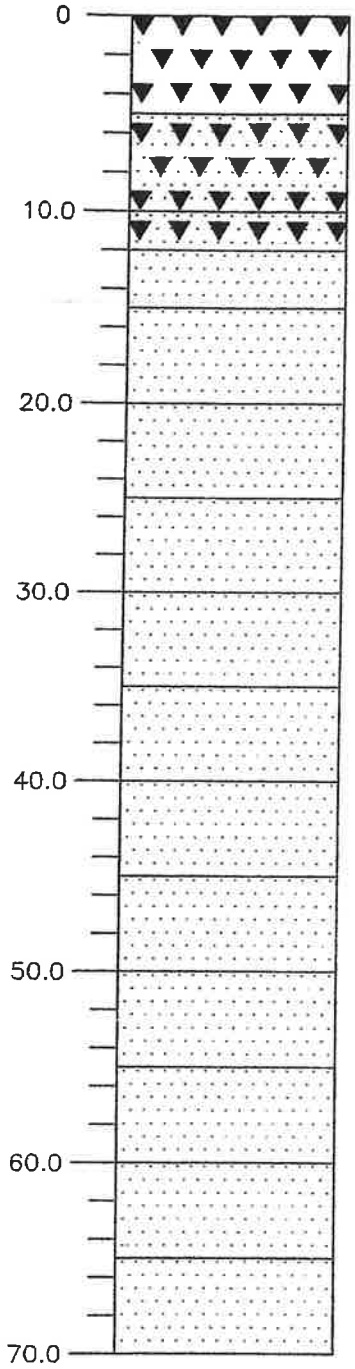
native topsoils was a +1.04. The average neutralization potential was higher in the previously mined overburden than the native topsoils. Also, the previously mined overburden contained an average of 2.99% more organic matter and 4.20% less nitrate nitrogen than the native topsoils.

TEXTURAL ANALYSIS COMPARISON

Textural analysis, performed by the PERC Engineering Co., Inc.'s Laboratory revealed that the native topsoil samples contained more soil and less coarse fragments than the overburden samples, as expected. The heterogeneous overburden was also found to have a higher percentage of silt and less clay and sand than the native topsoil in the <2mm sized material. The native soils are higher in the average available water capacity (0.1190 cm./cm.) than the previously mined overburden (0.1167 cm./cm.) The average "Total" available water capacity as shown in Table 4 is (0.1190 in./in.) for the native soils and (0.0971 in./in.) for the previously mined overburden. The above information suggests that the overburden at the Shannon Mine No. 3 is equal to or more suitable for post mining revegetation than the native topsoils.

CONCLUSIONS

As shown in the data represented in this report, the heterogenous overburden at the Shannon Mine No. 3 was observed to be equal to or more suitable for sustaining revegetation than the native topsoils. Therefore this report suggest that the heterogenous overburden is the best to support revegetation at this proposed mine site and therefore satisfies the criteria set forth in 880-X-10C.08-(5).



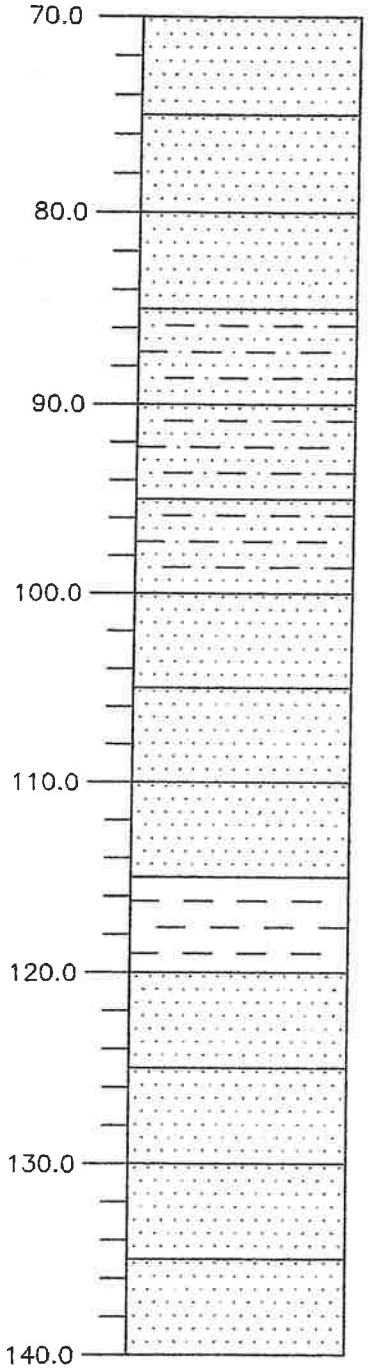
INTERVAL:	DESCRIPTION:
0' – 5.0'	Clay, Unconsolidated, Orange. Brown
5.0' – 10.0'	Clay, Unconsolidated, Orange. Brown, Sandstone, Highly Weathered, Brown
10.0' – 12.0'	Clay, Unconsolidated, Orange. Brown, Sandstone, Highly Weathered, Brown
12.0' – 15.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
15.0' – 20.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
20.0' – 25.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
25.0' – 30.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
30.0' – 35.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
35.0' – 40.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
40.0' – 45.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
45.0' – 50.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
50.0' – 55.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
55.0' – 60.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
60.0' – 65.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
65.0' – 70.0'	Sandstone, Very Fine Grained, Medium Hard, Gray

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0798 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1445

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1445	DATE: 5-3-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 1 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±600.92



INTERVAL:	DESCRIPTION:
70.0' – 75.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
75.0' – 80.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
80.0' – 85.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
85.0' – 90.0'	Sandstone Very Fine Grained, Shale, Hard, Dark Gray
90.0' – 95.0'	Sandstone Very Fine Grained, Shale, Hard, Dark Gray
95.0' – 100.0'	Sandstone Very Fine Grained, Shale, Hard, Dark Gray
100.0' – 105.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
105.0' – 110.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
110.0' – 115.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
115.0' – 120.0'	Shale, Medium Hard, Gray
120.0' – 125.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
125.0' – 130.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
130.0' – 135.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
135.0' – 140.0'	Sandstone, Very Fine Grained, Medium Hard, Gray

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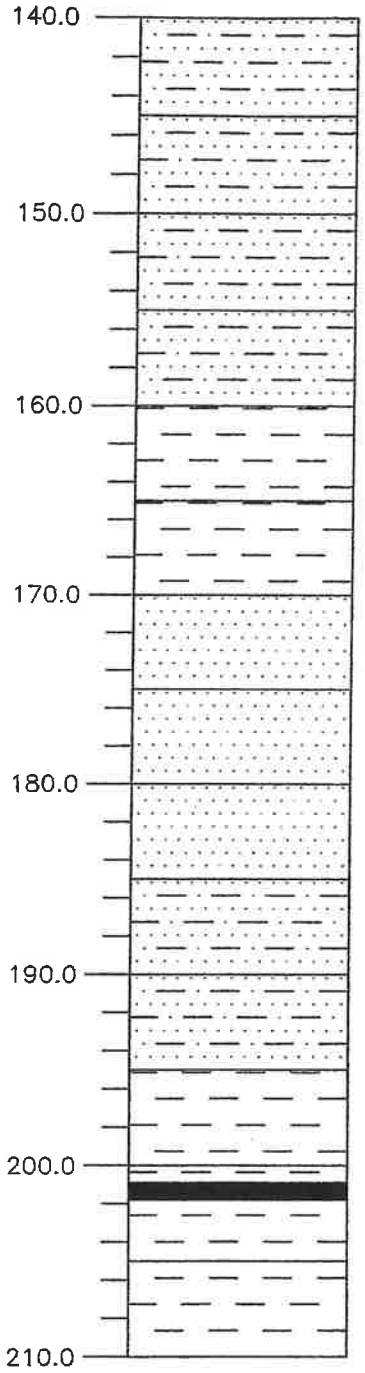
Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1445

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1445	DATE: 5-3-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 2 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±600.92



INTERVAL:	DESCRIPTION:
140.0' – 145.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
145.0' – 150.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
150.0' – 155.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
155.0' – 160.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
160.0' – 165.0'	Shale, Medium Hard, Gray
165.0' – 170.0'	Shale, Medium Hard, Gray
170.0' – 175.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
175.0' – 180.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
180.0' – 185.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
185.0' – 190.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
190.0' – 195.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
195.0' – 200.0'	Shale, Medium Hard, Gray
200.0' – 200.9'	Shale, Soft, Dark Gray, Contaminated With Coal
200.9' – 201.8'	Upper New Castle Coal Seam
201.8' – 205.0'	Shale, Soft, Dark Gray
205.0' – 210.0'	Shale, Soft, Dark Gray

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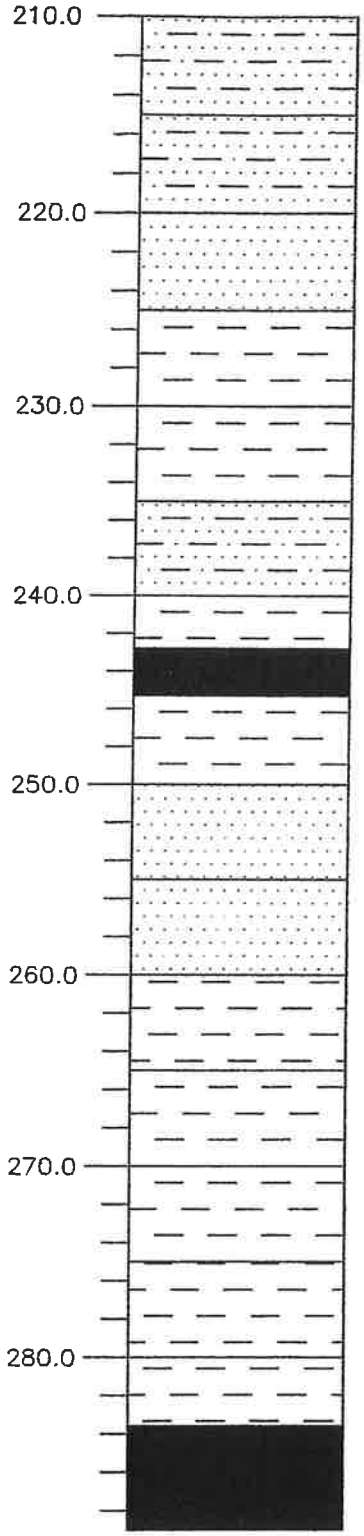
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1445

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1445	DATE: 5-3-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 3 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±600.92



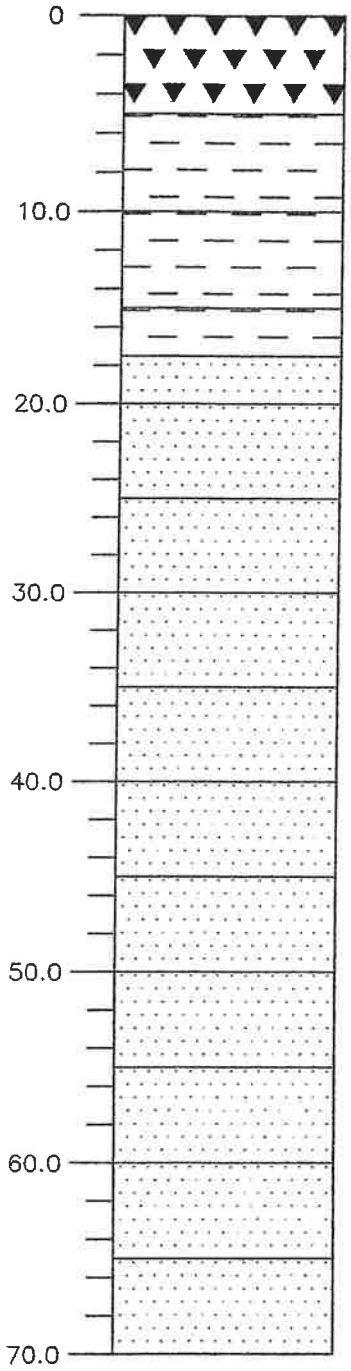
INTERVAL:	DESCRIPTION:
210.0' – 215.0'	Shale, Soft, Dark Gray
215.0' – 220.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
220.0' – 225.0'	Sandstone, Very Fine Grained, Medium Hard, Gray,(Water)
225.0' – 230.0'	Shale, Medium Hard, Gray
230.0' – 235.0'	Shale, Medium Hard, Gray
235.0' – 240.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
240.0' – 242.8'	Shale, Medium Hard, Gray
242.8' – 245.3'	Lower New Castle Coal Seam
245.3' – 250.0'	Shale, Medium Hard, Gray
250.0' – 255.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
255.0' – 260.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
260.0' – 265.0'	Shale, Medium Hard, Dark Gray
265.0' – 270.0'	Shale, Medium Hard, Dark Gray
270.0' – 275.0'	Shale, Medium Hard, Dark Gray
275.0' – 280.0'	Shale, Medium Hard, Dark Gray
280.0' – 283.6'	Shale, Medium Hard, Dark Gray
283.6' – 289.0'	Blue Creek Coal Seam

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1445

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1445	DATE: 5-3-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 4 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±600.92



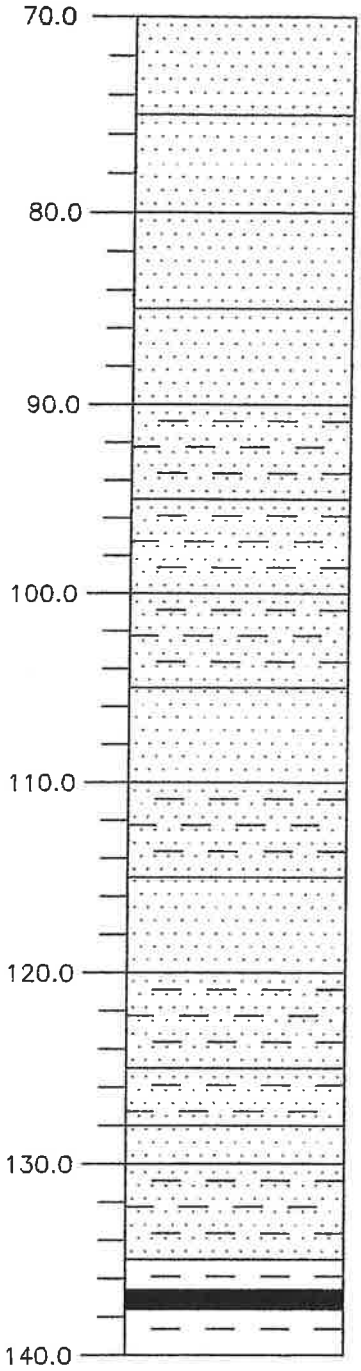
INTERVAL:	DESCRIPTION:
0' – 5.0'	Clay, Unconsolidated, Orange. Brown, Sandy
5.0' – 10.0'	Shale,.Highly Weathered, Soft Brown
10.0' – 15.0'	Shale,.Highly Weathered, Soft Brown
15.0' – 17.5'	Shale, Highly Weathered, Soft Brown
17.5' – 20.0'	Sandstone, Very Fine Grained, Hard, Gray
20.0' – 25.0'	Sandstone, Very Fine Grained, Hard, Gray
25.0' – 30.0'	Sandstone, Very Fine Grained, Hard, Gray
30.0' – 35.0'	Sandstone, Very Fine Grained, Hard, Gray
35.0' – 40.0'	Sandstone, Very Fine Grained, Hard, Gray
40.0' – 45.0'	Sandstone, Very Fine Grained, Hard, Gray
45.0' – 50.0'	Sandstone, Very Fine Grained, Hard, Gray
50.0' – 55.0'	Sandstone, Very Fine Grained, Hard, Gray
55.0' – 60.0'	Sandstone, Very Fine Grained, Hard, Gray
60.0' – 65.0'	Sandstone, Very Fine Grained, Hard, Gray
65.0' – 70.0'	Sandstone, Very Fine Grained, Hard, Gray

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1480

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1480	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 1 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±539.73



INTERVAL:	DESCRIPTION:
70.0' – 75.0'	Sandstone, Very Fine Grained, Hard, Gray
75.0' – 80.0'	Sandstone, Very Fine Grained, Hard, Gray
80.0' – 85.0'	Sandstone, Very Fine Grained, Hard, Gray
85.0' – 90.0'	Sandstone, Very Fine Grained, Hard, Gray
90.0' – 95.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
95.0' – 100.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
100.0' – 105.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
105.0' – 110.0'	Sandstone, Very Fine Grained, Hard, Gray
110.0' – 115.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
115.0' – 120.0'	Sandstone, Very Fine Grained, Hard, Gray
120.0' – 125.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
125.0' – 128.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
128.0' – 130.0'	Sandstone, Very Fine Grained, Hard, Gray
130.0' – 135.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
135.0' – 136.6'	Shale, Medium Hard, Dark Gray
136.6' – 137.6'	Upper New Castle Coal Seam
137.6' – 140.0'	Shale, Medium Hard, Dark Gray

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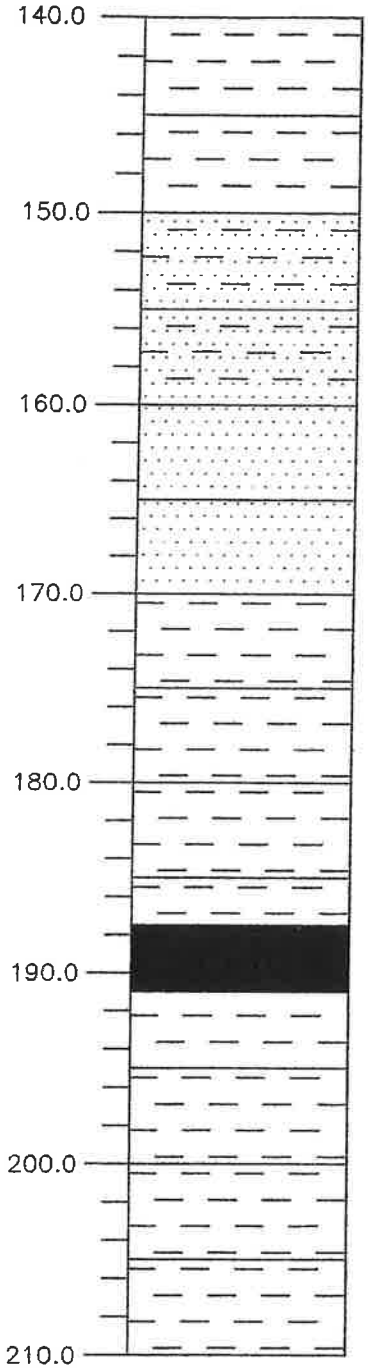
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1480

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1480	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 2 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±539.73



INTERVAL:	DESCRIPTION:
140.0' – 145.0'	Shale, Medium Hard, Dark Gray(Wet)
145.0' – 150.0'	Shale, Medium Hard, Dark Gray
150.0' – 155.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
155.0' – 160.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale, Medium Hard, Dark Gray
160.0' – 165.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale,
165.0' – 170.0'	Sandstone, Very Fine Grained, Hard, Gray, Shale,
170.0' – 175.0'	Shale, Medium Hard, Dark Gray
175.0' – 180.0'	Shale, Medium Hard, Dark Gray
180.0' – 185.0'	Shale, Medium Hard, Dark Gray
185.0' – 187.5'	Shale, Medium Hard, Dark Gray
187.5' – 191.0'	Lower New Castle Coal Seam
191.0' – 195.0'	Shale, Medium Hard, Dark Gray
195.0' – 200.0'	Shale, Medium Hard, Dark Gray
200.0' – 205.0'	Shale, Medium Hard, Dark Gray
205.0' – 210.0'	Shale, Medium Hard, Dark Gray

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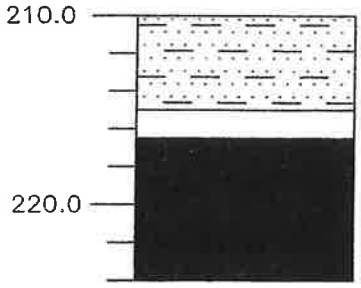
Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1480

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1480	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 3 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±539.73



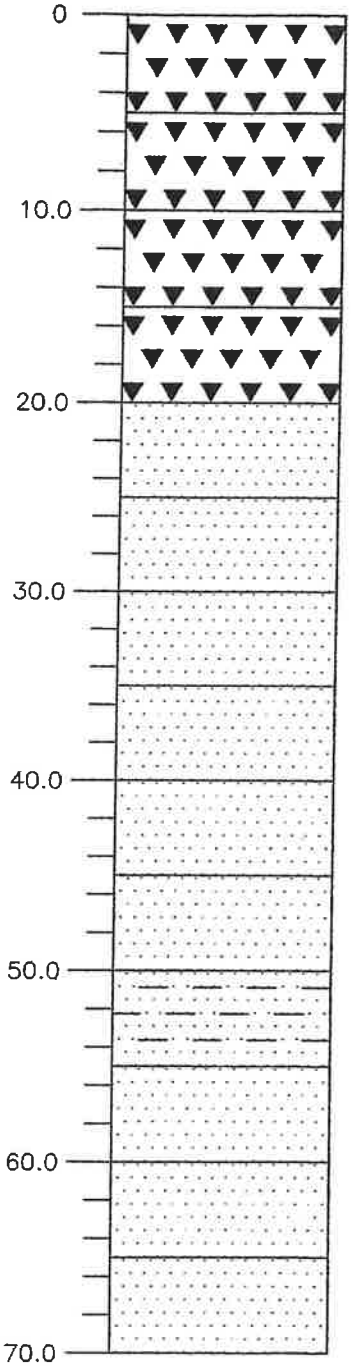
INTERVAL:	DESCRIPTION:
210.0' – 215.0'	Shale, Medium Hard, Dark Gray, Sandstone, Very Fine Grained, Hard, Gray.
215.0' – 216.5'	Sample Lost
216.5' – 224.0'	Blue Creek Coal Seam(Old Works)

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1480

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1480	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±539.73



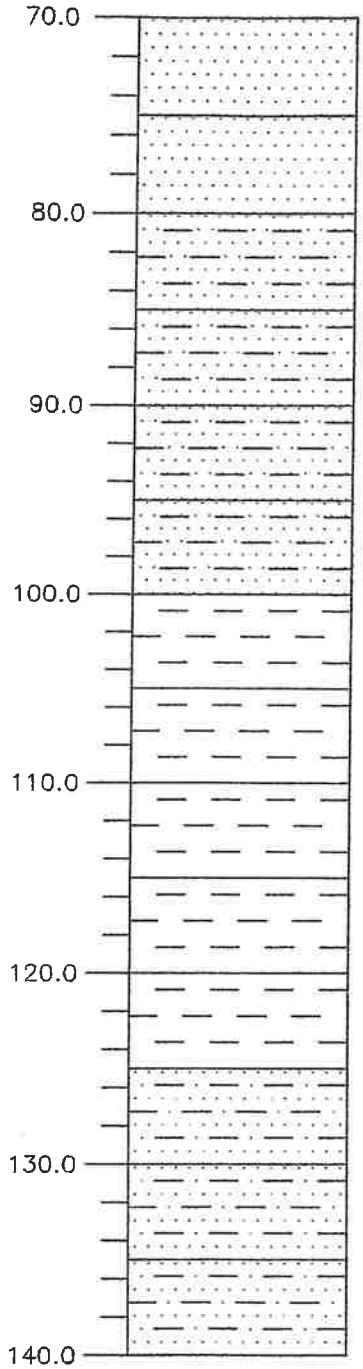
INTERVAL:	DESCRIPTION:
0' – 5.0'	Clay, Unconsolidated, Reddish Orange
5.0' – 10.0'	Clay, Unconsolidated, Orange, Brown
10.0' – 15.0'	Clay, Unconsolidated, Orange, Brown, Sandy
15.0' – 20.0'	Clay, Unconsolidated, Orange, Brown, Sandy
20.0' – 25.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
25.0' – 30.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
30.0' – 35.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
35.0' – 40.0'	Sandstone, Very Fine Grained, Weathered, Brown
40.0' – 45.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
45.0' – 50.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
50.0' – 55.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, SHale, Medium Hard, Gray
55.0' – 60.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
60.0' – 65.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
65.0' – 70.0'	Sandstone, Very Fine Grained, Medium Hard, Gray

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0985 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1485

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1485	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 1 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±473.28



INTERVAL:	DESCRIPTION:
70.0' – 75.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
75.0' – 80.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
80.0' – 85.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Gray(Wet)
85.0' – 90.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Gray
90.0' – 95.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Gray
95.0' – 100.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Gray
100.0' – 105.0'	Shale, Medium Hard, Dark Gray
105.0' – 110.0'	Shale, Medium Hard, Dark Gray
110.0' – 115.0'	Shale, Medium Hard, Dark Gray
115.0' – 120.0'	Shale, Medium Hard, Dark Gray
120.0' – 125.0'	Shale, Medium Hard, Dark Gray
125.0' – 130.0'	Shale, Medium Hard, Dark Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
130.0' – 135.0'	Shale, Medium Hard, Dark Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
135.0' – 140.0'	Shale, Medium Hard, Dark Gray, Sandstone, Very Fine Grained, Medium Hard, Gray

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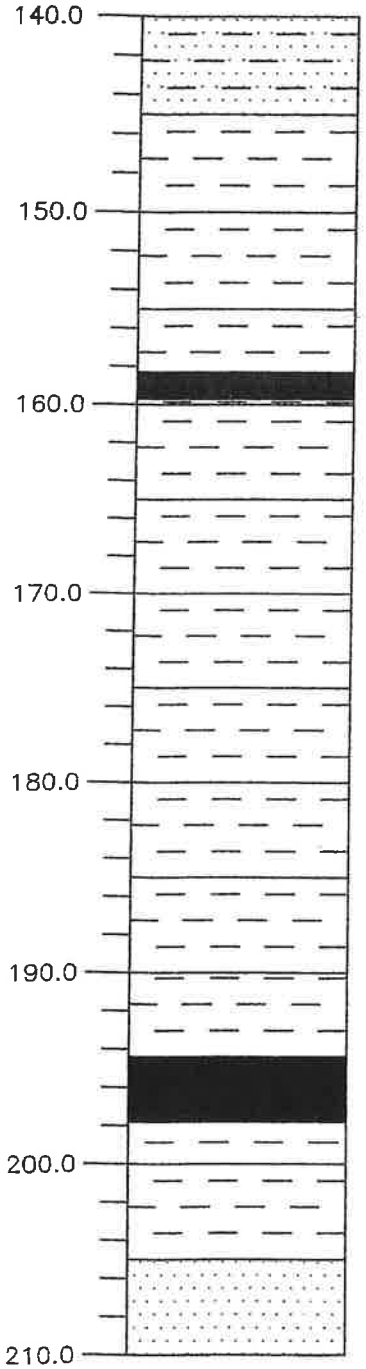
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1485

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1485	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 2 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±473.28



INTERVAL:	DESCRIPTION:
135.0' – 140.0'	Shale, Medium Hard, Dark Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
145.0' – 150.0'	Shale, Medium Hard, Dark Gray,
150.0' – 155.0'	Shale, Medium Hard, Dark Gray,
155.0' – 158.3'	Shale, Medium Hard, Dark Gray,
158.3' – 159.7'	Upper New Castle Coal Seam
159.7' – 160.0'	Shale, Medium Hard, Dark Gray,
160.0' – 165.0'	Shale, Medium Hard, Dark Gray,
165.0' – 170.0'	Shale, Medium Hard, Dark Gray,
170.0' – 175.0'	Shale, Medium Hard, Dark Gray,
175.0' – 180.0'	Shale, Medium Hard, Dark Gray,
180.0' – 185.0'	Shale, Medium Hard, Dark Gray,
185.0' – 190.0'	Shale, Medium Hard, Dark Gray,
190.0' – 194.4'	Shale, Medium Hard, Dark Gray,
194.4' – 197.8'	Lower New Castle Coal Seam
197.8' – 200.0'	Shale, Medium Hard, Dark Gray,
200.0' – 205.0'	Shale, Medium Hard, Dark Gray,
205.0' – 210.0'	Sandstone, Very Fine Grained, Medium Hard, Gray

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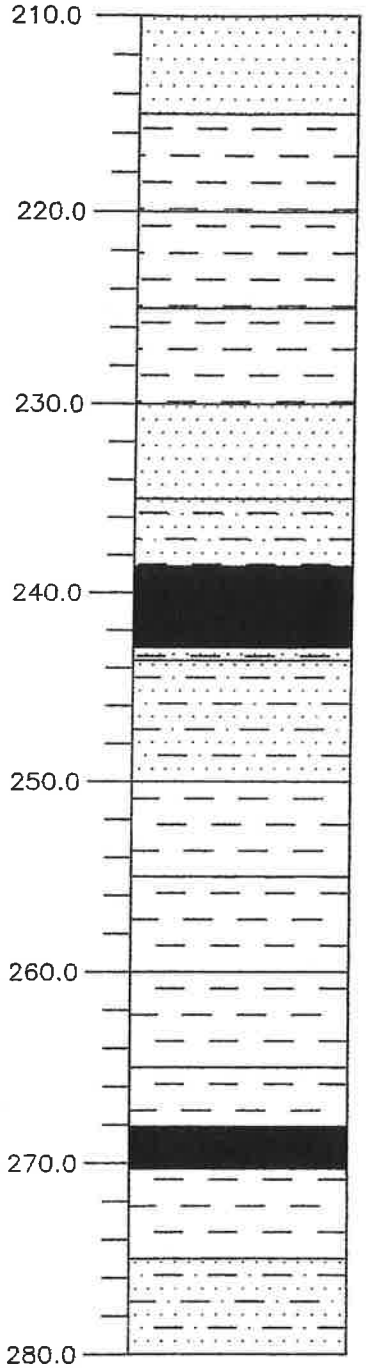
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1485

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1485	DATE: 5-19-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 3 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±473.28



INTERVAL:	DESCRIPTION:
210.0' – 215.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
215.0' – 220.0'	Shale, Medium Hard, Dark Gray,
220.0' – 225.0'	Shale, Medium Hard, Dark Gray,
225.0' – 230.0'	Shale, Medium Hard, Dark Gray,
230.0' – 235.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
235.0' – 238.6'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Dark Gray, Contaminated with Coal
238.6' – 242.9'	Blue Creek Coal Seam
242.9' – 245.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Dark Gray, Contaminated with Coal
245.0' – 250.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Dark Gray, Contaminated with Coal
250.0' – 255.0'	Shale, Medium Hard, Dark Gray
255.0' – 260.0'	Shale, Medium Hard, Dark Gray
255.0' – 260.0'	Shale, Medium Hard, Dark Gray, Contaminated with Coal
265.0' – 268.1'	Shale, Medium Hard, Dark Gray, Contaminated with Coal
268.1' – 270.3'	Jagger Coal Seam
270.3' – 275.0'	Shale, Medium Hard, Dark Gray, Contaminated with Coal
275.0' – 280.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Shale, Medium Hard, Dark Gray

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
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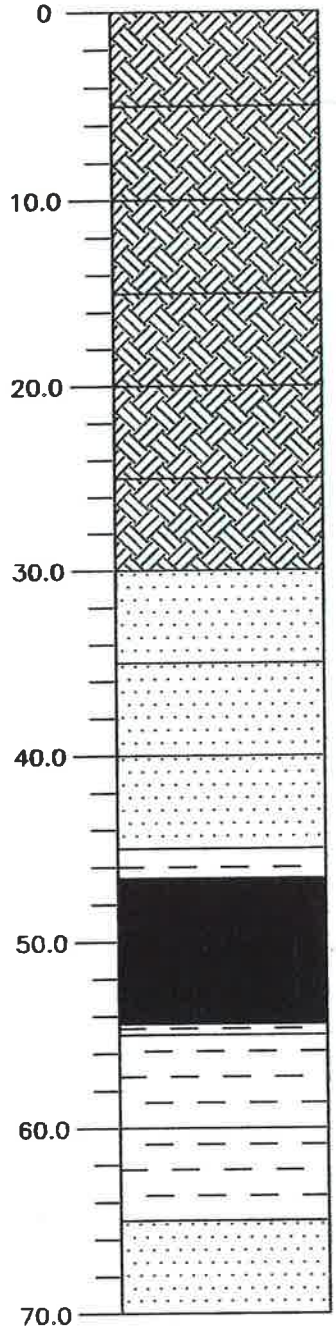
Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1485

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1485	DATE: 5–19–10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 4 of 4
Drill: Failing 1500
4–3/4" Drill Bit
Surface Elevation: ±473.28



INTERVAL:	DESCRIPTION:
0' – 5.0'	Spoil
5.0' – 10.0'	Spoil
10.0' – 15.0'	Spoil
15.0' – 20.0'	Spoil
20.0' – 25.0'	Spoil
25.0' – 30.0'	Spoil
30.0' – 35.0'	Sandstone, Very Fine Grained, Weathered, Brown, Gray
35.0' – 40.0'	Sandstone, Very Fine Grained, Weathered, Brown, Gray
40.0' – 45.0'	Sandstone, Very Fine Grained, Weathered, Brown, Gray
45.0' – 46.6'	Shale, Medium Hard, Dark Gray
46.6' – 54.4'	Blue Creek Coal Seam With Partings
54.4' – 55.0'	Shale, Soft, Gray
55.0' – 60.0'	Shale, Soft, Gray
60.0' – 65.0'	Shale, Medium Hard, Dark Gray
65.0' – 70.0'	Sandstone, Very Fine Grained, Medium Hard, Gray

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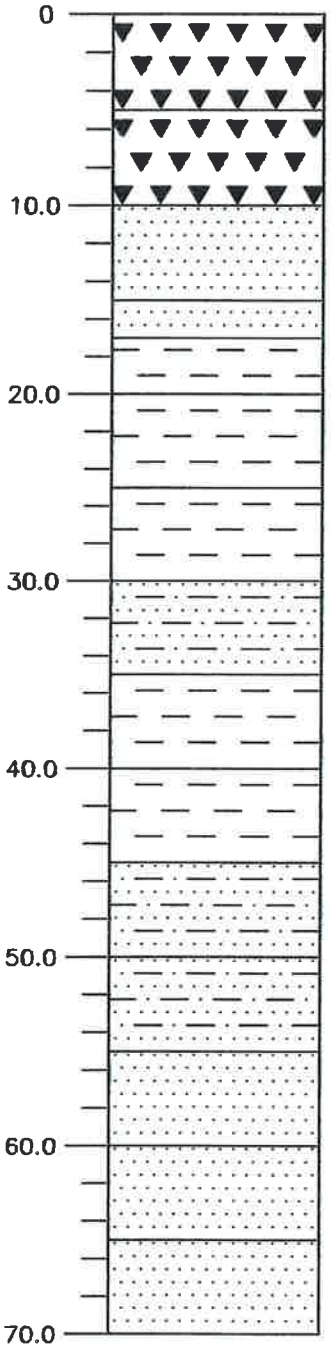
Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1513

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1513	DATE: 5-24-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 1 of 2
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±520.44



INTERVAL:	DESCRIPTION:
0' – 5.0'	Clay, Unconsolidated, Orange, Brown, Sandy
5.0' – 10.0'	Clay, Unconsolidated, Orange, Brown, Sandy
10.0' – 15.0'	Sandstone, Very Fine Grained, Highly Weathered, Brown, Orange
15.0' – 17.0'	Sandstone, Very Fine Grained, Highly Weathered, Brown, Orange
17.0' – 20.0'	Shale, Soft, Dark Gray
20.0' – 25.0'	Shale, Soft, Dark Gray
25.0' – 30.0'	Shale, Medium Hard, Gray
30.0' – 35.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
35.0' – 40.0'	Shale, Medium Hard, Gray
40.0' – 45.0'	Shale, Medium Hard, Gray
45.0' – 50.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
50.0' – 55.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
55.0' – 60.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
60.0' – 65.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
65.0' – 70.0'	Sandstone, Very Fine Grained, Medium Hard, Gray, Wet

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74 Industrial Parkway
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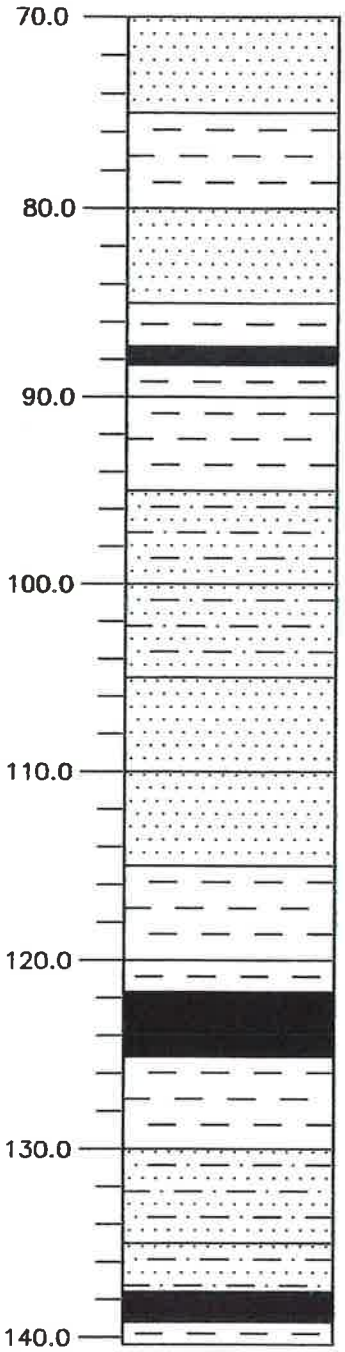
Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1520

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1520	DATE: 6-7-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 1 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±496.08



INTERVAL:	DESCRIPTION:
70.0' – 75.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
75.0' – 80.0'	Shale, Medium Hard, Gray
80.0' – 85.0'	Sandstone, Very Fine Grained, Medium Hard, Gray
85.0' – 87.3'	Shale, Hard, Dark Gray
87.3' – 88.3'	Upper New Castle Coal Seam
88.3' – 90.0'	Shale, Hard, Dark Gray
90.0' – 95.0'	Shale, Hard, Dark Gray
95.0' – 100.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Medium Hard, Gray
100.0' – 105.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray
105.0' – 110.0'	Sandstone, Very Fine Grained, Hard, Gray
110.0' – 115.0'	Sandstone, Very Fine Grained, Hard, Gray
115.0' – 120.0'	Shale, Medium Hard, Dark Gray,
120.0' – 121.7'	Shale, Medium Hard, Dark Gray,
121.7' – 125.1'	Lower New Castle Coal Seam
125.1' – 130.0'	Shale, Medium Hard, Dark Gray,
130.0' – 135.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray
135.0' – 137.6'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray
137.6' – 139.2'	Mary Lee Coal Seam
139.2' – 140.4'	Shale, Medium Hard, Dark Gray

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1520

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1520	DATE: 6-7-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 2 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±496.08

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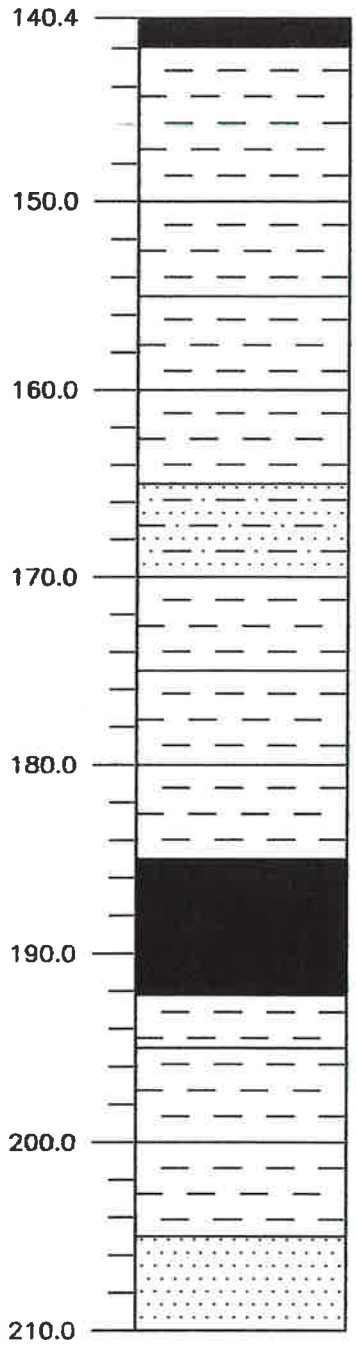

INTERVAL:	DESCRIPTION:
140.4' – 141.9'	Mary Lee Coal Seam
141.9' – 145.0'	Shale, Medium Hard, Dark Gray,
145.0' – 150.0'	Shale, Medium Hard, Dark Gray,
155.0' – 160.0'	Shale, Medium Hard, Dark Gray,
160.0' – 165.0'	Shale, Medium Hard, Dark Gray,
165.0' – 170.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray
170.0' – 175.0'	Shale, Medium Hard, Dark Gray,
175.0' – 180.0'	Shale, Medium Hard, Dark Gray,
180.0' – 185.0'	Shale, Medium Hard, Dark Gray,
185.0' – 192.2'	Blue Creek Coal Seam
192.2' – 195.0'	Shale, Medium Hard, Dark Gray, Contaminated With Coal
195.0' – 200.0'	Shale, Medium Hard, Dark Gray,
200.0' – 205.0'	Shale, Medium Hard, Dark Gray,
205.0' – 210.0'	Sandstone, Fine Grained, Hard, Gray

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295-0995 Office (205) 295-0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1520

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1520	DATE: 6-7-10
APPROVED BY: W.K.M.	SCALE: As Noted

Page 3 of 4
Drill: Failing 1500
4-3/4" Drill Bit
Surface Elevation: ±496.08

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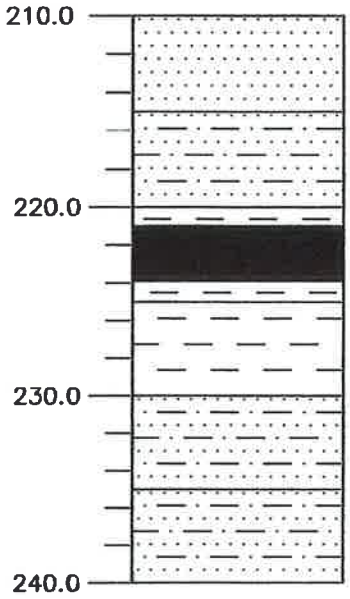

INTERVAL:	DESCRIPTION:
210.0' – 215.0'	Sandstone, Fine Grained, Hard, Gray
215.0' – 220.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray
220.0' – 221.0'	Shale, Hard, Dark Gray;
221.0' – 223.9'	Jagger Coal Seam
223.9' – 225.0'	Shale, Medium Hard, Gray, Contaminated With Coal
225.0' – 230.0'	Shale, Medium Hard, Grey
230.0' – 235.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray
235.0' – 240.0'	Shale, Medium Hard, Gray, Sandstone, Very Fine Grained, Hard, Gray

Page 4 of 4
Drill: Failing 1500
4–3/4" Drill Bit
Surface Elevation: ±496.08

Twin Pines Coal Company, Inc.
74 Industrial Parkway
P.O. Box 621 Jasper, Alabama 35502
(205) 295–0995 Office (205) 295–0799 Fax

Twin Pines Coal Company, Inc.
Shannon Mine No. 3
Lithologic Description
For DH-1520

DRAWN BY: P.T.O DWG. NAME: TPSM3LD1520	DATE: 6–7–10
APPROVED BY: W.K.M.	SCALE: As Noted

N:\PTO\PTO\WKM\TPSM3LD1520.dwg 06/26/10 10:39

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: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1445

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 5-3-10

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	4.330	0.001	0.031	-0.750	-0.781	N
5.00	10.00	4.270	0.001	0.031	1.000	0.969	N
10.00	12.00	4.170	0.001	0.031	-0.250	-0.281	N
12.00	15.00	6.580	0.169	5.281	17.250	11.969	N
15.00	20.00	6.670	0.375	11.719	48.500	36.781	N
20.00	25.00	6.840	0.248	7.750	10.500	2.750	N
25.00	30.00	7.750	0.115	3.594	28.750	25.156	N
30.00	35.00	7.680	0.129	4.031	15.500	11.469	N
35.00	40.00	7.700	0.175	5.469	14.250	8.781	N
40.00	45.00	7.880	0.124	3.875	14.750	10.875	N
45.00	50.00	8.000	0.096	3.000	14.750	11.750	N
50.00	55.00	7.990	0.288	9.000	16.250	7.250	N
55.00	60.00	8.030	0.110	3.438	14.500	11.063	N
60.00	65.00	8.060	0.099	3.094	17.250	14.156	N
65.00	70.00	8.050	0.090	2.813	11.500	8.688	N
70.00	75.00	8.170	0.025	0.781	50.000	49.219	N
75.00	80.00	8.070	0.235	7.344	56.750	49.406	N
80.00	85.00	8.070	0.090	2.813	71.000	68.188	N
85.00	90.00	8.150	0.130	4.063	28.750	24.688	N
90.00	95.00	8.300	0.106	3.313	18.000	14.688	N
95.00	100.00	8.350	0.095	2.969	21.000	18.031	N
100.00	105.00	8.290	0.093	2.906	15.500	12.594	N
105.00	110.00	8.190	0.011	0.344	16.750	16.406	N
110.00	115.00	8.220	0.082	2.563	16.250	13.688	N
115.00	120.00	8.300	0.011	0.344	66.250	65.906	N
120.00	125.00	8.270	0.001	0.031	52.000	51.969	N
125.00	130.00	8.260	0.022	0.688	22.500	21.813	N
130.00	135.00	8.350	0.110	3.438	24.500	21.063	N
135.00	140.00	8.430	0.011	0.344	23.000	22.656	N
140.00	145.00	8.280	0.028	0.875	22.250	21.375	N
145.00	150.00	8.330	0.096	3.000	18.750	15.750	N
150.00	155.00	8.310	0.088	2.750	19.000	16.250	N
155.00	160.00	8.210	0.222	6.938	22.500	15.563	N
160.00	165.00	7.920	1.200	37.500	18.000	-19.500	Y
165.00	170.00	7.910	0.451	14.094	12.000	-2.094	N
170.00	175.00	8.280	0.046	1.438	10.500	9.063	N
175.00	180.00	8.310	0.001	0.031	11.250	11.219	N
180.00	185.00	8.260	0.001	0.031	10.250	10.219	N
185.00	190.00	8.150	0.058	1.813	7.250	5.438	N
190.00	195.00	7.440	0.500	15.625	12.500	-3.125	N
195.00	200.00	7.970	0.014	0.438	7.250	6.813	N
200.00	200.90	7.640	0.267	8.344	6.000	-2.344	N
200.90	201.80 Coal		1.330	41.563 Coal	Coal		***
201.80	205.00	7.120	0.066	2.063	16.500	14.438	N
205.00	210.00	7.520	0.068	2.125	20.250	18.125	N

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: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1445

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 5-3-10

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
210.00	215.00	7.760	0.016	0.500	20.500	20.000	N
215.00	220.00	7.940	0.003	0.094	79.500	79.406	N
220.00	225.00	7.720	0.001	0.031	22.750	22.719	N
225.00	230.00	7.840	0.046	1.438	22.750	21.313	N
230.00	235.00	7.700	0.054	1.688	22.250	20.563	N
235.00	240.00	7.710	0.001	0.031	24.500	24.469	N
240.00	242.80	7.670	0.001	0.031	22.500	22.469	N
242.80	245.30 Coal		0.980	30.625 Coal	Coal		***
245.30	250.00	7.610	0.155	4.844	20.250	15.406	N
250.00	255.00	7.600	0.209	6.531	23.000	16.469	N
255.00	260.00	7.680	0.133	4.156	24.500	20.344	N
260.00	265.00	7.750	0.053	1.656	25.000	23.344	N
265.00	270.00	7.860	0.001	0.031	26.000	25.969	N
270.00	275.00	7.700	0.001	0.031	26.250	26.219	N
275.00	280.00	7.700	0.102	3.188	26.500	23.313	N
280.00	283.60	7.670	0.094	2.938	22.750	19.813	N
**AVERAGE		5.639	0.119	3.721	23.093	19.373	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

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: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1480

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-3-10

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	4.060	0.001	0.031	2.250	2.219	N
5.00	10.00	5.070	0.001	0.031	5.000	4.969	N
10.00	15.00	5.550	0.001	0.031	7.250	7.219	N
15.00	17.50	5.600	0.001	0.031	7.500	7.469	N
17.50	20.00	6.060	0.178	5.563	19.000	13.438	N
20.00	25.00	6.580	0.132	4.125	28.250	24.125	N
25.00	30.00	7.200	0.102	3.188	25.250	22.063	N
30.00	35.00	7.360	0.098	3.063	23.500	20.438	N
35.00	40.00	7.650	0.089	2.781	24.000	21.219	N
40.00	45.00	7.830	0.010	0.313	57.500	57.188	N
45.00	50.00	8.100	0.072	2.250	22.000	19.750	N
50.00	55.00	8.140	0.095	2.969	27.000	24.031	N
55.00	60.00	8.300	0.084	2.625	30.000	27.375	N
60.00	65.00	8.330	0.133	4.156	31.000	26.844	N
65.00	70.00	8.430	0.117	3.656	25.000	21.344	N
70.00	75.00	8.500	0.114	3.563	27.250	23.688	N
75.00	80.00	8.520	0.132	4.125	27.000	22.875	N
80.00	85.00	8.540	0.106	3.313	27.750	24.438	N
85.00	90.00	8.520	0.081	2.531	32.500	29.969	N
90.00	95.00	8.270	0.205	6.406	28.500	22.094	N
95.00	100.00	7.620	1.320	41.250	34.500	-6.750	Y
100.00	105.00	8.100	0.102	3.188	26.500	23.313	N
105.00	110.00	7.000	0.001	0.031	24.500	24.469	N
110.00	115.00	7.760	0.001	0.031	16.500	16.469	N
115.00	120.00	7.880	0.004	0.125	13.000	12.875	N
120.00	125.00	7.810	0.049	1.531	11.000	9.469	N
125.00	128.00	6.350	0.205	6.406	16.750	10.344	N
128.00	130.00	7.010	0.231	7.219	4.250	-2.969	N
130.00	135.00	7.080	0.114	3.563	5.000	1.438	N
135.00	136.60	7.310	0.092	2.875	9.250	6.375	N
136.60	137.60 Coal		1.200	37.500 Coal		COAL	***
137.60	140.00	7.460	0.052	1.625	16.750	15.125	N
140.00	145.00	7.740	0.045	1.406	17.250	15.844	N
145.00	150.00	7.870	0.050	1.563	18.000	16.438	N
150.00	155.00	8.220	0.081	2.531	19.750	17.219	N
155.00	160.00	8.090	0.001	0.031	68.500	68.469	N
160.00	165.00	7.870	0.001	0.031	20.750	20.719	N
165.00	170.00	7.870	0.001	0.031	18.750	18.719	N
170.00	175.00	7.800	0.001	0.031	7.250	7.219	N
175.00	180.00	7.800	0.001	0.031	9.250	9.219	N
180.00	185.00	8.030	0.005	0.156	9.250	9.094	N
185.00	187.50	7.980	0.001	0.031	12.750	12.719	N
187.50	191.00 Coal		0.980	30.625 Coal		COAL	***
191.00	195.00	8.090	0.175	5.469	12.250	6.781	N

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

COMPANY NAME: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1480

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-3-10

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
195.00	200.00	8.060	0.001	0.031	16.250	16.219	N
200.00	205.00	8.100	0.051	1.594	17.250	15.656	N
205.00	210.00	7.680	0.168	5.250	16.250	11.000	N
210.00	215.00	7.680	0.272	8.500	9.000	0.500	N
215.00	216.00	Sample Lost	Sample Lost	0.000	Sample Lost	0.000	N
216.00	224.50	Coal	0.860	26.875	Coal	COAL	***
**AVERAGE		5.618	0.103	3.208	20.843	17.636	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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COMPANY NAME: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1485

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-8-10

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	3.660	0.001	0.031	0.250	0.219	N
5.00	10.00	3.750	0.001	0.031	1.250	1.219	N
10.00	15.00	4.300	0.001	0.031	2.250	2.219	N
15.00	20.00	5.720	0.001	0.031	3.000	2.969	N
20.00	25.00	5.720	0.001	0.031	13.500	13.469	N
25.00	30.00	6.200	0.332	10.375	22.500	12.125	N
30.00	35.00	6.850	0.093	2.906	28.750	25.844	N
35.00	40.00	7.330	0.005	0.156	38.250	38.094	N
40.00	45.00	8.090	0.094	2.938	24.750	21.813	N
45.00	50.00	8.250	0.087	2.719	19.750	17.031	N
50.00	55.00	8.370	0.080	2.500	22.000	19.500	N
55.00	60.00	8.490	0.085	2.656	24.750	22.094	N
60.00	65.00	8.390	0.117	3.656	26.500	22.844	N
65.00	70.00	8.600	0.093	2.906	24.500	21.594	N
70.00	75.00	8.750	0.095	2.953	19.750	16.797	N
75.00	80.00	8.580	0.120	3.750	26.250	22.500	N
80.00	85.00	7.960	0.130	4.063	26.000	21.938	N
85.00	90.00	7.760	0.001	0.031	31.750	31.719	N
90.00	95.00	7.920	0.001	0.031	18.250	18.219	N
95.00	100.00	6.230	0.104	3.250	19.750	16.500	N
100.00	105.00	7.050	0.095	2.969	19.750	16.781	N
105.00	110.00	7.140	0.157	4.906	17.000	12.094	N
110.00	115.00	7.000	0.242	7.563	24.500	16.938	N
115.00	120.00	6.420	1.050	32.813	28.000	-4.813	?
120.00	125.00	6.250	0.536	16.750	14.000	-2.750	N
125.00	130.00	6.690	0.092	2.875	10.500	7.625	N
130.00	135.00	7.010	0.001	0.031	12.250	12.219	N
135.00	140.00	7.340	0.001	0.031	15.250	15.219	N
140.00	145.00	7.530	0.001	0.031	20.500	20.469	N
145.00	150.00	7.650	0.078	2.438	7.750	5.313	N
150.00	155.00	7.350	0.104	3.250	15.250	12.000	N
155.00	158.30	7.630	0.032	1.000	10.250	9.250	N
158.30	159.70 Coal		1.330	41.563 Coal	COAL		***
159.70	160.00	7.610	0.022	0.688	8.500	7.813	N
160.00	165.00	7.630	0.078	2.438	12.250	9.813	N
165.00	170.00	7.550	0.094	2.938	13.500	10.563	N
170.00	175.00	7.760	0.155	4.844	18.250	13.406	N
175.00	180.00	7.850	0.113	3.531	23.250	19.719	N
180.00	185.00	7.780	0.003	0.094	23.500	23.406	N
185.00	190.00	7.910	0.008	0.250	21.000	20.750	N
190.00	194.40	7.820	0.080	2.500	14.250	11.750	N
194.40	197.80 Coal		0.980	30.625 Coal	COAL		***
197.80	200.00	7.420	0.109	3.406	16.250	12.844	N
200.00	205.00	7.890	0.001	0.031	11.000	10.969	N
205.00	210.00	8.350	0.001	0.031	7.500	7.469	N
210.00	215.00	8.010	0.101	3.156	8.000	4.844	N
215.00	220.00	8.100	0.001	0.031	15.750	15.719	N
220.00	225.00	7.970	0.001	0.031	12.250	12.219	N
225.00	230.00	7.920	0.226	7.063	5.250	-1.813	N
230.00	235.00	7.810	0.327	10.219	9.000	-1.219	N

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Web Address: www.percengineering.com

COMPANY NAME: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1485

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-8-10

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
235.00	238.60	7.840	0.279	8.719	10.500	1.781	N
238.60	242.90 Coal		0.860	26.875 Coal		COAL	***
242.90	245.00	8.070	0.170	5.313	22.000	16.688	N
245.00	250.00	7.870	0.175	5.469	8.000	2.531	N
250.00	255.00	7.910	0.147	4.594	9.250	4.656	N
255.00	260.00	8.190	0.084	2.625	10.250	7.625	N
260.00	265.00	8.120	0.138	4.313	9.250	4.938	N
265.00	268.10	8.100	0.059	1.844	10.000	8.156	N
268.10	270.30 Coal		1.190	37.188 Coal		COAL	***
270.30	275.00	8.070	0.212	6.625	68.000	61.375	N
275.00	280.00	8.670	0.057	1.781	9.250	7.469	N
**AVERAGE		5.073	0.115	3.581	17.099	13.518	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: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1513

COLLECTED BY: client

DATE COLLECTED: 4-20-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-4-10

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	6.570	0.017	0.531	8.000	7.469	N
5.00	10.00	6.760	0.015	0.469	6.000	5.531	N
10.00	15.00	7.000	0.048	1.500	11.000	9.500	N
15.00	20.00	7.270	0.031	0.969	6.250	5.281	N
20.00	25.00	7.210	0.002	0.063	2.250	2.188	N
25.00	30.00	6.570	0.021	0.656	2.500	1.844	N
30.00	35.00	6.110	0.019	0.594	1.750	1.156	N
35.00	40.00	6.130	0.028	0.875	2.250	1.375	N
40.00	45.00	6.390	0.021	0.656	3.500	2.844	N
45.00	46.60	4.720	0.060	1.875	5.500	3.625	N
46.60	54.40 Coal		0.890	27.813 Coal		COAL	***
54.40	55.00	5.230	0.021	0.656	0.500	-0.156	N
55.00	60.00	6.400	0.039	1.219	6.000	4.781	N
60.00	65.00	6.730	0.001	0.031	22.250	22.219	N
65.00	70.00	6.920	0.017	0.531	8.000	7.469	N
70.00	75.00	6.500	0.004	0.125	24.500	24.375	N
75.00	80.00	7.970	0.002	0.063	5.250	5.188	N
80.00	85.00	7.880	0.036	1.125	9.750	8.625	N
85.00	88.10	7.660	0.017	0.531	5.500	4.969	N
88.10	91.40 Coal		1.190	37.188 Coal		COAL	***
91.40	95.00	7.840	0.001	0.031	25.000	24.969	N
95.00	100.00	7.800	0.301	9.406	11.000	1.594	N
**AVERAGE		6.219	0.036	1.116	8.632	7.516	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: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1520

COLLECTED BY: client

DATE COLLECTED: 4-26-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-8-10

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	4.590	0.001	0.031	2.750	2.719	N
5.00	10.00	4.790	0.001	0.031	2.750	2.719	N
10.00	15.00	5.430	0.001	0.031	2.750	2.719	N
15.00	17.00	5.150	0.001	0.031	4.000	3.969	N
17.00	20.00	5.670	0.091	2.844	4.500	1.656	N
20.00	25.00	5.820	0.032	1.000	5.000	4.000	N
25.00	30.00	5.990	0.064	2.000	7.250	5.250	N
30.00	35.00	6.770	0.114	3.563	15.000	11.438	N
35.00	40.00	6.140	0.314	9.813	14.250	4.438	N
40.00	45.00	4.870	0.426	13.313	14.000	0.688	N
45.00	50.00	5.600	0.467	14.594	11.250	-3.344	N
50.00	55.00	5.230	0.541	16.906	14.750	-2.156	N
55.00	60.00	6.510	0.087	2.719	8.500	5.781	N
60.00	65.00	6.690	0.059	1.844	7.500	5.656	N
65.00	70.00	7.230	0.030	0.938	7.250	6.313	N
70.00	75.00	7.130	0.083	2.594	8.250	5.656	N
75.00	80.00	7.130	0.229	7.156	12.250	5.094	N
80.00	85.00	7.100	0.075	2.344	9.250	6.906	N
85.00	87.30	7.440	0.133	4.156	10.500	6.344	N
87.30	88.40 Coal		1.020	31.875 Coal		COAL	***
88.40	90.00	7.730	0.052	1.625	12.500	10.875	N
90.00	95.00	7.570	0.084	2.625	12.250	9.625	N
95.00	100.00	7.790	0.102	3.188	19.500	16.313	N
100.00	105.00	7.730	0.086	2.688	18.250	15.563	N
105.00	110.00	8.080	0.063	1.969	23.500	21.531	N
110.00	115.00	7.020	0.004	0.125	22.750	22.625	N
115.00	120.00	7.560	0.085	2.656	19.500	16.844	N
120.00	121.70	7.710	0.101	3.156	19.000	15.844	N
121.70	125.10 Coal		1.020	31.875 Coal		COAL	***
125.10	130.00	7.280	0.840	26.250	23.000	-3.250	N
130.00	135.00	6.470	0.559	17.469	14.000	-3.469	N
135.00	137.60	6.920	0.399	12.469	14.000	1.531	N
137.60	139.20 Coal		0.600	18.750 Coal		COAL	***
139.20	140.40	7.650	0.192	6.000	5.250	-0.750	N
140.40	141.90 Coal		0.770	24.063 Coal		COAL	***
141.90	145.00	8.180	0.087	2.719	8.250	5.531	N
145.00	150.00	8.160	0.068	2.125	16.750	14.625	N
150.00	155.00	8.530	0.064	2.000	18.750	16.750	N
155.00	160.00	8.470	0.077	2.406	22.000	19.594	N
160.00	165.00	8.760	0.001	0.031	37.250	37.219	N
165.00	170.00	8.800	0.001	0.031	30.750	30.719	N
170.00	175.00	8.990	0.519	16.219	26.000	9.781	N
175.00	180.00	8.660	0.004	0.125	27.500	27.375	N
180.00	185.00	8.780	0.001	0.031	30.250	30.219	N
185.00	192.20 Coal		0.860	26.875 Coal		COAL	***
192.20	195.00	9.010	0.001	0.031	36.500	36.469	N
195.00	200.00	8.970	0.005	0.156	21.750	21.594	N
200.00	205.00	8.880	0.001	0.031	20.250	20.219	N
205.00	210.00	9.090	0.001	0.031	24.000	23.969	N
210.00	215.00	8.990	0.055	1.719	22.500	20.781	N

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COMPANY NAME: Twin Pines Coal Co. Inc.

MINE NAME: Shannon Mine #3

DRILL HOLE: #1520

COLLECTED BY: client

DATE COLLECTED: 4-26-10

ANALYZED BY: JC SR

DATE ANALYZED: 6-8-10

All analysis is performed according to EPA standards.

INTERVAL		PASTE pH	% SULFUR	MAX. POT. *ACIDITY	NEUT. *POT	A-B *ACCOUNT	ACID FORMING
215.00	220.00	8.950	0.010	0.313	23.250	22.938	N
220.00	221.00	9.000	0.008	0.250	27.000	26.750	N
221.00	223.90	Coal	1.000	31.250	Coal	COAL	***
223.90	225.00	8.460	0.779	24.344	21.000	-3.344	N
225.00	230.00	8.390	1.080	33.750	7.000	-26.750	Y
230.00	235.00	8.320	0.376	11.750	13.500	1.750	N
**AVERAGE		5.754	0.167	5.207	16.112	10.905	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 **TWIN PINES COAL COMPANY, INC.**

PERMIT NO: DRILL HOLE: **DH-1445**

COUNTY: **JEFFERSON** TOWNSHIP:

THRESHOLD VALUES:	SULFUR	NP	FIZZ
	0	0.00	0

CLAY	CL	3450
SHALE	SH	3700
SILTSTONE	ST	3750
SANDSTONE	SS	3670
LIMESTONE	LS	3670
COAL	CO	1800
CARBONOLITE	CB	2580
OTHER	OT	3670

ALK ADD(tns/ac CaCO3):
COAL SEAMS:
STATE PLANE ZONE:
FEET (NORTH/SOUTH):
FEET (EAST/WEST):
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	0.001	-0.75	-0.78	1.00	3450	1.00	0.54	0.00	-0.54	17250
10.00	5.00	CL	0	0.001	1.00	0.97	6.03	3450	1.00	3.27	104.52	101.25	104516
12.00	2.00	CL	0	0.001	-0.25	-0.26	8.42	3450	1.00	1.82	0.00	-1.82	58096
15.00	3.00	SS	0	0.169	17.25	11.97	10.11	3670	1.00	587.63	1919.36	1331.73	111287
20.00	5.00	SS	0	0.375	48.50	36.78	12.80	3670	1.00	2753.37	11395.30	8641.93	234955
25.00	5.00	SS	0	0.246	10.50	2.75	16.18	3670	1.00	2300.52	3116.84	816.31	296842
30.00	5.00	SS	0	0.115	28.75	25.16	19.55	3670	1.00	1289.18	10313.45	9024.27	358729
35.00	5.00	SS	0	0.129	15.50	11.47	22.92	3670	1.00	1695.61	8519.54	4823.94	420616
40.00	5.00	SS	0	0.175	14.25	8.78	26.29	3670	1.00	2638.69	6875.67	4236.98	482503
45.00	5.00	SS	0	0.124	14.75	10.88	29.67	3670	1.00	2109.51	8029.75	5920.24	544390
50.00	5.00	SS	0	0.096	14.75	11.75	33.04	3670	1.00	1818.83	8942.58	7123.75	606277
55.00	5.00	SS	0	0.288	16.25	7.25	36.41	3670	1.00	6013.48	10857.66	4844.19	668164
60.00	5.00	SS	0	0.110	14.50	11.06	39.78	3670	1.00	2509.55	10585.74	8076.19	730051
65.00	5.00	SS	0	0.099	17.25	14.16	43.16	3670	1.00	2450.06	13660.93	11210.87	791938
70.00	5.00	SS	0	0.090	11.50	8.69	45.53	3670	1.00	2401.38	9818.99	7417.61	853825
75.00	5.00	SS	0	0.025	50.00	49.22	49.90	3670	1.00	715.40	45785.61	45070.21	915712
80.00	5.00	SS	0	0.235	56.75	49.41	53.28	3670	1.00	7179.24	55476.75	48296.51	977599
85.00	5.00	SS	0	0.090	71.00	68.19	56.65	3670	1.00	2923.56	73803.52	70879.97	1039486
90.00	5.00	SH	0	0.130	28.75	24.66	60.02	3700	1.00	4510.90	31922.32	27412.42	1110376
95.00	5.00	SH	0	0.106	18.00	14.69	63.39	3700	1.00	3884.60	21109.65	17225.05	1172769
100.00	5.00	SH	0	0.095	21.00	18.03	66.77	3700	1.00	3656.39	25938.41	22281.52	1235162
105.00	5.00	SS	0	0.093	15.50	12.59	70.14	3670	1.00	3740.44	19949.03	16208.59	1297034
110.00	5.00	SS	0	0.011	16.75	16.41	73.51	3670	1.00	463.66	22594.43	22130.74	1346821
115.00	5.00	SS	0	0.082	16.25	13.69	76.88	3670	1.00	3615.20	22925.64	19310.44	1410809
120.00	5.00	SH	0	0.011	68.25	65.91	80.26	3700	1.00	518.38	98353.62	97835.25	1464794
125.00	5.00	SS	0	0.001	52.00	51.97	83.63	3670	1.00	47.96	79798.30	79750.34	1534583
130.00	5.00	SS	0	0.022	22.50	21.81	87.00	3670	1.00	1097.57	35920.57	34822.99	1598470
135.00	5.00	SS	0	0.110	24.50	21.06	90.37	3670	1.00	5700.60	40629.74	34929.14	1658357
140.00	5.00	SS	0	0.011	23.00	22.66	93.75	3670	1.00	591.33	39535.61	38974.27	1720244
145.00	5.00	SH	0	0.028	22.25	21.38	97.12	3700	1.00	1572.11	39976.54	38404.43	1796699
150.00	5.00	SH	0	0.096	18.75	15.75	100.49	3700	1.00	5577.27	34857.97	29280.69	1859092
155.00	5.00	SH	0	0.088	19.00	16.25	103.86	3700	1.00	5284.08	36506.21	31224.12	1921484
160.00	5.00	SH	0	0.222	22.50	15.56	107.24	3700	1.00	13763.15	44637.24	30874.09	1983877
165.00	5.00	SH	0	1.200	18.00	-16.50	110.61	3700	1.00	76735.14	36832.87	-39902.27	2046270
170.00	5.00	SH	0	0.451	12.00	-2.09	113.98	3700	1.00	29718.87	25303.96	-4415.01	2108663
175.00	5.00	SS	0	0.046	10.50	9.06	117.35	3670	1.00	3995.59	22611.26	18615.67	2153453
180.00	5.00	SS	0	0.001	11.25	11.22	120.73	3670	1.00	55.25	24822.58	24853.35	2215340
185.00	5.00	SS	0	0.001	10.25	10.22	124.10	3670	1.00	51.16	23341.58	23270.41	2277227
190.00	5.00	SH	0	0.058	7.25	5.44	127.47	3700	1.00	4274.30	17097.25	12822.95	2339115
195.00	5.00	SH	0	0.500	12.50	-3.13	130.84	3700	1.00	37822.31	30257.85	-7564.46	2420628
200.00	5.00	SH	0	0.014	7.25	5.81	134.22	3700	1.00	1086.32	18001.90	16915.58	2483021
200.90	0.90	SH	0	0.267	6.00	-2.34	136.21	3700	1.00	3794.47	2721.42	-1093.06	453570
201.80	0.90	CO	0	1.330	0.00	-41.58	136.81	1800	0.15	1281.78	0.00	-1281.78	33246
205.00	3.20	SH	0	0.066	16.50	14.44	138.20	3700	1.00	3374.77	26998.17	23623.40	1636253
210.00	5.00	SH	0	0.068	20.25	18.13	140.98	3700	1.00	5541.58	52808.09	47266.50	2807807
215.00	5.00	SH	0	0.016	20.50	20.00	144.34	3700	1.00	1335.10	54739.09	53403.99	2870200
220.00	5.00	SH	0	0.003	79.50	79.41	147.71	3700	1.00	256.16	217241.11	216984.93	2732593
225.00	5.00	SS	0	0.001	22.75	22.72	151.08	3670	1.00	86.64	63070.36	62983.72	2772324
230.00	5.00	SH	0	0.046	22.75	21.31	154.45	3700	1.00	4107.48	65005.36	60897.88	2857376
235.00	5.00	SH	0	0.054	22.25	20.56	157.83	3700	1.00	4927.11	64964.91	60037.80	2919771
240.00	5.00	SH	0	0.001	24.50	24.47	161.20	3700	1.00	93.19	73063.03	72969.83	2982164
242.80	2.80	SH	0	0.001	22.50	22.47	163.83	3700	1.00	53.04	38188.47	38135.43	1697265
245.30	2.50	CO	0	0.960	0.00	-30.63	165.62	1800	0.10	2282.40	0.00	-2282.40	74527
250.00	4.70	SH	0	0.155	20.25	15.41	168.04	3700	1.00	14154.86	59176.43	45021.57	2922293
255.00	5.00	SS	0	0.209	23.00	16.47	171.32	3670	1.00	20531.94	72303.85	51771.92	3143645
260.00	5.00	SS	0	0.133	24.50	20.34	174.69	3670	1.00	13323.00	78535.55	65212.56	3205533
265.00	5.00	SH	0	0.053	25.00	23.34	178.06	3700	1.00	5455.90	82353.23	76897.32	3294129
270.00	5.00	SH	0	0.001	26.00	25.97	181.43	3700	1.00	104.89	87269.57	87164.68	3356522
275.00	5.00	SH	0	0.001	26.25	26.22	184.81	3700	1.00	106.84	88746.52	88639.67	3418915
280.00	5.00	SH	0	0.102	26.50	23.31	188.18	3700	1.00	11096.67	92254.66	81157.99	3481308
280.20	0.20	SH	0	0.094	22.75	19.81	190.00	3700	1.00	413.01	3198.65	2785.64	140600

TOTAL OVERBURDEN VOL (ACRE-FT)	26273	TOTAL (TONS)	338701.90	2293914.34	1955212.44	96795706
PERCENT SANDSTONE	37%	TOTAL (TONS/THOUSAND)	3.50	23.70	20.20	
NP/MPA RATIO	6.77					
TONS/ACRE REQUIRED (1:1)	10291 EXCESS					

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR **TWIN PINES COAL COMPANY, INC..**

PERMIT NO: DRILL HOLE: **DH-1480**

COUNTY: **JEFFERSON** TOWNSHIP:

THRESHOLD VALUES:	SULFUR	NP	FIZZ
	0	0.00	0

CLAY	CL	3450
SHALE	SH	3700
SILTSTONE	ST	3750
SANDSTONE	SS	3670
LIMESTONE	LS	3670
COAL	CO	1800
CARBONOLITH	CB	2580
OTHER	OT	3670

ALK ADD(tns/ac CaCO3):
COAL SEAMS:
STATE PLANE ZONE:
FEET (NORTH/SOUTH):
FEET (EAST/WEST):
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	0.001	2.25	2.22	1.00	3450	1.00	0.54	38.81	38.27	17250
10.00	5.00	SH	0	0.001	5.00	4.97	8.08	3700	1.00	4.67	747.62	742.95	149524
15.00	5.00	SH	0	0.001	7.25	7.22	12.80	3700	1.00	7.40	1717.34	1709.94	236874
17.50	2.50	SH	0	0.001	7.50	7.47	16.35	3700	1.00	4.72	1133.95	1129.22	151193
20.00	2.50	SS	0	0.178	19.00	13.44	18.71	3670	1.00	954.68	3260.93	2306.25	171628
25.00	5.00	SS	0	0.132	28.25	24.13	22.25	3670	1.00	1683.98	11532.68	9848.70	408236
30.00	5.00	SS	0	0.102	25.25	22.06	26.97	3670	1.00	1577.42	12495.67	10918.24	494878
35.00	5.00	SS	0	0.098	23.50	20.44	31.69	3670	1.00	1780.90	13665.70	11884.80	581519
40.00	5.00	SS	0	0.089	24.00	21.22	36.41	3670	1.00	1858.32	16035.86	14177.53	668161
45.00	5.00	SS	0	0.010	57.50	57.19	41.13	3670	1.00	235.88	43401.12	43165.25	754802
50.00	5.00	SS	0	0.072	22.00	19.75	45.86	3670	1.00	1893.25	18511.76	16618.51	841444
55.00	5.00	SS	0	0.095	27.00	24.03	50.58	3670	1.00	2755.25	25058.29	22303.04	928085
60.00	5.00	SS	0	0.084	30.00	27.38	55.30	3670	1.00	2663.66	30441.79	27778.13	1014726
65.00	5.00	SS	0	0.133	31.00	26.84	60.02	3670	1.00	4577.56	34142.40	29564.84	1101368
70.00	5.00	SS	0	0.117	25.00	21.34	64.74	3670	1.00	4343.66	29700.23	25356.57	1188009
75.00	5.00	SS	0	0.114	27.25	23.69	69.46	3670	1.00	4540.94	34734.23	30193.29	1274651
80.00	5.00	SS	0	0.132	27.00	22.88	74.18	3670	1.00	5615.33	36754.89	31139.56	1361292
85.00	5.00	SS	0	0.106	27.75	24.44	78.91	3670	1.00	4796.28	40180.16	35383.88	1447934
90.00	5.00	SS	0	0.081	32.50	29.97	83.63	3670	1.00	3884.39	49873.69	45989.29	1534575
95.00	5.00	SH	0	0.205	28.50	22.09	88.35	3700	1.00	10470.82	46582.36	36111.55	1634489
100.00	5.00	SH	0	1.320	34.50	-6.75	93.07	3700	1.00	71025.01	59402.74	-11622.27	1721818
105.00	5.00	SH	0	0.102	26.50	23.31	97.79	3700	1.00	5766.72	47942.95	42176.23	1809168
110.00	5.00	SS	0	0.001	24.50	24.47	102.51	3670	1.00	58.79	46087.95	46029.16	1881141
115.00	5.00	SH	0	0.001	16.50	16.47	107.24	3700	1.00	62.00	32733.81	32671.82	1983867
120.00	5.00	SS	0	0.004	13.00	12.88	111.96	3670	1.00	256.80	26707.51	26450.70	2054423
125.00	5.00	SH	0	0.049	11.00	9.47	116.68	3700	1.00	3305.31	23744.23	20438.93	2158567
128.00	3.00	SH	0	0.205	16.75	10.34	120.46	3700	1.00	8565.59	22395.89	13830.30	1337068
130.00	2.00	SS	0	0.231	4.25	-2.97	122.82	3670	1.00	6507.56	3831.29	-2676.27	901480
135.00	5.00	SH	0	0.114	5.00	1.44	126.12	3700	1.00	8312.26	11666.33	3354.07	2333266
136.60	1.60	SH	0	0.092	9.25	6.38	129.24	3700	1.00	2199.64	7077.11	4877.47	765093
137.60	1.00	CO	0	1.200	0.00	-37.50	130.47	1800	0.15	1320.97	0.00	-1320.97	35226
140.00	2.40	SH	0	0.052	16.75	15.13	132.07	3700	1.00	1905.79	19644.35	17738.55	1172757
145.00	5.00	SH	0	0.045	17.25	15.84	135.57	3700	1.00	3526.83	43262.40	39735.58	2507965
150.00	5.00	SH	0	0.050	18.00	16.44	140.29	3700	1.00	4055.18	46715.67	42660.49	2595315
155.00	5.00	SH	0	0.081	19.75	17.22	145.01	3700	1.00	6790.50	52982.63	46192.13	2682665
160.00	5.00	SH	0	0.001	68.50	68.47	149.73	3700	1.00	86.56	189745.99	189659.43	2770014
165.00	5.00	SS	0	0.001	20.75	20.72	154.45	3670	1.00	88.57	58809.57	58721.01	2834196
170.00	5.00	SS	0	0.001	18.75	18.72	159.17	3670	1.00	91.28	54765.71	54674.43	2920838
175.00	5.00	SH	0	0.001	7.25	7.22	163.90	3700	1.00	94.75	21982.46	21887.71	3032063
180.00	5.00	SH	0	0.001	9.25	9.22	168.62	3700	1.00	97.48	28854.57	28757.09	3119413
185.00	5.00	SH	0	0.005	9.25	9.09	173.34	3700	1.00	501.06	29662.56	29161.50	3206763
187.50	2.50	SH	0	0.000	12.75	12.75	176.88	3700	1.00	5.11	20860.75	20855.64	1636138
191.00	3.50	CO	0	0.980	0.00	-30.63	179.71	1800	0.10	3467.33	0.00	-3467.33	113219
195.00	4.00	SH	0	0.175	12.25	6.78	183.25	3700	1.00	14832.11	33223.93	18391.82	2712158
200.00	5.00	SH	0	0.001	16.25	16.22	187.50	3700	1.00	108.40	56368.19	56259.79	3468812
205.00	5.00	SH	0	0.051	17.25	15.66	192.22	3700	1.00	5667.63	61343.79	55676.15	3556161
210.00	5.00	SH	0	0.168	16.25	11.00	196.95	3700	1.00	19128.43	59207.06	40078.62	3643511
215.00	5.00	SH	0	0.272	9.00	0.50	201.67	3700	1.00	31712.32	33577.75	1865.43	3730861
216.00	1.00	SH	0	0.272	9.00	0.50	204.50	3700	1.00	6431.56	6809.89	378.33	756654
224.50	8.50	CO	0	0.860	0.00	-26.88	213.00	1800	0.10	8758.29	0.00	-8758.29	325890
TOTAL (TONS):										268379.49	1549416.55	1281037.06	79727170
TOTAL (TONS/THOUSAND):										3.37	19.43	16.07	

TOTAL OVERBURDEN VOL.(ACRE-FT) 21737

PERCENT SANDSTONE: 31%

NP/MPA RATIO: 5.77

TONS/ACRE REQUIRED (1:1) 6014 EXCESS

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR **TWIN PINES COAL COMPANY, INC.**

PERMIT NO: DRILL HOLE: **DH-1485**

COUNTY **JEFFERSON** TOWNSHIP

THRESHOLD VALUES:	SULFUR	NP	FIZZ
	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):
CARBONOLITH	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	0.001	0.25	0.22	1.00	3450	1.00	0.54	4.31	3.77	17250
10.00	5.00	CL	0	0.001	1.25	1.22	5.94	3450	1.00	3.20	127.98	124.78	102384
15.00	5.00	CL	0	0.001	2.25	2.22	9.23	3450	1.00	4.97	358.07	353.09	159140
20.00	5.00	CL	0	0.001	3.00	2.97	12.52	3450	1.00	6.75	647.69	640.94	215896
25.00	5.00	SS	0	0.001	13.50	13.47	15.81	3670	1.00	9.06	3915.52	3906.46	290039
30.00	5.00	SS	0	0.332	22.50	12.13	19.10	3670	1.00	3635.54	7884.31	4248.77	350414
35.00	5.00	SS	0	0.093	28.75	25.84	22.39	3670	1.00	1193.86	11810.18	10616.33	410789
40.00	5.00	SS	0	0.005	38.25	38.09	25.68	3670	1.00	73.62	18022.03	17948.41	471164
45.00	5.00	SS	0	0.094	24.75	21.81	28.97	3670	1.00	1561.40	13155.60	11594.20	531539
50.00	5.00	SS	0	0.087	19.75	17.03	32.26	3670	1.00	1609.27	11690.32	10081.05	591915
55.00	5.00	SH	0	0.080	22.00	19.50	35.55	3700	1.00	1644.05	14467.68	12823.63	657622
60.00	5.00	SS	0	0.085	24.75	22.09	38.84	3670	1.00	1893.02	17636.46	15743.45	712665
65.00	5.00	SS	0	0.117	26.50	22.84	42.13	3670	1.00	2826.43	20485.57	17659.14	773040
70.00	5.00	SS	0	0.093	24.50	21.59	45.42	3670	1.00	2422.11	20418.68	17996.57	833416
75.00	5.00	SS	0	0.095	19.75	16.78	48.71	3670	1.00	2653.44	17652.37	14998.93	893791
80.00	5.00	SS	0	0.120	26.25	22.50	52.00	3670	1.00	3578.12	25046.86	21468.74	954166
85.00	5.00	SH	0	0.130	26.00	21.94	55.29	3700	1.00	4155.27	26593.70	22438.43	1022835
90.00	5.00	SH	0	0.001	31.75	31.72	58.58	3700	1.00	33.87	34407.58	34373.71	1083703
95.00	5.00	SH	0	0.001	18.25	18.22	61.87	3700	1.00	35.77	20888.44	20852.67	1144572
100.00	5.00	SH	0	0.104	19.75	16.50	65.16	3700	1.00	3917.68	23807.46	19889.77	1205441
105.00	5.00	SH	0	0.095	19.75	16.78	68.45	3700	1.00	3759.36	25009.61	21250.26	1266310
110.00	5.00	SH	0	0.157	17.00	12.09	71.74	3700	1.00	6511.47	22562.03	16050.56	1327178
115.00	5.00	SH	0	0.242	24.50	16.94	75.03	3700	1.00	10497.11	34007.15	23510.05	1388047
120.00	5.00	SH	0	1.050	28.00	-4.81	78.32	3700	1.00	47542.55	40569.65	-6972.91	1448916
125.00	5.00	SH	0	0.536	14.00	-2.75	81.61	3700	1.00	25286.89	21136.99	-4151.91	1509785
130.00	5.00	SH	0	0.092	10.50	7.63	84.90	3700	1.00	4515.63	16491.86	11976.23	1570653
135.00	5.00	SH	0	0.001	12.25	12.22	88.19	3700	1.00	50.98	19986.15	19935.16	1631522
140.00	5.00	SH	0	0.001	15.25	15.22	91.48	3700	1.00	52.89	25808.96	25756.07	1692391
145.00	5.00	SH	0	0.001	20.50	20.47	94.77	3700	1.00	54.79	35941.82	35887.03	1753260
150.00	5.00	SH	0	0.078	7.75	5.31	98.06	3700	1.00	4421.94	14059.50	9637.56	1814128
155.00	5.00	SH	0	0.104	15.25	12.00	101.35	3700	1.00	6093.74	28593.71	22499.97	1874997
158.30	3.30	SH	0	0.032	10.25	9.25	104.08	3700	1.00	1270.84	13026.13	11755.29	1270842
159.70	1.40	CO	0	1.330	0.00	-41.58	105.63	1800	0.15	1659.49	0.00	-1659.49	39928
160.00	0.30	SH	0	0.022	8.50	7.81	106.19	3700	1.00	81.03	1001.88	920.85	117868
165.00	5.00	SH	0	0.078	12.25	9.81	107.93	3700	1.00	4867.04	24460.00	19592.96	1996735
170.00	5.00	SH	0	0.094	13.50	10.56	111.22	3700	1.00	6044.21	27777.65	21733.44	2057604
175.00	5.00	SH	0	0.155	18.25	13.41	114.51	3700	1.00	10261.35	38662.12	28400.77	2118472
180.00	5.00	SH	0	0.113	23.25	19.72	117.80	3700	1.00	7695.80	50659.68	42973.88	2179341
185.00	5.00	SH	0	0.003	23.50	23.49	121.09	3700	1.00	210.52	52644.93	52434.41	2240210
190.00	5.00	SH	0	0.008	21.00	20.75	124.38	3700	1.00	575.27	48322.65	47747.36	2301079
194.40	4.40	SH	0	0.080	14.25	11.75	127.46	3700	1.00	5188.25	29573.02	24384.77	2075300
197.80	3.40	CO	0	0.980	0.00	-30.63	130.04	1800	0.10	2437.31	0.00	-2437.31	79588
200.00	2.20	SH	0	0.109	16.25	12.84	131.86	3700	1.00	3656.74	17444.99	13788.26	1073538
205.00	5.00	SH	0	0.001	11.00	10.97	134.25	3700	1.00	77.62	27320.53	27242.92	2483685
210.00	5.00	SS	0	0.001	7.50	7.47	137.54	3670	1.00	78.87	18929.42	18850.54	2523922
215.00	5.00	SS	0	0.101	8.00	4.84	140.83	3670	1.00	8156.69	20674.38	12517.69	2584297
220.00	5.00	SH	0	0.001	15.75	15.72	144.12	3700	1.00	83.32	41994.09	41910.76	2666291
225.00	5.00	SH	0	0.001	12.25	12.22	147.41	3700	1.00	85.22	33407.71	33322.48	2727160
230.00	5.00	SH	0	0.226	5.25	-1.81	150.70	3700	1.00	19690.45	14637.15	-5053.30	2788029
235.00	5.00	SS	0	0.327	9.00	-1.22	153.99	3670	1.00	28876.13	25432.18	-3443.94	2825798
238.60	3.60	SH	0	0.279	10.50	1.78	156.82	3700	1.00	18212.56	21933.41	3720.85	2088896
242.90	4.30	CO	0	0.860	0.00	-26.88	159.42	1800	0.10	3316.20	0.00	-3316.20	123394
245.00	2.10	SH	0	0.170	22.00	16.69	161.53	3700	1.00	6667.62	27611.77	20944.16	1255080
250.00	5.00	SH	0	0.175	8.00	2.53	163.87	3700	1.00	16578.54	24252.03	7673.49	3031504
255.00	5.00	SH	0	0.147	9.25	4.66	167.16	3700	1.00	14205.59	28604.45	14398.86	3092372
260.00	5.00	SH	0	0.084	10.25	7.63	170.45	3700	1.00	8277.26	32320.72	24043.46	3153241
265.00	5.00	SH	0	0.138	9.25	4.94	173.74	3700	1.00	13860.85	29730.52	15869.67	3214110
268.10	3.10	SH	0	0.059	10.00	8.16	176.40	3700	1.00	3730.49	20233.16	16502.68	2023316
270.30	2.20	CO	0	1.190	0.00	-37.19	178.14	1800	0.10	2623.40	0.00	-2623.40	70545
270.50	0.20	SH	0	0.212	68.00	61.38	179.00	3700	1.00	877.55	9007.28	8129.73	132480

TOTAL OVERBURDEN VOL.(ACRE-FT)	22843	TOTAL (TONS)	329393.01	1252862.09	923469.08	84033571
PERCENT SANDSTONE:	18%	TOTAL (TONS/THOUSAND)	3.92	14.91	10.99	
NP/MPA RATIO:	3.80					
TONS/ACRE REQUIRED (1:1)	5159 EXCESS					

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR **TWIN PINES COAL COMPANY, INC..**

PERMIT NO: DRILL HOLE: **DH-1513**

COUNTY: **JEFFERSON** TOWNSHIP:

THRESHOLD VALUES:	SULFUR	NP	FIZZ
	0	0.00	0

CLAY	CL	3450
SHALE	SH	3700
SILTSTONE	ST	3750
SANDSTONE	SS	3670
LIMESTONE	LS	3670
COAL	CO	1800
CARBONOLITH	CB	2580
OTHER	OT	3670

ALK ADD(tns/ac CaCO3)

COAL SEAMS:

STATE PLANE ZONE:

FEET (NORTH/SOUTH):

FEET (EAST/WEST):

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	0.017	8.00	7.47	1.00	3670	1.00	9.75	146.80	137.05	18350
10.00	5.00	OT	0	0.015	6.00	5.53	16.47	3670	1.00	141.71	1813.89	1672.18	302314
15.00	5.00	OT	0	0.048	11.00	9.50	26.79	3670	1.00	737.44	5407.86	4670.43	491624
20.00	5.00	OT	0	0.031	6.25	5.28	37.11	3670	1.00	659.65	4255.83	3596.18	680933
25.00	5.00	OT	0	0.002	2.25	2.19	47.42	3670	1.00	54.39	1958.05	1903.66	870243
30.00	5.00	OT	0	0.021	2.50	1.84	57.74	3670	1.00	695.33	2648.88	1953.55	1059552
35.00	5.00	SS	0	0.019	1.75	1.16	68.06	3670	1.00	741.51	2185.51	1444.00	1248862
40.00	5.00	SS	0	0.028	2.25	1.38	78.37	3670	1.00	1258.40	3235.89	1977.49	1438171
45.00	5.00	SS	0	0.021	3.50	2.84	88.69	3670	1.00	1068.03	5696.18	4628.15	1627481
46.60	1.60	SH	0	0.060	5.50	3.63	95.50	3700	1.00	1060.05	3109.48	2049.43	565360
54.40	7.80	CO	0	0.890	0.00	-27.81	105.20	1800	0.10	4107.83	0.00	-4107.83	147697
55.00	0.60	SH	0	0.021	0.50	-0.16	113.86	3700	1.00	165.88	126.39	-39.50	252777
60.00	5.00	SH	0	0.039	6.00	4.78	119.64	3700	1.00	2697.53	13280.13	10582.61	2213355
65.00	5.00	SS	0	0.001	22.25	22.22	129.96	3670	1.00	74.52	53059.99	52985.47	2334719
70.00	5.00	SS	0	0.017	8.00	7.47	140.27	3670	1.00	1367.45	20592.23	19224.77	2574028
75.00	5.00	SS	0	0.004	24.50	24.38	150.59	3670	1.00	345.42	67701.77	67356.36	2763338
80.00	5.00	SS	0	0.002	5.25	5.19	160.91	3670	1.00	184.54	15501.40	15316.86	2952647
85.00	5.00	SH	0	0.036	9.75	8.63	171.22	3700	1.00	3563.60	30884.49	27320.90	3187640
88.10	3.10	SH	0	0.017	5.50	4.97	179.58	3700	1.00	1094.26	11328.82	10234.56	2059785
91.40	3.30	CO	0	1.190	0.00	-37.19	186.18	1800	0.10	4112.66	0.00	-4112.66	110593
91.60	0.20	SH	0	0.001	25.00	24.97	190.00	3700	1.00	4.39	3515.00	3510.61	140600

TOTAL OVERBURDEN VOL.(ACRE-FT)	7431	TOTAL (TONS):	24144.36	246448.58	222304.23	27070070
PERCENT SANDSTONE:	55%	TOTAL (TONS/THOUSAND):	0.89	9.10	8.21	
NP/MPA RATIO:	10.21					
TONS/ACRE REQUIRED (1:1):	1170 EXCESS					

OVERBURDEN ANALYSIS SPREADSHEET

OPERATOR **TWIN PINES COAL COMPANY, INC..**

PERMIT NO: DRILL HOLE: **OH-1520**

COUNTY: **JEFFERSON** TOWNSHIP:

THRESHOLD VALUES:	SULFUR	NP	FIZZ
	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):
CARBONOLITH	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	0.001	2.75	2.72	1.00	3450	1.00	0.54	47.44	46.90	17250
10.00	5.00	CL	0	0.001	2.75	2.72	3.28	3450	1.00	1.77	155.39	153.63	56507
15.00	5.00	SS	0	0.001	2.75	2.72	4.79	3670	1.00	2.75	241.86	239.12	87951
17.00	2.00	SS	0	0.001	4.00	3.97	5.85	3670	1.00	1.34	171.90	170.56	42976
20.00	3.00	SH	0	0.091	4.50	1.66	6.61	3700	1.00	208.76	330.35	121.59	73411
25.00	5.00	SH	0	0.032	5.00	4.00	7.83	3700	1.00	144.81	724.03	579.22	144805
30.00	5.00	SH	0	0.064	7.25	5.25	9.34	3700	1.00	345.75	1253.33	907.58	172873
35.00	5.00	SH	0	0.114	15.00	11.44	10.86	3700	1.00	715.85	3014.11	2298.26	200941
40.00	5.00	SH	0	0.314	14.25	4.44	12.38	3700	1.00	2247.15	3263.37	1016.23	229009
45.00	5.00	SH	0	0.126	14.00	10.06	13.90	3700	1.00	1012.24	3599.07	2586.83	257077
50.00	5.00	SH	0	0.467	11.25	-3.34	15.41	3700	1.00	4161.33	3207.87	-953.45	285144
55.00	5.00	SH	0	0.541	14.75	-2.18	16.93	3700	1.00	5295.24	4619.88	-675.36	313212
60.00	5.00	SS	0	0.087	8.50	5.78	18.45	3670	1.00	920.33	2877.36	1957.03	338513
65.00	5.00	SS	0	0.059	7.50	5.66	19.96	3670	1.00	675.46	2747.65	2072.18	366353
70.00	5.00	SS	0	0.030	7.25	6.31	21.48	3670	1.00	369.58	2857.90	2488.35	394193
75.00	5.00	SS	0	0.083	8.25	5.66	23.00	3670	1.00	1094.65	3481.78	2387.13	422034
80.00	5.00	SH	0	0.229	12.25	5.09	24.52	3700	1.00	3245.73	5558.00	2310.28	453551
85.00	5.00	SS	0	0.075	9.25	3.91	26.03	3670	1.00	1119.64	4418.86	3299.21	477714
87.30	2.30	SH	0	0.133	10.50	6.34	27.14	3700	1.00	958.97	2425.18	1465.22	230970
88.40	1.10	CO	0	1.020	0.00	-21.88	27.66	1800	0.10	174.55	0.00	-174.55	5476
90.00	1.60	SH	0	0.052	12.50	10.88	28.07	3700	1.00	270.00	2076.92	1806.92	165154
95.00	5.00	SH	0	0.084	12.25	9.63	29.07	3700	1.00	1411.61	6587.50	5175.89	537755
100.00	5.00	SH	0	0.102	19.50	16.31	30.59	3700	1.00	1803.56	11033.54	9229.98	565823
105.00	5.00	SH	0	0.086	18.25	15.56	32.10	3700	1.00	1596.08	10838.50	9242.42	593890
110.00	5.00	SS	0	0.063	23.50	21.53	33.62	3670	1.00	1214.55	14497.51	13282.96	616915
115.00	5.00	SS	0	0.004	22.75	22.63	35.14	3670	1.00	80.59	14668.19	14587.60	644756
120.00	5.00	SH	0	0.085	19.50	16.84	36.65	3700	1.00	1801.19	13222.83	11421.64	678094
121.70	1.70	SH	0	0.101	19.00	15.84	37.67	3700	1.00	747.86	4501.97	3754.11	236946
125.10	3.40	CO	0	1.020	0.00	-31.88	38.44	1800	0.10	749.95	0.00	-749.95	23528
130.00	4.90	SH	0	0.840	23.00	-3.25	39.70	3700	1.00	18895.26	16555.86	-2339.42	719820
135.00	5.00	SH	0	0.559	14.00	-3.47	41.21	3700	1.00	13316.38	10672.16	-2644.22	762297
137.60	2.60	SH	0	0.399	14.00	1.53	42.36	3700	1.00	5080.85	5704.82	623.96	407487
139.20	4.20	CO	0	0.600	0.00	-18.75	42.90	1800	0.15	905.81	0.00	-905.81	48310
140.40	1.20	SH	0	0.192	5.25	-9.75	43.42	3700	1.00	1156.72	1012.13	-144.59	192786
141.90	1.50	CO	0	0.770	0.00	-24.06	43.83	1800	0.15	427.14	0.00	-427.14	17751
145.00	3.10	SH	0	0.087	8.25	5.53	44.53	3700	1.00	1388.55	4213.56	2825.00	510735
150.00	5.00	SH	0	0.068	18.75	14.63	45.76	3700	1.00	1798.81	14178.89	12380.08	846501
155.00	5.00	SH	0	0.064	18.75	16.75	47.27	3700	1.00	1749.14	16398.16	14649.03	874569
160.00	5.00	SH	0	0.077	22.00	19.59	48.79	3700	1.00	2171.97	19858.00	17686.03	902637
165.00	5.00	SH	0	0.001	37.25	37.22	50.31	3700	1.00	29.08	34668.74	34639.65	930704
170.00	5.00	SH	0	0.001	30.75	30.72	51.83	3700	1.00	29.96	29482.25	29452.28	958772
175.00	5.00	SH	0	0.519	26.00	9.78	53.34	3700	1.00	16005.31	25657.84	9652.53	986840
180.00	5.00	SH	0	0.004	27.50	27.38	54.86	3700	1.00	126.86	27909.97	27783.10	1014908
185.00	5.00	SH	0	0.001	30.25	30.22	56.38	3700	1.00	32.59	31550.01	31517.42	1042976
192.20	7.20	CO	0	0.860	0.00	-26.88	58.23	1800	0.10	2028.08	0.00	-2028.08	75464
195.00	2.80	SH	0	0.001	36.50	36.47	59.75	3700	1.00	19.34	22592.05	22572.71	618960
200.00	5.00	SH	0	0.005	21.75	21.59	60.93	3700	1.00	176.12	24516.15	24340.03	1127179
205.00	5.00	SS	0	0.001	20.25	20.22	62.45	3670	1.00	35.81	23204.07	23168.26	1145880
210.00	5.00	SS	0	0.001	24.00	23.97	63.96	3670	1.00	36.68	28169.29	28132.61	1173720
215.00	5.00	SS	0	0.055	22.50	20.78	65.48	3670	1.00	2065.18	27035.11	24969.93	1201561
220.00	5.00	SS	0	0.010	23.25	22.94	67.00	3670	1.00	364.19	28563.57	28199.38	1229401
221.00	1.00	SH	0	0.008	27.00	26.75	67.91	3700	1.00	62.81	6783.97	6721.16	251258
223.90	2.90	CO	0	1.000	0.00	-31.25	68.50	1800	0.10	1117.40	0.00	-1117.40	35757
224.10	0.20	SH	0	0.779	21.00	-3.34	69.00	3700	1.00	1242.99	1072.26	-170.73	51060

TOTAL OVERBURDEN VOL.(ACRE-FT):	7041	TOTAL (TONS):	102655.87	522239.18	419583.31	25761152
PERCENT SANDSTONE:	32%	TOTAL (TONS/THOUSAND):	3.98	20.27	16.29	
NP/MPA RATIO:	5.09					
TONS/ACRE REQUIRED (1:1):	6081 EXCESS					

PERC ENGINEERING CO., INC.

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

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 29-1

SAMPLE WEIGHT: 3553.8 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7071

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"	118.6	100.0	18.6	0.52	0.52	99.48
1/4"	148.2	100.0	48.2	1.36	1.88	98.12
3/16"	141.3	100.0	41.3	1.16	3.04	96.96
2 MM	202.0	100.0	102.0	2.87	5.91	94.09
SOIL	3443.7	100.0	3343.7	94.09	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 5.91

% OF SAMPLE THAT IS SOIL : 94.09

PERC ENGINEERING CO., INC.

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

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 29-2

SAMPLE WEIGHT: 3486.8 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7072

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"	139.1	100.0	39.1	1.12	1.12	98.88
1/4"	359.5	100.0	259.5	7.44	8.56	91.44
3/16"	330.5	100.0	230.5	6.61	15.17	84.83
2 MM	820.6	100.0	720.6	20.67	35.84	64.16
SOIL	2337.1	100.0	2237.1	64.16	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 35.84

% OF SAMPLE THAT IS SOIL : 64.16

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Web Address: www.percengineering.com

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 29-3

SAMPLE WEIGHT: 3310.5 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7073

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"	271.3	100.0	171.3	5.17	5.17	94.83
1/4"	493.2	100.0	393.2	11.88	17.05	82.95
3/16"	317.3	100.0	217.3	6.56	23.61	76.39
2 MM	652.3	100.0	552.3	16.68	40.29	59.71
SOIL	2076.4	100.0	1976.4	59.71	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 40.29

% OF SAMPLE THAT IS SOIL : 59.71

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TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No.3

SOIL / OVERBURDEN: 29-4

SAMPLE WEIGHT: 3947.8 (GRAMS)

DATE SAMPLED: 4/28/2010

DATE ANALYZED: 4/29/2010

ANALYZED BY: JRK

LAB ID: 7149

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"	100.0	100.0	0.0	0.00	0.00	100.00
1/4"	148.7	100.0	48.7	1.23	1.23	98.77
3/16"	149.3	100.0	49.3	1.25	2.48	97.52
2 MM	215.8	100.0	115.8	2.93	5.41	94.59
SOIL	3834.0	100.0	3734.0	94.59	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 5.41

% OF SAMPLE THAT IS SOIL : 94.59

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Web Address: www.percengineering.com

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No.3

SOIL / OVERBURDEN: 29-5

SAMPLE WEIGHT: 4332.7 (GRAMS)

DATE SAMPLED: 4/28/2010

DATE ANALYZED: 4/29/2010

ANALYZED BY: JRK

LAB ID: 7150

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"	124.8	100.0	24.8	0.57	0.57	99.43
1/2"	143.4	100.0	43.4	1.00	1.57	98.43
1/4"	201.4	100.0	101.4	2.34	3.91	96.09
3/16"	172.6	100.0	72.6	1.68	5.59	94.41
2 MM	220.6	100.0	120.6	2.78	8.37	91.63
SOIL	4069.9	100.0	3969.9	91.63	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 8.37

% OF SAMPLE THAT IS SOIL : 91.63

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Web Address: www.percengineering.com

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 35-1

SAMPLE WEIGHT: 3914.7 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7074

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"	262.4	100.0	162.4	4.15	4.15	95.85
1/2"	737.9	100.0	637.9	16.29	20.44	79.56
1/4"	599.7	100.0	499.7	12.76	33.20	66.80
3/16"	291.1	100.0	191.1	4.88	38.08	61.92
2 MM	530.7	100.0	430.7	11.00	49.08	50.92
SOIL	2092.9	100.0	1992.9	50.92	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 49.08

% OF SAMPLE THAT IS SOIL : 50.92

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Web Address: www.percengineering.com

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 35-2

SAMPLE WEIGHT: 4161.7 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7075

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"	147.2	100.0	47.2	1.13	1.13	98.87
1/2"	484.6	100.0	384.6	9.24	10.37	89.63
1/4"	816.2	100.0	716.2	17.21	27.58	72.42
3/16"	414.7	100.0	314.7	7.56	35.14	64.86
2 MM	809.5	100.0	709.5	17.05	52.19	47.81
SOIL	2089.5	100.0	1989.5	47.81	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 52.19

% OF SAMPLE THAT IS SOIL : 47.81

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TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 35-3

SAMPLE WEIGHT: 3724.2 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7076

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"	191.1	100.0	91.1	2.45	2.45	97.55
1/2"	467.3	100.0	367.3	9.86	12.31	87.69
1/4"	601.9	100.0	501.9	13.48	25.79	74.21
3/16"	314.6	100.0	214.6	5.76	31.55	68.45
2 MM	535.7	100.0	435.7	11.70	43.25	56.75
SOIL	2213.6	100.0	2113.6	56.75	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 43.25

% OF SAMPLE THAT IS SOIL : 56.75

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TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No. 3

SOIL / OVERBURDEN: 35-4

SAMPLE WEIGHT: 3547.1 (GRAMS)

DATE SAMPLED: 2/26/2010

DATE ANALYZED: 3/8/2010

ANALYZED BY: JRK

LAB ID: 7077

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"	215.9	100.0	115.9	3.27	3.27	96.73
1/2"	636.1	100.0	536.1	15.11	18.38	81.62
1/4"	755.2	100.0	655.2	18.47	36.85	63.15
3/16"	327.1	100.0	227.1	6.40	43.25	56.75
2 MM	547.2	100.0	447.2	12.61	55.86	44.14
SOIL	1665.6	100.0	1565.6	44.14	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 55.86

% OF SAMPLE THAT IS SOIL : 44.14

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TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

DATE SAMPLED: 4/28/2010

MINE NAME: Shannon Mine No.3

DATE ANALYZED: 4/29/2010

SOIL / OVERBURDEN: 35-5

ANALYZED BY: JRK

SAMPLE WEIGHT: 3732.0 (GRAMS)

LAB ID: 7151

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"	440.2	100.0	340.2	9.12	9.12	90.88
1/2"	553.0	100.0	453.0	12.14	21.26	78.74
1/4"	487.4	100.0	387.4	10.38	31.64	68.36
3/16"	256.6	100.0	156.6	4.20	35.84	64.16
2 MM	439.3	100.0	339.3	9.09	44.93	55.07
SOIL	2155.5	100.0	2055.5	55.07	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 44.93

% OF SAMPLE THAT IS SOIL : 55.07

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Web Address: www.percengineering.com

TABLE 1

COMPANY NAME: Twin Pines Coal Company Inc.

MINE NAME: Shannon Mine No.3

SOIL / OVERBURDEN: 35-6

SAMPLE WEIGHT: 3767.6 (GRAMS)

DATE SAMPLED: 4/28/2010

DATE ANALYZED: 4/29/2010

ANALYZED BY: JRK

LAB ID: 7152

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"	549.0	100.0	449.0	11.92	11.92	88.08
1/2"	276.0	100.0	176.0	4.67	16.59	83.41
1/4"	409.5	100.0	309.5	8.21	24.80	75.20
3/16"	238.1	100.0	138.1	3.67	28.47	71.53
2 MM	364.7	100.0	264.7	7.03	35.50	64.50
SOIL	2530.3	100.0	2430.3	64.50	100.00	0.00

% OF SAMPLE THAT IS COARSE FRAGMENTS : 35.50

% OF SAMPLE THAT IS SOIL : 64.50

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TABLE 2

OVERBURDEN VS TOPSOIL COMPARISON

	SOIL (AVERAGE)	PREVIOUSLY MINED OVERBURDEN (AVERAGE)	SELECTED OVERBURDEN DH-1144, DH-1149, DH-1150 & DH-1151 (AVERAGE)
pH (Median)	4.70	5.80	7.77
Fertility ratings for P, K, & Mg:			
Phosphorus	63.2	37.5	N/A
Potassium	122.2	133.3	N/A
Magnesium	348.8	1349.5	N/A
Recommendations for Limestone, N, P_2O5, K_2O:			
Limestone (Tons/Acre)	1.70	0.50	N/A
N (Lbs./Acre)	60	60	N/A
P_2O5 (Lbs./Acre)	58.3	53.3	N/A
K_2O (Lbs./Acre)	56	36.7	N/A
Sulfur (percent)	0.025	0.132	0.108
Maximum Potential Acidity*	0.78	4.09	3.38
Neutralizing Potential*	+1.82	+4.70	+17.16
Acid-Base Account*	+1.04	+0.61	+13.78

TABLE 2

	SOIL (AVERAGE)	PREVIOUSLY MINED OVERBURDEN (AVERAGE)	SELECTED OVERBURDEN DH-1144, DH-1149, DH-1150 & DH-1151 (AVERAGE)
Percent Organic Matter	2.24	5.23	N/A
Nitrate Nitrogen (ppm)	6.08	1.88	N/A
Sand Percentage	44.50	25.63	N/A
Silt Percentage	32.13	55.94	N/A
Clay Percentage	23.37	18.43	N/A
Available Water Capacity (In. H_2O/In. Soil)	0.1267	0.1167	N/A
Coarse Fragment Percentage	20.18	46.80	N/A
Soil Percentage	79.82	53.20	N/A
"Total" Available H_2O Capacity (in. H_2O/in. soil)	0 .1190	0.0971	N/A
Soil Erodibility Factor "K"	.32	.24	N/A

*Tons CaCo3 Equivalent/1000 tons material

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co.,Inc.
PO Box 1712
Jasper Al 35502

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: Twin Pines Coal Co.,LLC. Shannon Mine #3 Special Analysis #: 10.S2083-S2084 PO #: 17626

						Soil Texture				
		S	OM	NO_3-N	Neutralizing Potential	%	%	%		H_2O avail.
Lab I.D.	Sample I.D.	%	%	ppm	Tons $CaCO_3$/1000Tons material	Sand	Silt	Clay	Textural Class	cm/cm
10.S2083	7149	0.0100	2.2	19.5	0.80	41.25	30.00	28.75	Clay Loam	0.13
10.S2084	7150	0.0050	1.7	23.5	0.56	50.00	25.00	25.00	Sandy Clay Loam	0.11

DATE: 6-10-10

TABLE 3

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co.,Inc.
PO Box 1712
Jasper,Al. 35502

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: Twin Pines Coal Company,LLC - Shannon Mine #3 Special Analysis #: 10.S2085-S2086 PO #: 17626

						Soil Texture					
		OM	NO_3-N	Neutralizing Potential			%	%	%		H_2O avail.
Lab I.D.	Sample I.D.	%	ppm	Tons $CaCO_3$/1000 Tons material		max pot.acid.	Sand	Silt	Clay	Textural Class	cm^3/cm^3
18464	7151	5.4	3.2	5.60		5.56	45.00	27.50	27.50	Clay Loam/Sandy Clay Loam	0.12
18465	7152	4.0	3.5	5.36		4.09	45.00	27.50	27.50	Clay Loam/Sandy Clay Loam	0.12

MULTIPLE SULFUR ANALYSES

		%	%	%	%	%					
Lab I.D.	Sample I.D.	1rst	2nd	3rd	4rth	Ave					
18464	7151	0.180	0.194	0.160	0.178	0.178					
18465	7152	0.131	0.134	0.127	0.124	0.131					

DATE: 6-10-10

TABLE 3

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co.,Inc.
PO Box 1712
Jasper,Al. 35502

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: Twin Pines Coal Company,LLC - Shannon Mine #3 Special Analysis #: 10.S1756-S1758,S1763 PO #: 17519

						Particle Size				
		S	OM	NO_3-N	Neutralizing Potential	%	%	%		H_2O avail.
Lab I.D.	Sample I.D.	%	%	ppm	Tons $CaCO_3$/1000Tons material	Sand	Silt	Clay	Textural Class	cm/cm
13337	7071	0.0313	1.8	2.8	1.69	53.75	28.75	17.50	Sandy Loam	0.12
13338	7072	0.0328	2.1	1.4	1.92	28.75	46.25	25.00	Loam	0.15
13339	7073	0.0440	3.4	1.4	3.35	48.75	30.63	20.63	Loam	0.12
13344	7078	1.72	27.7	1.8	2.64	42.50	36.88	20.63	Loam	0.13

DATE: 5-13-10

TABLE 3

Mine Analysis Report
Auburn University
Soil Testing Lab

Perc Engineering Co.,Inc.
PO Box 1712
Jasper,Al. 35502

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: Twin Pines Coal Company,LLC - Shannon Mine #3 Special Analysis #: 10.S1759-S17962 PO #: 17519

		MULTIPLE SULFUR ANALYSES								
		%	%	%	%	%	OM	NO_3-N	Neutralizing Potential	
Lab I.D.	Sample I.D.	1rst	2nd	3rd	4rth	Ave	%	ppm	Tons $CaCO_3$/1000 Tons material	max pot.acid.
13340	7074	0.0574	0.0597	0.0684	0.0611	0.0617	6.2	9.8	3.11	1.93
13341	7075	0.113	0.104	0.110	0.122	0.112	4.9	6.3	3.59	3.50
13342	7076	0.0533	0.0585	0.0531	0.0499	0.0537	4.6	3.8	4.30	1.68
13343	7077	0.293	0.207	0.201	0.322	0.2556	17.9	3.2	6.21	7.99

		%	%	%		H_2O avail.
Lab I.D.	Sample I.D.	Sand	Silt	Clay	Textural Class	cm/cm
13340	7074	46.25	31.25	22.50	Loam	0.12
13341	7075	50.00	27.50	22.50	Sandy Clay Loam	0.12
13342	7076	57.50	22.50	20.00	Sandy Clay Loam	0.11
13343	7077	56.25	23.75	20.00	Sandy Clay Loam	0.11

DATE: 5-13-10

TABLE 3

TABLE 3

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:Jefferson

District:1

Test Date:03/18/10

				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		
13337	Twin Pines Coal Co Shannon Mine 3 PO 17519 7071 See Comment 1 See Comment 2	Revegetation	4	5.4	VL 0	L 85	H 71	H 2634	1.0	60	100	60
13338	7072 See Comment 1 See Comment 2	Revegetation	4	4.7	VL 1	M 142	H 187	H 662	3.5	60	100	40
13339	7073 See Comment 1 See Comment 2	Revegetation	4	5.3	VL 12	M 145	H 1004	H 1207	1.5	60	80	40
13340	7074 See Comment 2	Revegetation	4	6.3	VL 15	H 212	H 1714	H 2701	0.0	60	80	0
13341	7075 See Comment 1 See Comment 2	Revegetation	4	4.7	L 29	M 144	H 1030	H 819	1.5	60	60	40
13342	7076 See Comment 1 See Comment 2	Revegetation	4	5.0	VL 0	L 99	H 1067	H 673	1.5	60	100	50
13343	7077 See Comment 2	Revegetation	4	6.0	M 57	L 103	H 896	H 1740	0.0	60	40	50

* 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

TABLE 3

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:Jefferson

District:1

Test Date:03/18/10

				SOIL TEST RESULTS					RECOMMENDATIONS			
LAB 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		
13344	7078 See Comment 1 See Comment 2	Revegetation	4	5.1	L 25	M 137	H 687	H 1181	1.5	60	70	40

Comment No.1: Soil acidity (low pH) can be corrected with either dolomitic or calcitic lime.

Comment No.2: 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.

The number of samples processed in this report is: 8

For further information call your county agent: (205) 879-6964

* 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

TABLE 3

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:Jefferson

District:1

Test Date:05/04/10

					SOIL TEST RESULTS				RECOMMENDATIONS			
LAB 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		
18462	Twin Pines Coal Co Shannon Mine 3 PO 17626 7149 See Comment 1 See Comment 2	Revegetation	4	4.7	H 114	L 98	H 135	H 347	2.5	60	0	50
18463	7150 See Comment 1 See Comment 2	Revegetation	4	4.9	VH 189	M 141	H 347	L 96	1.5	60	0	40
18464	7151 See Comment 2	Revegetation	4	6.1	H 79	L 112	H 1573	H 814	0.0	60	0	40
18465	7152 See Comment 2	Revegetation	4	5.6	M 45	M 130	H 1817	H 735	0.0	60	40	40

Comment No.1: Soil acidity (low pH) can be corrected with either dolomitic or calcitic lime.

Comment No.2: 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.

The number of samples processed in this report is: 4

For further information call your county agent: (205) 879-6964

* 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

TABLE 4

TOTAL AVAILABLE WATER CAPACITY

Montevallo-Nauvoo association, steep

PERCENT OF SAMPLE RETAINED

SAMPLE I.D.	1"	1/2"	1/4"	2mm
Soil 29-1	0.00	0.52	1.36	4.03
Soil 29-2	0.00	1.12	7.44	27.28
Soil 29-3	0.00	5.17	11.88	23.24
Soil 29-4	0.00	0.00	1.23	4.18
Soil 29-5	0.57	1.00	2.34	4.46
AVE:	0.11	1.90	4.85	12.64

0.11% x .0389 in./in. = .0000 in./in.
1.56% x .0492 in./in. = .0008 in./in.
4.85% x .0603 in./in. = .0031 in./in.
12.64% x .1149 in./in. = .0145 in./in.
.0184 in./in.

< 2mm average from Table 2: 79.82%

Average available water capacity of < 2mm taken from Auburn University Soil Testing Laboratory = 0.1260 in./in.

79.82% x .1260 in./in. = 0.1006 in./in.
+ 0.0184 in./in.
Ave. TAWC for soils = 0.1190 in./in.

*Available water capacity values (in./in.) were obtained from "A Method of Comparing Soil Materials for Plant Available Water" which was supplied by the Alabama Surface Mining Commission.

TABLE 4 (Continued)

TOTAL AVAILABLE WATER CAPACITY

Palmerdale Complex, steep
(Previously mined overburden)

PERCENT OF SAMPLE RETAINED

SAMPLE I.D.	1"	1/2"	1/4"	2mm
35-1	4.15	16.29	12.76	15.88
35-2	1.13	9.24	17.21	24.61
35-3	2.45	9.86	13.48	17.46
35-4	3.27	15.11	18.47	19.01
35-5	9.12	12.14	10.38	13.29
35-6	11.92	4.67	8.21	10.70
AVE:	5.34	11.22	13.42	16.83

5.34% x .0389 in./in. = .0021 in./in.
11.22% x .0492 in./in. = .0055 in./in.
13.42% x .0603 in./in. = .0081 in./in.
16.83% x .1149 in./in. = .0193 in./in.
.0350 in./in.

< 2mm average from Table 2: 53.20%

Average available water capacity of < 2mm taken from Auburn University Soil Testing Laboratory = 0.1167 in./in.

53.20% x .1167 in./in. = 0.0621 in./in.
+ 0.0350 in./in.
Ave. TAWC for overburden = 0.0971 . in./in.

*Available water capacity values (in./in.) were obtained from "A Method of Comparing Soil Materials for Plant Available Water" which was supplied by the Alabama Surface Mining Commission.

Twin Pines Coal Company, Inc.
Shannon Mine No. 3

Photo of the overburden collection site showing the texture and vegetation cover of the previously mined overburden.

Twin Pines Coal Company, Inc.
Shannon Mine No. 3

Photo of the overburden collection site showing the texture of the previously mined overburden.

Twin Pines Coal Company, Inc.
Shannon Mine No. 3

Photo of native topsoil collection site.

Twin Pines Coal Company, Inc.
Shannon Mine No. 3

Photo showing vegetation growth within the previously mined areas within the permit.

Twin Pines Coal Company, Inc.
Shannon Mine No. 3

Photo showing pine tree and vegetation growth within the previously mined areas within the permit.

OVERBURDEN REDISTRIBUTION PLAN

All overburden at the proposed mine site will be backfilled, compacted, and graded as required in Part IV of this permit application. The mining method used at the Shannon Mine No. 3 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. If any rocks 24" in diameter or greater that remain on the surface, 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 15% 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 per 20 acres. Overburden sampling will follow the guidelines as described in the "Sampling Techniques" section of this report.

If this criteria is not met, Twin Pines Coal Company, 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 will be 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 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 Shannon Mine No. 3 will be enhanced by the utilization of overburden for a plant growth medium in conjunction with the above stated reclamation procedures.