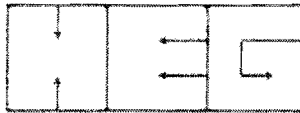


Howard



Engineering & Geology, Inc.

P.O. Box 271 • 2550 W Hwy 72 Suite 1 • Harlan, Ky 40831 • Phone/Fax: (606) 573-6924 • Email: info@howardeng-geo.com

January 31, 2011

(b) (6) (b) (6)

South Section Regulatory Branch
Department of the Army
U.S. Army Engineer District, Louisville
Corps of Engineers
ATTN: CELRL-OP-FS
P.O. Box 59
Louisville, KY 40201-0059

RE: Bledsoe Coal Corporation
ID No. LRL-2004-00202

Dear Crystal:

As a follow-up to our letter dated January 5, 2011 regarding the above referenced project, we have conducted a site assessment of the off-site mitigation and our results are included herein. The field assessment was conducted by our biologist, Robert Kiser. The following documents submitted as an Annual Report of the off-site mitigation for your review:

- Summary Monitoring Report of Off Site Mitigation
- EPA Rapid Bioassessment Protocol for High Gradient Streams
- EII Calculation for High Gradient Streams in Eastern Kentucky (Ver.2002.6)
- Pebble Count Data Sheet
- Site Plan View, Profile and Cross-Section for a representative reach
- Site Photographs

Control of invasive species identified during your field investigation will be accomplished in early Spring of 2011 when emergent plants can be readily identified. Mechanical methods will be used to remove woody species and manual methods will be used to remove the herbaceous species. Robert Kiser, or other qualified biologist, will assist in identification of the invasive species.

Please notify our office or Robert Kiser at 606-633-0029, if you have any questions regarding this Annual Report.

Sincerely,

David W. Howard, P.G.
dhoward@howardeng-geo.com

C. file
Mike Sharp, James River Coal Company
John Adams, Bledsoe Coal Corporation
Robert Kiser, Howard Engineering & Geology, Inc.

Bledsoe Coal Corp. #866-0272 Off Site Mitigation
Monitoring Report Summary

| Parameter/Observation | Success Standards | Determination Method | Results Jan. 2011 |
|-------------------------|--|---|---|
| Field pH | Report Only | Field Meter | 6.7 |
| Specific Conductance | Report Only | Field Meter | 313 |
| Dissolved Oxygen | Report Only | Field Meter | 13.2 |
| Epifaunal Substrate | Min. 70% favorable substrate | Pebble Count; estimate of available | 17 |
| Embeddedness | Max. 20% embeddedness | Pebble Count; measure embeddedness | 15 |
| Velocity/Depth Regime | Maintain step-pool or riffle-pool sequences similar to approved plans. | Longitudinal Profile | 15 |
| Sediment Deposition | Little or no enlargement of islands or point bars and <5% of the bottom affected by sediment deposition. | Pebble count in pools | 18 |
| Channel Flow Status | Maintain width/depth ratio similar to accordance with plans. | Determine from X-sections | 20 |
| Channel Alternation | Maintain minimal channelization similar to approved plans. | Longitudinal profiles; X-sections | 11 |
| Frequency of Riffles | Maintain step-pool or riffle-pool sequences similar to approved plan. | Longitudinal profile | 20 |
| Bank Stability | Banks stable | Bank Erosion Index; observe density & depth of plant roots, near bank shear stress. | 20 |
| Vegetative Protection * | Approved width of riparian zone planted with 300 stems/acres surviving. | Measure replanted width; estimated stem count. | 16 based on High Gradient Stream Data Sheet |
| Riparian Zone * | Riparian zone with a variety of species alive and healthy. | Measure replanted width; estimated stem count. | 0 based on High Gradient Stream Data Sheet |

- Vegetation coverage of the stream banks was good, but woody stems will need to be surveyed during spring to determine survival rate.
- The riparian zone score according to the High Gradient Stream Data Sheet is 0 due to the activities associated with the stream improvements. There is greater than 18 meters of riparian zone on both sides of the stream that is re-vegetated. List of living and healthy species will be determined during spring growing season.

High Gradient Stream Data Sheet

| | | | | |
|---|---|---|--|--|
| STREAM NAME: Gabes Creek | | LOCATION: Off-site mitigation | | |
| STATION #: _____ MILE: _____ | | BASIN/WATERSHED: Kentucky | | |
| LAT.: _____ LONG.: _____ | | COUNTY: Harlan USGS 7.5 TOPO: _____ | | |
| DATE: 1/17/11 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM | | INVESTIGATORS: Robert R. Kiser | | |
| TYPE SAMPLE: <input type="checkbox"/> P-CHEM <input type="checkbox"/> Macroinvertebrate <input type="checkbox"/> FISH <input type="checkbox"/> BACT. | | | | |
| WEATHER: Now Past 24 hours Has there been a heavy rain in the last 7 days? <input type="checkbox"/> <input type="checkbox"/> Heavy rain <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Steady rain Air Temperature _____ °C Inches rainfall in past 24 hours _____ in. <input type="checkbox"/> <input type="checkbox"/> Intermittent showers _____ % Cloud Cover <input type="checkbox"/> <input type="checkbox"/> Clear/sunny | | | | |
| P-Chem: Temp(°C) 13 D.O. (mg/l) 13.2 %Saturation _____ pH(S.U.) 6.7 Cond. 313 <input type="checkbox"/> Grab | | | | |
| INSTREAM WATERSHED FEATURES: Stream Width 10 ft Range of Depth 25-1 ft Average Velocity _____ ft/s Discharge _____ cfs Est. Reach Length _____ | | LOCAL WATERSHED FEATURES: Predominant Surrounding Land Use: <input type="checkbox"/> Surface Mining <input type="checkbox"/> Construction <input type="checkbox"/> Forest <input type="checkbox"/> Deep Mining <input type="checkbox"/> Commercial <input type="checkbox"/> Pasture/Grazing <input type="checkbox"/> Oil Wells <input type="checkbox"/> Industrial <input type="checkbox"/> Silviculture <input type="checkbox"/> Land Disposal <input type="checkbox"/> Row Crops <input type="checkbox"/> Urban Runoff/Storm Sewers | | |
| Hydraulic Structures: <input type="checkbox"/> Dams <input type="checkbox"/> Bridge Abutments <input type="checkbox"/> Island <input type="checkbox"/> Waterfalls <input type="checkbox"/> Other | | Stream Flow: <input type="checkbox"/> Dry <input type="checkbox"/> Pooled <input type="checkbox"/> Low <input type="checkbox"/> Normal <input type="checkbox"/> Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> High <input type="checkbox"/> Very Rapid or Torrential <input type="checkbox"/> Ephemeral <input type="checkbox"/> Seep | | |
| Riparian Vegetation: Dom. Tree/Shrub Taxa Dominate Type: <input type="checkbox"/> Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input type="checkbox"/> Herbaceous Number of strata _____ | | Channel Alterations: <input type="checkbox"/> Dredging <input type="checkbox"/> Channelization <input type="checkbox"/> Full <input type="checkbox"/> Partial | | |
| Substrate (Est. OP.C.) | Rifle 50 % | Run 45 % | Pool 5 % | |
| Silt/Clay (<0.06 mm) | 0 | 5 | 0 | |
| Sand (0.06 – 2 mm) | 5 | 5 | 20 | |
| Gravel (2-64 mm) | 35 | 45 | 40 | |
| Cobble (64 – 256 mm) | 45 | 30 | 25 | |
| Boulders (>256 mm) | 15 | 15 | 15 | |
| Bedrock | 0 | 0 | 0 | |
| Habitat | Condition Category | | | |
| Parameter | Optimal | Suboptimal | Marginal | Poor |
| 1. Epifaunal Substrate/Available Cover | Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient). | 40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale). | 20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. | Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking. |
| SCORE 17 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| 2. Embeddedness | Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space. | Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment. | Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment. | Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment. |
| SCORE 15 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| 3. Velocity/Depth Regime | All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.) | Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes). | Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low). | Dominated by 1 velocity/depth regime (usually slow-deep). |
| SCORE 15 | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |

| | | | | |
|---|---|--|---|---|
| 4. Sediment Deposition | Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition. | Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools. | Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent. | Heavy deposits of fine material, increased bar development, more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition. |
| SCORE <u>18</u> | 20 19 <u>18</u> 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| 5. Channel Flow Status | Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. | Water fills >75% of the available channel; or <25% of channel substrate is exposed. | Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed. | Very little water in channel and mostly present as standing pools. |
| SCORE <u>20</u> | <u>20</u> 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| 6. Channel Alteration | Channelization or dredging absent or minimal; stream with normal pattern. | Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present. | Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted. | Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely. |
| SCORE <u>11</u> | 20 19 18 17 16 | 15 14 13 12 <u>11</u> | 10 9 8 7 6 | 5 4 3 2 1 0 |
| 7. Frequency of Riffles (or bends) | Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important. | Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15. | Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25. | Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25. |
| SCORE <u>20</u> | <u>20</u> 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| 8. Bank Stability (score each bank) | Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. | Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. | Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods. | Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars. |
| SCORE <u>10</u> (LB) | Left Bank <u>10</u> 9 | 8 7 6 | 5 4 3 | 2 1 0 |
| SCORE <u>10</u> (RB) | Right Bank <u>10</u> 9 | 8 7 6 | 5 4 3 | 2 1 0 |
| 9. Vegetative Protection (score each bank) | More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, undersory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. | 70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. | 50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. | Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. |
| SCORE <u>8</u> (LB) | Left Bank 10 9 | <u>8</u> 7 6 | 5 4 3 | 2 1 0 |
| SCORE <u>8</u> (RB) | Right Bank 10 9 | <u>8</u> 7 6 | 5 4 3 | 2 1 0 |
| 10. Riparian Vegetative Zone Width (score each bank riparian zone) | Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. | Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. | Width of riparian zone 6-12 meters; human activities have impacted zone a great deal. | Width of riparian zone <6 meters; little or no riparian vegetation due to human activities. |
| SCORE <u>0</u> (LB) | Left Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 <u>0</u> |
| SCORE <u>0</u> (RB) | Right Bank 10 9 | 8 7 6 | 5 4 3 | 2 1 <u>0</u> |

Total Score

NOTES/COMMENTS:

EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (VERSION 2002.6)
 ** (Genus/species Level Taxonomy - Riffle Only Sample) **

| | |
|------------------------------|----------------------------------|
| Project ID: | Bledsoe Coal 888-0272 |
| Stream/Reach: | Gabes Creek |
| Assessment Objective: | On-Site Mitigation Annual Report |

| | |
|------|---|
| NA | Ecological Integrity Index (MBI + Habitat Integrity + Conductivity) |
| 0.62 | Ecological Integrity Index (Habitat Integrity + Conductivity) |

Variables Measure Units

Enter quantitative or categorical measure from Field Data Sheet in shaded cells

RBP Habitat Parameters

| | | |
|------------------------------------|----|-----------------|
| 1. Epifaunal Substrate | 17 | no units (0-20) |
| 2. Embeddedness | 15 | no units (0-20) |
| 3. Velocity/Depth Regime | 15 | no units (0-20) |
| 4. Sediment Deposition | 18 | no units (0-20) |
| 5. Channel Flow Status | 20 | no units (0-20) |
| 6. Channel Alteration | 11 | no units (0-20) |
| 7. Freq. Of Riffles (bends) | 20 | no units (0-20) |
| 8. Bank stability (both combined) | 20 | no units (0-20) |
| 9. Veg. Protection (both combined) | 16 | no units (0-20) |
| 10. Riparian Width (both combined) | 0 | no units (0-20) |

Total Habitat Score 162 no units

Subindex

Habitat Integrity 0.59

Macroinvertebrate Data - Genus/species Level

| | | |
|----------------------------------|--|--------------------------|
| 11. Genus/species Taxa Richness | | # of taxa sampled |
| 12. Genus/species EPT Richness | | # of EPT species sampled |
| 13. % Ephemeroptera | | % Mayflies (0-100) |
| 14. % Chironomidae & Oligochaeta | | % Midges & Worms (0-100) |
| 15. % Clingers | | % Clingers (0-100) |
| 16. mHBI | | no units |

Macroinvertebrate Bioassessment NA no units

NA

Conductivity 313 microSiemens/cm

0.61

Insert Photo Here

Pebble Count Data Sheet

Project # 866-0272 Project Name Bledsoe Coal Monitoring

Stream/Drainage Gabes Creek Date 1/17/2011

GPS: N _____ W _____

County Harlan State KY Quad _____

| Point (m) | Pebble size (mm) | Point (m) | Pebble size (mm) | Point (m) | Pebble size (mm) | Point (m) | Pebble size (mm) |
|--------------|---------------------|--------------|---------------------|--------------|------------------------|--------------|---------------------|
| 0 | Bedrock | 26 | | 52 | | 78 | |
| 1 | Bedrock | 27 | | 53 | | 79 | |
| 2 | Bedrock | 28 | | 54 | | 80 | |
| 3 | Bedrock | 29 | | 55 | | 81 | |
| 4 | 37 | 30 | | 56 | | 82 | |
| 5 | 78 | 31 | | 57 | | 83 | |
| 6 | 141 | 32 | | 58 | | 84 | |
| 7 | 28 | 33 | | 59 | | 85 | |
| 8 | 39 | 34 | | 60 | | 86 | |
| 9 | 63 | 35 | | 61 | | 87 | |
| 10 | 215 | 36 | | 62 | | 88 | |
| 11 | 88 | 37 | | 63 | | 89 | |
| 12 | 20 | 38 | | 64 | | 90 | |
| 13 | 58 | 39 | | 65 | | 91 | |
| 14 | 30 | 40 | | 66 | | 92 | |
| 15 | Sand | 41 | | 67 | | 93 | |
| 16 | 71 | 42 | | 68 | | 94 | |
| 17 | 64 | 43 | | 69 | | 95 | |
| 18 | 82 | 44 | | 70 | | 96 | |
| 19 | 33 | 45 | | 71 | | 97 | |
| 20 | 58 | 46 | | 72 | | 98 | |
| 21 | 184 | 47 | | 73 | | 99 | |
| 22 | 135 | 48 | | 74 | | 100 | |
| 23 | 21 | 49 | | 75 | | | |
| 24 | 47 | 50 | | 76 | | | |
| 25 | 18 | 51 | | 77 | | | |

Standing at road looking downstream
showing valley



Looking Upstream



Looking Downstream

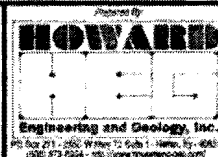


Photo of a Log Vane



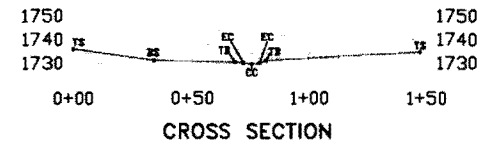
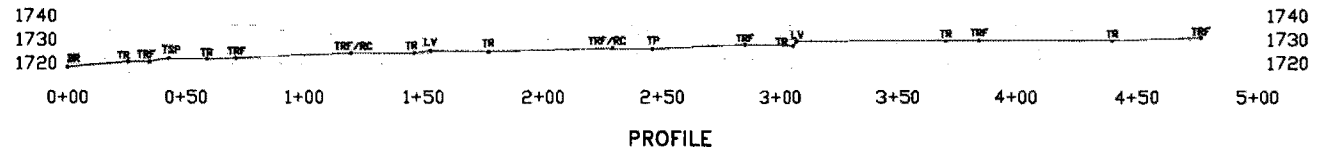
BLEDSON COAL CORP.

KDNR Permit No. 866-0272
COE & PCN 2011 Report
LRL-2004-00202
Photos



Scale:
1:1

Date:
1-28-11



LEGEND

BR- Bottom of Run
 TR- Top of Run
 TRF- Top of Riffle
 TSP- Top of Step Pools
 TRF/RC- Top of Riffle / Run Complex
 LV- Log Vane
 TP- Top of Pool
 TS- Top of Slope
 BS- Bottom of Slope
 TB- Top of Bank
 EC- Edge of Channel
 CC- Center of Channel

Sinuosity

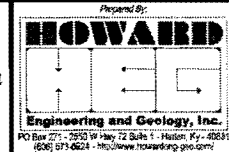
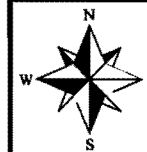
Stream Length 452'

Bledsoe Coal Corporation

KDNR Permit No. 866-0272

LRL-2004-00202

Off-Site Mitigation Representative Stream
 Plan, Profile, Cross-Section



Scale:
 1" = 50'

Date:
 02/01/11