

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5**

<b>IN THE MATTER OF:</b>	)	<b>Docket No. CWA-05-2008-0002</b>
	)	
<b>Arclar Company, LLC,</b>	)	<b>Proceeding to Assess Class II</b>
<b>Black Beauty Coal Company, LLC</b>	)	<b>Administrative Penalty under Section</b>
<b>7100 Eagle Crest Boulevard</b>	)	<b>309(g) of the Clean Water Act, 33 U.S.C.</b>
<b>Evansville, IN 47715</b>	)	<b>§ 1319(g)</b>
	)	
<b>Respondent.</b>	)	

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**CONSENT AGREEMENT AND FINAL ORDER**

1. This is an administrative action commenced and concluded under Section 309(g) of the Clean Water Act (Act), 33 U.S.C. § 1319(g), and Sections 22.13(b) and 22.18(b) of the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties and the Revocation/Termination or Suspension of Permits (Consolidated Rules), 40 C.F.R. §§ 22.13(b) and 22.18(b).
2. Complainant is the Director of the Water Division, United States Environmental Protection Agency, Region 5 (Complainant or U.S. EPA).
3. Respondent is Arclar Company, LLC of Equality, Illinois, a subsidiary of Black Beauty Coal Company, LLC ("Respondent" or "Arclar Company, LLC/BBCC"), a corporation doing business in the State of Indiana.
4. Where the parties agree to settle one or more causes of action before the filing of a complaint, the administrative action may be commenced and concluded simultaneously by the issuance of a Consent Agreement and Final Order (CAFO). 40 C.F.R. § 22.13(b).
5. The parties agree that settling this action without the filing of a complaint or the adjudication of any issue of fact or law is in their interest and in the public interest.

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6. Respondent consents to entry of this CAFO and the assessment of the specified civil penalty, and agrees to comply with the terms of the CAFO and further agrees that it will not contest the basis or validity of this CAFO or its terms. Respondent, however, does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this CAFO, the validity of the factual allegations or alleged violations in this CAFO, including, without limitation, any allegations regarding the presence of jurisdictional “waters of the United States” at the Respondent’s Wildcat Hills/Cottage Grove Pit Mine.

**Jurisdiction and Waiver of Right to Hearing**

7. Respondent admits the jurisdictional allegations in this CAFO, but denies the factual allegations or alleged violations set forth herein.

8. Arclar Company, LLC/BBCC waives its right to request a hearing as provided at 40 C.F.R. § 22.15(c) and Section 309(g)(2)(B) of the Act, 33 U.S.C. § 1319(g)(2)(B), any right to contest the allegations in this CAFO, and its right to appeal this CAFO under Section 309(g)(8)(B) of the Act, 33 U.S.C. § 1319(g)(8)(B).

9. In consideration of the alleged violations, the environmental and compliance significance of the matter, and based upon the nature, circumstances, extent and gravity of the violations alleged herein, as well as Respondent’s ability to pay, prior history of such violations, culpability, economic benefit or savings (if any) resulting from the violations, and such other matters as justice may require, Complainant has determined that an appropriate civil penalty to settle this action is in the amount of twenty-five thousand dollars (\$25,000). The Respondent shall pay the \$25,000 civil penalty as specified below. The Respondent shall also successfully perform a Supplemental Environmental Project (SEP) valued at \$97,448, as described below.

Respondent's payment of the penalty and performance of the SEP shall not constitute an admission of any liability.

### **Statutory and Regulatory Background**

10. Section 301 of the Act, 33 U.S.C. § 1311, prohibits the discharge of pollutants into "waters of the United States" except in compliance with, among other things, a permit issued under Section 404 of the Act, 33 U.S.C. § 1344.

11. Section 404 of the Act, 33 U.S.C. § 1344, authorizes the Secretary of the Army, acting through the Chief of Engineers, U.S. Army Corps of Engineers (Corps), to issue permits for the discharge of dredged or fill material into "waters of the United States."

12. Section 502(12) of the Act, 33 U.S.C. § 1362(12), defines "discharge of pollutants" as "any addition of any pollutant to navigable waters from any point source...."

13. Section 502(14) of the Act, 33 U.S.C. § 1362(14), defines a "point source" as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged."

14. Section 502(6) of the Act, 33 U.S.C. § 1362(6), defines "pollutant" as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water."

15. Section 502(7) of the Act, 33 U.S.C. § 1362(7), defines "navigable waters" as "the waters of the United States...."

16. 40 C.F.R. § 230.3 defines the term “waters of the United States” to include certain “wetlands” and “streams.”

### **Factual Allegations and Alleged Violations**

17. Respondent, which owns the Wildcat Hills/Cottage Grove Pit Mine (“Mine”) in Gallatin and Saline Counties, Illinois, is an Illinois subsidiary of BBCC, a corporation incorporated under the laws of Indiana. See Map of the Mine attached as Exhibit 1.

18. Respondent is a “person” under Section 502(5) of the Act, 33 U.S.C. § 1362(5).

19. Respondent has been conducting surface coal mining and reclamation activities at the Mine since 1998 pursuant to an approved Surface Mining Control and Reclamation Act (“SMCRA”) permit as subsequently amended from time to time. At certain sites, including the Mine, mining operations authorized under Respondent’s approved SMCRA permits involve temporary impacts to ditches, streams, tributaries and other drainage features, which are mined-through and subsequently replaced during Respondent’s reclamation activities.

20. Between January 2000 and May 1, 2008, Respondent mined-through or otherwise impacted or will have mined through or impacted with its earth moving equipment certain agricultural ditches, streams or other tributaries to the North Fork of the Saline River – which abuts the Mine on its east border - during mining operations under its SMCRA permits. During the time period March 2003 through May 1, 2008, it is estimated that approximately 18,568 linear feet of such ditches, streams and tributaries have been or will be directly impacted by Respondent’s mining operations. In addition, during the time period January 2000 through April 1, 2008, it is estimated that approximately 3,141 linear feet of such ditches, streams and tributaries have been or will be indirectly impacted by Respondent’s mining operations.

21. All Mine site waters drain to the North Fork of the Saline River. The North Fork of the Saline River is traditionally navigable water.

22. The fill deposited in the abovementioned ditches, streams, and tributaries during Respondent's mining operations is a "pollutant" as defined in Section 502(6) of the Act, 33 U.S.C. § 1362(6).

23. Respondent used earth moving equipment to deposit the fill.

24. The earth moving equipment is a "point source" as defined at Section 502(14) of the Act, 33 U.S.C. § 1362(14).

25. The depositing of fill material constitutes the "discharge of pollutants" as defined at Section 502(12) of the Act, 33 U.S.C. § 1362(12).

26. In December of 2004, the Corps requested the pursuit of after-the-fact permitting under Section 404 of the Act, 33 U.S.C. § 1344, for these ditches, streams, tributaries. The Corps assigned ID # 200600453-kam to this Section 404 permit application upon submittal by Respondent in response to this request.

27. At no time when Respondent impacted the abovementioned ditches, streams, tributaries (in the context of a variety of communications and conversations between Respondent and the Corps that led to an apparent presumption regarding the absence of any permitting obligations and approval to proceed with mining activities) had Respondent received authorization through a permit issued under Section 404 of the Act, 33 U.S.C. § 1344.

28. Each discharge by Respondent of pollutants into "waters of the United States," as described in paragraph 20, above, that is not authorized by a permit issued under Section 404 of the Act, 33 U.S.C. § 1344, constitutes a day of violation of Section 301(a) of the Act, 33 U.S.C. § 1311(a).

29. Each day the material discharged by Respondent remains in "waters of the United States" without authorization of a permit issued under Section 404 of the Act, 33 U.S.C. § 1344, constitutes a day of violation of Section 301 of the Act, 33 U.S.C. § 1311.

**Civil Penalty**

30. In consideration of Respondent's good faith and cooperation in settling this matter, U.S. EPA agrees to a penalty of \$25,000.

31. Respondent must pay the \$25,000 civil penalty by cashier's or certified check payable to the "Treasurer, United States of America," within 30 days after the effective date of this CAFO.

32. Respondent must send the check to:

US Environmental Protection Agency  
Fines and Penalties  
Cincinnati Finance Center  
PO Box 979077  
St. Louis, MO 63197-9000

33. A transmittal letter, stating Respondent's name, complete address, the case docket number, and the billing document number must accompany the payment. Respondent must write the case docket number and the billing document number on the face of the check. Respondent must send copies of the check and transmittal letter to:

Attn: Regional Hearing Clerk  
U.S. Environmental Protection Agency, Region 5  
77 West Jackson Blvd. (E-13J)  
Chicago, Illinois 60604-3590

Gregory T. Carlson, Enforcement Officer  
U.S. Environmental Protection Agency, Region 5  
77 West Jackson Blvd. (WW-16J)

Chicago, Illinois 60604-3590

Thomas Turner  
Office of Regional Counsel  
U.S. Environmental Protection Agency, Region 5  
77 West Jackson Blvd. (C-14J)  
Chicago, Illinois 60604-3509

34. This civil penalty is not deductible for federal tax purposes.

35. On any amount that may become overdue under Paragraph 30, interest will accrue at the rate established by the Secretary of the Treasury pursuant to 31 U.S.C. § 3717. In addition, late payment will be subject to nonpayment penalties in accordance with Section 309(g)(9) of the Act, 33 U.S.C. § 1319(g)(9).

#### SUPPLEMENTAL ENVIRONMENTAL PROJECT

36. In addition to the civil penalty described in Paragraph 30, Respondent shall also initiate, perform and complete the SEP for forested wetland creation valued at \$97,448, by implementing the Scope of Work attached hereto as Attachment A which has been reviewed and approved by U.S. EPA. The attached Scope of Work also satisfies Respondent's obligation to perform and complete a SEP as set forth in the CAFOs entered by the parties to resolve the administrative actions referenced in Docket No. **CWA-05-2008-0002**

37. Failure to properly perform the SEP, or failure to meet the agreed upon success standards for the SEP as set forth in the Scope of Work, may result in Stipulated Penalty liability for the Respondent. Subject to the provisions of Paragraph 52 of this CAFO, a stipulated penalty in an amount of \$10,000 per violation may be assessed against Respondent for failure to meet the following project milestones:

- (a) The completion of grading, seeding and tree planting of 18 acres of the wetlands as more fully described in Attachment A hereto by not later than October 31, 2009; and
- (b) The completion of grading, seeding and tree planting of the remaining 18 acres of the wetlands and the 5 acre buffer as more fully described in Attachment A hereto by not later than October 31, 2010.

Subject to the provisions of Paragraph 52 of this CAFO, a stipulated penalty in the amount of \$2,500 per violation may also be assessed for failure to submit annual monitoring reports beginning on November 1, 2010 and concluding on November 1, 2016.

38. Respondent must spend at least \$97,448 to complete the SEP, as set forth in Paragraph 36 and Attachment A. In calculating such monies spent by Respondent to complete the SEP, U.S. EPA shall include lost crop income and the reduced land valuations from the establishment of a conservative easement as itemized in the cost summary included at Attachment A. Respondent shall also utilize available industry standards routinely relied upon by Respondent (e.g., CAT Handbook) to calculate the costs of services performed by employees of Respondent in implementing the SEP.

39. Respondent certifies that it is not required to perform or develop the SEP by any law, regulation, grant, order, or agreement, or as injunctive relief as of the date it signs this CAFO. Respondent further certifies that it has not received, and is not negotiating to receive, credit for the SEP in any other enforcement action.

40. Except as provided in Paragraph 41, if the SEP is not satisfactorily completed through implementation of the Scope of the Work attached hereto as Attachment A and achievement of the success standards set forth therein by the date of submittal of the Final Monitoring Report in November 1, 2016, Respondent will pay 100% of the settlement penalty



amount mitigated by the SEP, \$97,448.00. The Final Monitoring Report prepared by Respondent shall contain the following information documenting the satisfactory completion of the SEP:

- (a) detailed description of the SEP as completed;
- (b) description of any operating problems and actions taken to correct the problems;
- (c) itemized costs of goods and services used to complete the SEP documented by copies of bills of sale, invoices, purchase orders, canceled checks or other appropriate documentation that specifically identify and itemize the individual costs of the goods and services, including labor, equipment, materials, and additional job allowances;
- (d) certification that Respondent has completed the SEP in compliance with this CAFO; and
- (e) detailed description of the location, size, topography and vegetation of the SEP (wetland and buffer).

41. If the SEP is not completed satisfactorily, but Respondent can show that it has:

- (a) made a good faith and timely effort to complete the project; and
- (b) certifies, with supporting documentation consistent with that required in Paragraph 50, that at least 90 percent of the amount of money which was required to be spent was expended on the SEP, no stipulated penalty will be assessed.

42. If the SEP is satisfactorily completed, but Respondent spends less than 90 percent of the SEP amount of \$97,448, a stipulated penalty of \$15,566.00 (17.5% of the amount of the settlement penalty amount mitigated by the SEP) will be assessed.

43. If the SEP is satisfactorily completed, and the Respondent certifies, with supporting documentation consistent with that required in Paragraph 50, that it has spent at least 90 percent of the amount required to be spent for the SEP, no stipulated penalty will be assessed.

44. The determination of whether the SEP has been satisfactorily completed by implementation of the Scope of Work attached hereto as Attachment A and achievement of the stated performance criteria and whether the Respondent has made a good faith, timely effort to implement the SEP is reserved to the sole discretion of U.S. EPA.

45. Respondent must pay any stipulated penalties within 15 days of receiving U.S. EPA's written demand for penalties. Respondent will use the method of payment specified in Paragraphs 30-33 above, and will pay interest, handling charges, and nonpayment penalties on any overdue amounts.

46. Any public statement that Respondent makes referring to the SEP must include the following language, "Arclar Company, LLC/BBCC undertook this project under the settlement of the United States Environmental Protection Agency's enforcement action against BBCC for alleged violations of the Clean Water Act."

47. Respondent must submit all notices and reports required by this CAFO (and the requirements of the SEP at Attachment A) by first class mail to:

Melissa Gebien (or Greg Carlson), Enforcement Officer  
U.S. Environmental Protection Agency, Region 5  
77 West Jackson Blvd. (WW-16J)  
Chicago, Illinois 60604-3590

48. In each report that Respondent submits as provided by this CAFO (and the requirements of the SEP at Attachment A), it must certify that the report is true and complete by including the following statement signed by one of its officers:

I certify that I am familiar with the information in this document and that, based on my inquiry of those individuals responsible for obtaining the information, the information is true and complete to the best of my knowledge. I know that there are significant

penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

49. Respondent shall submit its first Annual Monitoring Report to U.S. EPA by not later than November 1, 2010 as provided in Attachment A hereto. This report must contain the following information:

- (a) detailed description of the SEP major earth work completed to implement the SEP; and
- (b) description of any operating problems and actions taken to correct the problems.

50. Following receipt of the Final Monitoring Report as described in Paragraph 40, U.S. EPA must notify Respondent in writing that:

- (a) It has satisfactorily completed the SEP and the SEP report; or
- (b) There are deficiencies in the SEP as completed or in the SEP report and U.S. EPA will give Respondent at least 90 days and, if deemed necessary by Respondent to correct the identified deficiencies, up to a maximum of 180 days to correct the deficiencies;

51. If U.S. EPA exercises option b. above, Respondent may object in writing to the deficiency notice within 10 days of receiving the notice. The parties will have 30 days from U.S. EPA's receipt of Respondent's objection to reach an agreement. If the parties cannot reach an agreement, U.S. EPA will give Respondent a written decision on its objection. Respondent will comply with any requirements that U.S. EPA imposes in its decisions. If Respondent does not complete the SEP as required by U.S. EPA's decision, Respondent will pay stipulated penalties to the United States under Paragraphs 40-43.

#### **General Provisions**

52. Force Majeure

- (a) If any event occurs which causes or may cause delays in the completion of the SEP as required under this Agreement, Respondent shall notify U.S. EPA in writing not more than 10 days after the delay or Respondent's knowledge of the delay, whichever is earlier. The notice shall describe in detail the anticipated length of the delay, the precise cause or causes of the delay, the measures taken and to be taken by Respondent to prevent or minimize the delay, and the timetable by which those measures will be implemented. The Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Failure by Respondent to comply with the notice requirements of this paragraph shall render this paragraph void and of no effect as to the particular incident involved and constitute a waiver of the Respondent's right to request an extension of its obligation under this Agreement based on such incident.
- (b) If the parties agree that the delay in compliance with this Agreement has been or will be caused by circumstances beyond the control of Respondent, the time for performance hereunder may be extended for a period no longer than the delay resulting from such circumstances. In such event, the parties shall stipulate to such extension of time.
- (c) In the event that the U.S. EPA does not agree that a delay in achieving compliance with the requirements of this CAFO has been or will be caused by circumstances beyond the control of the Respondent, U.S. EPA

will notify Respondent in writing of its decision and any delays in the completion of the SEP shall not be excused.

- (d) The burden of proving that any delay is caused by circumstances beyond the control of the Respondent shall rest with the Respondent. Increased costs or expenses associated with the implementation of actions called for by this Agreement shall not, in any event, be a basis for changes in this Agreement or extensions of time under section (b) of this paragraph. Delay in achievement of one interim step shall not necessarily justify or excuse delay in achievement of subsequent steps.

53. Respondent certifies that upon issuance of its pending Section 404 permit application (#200600453-kam) it is complying fully with Sections 301(a) and 404 of the Act, 33 U.S.C. §§ 1311 and 1344. Furthermore, this CAFO and Respondent's pending Section 404 permit application (#200600453-kam) fully resolve all jurisdictional determinations under the Act for any ditches, streams, tributaries, wetlands or other drainage features currently present at the Mine.

54. U.S. EPA and Respondent consent to the terms of this CAFO.

55. This CAFO settles U.S. EPA's claims against Respondent for Section 404 permitting issues associated with jurisdictional waters of the United States currently present at the Mine and for civil penalties for the violations alleged in this Consent Agreement.

56. This CAFO does not affect Respondent's responsibility to comply with the Act and other applicable federal, state and local laws, and regulations.

57. Nothing in this CAFO restricts U.S. EPA's authority to seek Respondent's compliance with the Act and other applicable laws and regulations.

58. The terms of this CAFO bind Respondent, and its successors, and assigns.

59. Each person signing this CAFO certifies that he or she has the authority to sign this CAFO for the party whom he or she represents and to bind that party to its terms.

60. Each party agrees to bear its own costs and fees in this action.

61. This CAFO constitutes the entire agreement between the parties.

62. For federal income tax purposes, Respondent agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEP as provided in Paragraph 36 of this CAFO.

63. In accordance with Section 309(g)(5) of the Act, 33 U.S.C. § 1319(g)(5), this order will become effective 30 days after the execution of the accompanying Final Order by the Regional Administrator. No person responded to the public notice of the commencement of this action pursuant to Section 309(g)(4)(A) of the Act, 33 U.S.C. § 1319(g)(4)(A), and thus no interested persons need be notified of the issuance of the Final Order in this matter under Section 309(g)(4)(c) of the CWA, 33 U.S.C. § 1319(g)(4)(C).

**In the Matter of: Black Beauty Coal Company, LLC, Arclar Company, LLC**  
**Docket No. CWA-05-2008-0002**

BLACK BEAUTY COAL COMPANY, LLC  
Respondent

Dated: 2/26/2008

Charles A. Burggraf  
Signature

Charles A. Burggraf  
Name (print)

President  
Title (print)

ARCLAR COMPANY, LLC  
Respondent

Dated: 2/28/08

Mark Cwinder  
Signature

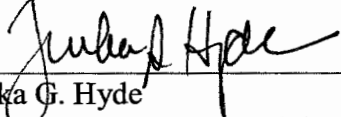
Mark Cwinder  
Name (print)

President  
Title (print)

**In the Matter of: Black Beauty Coal Company, LLC**  
**Docket No. CWA-05-2008-0002**

UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY, REGION 5,  
Complainant

Dated: 3/5/08

  
\_\_\_\_\_  
Tinka G. Hyde  
Acting Director, Water Division  
U.S. EPA, Region 5



**In the Matter of: Black Beauty Coal Company, LLC**  
**Docket No. CWA-05-2008-0002**

**FINAL ORDER**

The foregoing Consent Agreement is hereby approved and incorporated by reference into this Final Order. Black Beauty Coal Company, LLC, is hereby **ORDERED** to comply with all of the terms of the preceding Consent Agreement, effective 30 days after the date of my signature.

Dated: \_\_\_\_\_

Mary A. Gade  
Regional Administrator  
U.S. Environmental Protection Agency Region 5  
Chicago, Illinois

PERMIT NO. 07-008-01-001-10  
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DATE: 07-28-06  
MUTUAL RESOURCES CONSULTING GROUP, P.C.  
3480 W. STATE ST., SUITE 200  
CHICAGO, IL 60644  
TELEPHONE: (773) 442-7700  
FAX: (773) 442-7701  
WWW.MRCONSULTING.COM

**WILDCAT HILLS MINE - COTTAGE GROVE PIT - UNNAMED EPHEMERAL STREAM WETLAND LOCATION PLAN MAP**

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MAP W/D

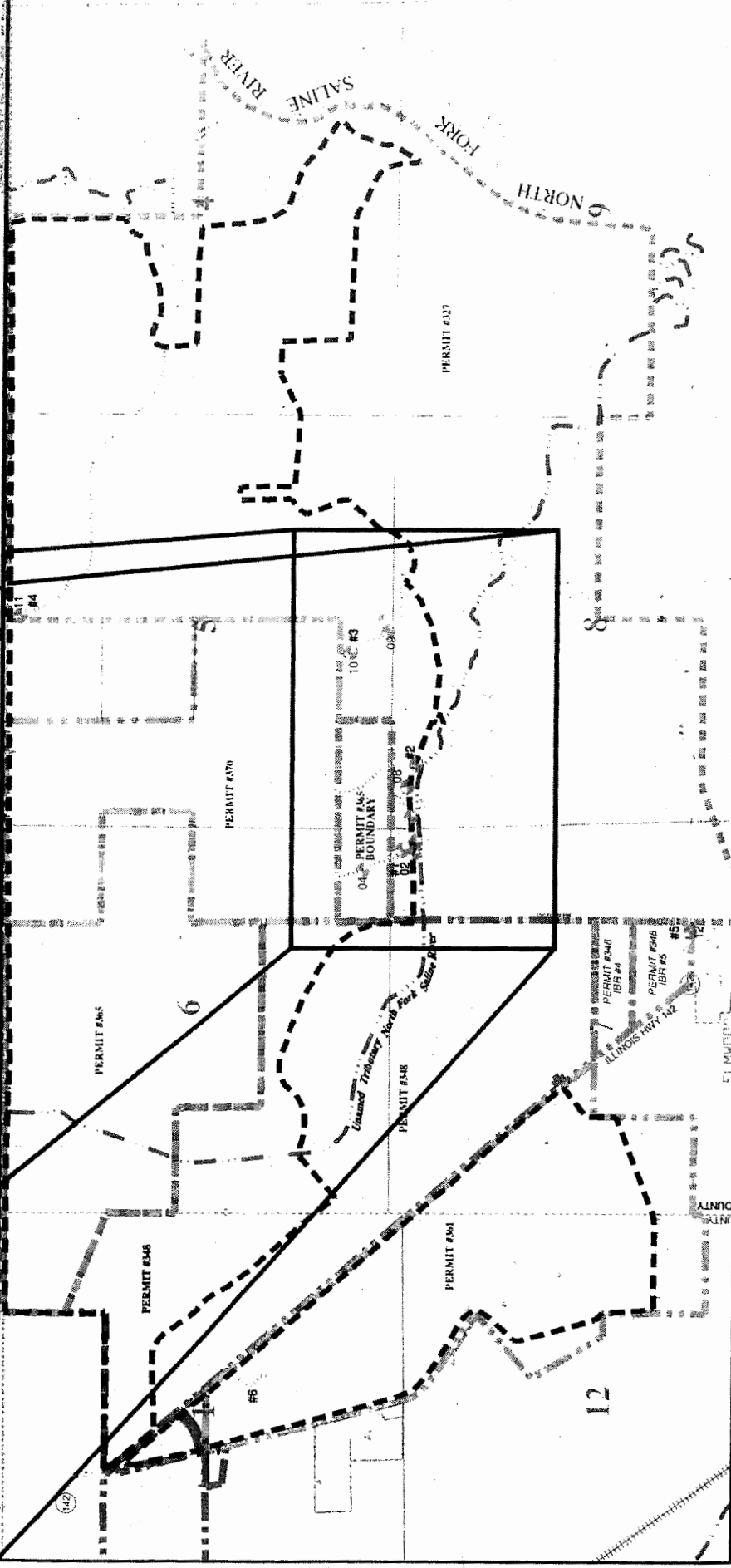


EXHIBIT 1

## **Supplemental Environmental Project**

Black Beauty Coal Company (BBCC) proposes to create 33 additional acres of forested wetlands at its Farmersburg Mine in Vigo and Sullivan counties, Indiana. An additional 3.3 acres (10%) will be constructed to ensure a minimum final wetland acreage of 33 acres. The wetlands will be constructed during reclamation operations and will be located in one parcel that abuts Turman Creek and its intermittent tributary. A 50 foot wide forested buffer (approximately 5.5 acres in size) surrounding the wetland will also be constructed. Please see the attached SEP location map for the approximate location for the proposed wetlands.

Acreage currently planned to be reclaimed as non-prime cropland would be changed to a forested wetland containing the hard mast producing species. This project would require the preparation of a SMCRA permitting revision, intensive surveying, engineering design, increased grading of shale and soil materials, increased revegetation and maintenance costs, as well as lost annual income from crop proceeds.

The reclamation requirements for non prime cropland reclamation consist of final grading to a slope less than 12%, and subsoil and topsoil replacement to a minimum depth of 18 inches. Typically, small grains and hay crops are grown to demonstrate productivity required for SMCRA bond release. These crops are relatively inexpensive to grow when compared to the costs of wetland herbaceous species and tree seedlings. The small grains and hay also generate annual income. Non prime cropland and hayland is the least costly land use to reclaim in the Midwest. A forested wetland is the most expensive land use to reclaim. These increased costs are detailed on the next page.

Planning and design work would be completed in early 2008. Grading, seeding, deep tillage and tree planting of a minimum of 18 acres of the wetland will be completed by October 31, 2009. Grading, seeding, deep tillage and tree planting of the remaining balance of the wetland and forested upland buffer will be completed by October 31, 2010. The wetland will be monitored by BBCC for seven years and a complete wetland delineation will be completed at the end of the seven year monitoring period. A Conservation Easement (to be held by the Indiana Department of Natural Resources) will be placed on the wetland and the 50 foot wide forested buffer following completion of the final wetland delineation. Please see the attached Construction Schedule for more detail.

This project would provide a very significant benefit to the health and functionality of the applicable watershed by reducing the acreage of

future conventional tillage agriculture, providing an additional 36 acres of sediment filtering capacity, increasing carbon sequestration, increasing acreage of hardwood tree species, providing food and shelter to a wide variety of reptilian and mammalian species, as well as providing the habitat and refuge to numerous aquatic species.

The added value provided by a wetland land use goes beyond the obvious environmental enhancements such as groundwater recharge, nutrient and pollutant removal, flood and flow control, and aquatic and terrestrial habitat. Although wetland function is dependent on local soils, hydrology, geology, climate and biology; the average global value of ecosystem services provided by a wetland is approximately \$6,000 per acre per year compared to approximately \$40 per acre per year for cropland<sup>1</sup>.

<sup>1</sup>Ewaschuk, E and Smyth, C. 2001. A Wetland Presentation for Agricultural Producers.

## **SEP Construction Schedule**

### 2008-09

- Complete grading, soil replacement, deep tillage, seeding and tree planting on a minimum of 50% (18 acres) of the total wetland acreage by Oct. 31, 2009.

### 2009-10

- Complete grading, soil replacement, deep tillage, seeding and tree planting on the remaining balance of the total wetland acreage by Oct. 31, 2010.

### 2010-11

- Maintenance and Monitoring
- Complete and submit first Annual Monitoring report by Nov. 1, 2010. The first Annual Monitoring report shall include a full report on all SEP major earth work completed to implement the SEP and description of any operating problems and actions taken to correct the problems.

### 2011 - 2015

- Maintenance and Monitoring
- Annual Monitoring Reports due by Nov. 1 of each year.

### 2016

- Maintenance and Monitoring
- Final Monitoring Report by Nov. 1, 2016 (including final wetland delineation report)
- Execute Conservation Easement

## **Monitoring Reports and Success Standards**

Annual monitoring reports will be based on field evaluations completed during May (spring) and September (fall) of each year. The reports will include assessments of vegetation, soils, hydrology and overall condition of the wetland. Only vegetation assessments will be completed for the forested buffer. The annual monitoring reports will be submitted to USEPA no later than November 1 of each year for the current year's monitoring. Vegetative and soil assessment points will be recorded on a site map which will be included in the Monitoring Report(s). The assessments will be completed in the following manner.

**Vegetation**

Annual vegetative assessments will be completed on a one evaluation for every five acres basis utilizing the following accepted SMCRA evaluation methods. Woody stems will be counted using a random point within the 5 acre block. A 20 foot radius of the evaluation point will be counted and converted to a per acre basis. Herbaceous vegetation will be assessed using a 100 foot long tape measure placed randomly within each 5 acre block. Vegetation, excluding vegetative litter, will be assessed at 1 foot intervals to determine the percentage of ground cover. Evaluation lines will be adjusted to avoid assessing areas where herbicides have been used to reduce vegetative competition or treat undesirable species. Species present will also be described. The spring and fall ground cover results will be averaged prior to submission to USEPA. Final success standards at the end of the 7 year monitoring period will be 450 live stems per acre with a 80% survival rate of the initial planted species and a minimum of 50% herbaceous ground cover.

**Soils**

Annual soils evaluations will be conducted within the same 20 foot radius as the woody stem counts. Soil probes will be taken to an 18" depth. Soil horizons, texture, color, redoximorphic features and other hydric soil indicators will be described. The final standard of success at the end of the 7 year monitoring period will be the presence of hydric soil indicators of a wetland per the 1987 Corps Wetland Delineation Manual.

**Hydrology**

Indicators of wetland hydrology will be noted and described in conjunction with the vegetation and soil assessments. Recording of the number of continuous days of inundation and/or saturation during the growing season may also be used to demonstrate wetland hydrology. The final standard of success at the end of the 7 year monitoring period will be the presence of indicators of wetland hydrology per the 1987 Corps Wetland Delineation Manual.

The semi-annual field evaluations and annual monitoring reports will be used to develop maintenance plans. Completed and planned maintenance will be noted in the annual monitoring reports. The final report will include a complete wetland delineation per the 1987 Corps Wetland Delineation Manual. BBCC is committed to the successful completion of this project. A successfully constructed wetland is not only a necessary component of this SEP, but will also be necessary to meet the requirements of the Surface Mining Control and Reclamation Act (SMCRA). Should the wetland restoration and forested buffer prove to be a failure, BBCC will commit further time and resources and cooperate with USEPA to complete a successful contingency plan.

Woodland Wetland Seed Mix							
Bob 14-07							
Enter the requested Acres: 18							
PLS							
Botanical Name	Common Name	Ounces/Acre	Required Ounces	Lot Number	PLS factor	Total Oz Used	
<b>Permanent Grasses/Sedges:</b>							
<i>Cetambrosia canadensis</i>	Bluejoint Grass	1.00	18.00				
<i>Carex crinita</i> †	Fringed Sedge	2.00	36.00				
<i>Carex lupulina</i> †	Common Hop Sedge	4.00	72.00				
<i>Carex lurida</i> †	Boobybrush Sedge	1.50	27.00				
<i>Carex squarrosa</i> †	Narrow-leaved Cattail Sedge	2.00	36.00				
<i>Carex sparganoides v. cephaloides</i> †	Rough-Clustered Sedge	1.50	27.00				
<i>Carex lyphale</i> †	Common Cattail Sedge	2.00	36.00				
<i>Carex vulpinoidea</i>	Brown Fox Sedge	4.00	72.00				
<i>Elymus canadensis</i>	Canada Wild Rye	6.00	144.00				
<i>Elymus virginicus</i>	Virginia Wild Rye	12.00	216.00				
<i>Glyceria striata</i>	Pond Marsh Grass	2.00	36.00				
<i>Leersia oryzoides</i>	Rice Cut Grass	2.00	36.00				
<i>Scirpus atrovirens</i>	Green Bulrush	2.00	36.00				
<i>Spartina pectinata</i>	Prairie Cord Grass	1.00	18.00				
		<b>Total</b>	<b>45.00</b>				
<b>Temporary Cover:</b>							
<i>Avena sativa</i>	Common Oats	537.00	9,666.00				
<i>Lolium multiflorum</i>	Annual Rye	112.00	2,016.00				
		<b>Total</b>	<b>649.00</b>				
<b>Forbs:</b>							
<i>Ailana spp.</i>	Water Plantain (Various Mix)	3.00	54.00				
<i>Angelica atropurpurea</i> †	Great Angelica	1.00	18.00				
<i>Aster pilosus</i>	Bristly Aster	0.75	13.50				
<i>Aster umbellatus</i> †	Flat-Top Aster	0.25	4.50				
<i>Bidens cernua</i>	Nodding Bur Marigold	2.50	45.00				
<i>Campanula americana</i>	Tall Bell Flower	0.25	4.50				
<i>Cephalanthus occidentalis</i> †	Button Bush	0.50	9.00				
<i>Helianthus autumnalis</i>	Sneezeweed	2.00	36.00				
<i>Heracleum lanatum</i> †	Cow Parsnip	0.75	13.50				
<i>Hibiscus moscheutos</i> †	Swamp Rose Mallow	2.00	36.00				
<i>Lobelia siphilitica</i>	Great Blue Lobelia	1.50	27.00				
<i>Mimulus ringens</i>	Monkey Flower	1.25	22.50				
<i>Rudbeckia laciniata</i>	Cut-Leaf Coneflower	0.75	13.50				
<i>Verbesina alternifolia</i>	Wingspot	2.00	36.00				
		<b>Total</b>	<b>15.00</b>				
<b>Mix Statistics</b>							
Native Component	PLS lbs./Acre	PLS Seeds/Acre	PLS Seeds/acre, FE	% of Native Mix			
Forbs	1.13	2,048,181	47.02	51.47%			
Grasses	2.81	1,931,015	44.33	48.62%			
Total Natives	3.94	3,979,206	91.35	100%			
Cover	40.68	5,952,038	138.64				
Totals	44.62	9,931,244	227.99				
Volume Discounting is not valid if other discounting is already applied							
1-5 AC (\$99.00 per AC)	1/2 Acre	1/4 Acre					
\$12,582.00	\$402.00	\$230.00					
6-14 AC Discounted (6%)	15-20 Ac Discounting (15%)						
-11952.0	-\$10,694.70						
20-50 AC Discounting (20%)	50-100 AC Discounting (25%)						
-\$10,065.60	-\$8,438.50						
<b>Suggested Substitutes:</b>							
<i>Carex grayii, Carex muskingumensis, Carex tuckermanni, Clematis virginica, Elymus riparius, Napea diola, Solidago rugosa, Silphium perfoliatum,</i>							
<i>Teucrium canadense, Clematis virginica, Agrimonia parviflora, Aster lateriflorus, Caltha palustris (wet sites) Hypericum virginicum (rich soils),</i>							
<i>Ranunculus pennsylvanicus, Solidago flexicaulis, Carex intumescens, Glyceria canadensis, Millium effusum, Panicum clandestinum, Carex retrosa,</i>							
<i>Lindera benzoin,</i>							

\$594 / ac  
+ 6 / ac delivery  
- 20 / ac cover

ACTIVITY	BLACK BEAUTY COAL COMPANY SUPPLEMENTAL ENVIRONMENTAL PROJECT		FORESTED WETLAND		COST/YACRE COMMENTS	NONPRIME CROPLAND
	(Includes costs above cost of non prime cropland only)	UNITS	\$ RATE	COST/ACRE		
Pre Design Survey & Data Download	hours	1	\$35.00	\$35.00	\$0.00 Already completed via Typical Cross Section in SMCRA permit	
Prep & Submittal of SMCRA Permit revision to change non prime cropland to forested wetland.	hours	0.2	\$55.00	\$11.00	\$0.00 Not required, current approved land use is Non prime Cropland	
Engineering Design & Mapping	hours	2	\$55.00	\$110.00	\$0.00 Not needed	
Pre Reclamation Survey & Stakeout (2 people)	hours	1	\$35.00	\$35.00	\$0.00 Not needed	
Precision grading of shale w/ D10 Dozer (1.5' depth = 2420 cu yards/acre)	cu yards	2420	\$0.70	\$1,694.00	\$0.00 Rough Grading is sufficient for non prime cropland.	
Survey of graded shale to monitor and verify required elevations	hours	0.2	\$35.00	\$7.00	\$0.00 Not Required	
Soil Replacement (Part of normal reclamation cost)				\$0.00	\$10,387.72 4' depth @ \$1,617/cubic yard	
Soil surface survey and stakeout (2 people)	hours	1	\$35.00	\$35.00	\$0.00 Not Required	
Precision grading of replaced soil w/ D7 Dozer (1' depth = 1613 cu yards/acre)	cu yards	1613	\$0.80	\$1,290.40	\$0.00 Not Required	
Survey of graded soil to monitor and verify required elevations	hours	0.2	\$35.00	\$7.00	\$0.00 Experienced Operator can accomplish w/out survey assistance	
Soil Testing, Fertilizer & Ag Lime applications (Part of normal reclamation costs)				\$0.00	\$125.00 Average Cost, actual is based on soil test results	
Tillage, Plowing, harrowing, etc (Part of normal reclamation costs)	acres	1	\$80.00	\$80.00	\$99.00	
Deep tillage to 24" to alleviate compaction from Precision grading	acres	1	\$12.00	\$12.00	\$0.00 Not required for non prime cropland, where less grading has occurred.	
Disking to smooth soil surface after deep tillage	acres	1	\$12.00	\$12.00	\$0.00 Not required if Deep Tillage is not required	
Herbaceous revegetation (Includes difference in wet species seed vs. wheat seed)	acres	1	\$210.00	\$210.00	\$0.00 Wet species cost = \$60/acre, Wheat seed cost = \$16/acre	
Mulching to promote seed germination and soil protection (includes 3 round bales/acre)	acres	1	\$210.00	\$210.00	\$0.00 Wheat crop would be drilled on non prime cropland.	
Tree seedlings, pick up, cold storage, planting	trees	600	\$0.70	\$420.00	\$0.00 Crops would be planted on non prime cropland	
Maintenance, herbicide treatment, fertilization for 7 year period	hours			\$345.00	\$0.00 Considered in net crop income calculation.	
Monitoring & Reporting for 5 year period (8 hours/year)	hours	40	\$55.00	\$2,200.00	\$0.00 Only reporting required is yield results in bond release application.	
Stem Count and Ground Cover Survey required for Forest Land use in SMCRA (0.5 hr/acre)	hours	0.5	\$55.00	\$27.50	\$0.00 Only reporting required is yield results in bond release application.	
Annual loss of net crop income (\$50 per acre for 5 years)				\$250.00	\$0.00 Income loss for 5 years is estimated; however, actual crop income loss is permanent.	
TOTAL COST PER ACRE				\$6,832.90		
TOTAL COST FOR 36.3 ACRES				\$248,034.00		\$10,611.72
Forested Buffer (5.5 ac @ \$3,496.50/acre)				\$19,230.00		
Conservation Easement Reduction in Land Value (41.8 ac @ \$600/acre)				\$25,080.00		
TOTAL ESTIMATED BEP COST				\$292,344.00		

NOTES:  
 All surveying completed on 50' X 50' grid or closer if needed.  
 Surveying, Engineering, Monitoring and Reporting costs are based on internal costs. External costs would be considerably higher.  
 Actual line item costs may vary (+ or -) however, final total cost will be within 50% of estimated total.



# Deciduous Woodland Seed Mix

Bob 1/5/07

Enter the requested Acres: **5.5**

PLS

Botanical Name	Common Name	Ounces/Acre	Required Ounces	Lot Number	PLS Factor	Total Oz. Used
<b>Permanent Grasses</b>						
<i>Bromus pubescens</i>	Woodland Brome	4.00	22.00			
<i>Carex spaganoides</i> var. <i>cephaloides</i> †	Rough Clustered Sedge	6.00	33.00			
<i>Diarhena americana</i>	Beak Grass	0.50	2.75			
<i>Elymus villosus</i>	Silky Wild Rye	6.00	33.00			
<i>Elymus hystrix</i>	Bottlebrush Grass	16.00	88.00			
<b>Totals</b>		<b>32.50</b>	<b>178.75</b>			
<b>Temporary Cover</b>						
<i>Avena sativa</i>	Seed Oats	360.00	1,980.00			
<i>Lolium Multiflorum</i>	Annual Rye	120.00	660.00			
<b>Totals</b>		<b>480.00</b>	<b>2,640.00</b>			
<b>Forbs</b>						
<i>Actea pachypoda</i>	Dolls Eyes-dogbane	1.00	5.50			
<i>Anemone cylindrica</i>	Thimbleweed	1.00	5.50			
<i>Aquilegia canadensis</i>	Wild Columbine	1.25	6.88			
<i>Aster sagittifolius</i>	Arrow-leaved Aster	2.50	13.75			
<i>Aureolaris flava</i>	Smooth False Foxglove	1.00	5.50			
<i>Campanula americana</i>	Tall Bellflower	2.00	11.00			
<i>Caulophyllum thalictroides</i>	Blue Cohosh	2.00	11.00			
<i>Osmorhiza claytonii</i> †	Hairy Sweet Cicely	4.00	22.00			
<i>Polygonatum carolinatum</i> †	Smooth Solomons Seal	2.00	11.00			
<i>Scrophularia marilandica</i>	Late Figwort	2.00	11.00			
<i>Smilacina racemosa</i> †	Feathery False Solomons Seal	1.75	9.63			
<i>Trillium grandiflorum</i>	Grand-Flowered Trillium	0.25	1.38			
<b>Totals</b>		<b>20.75</b>	<b>114.13</b>			

## Mix Statistics

Native Component	PLS lbs/Acre	PLS seeds/Acre	PLS Sq. Ft.	% of Native Mix
Forbs	1.29	2,229,515	51.18	90.00%
Grasses	2.03	245,412	5.63	10.00%
<b>Total Natives</b>	<b>3.32</b>	<b>2,474,927</b>	<b>56.81</b>	<b>100.00%</b>
Cover	30.00	4,627,560	106.23	
<b>Totals</b>	<b>30.00</b>	<b>4,627,560</b>	<b>163.04</b>	

Volume discounting is not valid if other discounting has been applied

1-5 Acres (\$1065 per acre)	1/2 Acre	1/4 Acre
\$5,857.50	\$532.50	\$266.25
6-14 AC Discounting (5%)	15-20 AC Discounting (15%)	
-\$5,584.63	-\$4,978.88	
21-50 AC Discounting (20%)	51-100 AC Discounting (25%)	
-\$4,686.00	-\$4,393.13	

at 1,011.75/ac + \$6/ac delivery

## Suggested Substitutes

Allium triccum, Cryptotaenia canadensis, Eupatorium purpureascens, Eupatorium rugosum, Geranium maculatum, Hydrophyllum virginicum, Osmorhiza claytonii, Podophyllum peltatum, Sanguina canadensis, Sanicula gregorri, Solidago caesia, Stylophorum diphyllum, Thalictrum dioicum, Desmodium glutinosum, Aster shortii, Penstemon calycosus, Taenidia interrima, Carex sprengeilli, Carex swanii,

## VEGETATIVE SPECIES AND PLANTING PLAN

### Forested Buffer Area Seeding & Planting Stock

Scientific Name	Common Name	Approx. Seeding or Planting Rate	Method of Application
<i>Lolium multiflorum</i>	Annual Rye	40 lb/ac	Drilled or Broadcast
<i>Triticum aestivum</i>	Wheat	40 lb/ac	Drilled or Broadcast
<i>Avena sativa</i>	Oats	40 lb/ac	Drilled or Broadcast
<i>Liriodendron tulipifera</i>	Yellow Poplar	600 seedlings/ac	Mechanical or Hand
<i>Diospyros virginiana</i>	Persimmon	600 seedlings/ac	Mechanical or Hand
<i>Quercus</i> spp.	Red Oak species	600 seedlings/ac	Mechanical or Hand
<i>Quercus</i> spp.	White Oak species	600 seedlings/ac	Mechanical or Hand
<i>Carya</i> spp.	Hickory	600 seedlings/ac	Mechanical or Hand
<i>Juglans nigra</i>	Black Walnut	600 seedlings/ac	Mechanical or Hand

Note:

1. Planting mix for herbaceous species will consist of a mixture of a minimum of 4 perennial and 1 annual species to assure diversity
2. Woody plantings will consist of a minimum of 5 species with no single tree species comprising more than 25% of the total planting.
3. Spacing of woody plantings will be ~8' X 9'.
4. See the JF New Deciduous Woodland Seed Mix for perennial herbaceous species to be used.

### Wetland Seeding & Planting Stock

Scientific Name	Common Name	Approx. Seeding or Planting Rate	Method of Application
<i>Lolium multiflorum</i>	Annual Rye	40 lb/ac	Drilled or Broadcast
<i>Triticum aestivum</i>	Wheat	40 lb/ac	Drilled or Broadcast
<i>Avena sativa</i>	Oats	40 lb/ac	Drilled or Broadcast
<i>Quercus lyrata</i>	Overcup Oak	600 seedlings/ac	Mechanical or Hand
<i>Quercus bicolor</i>	Swamp White Oak	600 seedlings/ac	Mechanical or Hand
<i>Quercus macrocarpa</i>	Bur Oak	600 seedlings/ac	Mechanical or Hand
<i>Quercus palustris</i>	Pin Oak	600 seedlings/ac	Mechanical or Hand
<i>Quercus michauxii</i>	Swamp Chestnut Oak	600 seedlings/ac	Mechanical or Hand
<i>Taxodium distichum</i>	Bald Cypress	600 seedlings/ac	Mechanical or Hand
<i>Platanus occidentalis</i>	Sycamore	600 seedlings/ac	Mechanical or Hand
<i>Carya laciniata</i>	Shellbark Hickory	600 seedlings/ac	Mechanical or Hand
<i>Carya illinoensis</i>	Pecan[FacW]	600 seedlings/ac	Mechanical or Hand

Note:

1. Planting mix for herbaceous species will consist of a mixture of a minimum of 4 perennial and 1 annual species to assure diversity
2. Woody plantings will consist of a minimum of 5 species with no single tree species comprising more than 25% of the total planting.
3. Spacing of woody plantings will be ~8' X 9'.
4. Undesirable invasive species will be treated and controlled with appropriate herbicides according to manufacturer's recommendations. Desirable volunteer species will be encouraged.
5. See the JF New Wooded Wetland Seed Mix for herbaceous species to be used.

## Design Summary

### Flooding Frequency and Magnitude:

Flooding frequency and magnitude for the undisturbed East Branch of Turman Creek adjacent to the proposed SEP mitigation site was considered in design of the constructed wetland. Current plans are to mine through the east branch; however, stream dimensions will be restored to the approximate pre-mining conditions. Enhancements to the stream channel will be made per the applicable Section 404 authorization. The SEP flooding frequency and magnitude design study is based on current channel dimensions and the restored channel will reflect the same approximate dimensions. Similar to premining conditions, reconstruction will not allow over bank flooding along the west bank of the east branch of Turman Creek. TR-20 Hydrographs were developed to predict watershed runoff for the one year (1 yr/24 hr) and two year (2 yr/24 hr) twenty four hour storm events. The rainfall events are 2.71 inches (1 yr/24 hr) and 3.11 inches (2 yr/24 hr). The watershed area upstream of the project area totaled 539.9 acres. An average runoff curve of 70 was applied with a time of concentration of 1.5 hours. The hydrograph model calculated peak discharge of 97.5 cfs and 145.5 cfs (see TR-20 Hydrograph Model Reports pages 1 and 2). Channel conveyance of the hydrograph modeled discharge was calculated using Mannings equation to determine the channel depth at design flow. Existing channel cross-sections were surveyed at three locations immediately adjacent to the proposed mitigation site (Section 5, 8, and 11). The predicted flow elevation (flood magnitude) for each cross-section was determined using Mannings equation. Input parameters of wetted perimeter and wetted cross-sectional area, channel slope, Mannings coefficient, and flow depth were used in the calculation to obtain a conveyance discharge capacity approximating the design runoff events. The predicted water surface elevation at this conveyance capacity was then used to interpolate the elevation at which overbank flooding could be predicted for the given recurrence interval of 1.8 years. The 1.8 year recurrence interval was derived from the USGS Scientific Investigations Report 2005-5153 - Bankfull Characteristics of Ohio Streams and Their Relation to Peak Streamflows.

### SEP Mitigation Site:

The calculated bankfull discharge was utilized to determine the elevation of the incipient point of flooding that would occur along the mitigated Turman Creek tributary for the proposed SEP mitigation site. The mitigation site will be constructed at the same elevation or below to ensure that inundation or saturation will occur to create adequate hydrology for the creation of hydric soils and success of hydrophytic

vegetation. A near flat topography will be constructed for the wetland. Criteria for wetland determination as found in the 1987 Corps of Engineers Wetland Delineation Manual will be used to validate the presence of hydrophytic vegetation and hydric soils. The site will be ultimately self-sustaining after the establishment of the permanent vegetation.

#### Proposed Direct Watershed Runoff:

In addition to the contribution of upstream overbank flooding from Turman Creek and its' tributaries an additional 240 acres of direct watershed will flow through the proposed SEP mitigation site. Hydrograph runoff models for the direct watershed were also developed for the (1 yr/24 hr) and (2 yr/24 hr) events. The TR-20 hydrographs predict a runoff volume for the direct watershed of 11.2 and 15.5 acre-feet, respectively. The direct watershed can be predicted to result in a contribution 0.3-0.4 feet of runoff depth across the entire 36 acre SEP mitigation site.



## CERTIFICATION OF PLAN

I, Ann M. Nelson, P.E., certify <sup>(2)</sup> the plan entitled "Farmersburg Mine - SEP Wetland" was developed in accordance with prudent engineering principles and practices, and applicable design criteria.



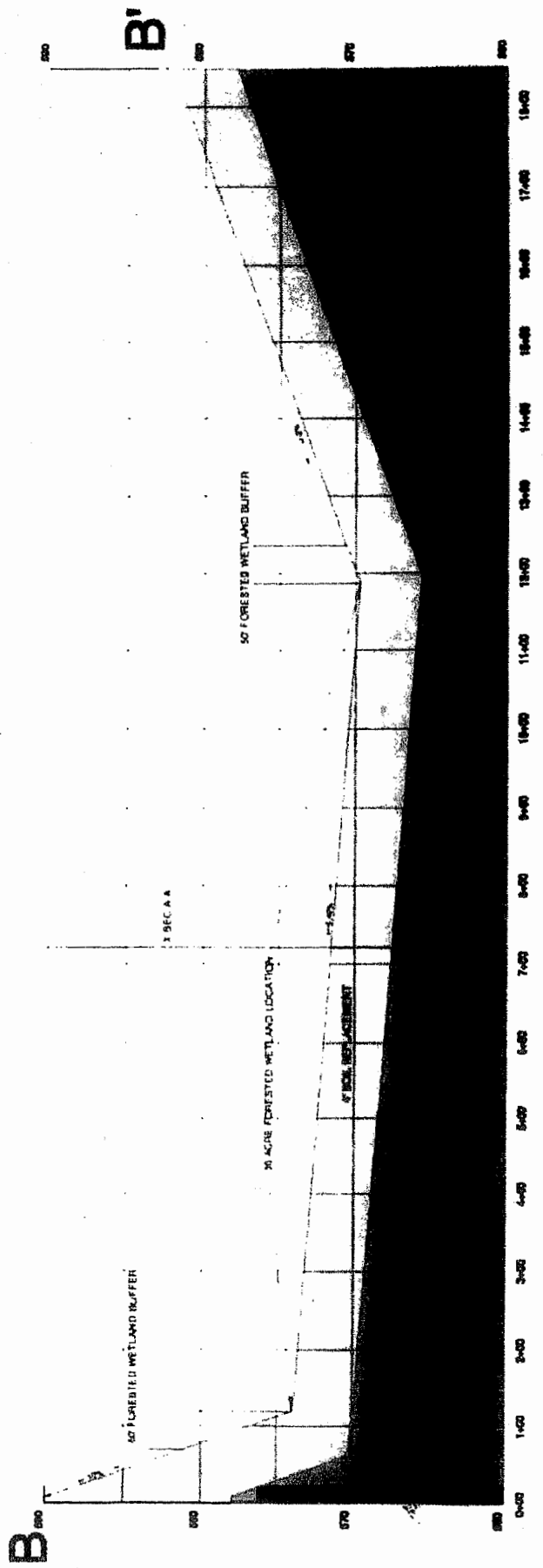
SIGNED: Ann M. Nelson  
Ann M. Nelson, P.E.

DATE: 12-3-07  
Peabody Energy

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<sup>(2)</sup> The term "certify," as used herein, is defined as follows: "An Engineer's certification of conditions is a declaration of professional judgment. It does not constitute a warranty or guarantee, either expressed or implied, nor does it relieve any other party of their responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances."



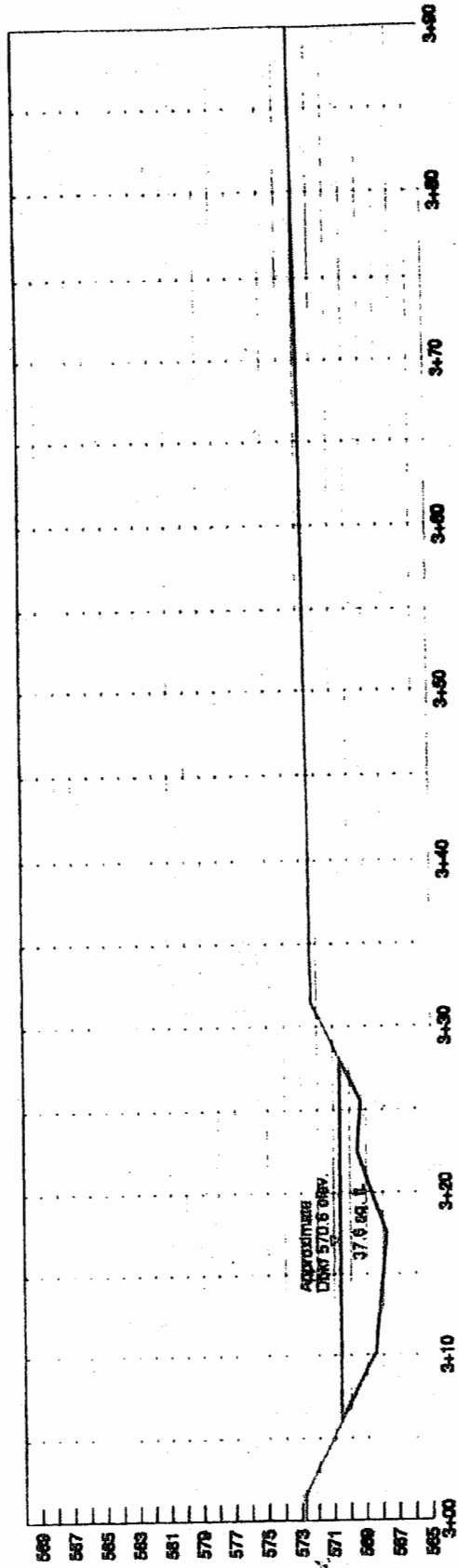


**Black Beauty Coal Company**  
 Shenandoah, VA

**FARMERSBURG MINE-SEP WETLAND  
 CROSS SECTION B-B' DOWN VALLEY**

GENERAL INFORMATION  
 WETLAND SOIL PLACEMENT  
 WETLAND DETERMINATION PLACEMENT  
 CROSS SECTION

Turman Creek Section 8 1.8yr/2Mtr Event Conveyance Section-Pre-Mining



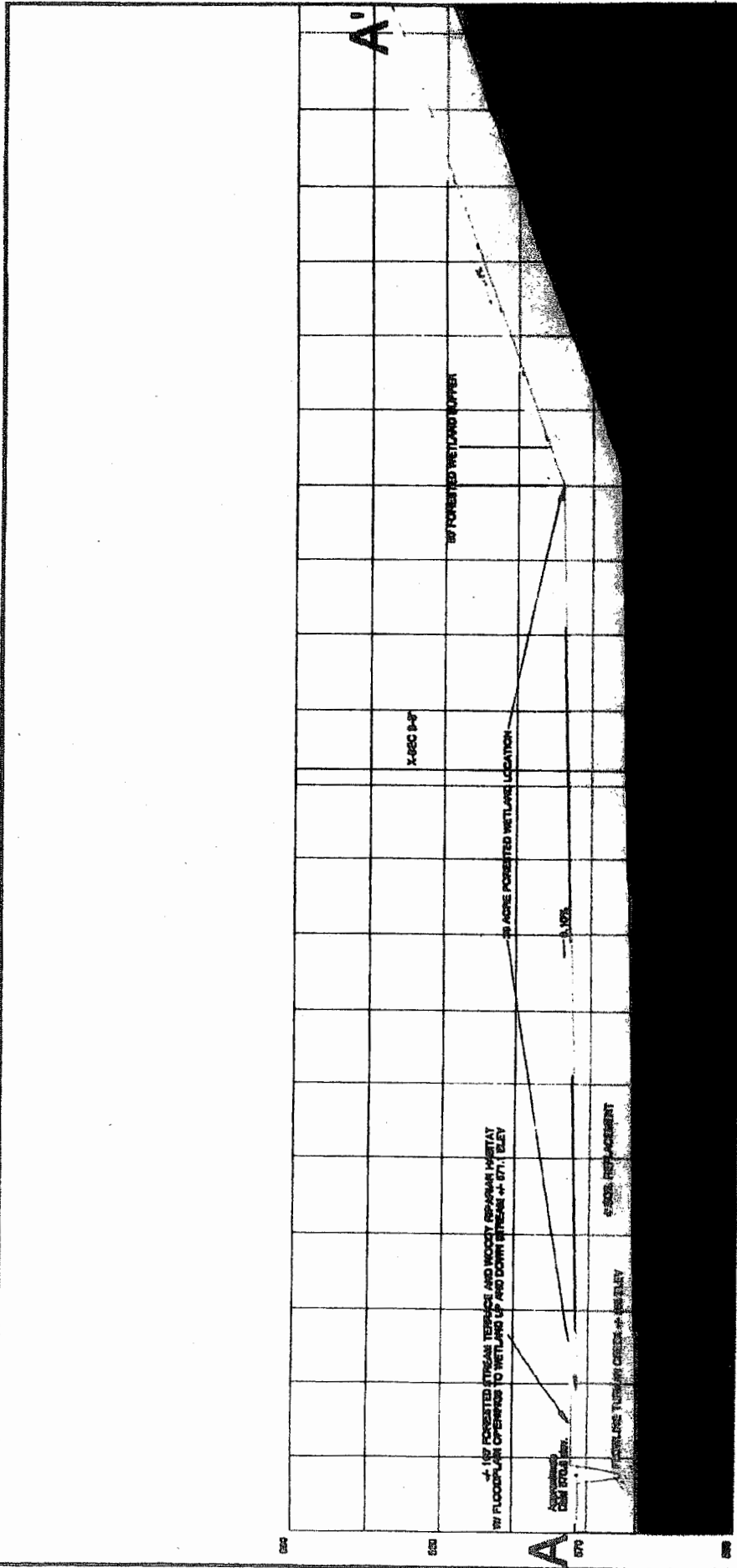
\*Depth of Bankfull (DBF) determined by utilizing the 1 and 2 year flood frequency models to calculate the related streamflow elevations. These elevations were used to extrapolate the elevation of a 1.8 year flood frequency event. The approximated 1.8 year interval was derived from the USGS Scientific Investigations report 2005-5163-Bankfull Characteristics of Ohio Streams and Their Relation to Peak Streamflows. The mean Ddbf was estimated to be at an approximated 1.8 year interval.



FARMERSBURG MINE-SEP WETLAND  
ASSESSED STREAM CROSS SECTION

GENERAL INFORMATION  
DEPTH BANK FULL (DBF)  
GROUND LINE





**Black Beauty Coal Company**  
 Dryden, Idaho

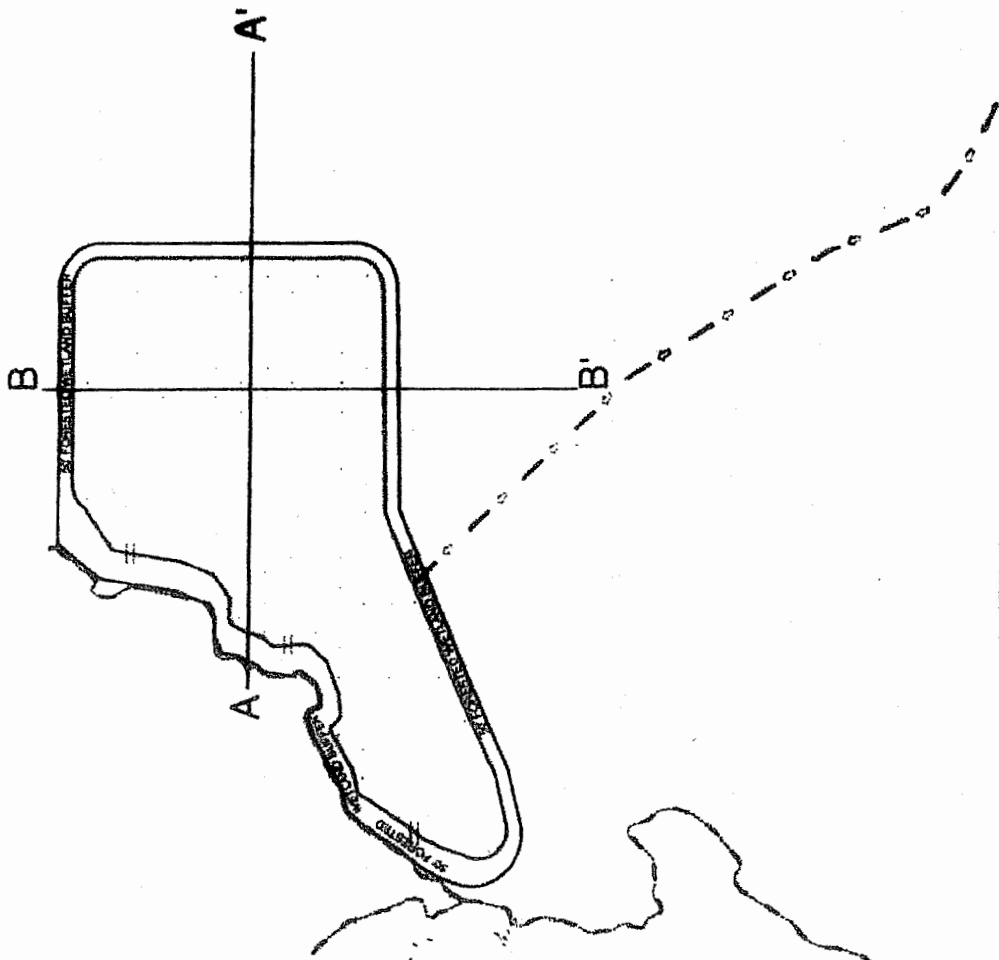
**FARMERSBURG MINE-SEP WETLAND  
 CROSS SECTION A-A THROUGH STREAM**

SEE PLAN IN CORNER 12 IN

WETLAND SOIL PLACEMENT  
 WETLAND OVERFLOW/SPILL PLACEMENT  
 A-A CROSS-SECTION

SEP MAP

**APPROXIMATE LOCATION OF  
SEP WETLAND  
TURMAN CREEK WATERSHED  
36 ACRES IN SIZE W/50' FORESTED BUFFER**



**Black Beauty Coal Company**  
Preston, Indiana

**FARMERSBURG MINE-SEP WETLAND  
PLAN VIEW**

- GENERAL INFORMATION:
- SEP WETLAND BOUNDARY
  - FORESTED WETLAND BUFFER OUTER EDGE
  - INTERMITTENT STREAMS
  - PERMANENT STREAMS
  - TERFACE
  - ROADS
  - APPROXIMATE LOCATION OF WETLAND OPENINGS TO STREAM



TR20 SCS - VERSION 2.04 Hydrograph Model  
 Turman Creek East Branch Watershed  
 Runoff Storm Event 1yr / 24hr, 2.71 inches

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS  
 EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1  
 STARTING TIME = .00 RAIN DEPTH = 2.71 RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS  
 ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1  
 OUTPUT HYDROGRAPH = 6 RUNOFF AREA = 539.9 acres, .84 SQ MI  
 INPUT RUNOFF CURVE = 70. TIME OF CONCENTRATION = 1.50 HOURS  
 COMPUTED INTERNAL TIME INCREMENT = .0947 HOURS  
 PEAK TIME(HRS) 12.95 PEAK DISCHARGE(CFS) 97.5 PEAK ELEVATION(FEET) (RUNOFF)

HRS	HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1							
	MAIN TIME INCREMENT = .100 hr,	DRAINAGE AREA = .84 SQ.MI.						
11.80 CFS	.47	2.32	6.63	13.61	23.44	36.38	51.47	66.33
12.60 CFS	78.86	88.17	94.25	97.22	97.28	95.14	91.03	84.99
13.40 CFS	78.07	71.81	66.42	61.62	57.37	53.56	50.03	46.81
14.20 CFS	43.93	41.32	38.95	36.79	34.84	33.07	31.49	30.09
15.00 CFS	28.83	27.71	26.70	25.78	24.95	24.20	23.50	22.85
15.80 CFS	22.25	21.69	21.14	20.61	20.09	19.57	19.06	18.57
16.60 CFS	18.11	17.71	17.34	17.00	16.68	16.40	16.13	15.88
17.40 CFS	15.66	15.44	15.24	15.05	14.87	14.69	14.52	14.35
18.20 CFS	14.19	14.02	13.86	13.71	13.55	13.39	13.24	13.08
19.00 CFS	12.93	12.77	12.62	12.46	12.30	12.15	11.99	11.83
19.80 CFS	11.67	11.51	11.35	11.19	11.03	10.87	10.71	10.56
20.60 CFS	10.41	10.27	10.14	10.03	9.92	9.82	9.74	9.66
21.40 CFS	9.59	9.53	9.47	9.42	9.37	9.33	9.29	9.25
22.20 CFS	9.21	9.18	9.14	9.11	9.08	9.04	9.01	8.98
23.00 CFS	8.95	8.92	8.89	8.87	8.84	8.81	8.78	8.75
23.80 CFS	8.72	8.69	8.66	8.61	8.51	8.34	8.09	7.72
24.60 CFS	7.23	6.64	5.99	5.31	4.64	4.00	3.41	2.87
25.40 CFS	2.40	2.00	1.68	1.41	1.19	1.00	.84	.71
26.20 CFS	.59	.50						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .56 WATERSHED INCHES; 304 CFS-HRS; 25.2 ACRE-FEET.  
 DURATION(HRS) 2 4 6 8 10 12 14 14  
 FLOW(CFS) 39 20 14 11 9 9 1 0

TR20

SCS -  
 VERSION  
 2.04TEST

11/28/07  
 10:51:25

SUMMARY, JOB NO. 1  
 SUMMARY TABLE 1

PAGE 2

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH  
 XSECTION/ STANDARD PEAK DISCHARGE

STRUCTURE ID	CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 2.71 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 1							

XSECTION 1 RUNOFF .84 .56 --- 12.95 98 116.7



Black Beauty Coal Company  
 EVANSVILLE, INDIANA  
 TR-20 Hydrograph Model Report  
 Turman Creek East Branch  
 Farmersburg Mine, IDNR #S-287

DATE: 11/30/2007

REVISION NO.:

DATE:

ENGINEER: TECH: ABN

NOTES:

BOOKS 1 OF 4

TR20 SCS - VERSION 2.04 Hydrograph Model  
 Turman Creek East Branch Watershed  
 Runoff Storm Event 2yr/24hr, 3.11 Inches

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS  
 EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1  
 STARTING TIME = .00 RAIN DEPTH = 3.11 RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS  
 ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1  
 OUTPUT HYDROGRAPH = 6 Runoff AREA = 539.9 acres, .84 SQ MI  
 INPUT RUNOFF CURVE = 70. TIME OF CONCENTRATION = 1.50 HOURS  
 COMPUTED INTERNAL TIME INCREMENT = .0947 HOURS  
 PEAK TIME(HRS) 12.92 PEAK DISCHARGE(CFS) 145.4 PEAK ELEVATION(FEET) (RUNOFF)

HRS	HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1								
	MAIN TIME INCREMENT = .100 hr,				DRAINAGE AREA = .84 SQ.MI.				
11.70 CFS	.34	1.52	5.08	12.39	23.83	39.55	59.56	82.12	
12.50 CFS	104	122	134	142	145	144	140	132	
13.30 CFS	123	112	102	94	87	80	75	69	
14.10 CFS	64.51	60.27	56.46	53.01	49.89	47.08	44.54	42.29	
14.90 CFS	40.29	38.51	36.93	35.51	34.22	33.05	31.99	31.02	
15.70 CFS	30.12	29.28	28.51	27.75	27.02	26.30	25.59	24.90	
16.50 CFS	24.23	23.62	23.07	22.58	22.13	21.71	21.32	20.97	
17.30 CFS	20.64	20.34	20.05	19.78	19.53	19.28	19.04	18.81	
18.10 CFS	18.59	18.37	18.15	17.94	17.73	17.52	17.32	17.11	
18.90 CFS	16.91	16.70	16.49	16.29	16.08	15.87	15.67	15.46	
19.70 CFS	15.25	15.04	14.83	14.62	14.41	14.20	13.99	13.79	
20.50 CFS	13.59	13.40	13.22	13.05	12.89	12.75	12.63	12.51	
21.30 CFS	12.41	12.32	12.24	12.16	12.10	12.03	11.97	11.92	
22.10 CFS	11.87	11.82	11.77	11.72	11.68	11.64	11.59	11.55	
22.90 CFS	11.51	11.47	11.43	11.39	11.35	11.31	11.27	11.24	
23.70 CFS	11.20	11.16	11.12	11.08	11.01	10.88	10.67	10.34	
24.50 CFS	9.87	9.24	8.48	7.65	6.79	5.93	5.11	4.35	
25.30 CFS	3.66	3.05	2.55	2.14	1.80	1.52	1.28	1.08	
26.10 CFS	.90	.76	.64	.53	.45				
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)									
DURATION(HRS) 2 4 6 8 10 12 14 15									
FLOW(CFS) 56 26 19 14 12 11 2 0									
WATERSHED INCHES) 423 CFS-HRS; 34.9 ACRE-FEET.									

TR20

11/28/\*\*  
 10145:44

SUMMARY, JOB NO. 1  
 SUMMARY TABLE 1

SCS -  
 VERSION  
 2.04TEST  
 PAGE 2

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH  
 XSECTION/ STANDARD T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH  
 STRUCTURE CONTROL DRAINAGE RUNOFF PEAK DISCHARGE

ID	OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.11 Inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 1							

XSECTION	1	RUNOFF	.84	.78	---	12.92	145	172.6
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Black Beauty Coal Company  
 EVANSVILLE, INDIANA  
 TR-20 Hydrograph Model Report  
 Turman Creek East Branch  
 Farmersburg Mine, IDNR #S-287

DATE: 11/30/2007

REVISION NO.:

DATE:

ENGINEER: TECH: ABN

NOTES:

SHEET 2 OF 4

TR20 SCS - Version 2.04 Hydrograph Model  
 SEP Mitigation Wetland Direct Post-Mine Reclaimed Watershed  
 Runoff Storm Event 1yr/24hr, 2.71 Inches

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS  
 EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1  
 STARTING TIME = .00 RAIN DEPTH = 2.71 RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS  
 ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1  
 OUTPUT HYDROGRAPH = 6 Runoff AREA = ~240 acres, .38 SQ MI  
 INPUT RUNOFF CURVE = 70. TIME OF CONCENTRATION = 1.00 HOURS  
 COMPUTED INTERNAL TIME INCREMENT = .0923 HOURS  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(Feet)  
 12.60 57.0 (RUNOFF)

HRS	HYDROGRAPH POINTS FOR				ALTERNATE = 1,		STORM = 1	
	MAIN TIME INCREMENT = .100 hr,				DRAINAGE AREA =		.38 SQ.MI.	
11.70 CFS	.07	.65	3.01	8.39	17.26	28.93	40.86	50.12
12.50 CFS	55.45	56.98	55.34	51.18	45.57	40.25	35.83	32.15
13.30 CFS	28.98	26.24	23.93	21.96	20.26	18.79	17.52	16.42
14.10 CFS	15.46	14.59	13.82	13.14	12.54	12.01	11.56	11.15
14.90 CFS	10.77	10.44	10.15	9.90	9.68	9.47	9.27	9.08
15.70 CFS	8.89	8.71	8.52	8.34	8.15	7.97	7.80	7.63
16.50 CFS	7.47	7.32	7.19	7.08	6.97	6.88	6.79	6.71
17.30 CFS	6.63	6.56	6.49	6.42	6.35	6.28	6.21	6.15
18.10 CFS	6.08	6.01	5.95	5.88	5.81	5.75	5.68	5.61
18.90 CFS	5.54	5.48	5.41	5.34	5.27	5.20	5.13	5.05
19.70 CFS	4.98	4.91	4.84	4.77	4.69	4.62	4.55	4.49
20.50 CFS	4.43	4.37	4.32	4.28	4.25	4.22	4.20	4.17
21.30 CFS	4.16	4.14	4.12	4.11	4.09	4.08	4.06	4.05
22.10 CFS	4.04	4.02	4.01	4.00	3.99	3.98	3.96	3.95
22.90 CFS	3.94	3.93	3.91	3.90	3.89	3.88	3.86	3.85
23.70 CFS	3.84	3.82	3.81	3.79	3.75	3.64	3.45	3.15
24.50 CFS	2.77	2.34	1.92	1.52	1.18	.91	.71	.55
25.30 CFS	.43							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .56 WATERSHED INCHES; 135 CFS-HRS; Runoff Volume = 11.2 ACRE-Feet.  
 DURATION(HRS) 2 4 6 8 10 12 14  
 FLOW(CFS) 15 8 6 5 4 4 0

TR20 ----- SCS -  
 VERSION  
 11/30/00 10:36:35 SUMMARY, JOB NO. 1 2.04TEST  
 SUMMARY TABLE 1 PAGE 2

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH  
 XSECTION/ STANDARD PEAK DISCHARGE

STRUCTURE ID	CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 2.71 Inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 1							

XSECTION 1 RUNOFF .38 .56 --- 12.60 57 150.0



Black Beauty Coal Company  
 EVANSVILLE, INDIANA  
 TR-20 Hydrograph Model Report  
 SEP Mitigation Area Watershed  
 Farmersburg Mine, IDNR #S-287

DATE: 11/30/2007

REVISION NO.: DATE:

ENGINEER: YFCS: ABN

NOTES:

SHEET 1 OF 4

TR20 SCS - Version 2.04 Hydrograph Model  
 SEP Mitigation Wetland Direct Post-Mine Reclaimed Watershed  
 Runoff Storm Event 2yr/24hr; 3.111 Inches

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS  
 EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1  
 STARTING TIME = .00 RAIN DEPTH = 3.11 RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS  
 ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2  
 OPERATION RUNOFF XSECTION 1  
 OUTPUT HYDROGRAPH = 6 Runoff AREA = .38 SQ MI  
 INPUT RUNOFF CURVE = 70. TIME OF CONCENTRATION = 1.00 HOURS  
 COMPUTED INTERNAL TIME INCREMENT = .0923 HOURS  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(Feet)  
 12.57 85.5 (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .100 hr, DRAINAGE AREA = .38 SQ.MI.

HRS	MAIN	TIME	INCREM	DISCH	ELEV	DISCH	ELEV	DISCH	ELEV
11.70 CFS	.46	2.02	6.53	15.61	29.66	47.24	64.54	77.43	
12.50 CFS	84.21	85.25	81.39	74.26	65.61	57.45	50.71	45.12	
13.30 CFS	40.37	36.32	32.91	30.03	27.56	25.43	23.64	22.08	
14.10 CFS	20.71	19.49	18.41	17.45	16.62	15.89	15.26	14.69	
14.90 CFS	14.17	13.71	13.31	12.98	12.68	12.40	12.13	11.87	
15.70 CFS	11.62	11.37	11.12	10.87	10.63	10.39	10.15	9.93	
16.50 CFS	9.72	9.53	9.35	9.20	9.05	8.93	8.81	8.70	
17.30 CFS	8.60	8.50	8.41	8.31	8.22	8.13	8.04	7.95	
18.10 CFS	7.87	7.78	7.69	7.60	7.51	7.42	7.33	7.24	
18.90 CFS	7.15	7.06	6.97	6.88	6.79	6.70	6.60	6.51	
19.70 CFS	6.42	6.32	6.23	6.14	6.04	5.95	5.86	5.77	
20.50 CFS	5.69	5.62	5.56	5.51	5.46	5.42	5.39	5.36	
21.30 CFS	5.34	5.31	5.29	5.27	5.25	5.23	5.21	5.19	
22.10 CFS	5.18	5.16	5.14	5.13	5.11	5.09	5.08	5.06	
22.90 CFS	5.04	5.03	5.01	4.99	4.98	4.96	4.94	4.93	
23.70 CFS	4.91	4.89	4.87	4.85	4.79	4.66	4.41	4.03	
24.50 CFS	3.54	3.00	2.45	1.95	1.52	1.17	.91	.70	
25.30 CFS	.55	.42							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .78 WATERSHED INCHES; 188 CFS-HRS; Runoff Volume = 15.5 ACRE-Feet

DURATION(HRS)	2	4	6	8	10	12	14
FLOW(CFS)	21	11	8	6	5	5	0

TR20

SCS -  
 VERSION

11/30/2007  
 10:37:49

SUMMARY, JOB NO. 1  
 SUMMARY TABLE 1

2.04 TEST  
 PAGE 2

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH  
 XSECTION/ STANDARD PEAK DISCHARGE  
 STRUCTURE CONTROL DRAINAGE RUNOFF  
 ID OPERATION AREA AMOUNT ELEVATION TIME RATE RATE  
 (SQ MI) (IN) (FT) (HR) (CFS) (CSM)

RAINFALL OF 3.11 Inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.  
 RAIN TABLE NUMBER 2, ARC 2  
 MAIN TIME INCREMENT .100 HOURS  
 ALTERNATE 1 STORM 1

XSECTION 1 RUNOFF .38 .78 --- 12.57 85 223.7



**Black Beauty Coal Company**  
 EVANSVILLE, INDIANA  
 TR-20 Hydrograph Model Report  
 SEP Mitigation Area Watershed  
 Farmersburg Mine, IDNR #S-287

DATE: 11/30/2007

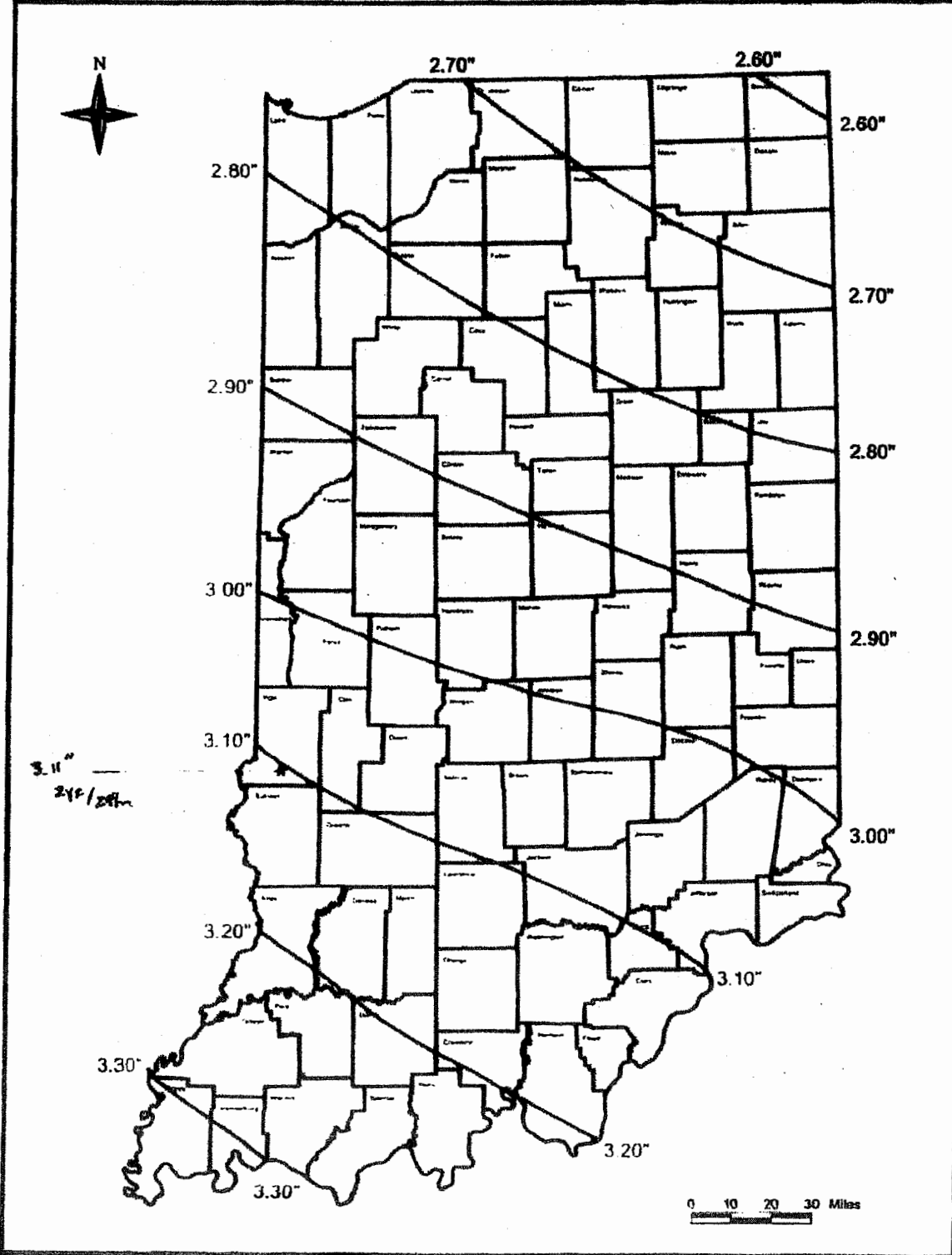
REVISION NO.: DATE:

ENGINEER: TECH: ABN

NOTES:

PAGE 4 OF 4

# RAINFALL - 2 YEAR FREQUENCY - 24 HOUR DURATION



REFERENCE  
TECHNICAL PAPER NO. 40  
NATIONAL WEATHER SERVICE

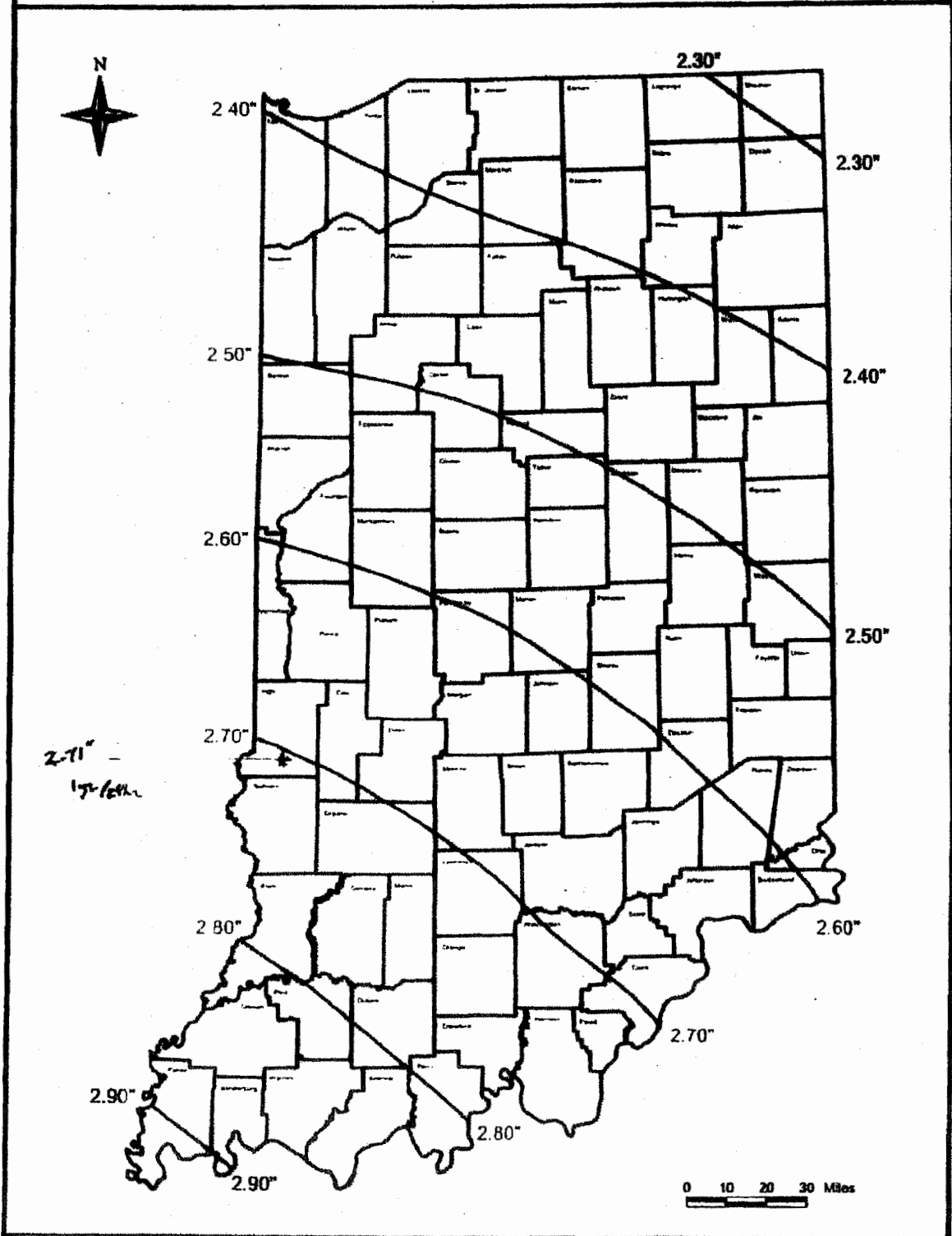


STATE OF INDIANA  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER





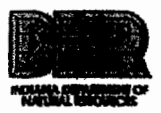
# RAINFALL - 1 YEAR FREQUENCY - 24 HOUR DURATION



REFERENCE  
TECHNICAL PAPER NO. 40  
NATIONAL WEATHER SERVICE



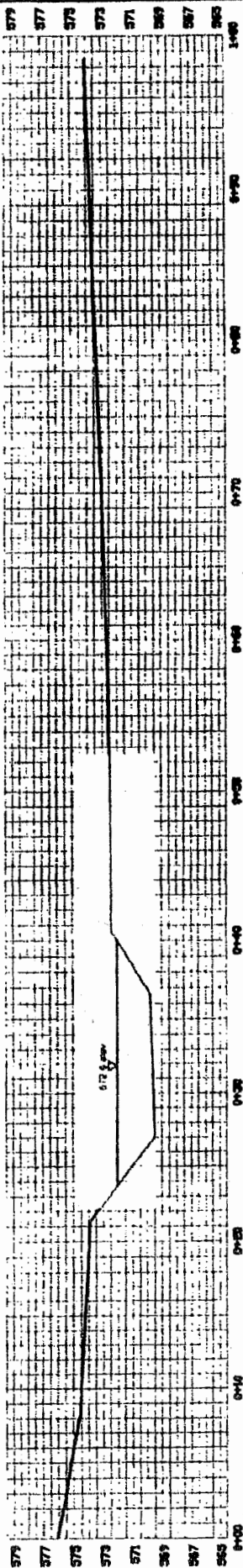
STATE OF INDIANA  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF WATER



Turman Creek East Branch  
 Section 5  
 Channel Conveyance  
 Estimated  
 11/30/2007, 5:31 PM event

Channel  
 Description  
 Vertical Position: 17.50 ft  
 Area of Wetted Cross Section: 28.89 sq ft  
 Channel Slope: 0.0042  
 Manning's n: 0.035  
 Depth of Flow: 2.42 ft @ 0.75 ft/s  
 Velocity: 2.08 ft/s  
 Channel Length: 200 ft

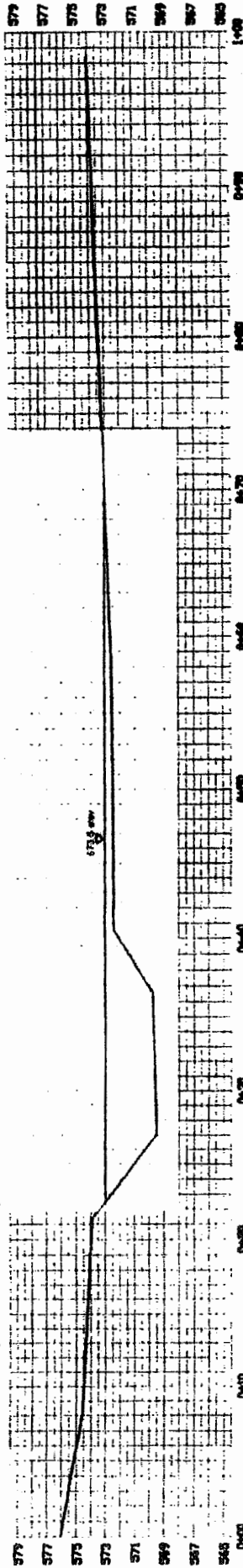
Turman Creek Section 5 11/30/2007 Event Conveyance Section



Turman Creek East Branch  
 Section 5  
 Channel Conveyance  
 Estimated  
 11/30/2007, 5:31 PM event

Channel  
 Description  
 Vertical Position: 25.40 ft  
 Area of Wetted Cross Section: 64.89 sq ft  
 Channel Slope: 0.0042  
 Manning's n: 0.035  
 Depth of Flow: 3.42 ft @ 0.75 ft/s  
 Velocity: 2.08 ft/s  
 Channel Length: 200 ft

Turman Creek Section 5 11/30/2007 Event Conveyance Section



**Black Beauty Coal Company**  
 EVANSVILLE, INDIANA  
 Channel Conveyance Section 5  
 Turman Creek East Branch  
 Farmersburg Mine, IDNR #S-287



DATE: 11/30/2007  
 ENGINEER: TSCB/ ABN  
 SCALE: 1 in = 10 ft  
 SHEET: 1 OF 3

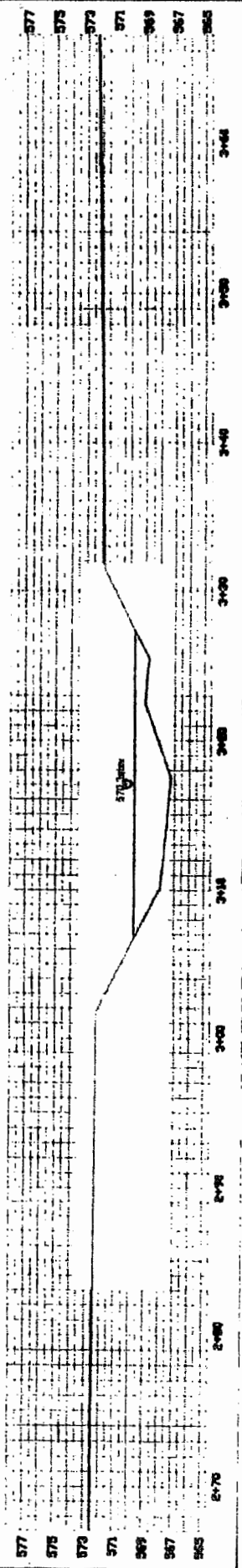
REVISION NO.:  
 DATE:

NOTES:

Turnan Creek East Branch  
 Section 8  
 Channel Conveyance  
 Survey Location Profile  
 2/7/24th, 2.71 inch event

Channel  
 Vertical Reference: 2570 ft  
 Area of Vertical Cross Section: 2628 sq ft  
 Channel slope: 0.0005  
 Manning's n: 0.025  
 Velocity: 3.43 ft/s  
 Depth of Flow: 0.50 feet @ 2570 ft  
 Velocity: 3.17 ft/s  
 Channel Linings: Earth/Gravel/Cobble Bottom

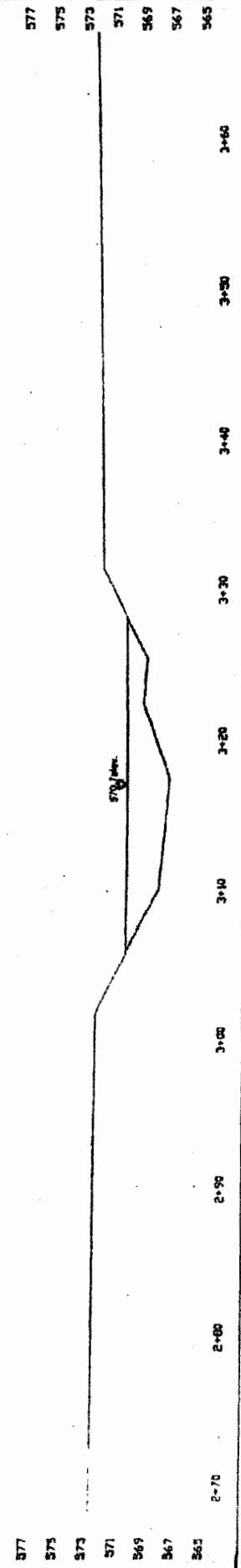
Turnan Creek Section 8 1yr/24hr Event Conveyance Section



Turnan Creek East Branch  
 Section 8  
 Channel Conveyance  
 Survey Location Profile  
 2/7/24th, 2.71 inch event

Channel  
 Vertical Reference: 2570 ft  
 Area of Vertical Cross Section: 2628 sq ft  
 Channel slope: 0.0005  
 Manning's n: 0.025  
 Velocity: 3.43 ft/s  
 Depth of Flow: 0.50 feet @ 2570 ft  
 Velocity: 3.17 ft/s  
 Channel Linings: Earth/Gravel/Cobble Bottom

Turnan Creek Section 8 2yr/24hr Event Conveyance Section



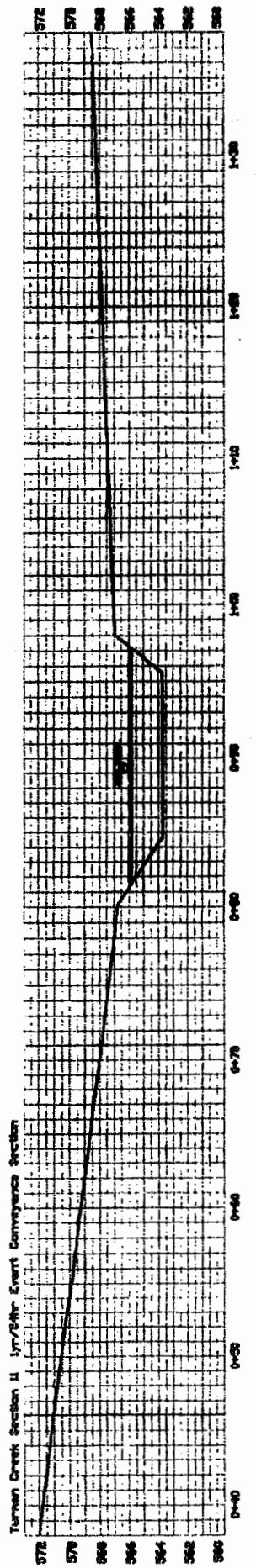
DATE: 11/30/2007	REVISION NO.:	DATE:
ENGINEER:	TRCE: ABN	NOTES:
SCALE: 1 in = 10 ft		
SHEET 2 OF 3		

**Black Beauty Coal Company**  
 EVANSVILLE, INDIANA  
 Channel Conveyance Section 8  
 Turnan Creek East Branch  
 Farmersburg Mine, IDNR #S-287



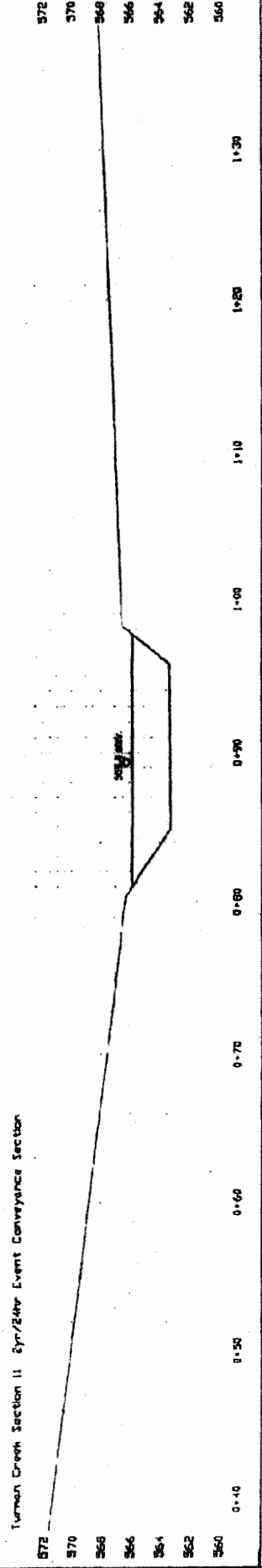
Turman Creek East Branch  
 Section II  
 Channel Conveyance  
 Average Cross Section  
 4/7/2007, 271 inch event

Channel  
 Number: 1120 F1  
 Area of Wetted Cross Section: 27.79 sq ft  
 Channel slope: 0.0002  
 Manning's n: 0.045  
 Section: F1, 1120 F1  
 Station: 0+00 to 0+30  
 Velocity: 2.8 ft/s  
 Channel Link: TurmanVender/Cable/Benton



Turman Creek East Branch  
 Section II  
 Channel Conveyance  
 Average Cross Section  
 4/7/2007, 271 inch event

Channel  
 Number: 1120 F1  
 Area of Wetted Cross Section: 25.58 sq ft  
 Channel slope: 0.0002  
 Manning's n: 0.045  
 Section: F1, 1120 F1  
 Station: 0+00 to 0+30  
 Velocity: 2.8 ft/s  
 Channel Link: TurmanVender/Cable/Benton



**Black Beauty Coal Company**  
 EVANSVILLE, INDIANA  
 Channel Conveyance Section 11  
 Turman Creek East Branch  
 Farmersburg Mine, IDNR #S-287



DATE: 11/30/2007  
 ENGINEER: TRACE ABN  
 SCALE: 1 in = 10 ft  
 SHEET 3 OF 3

SECTION NO.:  
 DATE:

NOTES: