TECHNICAL INFORMATION FOR A MINING PERMIT

This form supplies all technical information in regard to the mining and reclamation plan for the permit. It shall be filed in conjunction with MPA-01 for all original and amendment applications.	PERMIT NUMBER **807-0314 Amendment 1** DSMRE ID NUMBER **000095**

3. Identification of Applicant/Engineer

3.1 Applicant Name **APPOLO FUELS, INC.**

3.2 Engineer **ROBERT L. BRASHEAR** Registration No. **19652**
Associated with **RLB ENGINEERING, PSC**
Address **202 EAST 4th STREET**
City **LONDON** State **KENTUCKY** Zip **40741**
Telephone No. **(606) 878-1381**

3.3 Indicate the name, address, and telephone number of the individual to whom all permit application correspondence including return of the application for correction or modification, is to be addressed. If such designation is not made, the cabinet will return the application only to the applicant. If such designation is changed at some future date, the applicant is responsible for notifying the cabinet:

Name **MARVIN CAMPBELL** Telephone No. **(606) 878-1381**
Address **202 EAST 4th STREET**
City **LONDON** State **KY** Zip **40741**

4. Site Location Information

4.1 Name of proposed mine **FONDE – HIGHWALL MINER**
Local address **P.O. BOX 1727, MIDDLESBORO, KY 40965**

4.2 Contact person at mine site **GARY ASHER** Title **PRESIDENT**
Telephone Number **(606) 248-1534**

4.3 County(ies) **BELL** Quadrangle(s) **EAGAN/FORK RIDGE**
Latitude **36° 35′ 39″** Longitude **83° 52′ 39″**
Nearest named stream **CLEAR FORK** Nearest community **FONDE**

4.4 Is any of the proposed mining area previously permitted or pending permitting under KRS 350?

[ ] YES [X] NO. If "YES", list permittee name, permit numbers, and current status of operations. If additional pages are necessary, identify as "Item 4.4 continued".

5. Application Information

5.1 Type of application: [ ] Original [X] Amendment No. 1

5.2 Type of operation: (check all appropriate boxes)

[ ]	Surface Area (SA)	[ ]	Refuse Disposal (RD)
[X]	Surface Contour (SC)	[ ]	Underground (UG)
[X]	Surface Auger (SG)	[ ]	Processing Plant (PP)
[X]	Surface Remining (SR)	[ ]	Haul Road Only (HR)
[ ]	Surface Refuse Recovery (RR)	[ ]	Load Out Only (LO)
[ ]	Steep Slope (SS)	[ ]	In-situ (IS)
[ ]	Surface Mountaintop (SM)		Other_____

6. Advance Notification Information

6.1 Is proposed permit located within boundaries for which a governmental planning agency has jurisdiction to act with regard to land use, air, or water quality planning? [ ] YES [X] NO. IF "YES", provide agency name and correct mailing address:

Agency name _____
Mailing address _____
_____
_____

6.2 Is proposed permit area located within boundaries of any sewage and/or water treatment authorities, water companies which provide sewage or water services to citizens in the area of the proposed permit, or have water sources, collection, treatment, or distribution facilities located in the area or the proposed permit?
[ ] YES [X] NO.

Authority/Company Name _____
Mailing Address _____
_____
_____

6.3 Is proposed permit area located within the watershed of any U.S. Army Corps of Engineer projects?
[ ] YES [X] NO. If "YES", indicate below and provide one additional copy of the application:

Huntington District	[ ]	Dewey Lake	[ ]	Fishtrap Lake
	[ ]	Grayson Lake	[ ]	Paintsville Lake
	[ ]	Yatesville Lake		
Louisville District	[ ]	Buckhorn Lake	[ ]	Carr Fork Lake
	[ ]	Cave Run Lake	[ ]	Green River Watershed
Nashville District	[ ]	Lake Cumberland	[ ]	Laurel River Lake
	[ ]	Martin's Fork Watershed	[ ]	Lake Barkley
	[ ]	Dale Hollow Lake	[ ]	Middlesboro Flood Control Project Watershed

6.4 Is proposed permit area located within the official limits of any town, city or municipality?
[ ] YES [X] NO. If "YES", provide name and county:

Town/City Name_____County_____

6.5 Was any of the data presented in this application prepared/provided as a result of a Small Operator Assistance Program (SOAP) grant?
[ ] YES [X] NO. If "YES" provide SOAP identification number _____.

6.6 Is the proposed permit boundary and acreage under this application the same as proposed under the corresponding "preliminary" permit application?
[ ] YES [X] NO. If "NO", describe differences:

HOLLOW FILL NO LONGER PROPOSED -15.98 AC.	DRAINAGE CORRIDOR AREA ADDED +0.95 AC.
POND 6 & 11 MOVED TO ON BENCH -2.12 AC.	MINING AREA ADDED +50.60 AC.
POND 11 ACCESS NO LONGER PROPOSED -0.43 AC.	AUGER AREA REDUCED -16.73 AC.

NOTE: If significant differences are determined to exist, another field walk by regional personnel may be required.

7. Permit Information

7.1 Each new original permit will be issued for a term of five (5) years. If an initial term in excess of five (5) years is required, provide the information stipulated by 405 KAR 8:010, Section 17 as "Attachment 7.1.A."

NOT APPLICABLE - FIVE YEARS IS SUFFICIENT

7.2 Provide the acreage associated with the following activities. If additional pages are necessary, identify as "Item 7.2 continued".

	Currently Permitted	Additions/ Deletions	Redesig-nations	Total Acreage
Mining or Face Up Areas	**71.82**	**+152.61**	---	**224.43**
Roads	**6.61**	**+11.49**	---	**18.10**
Sediment Ponds	---	---	---	----
Spoil Storage Areas	---	---	---	---
Waste Disposal Areas	---	---	---	---
Facility and Processing Areas	---	---	---	---
Coal Stockpile & Loading Areas	---	---	---	---
Pond Access Roads	---	---	---	----
Drainage Corridors	**1.50**	**+1.68**	---	**3.18**
Mine Management Area	---	---	---	---
Total Surface Disturbance Area	**79.93**	**+165.78**	---	**245.71**
Underground Areas	---	---	---	---
Auger Areas	**90.76**	**+299.90**	---	**390.66**
Total Underground/Auger Area	**90.76**	**+299.90**	---	**390.66**
Permit Area	**170.69**	**+465.68**	---	**636.37**

NOTE: The first three columns are used for amendments only.

7.3 If this permit contains acreage in more than one county, name the counties affected and specify surface and underground acreage within each county. If incremental acreage fees are being used, provide a table indicating acreage per county, per increment as "Attachment 7.3.A.".

NA – ACREAGE IS IN BELL COUNTY ONLY

County	Total Surface Acreage	Total Underground Acreage

8. Bonding & Fees

8.1 Check the proposed bonding plan to be used:
[ ] Single Area [X] Incremental, with **6** total increments.

8.2 If incremental bonding is proposed, identify the increment(s) which will be initially bonded prior to permit issuance:
INCREMENT 1 TO BE REPOSTED, OTHER INCREMENTS TO BONDED AS NEEDED.

8.3 For incremental bonding submit an incremental bonding map to clearly identify the number and boundary of each increment.
SEE INCREMENTAL BONDING MAP

8.4 Complete the following charts with acreage for each increment:
SEE "ATTACHMENT 8.4.A"

Increment				
Mining or Face Up Areas				
Roads				
Sediment Ponds				
Spoil Storage Areas				
Waste Disposal Areas				
Facility and Processing Areas				
Coal Stockpile & Loading Areas				
Pond Access Roads				
Drainage Corridors				
Mine Management Area				
Total Surface Disturbance Area				
Underground Areas				
Auger Areas				
Total Underground/Auger Area				
Permit Area				

"ATTACHMENT 8.4.A"

Increment	1	2	3	4	5	6	TOTAL
Mining or Face Up Areas	71.82	---	47.00	33.86	46.15	25.60	224.43
Roads	6.61	11.02	---	0.47	---	---	18.10
Sediment Ponds	---	---	---	---	---	---	---
Spoil Storage Areas	---	---	---	---	---	---	---
Waste Disposal Areas	---	---	---	---	---	---	---
Facility and Processing Areas	---	---	---	---	---	---	---
Coal Stockpile & Loading Areas	---	---	---	---	---	---	---
Pond Access Roads	---	---	---	---	---	---	---
Drainage Corridors	1.50	---	---	---	---	1.68	3.18
Mine Management Area	---	---	---	---	---	---	---
Total Surface Disturbance Area	79.93	11.02	47.00	34.33	46.15	27.28	245.71
Underground Areas	---	---	---	---	---	---	---
Auger Areas	90.76	---	102.79	80.81	60.47	55.83	390.66
Total Underground/Auger Area	90.76	---	102.79	80.81	60.47	55.83	390.66
Permit Area	170.69	11.02	149.79	115.14	106.62	83.11	636.37

8.5 Complete the following chart which details additional information about each increment.

Increment	2	3	4	5	6
Prelaw Mined Acreage		**2.93**		**11.30**	**4.95**
Alternate Topsoil Acreage					
Mulching Variance					
Prime Farmland Acreage					
Stream Channel Alteration Acreage					**1.68**
Number of Off Bench Ponds					

If additional pages are necessary, duplicate this chart and identify as "Item 8.5 continued".

8.6 Provide a narrative describing all acreage overlaps. This includes double bonding and shared facilities (with identification of other permits involved). In addition, all overlaps shall be clearly identified on the map requested in item 8.3.

~~**NOT APPLICABLE**~~ See "Attachment 8.6.A"

8.7 Check the method of acreage fee payment used:

[ ] Single Area [**X**] Incremental

8.8 [**X**] Permit processing fee of $375 is included.

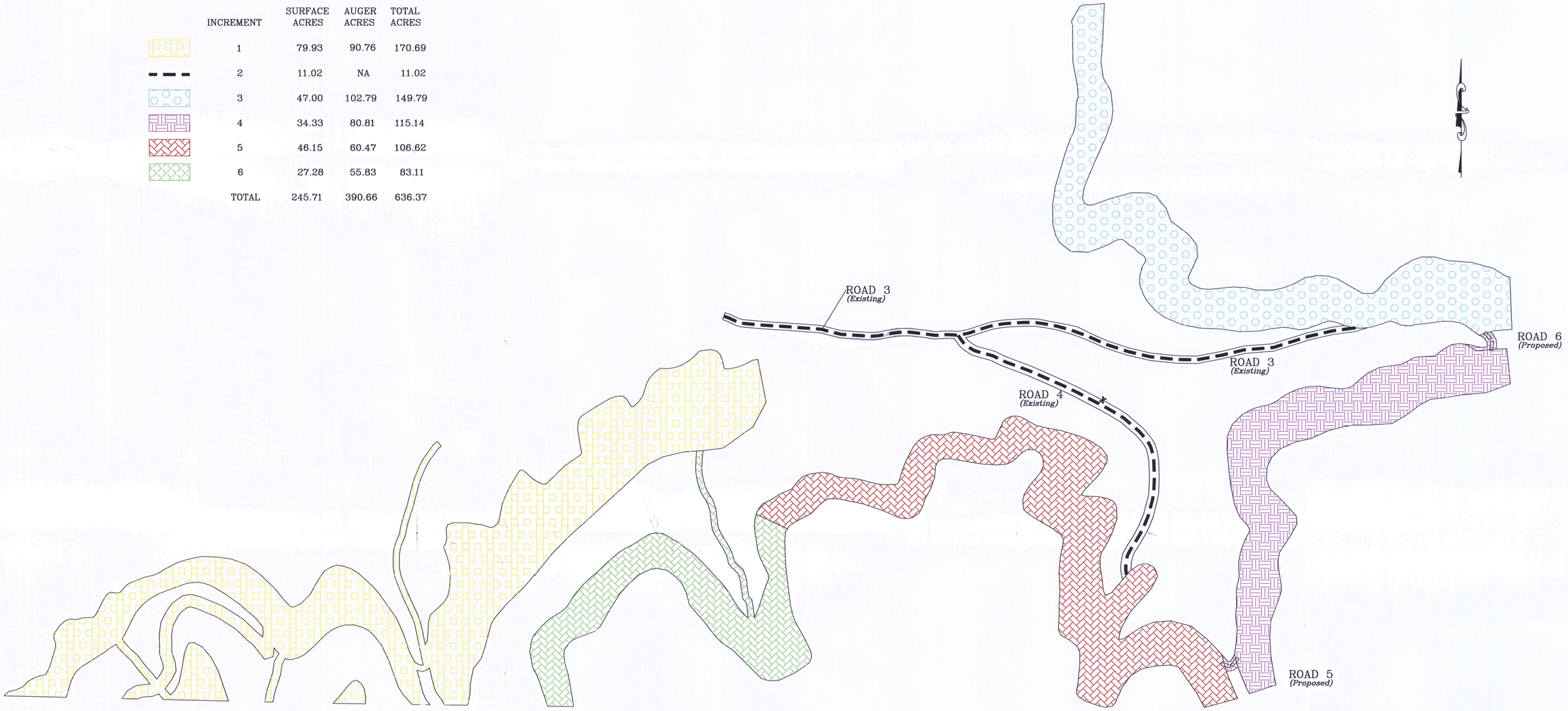
If applicable, indicate amount of acreage fees to be submitted upon technical acceptance of application:

Number of surface acres_____ X $75 = _____ acreage fee.

INCREMENT 2 11.02 AC. X $75 = $900
INCREMENT 3 47.00 AC. X $75 = $3,525
INCREMENT 4 34.33 AC. X $75 = $2,625
INCREMENT 5 46.15 AC. X $75 = $3,525
INCREMENT 6 27.28 AC. X $75 = $2,100

LEGEND

	INCREMENT	SURFACE ACRES	AUGER ACRES	TOTAL ACRES
	1	79.93	90.76	170.69
	2	11.02	NA	11.02
	3	47.00	102.79	149.79
	4	34.33	80.81	115.14
	5	46.15	60.47	106.62
	6	27.28	55.83	83.11
	TOTAL	245.71	390.66	636.37



I, Robert L. Brashear (signature) (License no.) 2/13/08 (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and 405 KAR Title 7.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19653
LICENSED PROFESSIONAL ENGINEER

Prepared By:	RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381
APPOLO FUELS, INC.	
PERMIT 807-0314 AMENDMENT 1	
BONDING MAP	
DATE: 01-30-08	FILENAME: BONDING.DWG
SCALE: 1"=400'	DRAWN BY: MC

"Attachment 8.6.A"

The proposed permit area will overlap existing Road B, the underground mining area and the conveyor belt proposed by 807-5202. The proposed permit area will also overlap existing Road D of Bell County Coal Corporation permit application 807-5157.

Appolo Fuels will ensure that Bell County Coal Corporation has access to their permitted areas at all times during the life of the mine, the proposed surface mining of the Rich Mountain seam will not impede construction of the proposed conveyor belt system, and that all blasting operations will comply with MSHA Joint Approval for mining within 500' of active underground mines, as applicable.

These overlaps are to be bonded by each permittee, with the only shared facility being the existing road permitted as Road 3 by Appolo Fuels 807-0314 Amendment 1 (Existing Road B 807-5202 and Existing Road D 807-5157).

Each permittee will be responsibility for reclamation of the area of overlaps pursuant to the timing of the respective mining and reclamation phases for each permit. Therefore a RAM 56 overlap statement will not be required.

See the attached correspondence from Bell County Coal Corporation.

Bell County Coal Corporation
Rt. 1 Box 290, Pruden Road
Middlesboro, KY 40965

Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY 40965

RE: Application 807-0314 Amendment 1
Permit Overlap

Bell County Coal Corporation is aware that the referenced permit application will overlap a portion of Bell County Coal Corporation permit application 807-5202 the overlap is of the existing Road B, underground mining area and the conveyor belt proposed by 807-5202. The proposed permit area will also overlap a portion of Bell County Coal Corporation permit application 807-5157 the overlap is of the existing Road D.

Bell County Coal Corporation has no objection to the permit overlap area so long as Appolo Fuels will ensure that Bell County Coal Corporation has access to permit 807-5202 and 807-5157 at all times during the life of the mine, that the proposed surface mining of the Rich Mountain seam will not impede construction of the proposed conveyor belt system, and that all blasting operations will comply with MSHA Joint Approval for mining within 500' of active underground mines, as applicable.

Bell County Coal Corporation will notify Appolo Fuels of the anticipated time that underground mining begins on either permit 807-5202 or 807-5157, in order to facilitate MSHA Joint Approval in a timely manner.

These overlaps are to be bonded by each permittee, with the only shared facility being the existing road permitted as Road 3 by Appolo Fuels 807-0314 Amendment 1 (Existing Road B 807-5202 and Existing Road D 807-5157).

Each permittee will be responsibility for reclamation of the area of overlaps pursuant to the timing of the respective mining and reclamation phases for each permit.

Respectfully,
Bell County Coal Corporation

Signature 2/9/08
Date

B J Reynolds
Name

I HEREBY CERTIFY THAT THIS IS
A TRUE AND EXACT COPY OF THE ORIGINAL

NOTARY
MY COMMISSION EXPIRES 2-6-10

MARVIN CAMPBELL
NOTARY PUBLIC
STATE AT LARGE

8.9 Have credit acres been applied to the acreage fee amount? [ ] YES [**X**] NO. If "YES", list below the permit number, permittee name, acreage and amount. Attach copies of the bond release forms showing that those acreage were not disturbed. Identify attached documents as "Attachment 8.9.A., 8.9.B", etc. If additional pages are necessary, identify as "Item 8.9 continued".

Permit Number	Permittee Name	Undisturbed Acreage	Rate Per Acre	Total

Total acreage fee credit $

8.10 If permittee name is different from the applicant, submit a letter from the permittee granting the credit acres to the applicant.

NOT APPLICABLE

8.11 Based upon all surface acres total to be disturbed under the proposed permit, provide an estimate of the costs of reclamation. Attach detailed supporting calculations as "Attachment 8.11.A.".

SEE "ATTACHMENT 8.11.A"

9. Right of Entry

9.1 For all properties to be permitted by this application, complete the following chart for all surface and mineral owners. In the case of surface owners of severed estates which overlie underground works, but no surface disturbance is proposed, list n/a for type of document, grantor of rights and date.

Owner	Type of Document	Grantor of Rights	Execution Date	Acreage
APPOLO FUELS, INC.	**LEASE**	**WPP, LLC**	**10-01-01**	**11,000 +/-**

"Attachment 8.11.A"

ESTIMATED COST OF RECLAMATION

(A) BUILDING REMOVAL:

Not applicable

(B) SEALING OF AUGER HOLES AND MINE OPENINGS:

Auger holes will be sealed incidental to backfilling and grading.

(C) BACKFILLING AND GRADING:

$0.50/cu yd X 567,493 cu yd (Based on 5 yr. mine life & 2 mo. backfill)	= $283,747

(D) TOPSOIL DISTRIBUTION:

165.78 AC X 8 HR/AC X $85/HR	= $112,730

(E) REVEGETATION:

165.78 AC X $500/AC	= $ 82,890

(F) WATER SAMPLING:

5yr X 4 sites X 4/year X $50/each	= $ 4,000
5yr X 12 ponds X 4/year X $35/each	= $ 8,400

(G) MAINTENANCE OF REVEGETATION:

ESTIMATED AT 25% OF ORIGINAL AMOUNT	= $ 20,723

TOTAL ESTIMATED RECLAMATION COST	= $512,490

9.2 Explain the legal rights claimed by the applicant for the proposed permit area:

RIGHT TO MINE, PREPARE, REMOVE AND SELL COAL IN, ON, OR UNDER SAID LANDS BY DEEP MINING, CONVEYOR MINING, AUGER MINING OR STRIP MINING METHODS. RIGHT TO INGRESS, EGRESS AND REGRESS TO THROUGH UPON AND ACROSS SAID LANDS FOR THE PURPOSE OF MINING. RIGHT TO BUILD STRUCTURES, ROADWAYS, ETC. INCIDENTAL TO MINING.

9.3 Are any rights to enter and mine the area, as claimed by the applicant, subject to any pending litigation?
[ ] YES [**X**] NO

9.4 Have the private surface and mineral estates been severed for any parcel of land within the proposed permit area?
[ ] YES [**X**] NO. If "YES", and the applicant proposes to extract coal by surface mining methods, one (1) of the following items shall be provided as part of this application:

(a) Notarized copy of the letter or a lease document from the surface owner(s) consenting to the use of surface mining methods to extract coal within the proposed permit area; or

(b) Notarized copy of the document of conveyance which originally severed the private surface and mineral estates and also expressly grants or reserves the right to extract coal by surface mining methods; or

(c) Notarized copy of a judicial order which expressly grants or reserves the right to extract coal by surface mining methods.

Is the order subject to litigation? [ ] YES [ ] NO

Documents submitted in response to this requirement shall be identified as "Attachments 9.4.A., 9.4.B.", etc.

9.5 Describe any interest, options or pending bids on interest held or made by the applicant for lands which are contiguous to the proposed permit area. If additional pages are needed, identify as "Item 9.5 continued".
NONE

9.6 Is the proposed permit area within or adjacent to any lands where a federal agency owns either the surface or mineral rights? [ ] YES [**X**] NO.
If "YES", list the agency controlling such lands. Describe the location and boundaries of these lands with respect to the proposed permit area. If additional pages are needed, identify as "Item 9.6 continued".

Agency

Address ( ) Telephone Number

10. Notice of Intention to Mine

10.1 List the name of the newspaper of largest circulation in each county in which the proposed operation will be located.

County	Newspaper
BELL	**DAILEY NEWS**

10.2 Provide on a separate page immediately following this section the language of the "Notice of Intention to Mine" to be advertised in the newspaper(s) listed in Item 10.1 and identify as "Attachment 10.2.A". In accordance with 405 KAR 8:030, or 8:040, a copy of each of the four newspaper advertisements or an affidavit from the newspaper editor(s) including a copy of the final advertisement shall be submitted to the department not later than 15 days after the date of the final advertisement. NOTE: The cabinet cannot complete the final processing and issuance of a mining permit unless and until all advertising requirements have been properly fulfilled by the applicant. Failure to submit accurate newspaper advertisements in a timely manner will result in the delayed issuance of a permit.

SEE "ATTACHMENT 10.2.A"

11. Areas Designated Unsuitable for Mining & Requests for Variances

NOTE: Only those waivers and variances identified in this section will be considered for approval by the cabinet.

11.1 Is any part of the proposed permit area: [ ] within lands designated by the state as unsuitable for mining; [ ] under study for designation as such; [ ] within an area with special conditions as a result of a lands unsuitable study. If entire permit area is not designated unsuitable and not currently under study for such designation, check here [**X**]. Attach DSMRE clearance letter as "Attachment 11.1.A".

11.2 Indicate if proposed surface mining and reclamation activities will occur on, or are adjacent to:
[ ] national park system; [ ] national or state forest lands; [ ] national system of trails; [ ] national wilderness preservation system; [ ] wild and scenic rivers system, including "study" rivers; [ ] state wild rivers established pursuant to KRS 146; [ ] national recreation areas; [ ] public wildlife management area; and/or [ ] places listed in or eligible for listing in the National Register of Historic Places. If not, check here [**X**].

NOTICE OF INTENTION TO MINE

Pursuant to Application Number 807-0314 Amendment 1

In accordance with KRS 350.070, notice is hereby given that Appolo Fuels, Inc., P.O. Box 1727, Middlesboro, Kentucky 40965, has applied for an amendment to an existing surface coal mining and reclamation operation located 0.1 miles south of Fonde in Bell County. The mendment will add 165.78 acres of surface disturbance and will underlie an additional 299.90 acres making a total area of 636.37 acres within the amended permit boundary.

The proposed amdmeded area is approximately 0.5 miles east from KY Route 74's junction with KY 535 and located on Clear Fork. The latitude is 36° 35' 39". The longitude is 83° 52' 39".

The proposed operation is located on the Eagan and Fork Ridge U.S.G.S. 7 1/2 minute quadrangle maps. The operation will use the contour/auger method of surface Mining. The surface area to be disturbed is owned by WPP, LLC. The operation will underlie land owned by WPP, LLC.

This operation proposes a change from forestland/previous mining pre-mining land use to wildlife habitat post-mining land use.

The application has been filed for public inspection at the Department for Natural Resources Division of Mine Reclamation and Enforcement's Middlesboro Regional Office, 1804 East Cumberland Avenue, Middlesboro, KY 40965. Written comments, objections, or requests for a permit conference must be filed with the Director, Division of Permits, #2 Hudson Hollow, U.S. 127 South, Frankfort, Kentucky 40601.

NOTE TO PUBLISHER:

The heading "NOTICE OF INTENTION TO MINE" is a minimum of ten (10) point, bold face, all capitals type.

FOR FINAL ADVERTISEMENT ONLY:

This is the final advertisement of this application; all comments, objections, or requests for a permit conference must be received within thirty (30) days of today's date.

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR NATURAL RESOURCES

Ernie Fletcher
Governor

2 Hudson Hollow
Frankfort, Kentucky 40601
Phone (502) 564-6940
Fax (502) 564-5698
www.naturalresources.ky.gov
www.kentucky.gov

LaJuana S. Wilcher
Secretary

Susan C. Bush
Commissioner

July 7, 2006

ROBERT L. BRASHEAR
RLB ENGINEERING, PSC
202 EAST 4TH ST.
LONDON KY 40741

RE: Appolo Fuels, Inc.
Application # 807-0314, AM-1

Dear Mr. Brashear:

The Division of Permits has conducted the critical resources review of the above referenced application. Attached are the Division's findings, listed by application item, describing the issues that must be addressed. These attachments and supporting documentation must be incorporated into the appropriate sections of the comprehensive application. The findings for each application item are summarized below.

11.1 Areas Designated Unsuitable for Mining: None identified
12.2 General Description of Mining and Reclamation Operations: BMPs recommended
Stream Restoration Plans
13.1 Cultural or Historic Resources: Archaeological survey required
14.1 Fish and Wildlife Information: No T/E species identified
14.4 Fish and Wildlife Survey: None required
21.11 Fish and Wildlife Enhancement Plan: Required

Please be advised that any changes to the proposed mine plan may require additional environmental review. If you have any questions concerning this matter, please contact the review biologist, Thomas Barbour, or archaeologist, Rose Moore, Critical Resources Review Section, at (502) 564-2320.

Sincerely,

Susan Wind, Supervisor
Critical Resources Review Section/
Small Operator Assistance Program
Division of Mine Permits

Enclosure to Applicant
c: Rose Moore (e)
Thomas Barbour (e)
David Morgan, SHPO
Mike Hardin, KDFWR
Lee Andrews, USFWS
Permit File – w/enclosure (e)

Appolo Fuels, Inc.
Application No. 807-0314, AM-1
July 7, 2006

Application Item 11.1: Lands Unsuitable for Mining & Areas Designated Unsuitable for Mining

1. The proposed permit area may include in-stream disturbance and require 401 Certification from the Kentucky Division of Water and a 404 Permit from the U.S. Army Corps of Engineers. The applicant is advised to contact these agencies for assistance.

2. Please be advised that mining operations seeking new or modified coverage under the Coal KPDES General Permit must submit a Notice of Intent (NOI-CM) to the Division of Water. Please file the NOI-CM with the Division of Water as soon as possible in order to avoid potential delays in the processing and issuance of your SMCRA/DNR permit.

3. As of this date, there are no lands in the proposed permit area designated unsuitable for surface coal mining or under study for such designation, as provided in 405 KAR Chapter 24.

4. The proposed permit area does not fall within an area with special conditions as a result of a lands unsuitable study.

5. The proposed permit area is not located within a U.S. Army Corps of Engineers project area.

6. Based on information available to the Department, there are no federal lands within or adjacent to the proposed permit area.

11.3 Indicate if the proposed permit area is within: [ ] 500' of known abandoned or active underground mines; [ ] 300' of a public park, public building, school, church, community or institutional building; [ ] 300' of an occupied dwelling; [ ] 100' of the outside right-of way line of a public road; [X] 100' of a stream; [ ] 100' of a cemetery, or prehistoric burial ground. If not, check here [ ].

11.4 For each item checked in items 11.2 and 11.3 above, attach appropriate maps to identify the location and boundaries of the lands or facilities referenced. These attachments shall be identified as "Attachment 11.2.A" and "Attachment 11.3.A". respectively. Any required waiver documentation such as land owner consent or approval of appropriate state or federal agencies shall be attached. These attachments shall be identified as "Attachment 11.4.A, 11.4.B.", etc. any engineering designs for Item 11.3 shall be submitted in other appropriate sections of this application.

11.5 Indicate below all waivers and variances to be requested for the proposed operation. The acreage (or facility designation) affected should be provided as requested. Those variance which have been granted in previous applications to this permit should be marked with an [x] while those proposed or expanded as part of this application should be marked with an [*]. The documentation necessary to approve each variance requested as part of this application shall be submitted in the appropriate sections of this application.

*[X] Post mining land use change
[ ] Alternate topsoil material for _____ acres
[X] Permanent pond # **[X] PONDS 1-3**
*[X] AOC variance: remining for **[X] 67.92** **[*] 152.61** acres
[ ] AOC variance: steep slope for _____ acres
[ ] AOC variance: mountaintop removal for _____ acres
[ ] Alternate contemporaneous reclamation standards
[ ] Alternate contemporaneous reclamation standards for joint surface and underground operations
[ ] Mulching variance
*[X] Permanent road(s) **[X] ROAD 1 & 2 [*] ROAD 3 & 4**
*[X] Culvert spacing variance for roads # **[X] ROAD 1 &2 [*] ROAD 3 & 4**
[*] Grade variance for roads # **[*] ROAD 4**

Others: _____ _____
_____ _____
_____ _____

11.6 If valid existing rights are claimed for any part of the proposed permit area identified in 11.1, 11.2, or 11.3, submit the required information as "Attachment 11.6.A".

NOT APPLICABLE

"ATTACHMENT 11.4.A"

Appolo Fuels, Inc. permit application 807-0314 Amendment 1, requests waivers and/or variances for the following items.

1) 100' of stream.
2) Post Mining Land Use change from Upland Forest/ Mined Lands to Wildlife Habitat.
3) Permanent Road 3 and 4.
4) Culvert Spacing Road 3 and 4.
5) Grade variance Road 4.
6) Re-Mining Grade Variance 152.61 acres.

NRP (OPERATING) LLC
Highway 186 West @ Premier • P. O. Box 938
Middlesboro, KY 40965
(606) 248-2091 • Fax (606) 242-2922

February 21, 2005

Appolo Fuels, Inc.
P. O. Box 1727
Middlesboro, Kentucky 40965

Re: Post Mining Use for Appolo Fuels, Inc., Permit #807-0314, Bell County, Kentucky

Pursuant to your request for a letter stating our plans for the post mining land use on the referenced permit; please be advised that WPP LLC, requests that the permittee, Appolo Fuels, Inc., return the referenced mine permit site to a fish and wildlife habitat post mining land use. We also consent to any variance in contour which may be requested for the permit, and grant the right to mine this surface, as stipulated in our lease agreement, by any method, including all methods of surface mining.

We request the access roads remain after mining operations are completed, as we shall need access to provide haul roads for timber operations, wildfire prevention and control, and to develop and utilize our other resources. The roadbeds and adjoining slopes should be seeded with grass and water bars placed at appropriate places to reduce erosion. WPP LLC will maintain said roads, as necessary for our land use when the subject area is released back to it.

We also request the sediment basins be reclaimed for use as wetlands after mining and reclamation has been completed.

This letter may be applied to any permit revision or amendment to Permit Number 807-0314, its assigns and successors, and this letter shall be considered in effect until we provide notice to the contrary.

Sincerely,
NRP (Operating) LLC on
behalf of WPP LLC, its subsidiary

David Hensley
Vice President and Regional Manager

Subscribed to and sworn before me this 21st day of February, 2005.

Notary Public

My commission expires: 5/4/2008

cc: file

12. General Description of Mining and Reclamation Operations

12.1 Indicate the types of facilities to be constructed/utilized:

[X] Sediment ponds, no. **10**
[ ] Fresh water ponds, no._____
[ ] Levees, _____ft.
[ ] Water treatment facilities
[X] Coal haulroads
[ ] Access roads
[ ] Conveyors, _____ft.
[ ] Rail loading facilities
[ ] Coal refuse fills
[ ] Coal slurry impoundments
[ ] Coal stockpiles
[ ] Excess spoil fills, no._____
[ ] Hard rock/durable rock fills, no._____
[ ] Deep mine entries, no. _____
[ ] Coal processing facilities
[ ] Mine management and/or support areas
[ ] Loading facilities
[ ] Other_____

12.2 Provide a narrative description, identified as "Attachment 12.2.A", of each phase of the proposed surface and underground mining operation. Include the anticipated starting and termination dates of each phase and/or increment, major equipment to be utilized, acres affected in each phase, and the total acreage affected over the life of this permit. The narrative should describe the location and mitigation plans for any utility lines which will be encountered. If this application is an amendment, describe any changes to the mining plan proposed for the currently permitted area.

SEE "ATTACHMENT 12.2.A"

12.3 Describe the plan for maximizing resource recovery. Provide as "Attachment 12.3.A".

SEE "ATTACHMENT 12.3.A"

13. Cultural or Historic Resources

13.1 List and describe any cultural or historic resources listed, or eligible for listing, on the National Register of Historic Places and any known archaeological sites within or adjacent to the proposed permit area. Provide under separate cover a description of the measures to be taken to mitigate adverse impacts to these sites and a map showing their location.

SEE "ATTACHMENT 13.1.A"

"Attachment 12.2.A"

This application proposes mining of the Rich Mountain coal seam, by the re-mining/contour and auger/highwall miner mining methods.

Prior to mining sediment control will be provided by construction of on-bench ponds where appropriate. Where drainage is controlled by on-bench structures, coal will be extracted prior to construction of on-bench ponds. Once mining takes place in areas proposed for on-bench structures, and until sediment control construction is completed, drainage will be diverted into mining pits and, if needed, to the area where an approved sediment structure exists. Construction of on-bench sediment structures will immediately proceed following coal removal and care will be taken to provide alternate sediment control during construction. Alternate sediment control will include, but is not limited to, straw/hay bales, silt fence, sumps, and rock check dams. The proposed Haul Roads will be constructed to meet the design criteria as shown in this application. All disturbance associated with this phase of the operation will be seeded as soon as is practical in accordance with Item 22 of this application, and the Certification of Construction for the road and ponds will be submitted to the Department.

Mining will commence as an extension of Appolo Fuels, Inc. OSMRE Permit 3192. Excess spoil material will be placed into the Backfill Area as mining proceeds. All mining will be conducted by the contour and auger methods and the starting locations and progression of mining may be modified as needed by the mine management, so long as all aspects of contemporaneous reclamation are adhered to.

Appolo Fuels, Inc. requests to use multiple pits independently within the permit area, with no more than 1,500 linear feet of highwall exposed for all pits combined on each seam. Mining will be conducted by the contour method, with all coal to be removed within sixty (60) calendar days of the initial excavation. Auger mining will then take place, where appropriate, with all coal to be removed by the auger method within thirty (30) calendar days of contour mining. Backfilling and grading will be maintained to within 1500 linear feet, and will be completed within sixty (60) calendar days after contour and/or auger mining is completed. The site will be graded to eliminate all new highwalls created, and will eliminate re-mining highwalls where backfilling will not create stability problems.

Major equipment to be used in surface operations may include dozers, drills, loaders, trucks, and augers or highwall miners. The equipment will be used to construct roads, sediment control structures, transport spoil, and reclaim all surface disturbance.

Appolo Fuels, Inc.
Application No. 807-0314, AM-1
July 7, 2006

Application Item 12.2: General Description of Mining and Reclamation Operations

1. The proposed permit may temporarily affect intermittent or perennial stream segment(s) of unnamed tributaries to Clear Fork and Steve Creek. The Division recommends that the applicant include a **stream restoration plan** as an attachment to Application Item 31.6. Restoration should strive to reconstruct the pre-mining conditions of the natural stream. The plan must, at a minimum, describe the following pre-disturbance stream parameters and propose measures to reconstruct them: substrate characterization, channel slope and width, riffle-pool ratios, run-bend ratios, water depth, average flow, and riparian vegetation. Profile, plan, and cross-sectional views of the pre-mining and the restored stream channel must also be included. As more than one stream is involved, chose the single best reach within the three streams to pattern your restoration plan by.

   The applicant must include a copy of the restoration plan in the comprehensive application and submit **one (1) copy under separate cover** to the following address: Critical Resources Review Section, Division of Mine Permits, #2 Hudson Hollow, Frankfort, Kentucky 40601.

2. The proposed permit may result in impacts on aquatic resources. The Division recommends the use of Best Management Practices (BMPs) to aid in sediment control. BMPs may include, but are not limited to, any of the following, singly or in combination:

   Basins
   Diversion ditches
   Filter strips
   Land grading and reshaping
   Maintenance of a 100' buffer zone along streams
   Minimization of surface disturbance
   Mulching
   Placement of rip-rap
   Rapid revegetation, especially along stream banks
   Rock check dams
   Silt fences
   Straw bale barriers
   Stream bank stabilization
   Sumps
   Work in periods of no or low flow or dry weather

   The narrative description of mining operations (Attachment 12.2.A) provided in the comprehensive application should specify what BMPs will be implemented.

"ATTACHMENT 12.3.A"

Resource recovery will be maximized by taking the largest economical cut feasible and then by using auger mining methods. Auger/highwall miner mining will extend up to 800 feet approximately (this depth may vary), with the overall recovery for the auger area to be approximately 40 percent. Coal not recovered will be the result of pillars left for stability, fans made when changing mining direction, and any areas skipped under unsafe highwall.

For this reason, the reserves will be depleted to an extent such that the provisions of 405 KAR 20:030 Section 1(1)(a) and (b) should be waived.

Appolo Fuels, Inc.
Application No. 807-0314, AM-1
June 22, 2006

Application Item 13.1: Cultural or Historic Resources

The Division of Mine Permits has received comments from the State Historic Preservation Officer (SHPO) concerning the potential for archaeological resources within the proposed permit area. There is good potential for historic mine remains and rock overhangs in the area. A copy of the SHPO comments is attached for your information and use.

The Division of Mine Permits has considered these comments and has determined that the proposed operation may potentially impact archaeological resources that are eligible for listing in the National Register of Historic Places. **Therefore, an archaeological survey of the proposed permit area is required.** If you so request, a list of individuals and firms qualified to conduct archaeological investigations in the Commonwealth will be provided to you.

The applicant must submit five (5) copies of the resulting archaeological survey report to the following address: Critical Resources Review Section, Division of Mine Permits, Department for Natural Resources, No. 2 Hudson Hollow, Frankfort, KY 40601.

COMMERCE CABINET
KENTUCKY HERITAGE COUNCIL

Ernie Fletcher
Governor

The State Historic Preservation Office
300 Washington Street
Frankfort, Kentucky 40601
Phone (502) 564-7005
Fax (502) 564-5820
www.kentucky.gov

George Ward
XXXXXXXXXXXX
Secretary

David L. Morgan
Executive Director and
State Historic Preservation Officer

June 15, 2006

Ms. Susan Wind, Supervisor
Critical Resources Review Section
DSMRE/Division of Permits
#2 Hudson Hollow Complex
U.S. 127 South
Frankfort, Kentucky 40601

Re: Appolo Fuels, Inc.
Application # 807-0314, AM-1
Bell County

Dear Ms. Wind:

Thank you for your letter of June 7, 2006 concerning the above referenced project. A review of our files indicates that the proposed project will not impact any previously recorded archaeological sites. However, the proposed permit area has never been investigated by a professional archaeologist to determine if any properties eligible for listing in the National Register of Historic Places are present. Investigations of projects in similar environmental contexts have resulted in the identification of a large number of sites some of which have been determined eligible for listing in the National Register. Given the project area's environmental setting, in my opinion, it has a high potential for impacting archaeological sites. Therefore, I recommend that all undisturbed portions of the proposed permit area be surveyed by a professional archaeologist.

In order to make a preliminary determination if properties eligible for listing in the National Register of Historic Places will be affected by this project, the applicant must submit photographs of all structures 50 years or older that are within and adjacent to the project area. Each photograph should be labeled by street address with a brief description of potential impacts or proposed treatment, and should be accompanied by a project map showing their location. Upon completion of our review, this office will advise the applicant if further consultation is required. As always, I would be happy to provide you with a technical review of the report documenting the results of these investigations. Should you have any questions, feel free to contact Charles Hockensmith of my staff at 564-7005.

Sincerely,

David L. Morgan, Director
Kentucky Heritage Council and
State Historic Preservation Officer

14. Fish and Wildlife Information

14.1 Has any threatened or endangered species or the critical habitat of such species been identified within or adjacent to the proposed permit area?
[ ] YES [X] NO. If "NO", attach DSMRE documentation to verify this determination. Identify as "Attachment 14.1.A".

14.2 If the answer to item 14.1 is "YES" or a threatened or endangered species or critical habitat has been reported within or adjacent to the proposed permit area, list the species involved and provide a map identifying its location relative to the proposed permit area. Identify as "Attachment 14.2.A".

NOT APPLICABLE

14.3 Will any "wetland" area be impacted by the proposed operation?
[ ] YES [X] NO.

If "YES", provide acreage of wetland, and delineate its boundaries on the ERI Map.
Acreage of wetland_____

14.4 Provide as "Attachment 14.4.A", the results of any fish and wildlife survey conducted for the proposed area, or other studies required by DSMRE.

NOT APPLICABLE

14.5 Provide a description of the measures which will be taken to avoid or minimize adverse impacts to wetland areas, important fish and wildlife species, the critical habitat of such species, or other species protected by state or federal law. If additional pages are needed, identify as "Item 14.5 continued".

SEE "ATTACHMENT 14.5.A"

15. Geologic Information

15.1 Provide the information requested below concerning the coal seam(s) to be mined:

USGS Name	Thickness (inches)	% Total Sulfur	% Pyrite Sulfur	Elevation
RICH MOUNTAIN	**39"**	**0.97**		**1700+/-**
RICH MOUNTAIN RIDER	**28"**	**5.18**		**1730+/-**

15.2 Provide a description of the geology within the proposed permit area down to and including the stratum immediately below the lowest coal seam to be mined. The description shall include the structural geology, lithology, thickness and chemical characteristics of the overburden strata which will be removed and strata which may be impacted in areas overlying underground works. Include the results of the baseline geologic sampling program on cabinet approved forms and all appropriate drill logs, stratigraphic columns, cross sections, geochemical lab results and other information on which the description is based. Submit description and related information as "Attachment 15.2.A, 15.2.B", etc.

SEE "ATTACHMENT 15.2.A"

Appolo Fuels, Inc.
Application No. 807-0314, AM-1
July 7, 2006

Application Item 14.1: Fish and Wildlife Information

1 . The Division's review of the Kentucky State Nature Preserves Commission's Natural Heritage Database indicates that occurrences of state/federal designated threatened or endangered species **have NOT been recorded** within or adjacent to the proposed permit area.

Appolo Fuels, Inc.
Application No. 807-0314, AM-1
July 7, 2006

Application Item 14.4: Fish and Wildlife Survey

Based upon the Division's environmental review, it has been determined that the proposed mine operation will not adversely impact any of the resources referenced in 405 KAR 8:030/040, Section 20 (a-c). Therefore, surveys for site-specific fish and wildlife resource information **will not be required** in this application.

"Attachment 14.5.A"

FISH AND WILDLIFE PROTECTION AND ENHANCEMENT PLAN

State/Federally listed threatened and endangered species have **not** been identified in the vicinity of the proposed permit area. However the permit and adjacent areas consisting of upland forest are suitable habitat for the Indiana Bat (Myotis sodalis) although no specific listing sites are known, therefore no map can being provided.

This application assumes that the Indiana Bat (Myotis Sodalis) is **not** present, however the mining and reclamation plan does provide for protection and enhancement of the habitat associated with this species.

CAVES OR ABANDONDED MINE PORTALS

There are no known caves or abandoned mine portals within or adjacent to the proposed mine site.

PROTECTION

The permit and adjacent areas are located within an area which provides habitat that is potential for use during summer months for roosting and foraging. In an effort to provide protection for this species the following measures shall be implemented. The Indiana Bat may potentially utilize many species of trees with cavities, dead trees, and or dead portions of living trees for roosting. Potential roost trees may not be cut between March 31 and November 15, due to the potential taking of an Indiana Bat, therefore all trees will be cut in advance of mining operations between November 15 and March 31. After potential roost trees are cut, the DMRE inspector will be contacted to inspect the site and ensure that no potential habitat was missed during tree clearing.

ENHANCEMENT

The backfilled mine site will be graded to approximate original contour. This grading will be left in a rough condition leaving small depressions thereby providing habitat for amphibians and other wildlife. The mine site will be revegetated as soon as possible after mining operations, seeding mixtures that are tolerant to soil conditions of post mining sites and which become quickly established will be used. A herbaceous ground cover will be established using the species listed in Item 22 of this application. These species have been chosen because they are compatible with tree growth and provided benefits to other wildlife. Ground cover success will be in compliance with applicable regulations.

At least seventy (70) percent of the area shall be planted in plots of trees and shrubs. A minimum of four (4) tree species shall be planted, three of which shall be exfoliating bark species with at least one of those being a hard mast producer. At final bond release there shall be at least 250 stems per acre, 150 stems shall be of exfoliating bark species. The other 100 stems may be of any tree on the list or may be volunteers. No more than 50 stems per acre may be black locust, see Item 22 of this application for details.

The only additional enhancement procedures proposed which may be beneficial to all bat species is to provide short term habitat by girdling one tree a minimum of every 500 linear feet along the mining area. Trees to be girdled should be of at least 9" in diameter at breast height and should be of a species with exfoliating bark, such as hickory. Tree girdling is to coincide with regrading and revegetation.

During backfilling and grading operations shallow water depressions may be left at a rate of one per ½ mile or one for every 50 acres of disturbance. These shallow water depressions will provide water for all bat species as well as other wildlife. No shallow water depressions will be provided if adequate water is available at other locations within ½ mile of the reclaimed mine site.

The proposed operation will create edge areas where timber and brush have been windrowed, and by the area where the re-seeded land meets the existing forest. Once the grassy areas have been established, the entire mine area will provide much needed grazing areas for the deer in the area, as well as food and cover for rabbit, quail and other small game. Random rock piles will be created throughout the permit area to be used as shelter and habitat for wildlife. These areas should provide excellent cover for rabbits, grouse, quail, and other small game.

"Attachment 15.2.A"

GEOLOGIC STATEMENT

Description of Study Area

The operation proposes mining of the Rich Mountain coal located in Clear Fork, Steve Creek and an unnamed tributary of Clear Fork. The coal will be surface mined by the re-mining/contour and auger/highwall miner methods. The mining area lies on the Eagan and Fork Ridge U.S.G.S. 7.5' quadrangles.

The Eastern Kentucky Coal Field is a hilly to mountainous region. The highest elevations near the mine site are about 3140 feet while the valley bottoms start around 1280 feet. The topography of this area is fairly steep with high ridges and low hollows. The terrain is typical of that of the Appalachian Plateau physiographic province, well-dissected and well-drained by deeply entrenched streams. Ridges are generally narrow and winding. Natural flat land is mainly restricted to flood plains of major creeks and rivers. Low-order streams are generally V-shaped and have no flood plains.

Stratigraphy

Strata forming the geologic column of the area consist primarily of sandstones, siltstones, shales, fire clay, and coal. The stratigraphic position of the mine site falls within the Breathitt Formation of Lower and Middle Pennsylvania Age. It is representative of rapid marine transgressions with intermittent, more gradual regressions while the sequence as a whole is regressive. Fluvial, deltaic and barrier systems are all represented within the Breathitt Formation. This formation is characterized by rapid changes in lithology consisting of cyclic deposits of sandstone, siltstone, shale, and coal.

Structure

The geologic sampling program encountered no major geologic features or anomalies. All strata are expected to remain consistent in physical/chemical composition and lithology. The structural contours from the Eagan and Fork Ridge Geologic Quadrangle Maps, based on the base of the Mingo Coal Zone, indicate that the local dip is approximately 1.5º to the northeast. There are no regional geologic structures in the immediate vicinity of the mine that would affect the mining operation or require special mining plans.

GEOLOGICAL INFORMATION FORM

1. QUANDRANGLE NAME:..... FORK RIDGE

2. LATITUDE..... 36° 35' 23"

3. LONGITUDE..... 83° 52' 17"

4. UTM ZONE (Eastern Kentucky=17, Western Kentucky=10):.....

5. UTM ZONE Easting coordinate:.....

6. UTM ZONE Northing coordinate:.....

7. Quadrangle Scale:..... (1)
   1/24,000 = 1; 1/62,500 = 2; 1/125,000 =3; Other = 4 – Explain_____

8. State Identification Code Number:..... 21
   (Use Federal Information Processing Standards Code (FIPS). The FIPS number for Kentucky is 21; additional surrounding states may be found on the last page of this form.)

9. County Code Number:..... 025

10. Coal Company Name: APPOLO FUELS, INC.

11. Operator's Name: (SAME)

12. Permit Number:..... 807-0314

13. SOAP Identification Number:.....

14. Hole Number:..... AF-441

15. Date (month, day, year):..... 09-19-01

16. Driller's Name: LJ HUGHES & SONS, INC.

17. Type of Sample:..... 5
    Core = 5; Chip = 6; Auger = 7; Geophysical log = 8;
    Highwall = 9; Other = 10 – Explain_____

18. Top of hole elevation:..... 1870' msl.
    (round to nearest unit of measurement and indicate units used*)

19. Top of hole determination:..... O
    (Barometer = B; Survey = S; Hand Level = H; Topo = T;
    Other = O – Explain GPS

20. Cumulative thickness of the sample:..... 483'
    (round to nearest unit of measurement and indicate units used*)

21. Name of geologist or engineer responsible for preparing this form (last, first, middle initial and title)

BRASHEAR, ROBERT, L, PROFESSIONAL ENGINEER #19652

GEOLOGICAL INFORMATION SHEET

Hole Number AF-441 UTM Zone:_____ Quadrangle: FORK RIDGE
LATITUDE 36° 35' 23" UTM E Coordinate:_____
LONGITUDE 83° 52' 17" UTM N Coordinate:_____

Driller: APPOLO FUELS, INC. Date: 09-19-01

Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other_____
Unit of Measurement: ( )Feet & Inches (**X**)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		23.00	23.00				CASING
		5.90	28.90				GRAY SANDSTONE
		35.10	64.00				GRAY SANDY SHALE
S-1		5.00	69.00	25.75	0.31		GRAY SANDY SHALE
S-2		5.00	74.00	26.25	0.31		GRAY SANDY SHALE
S-3		5.30	79.30	24.00	0.31		GRAY SHALE
S-4		5.30	84.60	18.75	15.31		GRAY SHALE
S-5		5.30	89.90	21.75	4.38		GRAY SHALE
S-6		3.10	93.00	18.25	0.94		GRAY CLAYSTONE
S-7		5.00	98.00	5.25	0.31	98.5	BROWN AND GRAY SANDSTONE
S-8		5.00	103.00	1.00	0.31	98.5	BROWN AND GRAY SANDSTONE
S-9		5.00	108.00	1.50	0.31	98.5	BROWN AND GRAY SANDSTONE
S-10		5.00	113.00	1.75	0.31	98.5	BROWN AND GRAY SANDSTONE
S-11		5.00	118.00	1.50	0.31	98.5	BROWN AND GRAY SANDSTONE
S-12		5.00	123.00	1.00	0.31	98.5	BROWN AND GRAY SANDSTONE
S-13		2.55	125.55	0.50	0.94		GRAY SANDSTONE
S-14		5.00	130.55	1.50	0.31		GRAY SANDSTONE
S-15		5.00	135.55	4.25	0.31		GRAY SANDSTONE
S-16		5.00	140.55	0.75	0.31		GRAY SANDSTONE
S-17		1.00	141.55	2.00	0.31		GRAY SANDSTONE
S-18		1.45	143.00				COAL – RICH MOUNTAIN
S-19		1.00	144.00	3.50	0.31		GRAY SANDY SHALE
S-20		5.00	149.00	7.00	0.31		GRAY SANDY SHALE
S-21		2.10	151.10	21.00	0.31		GRAY SANDY SHALE
S-22		5.00	156.10	21.25	0.94		GRAY SHALE
		3.00	159.10				GRAY SHALE
		0.30	159.40				COAL
		1.30	160.70				GRAY SHALE
		1.20	161.90				GRAY SANDSTONE
		0.90	162.80				GRAY SHALE

GEOLOGICAL INFORMATION SHEET

Hole Number AF-441 UTM Zone:_____ Quadrangle: FORK RIDGE
LATITUDE 36° 35' 23" UTM E Coordinate:_____
LONGITUDE 83° 52' 17" UTM N Coordinate:_____

Driller: APPOLO FUELS, INC. Date: 09-19-01

Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other_____
Unit of Measurement: ( )Feet & Inches (**X**)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		20.20	183.00				GRAY SANDY SHALE
		1.30	184.30				GRAY SANDSTONE
		0.90	185.20				DARK GRAY SHALE
		0.40	185.60				GRAY SHALE
		4.80	190.40				GRAY SANDSTONE WITH SHALE STREAKS
		12.40	202.80				GRAY SHALE WITH SHANDSTONE STREAKS
		3.00	205.80				GRAY SHALE
		22.40	228.20				DARK GRAY SHALE
		0.30	228.50				COAL
		0.45	228.95				GRAY SHALE
		1.65	230.60				COAL
		1.20	231.80				GRAY CLAYSTONE
		33.40	265.20				GRAY SHALE
		4.70	269.90				GRAY SANDSTONE WITH SHALE STREAKS
		7.50	277.40				DARK GRAY SHALE
		5.50	282.90				GRAY SHALE WITH SHANDSTONE STREAKS
		35.70	318.60				DARK GRAY SHALE
		1.70	320.30				COAL
		2.70	323.00				GRAY SANDSTONE WITH SHALE STREAKS
S-23		38.8	361.80	0.00	1.25		GRAY SHALE
S-24		62.60	424.40	0.00	2.19		DARK GRAY SHALE
S-25		1.10	425.50	0.00	70.31		COAL
S-26		14.50	440.00	0.00	0.63		GRAY SHALE
S-27		6.50	446.50	0.00	14.38		GRAY SANDSTONE WITH SHALE STREAKS
S-28		7.20	453.70	0.00	1.88		DARK GRAY SHALE
S-29		1.90	455.60	0.00	38.75		COAL – SHALE - SANDSTONE
S-30		**3.45**	**459.05**	**0.00**	**21.88**		**COAL - JELLICO**
S-31		11.15	470.20	0.00	1.88		DARK GRAY SHALE WITH SHANDSTONE STREAKS

GEOLOGICAL INFORMATION SHEET

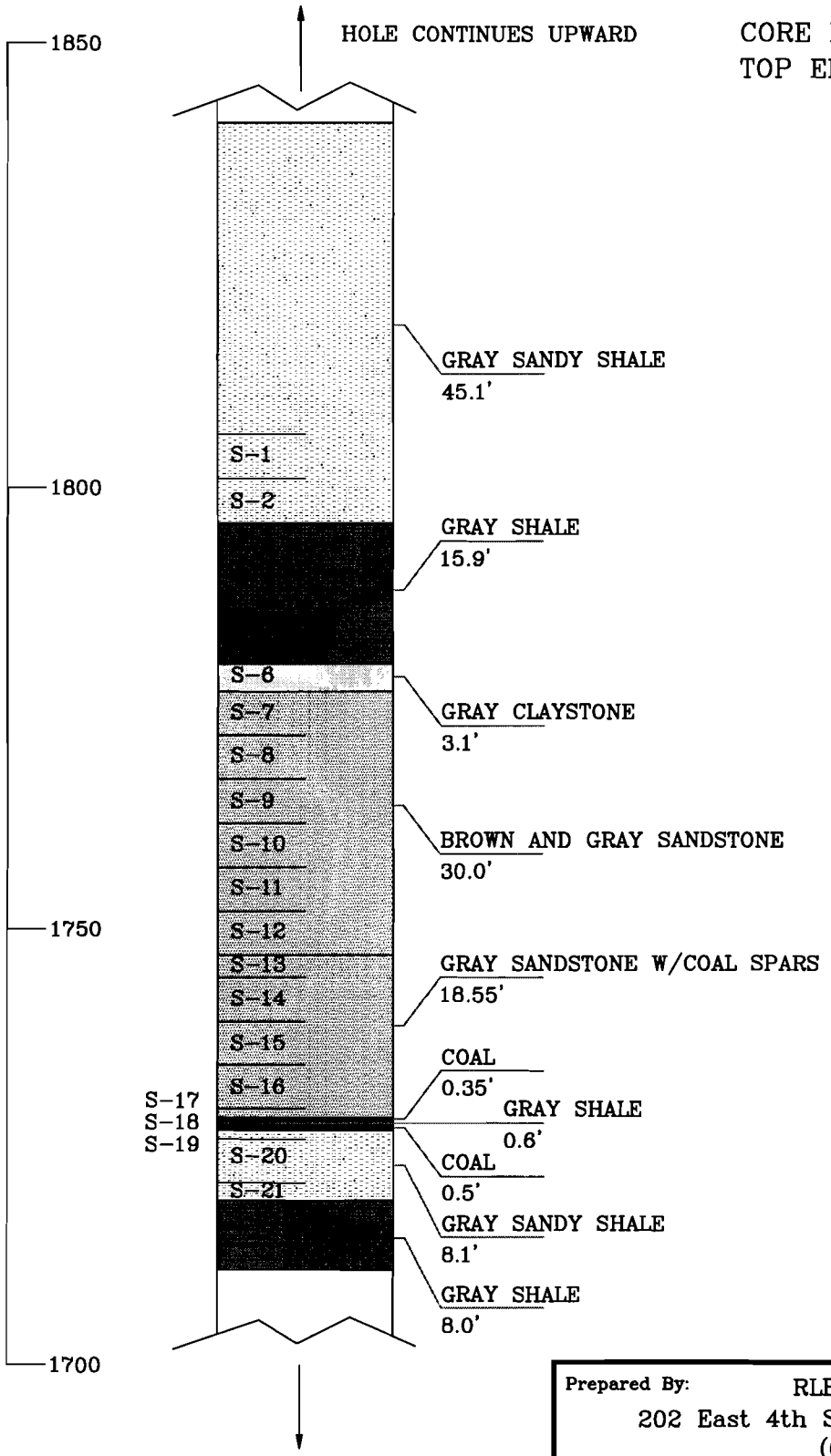
Hole Number AF-441 | UTM Zone: | Quadrangle: FORK RIDGE
LATITUDE 36° 35' 23" | UTM E Coordinate:
LONGITUDE 83° 52' 17" | UTM N Coordinate:

Driller: APPOLO FUELS, INC. | Date: 09-19-01

Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other
Unit of Measurement: ( )Feet & Inches (**X**)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		3.80	474.00				GRAY SHALE
		1.30	475.30				DARK GRAY SHALE
		1.15	476.45				COAL
		6.55	483.00				DARK GRAY SHALE WITH COAL STREAKS



Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC	
PERMIT 807-0314 AMENDMENT 1	
CORE HOLE AF-441	
DATE: 01-11-07	FILENAME: GEOLOGY.DWG
SCALE: 1"=20'	DRAWN BY: MC

"Attachment 15.2.B"

I certify that the attached Geologic Sampling Results for AF-441 are true and exact copies of the originals.

Notary Public, Kentucky, State at Large

My commission expires February 6, 2010

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-1
ELEVATION TOP - 1806.0
DEPTH - 64.0
THICKNESS - 5.0
GRAY SANDY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277817

Paste pH -	7.70	
% Sulfur -	0.01	Total
Neutralization Potential -	25.75	
Maximum Acid Potential -	00.31	
Potential Acidic -		
Potential Alkaline -	25.44	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-2
ELEVATION TOP - 1801.0
DEPTH - 69.0
THICKNESS - 5.0
GRAY SANDY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277807

Paste pH -	7.80	
% Sulfur -	0.01	Total
Neutralization Potential -	26.25	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	25.94	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-3
ELEVATION TOP - 1796.0
DEPTH - 74.0
THICKNESS - 5.3
GRAY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277809

Paste pH -	7.70	
% Sulfur -	0.01	Total
Neutralization Potential -	24.00	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	23.69	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 167A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-4
ELEVATION TOP - 1790.7
DEPTH - 79.3
THICKNESS - 5.3
GRAY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277812

Paste pH -	7.20	
% Sulfur -	0.49	Total
Neutralization Potential -	18.75	
Maximum Acid Potential -	15.31	
Potential Acidic -		
Potential Alkaline -	3.44	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals
Member of the SGS Group

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-5
ELEVATION TOP - 1785.4
DEPTH - 84.6
THICKNESS - 5.3
GRAY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277815

Paste pH -	5.70	
% Sulfur -	0.14	Total
Neutralization Potential -	21.75	
Maximum Acid Potential -	04.38	
Potential Acidic -		
Potential Alkaline -	17.37	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 167A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-6
ELEVATION TOP - 1780.1
DEPTH - 89.9
THICKNESS - 3.1
GRAY CLAYSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277814

Paste pH -	7.20	
% Sulfur -	0.03	Total
Neutralization Potential -	18.25	
Maximum Acid Potential -	00.94	
Potential Acidic -		
Potential Alkaline -	17.31	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 167A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-7
ELEVATION TOP - 1777.0
DEPTH - 93.0
THICKNESS - 5.0
BROWN AND GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277816

Paste pH -	6.90	
% Sulfur -	0.01	Total
Neutralization Potential -	5.25	
Maximum Acid Potential	- 00.31	
Potential Acidic -		
Potential Alkaline -	4.94	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 167A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-C044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-8
ELEVATION TOP - 1772.0
DEPTH - 98.0
THICKNESS - 5.0
BROWN AND GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277813

Paste pH -	7.00	
% Sulfur -	0.01	Total
Neutralization Potential -	1.00	
Maximum Acid Potential -	00.31	
Potential Acidic -		
Potential Alkaline -	0.69	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-1205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-9
ELEVATION TOP - 1767.0
DEPTH - 103.0
THICKNESS - 5.0
BROWN AND GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277810

Paste pH -	7.10	
% Sulfur -	0.01	Total
Neutralization Potential -	1.50	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	1.19	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS Test & Research Co. | Minerals Services Division
Route 7, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-10
ELEVATION TOP - 1762.0
DEPTH - 108.0
THICKNESS - 5.0
BROWN AND GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277808

Paste pH -	7.20	
% Sulfur -	0.01	Total
Neutralization Potential -	1.75	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	1.44	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 7, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-11
ELEVATION TOP - 1757.0
DEPTH - 113.0
THICKNESS - 5.0
BROWN AND GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277719

Paste pH -	7.20	
% Sulfur -	0.01	Total
Neutralization Potential -	1.50	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	1.19	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals
Member of the SGS Group

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-12
ELEVATION TOP - 1752.0
DEPTH - 118.0
THICKNESS - 5.0
BROWN AND GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277715

Paste pH -	6.70	
% Sulfur -	0.01	Total
Neutralization Potential -	1.00	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	0.69	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-13
ELEVATION TOP - 1747.0
DEPTH - 123.0
THICKNESS - 2.55
GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277722

Paste pH -	6.40	
% Sulfur -	0.03	Total
Neutralization Potential -	0.50	
Maximum Acid Potential -	0.94	
Potential Acidic -	-0.44	
Potential Alkaline -		
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-14
ELEVATION TOP - 1744.45
DEPTH - 125.55
THICKNESS - 5.0
GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277716

Paste pH -	6.70	
% Sulfur -	0.01	Total
Neutralization Potential -	1.50	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	1.19	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-15
ELEVATION TOP - 1739.45
DEPTH - 130.55
THICKNESS - 5.0
GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277811

Paste pH -	7.10	
% Sulfur -	0.01	Total
Neutralization Potential -	4.25	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	3.94	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-16
ELEVATION TOP - 1734.45
DEPTH - 135.55
THICKNESS - 5.0
GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277721

Paste pH -	7.30	
% Sulfur -	0.01	Total
Neutralization Potential -	0.75	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	0.44	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
8-17
ELEVATION TOP - 1729.45
DEPTH - 140.55
THICKNESS - 1.0
GRAY SANDSTONE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277720

Paste pH -	7.20	
% Sulfur -	0.01	Total
Neutralization Potential -	2.00	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	1.69	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

U.S. Mail Address | Minerals Services Division
Route 7, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-19
ELEVATION TOP - 1727.0
DEPTH - 143.0
THICKNESS - 1.0
GRAY SANDY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277717

Paste pH -	4.90	
% Sulfur -	0.01	Total
Neutralization Potential -	3.50	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	3.19	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-20
ELEVATION TOP - 1726.0
DEPTH - 144.0
THICKNESS - 5.0
GRAY SANDY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277714

Paste pH -	6.90	
% Sulfur -	0.01	Total
Neutralization Potential -	7.00	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	6.69	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-21
ELEVATION TOP - 1721.0
DEPTH - 149.0
THICKNESS - 2.1
GRAY SANDY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277718

Paste pH -	7.40	
% Sulfur -	0.01	Total
Neutralization Potential -	21.00	
Maximum Acid Potential -	0.31	
Potential Acidic -		
Potential Alkaline -	20.69	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

S.G.S. North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

March 1, 2006

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF-441
S-22
ELEVATION TOP - 1718.9
DEPTH - 151.0
THICKNESS - 5.0
GRAY SHALE

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled ------

Date received February 3, 2006

Analysis report no. 49-277713

Paste pH -	7.20	
% Sulfur -	0.03	Total
Neutralization Potential -	21.25	
Maximum Acid Potential -	0.94	
Potential Acidic -		
Potential Alkaline -	20.31	
Fizz Rating -	None	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

GEOLOGICAL INFORMATION FORM

1. QUANDRANGLE NAME: FORK RIDGE

2. LATITUDE 36° 35' 27"

3. LONGITUDE 83° 51' 34"

4. UTM ZONE (Eastern Kentucky=17, Western Kentucky=10):

5. UTM ZONE Easting coordinate:

6. UTM ZONE Northing coordinate:

7. Quadrangle Scale: (1)
   1/24,000 = 1; 1/62,500 = 2; 1/125,000 =3; Other = 4 – Explain

8. State Identification Code Number: 21
   (Use Federal Information Processing Standards Code (FIPS). The FIPS number for Kentucky is 21; additional surrounding states may be found on the last page of this form.)

9. County Code Number: 025

10. Coal Company Name: APPOLO FUELS, INC.

11. Operator's Name: (SAME)

12. Permit Number: 807-0314

13. SOAP Identification Number:

14. Hole Number: AF-443

15. Date (month, day, year): 10-02-01

16. Driller's Name: LJ HUGHES & SONS, INC.

17. Type of Sample: 5
    Core = 5; Chip = 6; Auger = 7; Geophysical log = 8;
    Highwall = 9; Other = 10 – Explain

18. Top of hole elevation: 1790' msl.
    (round to nearest unit of measurement and indicate units used*)

19. Top of hole determination: O
    (Barometer = B; Survey = S; Hand Level = H; Topo = T;
    Other = O – Explain GPS

20. Cumulative thickness of the sample: 513'
    (round to nearest unit of measurement and indicate units used*)

21. Name of geologist or engineer responsible for preparing this form (last, first, middle initial and title)

BRASHEAR, ROBERT, L, PROFESSIONAL ENGINEER #19652

GEOLOGICAL INFORMATION SHEET

Hole Number AF-443 UTM Zone:_____ Quadrangle: FORK RIDGE
LATITUDE 36° 35' 27" UTM E Coordinate:_____
LONGITUDE 83° 51' 34" UTM N Coordinate:_____

Driller: APPOLO FUELS, INC. Date: 10-02-01

Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other_____
Unit of Measurement: ( )Feet & Inches (**X**)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		33.00	33.00				CASING
		0.90	33.90				GRAY SANDSTONE
S-1		17.60	51.50	22.88	0.94		BROWN SANDSTONE
S-2		18.00	69.50	24.00	0.94		GRAY SANDSTONE
S-3		4.10	73.60	25.25	0.94		GRAY SHALE
S-3		5.00	78.60	25.25	0.94		GRAY SANDSTONE W/SHALE STREAKS
S-4		44.40	123.00	31.38	0.94		GRAY SANDY SHALE
S-5		10.10	133.10	24.63	63.75		GRAY SHALE
S-5		2.00	135.10	24.63	63.75		DARK GRAY SHALE
S-6		0.50	135.60	9.75	161.88		COAL
S-6		0.10	135.70	9.75	161.88		GRAY SHALE W/COAL
S-6		0.70	136.40	9.75	161.88		COAL
S-6		0.70	137.10	9.75	161.88		DARK GRAY SHALE
S-6		0.30	137.40	9.75	161.88		BONY COAL
S-7		0.80	138.20	31.25	22.81		GRAY SHALE
S-7		3.10	141.30	31.25	22.81		GRAY CLAYSTONE
S-8		1.60	142.90	4.00	11.25		GRAY SHALE W/COAL STREAKS
S-8		1.80	144.70	4.00	11.25		GRAY SHALE
S-8		0.20	144.90	4.00	11.25		COAL
S-9		20.90	165.80	30.88	0.94		GRAY SHALE
		0.10	**165.90**				**BLACK SHALE**
		0.30	**166.20**				**COAL**
		0.35	**166.55**				**GRAY SHALE**
		2.10	**168.65**				**COAL**
S-10		2.20	170.85	31.88	9.06		GRAY SHALE
S-10		0.15	171.00	31.88	9.06		COAL
S-10		1.90	172.90	31.88	9.06		GRAY SHALE
S-11		7.40	180.30	32.75	4.06		GRAY SANDY SHALE
		2.20	182.50				GRAY SHALE
		0.60	183.10				DARK SHALE W/COAL

GEOLOGICAL INFORMATION SHEET

Hole Number AF-443 UTM Zone:_____ Quadrangle: FORK RIDGE
LATITUDE 36° 35' 27" UTM E Coordinate:_____
LONGITUDE 83° 51' 34" UTM N Coordinate:_____

Driller: APPOLO FUELS, INC. Date: 10-02-01

Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other_____
Unit of Measurement: ( )Feet & Inches (**X**)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		0.20	183.30				COAL
		3.80	187.10				GRAY SHALE
		3.90	191.00				GRAY SANDSTONE
		5.10	196.10				GRAY SHALE
		0.70	196.80				GRAY SANDSTONE
		1.60	198.40				GRAY SHALE
		0.50	198.90				COAL
		0.30	199.20				DARK GRAY SHALE
		0.40	199.60				GRAY SHALE
		2.60	202.20				GRAY SANDSTONE
		0.60	202.80				GRAY SHALE W/SANDSTONE STREAKS
		12.40	215.20				GRAY SANDSTONE
		4.70	219.90				GRAY SHALE W/SANDSTONE STREAKS
		7.00	226.90				GRAY SHALE
		12.40	239.30				DARK GRAY SHALE
		3.60	242.90				DARK GRAY SHALE (BROKEN)
		2.90	245.80				DARK GRAY SHALE
		0.30	246.10				COAL
		0.70	246.80				GRAY SHALE
		1.20	248.00				COAL
		37.80	285.80				GRAY SHALE
		6.10	291.90				GRAY SHALE W/SANDSTONE STREAKS
		4.70	296.60				GRAY SHALE
		6.00	302.60				DARK GRAY SHALE
		0.60	303.20				DARK SHALE W/SANDSTONE STREAKS
		31.40	334.60				DARK GRAY SHALE (BROKEN)
		1.30	335.90				COAL
		3.10	339.00				GRAY SHALE W/SANDSTONE STREAKS

GEOLOGICAL INFORMATION SHEET

Hole Number AF-443 UTM Zone:_____ Quadrangle: FORK RIDGE
LATITUDE 36° 35' 27" UTM E Coordinate:_____
LONGITUDE 83° 51' 34" UTM N Coordinate:_____

Driller: APPOLO FUELS, INC. Date: 10-02-01

Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other_____
Unit of Measurement: ( )Feet & Inches (**X**)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		7.10	346.10				GRAY SANDSTONE W/SHALE STREAKS
		96.90	443.00				DARK GRAY SHALE
		2.20	445.20				GRAY SHALE
		3.70	448.90				GRAY SANDSTONE W/SHALE STREAKS
		0.65	449.55				COAL
		0.10	449.65				DARK GRAY SHALE
		0.15	449.80				COAL
		0.40	450.20				GRAY SHALE
		2.80	453.00				GRAY SANDSTONE W/SHALE STREAKS
		3.20	456.20				GRAY SANDY SHALE
		3.10	459.30				GRAY SHALE
		0.05	459.35				COAL
		8.00	467.35				GRAY SHALE
		0.75	468.10				GRAY SANDSTONE W/SHALE STREAKS
		2.90	471.00				GRAY SHALE W/SANDSTONE STREAKS
		0.85	471.85				BLACK CARBONATED SHALE
		0.65	472.50				COAL
		0.15	472.65				GRAY SHALE
		1.90	474.55				GRAY SANDY SHALE
		11.70	486.25				GRAY SHALE
		0.30	486.55				COAL
		1.20	487.75				GRAY SHALE
		1.10	488.85				GRAY SANDSTONE W/SHALE STREAKS
		0.35	489.20				GRAY SHALE
		0.50	489.70				BLACK SHALE
		0.10	489.80				BONE
		0.60	490.40				COAL
		0.25	490.65				SOFT GRAY SHALE W/COAL
		2.50	493.15				COAL

GEOLOGICAL INFORMATION SHEET

Hole Number AF-443
LATITUDE 36° 35' 27"
LONGITUDE 83° 51' 34"

UTM Zone:
UTM E Coordinate:
UTM N Coordinate:

Quadrangle: FORK RIDGE

Driller: APPOLO FUELS, INC.

Date: 10-02-01

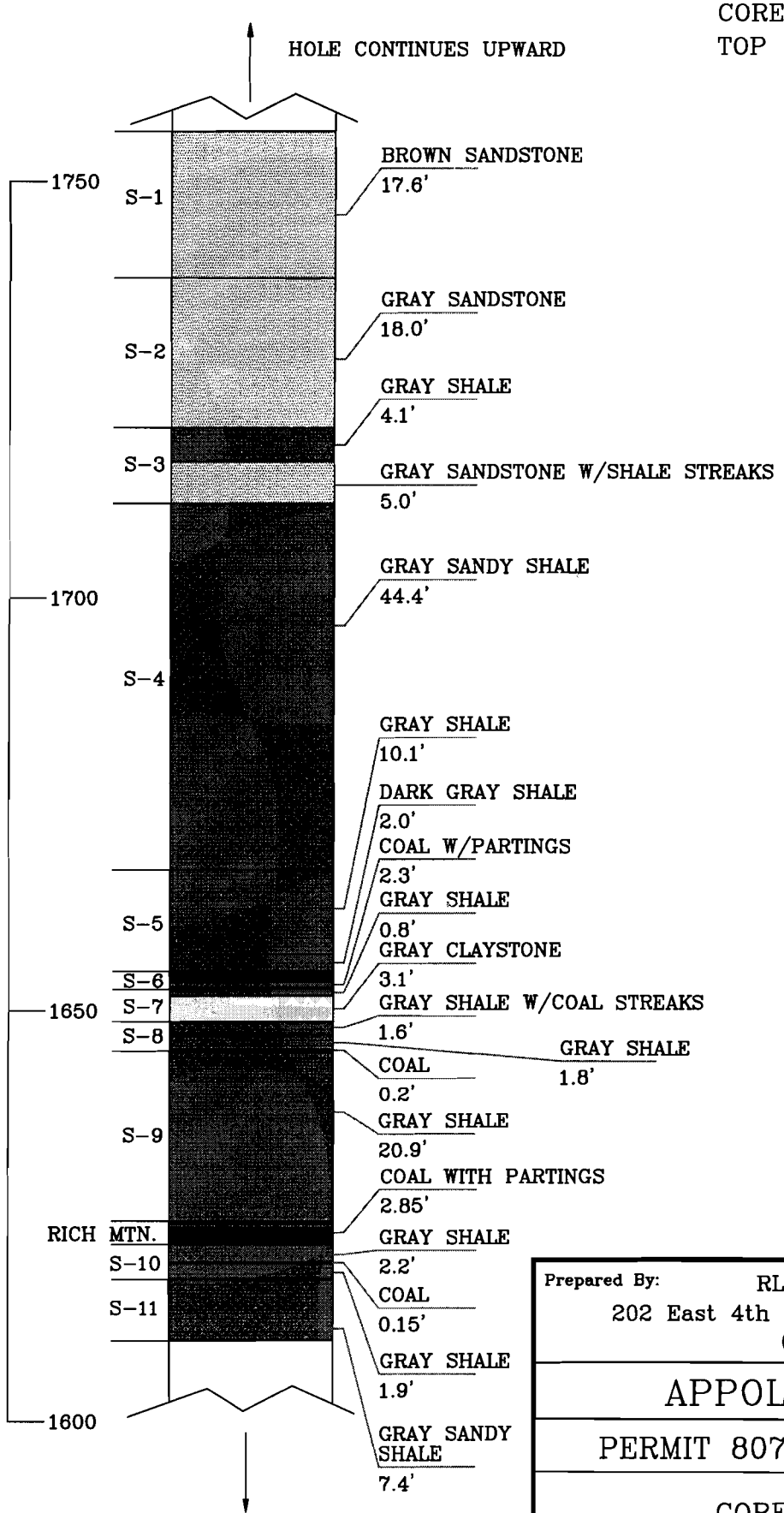
Type: (X)Core ( ) Chip ( )Highwall ( )Auger ( )G-log Other

Unit of Measurement: ( )Feet & Inches (X)Feet & Tenths ( )Metric

DRILLERS LOG SHEET

SAMPLE NO.	UNIT CODE	UNIT THICKNESS	CUM. THICKNESS	N.P.	P.A.	SDI	COMMENTS
		0.60	493.75				GRAY SHALE
		4.10	497.85				GRAY SHALE W/SANDSTONE STREAKS
		3.90	501.75				GRAY SHALE
		1.45	503.20				COAL
		3.30	506.50				DARK SHALE W/COAL STREAKS
		6.50	513.00				GRAY SANDY SHALE

CORE HOLE AF-443
TOP ELEVATION 1790 MSL

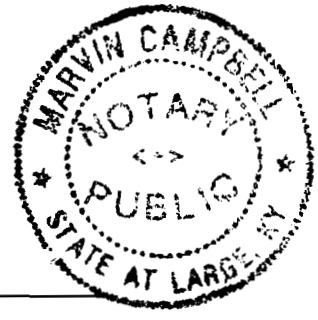


Prepared By:	RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381
APPOLO FUELS, INC	
PERMIT 807-0314 AMENDMENT 1	
CORE HOLE AF-443	
DATE: 05-07-07	FILENAME: GEOLOGY.DWG
SCALE: 1"=20'	DRAWN BY: MC

"Attachment 15.2.B"

I certify that the attached Geologic Sampling Results for AF-443 are true and exact copies of the originals.

Notary Public, Kentucky, State at Large



My commission expires February 6, 2010

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-1

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315703

Paste pH -	7.60
% Sulfur -	0.03
Neutralization Potential	22.88
Maximum Acid Potential	0.94
Potential Acidic -	
Potential Alkaline -	21.94

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

F-465

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-2

Kind of sample reported to us	COAL
Sample taken at	APPOLO FUELS
Sample taken by	APPOLO FUELS
Date sampled	May 3, 2007
Date received	May 3, 2007

Analysis report no. 49-315699

Paste pH -	7.50
% Sulfur -	0.03
Neutralization Potential	24.00
Maximum Acid Potential	0.94
Potential Acidic -	
Potential Alkaline -	23.06

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-3

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315702

Paste pH -	7.70
% Sulfur -	0.03
Neutralization Potential	25.25
Maximum Acid Potential	0.94
Potential Acidic -	
Potential Alkaline -	24.31

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-4

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315701

Paste pH -	8.10
% Sulfur -	0.03
Neutralization Potential	31.38
Maximum Acid Potential	0.94
Potential Acidic -	
Potential Alkaline -	30.44

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-5

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315706

Paste pH -	6.40
% Sulfur -	2.04
Neutralization Potential	24.63
Maximum Acid Potential	63.75
Potential Acidic -	39.12
Potential Alkaline -	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-6

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315708

Paste pH -	3.50
% Sulfur -	5.18
Neutralization Potential	9.75
Maximum Acid Potential	161.88
Potential Acidic -	152.13
Potential Alkaline -	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-7

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315698

Paste pH -	4.50
% Sulfur -	0.73
Neutralization Potential	31.25
Maximum Acid Potential	22.81
Potential Acidic -	
Potential Alkaline -	8.44

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS North America Inc. | Minerals Services Division
Route 2, Box 162A, Middlesboro, KY 40965 t (606) 248-4205 f (606) 248-0044 www.us.sgs.com/minerals

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-8

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315707

Paste pH -	5.40
% Sulfur -	0.36
Neutralization Potential	4.00
Maximum Acid Potential	11.25
Potential Acidic -	7.25
Potential Alkaline -	

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-9

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315700

Paste pH -	8.10
% Sulfur -	0.03
Neutralization Potential	30.88
Maximum Acid Potential	0.94
Potential Acidic -	
Potential Alkaline -	29.94

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-10

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315704

Paste pH -	7.70
% Sulfur -	0.29
Neutralization Potential	31.88
Maximum Acid Potential	9.06
Potential Acidic -	
Potential Alkaline -	22.82

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

SGS

May 22, 2007

APPOLO FUELS
P. O. BOX 1727
MIDDLESBORO KY 40965

Sample identification by
APPOLO FUELS

SAMPLE BROUGHT IN
AF 443 S-11

Kind of sample reported to us COAL

Sample taken at APPOLO FUELS

Sample taken by APPOLO FUELS

Date sampled May 3, 2007

Date received May 3, 2007

Analysis report no. 49-315705

Paste pH -	8.20
% Sulfur -	0.13
Neutralization Potential	32.75
Maximum Acid Potential	4.06
Potential Acidic -	
Potential Alkaline -	28.69

Respectfully submitted,
SGS NORTH AMERICA INC.

Middlesboro Laboratory

15.3 Do aquifers exist within the proposed permit area below the lowest coal seam to be mined, which may be adversely affected by the mining operation?

[X] YES [ ] NO. If "YES", describe the structural geology, lithology and thickness of each stratum from the lowest coal seam to be mined to such aquifers. Submit description and related information as "Attachment 15.3.A".

SEE "ATTACHMENT 15.4.A" FOR DESCRIPTION

15.4 Describe all aquifers located within and adjacent to the proposed permit area which the mining operation may adversely impact. Identify the description as "Attachment 15.4.A". At a minimum, the description shall include, for each aquifer, the following information:

Aquifers within the permit area

(a) aquifer identification,
(b) top elevation,
(c) lithology,
(d) thickness,
(e) areal extent,
(f) number of users, and
(g) structural geology

Aquifers adjacent to the permit area

(a) approximate areal extent
(b) approximate thickness
(c) aquifer identification, and
(d) number of users

Correlate this information with the cross-section required in item 15.2.

SEE "ATTACHMENT 15.4.A"

15.5 Provide, as "Attachment 15.5.A", a volume weighted acid-base account of all overburden strata to be removed by the proposed mining operation.

SEE "ATTACHMENT 15.5.A"

15.6 Describe the sampling program used for the collection of premining geologic data within the proposed permit area. The description shall identify: (a) method of sample collection; (b) vertical sampling frequency; (c) parameters tested; (d) laboratory methods used, and (e) name of laboratory. submit the description as "Attachment 15.6.A".

SEE "ATTACHMENT 15.6.A"

15.7 Provide the following information for each geologic sampling location. If additional pages are needed, identify as "Item 15.7 continued".

Site No.	Type (core, rotary, etc.)	Surface Elevation	Total Depth	Latitude	Longitude
AF-441	**Core**	**1870**	**483**	**36° 35' 23"**	**83° 52' 17"**
AF-443	**Core**	**1790**	**513**	**36° 35' 27"**	**83° 51' 34"**

NOTE: Show the location of each geologic sampling site on the ERI Map.

"ATTACHMENT 15.4.A"

Groundwater Resources

Groundwater resources within and adjacent to the permit area are composed of Pennsylvanian aged bedrock in a system of perched aquifers, colluvium/alluvium deposits, and stress relief fractures, these are associated with the elevation-head zone, additionally there are aquifers located beneath the valley floors with unfractured bedrock units which compose the pressure-head zone, this zone mimics the regional dip of the bedrock. The regional geologic groups in relationship to the proposed operations consist of the Breathitt Formation which is locally above drainage, and the Lee Formation which is below drainage approximately 500 to 750 feet below the Jellico Coal Seam. Locally the Breathitt Formation composes the perched aquifers etc. that make up the elevation-head zone as well as a portion of the pressure-head zone of the groundwater system, the Lee Formation composes the lower portion of the pressure-head zone of the groundwater system.

At Pine and Cumberland Mountains, local aquifers in the sandstones of the Lee formation would be expected to produce relatively high well yield, owing to secondary porosity afforded by fracturing along the fault zones. Here dip of the Lee is steep and wells drilled into the Lee at the base of Pine and Cumberland Mountains often exhibit artesian flow. Groundwater quality in the Lee formation is generally acceptable for domestic use, although iron concentrations may be somewhat elevated. Where buried at depth within the interior of the Cumberland Block, the Lee may also serve as a deep regional aquifer. Wells drilled into the Lee beneath valley bottoms typically yield sufficient volume for municipal or industrial supplies, such as the Clear Fork Utility wells at Clairfield.

Locally geologic groups of the Breathitt formation which may contribute significant recharge to the groundwater system are from the Slatestone and the Indian Bluff groups, with the remaining four geologic groups occurring at higher elevations on the mountainsides and any contribution from these groups is discussed within the shallow fracture zone. Significant geologic units within the Slatestone and Indian Bluff Groups are the Pioneer Sandstone, Indian Fork Sandstone, Stockstill Sandstone, Seeber Flats Sandstone, Newcomb Sandstone, Sand Gap Sandstone, Upper and Lower Petros Sandstones, and the Stephens Sandstone, these units compose the perched aquifer system of the Elevation-Head Zone.

As rainfall is absorbed into the groundwater system, flow is controlled by topography and geology with the primary absorption being in the stress relief fractures of the Shallow Fracture Zone. Steep topography promotes downward ground water flow into a series of perched aquifers within the Elevation-Head Zone where secondary absorption continues from ridge tops towards valley bottoms. Colluvium/Alluvium materials along the flanks of the mountainsides and valley bottoms also receives ground water from the Shallow Fracture Zone and directly from rainfall. All three of these portions of the groundwater system are directly influenced by topography and flow the same direction as surface water, independent of bedrock dip. Much of the water absorbed by these systems is concurrently discharged back into the surface water system at or near the valley bottoms and is carried away at a rate faster than which it can be absorbed back into the Pressure-Head Zone.

The final portion of the groundwater system is the Pressure-Head Zone, which is the unfractured bedrock material generally lying near or below drainage. The Pressure-Head Zone is charged directly by the Shallow Fracture Zone, Elevation-Head Zone, Colluvium/Alluvium and indirectly by the local surface water system, flow of the Pressure-Head Zone is in direct relationship to the regional dip, see the attached "Groundwater System Flow Model".

Researchers throughout the Appalachian coal-bearing region have documented that the shallow-fracture zone is a blanket-like intensively fractured layer that parallels the ground surface to a depth of 50 to 70 feet. The fracture patterns are predictable and the result of stress relief or the removal of compressional stress on underlying rocks by the erosion of overlying rocks. The fractures are generally horizontal under valley floors and are generally vertical under valley walls, where the rocks are nearly flat-lying, as in the Appalachian Plateau. The valley floor and valley wall are a part of this zone.

Within the Shallow Fracture Zone a rapid infiltration of water occurs via the fractures or secondary permeability, whereas primary porosity or movement of water through intergranular pore spaces dependent upon rock type is not as prevalent. Water levels fluctuate rapidly with precipitation and water quality varies in response to infiltration by precipitation and location within the flow system. The depth of the water table is affected by rainfall, topography, fracture location and interconnection, and surface disturbances. Static water levels are generally deeper on ridges and hillslopes than in valley bottoms.

The Elevation-Head Zone comprises approximately the upper 70 percent of the above-drainage groundwater system. The strata contain coal beds, sandstones and shales, flow direction within individual strata varies and is controlled by contrasts between strata units. Flow in sandstone and shale beds is near-vertical while flow within coal beds has a horizontal pattern due to fireclay components or other non-permeable strata associated with the coal beds. Coal beds relieve head pressure laterally in the system and function as drains following local dip. Water diverted laterally through coal beds may re-infiltrate into the shallow-fracture zone or may be carried away by the surface water system. Stress relief fracture frequency and interconnection are less in this zone than in the shallow-fracture zone and static water levels in general are more stable.

Colluvium and Alluvium materials consist of weathered bedrock, soils and clays deposited as a mixture of either well sorted or poorly sorted materials depending upon the location. These deposits are generally located on the lower flanks of the mountain sides and in the valley bottoms. The Colluvium/Alluvium Zone has historically been used as the predominant source of groundwater for domestic uses, by excavating hand dug wells. Yields associated with the Colluvium/Alluvium Zone vary greatly depending upon the pore space within the deposited material and the underlying bedrock slopes.

The Pressure-Head Zone is located beneath the three previously described zones and is near or below drainage. The Pressure-Head Zone is charged directly by the Shallow Fracture Zone, Elevation-Head Zone, Colluvium/Alluvium and indirectly by the local surface water system, flow of the Pressure-Head Zone is in direct relationship to the regional dip.

The results of the groundwater user inventory included in Item 16 of this application revealed: A) There are seven (7) wells drilled into the shallow fracture zone below the Jellico Coal seam, these are drilled into the lower portion of the Breathitt Formation locally known as the Hance Formation. B) There are three (3) users that have drilled wells with unknown depths, these are in all likelihood to also be within the shallow fracture zone. C) There are two (2) user withdrawing water from springs one is estimated to be at elevation 1600, the other is estimated to be at elevation 1375, these would be within the perched aquifer of the elevation-head zone. D) All others residents obtain water from a municipal source.

Available resources that were used to characterize the geologic setting of the area to be affected include the Fork Ridge 7.5' Geologic Quadrangle Map, and other resources referenced in the following list.

Wilson, C. W. Jr , Jewell, J. W., Luther, E. T., 1956. Pennsylvanian Geology of the Cumberland Plateau. Tennessee Division of Geology

Luther. E.T., 1959. The Coal Reserves of Tennessee. Tennessee Division of Geology Bulletin 63.

Luther, E.T., 1960. The Coal Industry of Tennessee. Tennessee Division of Geology Information circular No. 10.

Leist, D.W., Quinines, F., Mull, D.S., Young, M., 1982. Hydrology Of Area 15, Eastern Coal Province, Kentucky And Tennessee

Kleinmann, R.L.P., 2000. Prediction of Water Quality at Surface Coal Mines

Kohl, M.S. & Sykes, C.R. 1991. Geologic Map of the Fork Ridge Quadrangle, Tennessee.

Tennessee Division of Geology. Unpublished geologic data Eagan Quadrangle

Rice, C. L., & Maughan. E. K., 1978. Geologic Map of the Frakes and Part of the Eagan Quadrangle.

Newell, W. L., 1975. Geologic Map of the Kajay and Part of the Fork Ridge Quadrangle

Borchers, J.W., and G.G. Wyrick. 1981. Application of Stress-Relief Fracturing Concepts for Monitoring the Effects of Surface Mining on Ground water in Appalachian Plateau Valleys. In Proc. of the Symp. on Surface Mining Hydrology and Sedimentology and Reclamation. University of Kentucky, Lexington, KY, p. 443-449.

Kipp, J.A., and J.S. Dinger. 1987. Stress-Relief Fracture Control of Ground Water Movement in the Appalachian Plateaus. Reprint 30, Series XI, Kentucky Geological Survey, Lexington, KY. 11 p.

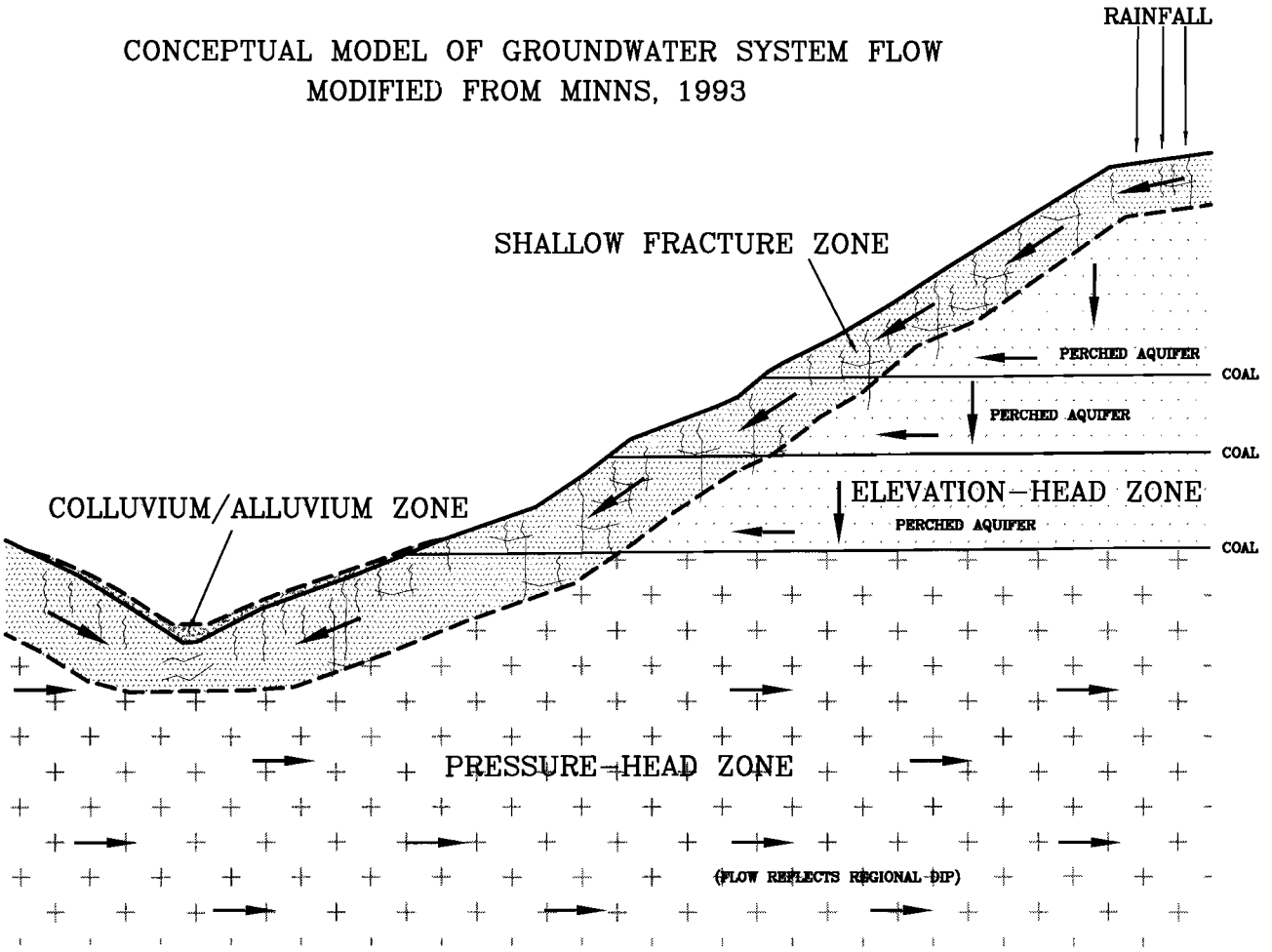
Minns, S.A. 1993. Conceptual Model of Local and Regional Ground water Flow in the Eastern Kentucky Coal Field. Thesis Series 6. XI, Kentucky Geological Survey, Lexington, KY, 194 p.

Minns, S.A., J.A. Kipp, D.I. Carey, J.S. Dinger, and L.V.A. Sendlein. 1995. Effects of Longwall Mining on Hydrology, Leslie County, Kentucky. Part 1: Pre-Mining Conditions. Report of Investigations 9. Kentucky Geological Survey, Lexington, KY. 37 p.

Wyrick, G.G., and J.W. Borchers. 1981. Hydrologic Effects of Stress-Relief Fracturing in an Appalachian Valley. Water-Supply Paper 2177, U.S. Geological Survey, Washington, D.C., 51 p.

Wunsch, D.R. 1993. Ground-Water Geochemistry and It's Relationship to the Flow System at an Unmined Site in the Eastern Kentucky Coal Field. Thesis Series 5, Series XI, Kentucky Geological Survey, Lexington, KY, 127 p.

CONCEPTUAL MODEL OF GROUNDWATER SYSTEM FLOW
MODIFIED FROM MINNS, 1993



LEGEND

- SHALLOW FRACTURE ZONE (WEATHERED BEDROCK)
- ELEVATION-HEAD ZONE (PARTIALLY WEATHERED BEDROCK)
- COLLUVIUM/ALLUVIUM ZONE (WEATHERED BEDROCK, SOILS AND CLAYS)
- PRESSURE-HEAD ZONE (UNWEATHERED BEDROCK)
- COAL SEAM
- FRACTURES
- DIRECTION OF GROUND WATER FLOW

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
Appolo Fuels, Inc.	
807-0314 AMENDMENT 1	
Groundwater System Flow Model	
DATE: 05-30-06	FILENAME: AQUIFERS.DWG
SCALE: NTS	DRAWN BY: R.B./M.C.

"Attachment 15.5.A"

Review of the geo-chemical analyses under Item 15.2, shows that several of the units to be disturbed have a net potential deficiency of 5.0 tons $CaCO_3$/1000 tons material, this net deficiency is derived by subtracting the neutralization potential from the potential acidity for each individual strata, and does not reflect the overal volume weighted acid/base accounting for the proposed operation. According to the acid/base account (see following page) the site has a positive spoil volume mixture. The average volume weighted acid/base account for AF-441 is 4.75 tons $CaCO_3$/1000 tons of spoil material, and the average volume weighted acid/base account for AF-443 is 2.75 tons $CaCO_3$/1000 tons of spoil material.

VOLUME WEIGHTED ACID-BASE ACCOUNTING

APPOLO FUELS

PERMIT **807-0314 Am. 1**

HOLE **AF-441**

TOTAL DEPTH	TOP ACREAGE	BOTTOM ACREAGE
79	0	71.8

STANDARD MATERIAL UNIT WEIGHT TONS/AC-FT		
CLAY	CLAY	2823
COAL	COAL	1734
LIMESTONE	LMSN	3549
SANDSTONE	SNDS	3428
SHALE	SHLE	2259
SOIL	SOIL	2851

IF A VOLUME WEIGHTED NP/PA RATIO DEFICIENCY OF MORE THAN -5 EXISTS, A SPECIAL HANDLING PLAN AND/OR TREATMENT PLAN WILL BE PROVIDED.

SAMPLE NO.	UNIT THICKNESS	CUMULATIVE THICKNESS	ROCK TYPE	UNIT WT. TONS/AC-FT	AC.	FRACTION SPOILED	TONS OB	NP	PA	NAB	NP TONS/1000	PA TONS/1000	NNP TONS/1000	NPA TONS/1000 TONS LIME NEEDED
1	5.00	5.00	SHLE	2259	4.54	1.00	51,328	25.75	0.31	25.44	1,322	16	1,306	
2	5.00	10.00	SHLE	2259	6.82	1.00	76,992	26.25	0.31	25.94	2,021	24	1,997	
3	5.30	15.30	SHLE	2259	11.50	1.00	137,651	24.00	0.31	23.69	3,304	43	3,261	
4	5.30	20.60	SHLE	2259	16.31	1.00	195,323	18.75	15.31	3.44	3,662	2,990	672	
5	5.30	25.90	SHLE	2259	21.13	1.00	252,995	21.75	4.38	17.37	5,503	1,108	4,395	
6	3.10	29.00	CLAY	2823	24.95	1.00	218,329	18.25	0.94	17.31	3,985	205	3,779	
7	5.00	34.00	SNDS	3428	28.63	1.00	490,703	5.25	0.31	4.94	2,576	152	2,424	
8	5.00	39.00	SNDS	3428	33.17	1.00	568,592	1.00	0.31	0.69	569	176	392	
9	5.00	44.00	SNDS	3428	37.72	1.00	646,482	1.50	0.31	1.19	970	200	769	
10	5.00	49.00	SNDS	3428	42.26	1.00	724,371	1.75	0.31	1.44	1,268	225	1,043	
11	5.00	54.00	SNDS	3428	46.81	1.00	802,260	1.50	0.31	1.19	1,203	249	955	
12	5.00	59.00	SNDS	3428	51.35	1.00	880,150	1.00	0.31	0.69	880	273	607	
13	2.55	61.55	SNDS	3428	54.78	1.00	478,868	0.50	0.94	(0.44)	239	450		(211)
14	5.00	66.55	SNDS	3428	58.21	1.00	997,763	1.50	0.31	1.19	1,497	309	1,187	
15	5.00	71.55	SNDS	3428	62.76	1.00	1,075,652	4.25	0.31	3.94	4,572	333	4,238	
16	5.00	76.55	SNDS	3428	67.30	1.00	1,153,542	0.08	0.31	(0.24)	87	358		(271)
17	1.00	77.55	SNDS	3428	70.03	1.00	240,055	2.00	0.31	1.69	480	74	406	
COAL	1.45	79.00	COAL	1734	71.80	0.10	18,053			COAL	TO	BE	REMOVED	
					TOTAL		9,009,109				34,136	7,186		(482)

VOLUME WEIGHTED NP/PA RATIO **4.75**

TONS OF LIME PER ACRE (IF REQUIRED)

D NP/PA RATIO DEFICIENCY IS LESS THAN -5, THEN LIME IS NOT REQUIRED.)

VOLUME WEIGHTED ACID-BASE ACCOUNTING

APPOLO FUELS

PERMIT **807-0314 Am. 1**

HOLE **AF-443**

TOTAL DEPTH	TOP ACREAGE	BOTTOM ACREAGE
134.75	0	80.81

STANDARD MATERIAL	UNIT WEIGHT TONS/AC-FT	
CLAY	CLAY	2823
COAL	COAL	1734
LIMESTONE	LMSN	3549
SANDSTONE	SNDS	3428
SHALE	SHLE	2259
SOIL	SOIL	2851

IF A VOLUME WEIGHTED NP/PA RATIO DEFICIENCY OF MORE THAN -5 EXISTS, A SPECIAL HANDLING PLAN AND/OR TREATMENT PLAN WILL BE PROVIDED.

SAMPLE NO.	UNIT THICKNESS	CUMULATIVE THICKNESS	ROCK TYPE	UNIT WT. TONS/AC-FT	AC.	FRACTION SPOILED	TONS OB	NP	PA	NAB	NP TONS/1000	PA TONS/1000	NNP TONS/1000	NPA TONS/1000 TONS LIME NEEDED
1	17.60	17.60	SNDS	3428	10.55	1.00	636,799	22.88	0.94	21.94	14,570	599	13,971	
2	18.00	35.60	SNDS	3428	15.95	1.00	984,309	24.00	0.94	23.06	23,623	925	22,698	
3	9.10	44.70	SHLE	2259	24.08	1.00	494,971	25.25	0.94	24.31	12,498	465	12,033	
4	44.40	89.10	SHLE	2259	40.12	1.00	4,024,034	31.38	0.94	30.44	126,274	3,783	122,492	
5	12.10	101.20	SHLE	2259	57.06	1.00	1,559,720	24.63	63.75	(39.12)	38,416	99,432		(61,016)
6	2.30	103.50	COAL	1734	61.38	0.10	24,479	9.75	161.88	COAL	TO	BE	REMOVED	
7	3.90	107.40	CLAY	2823	63.24	1.00	696,239	31.25	22.81	8.44	21,757	15,881	5,876	
8	3.60	111.00	SHLE	2259	65.49	1.00	532,571	4.00	11.25	(7.25)	2,130	5,991		(3,861)
9	20.90	131.90	SHLE	2259	72.83	1.00	3,438,716	30.88	0.94	29.94	106,188	3,232	102,955	
COAL	2.85	134.75	COAL	1734	80.81	0.10	39,935			COAL	TO	BE	REMOVED	
					TOTAL		12,431,775				345,457	130,309		(64,877)

VOLUME WEIGHTED NP/PA RATIO **2.65**

TONS OF LIME PER ACRE (IF REQUIRED)

) NP/PA RATIO DEFICIENCY IS LESS THAN -5, THEN LIME IS NOT REQUIRED.)

"Attachment 15.6.A"

Description of Geologic Sampling Plan

The geology of the permit area has been defined by stratigraphic and geo-technical data collected at geologic sampling locations.

Data from these samples were used to describe the lithologic and geo-chemical character of strata affected by the proposed mining.

A. **Method of Sample Collection** - Core samples were recovered from the core barrel and sequentially placed in standard core boxes. Detailed logs, including stratum descriptions and classifications were recorded. Samples for laboratory analysis were then taken at appropriate intervals.

B. **Vertical Sampling Frequency** - At the sampling locations all strata to be affected by surface disturbance were sampled as well as ten feet below the lowest point of surface disturbance. Results of these analyses were used to determine acid-base accounting for those strata to be affected by the proposed operation.

The vertical sampling density utilized in sampling for geo-technical analysis is as follows:

- For strata in excess of roughly five feet, samples were taken every five feet.

- For strata from 0.25 feet to roughly 5 feet in thickness, one sample was taken.

C. **Parameters Tested** - All samples were tested at a minimum for potential acidity and neutralization potential.

D. **Laboratory Methods Used** - Standard ASTM approved laboratory methods were reportedly utilized. The maximum potential acidity and neutralization potential results are given in pounds per 1000 lbs. material.

E. **Laboratory** - Samples were analyzed by Standard Laboratories, Inc. of Jacksboro, Tennessee and Appalachian Field Services Company, Inc. of Baxter, Kentucky.

16. Ground Water

16.1 Provide the results of the ground water inventory conducted for the proposed permit and adjacent areas. The inventory shall identify wells, springs, underground mines or other similar ground water supply facilities which are currently being used, have been used in the past, or have a potential to be used. For each supply source, describe the location, ownership, type of use and where possible other relevant information such as the depths and diameters of wells, approximate rate of usage, pumpage or discharge. Provide results as "Attachment 16.1.A".

SEE "ATTACHMENT 16.1.A"

16.2 Describe the premining ground water monitoring program used to determine the seasonal variations in ground water quality and quantity for all aquifers and water transmitting zones. At a minimum, six months of data shall be collected. The description shall identify the location and construction specifications of each monitoring point used, parameters tested, and laboratory methods used. Submit the description as "Attachment 16.2.A".

SEE "ATTACHMENT 16.2.A"

16.3 On approved cabinet forms submit the results of the premining ground water monitoring program. Original or notarized copies of all laboratory analyses shall be provided. Submit this information as "Attachment 16.3.A".

SEE "ATTACHMENT 16.3.A"

17. Surface Water Information

17.1 Major Watershed(s) Affected:

[ ]	Big Sandy River (BS)	[ ]	Mississippi River (MS)
[**X**]	Cumberland River, Upper (CU)	[ ]	Ohio River (OH)
[ ]	Cumberland River, Lower (CL)	[ ]	Salt River (ST)
[ ]	Green River (GR)	[ ]	Tennessee River (TN)
[ ]	Kentucky River (KY)	[ ]	Tradewater River (TW)
[ ]	Licking River (LC)	[ ]	Tygarts Creek (TG)
[ ]	Little Sandy River (LS)		

17.2 Identify on the environmental resources map and provide a narrative description of the immediate watershed(s) receiving discharge from the proposed permit area. Describe any existing facilities or conditions within the watershed(s) (e.g. existing mining operations, abandoned surface or underground mines, logging operations, oil or gas exploration sites or wells, etc.) which may contribute to surface water pollution. Provide the description as "Attachment 17.2.A". On the ERI map, indicate the location of any existing discharges resulting from such facilities or activities.

SEE "ATTACHMENT 17.2.A"

17.3 Provide as "Attachment 17.3.A", the results of the surface water user inventory for the proposed permit and adjacent areas. This inventory shall identify the name of the surface water boundary being used as a water supply source, the location, the drainage area, ownership, type of usage, and where possible, other relevant information such as the rate of withdrawal and seasonal variation.

SEE "ATTACHMENT 17.3.A"

"Attachment 16.1.A"

GROUND WATER USER INVENTORY

MAP NO.	USER	TYPE	ELEV. (FT.)	TOTAL DEPTH (FT.)	DEPTH TO WATER (FT.)	WELL DIA. (IN.)	REMARKS
1	GILBERT HUDDLESTON	SPRING	1600	NA	NA	NA	FAIR QUALITY
2	CLYDE MACE	DR WELL	1352	95	8	6	DR 1988, SULFUR, DO NOT DRINK
3	ANDY LAMBDIN	SPRING	1375	NA	NA	NA	SULFUR
4	FONDE BAPTIST CHURCH	DR WELL	1350	60	10	6	DR 1980, SULFUR
5	LAWRENCE LAWSON						SAME AS 4
6							
7	JOHNNY JONES	DR WELL	1329	60	14	6	DRILLED 1990, SULFUR
8	DULLEY LAMBDIN	DR WELL	1332	66	12	6	SULFUR
9	FRANCIS RUSSELL	DR WELL	1329				SULFUR, DO NOT DRINK
10	MIKE GAYLOR						SAME AS 11
11	LLOYD HUDDLESTON	DR WELL	1318	67	12	6	DR 1969, SULFUR, HAS FILTER
12	CLARENCE LAWSON						SAME AS 11
13	WILMA MAYS						SAME AS 11
14	FONDE CHURCH OF GOD	DR WELL	1330				SULFUR, DO NOT DRINK
15	JEFFREY PARTIN	DR WELL	1309	30	5	4	SULFUR
16							
17	DUFF SILBER	CITY					
18	ROBERT MICHAEL	CITY					
19	CHARLENE HILL	CITY					
20	ESTELLE WALDROOP	CITY					
21	HARLEY LAMBDIN	CITY					
22	ALFRED SILER	CITY					
23	MELLISA LAMBDIN	CITY					
24	ALFRED SILER	CITY					
25	FIRST BAPTIST CHURCH	CITY					
26	MARY WILLIS	CITY					
27	ALMA TEAGUE	CITY					
28							
29	JOHNNY HENDERSON	DR WELL	1295				
30	CHARLOTTE HENDERSON	DR WELL	1280	100			
31	BRENDA HATFIELD	CITY					
32	LONNIE HATFIELD	CITY					
33	CHRIS DANIELS	CITY					
34	DWAYNE KING	CITY					
35	LORAINE TEAGUE	CITY					

"Attachment 16.1.A"

GROUND WATER USER INVENTORY

MAP NO.	USER	TYPE	ELEV. (FT.)	TOTAL DEPTH (FT.)	DEPTH TO WATER (FT.)	WELL DIA. (IN.)	REMARKS
36	LOUIS GAYLOR	CITY					
37	PRUDEN POST OFFICE						NO WATER SOURCE
38	ROSIE DAVIS	CITY					
39	GERALDINE GAYLOR	CITY					
40	GEORGE REED	CITY					
41	EURTHA DAVIS	CITY					
42	SHANNON KING	CITY					

"ATTACHMENT 16.2.A"

GROUNDWATER MONITORING PROGRAM

The groundwater-monitoring program consists of six months of samples at ground water monitoring point Seep 12. Sampling site Seep 12 is a seep located at an elevation of 1310 feet above MSL. An open concrete cistern has previously been constructed at the site, which receives water from the seep. Grab samples were taken from the open cistern, with flow measurements taken from a discharge pipe located on the side of the cistern.

Groundwater Monitoring Site Coordinates

Site	Latitude	Longitude
Seep 12	36º 35' 20"	83º 53' 33"

The tests, measurements, and methods used by the laboratory are described in Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985.

Field Well Parameters

Water Level	(feet)
pH	(Standard units)
Temperature	°C or °F

Ground Water Laboratory Parameters

Hydrogen Ion Activity (pH)	Standard Units: SM 423, Electric pH Meter
Acidity	mg $CaCO_3$/L: SM 402
Alkalinity	mg $CaCO_3$/L: SM 403
Dissolved Iron	mg/L: SM 315
Dissolved Manganese	mg/L: SM 319
Sulfate	mg/L: SM 426
Total Dissolved Solids or Specific Conductance	@250C, Tmhos/cm: SM 205

Samples were collected by RLB Engineering, PSC of London Kentucky and analyzed by Delta Testing of Hyden, Kentucky.

WATER QUALITY DATA ENTRY FORMS: Part 1

Type of Report:
(**X**) Premining
( ) During mining/Rec.
( ) Other

STATION INFORMATION

PERMIT #: **807-0314** STATION #: **SEEP-12** SOAP#: _____

COUNTY #: **007** BASIN #: _____ QUAD NAME: **EAGAN**

STATION TYPE (CHECK):
(01) spring_**X**_ (04) well____
(02) stream___ (05) pond/inflow___
(03) lake____ (06) pond/outflow___

FOR WELLS ONLY

DEPTH (FT):_____ CASING DIAMETER (IN):_____ AQUIFER DESCRIPTION_____

TOP OF AQUIFER (MSL):_____ AQUIFER THICKNESS (FT):_____ TOP OF WELL ELEV (MSL):_____

WATERSHED DESCRIPTION:_____ DRAINAGE AREA:_____

Latitude **36° 35′ 20"** Longitude **83° 53' 33"**

UTM ZONE: **17** 16 West of 84° Longitude UTM EASTING:_____ UTM NORTHING:_____
17 East of 84° Longitude

STREAM NAME: **CLEAR FORK**

COAL COMPANY: **APPOLO FUELS, INC.**

COLLECTING FIRM: **RLB ENGINEERING, PSC**

ANALYZING FIRM: **DELTA TESTING**

COMMENTS:_____

WATER QUALITY DATA ENTRY FORMS: Part 2

SAMPLE DATA

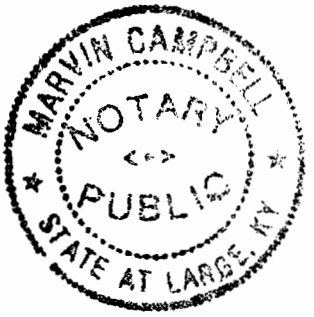
PERMIT # 807-0314 STATION # SEEP-12

Sample #	DATE MM/DD/YY	TEMP (C)	FLOW (cfs)	CONDUCT. (UMHOS)	pH, (Std. Units)	ACIDITY mg/1	ALKAL. mg/1	TSS mg/1	TDS mg/1	SETT. SOLIDS ml/1
1	5-23-02	13	0.011	601	6.8/6.25	0	49	4		
2	06-07-02	13	0.009	588	7.1/6.18	7	52	14		
3	07-02-02	14	0.0111	474	7.8/6.20	0	55	3		
4	08-06-02	16.3	0.071	420/570	6.3/6.44	9	74	0	349	
5	09-11-02	16.2	0.00217	380	6.2/6.4	57	80	0	247	
6	10-02-02	16	0.0155	515	6.2/7.3	0	82	0	334	
7	04-25-03	14.4	0.0110	550/590	6.3/6.2	10	30	0	357	
8	12-17-05	11.1	0.0084	420	6.10	0	100	14	300	
9	01-19-06	12.8	0.0167	472	6.00	0	95	14	200	
10	02-17-06	12.6	0.00139	439	6.30	0	105	10	310	
11	03-30-06	13.3	0.0209	467	5.80	0	90	10	210	
12	05-07-06	14.1	0.0417	523	6.20	0	70	14	250	
13	01-26-08	12.2	0.0067	1085	5.70	0	145	19	425	

Sample #	SO_4DISS. mg/1	O_2DISS. mg/1	Fe,Diss. mg/1	Fe,Total mg/1	Mn,Diss. mg/1	Mn,Total mg/1	Depth to Water/ft
1	230		0.15	2.4	1.55	1.64	
2	230		2.14	7.16	1.56	1.71	
3	200		3.35	4.26	1.55	0.58	
4	180		2.81	10.47	1.43	1.45	
5	190		7.28	15.36	1.30	1.38	
6	220		0.96	3.38	1.02	1.34	
7	160		3.54	12.75	1.70	1.70	
8	45		0.18	0.25	0.01	0.10	
9	33		0.26	0.40	0.08	0.18	
10	40		0.18	0.24	0.05	0.17	
11	41		0.20	0.36	0.04	0.14	
12	46		0.59	0.81	0.16	0.21	
13	69		2.85	3.15	0.67	0.99	

"Attachment 16.3.A"

I certify that the attached Ground Water Monitoring Laboratory Results for Seep 12 are true and exact copies of the originals.



Notary Public, Kentucky, State at Large

My commission expires February 6, 2010

DELTA TESTING INC.
[illegible]
HYDEN, KY. 41749
[illegible]

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT #: 3112

Sample Date: 5-23-02

Analysis Date: 5-23-02

STATION #: ~~RLD12~~ Seep -12

Field pH:	6.8	
Field Temp.:	13	C
WATER LEVEL:		FT
DISCHARGE:	0.011	CFS
pH (lab):	6.25	
Alkalinity:	49	mg/l
Acidity:	0	mg/l
Cond. (lab):	601	uhoms/cm
TSS:	4	mg/l
Total Fe.:	12.4	mg/l
Diss. Fe:	0.15	mg/l
Total Mn.:	1.64	mg/l
Diss. Mn:	1.55	mg/l
Sulfate:	230	mg/l

Analyzed by

Joe D. Lewis
LAB DIRECTOR

[illegible]

[illegible]

DELTA TESTING, INC.
P.O. BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 6-7-02

Analysis Date: 6-7-02

STATION #: ~~PLEW~~ Seep-12

Field pH: 7.1

Field Temp.: 13 C

WATER LEVEL: FT

DISCHARGE: 0.009 CFS

pH (lab):	6.16	
Alkalinity:	52	mg/l
Acidity:	7	mg/l
Cond. (lab):	568	uhoms/cm
TSS:	14	mg/l
Total Fe.:	7.16	mg/l
Diss. Fe:	2.14	mg/l
Total Mn.:	1.71	mg/l
Diss. Mn:	1.56	mg/l
Sulfate:	220	mg/l

Analyzed by

Joe F. Lewis
LAB DIRECTOR

DELTA TESTING INC.
HC 61, BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 7-2-02

Analysis Date: 7-2-02

STATION #: SEEP12

Field pH: 7.8

Field Temp.: 14 C

COND (Field): uS/cm

WATER LEVEL: FT

DISCHARGE: 0.0111 CFS

pH (lab):	6.20	
Alkalinity:	55	mg/l
Acidity:	0	mg/l
Cond. (lab):	474	uhoms/cm
TSS:	3	mg/l
TDS:	299	mg/l
Total Fe.:	4.26	mg/l
Diss. Fe:	3.35	mg/l
Total Mn.:	0.58	mg/l
Diss. Mn:	1.55	mg/l
Sulfate:	200	mg/l

Analyzed by

Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLR Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

DELTA DRILLING INC.
HC 61 BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 8-6-02

Analysis Date: 8-6-02

STATION #: SEEP12

Field pH: 6.3

Field Temp.: 16.3 C

COND (Field): 420 uS/cm

WATER LEVEL: FT

DISCHARGE: 0.071 CFS

pH (lab): 6.44

Alkalinity: 74 mg/l

Acidity: 9 mg/l

Cond. (lab): 570 uhoms/cm

TSS: mg/l

TDS: 349 mg/l

Total Fe: 10.17 mg/l

Diss. Fe: 2.81 mg/l

Total Mn.: 1.45 mg/l

Diss. Mn: 1.43 mg/l

Sulfate: 180 mg/l

Analyzed by

Joe K. Lewis
LAB DIRECTOR

Comment: Sampled by KLS Engineering, PSC

Analysis as per "Standard Methods for the Examination of Water & Wastewater"

HC 61, BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 9-11-02

Analysis Date: 9-11-02

STATION #: SEEP12

Field pH: 6.2

Field Temp.: 16.2 C

COND (Field): 380 uS/cm

WATER LEVEL: FT

DISCHARGE: 0.00217 CFS

pH (lab): 6.42

Alkalinity:	80	mg/l
Acidity:	57	mg/l
Cond. (lab):		uhoms/cm
TSS:		mg/l
TDS:	247	mg/l
Total Fe.:	15.36	mg/l
Diss. Fe:	7.28	mg/l
Total Mn.:	1.38	mg/l
Diss. Mn:	1.30	mg/l
Sulfate:	190	mg/l

Analyzed by

Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLB Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

DELTA TESTING INC.

HC 61, BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 10-2-02

Analysis Date: 10-2-02

STATION #: SEEP12

Field pH: 6.23

Field Temp.: 16 C

COND (Field): 515 uS/cm

WATER LEVEL: FT

DISCHARGE: 0.0155 CFS

pH (lab): 7.35

Alkalinity: 82 mg/l

Acidity: 0 mg/l

Cond. (lab): uhoms/cm

TSS: mg/l

TDS: 334 mg/l

Total Fe.: 3.38 mg/l

Diss. Fe: 0.96 mg/l

Total Mn.: 1.34 mg/l

Diss. Mn: 1.02 mg/l

Sulfate: 220 mg/l

Analyzed by

Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLB Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

DELTA TESTING INC.

815 HWY 80 EAST
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC.

PERMIT # : 3112

Sample Date: 4-25-03

Analysis Date: 4-25-03 / 4-26-03

STATION #: SEEP12

Field pH: 6.3

Field Temp.: 14.4 C

COND (Field): 550 uS/cm

WATER LEVEL: FT

DISCHARGE: 0.0110 CFS

pH (lab):	6.23	
Alkalinity:	30	mg/l
Acidity:	10	mg/l
Cond. (lab):	590	uhoms/cm
TSS:		mg/l
TDS:	357	mg/l
Total Fe.:	12.75	mg/l
Diss. Fe:	3.54	mg/l
Total Mn.:	1.70	mg/l
Diss. Mn:	1.70	mg/l
Sulfate:	180	mg/l

Analyzed by

Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLB Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 Seep 12
Lab# 16
Date Sampled: 12-17-2005
Date Analyzed: 12-18-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.10		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide treatment
Alkalinity to pH 4.5	100	Mg/L	
Total Iron	0.25	Mg/L	
Dissolved Iron	0.18	Mg/L	
Total Manganese	0.10	Mg/L	
Dissolved Manganese	0.01	Mg/L	
Total Suspended Solids	14	Mg/L	
Total Dissolved Solids	300	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	45	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	11.1	degrees C	
Turbidity			
Specific Conductance	420	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	.0084	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Eddie [signature]

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 Seep 12
Lab# 16
Date Sampled: 01-19-2006
Date Analyzed: 01-20-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.00		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	95	Mg/L	treatment
Total Iron	0.40	Mg/L	
Dissolved Iron	0.26	Mg/L	
Total Manganese	0.18	Mg/L	
Dissolved Manganese	0.08	Mg/L	
Total Suspended Solids	14	Mg/L	
Total Dissolved Solids	200	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	33	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	12.8	degrees C	
Turbidity			
Specific Conductance	472	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	~~16.1~~ .0167	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, inc.
Sample ID: 3192 Seep 12
Lab# 16
Date Sampled: 02-17-2006
Date Analyzed: 02-18-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.30		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	105	Mg/L	treatment
Total Iron	0.24	Mg/L	
Dissolved Iron	0.18	Mg/L	
Total Manganese	0.17	Mg/L	
Dissolved Manganese	0.05	Mg/L	
Total Suspended Solids	10	Mg/L	
Total Dissolved Solids	310	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	40	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	12.6	degrees C	
Turbidity			
Specific Conductance	439	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	.00139	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 Seep 12
Lab# 16
Date Sampled: 03-30-2006
Date Analyzed: 03-31-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	5.80		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	90	Mg/L	treatment
Total Iron	0.36	Mg/L	
Dissolved Iron	0.20	Mg/L	
Total Manganese	0.14	Mg/L	
Dissolved Manganese	0.04	Mg/L	
Total Suspended Solids	10	Mg/L	
Total Dissolved Solids	210	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	41	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	13.3	degrees C	
Turbidity			
Specific Conductance	467	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	0.0209	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 Seep 12
Lab# 16
Date Sampled: 05-07-2006
Date Analyzed: 05-08-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.20		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	70	Mg/L	treatment
Total Iron	0.81	Mg/L	
Dissolved Iron	0.59	Mg/L	
Total Manganese	0.21	Mg/L	
Dissolved Manganese	0.16	Mg/L	
Total Suspended Solids	14	Mg/L	
Total Dissolved Solids	250	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	46	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	14.1	degrees C	
Turbidity			
Specific Conductance	523	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	0.0417	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 807-0314 Seep-12
Lab# 16
Date Sampled: 01-26-2008
Date Analyzed: 01-27-2008
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	5.70		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	145	Mg/L	treatment
Total Iron	3.15	Mg/L	
Dissolved Iron	2.85	Mg/L	
Total Manganese	0.99	Mg/L	
Dissolved Manganese	0.67	Mg/L	
Total Suspended Solids	19	Mg/L	
Total Dissolved Solids	425	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	69	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	12.2	degrees C	
Turbidity			
Specific Conductance	1085	Michrombos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	0.0067	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

"Attachment 17.2.A"

Description of Watershed

The proposed operation will create disturbance at an area located in Clear Fork in Bell County.

Watershed D (790 acres) ranges in elevation from 1420 at the valley floor to 2980 at the ridgetops. Slopes are generally about 40 percent. Watershed D is approximately 72% forestland with some previous logging and mining disturbance areas.

Watershed E (1087 acres) ranges in elevation from 1450 at the valley floor to 2830 at the ridgetops. Slopes are generally about 40 percent. Watershed E is approximately 67% forestland with some previous logging and mining disturbance areas.

Watershed F (717 acres) ranges in elevation from 1450 at the valley floor to 2980 at the ridgetops. Slopes are generally about 40 percent. Watershed F is approximately 83% forestland with some previous logging and mining disturbance areas.

Features which might create adverse surface water conditions are the previous logging and mining operations. The surface water monitoring program proposed in Attachment 3.2.B will determine if adverse conditions exist in these watersheds.

"Attachment 17.3.A"

Surface Water User Inventory

There are no surface water users in the vicinity of the proposed permit.

17.4 Describe the premining surface water monitoring program used to determine the seasonal variations in surface water quality and quantity. At a minimum, six months of data shall be collected. The description shall identify the location of each monitoring point, parameters tested, and laboratory methods used. Submit the description as "Attachment 17.4.A".

SEE "ATTACHMENT 17.4.A"

17.5 On cabinet approved forms submit the results of the premining surface water monitoring program. Original or notarized copies of all laboratory analyses shall be provided. Submit this information as "Attachment 17.5.A".

SEE "ATTACHMENT 17.5.A"

18. Determination of Probable Hydrologic Consequences

18.1 Provide as "Attachment 18.1.A", a determination of the probable hydrologic consequences (PHC) which the proposed mining operation will have on both surface water and ground water systems within the proposed permit and adjacent areas. The contents of the determination shall conform to the requirements of 405 KAR 8:030, Section 32 (surface mine) or 405 KAR 8:040, Section 32 (underground mine).

SEE "ATTACHMENT 18.1.A"

18.2 Provide as "Attachments 18.2.A.", a detailed description of the protective measures to be taken as part of the mining and reclamation operations to ensure compliance with 405 KAR 16:060, Sections 1, 2, 3, 4, 5, 6, 8, 9, 12, and 405 KAR 16:080 (surface mine) or 405 KAR 18:060, Sections 1, 2, 3, 4, 5, 7, and KAR 18:080 (underground mine). Detailed designs of protective measures shall be presented in other pertinent sections of this application.

SEE "ATTACHMENT 18.2.A"

19. Alternate Water Supply Information

19.1 Describe the extent to which the proposed mining activities may approximately result in the contamination, diminution, or interruption of underground or surface sources of water within the proposed permit or adjacent areas which are used for domestic, agricultural, industrial, or other beneficial uses. This description shall be noted as "Attachment 19.1.A".

SEE "ATTACHMENT 19.1.A"

19.2 If contamination, diminution, or interruption may result, identify and describe the adequacy of the alternate sources of water supply that could be developed. Provide this information as "Attachment 19.2.A".
NOTE: The submission of the information required in Attachment 19.2.A is optional for underground mine applicants.

SEE "ATTACHMENT 19.2.A"

"ATTACHMENT 17.4.A"

SURFACE WATER MONITORING PROGRAM

The surface water monitoring program consists of six months of samples at surface water monitoring point CF-4, CF-6 and SC-1. Sampling site CF-4 and CF-6 are located in Clear Fork, sampling site SC-1 is located in Steve Creek.

Surface Water Monitoring Site Coordinates

Site	Latitude	Longitude
CF-4	36º 35' 21"	83º 53' 37"
CF-6	36º 35' 34"	83º 51' 49"
SC-1	36º 35' 33"	83º 51' 50"

The tests, measurements, and methods used by the laboratory are described in Standard Methods for the Examination of Water and Water, 16th Edition, 1985.

Field Well Parameters

Water Level	(feet)
pH	(Standard units)
Temperature	°C or °F

Surface Water Laboratory Parameters

Hydrogen Ion Activity (pH)	Standard Units: SM 423, Electric pH Meter
Acidity	mg $CaCO_3$/L: SM 402
Alkalinity	mg $CaCO_3$/L: SM 403
Dissolved Iron	mg/L: SM 315
Dissolved Manganese	mg/L: SM 319
Sulfate	mg/L: SM 426
Total Dissolved Solids or Specific Conductance	@250C, Tmhos/cm: SM 205

Samples were collected by RLB Engineering, PSC of London Kentucky and analyzed by Delta Testing of Hyden, Kentucky.

WATER QUALITY DATA ENTRY FORMS: Part 1

Type of Report:
(X) Premining
( ) During mining/Rec.
( ) Other

STATION INFORMATION

PERMIT #: **807-0314** STATION #: **(SWIM-4) CF-4** SOAP#: _____

COUNTY #: **007** BASIN #: _____ QUAD NAME: **EAGAN**

STATION TYPE (CHECK):
(01) spring__
(02) stream **X**
(03) lake____
(04) well____
(05) pond/inflow___
(06) pond/outflow___

FOR WELLS ONLY

DEPTH (FT):_____ CASING DIAMETER (IN):_____ AQUIFER DESCRIPTION_____

TOP OF AQUIFER (MSL):_____ AQUIFER THICKNESS (FT):_____ TOP OF WELL ELEV (MSL):_____

WATERSHED DESCRIPTION: **CLEAR FORK** DRAINAGE AREA: **5969 AC.**

Latitude **36° 35' 21"** Longitude **83° 53' 37"**

UTM ZONE: **17** 16 West of 84° Longitude 17 East of 84° Longitude UTM EASTING:_____ UTM NORTHING:_____

STREAM NAME: **CLEAR FORK**

COAL COMPANY: **APPOLO FUELS, INC.**

COLLECTING FIRM: **RLB ENGINEERING, PSC**

ANALYZING FIRM: **DELTA TESTING & Kentucky RESOURCE LABS**

COMMENTS: _____

WATER ALITY DATA ENTRY FORMS: Part 2

SAMPLE DATA

PERMIT # **807-0314** STATION # **(SWIM-4) CF-4**

Sample #	DATE MM/DD/YY	TEMP (F)	FLOW (cfs)	CONDUCT. (UMHOS)	pH, (Std. Units)	ACIDITY mg/1	ALKAL. mg/1	TSS mg/1	TDS mg/1	SETT. SOLIDS ml/1
1	**03-13-02**			**600**	**6.3**	**0**	**90**	**4**		
2	**03-27-02**			**439**	**6.3**	**0**	**62**	**4**		
3	**04-13-02**			**427**	**6.7**	**0**	**92**	**4**		
4	**04-29-02**			**401**	**6.7**	**0**	**78**	**6**		
5	**05-14-02**			**610**	**6.8**	**0**	**102**	**16**		
6	**05-29-02**			**730**	**6.4**	**0**	**138**	**8**		
7	**09-11-02**			**1166**	**8.7/8.25**	**0**	**190**	**4**	**700**	
8	**10-02-02**			**856**	**8.12/8.17**	**0**	**146**	**9**	**556**	
9	**04-25-03**			**465/560**	**7.5/7.55**	**0**	**63**	**3**	**290**	
10	**12-16-05**	**5.0**	**7.50**	**532**	**7.60**	**0**	**121**	**8**	**210**	
11	**01-19-06**	**6.7**	**5.30**	**307**	**6.71**	**0**	**100**	**12**	**110**	
12	**02-16-06**	**7.6**	**26.25**	**349**	**7.9**	**0**	**120**	**12**	**250**	
13	**03-30-06**	**10.1**	**25.00**	**395**	**6.8**	**0**	**95**	**8**	**160**	
14	**05-07-06**	**16.5**	**17.3333**	**514**	**7.8**	**0**	**122**	**18**	**290**	
15	**01-26-08**	**4.6**	**6.187**	**596**	**6.6**	**0**	**88**	**6**	**205**	

Sample #	SO_4DISS. Mg/1	0_2DISS. mg/1	Fe,Diss. mg/1	Fe,Total mg/1	Mn,Diss. mg/1	Mn,Total mg/1	Depth to Water/ft
1	**78.4**			**0.07**		**0.12**	
2	**74**			**0.02**		**0.06**	
3	**13.8**			**0.02**		**0.12**	
4	**14.5**			**0.03**		**0.18**	
5	**40.1**			**0.08**		**0.06**	
6	**72**			**0.02**		**0.18**	
7	**450**			**0.00**		**0.00**	
8	**280**			**0.00**		**0.00**	
9	**170**			**0.19**		**0.13**	
10	**55**		**0.28**	**0.41**	**0.04**	**0.10**	
11	**40**		**0.33**	**0.59**	**0.04**	**0.10**	
12	**51**		**0.28**	**0.45**	**0.11**	**0.15**	
13	**33**		**0.41**	**0.69**	**0.06**	**0.15**	
14	**56**		**0.14**	**0.31**	**0.07**	**0.10**	
15	**39**		**0.01**	**0.04**	**0.01**	**0.02**	

"Attachment 17.5.A"

I certify that the attached Surface Water Monitoring Laboratory Results for (SWIM-4) CF-4 are true and exact copies of the originals.

Notary Public, Kentucky, State at Large

My commission expires February 6, 2010

KENTUCKY RESOURCE LABS
P.O. Box 350
Manchester, KY 40962
606-598-2605

WATER ANALYSIS

STREAM
(O.S.M.)

TO: Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY. 40965

SWIM-4

Permit No.: _____
County: _____
Sampled by: Company
Date: 3/13/02

Job I.D.: ~~SW-4~~
Temperature: 49
Discharge: .8132cfs

Parameter		
pH	6.3	
Alkalinity	90	mg/l $CaCO_3$
Acidity	0	mg/l $CaCO_3$
Total Suspended Solids	4	mg/l
Total Iron	0.07	mg/l
Total Manganese	0.12	mg/l
Sulfate	78.4	mg/l
Specific Conductance	600	umhos/cm

Signed Dale Hensley

KENTUCKY RESOURCE LABS
P.O. Box 350
Manchester, KY 40962
606-598-2605

WATER ANALYSIS

STREAM
(O.S.M.)

TO: Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY. 40965

SWIM-4

Permit No.: _____
County: _____
Sampled by: Company
Date: 3/27/02

Job I.D.: ~~SW-4~~
Temperature: 42
Discharge: 0.8689

Parameter		
pH	6.3	
Alkalinity	62	mg/l $CaCO_3$
Acidity	0	mg/l $CaCO_3$
Total Suspended Solids	4	mg/l
Total Iron	0.02	mg/l
Total Manganese	0.06	mg/l
Sulfate	74	mg/l
Specific Conductance	439	umhos/cm

Signed Dale Hensley

KENTUCKY RESOURCE LABS
P.O. Box 350
Manchester, KY 40962
606-598-2605

WATER ANALYSIS

STREAM
(O.S.M.)

TO: Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY. 40965

Permit No.: _____
County: _____
Sampled by: Company
Date: 4/13/02

SWIM-4
Job I.D.: ~~SW-4~~
Temperature: 54
Discharge: 0.9358

Parameter		
pH	6.7	
Alkalinity	92	mg/l $CaCO_3$
Acidity	0	mg/l $CaCO_3$
Total Suspended Solids	4	mg/l
Total Iron	0.02	mg/l
Total Manganese	0.12	mg/l
Sulfate	13.8	mg/l
Specific Conductance	427	umhos/cm

Signed Dale Hensley

KENTUCKY RESOURCE LABS
P.O. Box 350
Manchester, KY 40962
606-598-2605

WATER ANALYSIS

STREAM
(O.S.M.)

TO: Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY. 40965

SWIM-4

Permit No.: _____
County: _____
Sampled by: Company
Date: 4/29/02

Job I.D.: ~~SW-4~~
Temperature: 58
Discharge: 0.5184

Parameter		
pH	6.7	
Alkalinity	78	mg/l $CaCO_3$
Acidity	0	mg/l $CaCO_3$
Total Suspended Solids	6	mg/l
Total Iron	0.03	mg/l
Total Manganese	0.18	mg/l
Sulfate	14.5	mg/l
Specific Conductance	401	umhos/cm

Signed Dale Hensley

KENTUCKY RESOURCE LABS
P.O. Box 350
Manchester, KY 40962
606-598-2605

WATER ANALYSIS

STREAM
(O.S.M.)

TO: Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY. 40965

SWIM-4

Permit No.: _____
County: _____
Sampled by: Company
Date: 5/14/02

Job I.D.: ~~SW-4~~
Temperature: 59
Discharge: 0.4608

Parameter		
pH	6.8	
Alkalinity	102	mg/l $CaCO_3$
Acidity	0	mg/l $CaCO_3$
Total Suspended Solids	16	mg/l
Total Iron	0.08	mg/l
Total Manganese	0.06	mg/l
Sulfate	40.1	mg/l
Specific Conductance	610	umhos/cm

Signed Dale Hensley

KENTUCKY RESOURCE LABS
P.O. Box 350
Manchester, KY 40962
606-598-2605

WATER ANALYSIS

STREAM
(O.S.M.)

TO: Appolo Fuels, Inc.
P.O. Box 1727
Middlesboro, KY. 40965

SWIM-4

Permit No.: _____
County: _____
Sampled by: Company
Date: 5/29/02

Job I.D.: ~~SW-4~~
Temperature: 62
Discharge: 0.479

Parameter		
pH	6.4	
Alkalinity	138	mg/l $CaCO_3$
Acidity	0	mg/l $CaCO_3$
Total Suspended Solids	8	mg/l
Total Iron	0.02	mg/l
Total Manganese	0.18	mg/l
Sulfate	72	mg/l
Specific Conductance	730	umhos/cm

Signed Debi Hensley

DELTA TESTING INC.

HC 61, BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 9-11-02

Analysis Date: 9-11-02

STATION #: ~~SW4~~ SWIM-4

Field pH: 8.7

Field Temp.: 20.9 C

COND (Field): 1166 uS/cm

WATER LEVEL: FT

DISCHARGE: 1.4 CFS

pH (lab): 8.25

Alkalinity: 190 mg/l

Acidity: 0 mg/l

Cond. (lab): uhoms/cm

TSS: 4 mg/l

TDS: 700 mg/l

Total Fe.: 0.00 mg/l

Diss. Fe: 0.00 mg/l

Total Mn.: 0.00 mg/l

Diss. Mn: 0.00 mg/l

Sulfate: 450 mg/l

Analyzed by

Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLB Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

DELTA TESTING INC.

HC 61, BOX 2010
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 10-02-02

Analysis Date: 10-02-02

STATION #: ~~SW4~~ SWIM-4

Field pH: 8.12

Field Temp.: 22.4 C

COND (Field): 856 uS/cm

WATER LEVEL: FT

DISCHARGE: 4.7761 CFS

pH (lab): 8.17

Alkalinity:	146	mg/l
Acidity:	0	mg/l
Cond. (lab):		uhoms/cm
TSS:	9	mg/l
TDS:	556	mg/l
Total Fe.:	0.00	mg/l
Diss. Fe:	0.00	mg/l
Total Mn.:	0.00	mg/l
Diss. Mn:	0.00	mg/l
Sulfate:	280	mg/l

Analyzed by

Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLB Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

DELTA TESTING INC.
815 HWY 80 EAST
HYDEN, KY. 41749
606-672-3452

ANALYSIS SHEET

COMPANY: APOLLO FUELS INC

PERMIT # : 3112

Sample Date: 4-25-03

Analysis Date: 4-25-03 / 4-26-03

STATION #: SW4

Field pH: 7.5

Field Temp.: 14.3 C

COND (Field): 465 uS/cm

WATER LEVEL: FT

DISCHARGE: 31.0900 CFS

pH (lab):	7.55	
Alkalinity:	83	mg/l
Acidity:	0	mg/l
Cond. (lab):	560	uhoms/cm
TSS:	3	mg/l
TDS:	280	mg/l
Total Fe.:	0.19	mg/l
Diss. Fe:	0.16	mg/l
Total Mn.:	0.13	mg/l
Diss. Mn:	0.12	mg/l
Sulfate:	170	mg/l

Analyzed by
Joe R. Lewis
LAB DIRECTOR

Comment: Sampled by RLB Engineering, PSC

Analysis as per "Standard Methods for the Analysis of Water & Wastewater"

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-4
Lab# 16
Date Sampled: 12-16-2005
Date Analyzed: 12-17-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.60		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	121	Mg/L	treatment
Total Iron	0.41	Mg/L	
Dissolved Iron	0.28	Mg/L	
Total Manganese	0.10	Mg/L	
Dissolved Manganese	0.04	Mg/L	
Total Suspended Solids	8	Mg/L	
Total Dissolved Solids	210	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	55	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	5.0	degrees C	
Turbidity			
Specific Conductance	532	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	7.5000	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-4
Lab# 16
Date Sampled: 01-19-2006
Date Analyzed: 01-20-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.71		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	100	Mg/L	treatment
Total Iron	0.59	Mg/L	
Dissolved Iron	0.33	Mg/L	
Total Manganese	0.10	Mg/L	
Dissolved Manganese	0.04	Mg/L	
Total Suspended Solids	12	Mg/L	
Total Dissolved Solids	110	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	40	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	6.7	degrees C	
Turbidity			
Specific Conductance	307	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	5.3	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-4
Lab# 16
Date Sampled: 02-16-2006
Date Analyzed: 02-17-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.90		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	120	Mg/L	treatment
Total Iron	0.45	Mg/L	
Dissolved Iron	0.28	Mg/L	
Total Manganese	0.15	Mg/L	
Dissolved Manganese	0.11	Mg/L	
Total Suspended Solids	12	Mg/L	
Total Dissolved Solids	250	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	51	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.6	degrees C	
Turbidity			
Specific Conductance	349	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	26.2500	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-4
Lab# 16
Date Sampled: 03-30-2006
Date Analyzed: 03-31-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.8		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	95	Mg/L	treatment
Total Iron	0.69	Mg/L	
Dissolved Iron	0.41	Mg/L	
Total Manganese	0.15	Mg/L	
Dissolved Manganese	0.06	Mg/L	
Total Suspended Solids	8	Mg/L	
Total Dissolved Solids	160	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	33	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	10.1	degrees C	
Turbidity			
Specific Conductance	395	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	25.0000	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-4
Lab# 16
Date Sampled: 05-07-2006
Date Analyzed: 05-08-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.80		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	122	Mg/L	treatment
Total Iron	0.31	Mg/L	
Dissolved Iron	0.14	Mg/L	
Total Manganese	0.10	Mg/L	
Dissolved Manganese	0.07	Mg/L	
Total Suspended Solids	18	Mg/L	
Total Dissolved Solids	290	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	56	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	16.5	degrees C	
Turbidity			
Specific Conductance	514	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	17.3333	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 807-0314 CF-4
Lab# 16
Date Sampled: 01-26-2008
Date Analyzed: 01-27-2008
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	6.60		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	88	Mg/L	treatment
Total Iron	0.04	Mg/L	
Dissolved Iron	0.01	Mg/L	
Total Manganese	0.02	Mg/L	
Dissolved Manganese	0.01	Mg/L	
Total Suspended Solids	6	Mg/L	
Total Dissolved Solids	205	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	39	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	4.6	degrees C	
Turbidity			
Specific Conductance	596	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	6.187	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

WATER QUALITY DATA ENTRY FORMS: Part 1

Type of Report:
(**X**) Premining
( ) During mining/Rec.
( ) Other

STATION INFORMATION

PERMIT #: **807-0314** STATION #: **CF-6** SOAP#: _____

COUNTY #: **007** BASIN #: _____ QUAD NAME: **EAGAN**

STATION TYPE (CHECK):
(01) spring__ (04) well____
(02) stream_**X**_ (05) pond/inflow___
(03) lake____ (06) pond/outflow___

FOR WELLS ONLY

DEPTH (FT):_____ CASING DIAMETER (IN):_____ AQUIFER DESCRIPTION_____

TOP OF AQUIFER (MSL):_____ AQUIFER THICKNESS (FT):_____ TOP OF WELL ELEV (MSL):_____

WATERSHED DESCRIPTION: **CLEAR FORK** DRAINAGE AREA: **1087 AC.**

Latitude **36° 35' 33"** Longitude **83° 51' 49"**

UTM ZONE: **17** 16 West of 84° Longitude 17 East of 84° Longitude UTM EASTING:_____ UTM NORTHING:_____

STREAM NAME: **CLEAR FORK**

COAL COMPANY: **APPOLO FUELS, INC.**

COLLECTING FIRM: **RLB ENGINEERING, PSC**

ANALYZING FIRM: **DELTA TESTING & Kentucky RESOURCE LABS**

COMMENTS: _____

WATER QUALITY DATA ENTRY FORMS: Part 2

SAMPLE DATA

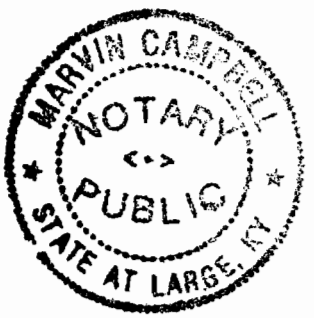
PERMIT # **807-0314** STATION # **CF-6**

Sample #	DATE MM/DD/YY	TEMP (C)	FLOW (cfs)	CONDUCT. (UMHOS)	pH, (Std. Units)	ACIDITY mg/1	ALKAL. mg/1	TSS mg/1	TDS mg/1	SETT. SOLIDS ml/1
1	**02-16-05**	**7.6**	**7.3333**	**409**	**7.90**	**0**	**121**	**8**	**200**	
2	**11-17-05**	**6.6**	**1.6000**	**812**	**8.10**	**0**	**130**	**13**	**500**	
3	**12-16-05**	**5.0**	**2.3333**	**617**	**7.60**	**0**	**120**	**14**	**410**	
4	**01-19-06**	**6.8**	**5.4000**	**378**	**7.47**	**0**	**108**	**10**	**200**	
5	**02-16-06**	**7.6**	**7.3333**	**409**	**7.9**	**0**	**121**	**8**	**200**	
6	**05-08-06**	**16.5**	**5.6000**	**632**	**8.00**	**0**	**121**	**15**	**380**	
7	**01-26-08**	**2.7**	**1.3600**	**653**	**7.30**	**0**	**101**	**8**	**331**	

Sample #	SO_4DISS. Mg/1	0_2DISS. mg/1	Fe,Diss. mg/1	Fe,Total mg/1	Mn,Diss. mg/1	Mn,Total mg/1	Depth to Water/ft
1	**42**		**0.40**	**0.61**	**0.14**	**0.27**	
2	**61**		**0.40**	**0.59**	**0.10**	**0.16**	
3	**49**		**0.48**	**0.60**	**0.14**	**0.22**	
4	**45**		**0.42**	**0.66**	**0.14**	**0.21**	
5	**42**		**0.40**	**0.61**	**0.14**	**0.27**	
6	**59**		**0.48**	**0.62**	**0.10**	**0.22**	
7	**44**		**0.05**	**0.15**	**0.01**	**0.02**	

"Attachment 17.5.A"

I certify that the attached Surface Water Monitoring Laboratory Results for CF-6 are true and exact copies of the originals.



Notary Public, Kentucky, State at Large

My commission expires February 6, 2010

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-6
Lab# 16
Date Sampled: 02-16-2005
Date Analyzed: 02-17-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.90		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	121	Mg/L	treatment
Total Iron	0.61	Mg/L	
Dissolved Iron	0.40	Mg/L	
Total Manganese	0.27	Mg/L	
Dissolved Manganese	0.14	Mg/L	
Total Suspended Solids	8	Mg/L	
Total Dissolved Solids	200	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	42	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.6	degrees C	
Turbidity			
Specific Conductance	409	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	7.3333	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-6
Lab# 16
Date Sampled: ~~12-05-2005~~ 11-17-05
Date Analyzed: 12-06-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	8.10		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	130	Mg/L	treatment
Total Iron	0.59	Mg/L	
Dissolved Iron	0.40	Mg/L	
Total Manganese	0.16	Mg/L	
Dissolved Manganese	0.10	Mg/L	
Total Suspended Solids	13	Mg/L	
Total Dissolved Solids	500	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	61	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	6.6	degrees C	
Turbidity			
Specific Conductance	812	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	1.6	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Eddie Marshall
Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-6
Lab# 16
Date Sampled: 12-16-2005
Date Analyzed: 12-17-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.60		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	120	Mg/L	treatment
Total Iron	0.60	Mg/L	
Dissolved Iron	0.48	Mg/L	
Total Manganese	0.22	Mg/L	
Dissolved Manganese	0.14	Mg/L	
Total Suspended Solids	14	Mg/L	
Total Dissolved Solids	410	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	49	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	5.0	degrees C	
Turbidity			
Specific Conductance	617	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	2.3333	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-6
Lab# 16
Date Sampled: 01-19-2006
Date Analyzed: 01-20-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.47		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	108	Mg/L	treatment
Total Iron	0.66	Mg/L	
Dissolved Iron	0.42	Mg/L	
Total Manganese	0.21	Mg/L	
Dissolved Manganese	0.14	Mg/L	
Total Suspended Solids	10	Mg/L	
Total Dissolved Solids	200	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	45	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	6.8	degrees C	
Turbidity			
Specific Conductance	378	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	5.4	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-6
Lab# 16
Date Sampled: 02-16-2006
Date Analyzed: 02-17-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.90		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	121	Mg/L	treatment
Total Iron	0.61	Mg/L	
Dissolved Iron	0.40	Mg/L	
Total Manganese	0.27	Mg/L	
Dissolved Manganese	0.14	Mg/L	
Total Suspended Solids	8	Mg/L	
Total Dissolved Solids	200	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	42	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.6	degrees C	
Turbidity			
Specific Conductance	409	Micromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	7.3333	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

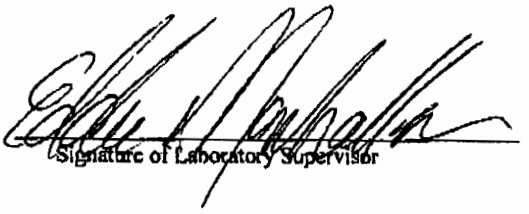
TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 CF-6
Lab# 16
Date Sampled: 05-07-2006
Date Analyzed: 05-08-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	8.00		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	121	Mg/L	treatment
Total Iron	0.62	Mg/L	
Dissolved Iron	0.48	Mg/L	
Total Manganese	0.22	Mg/L	
Dissolved Manganese	0.10	Mg/L	
Total Suspended Solids	15	Mg/L	
Total Dissolved Solids	380	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	59	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	16.5	degrees C	
Turbidity			
Specific Conductance	632	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	5.6000	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.



Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 807-0314 CF-6
Lab# 16
Date Sampled: 01-26-2008
Date Analyzed: 01-27-2008
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.30		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	101	Mg/L	treatment
Total Iron	0.15	Mg/L	
Dissolved Iron	0.05	Mg/L	
Total Manganese	0.02	Mg/L	
Dissolved Manganese	0.01	Mg/L	
Total Suspended Solids	8	Mg/L	
Total Dissolved Solids	331	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	44	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	2.7	degrees C	
Turbidity			
Specific Conductance	653	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	1.360	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

WATER QUALITY DATA ENTRY FORMS: Part 1

Type of Report:
(**X**) Premining
( ) During mining/Rec.
( ) Other

STATION INFORMATION

PERMIT #: **807-0314** STATION #: **SC-1** SOAP#: _____

COUNTY #: **007** BASIN #: _____ QUAD NAME: **EAGAN**

STATION TYPE (CHECK):

(01) spring__
(02) stream **X**
(03) lake____
(04) well____
(05) pond/inflow___
(06) pond/outflow___

FOR WELLS ONLY

DEPTH (FT):_____ CASING DIAMETER (IN):_____ AQUIFER DESCRIPTION_____

TOP OF AQUIFER (MSL):_____ AQUIFER THICKNESS (FT):_____ TOP OF WELL ELEV (MSL):_____

WATERSHED DESCRIPTION: **STEVE CREEK** DRAINAGE AREA: **717 AC.**

Latitude **36° 35' 33"** Longitude **83° 51' 50"**

UTM ZONE: **17** 16 West of 84° Longitude 17 East of 84° Longitude UTM EASTING:_____ UTM NORTHING:_____

STREAM NAME: **STEVE CREEK**

COAL COMPANY: **APPOLO FUELS, INC.**

COLLECTING FIRM: **RLB ENGINEERING, PSC**

ANALYZING FIRM: **DELTA TESTING & Kentucky RESOURCE LABS**

COMMENTS: _____

WATER ALITY DATA ENTRY FORMS: Part 2

SAMPLE DATA

PERMIT # **807-0314** STATION # **SC-1**

Sample #	DATE MM/DD/YY	TEMP (C)	FLOW (cfs)	CONDUCT. (UMHOS)	pH, (Std. Units)	ACIDITY mg/1	ALKAL. mg/1	TSS mg/1	TDS mg/1	SETT. SOLIDS ml/1
1	**02-16-05**	**7.1**	**2.5000**	**203**	**8.40**	**0**	**123**	**12**	**100**	
2	**11-17-05**	**7.1**	**0.4170**	**418**	**7.80**	**0**	**115**	**12**	**122**	
3	**12-16-05**	**4.5**	**0.6667**	**329**	**7.60**	**0**	**118**	**12**	**140**	
4	**01-19-06**	**7.3**	**5.2000**	**259**	**7.53**	**0**	**115**	**16**	**110**	
5	**02-16-06**	**7.1**	**2.5000**	**203**	**8.40**	**0**	**123**	**12**	**100**	
6	**05-07-06**	**15.4**	**2.1667**	**375**	**8.20**	**0**	**120**	**18**	**149**	
7	**01-26-08**	**2.2**	**1.667**	**370**	**7.10**	**0**	**115**	**7**	**122**	

Sample #	SO_4DISS. Mg/1	0_2DISS. mg/1	Fe,Diss. mg/1	Fe,Total mg/1	Mn,Diss. mg/1	Mn,Total mg/1	Depth to Water/ft
1	**28**		**0.40**	**0.58**	**0.10**	**0.17**	
2	**45**		**0.32**	**0.41**	**0.06**	**0.12**	
3	**41**		**0.38**	**0.45**	**0.06**	**0.10**	
4	**21**		**0.22**	**0.38**	**0.15**	**0.20**	
5	**28**		**0.40**	**0.58**	**0.10**	**0.17**	
6	**36**		**0.38**	**0.55**	**0.10**	**0.16**	
7	**50**		**0.02**	**0.08**	**0.01**	**0.05**	

"Attachment 17.5.A"

I certify that the attached Surface Water Monitoring Laboratory Results for SC-1 are true and exact copies of the originals.

Notary Public, Kentucky, State at Large

My commission expires February 6, 2010

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 SC-1
Lab# 16
Date Sampled: 02-16-2005
Date Analyzed: 02-17-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	8.40		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	123	Mg/L	treatment
Total Iron	0.58	Mg/L	
Dissolved Iron	0.40	Mg/L	
Total Manganese	0.17	Mg/L	
Dissolved Manganese	0.10	Mg/L	
Total Suspended Solids	12	Mg/L	
Total Dissolved Solids	100	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	28	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.1	degrees C	
Turbidity			
Specific Conductance	203	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	2.5000	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 SC-1
Lab# 16
Date Sampled: ~~12-05-2005~~ 11-17-05
Date Analyzed: 12-06-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.80		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	115	Mg/L	treatment
Total Iron	0.41	Mg/L	
Dissolved Iron	0.32	Mg/L	
Total Manganese	0.12	Mg/L	
Dissolved Manganese	0.06	Mg/L	
Total Suspended Solids	12	Mg/L	
Total Dissolved Solids	122	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	45	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.1	degrees C	
Turbidity			
Specific Conductance	418	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	.417	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 SC-1
Lab# 16
Date Sampled: 12-16-2005
Date Analyzed: 12-17-2005
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.60		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	118	Mg/L	treatment
Total Iron	0.45	Mg/L	
Dissolved Iron	0.38	Mg/L	
Total Manganese	0.10	Mg/L	
Dissolved Manganese	0.06	Mg/L	
Total Suspended Solids	12	Mg/L	
Total Dissolved Solids	140	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	41	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	4.5	degrees C	
Turbidity			
Specific Conductance	329	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	0.6667	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.

P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 SC-1
Lab# 16
Date Sampled: 01-19-2006
Date Analyzed: 01-20-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.53		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	115	Mg/L	treatment
Total Iron	0.38	Mg/L	
Dissolved Iron	0.22	Mg/L	
Total Manganese	0.20	Mg/L	
Dissolved Manganese	0.15	Mg/L	
Total Suspended Solids	16	Mg/L	
Total Dissolved Solids	110	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	21	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.3	degrees C	
Turbidity			
Specific Conductance	259	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	5.2	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 SC-1
Lab# 16
Date Sampled: 02-16-2006
Date Analyzed: 02-17-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	8.40		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	123	Mg/L	treatment
Total Iron	0.58	Mg/L	
Dissolved Iron	0.40	Mg/L	
Total Manganese	0.17	Mg/L	
Dissolved Manganese	0.10	Mg/L	
Total Suspended Solids	12	Mg/L	
Total Dissolved Solids	100	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	28	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	7.1	degrees C	
Turbidity			
Specific Conductance	203	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	2.5000	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 3192 SC-1
Lab# 16
Date Sampled: 05-07-2006
Date Analyzed: 05-08-2006
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	8.20		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	120	Mg/L	treatment
Total Iron	0.55	Mg/L	
Dissolved Iron	0.38	Mg/L	
Total Manganese	0.16	Mg/L	
Dissolved Manganese	0.10	Mg/L	
Total Suspended Solids	18	Mg/L	
Total Dissolved Solids	149	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	36	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	15.4	degrees C	
Turbidity			
Specific Conductance	375	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	2.1667	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

TECHNICAL WATER LABORATORIES, INC.
P.O. Box 309 Bledsoe, KY 40810 (606) 558-5079 Fax (606)558-5565

SAMPLE ANALYSIS RESULTS

Tested for (Company Name): Appolo Fuels, Inc.
Sample ID: 807-0314 SC-1
Lab# 16
Date Sampled: 01-26-2008
Date Analyzed: 01-27-2008
Sampled By: RLB Engineering, PSC

Parameter	Value	Units	Remarks
PH	7.10		
Acidity to pH 8.3	0	Mg/L	*with hot peroxide
Alkalinity to pH 4.5	115	Mg/L	treatment
Total Iron	0.08	Mg/L	
Dissolved Iron	0.02	Mg/L	
Total Manganese	0.05	Mg/L	
Dissolved Manganese	0.01	Mg/L	
Total Suspended Solids	7	Mg/L	
Total Dissolved Solids	122	Mg/L	
Settleable Solids		Mg/L	
Total Solids		Mg/L	
Sulfates	50	Mg/L	
Calcium		Mg/L	
Nitrates		Mg/L	
Nitrogen (Ammonia)		Mg/L	
Bicarbonate		Mg/L	
Sodium		Mg/L	
Potassium		Mg/L	
Chloride		Mg/L	
Temperature	2.2	degrees C	
Turbidity			
Specific Conductance	370	Michromhos/CM	
Dissolved Oxygen		Mg/L	
Hardness		Mg/L	
Flow Rate (Gpm)		GPM	
Flow Rate (Cfs)	1.667	CFS	
Depth to Water		Feet	
Well Depth		Feet	

All tests are conducted in accordance with Acceptable analytical methods and Procedures and are correct and accurate to The best of my knowledge.

Signature of Laboratory Supervisor

"ATTACHMENT 18.1.A"

DETERMINATION OF PROBABLE HYDROLOGIC CONSEQUENCES

Surface Water

1) The peak discharge rates from the permit area will be lowered as a result of the effects of sediment structures. The ponds will be designed using the SEDCAD+ program. A comparison of the premining discharge rates with the during mining rate at each dam will be designed to show that peak discharge will be lowered. Lowered peak discharge will decrease the impact of flooding in the area affected by the operation.

2) The ponds that control the runoff from the permit area will be designed to keep the settleable solids concentration leaving the ponds during the 10 year peak discharge at less than 0.5 ml/l.

3) Runoff rates should increase at the initiation of disturbance and during the mining phase due to the loss of material restricting overland flow. Runoff rates should decrease and be prolonged as the post-mining phase is achieved. This is due to the amount of available pore space in the watersheds to be impacted being increased by the fragmentation of the material overlying the coal to be mined. The increased pore space will result in a larger amount of water being stored in the spoil mass than during the premining, thereby sustaining higher base flows after storm events in the receiving stream.

4) The silt ponds will control suspended solids during periods of flow below the peak design storm. The runoff from the permit area will be minimal during low flow so the likelihood of suspended solids reaching the ponds is minimized.

5) The probable impacts on the background parameters of iron, manganese, sulfates, solids, and acid/alkalinity relationships are keyed to changes in the pH of waters in contact with the spoil. Large amounts of pyrite-bearing rocks would cause the formation of sulfuric acid. Low pH conditions would occur, causing the mobilization of metals, imbalances in acidity/alkalinity ratios, and increased dissolved solids.

Prediction of acid conditions is based on the overburden acid-base account for the mine site. If the accounting shows an excess of acidic material, problems may be encountered with respect to low pH. For this particular mine, the acid-base account shows no potential for acid production. The mobilization of metals and other adverse parameters will, therefore, be minimized.

An assessment of the effects of mining on the groundwater hydrology of this area utilizes the conceptual model of groundwater flow developed by Wyrick[1]. Rainfall infiltrates to the subsurface horizons (alluvium/colluvium, fractures, strata) where it becomes groundwater. The amount and depth of infiltration is dependent upon the primary permeability of the upper layers of soil and secondary permeabilities of each successive layer. Movement of the groundwater will mirror the surface topography, occuring in a downslope direction toward the centers of the valleys. The groundwater in side or tributary valleys travels downgradient where it joins the groundwater in larger valleys.

The depth of fresh water occurrence is controlled by fracture systems. The fractures are open near the surface and become closed with depth. This concept further supports the belief that the coal seams are not primary groundwater systems, but a collection point for the larger stress-fracture relief system. The cores of the hills are essentially impermeable. The pattern of groundwater movement, therefore, conforms to the pattern of surface water movement. Distinct groundwater basins coincide concurrently with surface water basins.

Groundwater Quantity

In areas of active mining (such as open pit areas, transportation areas, and excavation areas), the rate of infiltration and recharge to the groundwater system will be altered by these earthmoving activities. Removal of topsoil and vegetation plus the effects of compaction from heavy equipment will greatly reduce the amount of water capable of entering the groundwater system. A greater amount of normal precipitation will simply run off as surface water and become impounded by the sediment control structures. However, the small area disturbed, when compared to the total watershed, will not have a significant impact on the recharging of the groundwater system.

Less recharge water will result in a loss of total flow into the valley groundwater systems. Water levels in valley and hillside wells may decline as a result of this change, depending on rates of water movement out of the respective ground water transmitting zones. The magnitude of change is difficult to determine since the various hydrologic characteristics of the system are unknown.

Upon completion of reclamation activities, infiltration rates should approach the pre-mining condition. Establishment of an uncompacted spoil mass with good vegetative cover will enhance the ability of rainwater to enter the spoil mass. Additionally, more groundwater may be stored due to increased pore space in the spoil mass. By having greater storage in the groundwater system, water wells may ultimately show average increases in water depth. No additional measures are proposed to re-establish the recharge capacity since, as stated above, this is expected as a normal result of the proposed reclamation.

Mining by the proposed operation is not anticipated to interrupt or divert any groundwater resources within or adjacent to the permit area.

Groundwater Quality

Water quality in the immediate post-mining situation could be lower than the pre-mining phase. Increased mineralization of spoil water is caused by the pulverization of bedrock into smaller, unweathered fragments. Fresh mineral surfaces will be exposed to oxidation and solution by recharge waters. The concentration of metals and dissolved solids will be greatly increased. The time required to rid the system of these solutes is dependent upon the solubility of the spoil material and the rate of discharge from the spoil. A period of at least several seasons would be expected before any improvement is detected.

The potential for acid drainage conditions is low. The results of geologic sampling and acid/base accounts showed no significant acid production. Increased metal concentrations are therefore not anticipated. Total dissolved solids will increase but not as a result of acid production. Dissolved solids will be higher due to the exposure of fresh mineral surfaces to weathering as a result of blasting and rock moving.

REFERENCES

1. Wyrick, Granville G., Borchers, James W. 1981. Hydrologic Effects of Stress Relief Fracturing in an Appalachian Valley, U.S.G.S. Water Supply Paper 2177.

2. Collier, C.R.. et al, 1970. Influences of Strip Mining on the Hydrologic Environment of Parts of Beaver Creek Basin, Kentucky, 1955-1966. U.S.G.S. Prof. Paper 427-C.

3. Weiss, J.S., Razem, A.C., 1984. Simulation of Ground Water Flow in a Mined Watershed in Eastern Ohio, Ground Water, Volume 22, No. 5, September-October, 1984.

"ATTACHMENT 18.2.A"

The mining activities have been planned and will be conducted to minimize changes to the hydrologic balance in the permit and adjacent areas.

The protective measures the applicant will take to prevent changes to the hydrologic balance include:

1. Stabilizing disturbed areas through land reshaping.

2. Diverting runoff.

3. Achieving, quickly germinating, and growing stands of temporary vegetation.

4. Regulating channel velocity of water.

5. Constructing sediment structures to the required dimensions to prevent contributions of sediment to streamflow.

6. Diverting runoff away from disturbed areas.

7. Discharge from the sediment ponds can be controlled by energy dissipators.

8. Acid-forming and toxic-forming materials encountered or suspected during the mining process will be handled in accordance with the approved handling plan listed as Item 29.2.

9. Disturbance of the smallest practical work area possible as well as keeping reclamation efforts contemporaneous.

By implementing the above measures, particularily the construction of the sediment ponds, the peak flow of surface water during storm events will be decreased and the base flow will be increased, therefore no change to the water quantity will occur. Should the quality of the water being discharged from the sediment ponds change, as noted during the KPDES monitoring, the water will be treated as appropriate with chemical oxidizers or coagulants to bring the affected parameters into compliance with applicable standards.

"ATTACHMENT 19.1.A"

No surface water users were identified near the permit or affected area.

The groundwater users near the permit area are obtaining ground water from the stress fracture zone below the elevation of the proposed mining. Mining is unlikely to diminish or interrupt the source of this water.

Contamination of this groundwater from the effects of surface mining is possible although unlikely. Further discussion of the above effects to the ground water system are explained in Attachment 18.1.A.

The cabinet shall upon receipt of a citizen's complaint use baseline geologic and hydrologic information, and/or other relevant information available to determine if the water supply has been adversely impacted by contamination, diminution, or interruption proximately resulting from the surface mining activities. If replacement of a water supply is deemed to be required by the cabinet, the permittee or operator shall promptly replace the water supply of a property owner who obtains all or part of their water supply for domestic, agricultural, industrial, or other legitimate use from an underground or surface water source. The following guidelines are to be used when providing replacement of a water supply:

1) The replacement water supply shall be of equal quantity and quality to the premining water supply.

2) The replacement water delivery system shall be equivalent to the premining delivery system.

3) The permittee or operator shall provide operation and maintenance costs in excess of customary and reasonable delivery costs for the premining water supply for a period of twenty (20) years, or a lesser period as agreed to by the permittee or operator and the property owner. The operation and maintenance costs shall be satisfied by:

    a) A lump sum payment to the property owner which covers the present worth and increased annual operation and maintenance costs for the twenty (20) year, or other agreed upon period.
    b) A uniform series of payments to the property owner which equals the aforementioned terms.
    c) Other reasonable compensation to the property owner which equals the aforementioned terms.

4) If the affected water supply is used for domestic purposes the permittee or operator shall provide a temporary and permanent replacement supply as follows:

    a) Within forty-eight (48) hours of being notified by the cabinet the permittee or operator shall provide drinking water on an emergency basis.
    b) Within two (2) weeks after being notified by the cabinet the permittee or operator shall provide a temporary water supply. This water supply shall be connected to the existing plumbing that provides water for all ordinary household purposes, all noncommercial livestock purposes and all noncommercial agricultural purposes.

c) Within two (2) years after being notified by the cabinet the permittee or operator shall provide a satisfactory permanent water supply.

5) If the affected water supply is other than a domestic supply, the schedule for temporary and permanent replacement shall be established by the cabinet on a case by case basis.

6) If the affected water supply is not needed for a current land use and will not be needed to achieve the postmining land use, the replacement requirements may be satisfied by demonstrating that a suitable alternative water supply is available and could feasibly be developed. If this approach is selected written concurrence shall be obtained from the property owner.

If contamination, diminution, or interruption to a water supply occurs, as determined by the cabinet. The permittee may be required to obtain additional performance bond in the amount of the estimated cost of replacement of said water supply. If the permittee or operator completes the replacement within ninety (90) days, additional bond will not be required. The cabinet may extend the ninety (90) day time frame, not to exceed one (1) year, if the permittee demonstrates in writing that not all reasonably anticipated changes affecting the water supply have occurred, and that therefore it would be unreasonable to complete the replacement within ninety (90) days.

If the permittee or operator demonstrates that their liability insurance policy covers all or part of the water supply replacement, the additional bond amount required may be reduced by the amount of the insurance coverage applicable to the replacement.

When the permittee or operator has completed the replacement of the water supply, to the satisfaction of the cabinet all additional bonds shall be released.

20. Prime Farmland Investigation

20.1 Based on the applicant's review of relevant information and the performance of an on-site investigation of the permit area, the applicant proposes a negative determination on **165.78** acres of this permit. This request is based on the following:

[X] **165.78** acres should not be considered prime farmland due to the slope being greater than 10% or the soil is very rocky or the area floods during a growing season more than once every two years thus reducing crop yields, etc. Documentation demonstrating this assertion is submitted as "Attachment 20.1.A".

[ ] _____ acres should not be considered prime farmland as it has not been historically used as cropland. The standard departmental surface owner and third party affidavits are submitted as "Attachment 20.1.B and 20.1.C". Applicant should provide a narrative explaining why the acreage has not been farmed. This narrative should reference the history of nearby and adjacent lands.

[ ] _____ acres should not be considered prime farmland as demonstrated by the following U.S. Soil Conservation Service statement.

The land designated on the USGS topographic map attached to permit application no._____has

[ ] no prime farmland soils
[ ] some prime farmland soils
[ ] all prime farmland soils

Name_____ Title_____

Signature_____ Date_____

20.2 For applicants claiming an exemption from prime farmland reconstruction submit proper documentation as "Attachment 20.2.A" to demonstrate that a permit had been obtained prior to August 3, 1977, or that the other requirements of 405 KAR 8:050, Section 3, have been met.

NOT APPLICABLE

20.3 Identify the acreage of prime farmland to be restored. Provide as "Attachment 20.3.A" the prime farmland restoration plan.

NOT APPLICABLE

21. Land Use Information

21.1 Describe the capability of the proposed permit area, before any mining, to support a variety of land uses. Consideration shall be given to soil and foundation, topography, vegetative cover and hydrology. Submit as "Attachment 21.1.A".

SEE "ATTACHMENT 21.1.A"

"ATTACHMENT 21.1.A"

The permit area prior to any mining has the capabilities to support the land use of forest, and wildlife habitat.

21.2 Provide an estimate of the permit area's potential productivity expressed in average of food, fiber, forage, or wood products. Provide as "Attachment 21.2.A".

SEE "ATTACHMENT 21.2.A"

21.3 Describe the existing uses of the lands adjacent to the proposed permit areas and identify any local land use classifications of the proposed permit area. Submit as "Attachment 21.3.A".

SEE "ATTACHMENT 21.3.A"

21.4 Describe the consideration which has been given to making the proposed post mining activities consistent with surface owner plans and applicable state and local land use plans and programs. Submit as "Attachment 21.4.A".

SEE "ATTACHMENT 21.4.A"

21.5 Attach copies of the comments concerning the proposed post mining land use from legal or equitable owner of the surface area to be affected. Also, attach any comments from federal, state, and local government agencies which would have to initiate, implement, approve, or authorize the proposed land use following reclamation. Submit as "Attachment 21.5.A, 21.5.B" etc.

SEE ITEM 11.4 OF THIS APPLICATION

21.6 Indicate existing land uses within the proposed permit area:

[X]	Forestland (40)	**146.60** ac.	[ ]	Developed Water Resources (53)	ac.
[ ]	Pastureland (20)	ac.	[ ]	Residential (11)	ac.
[ ]	Cropland (21)	ac.	[ ]	Industrial/ Commercial (13)	ac.
[ ]	Fish and Wildlife (01)	ac.	[ ]	Undeveloped (60)	ac.
[ ]	Recreation (02)	ac.			
[X]	Mined Lands (30)	**19.18** ac.			

Clearly delineate on the Environmental Resources Map, the boundaries of each land use checked above.

21.7 If active coal mining is being conducted within the proposed permit area or if previous mining has been conducted within the proposed permit area, provide the following information:
If not applicable check here [X].

Premining Land Uses(s)	Acres
FORESTLAND	**19.18**

21.8 If any land use (other than mining) has been in existence less than five years prior to the date of this application, describe the historic land use. Submit this description as "Attachment 21.8.A".
If not applicable, check here [X].

21.9 If previous mining has occurred within the proposed permit area, describe the type of mining used, coal seam or other strata mined, areal extent of such mining, and approximate dates of the disturbances. Submit as "Attachment 21.9.A". All areas of prior disturbance shall be shown on the MRP Map. If not applicable, check here [ ].

SEE "ATTACHMENT 21.9.A"

"ATTACHMENT 21.2.A"

Forestland within the permit area and adjacent areas is capable of producing 50-85 cubic feet of lumber per year. Production of marketable timber is not a good land use for this area due to the long term management needed to produce this timber and the steepness of the slopes. Information from United States Department of Agricultural Reconnaisance Soil Survey, Fourteen Counties in Eastern Kentucky, Series 1962, No. 1.

"ATTACHMENT 21.3.A"

The adjacent lands are similar to the permit area and consist of unmanaged forest and previously mined land.

There are no local land use classifications in effect for the permit or adjacent areas.

"ATTACHMENT 21.4.A"

The proposed land use is consistent with the desires of the surface owners and proposes to be consistent with surface mining reclamation. This land use is consistent with existing permit area and surrounding land uses, and the most economical, it is considered the most feasible and reasonable to accomplish and with minimal delay.

All plans have been prepared under the supervision of a qualified registered engineer for stability, drainage, site configuration and revegetation.

At the present time there are no local, state or federal land use policies, zoning restrictions or plans for such, in the area of this mine site. Therefore, local land use plans and programs have not been instituted in the vicinity of the permit.

"Attachment 21.9.A"

Pre-law surface mining has occurred along the Rich Mountain seam outcrop. This surface mining was conducted during the 1950's thru the 1970's the exact dates and operator is not known.

21.10 Indicate the proposed post mining land uses(s) of the permit area:

[ ]	Forestland (40)_____	ac.	[ ]	Developed Water Resources (53)_____ ac.
[ ]	Pastureland (20) _____	ac.		
[ ]	Cropland (21)_____	ac.	[ ]	Residential (11)_____ ac.
[X]	Fish and Wildlife (01) **165.78**	ac.	[ ]	Industrial/ Commercial (13)_____ ac.
[ ]	Recreation (02)_____	ac.		

21.11 Describe how the proposed post mining land use(s) will be achieved and identify any necessary support or management activities which will be used. Submit as "Attachment 21.11.A".

SEE "ATTACHMENT 21.11.A"

21.12 If the proposed post mining land use(s) represent a change from the existing or premining land use(s), provide the following information:

(a) A discussion of the feasibility, i.e. suitability, capability, cost effectiveness of the proposed post mining land use(s). Submit as "Attachment 21.12.A".

(b) A schedule for achieving the proposed post mining land use(s). Submit as "Attachment 21.12.B".

(c) A discussion of how the proposed post mining land use(s) will be achieved within a reasonable time frame. Submit as "Attachment 21.12.C".

(d) A separate map showing the proposed post mining land use(s). Submit as "Attachment 21.12.D".

SEE "ATTACHMENT 21.12.A,B,C,D"

If section 21.12 is not applicable, check here [ ].

22. Vegetation Information

22.1 Provide as "Attachment 22.1.A", a map and narrative description of the existing vegetative types and plant communities within the proposed permit and any proposed reference areas. This description shall include adequate information to predict the potential success for re-establishing vegetation on the proposed permit area.

SEE "ATTACHMENT 22.1.A"

Appolo Fuels, Inc.
Application No. 807-0314, AM-1
July 7, 2006

Application Item 21.11: Fish and Wildlife Enhancement Plan

Based on the Division's environmental review, it has been determined that the application **will** require a fish and wildlife enhancement plan, as specified in 405 KAR 8:030/040, Section 36(1). This plan must be submitted as an attachment to application item 21.11.

KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES
COMMERCE CABINET

Ernie Fletcher
Governor

#1 Game Farm Road
Frankfort, Kentucky 40601
Phone (502) 564-3400
1-800-858-1549
Fax (502) 564-0506
fw.ky.gov

George Ward
Secretary

Dr. Jonathan W. Gassett
Commissioner

June 13, 2006

Ms. Susan Wind, Supervisor
Critical Resources Review Section
DMRE/Division of Mine Permits
#2 Hudson Hollow,
Frankfort, KY 40601

RE: Appolo Fuels, Inc.
Application #807-0314, A-1
Bell County, Kentucky

Dear Ms. Wind,

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has reviewed the information provided by your staff concerning the above-referenced permit application. KDFWR offers the following comments:

X KDFWR recommends the applicant contact the KDFWR Private Lands Biologist for Bell County at 606-337-9317, if consultation is needed for the Fish and Wildlife postmine landuse plan.

X This project proposes a stream crossing of Steve Creek and Clear Fork. KDFWR recommends the following practices be included:

1) crossing should be designed and constructed to accommodate high flow conditions;
2) development in or near streams only during low flow periods to minimize disturbances;
3) culverts should be placed even with substrate to allow aquatic organisms to move freely within stream channel, and:
4) proper placement of erosion control structures below disturbed areas to minimize entry of silt to stream.

X KDFWR recommends to the applicant the following measures for appropriate stream channel restoration:

1) The stream channel should be reconstructed/restored following natural stream channel design concepts. The mitigation stream channel design should be referenced to streams of similar size in the area or constructed to be similar to the original stream dimensions. The newly constructed stream channel should parallel the original stream profile (stream gradient, width, depth, pool/riffle ratio, and habitat).

2) All disturbed areas should be revegetated with species beneficial to wildlife as soon as construction ceases. KDFWR requests the riparian area to be restored with native vegetation for a minimum width of 100 feet on each side of the channel. The riparian area is important to the overall health of the stream by contributing shade, nutrients, stable stream banks, cooler water temperatures, and a buffer zone.

3) KDFWR recommends the applicant implement adequate sediment control measures when conducting construction of the stream channel. Best management practices (BMP's), such as immediate vegetation of dam outslopes, silt fences, and straw bales, will assist in control of sedimentation and minimize impacts on aquatic resources.

Should you require any information or have any questions, please feel free to contact me at (502) 564-5448.

Sincerely,

Marla Barbour Callaghan

Marla Barbour Callaghan
Fisheries Biologist III
Assistant Project Leader, Environmental Section

Xc: Environmental Section Files

"ATTACHMENT 21.11.A"

FISH AND WILDLIFE HABITAT

The postmining land use of fish and wildlife habitat will be achieved by following the reclamation and revegetation plans outlined in this application. During the backfill process the procedures outlined in RAM #124 will be used. The area will be revegetated in accordance with the grass/legume and tree/shrub species as listed in Item 22 of this application.

The backfill material will be placed and compacted in a manner to ensure stability. Growth medium consisting of, existing topsoil, alternate/topsoil and the unconsolidated soil material directly below the native topsoil will be placed to a depth of 4 to 6 feet on the final graded slopes. Before redistribution of the growth medium may begin, the disturbed area will scarified to eliminate slippage surfaces. Growth medium will be redistributed when the soil moisture content is less than moist or when the soil is friable.

For area mining where the backfilled slopes are not steep the growth medium will be redistributed by dumping in tightly placed piles that abut one another across the entire area. A bulldozer will then grade the tops off the piles and gently level the area with one or two passes. For contour mining or where the backfilled slopes are steep the growth medium will be dumped over the top of the outslope to a depth of 4 to 6 feet. A bulldozer will then grade the area with one or two passes.

The final slopes should include as much organic material, fragmented rock, and woody debris as possible to create a micro topography similar to natural forest conditions. Care will be taken in grading the growth medium to protect it from wind and water erosion before and after it is seeded and mulched.

Soil samples will be collected upon completion of backfilling and final grading. Samples will be taken by shovel probe to a depth of approximately twelve (12) inches. The sample will be analyzed and soil amendments will be added based upon the tests at this time. The rate of nitrogen fertilizer applications will be limited to less than 40 pounds of nitrogen per acre to minimize competition between ground cover and tree species.

The revegetation will be done by hand seeders or hydroseeders and application of all materials except lime or mulch will be accomplished. Lime, if required, and mulch will be distributed separately. No irrigation is anticipated due to adequate rainfall. A mixture of grasses and legumes will be sown on all disturbed areas for ground cover. Legumes will be inoculated with rhyzobium bacteria for nitrogen fixing properties. All tree/shrub species that can be planted by direct seeding will be hydro seeded or hand seeded on the previously shown tree and shrub planting sites. Tree seedlings will be inoculated with mycorrhizal fungus to aid the plants with nutrient and moisture absorption.

By quickly establishing ground cover as soon as practical after final grading the permittee will aid in soil stability and erosion control, reducing evaporation of rain waters and maintaining steadier soil temperatures. It should be noted that Sericea Lespedeza and KY-31 Fescue are not proposed as plant species as they provide little benefit to wildlife and/or livestock.

"ATTACHMENT 21.11.A Continued"

ADDITIONAL FISH AND WILDLIFE HABITAT ENHANCEMENT

The necessary requirements for wildlife enhancement include food, cover, water, home range and interspersion. A variety of food must be available during all seasons and within foraging range of protective cover. Adequate cover is required for escape, protection, shelter, brooding and nesting. Water, necessary at all times, is dependant upon the species, some species require open water, others obtain moisture from plants, dew, or metabolic processes. Home range is the size of a specie habitat or living area and varies for each species. Interspersion is the arrangement of food, cover, and water within the home range of a species.

The proposed amendment area of fish and wildlife habitat, which will be enhanced for wildlife through the use of rock piles, brush piles, permanent bench ponds, and wet weather depressions. Grading will be in accordance with Item 25 of the application. For fish and wildlife habitat, a rough, rocky and/or uneven regraded surface is beneficial for wildlife species. Final grading will allow for small wet weather depressions which will be capable of holding a minimum of six (6) inches to one (1) foot of water at their deepest point, during wet periods. These depressions will be allowed to form in the backfill areas in accordance with 405 KAR 16:190 Section 2(5). Permanent bench ponds are proposed for this mining operation, these permanent ponds will hold seasonal pools of water to be utilized by waterfowl, shorebirds and mammals.

Additional cover will be provided in the form of constructed rock and brush piles and the placing of windrowed materials. Rock piles will be constructed of durable, non-toxic, non-acidic materials, approximately 300 square feet or less in size. The rock piles will not be placed on slopes of 20º or more. Brush piles will also be used for wildlife enhancement and will be created from cleared and grubbed materials from the site. The maximum size of each individual brush pile will not exceed 2800 square feet. Rock and brush piles will be constructed at a rate of no more than one per each five acres of permitted acreage. Windrow material will also provide cover for wildlife and will be placed on the undisturbed berm above the coal seam with breaks about every 200 feet.

Trees and shrubs planted for this proposed enhancement plan will provide cover and food for wildlife. The tree/shrub planting areas as well as the outer perimeter of the permit boundary will create an edge effect crucial to effective wildlife habitat.

CONCLUSION

It is the intention of this enhancement plan to target wildlife in general, and not a particular species and that it will take several years to develop wildlife in this area.

Reclamation and revegetation of the area is controlled by DMR regulation as well as the wishes and concerns of the surface owners. Every effort has been made to comply with both. It is the intention of this company after completion of the mining operation to return the area to a fish and wildlife habitat land use. The seeding mixture as well as the reclamation process will aid in the enhancement of the permit area to attract a variety of wildlife species after the land use is established.

"Attachment 21.12.A"

The proposed post mining land use of Fish and Wildlife Habitat will be cost effective in that the land use will be achieved in conjunction with the construction of the proposed permanent ponds, the backfilling of the proposed high walls, and final reclamation of the permit area.

The Fish and Wildlife Habitat post mining land use proposed will be suitable to the surrounding environment in that it will enhance the existing wildlife habitat by creating areas of grasslands and additional "edge" areas. This post mining land use is very cost effective. This land use is consistent with the wishes of the land owners and will be managed by the surface owner.

.

"Attachment 21.12.B"

As previously mentioned the proposed post mining land use will be achieved concurrent with the completion of the final reclamation of the permit area, although several additional facets of achieving the proposed post mining land uses will also need to be achieved.

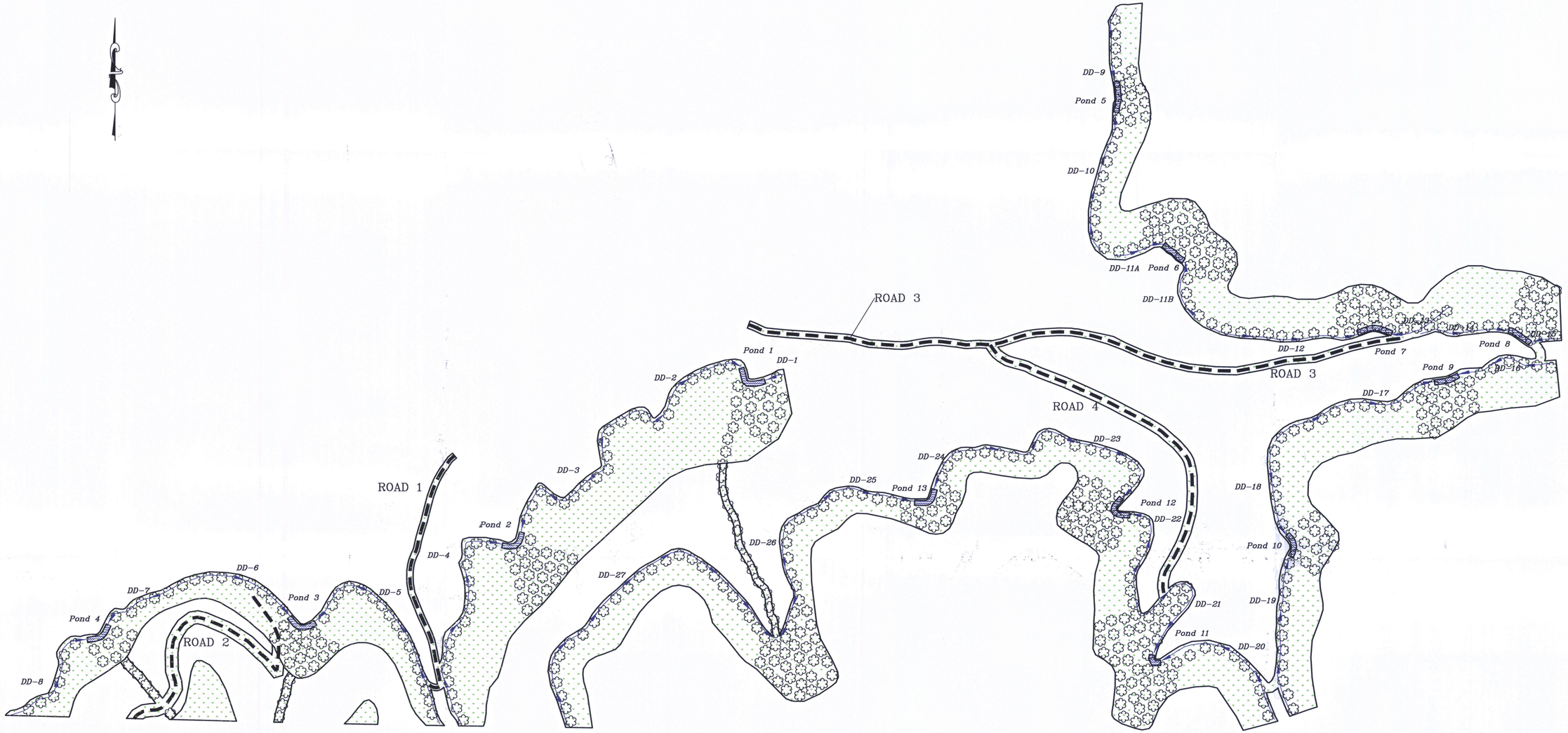
Fish and Wildlife Habitat – The initial reclamation of the permit area will consist of grading and seeding the entire fish and wildlife area with the seed mixtures outlined in Item 22.2. In addition to the grass mixtures tree/shrub plantings completed prior to final bond release. Additional cover will be provided in the form of constructed rock and brush piles and the placing of windrowed materials. Rock piles will be constructed of durable, non-toxic, non-acidic materials, approximately 300 square feet or less in size. The rock piles will not be placed on slopes of 20º or more. Brush piles will also be used for wildlife enhancement and will be created from cleared and grubbed materials from the site. The maximum size of each individual brush pile will not exceed 2800 square feet. Rock and brush piles will be constructed at a rate of no more than one per each five acres of permitted acreage. Windrow material will also provide cover for wildlife and will be placed on the undisturbed berm above the coal seam with breaks about every 200 feet, and will not extend beyond the permit boundary.

"Attachment 21.12.C"

Same as "Attachment 21.12.B"

"Attachment 21.12.D"

See the attached Post Mining Land Use Map.



LEGEND

	Amendment 1 Acreage	
	165.78	*Areas Planted in Grasses/Legumes Fish & Wildlife Post Mining Land Use*
	116.05 Acres Minimum	*Trees will cover a min. 70% of the surface permit area*

I, _____ (signature) License: No. _____ (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
REGISTERED PROFESSIONAL ENGINEER
12/3/08

Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878-1381

APPOLO FUELS, INC.

PERMIT 807-0314 AMENDMENT 1

POST MINING LAND USE MAP

DATE: 01-30-08	FILENAME: PMLU.DWG
SCALE: 1"=400'	DRAWN BY: MC

"ATTACHMENT 22.1.A"

VEGETATION DESCRIPTION

The area of this proposed permit is composed of upland forest. See the MRP/ERI map for the locations.

The permit area lies within the Appalachian Plateau Physiographic Province. This area is covered by deciduous forests of the Mixed Mesophytic Forest Region. The Mixed Mesophytic climax is a cornplex association extending from western Pennsylvania to northern Alabama. As implied by the term "mixed mesophytic:, this climax is formed of moist habitat species where dominance is shared by a number of different species. The dominant trees of the canopy are Beech, Tuliptree or Yellow Poplar, Basswood, Sugar Maple, Sweet Buckeye, Red Oak, White Oak, and Hemlock. Chestnut, once also a dominant species has been virtually wiped out by a fungus bark disease. Other common species within the association include Birch, Black Cherry, Cucumber Tree, White Ash, Red Maple, Sourgum, Black Walnut, and Hickory. Within the understory characteristic species include Dogwood, the Magnolias, Sourwood, Striped Maple, Redbud, Ironwood, Hob hornbeam, Holly, and Serviceberry. Excerpted from: Braun, E.L., 1950, Deciduous Forests of Eastern North America, New York: The Free Press.

The Mixed Mesophytic forest region is a continuous climax throughout its physiographic region, however, gradual variations in species composition do occur. These trends generally follow changes in elevation, aspect, moisture availability, and soil conditions. This results in a shifting dominance and gradual transitions in composition. Disturbance, whether man-made or natural, is another source of variation within the climax. This would include such things as logging, fires, and the planting of introduced species.

"Attachment 22.1.A Continued"

POTENTIAL SUCCESS FOR RE-ESTABLISHMENT OF VEGETATION

Plant species have been selected to provide beneficial usage for many diverse wildlife species, chiefly with the consideration of providing summer roosting habitat for the Indiana Bat. These species have also been selected that are known for their tolerance to mine reclamation conditions, as described below.

PERMANENT GRASSES: Grass species selected are tolerant to a lower pH level of approximately 4.5 and are known to thrive on reclaimed mine sites. Species are also selected that grow well in combination with legumes, are adapted to growing in shade and provide benefit in wildlife plantings where management is not practiced to maintain them. Orchard Grass provides herbage, seed and cover, Timothy and Perennial Rye provide herbage and seed.

LEGUMES: Legume species selected are tolerant to a lower pH level of approximately 5.0 with the exception of Kobe lespedeza which is tolerant to a lower pH level of approximately 4.5, these species are known to thrive on reclaimed mine sites. Kobe lespedeza, Red Clover and Alsike Clover provide herbage and seed, while Korean lespedeza provides seed. These species reseed within their adapted climatic range, thus it can be considered as a long term component of vegetative cover. It provides an early or quick component in spring sown grass/legume mixtures. Plant residue provides poor ground cover in winter. The seed of Korean is a preferred food of quail. It also produces high quality hay.

TREE SPECIES: Tree species selected are exfoliating bark species and are good for planting on coarser textured soils of low fertility. Once established, seedlings will tolerate long dry spells, though growth is stunted both by drought and by acidity below 4.5. Soils should be moderately well drained, and free of shade and dense ground vegetation. Red Oak and Shellbark Hickory are excellent hard mast producers, provide browse and cover. Red Maple is an excellent soft mast producer and provides browse.

SHRUB SPECIES: The revegetation plan for this permit area calls for the direct seeding two shrub species. By direct seeding, it is hoped that some volunteer species naturally introduced will have a better chance for survival. These species are tolerant to lower pH levels in the 4.5 to 5.0 range and are known to thrive on reclaimed mine sites. Sassafras and Red Bud provide browse, seed and cover.

22.2 Complete the following table to describe the plan for revegetating the proposed permit area. If additional pages are necessary, identify as "Item 22.2 continued".

Proposed Postmining Land Use **FISH & WILDLIFE**	Rate per Acre	Acreage	Planting Dates
Permanent Grass:			
ORCHARD GRASS	**10 LBS. / AC.**	**165.78**	**SPRING/FALL**
TIMOTHY	**10 LBS. / AC.**	**165.78**	**SPRING/FALL**
PERENNIAL RYE	**15 LBS. / AC.**	**165.78**	**SPRING/FALL**
Legumes:			
KOBE LESPEDEZA	**15 LBS. / AC.**	**165.78**	**SPRING/FALL**
KOREAN LESPEDEZA	**8 LBS. / AC.**	**165.78**	**SPRING/FALL**
RED CLOVER	**8 LBS. / AC.**	**165.78**	**SPRING/FALL**
ALSIKE CLOVER	**6 LBS. / AC.**	**165.78**	**SPRING/FALL**
Trees:			
RED BUD - SHRUB	**3 LBS. / AC.**	***116.05**	**SPRING/FALL**
SASSAFRAS - SHRUB	**3 LBS. / AC.**		
RED OAK - TREE	**70 PLANTS / AC.**		
SHELLBARK HICKORY – TREE	**70 PLANTS / AC.**		
RED MAPLE – TREE	**70 PLANTS / AC.**		
GREEN ASH - TREE	**70 PLANTS / AC.**		
Temporary Plants:			
ANNUAL RYE	**20 LBS. / AC.**	**165.78**	**SPRING/FALL**
BALBOA RYE	**30 LBS. / AC.**	**165.78**	**SPRING/FALL**
JAPANESE MILLET	**15 LBS. / AC.**	**165.78**	**SPRING/FALL**
Mulch:			
STRAW/HAY	**2.0 TONS**	**165.78**	**SPRING/FALL**
WOOD/PAPER			
Small Grains:			

***TREES/SHRUBS TO BE PLANTED ON A MINIMUM OF 70% OF AREA.**

22.3 Are alternate soil stabilizers in lieu of mulch being requested?
[ ] YES [**X**] NO. If "YES", justify this proposal, identify acreage for which this variance is requested and describe the nature of the soil stabilizer. Provide as "Attachment 23.3.A".

22.4 Provide, as "Attachment 22.4.A", detailed descriptions of:

(a) The methods to be used in planting, seeding and mulching, including irrigation, pest and disease control measures.

(b) The measures to be used to determine the success of revegetation as required by 405 KAR 16:200 and 405 KAR 18:200.

(c) The soil testing plan for evaluating the results of topsoil handling and reclamation procedures related to revegetation.

SEE "ATTACHMENT 22.4.A,B,C"

23. Soils Resources Information

23.1 Is soil survey information of the proposed permit area available from the U.S. Soil Conservation Service?
[**X**] YES [ ] NO. If "YES", use the appropriate information to provide a description of existing soils that will be disturbed within the permit area.

23.2 Does the applicant propose to use selected overburden materials as a supplement or substitute for topsoil?
[ ] YES [**X**] NO. If "YES", provide the following information:

(a) A geologic cross section of the proposed permit area identifying the proposed alternate material(s) to be used. Submit as "Attachment 23.2.A".

(b) The results of chemical and physical analyses of the existing soils and the proposed alternate materials conducted in accordance with 405 KAR 16:050. Submit as "Attachment 23.2.B".

(c) Certification by a qualified soil scientist or agronomist that the alternate material is equal to, or more suitable than, the existing topsoil. Submit as "Attachment 23.2.C".

23.3 Describe, as "Attachment 23.3.A", how topsoil or alternate topsoil materials will be removed, stored, stabilized, protected, and redistributed in the proposed permit area. Indicate on the MRP Map where topsoil and/or alternate topsoil stockpiles will be located.

SEE "ATTACHMENT 23.3.A"

24. Surface Blasting Plan

24.1 Is surface blasting proposed for the permit area? [**X**] YES [ ] NO.

24.2 Will blasting be conducted within 1000' of any building used as a dwelling, public building, school, church, commercial, community, or institutional building? [**X**] YES [ ] NO. If "YES", submit as "Attachment 24.2.A", an anticipated blast design prepared and signed by a certified blaster with this application, or at a time prior to the blasting operation. If the design will be submitted after permit issuance, the design shall be provided thirty days prior to the anticipated blasting and such blasting may not be initiated until DSMRE approval is obtained.

SEE-SMP-61

24.3 Will blasting be conducted within 500' of an active or abandoned underground mine?
[**X**] YES [ ] NO. If "YES", attach the blast designs and for active mines the appropriate MSHA Blasting Approval Form as "Attachment 24.3.A".

SEE SMP-61

24.4 Describe, in "Attachment 24.4.A", the blast warning, all-clear signals and site access control procedures to be used. Also, describe how all persons within one-half mile of areas affected by surface operations or facilities will be notified of the meaning of the blast signals.

SEE "ATTACHMENT 24.4.A"

"Attachment 23.1.A"

According to the "Reconnaissance Soil Survey, Fourteen Counties in Eastern Kentucky" [1], the primary soils classification for the subject area is the Dekalb-Muskingum-Berks association. The Dekalb, Muskingum, and Berks soils are generally very stony. A more detailed description of the soils which make up this association follows:

-Dekalb soils are shallow to moderately deep over interbedded siltstone and shale and have a silt loam surface layer and subsoil. This soil accounts for approximately 19 percent of the association.

-Berks soil are shallow to moderately deep over interbedded siltstone and shale. Their surface layer is silt loam, and their subsoil contains many stones and fragments of shale. This soil accounts for approximately 7 percent of the association.

(1) "Reconnaissance Soil Survey, Fourteen Counties in Eastern Kentucky", United States Dept. of Agriculture, Soil Conservation Service (in cooperation with the Kentucky Agricultural Experiment Station), 1965.

"Attachment 23.3.A"

Topsoil will be removed prior to mining, depending upon site conditions and equipment limitations all of the "A" horizon of topsoil will be removed and stockpiled, if the "A" horizon is less than six (6) inches thick then all of the "A" horizon and enough of the unconsolidated material below to comprise a minimum of 6" of topsoil material will be removed. Pre-law contour mining has occurred within the permit area, the existing spoil on the site does support vegetation and will also be utilized as topsoil material. Enough topsoil/subsoil exists throughout the permit area to reclaim the previously disturbed area. The "A" soil horizon for the Berks soil is approximately zero (0) to seven (7) inches, the "B" soil horizon is approximately seven (7) to fourteen (14) inches.

Scraping and stockpiling operations will be conducted in a controlled manner sufficient to keep the topsoil material segregated from any other materials. All topsoil material to be removed will be salvaged prior to the spoil removal process and concurrent with other mining operations.

Stockpile(s) for topsoil material will be located on stable areas within the permit area and graded in such a manner that no depression will be left which might accumulate water. Care will be taken in determining the location(s) of the stockpile(s). Diversion swales, windbreaks and/or other suitable means will be used to protect the stockpile(s) from all wind and water erosion. In case of storage exceeding thirty days, the stockpile(s) will be seeded and mulched to help in controlling erosion. The storage area(s) will remain vegetated for the duration of the mining operation and will be identified by the appropriate signs and markers. The location(s) of the topsoil material storage area(s) are indicated on the Mining and Reclamation plan map.

Before redistribution of the topsoil material may begin, the disturbed area will scarified to eliminate slippage surfaces and to promote root growth. Topsoil or alternate topsoil material will be redistributed over the backfilled slopes in a generally uniform, minimum thickness of six (6) inches. Care will be taken in grading the soil material to protect it from wind and water erosion before and after it is seeded and mulched.

SURFACE BLASTING DESIGN FORM

DSMRE PERMIT NO. **807-0314 Amendment 1**

THIS FORM MUST BE COMPLETED AND SIGNED BY A CERTIFIED BLASTER* AND SUBMITTED TO THE APPROPRIATE DSMRE REGIONAL OFFICE PRIOR TO CONDUCTING ANY SURFACE BLASTING WITHIN 500 FEET OF AN UNDERGROUND MINE OR WITHIN 1000 FEET OF A DWELLING; PUBLIC BUILDING; SCHOOL; CHURCH; OR COMMERCIAL, COMMUNITY OR INSTITUTIONAL BUILDING.

1. PERMITTEE NAME **APPOLO FUELS, INC.**

   ADDRESS **P.O. BOX 1727, MIDDLESBORO, KY 40965**

2. CORRESPONDENCE CONCERNING THIS INFORMATION SHOULD BE ADDRESSED TO:

   NAME **LARRY HUNLEY** PHONE NO. **(606) 248-1535**

   ADDRESS **P.O. BOX 1727, MIDDLESBORO, KY 40965**

3. THE PROPOSED BLASTING AREA IS WITHIN:

   [ ] 500 FEET OF AN ACTIVE DEEP MINE (ATTACH DSMRE FORM SMP-60).

   [**X**] 500 FEET OF AN ABANDONED DEEP MINE.

   [ ] 1000 FEET OF A DWELLING; PUBLIC BUILDING; SCHOOL; CHURCH; OR COMMERCIAL, COMMUNITY, OR INSTITUTIONAL BUILDING.

4. PROVIDE A GENERAL DESCRIPTION OF EACH BUILDING OR FACILITY WITHIN THE DISTANCES SPECIFIED IN ITEM #3 AND IDENTIFY THE EXACT DISTANCE EACH IS FROM THE PROPOSED BLASTING AREA. ATTACH ADDITIONAL SHEETS OF NECESSARY.

SEE ATTACHMENT 4.A

*Prior to December 10, 1986, blasting designs may be prepared by any individual holding a valid Kentucky Blasters License issued by the Kentucky Department of Mines and Minerals.

Surface Blasting Design Form
Attachment 4
Permit 807-0314 Amendment 1

Description of Buildings	**Identification Number on Map**	**Distance from Blasting in Feet**
ABANDONED MINE (Jellico Seam)	ABANDONED MINE (Jellico Seam)	Not a protected structure

As per Department for Natural Resources on February 6, 2008, the abandoned mine located in the Jellico Seam is not a protected structure. Compliance for all blasting activities will be maintained by use of the Scale-Distance Equation for the nearest structure during the life of the mine. Note that all protected structures are located outside 1,000' from the proposed blasting site.

Bell County Coal Corporation proposes an underground located within 500' of the blasting site. Appolo Fuels will obtain MSHA Joint Approval upon commencment of the Bell County Coal Corporation underground mine, and will modify all blasting operations accordingly.

5. PROVIDE A STRATIGRAPHIC COLUMN TO IDENTIFY THE TYPE OF MATERIALS WHICH WILL BE BLASTED.

SEE "ATTACHMENT 5.A"

6. MAXIMUM NUMBER OF HOLES TO BE SHOT IN BLASTING AREA_____

MAXIMUM NUMBER OF HOLES TO BE SHOT PER DELAY PERIOD_____

HOLE DIAMETER_____ HOLE DEPTH_____

STEMMING_____ SPACING_____ BURDEN_____

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

7. EXPLOSIVES TO BE USED:

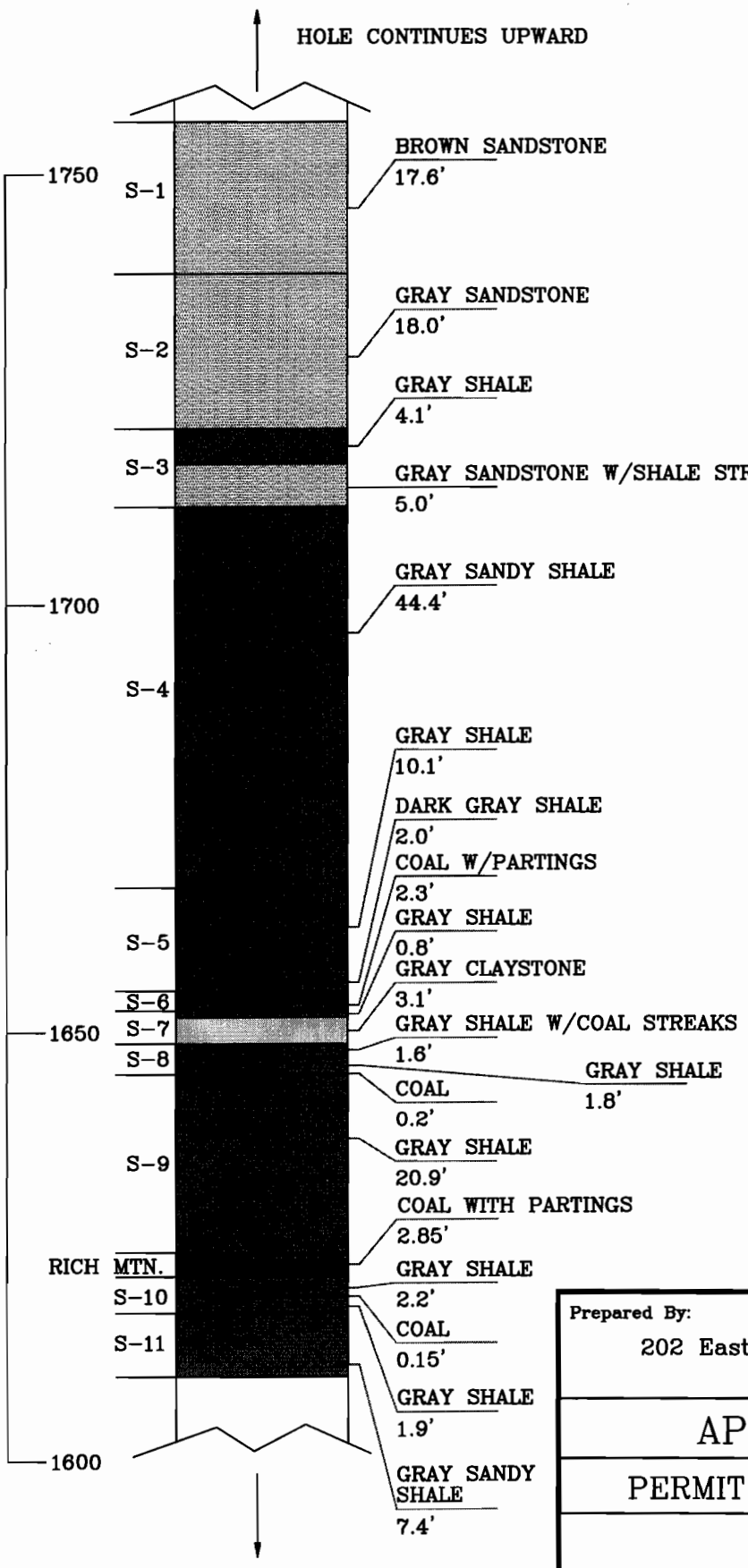
TYPE **ANFO, CAST PRIMER, EMULSION, COALMAX** DENSITY **0.85**

DESCRIPTION **ANFO, CAST PRIMERS, NON-ELECTRIC SURFACE AND INHOLE CAPS**

8. PRESENT BELOW A CROSS-SECTION OF THE CHARGED HOLE INCLUDING DECK DELAYS AND THE VERTICAL SCALE USED.

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

CORE HOLE AF-443
TOP ELEVATION 1790 MSL



Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC	
PERMIT 807-0314 AMENDMENT 1	
ATTACHMENT 5.A	
DATE: 01-24-08	FILENAME: GEOLOGY.DWG
SCALE: 1"=20'	DRAWN BY: MC

9. PRESENT BELOW A SKETCH OF THE PROPOSED BORE HOLE AND DECK DELAY PATTERN. INCLUDE FIRING TIMES OF DECK CHARGES AN/OR HOLES.

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

10. BASED ON THE ABOVE INFORMATION CALCULATE THE LOADING FACTOR FOR THE PROPOSED BLAST.

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

11. COMPUTE THE MAXIMUM WEIGHT OF EXPLOSIVES TO BE USED PER DELAY PERIOD. DETAILED CALCULATIONS MUST BE PRESENTED WITH ALL VALUES JUSTIFIED.

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

12. Compute the scaled distance factor for each building and underground mine identified in Item #4.

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

13. DESCRIBE THE TYPE OF DELAY SYSTEM TO BE USED.

NON-ELECTRIC DELAY BLASTING CAPS

14. FOR THE PROPOSED BLAST COMPUTE THE POWDER FACTOR TO BE USED PER BORE HOLE. ALL VALUES MUST BE JUSTIFIED.

Not Applicable - Scale Distance to be use for closest dwelling located more than 1,000'.

15. WILL SEISMOGRAPHIC MONITORING BE CONDUCTED AT THE UNDERGROUND WORKINGS OR OTHER IDENTIFIED STRUCTURES [ ] YES [X] NO

IF "YES" DESCRIBE THE TYPE, CAPABILITY, SENSITIVITY AND LOCATION OF SUCH EQUIPMENT.

16. DISCUSS THE DESIGN FACTORS TO BE USED TO PROTECT THE PUBLIC AND UNDERGROUND MINERS, WHEN APPLICABLE, AND MEET THE APPLICABLE AIR BLAST, FLYROCK, AND GROUND VIBRATION STANDARDS OF 405 KAR 16:120, AND 405 KAR 18:120.

Fly rock will be controlled with proper stemming. Airblast and ground vibration will be controlled with in-hole and surface delays. Compliance will be maintained by using proper scale factor.

See "Attachment 24.8.A" of the MPA-03 form for additional protection.

17. MAP REQUIREMENTS:

SUBMIT A MINING AND RECLAMATION PLAN MAP IDENTIFYING THE LOCATION OF THE PROPOSED BLASTING AREA AND ALL STRUCTURES AND FACILITIES IDENTIFIED IN ITEM #4.

See the MRP-ERI-Blasting Map

PREPARED BY **Bobby Gray** CERTIFICATION NO. **86-0922**

SIGNATURE Bobby Gray DATE 1-30-2008

"ATTACHMENT 22.4.A"

SOIL TESTING

Soil analyses will be taken after the approved topsoil or alternate material has been redistributed. This will be done by taking composite samples throughout the total permit area. These samples will be tested to determine amounts of nutrients needed, any needed soil amendments will be applied prior to seeding.

PLANTING METHODS FOR FISH AND WILDLIFE

After the topsoil material has been redistributed, the area will be scarified to prepare the seedbed. The revegetation will be done by hand seeders or hydroseeders and application of all materials except lime or mulch will be accomplished. Lime, if required, and mulch will be distributed separately. No irrigation is anticipated due to adequate rainfall. All tree/shrub species that can be planted by direct seeding will be hydro seeded or hand seeded on the previously shown tree and shrub planting sites. All seeds/seedlings will be inoculated against pest and disease.

Once the vegetation has been established the tree/shrub species that could not be planted by direct seeding will be hand planted by spading, dibbling or mattock planting. The combination of direct seeding and hand planting of the tree/shrub species shall be sufficient to meet the success requirements outlined below.

SUCCESS DETERMINATION

Successful revegetation will be accomplished when vegetation has been established at a living density that meets the reclamation requirements of DNR and shall be determined using methods outlined in 405 KAR 16:200, Section 6 based on the proposed land use of fish and wildlife habitat.

At least seventy (70) percent of the area shall be planted in plots of trees and shrubs. A minimum of four (4) tree species shall be planted, three of which shall be exfoliating bark species with at least one of those being a hard mast producer. At final bond release there shall be at least 250 stems per acre, 150 stems shall be of exfoliating bark species. The other stems may be of any tree on the list or may be volunteers. No more than 50 stems per acre may be black locust. Stocking densities shall be determined with a statistical confidence of ninety (90) percent.

Ground cover shall be at least eighty (80) percent, with a statistical confidence of ninety (90) percent, with no sign of significant erosion as set forth in 405 KAR 16:190 Section 6.

"ATTACHMENT 24.4.A"

Entry to the blasting area will be regulated by signs and barriers. An authorized company representative will prohibit access to the blasting area by unauthorized persons at least ten (10) minutes prior to each detonation, after blasting the site will be visually inspected to insure the area is clear.

Five (5) minutes prior to the blast, a warning signal consisting of a one minute series of long blasts shall be given.

One (1) minute prior to the blast, a series of short blasts shall be given.

After the blast has been successfully conducted, the haul road and mining area will be visually inspected for debris, and any such debris will be cleared with mining equipment. When the haul road and mining area have been deemed safe for travel an all clear signal of one (1) prolonged blast shall be given, and operations will be allowed to resume as normal.

All signals will be sounded with a siren whose signal is audible up to within one-half mile of the blast site, and is of unique character and nature that it can be easily distinguished from other mining equipment.

Events which could necessitate an unscheduled blast include, but are not limited to, rain, lightning, other atmospheric conditions, or deteriorated explosives which involve personnel, operational or public safety. All unscheduled blasts shall be conducted in accordance with 405 KAR 16:120 Section 4(1)(b-c), and the same signals shall be used as listed above for all emergency blasting situations.

This attachment will be delivered by a representative of the company annually to each resident within 1/2 mile of blasting.

24.5 Does the proposed surface mining operation include blasting operations using more than five (5) pounds of explosives? [**X**] YES [ ] NO. If "YES", submit a sample copy of the blasting schedule to be published in a newspaper of general circulation in the locality of the blasting operation. Describe the procedure for circulating the schedule to the DSMRE regional office, local governments, public utilities, and to each resident within a one-half mile of areas affected by surface operations or facilities in accordance with 405 KAR 16:120, Section 3. Submit as "Attachment 24.5.A".

SEE "ATTACHMENT 24.5.A"

24.6 Describe how all residents within one-half mile of areas affected by surface operations or facilities will be informed about the procedure for requesting a preblast survey, and the procedures for recording and reporting to DSMRE the results of any requested preblast surveys. Submit this description as "Attachment 24.6.A".

SEE "ATTACHMENT 24.6.A"

24.7 Describe the procedures to be used for ensuring that airblasts are controlled in accordance with 405 KAR 16:120 or 18:120. Submit description as "Attachment 24.7.A".

SEE "ATTACHMENT 24.7.A"

24.8 Describe the procedures to be used to control flyrock and how prevention of adverse impacts of blasting will be ensured in accordance with 405 KAR 16:120 or 18:120. Submit this description as "Attachment 24.8.A".

SEE "ATTACHMENT 24.8.A"

24.9 Will blast monitoring equipment be utilized in lieu of the scaled distance equations presented in Appendix C of 405 KAR 16:120 or 405 KAR 18:120?

[ ] YES [**X**] NO. If "YES", provide a description of the types, capabilities, sensitivities and locations of the equipment proposed for use. Submit this description as "Attachment 24.9.A".

25. Backfilling and Grading Plan

25.1 Describe the methods to be used for backfilling and grading the proposed permit area, including soil stabilization and compaction practices. Provide a map and/or appropriate cross sections to illustrate and define the proposed postmining configuration of the permit area. If cross sections are used identify the location of the cross section on the MRP map or other appropriate map. Provide this information as "Attachment 25.1.A".

SEE "ATTACHMENT 25.1.A"

25.2 Is a variance requested from approximate original contour requirements for any portion of the proposed permit area? [**X**] YES [ ] NO. If "YES", provide as "Attachment 25.2.A", the following information:

(a) A complete description, including location, of the area(s) for which a variance is requested.

(b) A detailed explanation of how the applicant meets the "criteria for approval" under one or more of the following regulations: (1) 405 KAR 8:050, Section 4, mountaintop removal; (2) 405 KAR 8:050, Section 6, steep slopes; (3) 405 KAR 16:190, Section 4, thin overburden; (4) 405 KAR 16:190, Section 5, thick overburden; (5) 405 KAR 16:190, Section 7, remining.

"ATTACHMENT 24.5"
(SAMPLE BLASTING SCHEDULE)

NOTICE OF BLASTING SCHEDULE

PERMIT NO. 807-0314 Amendment 1

In accordance with the provisions of 405 KAR 16:120 SEC. 3(1)(a), Appolo Fuels, Inc., P.O. Box 1727, Middlesboro, KY 40965, phone (606) 248-1535 proposes the following blasting schedule. The blasting site consists of approximately 245.71 acres located in Bell County, approximately 0.5 miles east from KY Route 74's junction with KY 535 and located on Clear Fork. The Latitude is 36° 35' 39". The Longitude is 83° 52' 39". Detonations of explosives are proposed to occur from sunrise to sunset Monday through Saturday. The blasting schedule is for the period from ___*__to __*__.

Entry to blasting area will be regulated by signs or barriers. An authorized company representative will prohibit access to the blasting areas by unauthorized persons at least ten (10) minutes before each detonation. The warning signal shall consist of a one (1) minute series of long siren blasts five (5) minutes prior to the blast. One (1) minute prior to the blast, a series of short blasts shall be given. The all clear signal will be one (1) prolonged siren blast, following the inspection of the blast area. These signals will be audible within one half mile of the blasting site.

Events which could necessitate blasting at unscheduled times include, but are not limited to rain, lighting, other atmospheric conditions, or deteriorated explosives which involved personnel, operational or public safety. A complete written report of any unscheduled blast will be submitted to the cabinet no later than three days after the unscheduled blast. The report shall include a detailed description of the reasons for the delay in blasting including why the blast could not be held over to the next day, identification of the time at which the blast was actually conducted, a description of the warning notices given and a copy of the blast record.

*Applicable dates will be inserted prior to publication of the Notice.

Blasting advertisement to be ran and blasting schedule to be distributed no less than 10 days and no more than 30 days before blasting will occur. Blasting schedule to be distributed to the appropriate department regional office, local governments, public utilities, and each residence within on-half mile of the blasting site. The blasting schedule is to be distributed to the above by hand delivery and/or by USPS Mal. The blasting schedule is to be republished every twelve (12) months.

"Attachment 24.6.A"

At least thirty (30) days prior to blasting, Appolo Fuels, Inc., will notify all residents or owners of dwelling or other structures located within one-half mile of the permit area that blasting operations will begin on Permit No. 807-0314. This letter (shown on the following page) will explain that they can request or waive a Pre-Blast Survey on their property. The Pre-Blast Survey will be conducted at no charge to the owner.

A resident/owner of a dwelling or other structure within one-half mile of any part of the permit area may request a pre-blast survey. This request may be made in writing directly to Appolo Fuels, Inc., or to the Cabinet which then must promptly notify Appolo Fuels, Inc. If a structure is renovated, modified, or added on to, subsequent to a pre-blast survey, then upon request, a survey of such additions and renovations shall be performed.

Upon notification of a request for pre-blast survey, Appolo Fuels, Inc. will promptly arrange for a survey to be conducted of the dwelling or structure. A written report of the survey shall be prepared and signed by the person conducting the survey. A copy will be sent to the person requesting the survey, along with a copy to be mailed to D.S.M.R.E., Middlesboro Regional Office and a copy for Appolo Fuels, Inc. file.

Any survey requested more than ten (10) days before mining is to begin, shall be completed as described above by Appolo Fuels, Inc. before initial blasting.

HOMEOWNER
ADDRESS
CITY, STATE, ZIP

RE: NOTICE OF YOUR RIGHT TO REQUEST A PRE-BLAST SURVEY
APPOLO FUELS, INC.
P.O. BOX 1727
MIDDLESBORO, KY 40965

Dear Homeowner,

Your home, school, church, shop or other manmade structure is located within 1/2 mile of the surface mining Permit No. 807-0314. The mining operation is located in the Fonde area of Bell County. The latitude is 36° 35' 39", and the longitude is 83° 52' 39".

Federal and state laws and regulations (405 KAR 16:120/18:120, Section 2) require that the coal permittee notify residents or owners of any manmade structures within 1/2 mile of the permit area of the permit area of their right to request a pre-blast survey of the structure. This survey is conducted at no charge to the resident/owner, and it is done at the resident's/owner's convenience.

The blasting is not expected to cause any problems or damage. However, a pre-blast survey may be conducted for the protection of the resident's/owner's property. The survey will determine and document the existing condition of the structure(s) and any physical factors that could reasonably be affected by the blasting. If wells are used for the water supply, a water sample will be taken and included with the survey. In addition, the permittee should be notified (by the resident/owner) if any changes are made to the structure so the survey can be updated.

Upon completion of the survey, the original copy will be on file at the mine office, one copy will be sent to the regional office of the Kentucky Department for Surface Mining (DSMRE), and one copy will be sent to the resident/owner. If the resident/owner disagrees with the results of the survey, he/she can notify (in writing) both the permittee and DSMRE. The survey may be requested by writing to either:

DSMRE Regional Office Address	Permittee Address
Dept. for Surface Mining	Appolo Fuels, Inc.
1804 East Cumberland Avenue	P.O. Box 1727
Middlesboro, KY 40965	Middlesboro, KY 40965
Telephone (606) 248-6166	Telephone (606) 248-1535

Please include the following permit number in your request: 807-0314

Sincerely,

NAME
TITLE

"Attachment 24.7.A"

Airblast shall be controlled so that it does not exceed the values specified in Appendix A of 405 KAR 16:120 at any dwelling, public building, school, church, or commercial, community or institutional building outside the permit area.

The permittee will conduct periodic monitoring, of at least three (3) consecutive blasts once during the period from January to June and at least three (3) consecutive blasts once during the period from July through December, to ensure compliance with the airblast standards. Monitoring will be conducted at or near the structure nearest to the blast site or at any location required by the D.S.M.R.E.

In accordance with 405 KAR 16:120 Section 6, a copy of all blasts shall be retained for at least five (5) years and shall be available for inspection by the cabinet and the public on request.

AIRBLAST LIMITATIONS

Lower frequency limit of measuring system Hz (+3dB)	Maximum level in dB
2 Hz or lower-flat response	133 peak
6 Hz or lower-flat response	129 peak

"ATTACHMENT 24.8.A."

All blasting will take place under the supervision of a certified blaster. If the certified blaster is not the same as the one who signs the Anticipated Blast Design, then he will be notified of all blasting requirements by the permittee. The certified blaster in charge of blasting operations will determine the bounds of the blast area, he will consider all information available such as location of dwellings and other structures to be protected, driller log information, blast hole deviation data, laser-profile data, slant of the holes, blast hole loading data, condition of the highwall, presence of overhangs, backbreaks, voids, weathering and variations in local geology, in order to control flyrock and prevent adverse impacts from blasting operations. Communication by use of radios, cell phone and/or other appropriate signals shall be maintained between the driller and the blaster at all times, additionally a written report shall be maintained by the driller including a drill log describing any geological anomalies such as voids, mud seams, major fractures and fissures, underground workings, water etc. encountered, any variations in downhole drilling pressure, deviation of holes , and any other pertinent observations which would aid the certified blaster in designing the blast to prevent flyrock and adverse impacts.

Flyrock, including blasted material traveling along the ground, shall not be cast from the blasting vicinity more than half the distance to the nearest dwelling; public building; school; church; commercial, community; or institutional building; or any occupied structure and in no case beyond the boundary of the permit area or beyond the area of regulated access.

Methods to control flyrock include maintaining adequate stemming and by maintaining adequate spacing between drill holes.

Ground vibration will be controlled by limiting the weight of explosives for an eight (8) millisecond delay. The maximum weight to be used is determined by the Scale-Distance Equation of Appendix C, 405 KAR 16:120.

Distance From Blasting Site	Scaled-Distance Equation
0 to 300 feet	$W = (D/50)^2$
301 to 5,000 feet	$W = (D/55)^2$
5,001 feet or more	$W = (D/65)^2$

"ATTACHMENT 25.1.A"

BACKFILL PLAN

The backfilled area shall be graded to the most moderate slope possible to eliminate all new highwalls created, thereby returning the area to the approximate original contour. The re-mining highwalls will be eliminated where backfilling will not create stability problems. In no case shall final grade exceed a slope in which a minimum static safety factor of 1.3 can be obtained.

Any woody vegetation encountered by mining or in construction of related facilities may be burned in a controlled manner or windrowed along the coal outcrop in a manner that will not cause instability. Windrowed material will be placed on top of the berm and will not be placed into the backfill.

After coal is removed in an area, auger operations will take place. As mining and augering continues along the contour the auger holes will be sealed as outlined in Item 25.4 of this application. All available spoil material on bench from the previous mining and spoil generated by the second cut proposed by this operation including swell will be used to backfill the pre-law highwall, this spoil material consists of shales, sandstones and sandy shales.

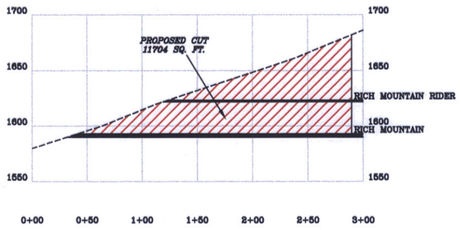
Spoil will be excavated from the pit by loaders, excavators and dozers. The spoil material will be hauled by trucks and end dumped by ramping to the top of the highwall. Dozers will push this material into place to eliminate the highwall where possible and walk in the face of the outslope, as the backfilling proceeds around the contour the dump ramp will provide further compaction by haulage equipment and will ensure stability and prevent mass movement.

All backfilling will be conducted within the time frame outlined in 405 KAR 16:020, thereby keeping the backfilling concurrent within 1500 linear feet and 60 calendar days of the mining and augering operation.

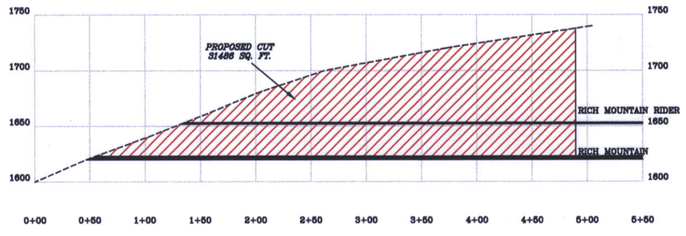
Final grading, replacement of topsoil and reseeding will remain concurrent with the backfilling operation. The final grade shall be compatible with the natural surroundings and allow surface and subsurface drainage and ensure long-term stability.

A swell factor of 15% has been used in the spoil balance calculations this is based on the adjacent mining conditions of the Rich Mountain coal seam by Appolo Fuels on permit OSM-3112 and OSM-3192.

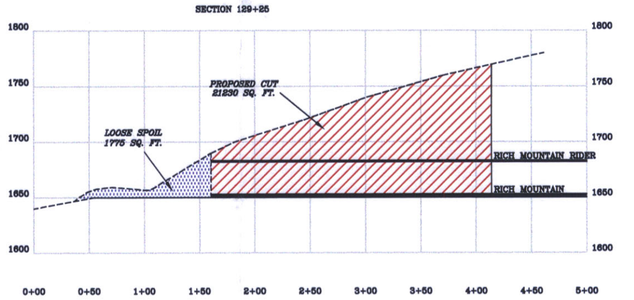
SECTION 0+00



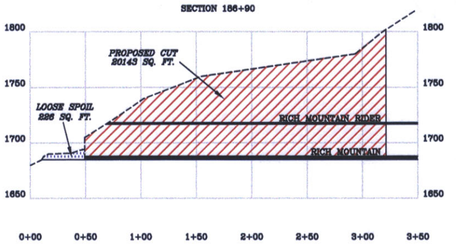
SECTION 80+70



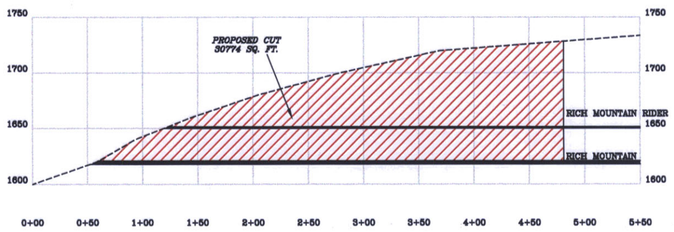
SECTION 129+25



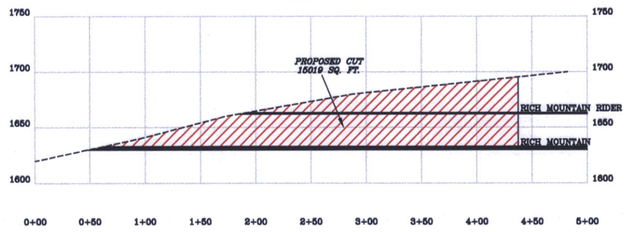
SECTION 166+90



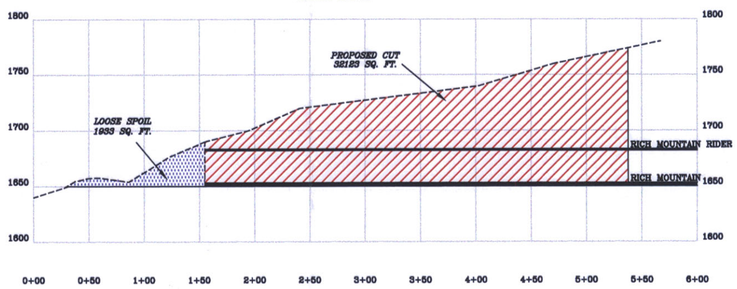
SECTION 18+10



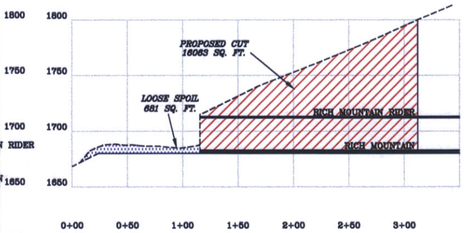
SECTION 89+50



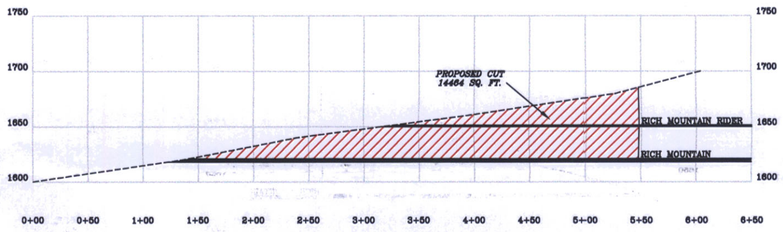
SECTION 134+70



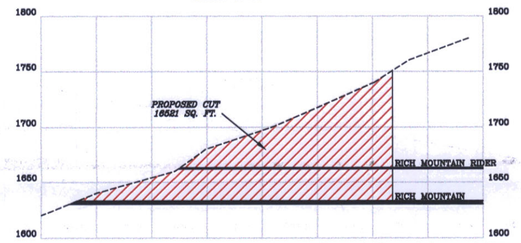
SECTION 199+70



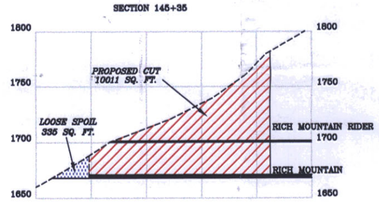
SECTION 23+15



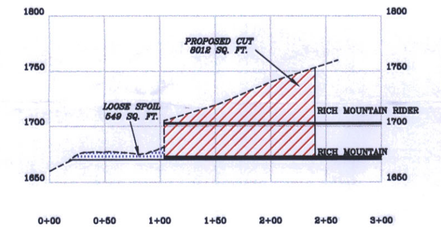
SECTION 99+90



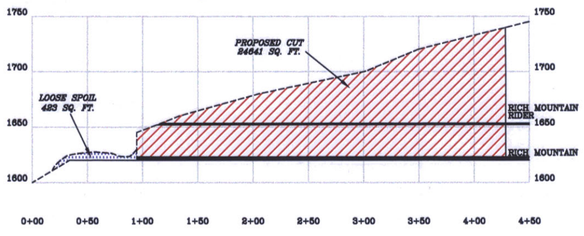
SECTION 145+35



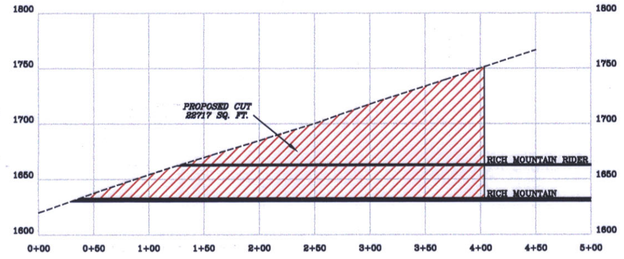
SECTION 210+90



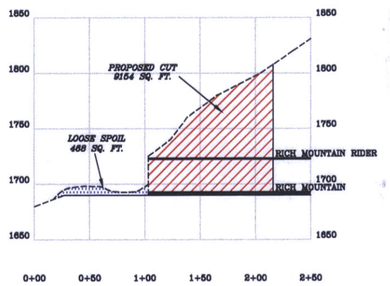
SECTION 28+40



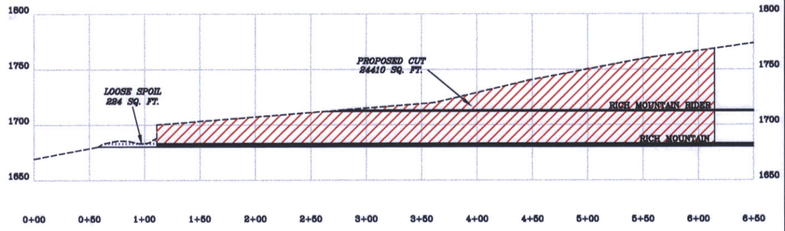
SECTION 111+70



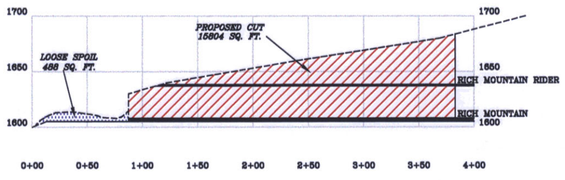
SECTION 163+20



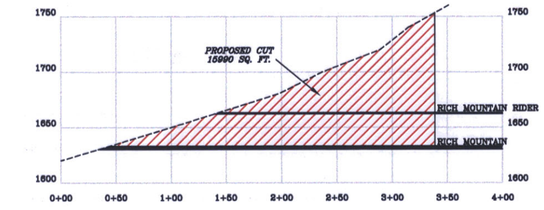
SECTION 181+25



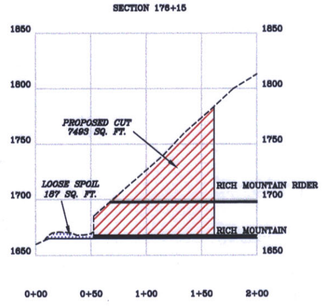
SECTION 43+60



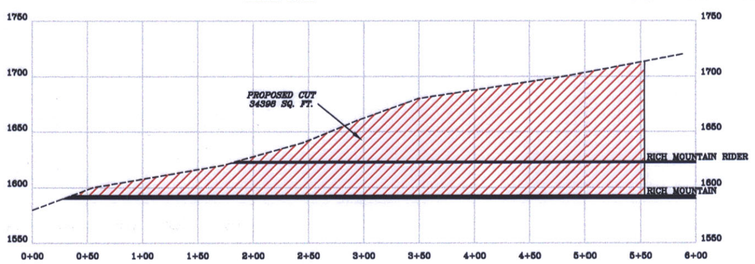
SECTION 119+50



SECTION 176+15



SECTION 57+25



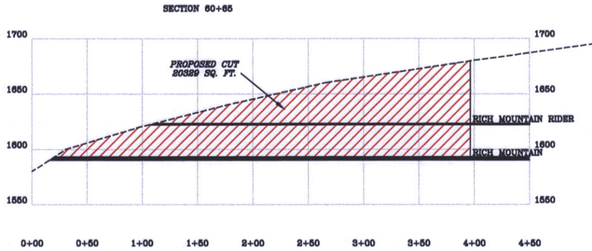
EXISTING GROUNDLINE

DURING MINING GROUNDLINE

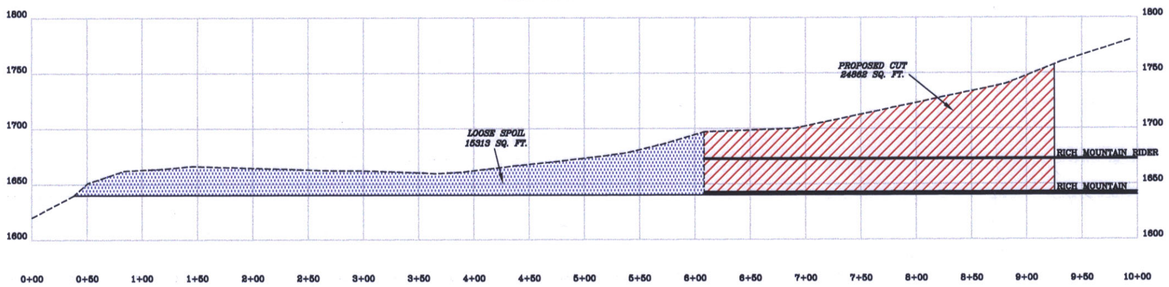
LOOSE SPOIL

SPOIL GENERATION

SECTION 60+85



SECTION 125+95



STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
PROFESSIONAL ENGINEER

I, _____ (signature) _____ (license no.) 2/13/08 (date)
hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct, as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878-1381

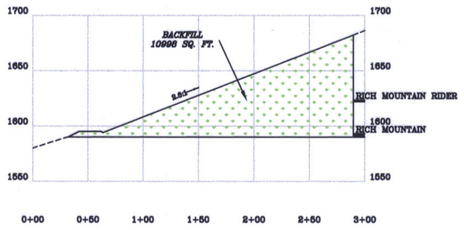
APPOLO FUELS, INC.

807-0314 AMENDMENT 1

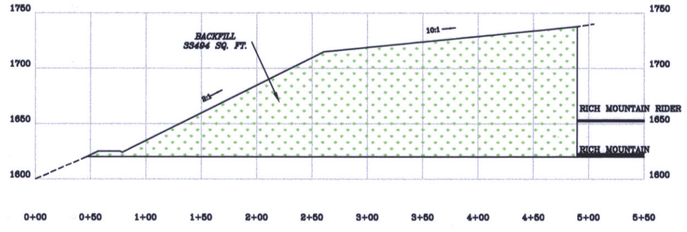
SPOIL GENERATION CROSS-SECTIONS

DATE:	FILENAME:
02-01-08	SECTIONS.DWG
SCALE:	DRAWN BY:
1"=100'	MC

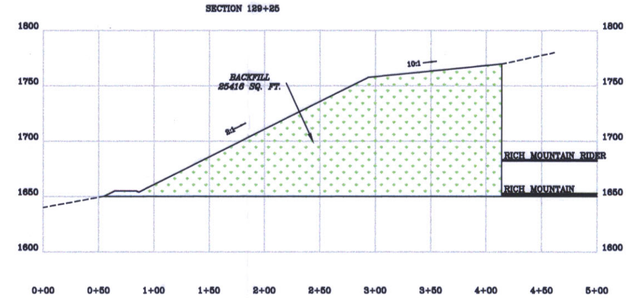
SECTION 0+00



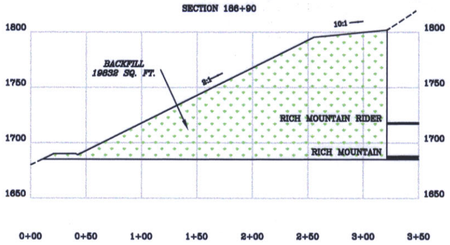
SECTION 80+70



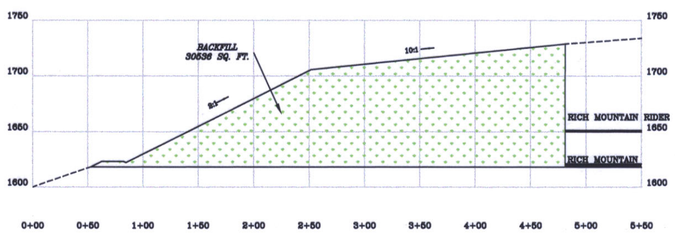
SECTION 129+25



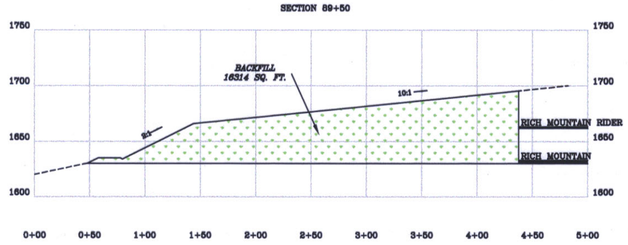
SECTION 166+90



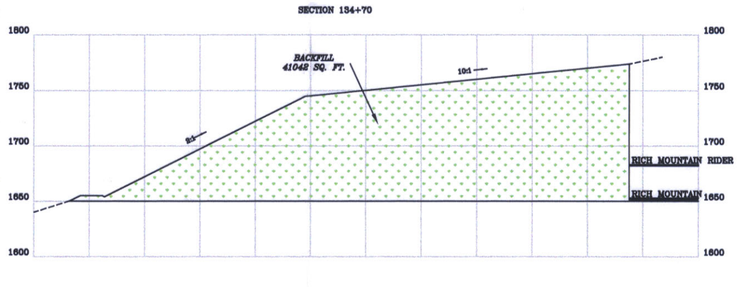
SECTION 18+10



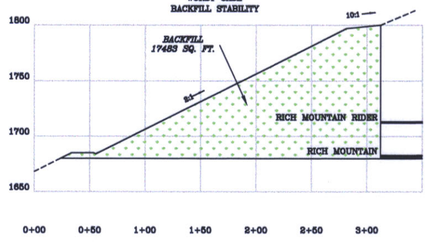
SECTION 89+50



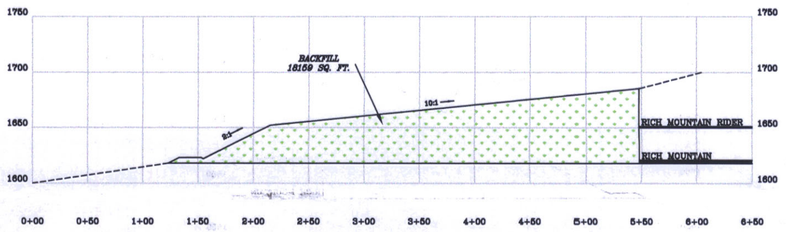
SECTION 134+70



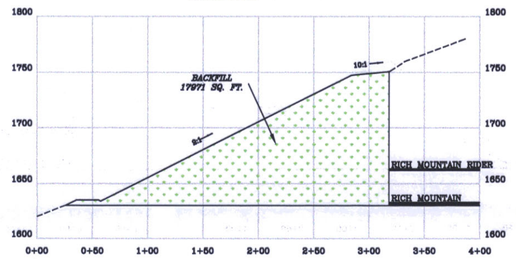
SECTION 199+70
"WORST CASE"
BACKFILL STABILITY



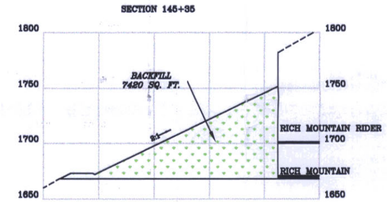
SECTION 23+15



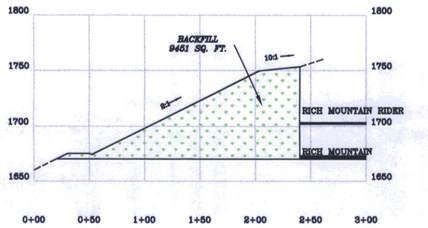
SECTION 99+90



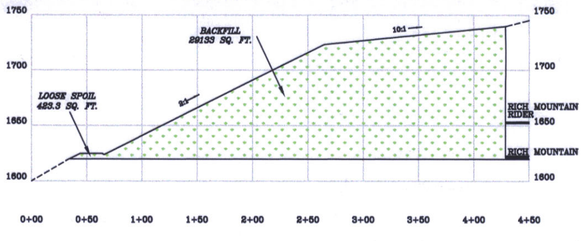
SECTION 145+35



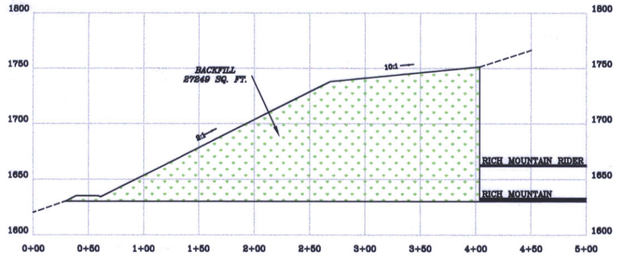
SECTION 210+90



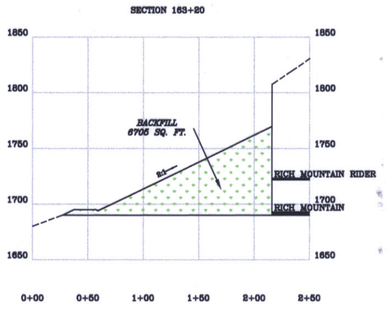
SECTION 28+40



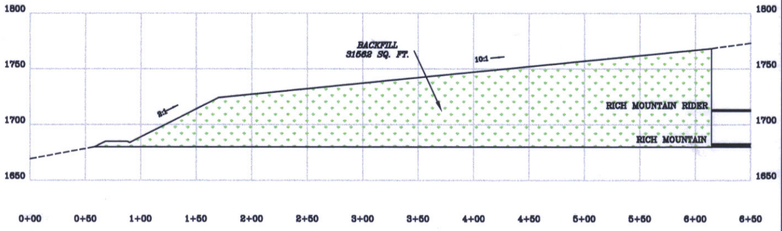
SECTION 111+70



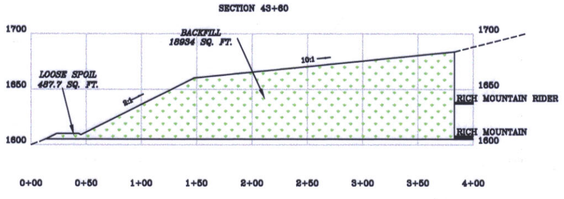
SECTION 163+20



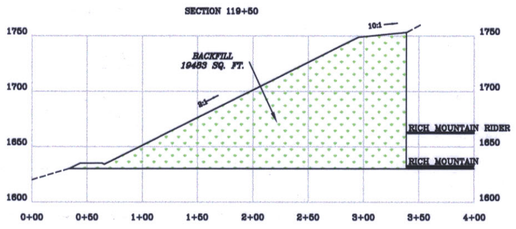
SECTION 181+25



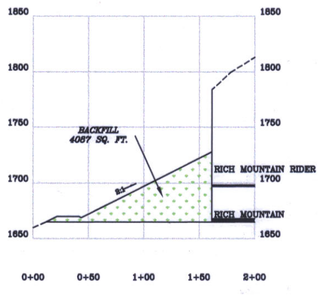
SECTION 43+60



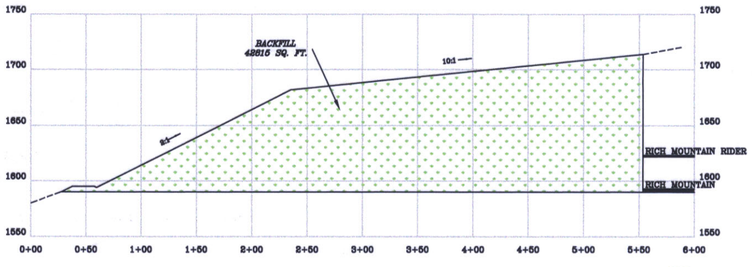
SECTION 119+50



SECTION 176+15



SECTION 57+25



EXISTING GROUNDLINE

DURING MINING GROUNDLINE

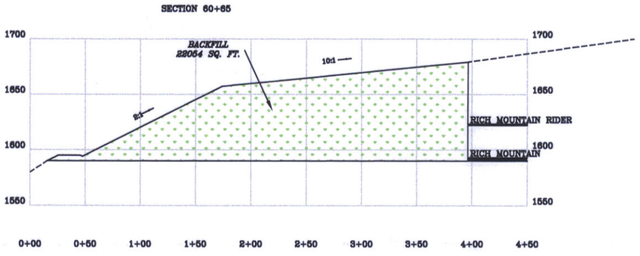
BACKFILLED GROUNDLINE

BACKFILLED SPOIL

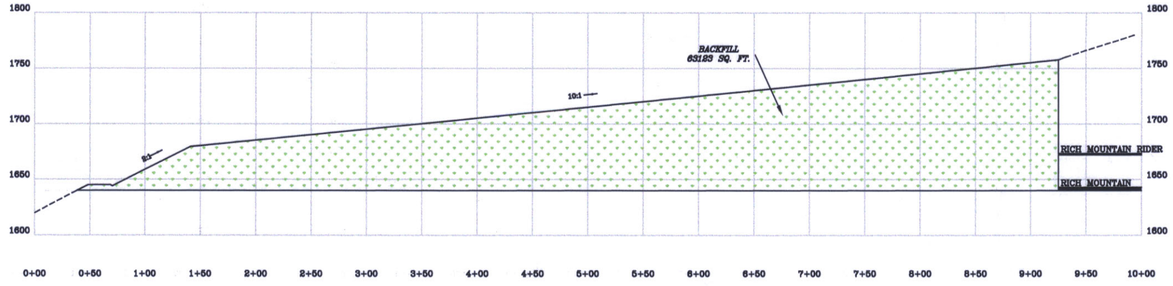
STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
LICENSED PROFESSIONAL ENGINEER

I, _____ (signature) _____ (license no.) _____ (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct, as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and 405 KAR Title 405.

SECTION 60+85



SECTION 125+95



Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
BACKFILL CROSS-SECTIONS	
DATE: 02-01-08	FILENAME: SECTIONS.DWG
SCALE: 1"=100'	DRAWN BY: MC

"ATTACHMENT 25.2.A"

VARIANCE FROM APPROXIMATE ORIGINAL CONTOUR
(Remining-contour)

A variance from the approximate original contour requirements is requested based on 405 KAR 16:190, Section 7(3), regarding remining.

Each item of 405 KAR 16:190, Section 7(2), is addressed as follows:

a) All spoil generated by past mining is either deposited over the outslope or has been backfilled on the bench. As per requirement (e), outslope spoil cannot be disturbed. Existing spoil on bench and all newly generated spoil will be used to backfill the area.

b) The backfill shall be graded to a slope which is compatible with the approved postrnining land use and wich provides adequate drainage and long-term stability, with a minimum static safety factor of 1.3. The exposed coal seam shall be covered with a minimum of four feet of nontoxic material.

c) All spoil materials generated or disturbed will be handled and retained only on the solid portions of the existing bench.

d) Any highwall remnant shall be stable and not pose a hazard to the public health and safety or to the environment. If the highwall remnant is determined to be unstable the permittee shall perform corrective measures such as scaling and/or slope reduction to stabilize the highwall remnant to the satisifaction of the cabinet.

e) Existing spoil on the outslopes is not proposed to be disturbed by this operation. No aspects of this operation are determined to have adverse effects on the stability or hazard of outslope spoil materials.

This variance is being requested for all areas of existing bench and highwall which are to be permitted for this operation. There is currently approximately 8,660' of un-reclaimed highwall with an average highwall height of approximately 40' existing on the Rich Mountain coal seam. Post mining there will be highwall remnants remaining on approximately 4,000' of mining area located from near section 145+35 to 176+15 the highwall remnants will vary from 30' to 50' in height. Some areas of this 4,000' of highwall remnant may be reclaimed completely dependant upon field conditions allowing long-term stability, with a minimum static safety factor of 1.3.

25.3 Provide complete calculations on spoil generation and disposal for the proposed permit area. Include a stability analysis to demonstrate that backfilled benches will meet a minimum static safety factor of 1.3. Submit this information as "Attachment 25.3.A".

SEE "ATTACHMENT 25.3.A"

25.4 Describe the measures to be used to seal or manage mine openings, exploration holes, auger holes, bore holes, wells and other openings within the proposed permit area. Provide design specifications for ensuring stability of each permanent entry seal and down slope barrier. Include all maps, drawings, etc., required to adequately support the description of the proposed measures. Submit this information as "Attachment 25.4.A".

SEE "ATTACHMENT 25.4.A"

26. Disposal of Excess Spoil

26.1 Are any excess spoil disposal structures proposed for use in the permit area? [ ] YES [**X**] NO. If "YES", provide the following information for each proposed structure:

NOT APPLICABLE

Facility I.D.	Type of Fill	Storage Volume	Type of Underdrain	Natural Ground Slope	Latitude	Longitude

26.2 Did construction of any of the above structures start prior to January 18, 1983? [ ] YES [**X**] NO. If "YES", provide the information required by 405 KAR 8:030, or 8:040, Sections 25 for existing structures. Submit this information as "Attachment 26.2.A".

NOT APPLICABLE

26.3 For each proposed excess spoil disposal structure provide a detailed plan (including, but not limited to, all engineering design calculations, cross-sections, maps and designs). Each plan shall meet the requirements of 405 KAR 8:030, Section 27; 405 KAR 8:040, Section 28; 405 KAR 16:130; and 405 KAR 18:130.

NOT APPLICABLE

"ATTACHMENT 25.3.A"

SPOIL BALANCE

New Excavation	14,981,578	BCY
Minus Coal To Be Removed	- 812,496	BCY
	14,169,082	BCY
Swell Factor	X 1.15	
	16,294,444	LCY
Loose Spoil to be Excavated	+ 408,365	LCY
Total Spoil Generated	16,702,809	LCY
Backfill Storage	17,024,801	LCY

The spoil balance shows an excess spoil storage of less than 2%.

COAL TO BE REMOVED

Rich Mountain Seam (152.61 AC. X 43,560 X 3.3') / 27 = 812,496 BCY

Appolo Fuels, Inc.
807-0314 AMENDMENT 1
In Place Spoil Volume

Station	Area Sq. Ft.	Cubic Feet	Cubic Yards	Cumulative Yards
0	11704.00			
		38,442,590	1,423,800	
1810	30774.00			1,423,800
		11,422,595	423,059	
2315	14464.00			1,846,859
		10,265,063	380,188	
2840	24641.00			2,227,046
		30,738,200	1,138,452	
4360	15804.00			3,365,498
		34,262,865	1,268,995	
5725	34398.00			4,634,493
		9,303,590	344,577	
6065	20329.00			4,979,070
		51,944,538	1,923,872	
8070	31486.00			6,902,942
		20,462,200	757,859	
8950	15019.00			7,660,801
		16,400,800	607,437	
9990	16521.00			8,268,239
		23,150,420	857,423	
11170	22717.00			9,125,661
		15,095,730	559,101	
11950	15990.00			9,684,763
		13,174,770	487,954	
12595	24862.00			10,172,717
		7,605,180	281,673	
12925	21230.00			10,454,390
		14,538,693	538,470	
13470	32123.00			10,992,860
		22,436,355	830,976	
14535	10011.00			11,823,837
		17,104,763	633,510	
16320	9154.00			12,457,346
		10,778,933	399,220	
17615	7493.00			12,856,566
		8,135,265	301,306	
18125	24410.00			13,157,872
		12,586,223	466,156	
18690	20143.00			13,624,029
		23,171,840	858,216	
19970	16063.00			14,482,245
		13,482,000	499,333	
21090	8012.00			14,981,578

Appolo Fuels, Inc.
807-0314 AMENDMENT 1
Loose Spoil Volume

Station	Area Sq. Ft.	Cubic Feet	Cubic Yards	Cumulative Yards
0	0.00			
		0	0	
1810	0.00			0
		0	0	
2315	0.00			0
		111,038	4,113	
2840	423.00			4,113
		692,360	25,643	
4360	488.00			29,755
		92,720	3,434	
4740	0.00			33,190
		0	0	
6065	0.00			33,190
		0	0	
8070	0.00			33,190
		0	0	
8950	0.00			33,190
		0	0	
9990	0.00			33,190
		0	0	
11170	0.00			33,190
		0	0	
12275	0.00			33,190
		2,450,080	90,744	
12595	15313.00			123,933
		2,819,520	104,427	
12925	1775.00			228,360
		1,010,430	37,423	
13470	1933.00			265,783
		1,207,710	44,730	
14535	335.00			310,513
		716,678	26,544	
16320	468.00			337,057
		424,113	15,708	
17615	187.00			352,765
		104,805	3,882	
18125	224.00			356,646
		127,125	4,708	
18690	226.00			361,355
		580,480	21,499	
19970	681.00			382,854
		688,800	25,511	
21090	549.00			408,365

Appolo Fuels, Inc.
807-0314 AMENDMENT 1
Backfill Volume

Station	Area Sq. Ft.	Cubic Feet	Cubic Yards	Cumulative Yards
0	10998.00			
		37,588,270	1,392,158	
1810	30536.00			1,392,158
		12,295,488	455,388	
2315	18159.00			1,847,547
		12,414,150	459,783	
2840	29133.00			2,307,330
		36,530,920	1,352,997	
4360	18934.00			3,660,327
		42,143,693	1,560,878	
5725	42815.00			5,221,204
		11,027,730	408,434	
6065	22054.00			5,629,639
		55,686,870	2,062,477	
8070	33494.00			7,692,116
		21,915,520	811,686	
8950	16314.00			8,503,801
		17,828,200	660,304	
9990	17971.00			9,164,105
		26,679,800	988,141	
11170	27249.00			10,152,246
		18,225,480	675,018	
11950	19483.00			10,827,264
		26,640,435	986,683	
12595	63123.00			11,813,946
		14,608,935	541,072	
12925	25416.00			12,355,018
		18,109,805	670,734	
13470	41042.00			13,025,752
		25,806,015	955,778	
14535	7420.00			13,981,530
		12,606,563	466,910	
16320	6705.00			14,448,440
		6,987,820	258,808	
17615	4087.00			14,707,248
		9,090,495	336,685	
18125	31562.00			15,043,933
		14,518,805	537,734	
18690	19832.00			15,581,666
		23,881,600	884,504	
19970	17483.00			16,466,170
		15,083,040	558,631	
21090	9451.00			17,024,801

```
REAME,BASIC, MAY 1, 1991 VERSION
COPYRIGHT, CIVIL ENGINEERING SOFTWARE CENTER
UNIVERSITY OF KENTUCKY, LEXINGTON, KY 40506

FILE NAME -0314RG.REM

INPUT FROM FILE (NINPUT)?(ENTER 1 WHEN INPUT FROM FILE & 0 WHEN NOT) 1


TITLE -APPOLO FUELS INC.  807-0314 AMENDMENT 1 SECTION 199+70 WORST
CASE

NO. OF STATIC AND SEISMIC CASES- 2


CASE NO. 1    SEISMIC COEFFICIENT= 0

NO. OF BOUNDARY LINES= 2

NO. OF POINTS ON BOUNDARY LINE 1 = 3
 1  X COORD.= 0             Y COORD.= 1680
 2  X COORD.= 265           Y COORD.= 1680
 3  X COORD.= 265           Y COORD.= 1800

NO. OF POINTS ON BOUNDARY LINE 2 = 3
 1  X COORD.= 0             Y COORD.= 1680
 2  X COORD.= 234           Y COORD.= 1797
 3  X COORD.= 265           Y COORD.= 1800

LINE NO. AND SLOPE OF EACH SEGMENT ARE:
 1        +0.000 +99999.000
 2        +0.500     +0.097

MIN. DEPTH OF TALLEST SLICE= 0
NO. OF RADIUS CONTROL ZONES= 1

RADIUS DECREMENT FOR ZONE 1 = 0
NO. OF CIRCLES FOR ZONE 1 = 5
ID NO. FOR FIRST CIRCLE FOR ZONE 1 = 1
NO. OF BOTTOM LINES FOR ZONE 1 = 1

FOR ZONE 1    LINE SEQUENCE 1
LINE NO.= 1   BEG. NO.= 1   END NO.= 3

SOIL NO.      COHESION      FRIC. ANGLE   UNIT WEIGHT
 1             200           30            125

USE PORE PRESSURE RATIO
UNIT WEIGHT OF WATER= 62.4
USE GRID
NO. OF SLICES= 10           NO. OF ADD. RADII= 3

PORE PRESSURE RATIO= .05
NO. OF SOILS WITH DIFFERENT PORE PRESSURE RATIO= 0

INPUT COORD. OF GRID POINTS 1,2,AND 3

POINT 1 X COORD.=-495     Y COORD.= 2773
POINT 2 X COORD.=-16      Y COORD.= 1716
POINT 3 X COORD.= 248     Y COORD.= 1837

X INCREMENT= 20             Y INCREMENT= 100
NO. OF DIVISIONS BETWEEN POINTS 1 AND 2= 5
```

NO. OF DIVISIONS BETWEEN POINTS 2 AND 3= 4
ONLY F. S. AT EACH CENTER WILL BE PRINTED
SLICES WILL BE SUBDIVIDED

AUTOMATIC SEARCH WILL FOLLOW AFTER GRID

WARNING IN THE FOLLOWING TABLE INDICATES HOW MANY TIMES THE
MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC.	RADIUS	LOWEST F.S.	WARNING
-495	2773	5	1	1199.864	7.124	0
-399.2	2561.6	5	1	967.770	8.550	0
-303.4	2350.2	5	1	735.676	10.859	0
-207.6	2138.8	4	1	503.583	15.232	0
-111.8	1927.4	3	1	271.489	26.683	0
-16.00002	1716	1	1	39.396	1000000.000	0
-429	2803.25	5	1	1202.386	2.002	0
-333.2	2591.85	5	1	970.821	1.951	0
-237.4	2380.45	5	1	739.587	1.870	0
-141.6	2169.05	5	1	509.137	1.745	0
-45.8	1957.65	5	1	281.402	1.571	0
50	1746.25	11	9	53.041	1.900	0
-363	2833.5	5	1	1209.269	1.513	0
-267.2	2622.1	5	1	979.259	1.475	0
-171.4	2410.7	5	1	750.534	1.433	0
-75.60001	2199.3	5	1	524.774	1.396	0
20.2	1987.9	11	9	297.515	1.404	0
116	1776.5	8	5	46.849	1.949	0
-297	2863.75	5	1	1203.083	1.773	0
-201.2	2652.35	5	1	971.516	1.750	0
-105.4	2440.95	5	1	740.279	1.718	0
-9.599991	2229.55	5	1	509.822	1.674	0
86.20001	2018.15	5	1	282.062	1.621	0
182	1806.75	11	10	47.365	1.960	0
-231	2894	5	1	1201.188	2.173	0

-135.2	2682.6	5	1	969.094	2.226	0
-39.39999	2471.2	5	1	737.000	2.314	0
56.40001	2259.8	5	1	504.906	2.480	0
152.2	2048.4	5	1	272.812	2.951	0
248	1837	5	1	40.719	17.446	0

AT POINT (-75.60001 2199.3)RADIUS 524.774

THE MINIMUM FACTOR OF SAFETY IS 1.396

WARNING IN THE FOLLOWING TABLE INDICATES HOW MANY TIMES THE MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC.	RADIUS	LOWEST F.S.	WARNING
-75.60001	2199.3	5	1	524.774	1.396	0
-55.60001	2199.3	5	1	512.079	1.438	0
-95.60001	2199.3	5	1	528.027	1.398	0
-75.60001	2299.3	5	1	604.408	1.536	0
-75.60001	2099.3	5	1	426.061	1.447	0
-70.60001	2199.3	5	1	521.601	1.405	0
-80.60001	2199.3	5	1	525.518	1.392	0
-85.60001	2199.3	5	1	526.308	1.392	0
-90.60001	2199.3	5	1	527.144	1.393	0
-85.60001	2224.3	5	1	550.410	1.402	0
-85.60001	2174.3	5	1	501.657	1.394	0

AT POINT (-85.60001 2199.3)RADIUS 526.308

THE MINIMUM FACTOR OF SAFETY IS 1.392

CASE NO. 2 SEISMIC COEFFICIENT= .1

AUTOMATIC SEARCH WILL FOLLOW AFTER GRID

WARNING IN THE FOLLOWING TABLE INDICATES HOW MANY TIMES THE

MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC.	RADIUS	LOWEST F.S.	WARNING
-495	2773	5	1	1199.864	5.889	0
-399.2	2561.6	5	1	967.770	7.077	0
-303.4	2350.2	5	1	735.676	9.001	0
-207.6	2138.8	4	1	503.583	12.645	0
-111.8	1927.4	3	1	271.489	22.188	0
-16.00002	1716	1	1	39.396	1000000.000	0
-429	2803.25	5	1	1202.386	1.620	0
-333.2	2591.85	5	1	970.821	1.578	0
-237.4	2380.45	5	1	739.587	1.511	0
-141.6	2169.05	5	1	509.137	1.406	0
-45.8	1957.65	5	1	281.402	1.262	0
50	1746.25	11	9	53.041	1.542	0
-363	2833.5	5	1	1209.269	1.201	0
-267.2	2622.1	5	1	979.259	1.170	0
-171.4	2410.7	5	1	750.534	1.137	0
-75.60001	2199.3	5	1	524.774	1.108	0
20.2	1987.9	11	9	297.515	1.122	0
116	1776.5	8	5	46.849	1.582	0
-297	2863.75	5	1	1203.083	1.400	0
-201.2	2652.35	5	1	971.516	1.381	0
-105.4	2440.95	5	1	740.279	1.356	0
-9.599991	2229.55	5	1	509.822	1.320	0
86.20001	2018.15	5	1	282.062	1.278	0
182	1806.75	11	10	47.365	1.593	0
-231	2894	5	1	1201.188	1.693	0
-135.2	2682.6	5	1	969.094	1.729	0
-39.39999	2471.2	5	1	737.000	1.786	0
56.40001	2259.8	5	1	504.906	1.895	0
152.2	2048.4	5	1	272.812	2.193	0

248	1837	5	1	40.719	8.554	0

AT POINT (-75.60001 2199.3)RADIUS 524.774

THE MINIMUM FACTOR OF SAFETY IS 1.108

WARNING IN THE FOLLOWING TABLE INDICATES HOW MANY TIMES THE MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

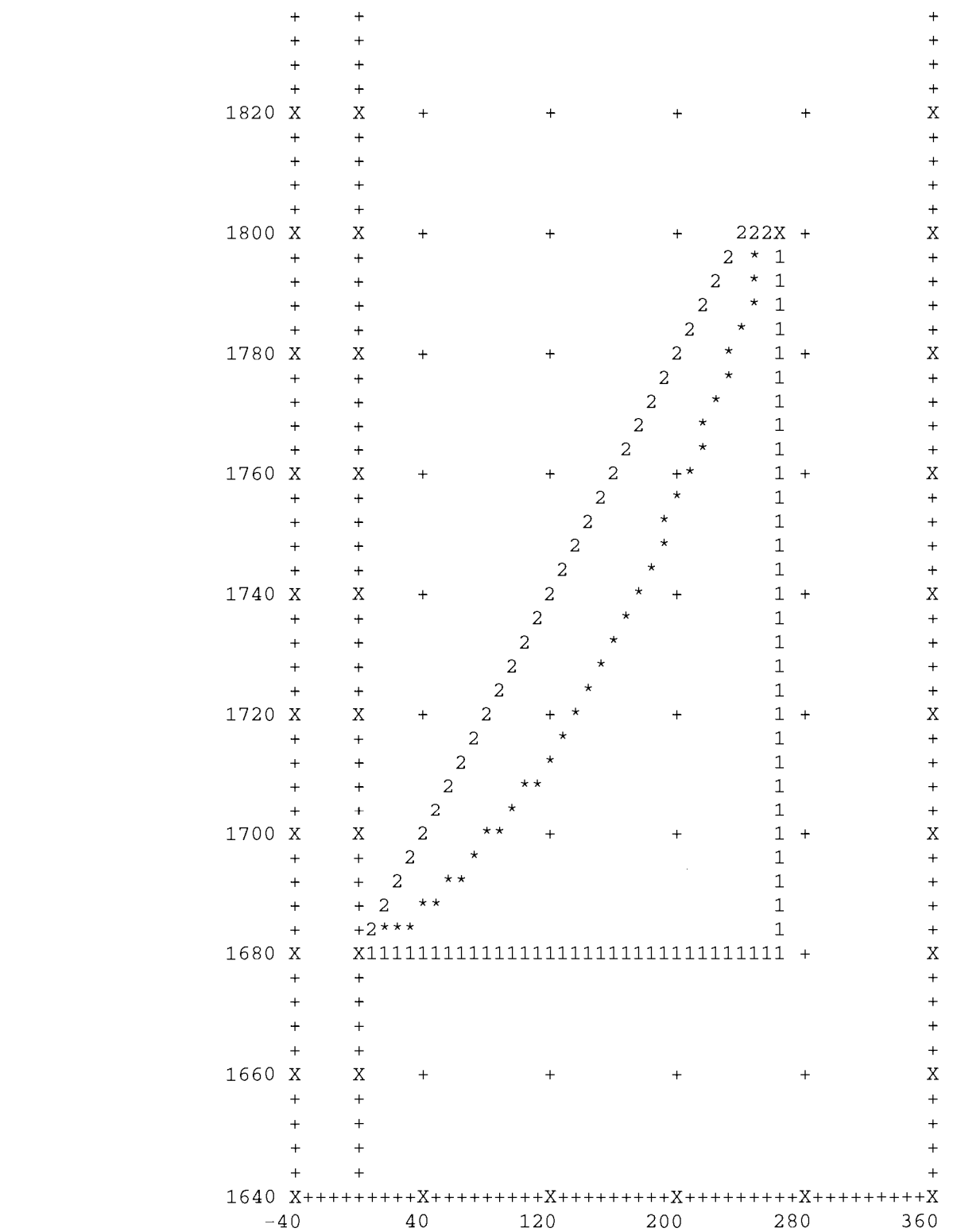
CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC.	RADIUS	LOWEST F.S.	WARNING
-75.60001	2199.3	5	1	524.774	1.108	0
-55.60001	2199.3	5	1	512.079	1.140	0
-95.60001	2199.3	5	1	528.027	1.116	0
-75.60001	2299.3	5	1	604.408	1.216	0
-75.60001	2099.3	5	1	426.061	1.159	0
-70.60001	2199.3	5	1	521.601	1.115	0
-80.60001	2199.3	5	1	525.518	1.107	0
-85.60001	2199.3	5	1	526.308	1.108	0
-80.60001	2224.3	5	1	547.239	1.120	0
-80.60001	2174.3	5	1	500.828	1.108	0

AT POINT (-80.60001 2199.3)RADIUS 525.518

THE MINIMUM FACTOR OF SAFETY IS 1.107

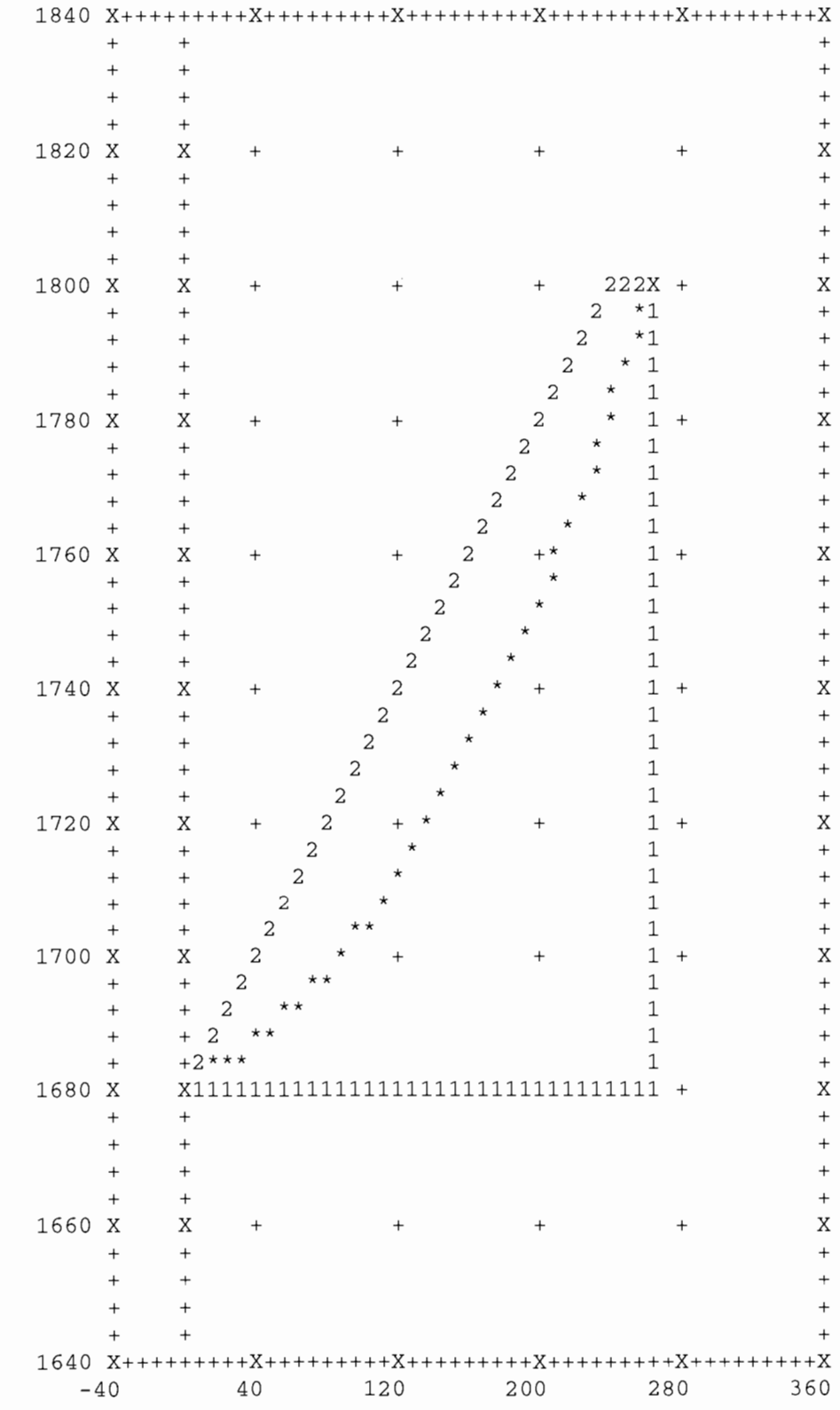
APPOLO FUELS INC. 807-0314 AMENDMENT 1 SECTION 199+70 WORST CASE

SEISMIC COEFFICIENT = 0.000
PORE PRESSURE RATIO = 0.050
CRITICAL FAILURE SURFACE IS INDICATED BY ****
AT POINT (-85.60001 2199.3)RADIUS 526.308
THE MINIMUM FACTOR OF SAFETY IS 1.392



APPOLO FUELS INC. 807-0314 AMENDMENT 1 SECTION 199+70 WORST CASE

SEISMIC COEFFICIENT = 0.100
PORE PRESSURE RATIO = 0.050
CRITICAL FAILURE SURFACE IS INDICATED BY ****
AT POINT (-80.60001 2199.3)RADIUS 525.518
THE MINIMUM FACTOR OF SAFETY IS 1.107



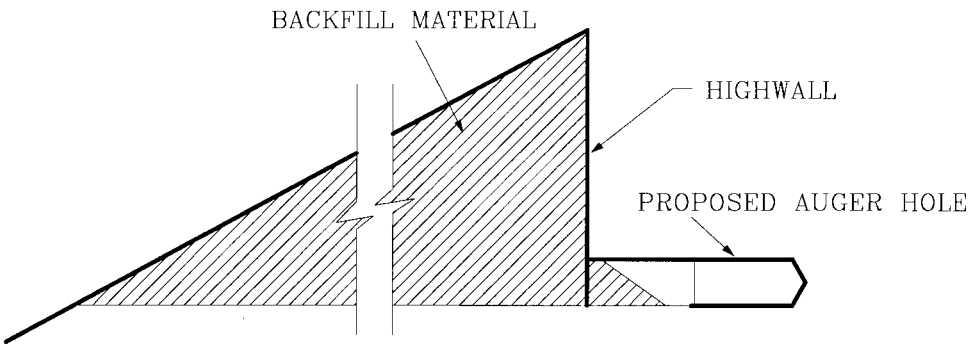
"Attachment 25.4.A"

All auger holes created by this operation shall be sealed by placing a compacted impervious material a minimum of 4' into the existing hole. Then a minimum of 4' of the same material will be backfilled above the coal seam. See the following page for a sketch of this plan.

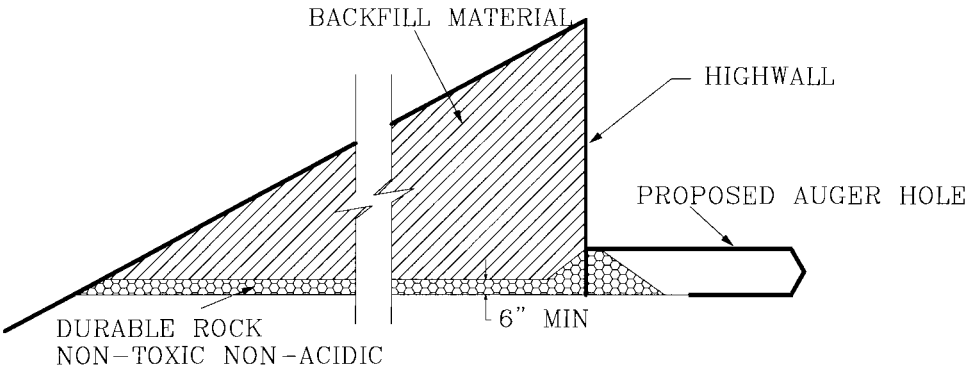
If the auger hole is discharging water a drain will be provided by utilizing a French Drain or by placing plastic drain pipe into the hole prior to backfilling. See the following page for a sketch of this plan.

Auger holes discharging water are to be sealed within seventy-two (72) hour of completion, all other auger holes are to be sealed within thirty (30) days of completion.

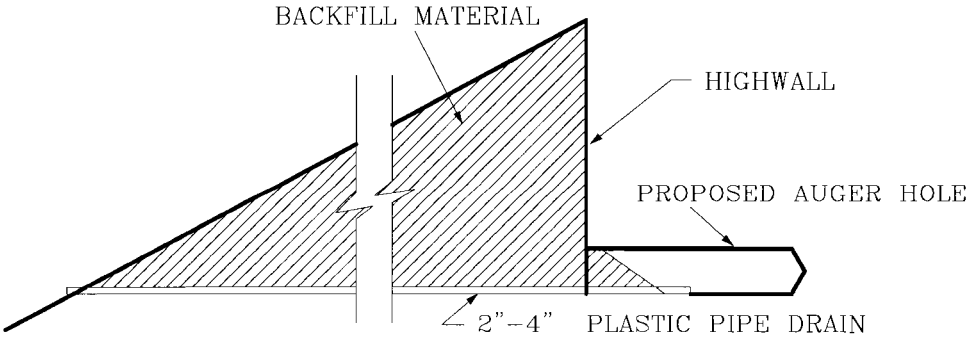
AUGER HOLE W/ SEAL



WET AUGER SEAL–UTILIZING FRENCH DRAIN



WET AUGER HOLE
SEAL–UTILIZING PIPE DRAIN



Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878–1381	
Appolo Fuels, Inc.	
Permit 807–0314 Amendment 1	
"Attachment 25.4.A", Auger Seal Drawing	
DATE: 01–25–07	**FILENAME:** AT_25_04.DWG
SCALE: NTS	**DRAWN BY:** MC

27. Coal Mine Waste

27.1 Will any coal processing waste or underground development waste be generated or disposed of within the proposed permit area? [ ] YES [**X**] NO. If "YES", provide the following information for each disposal area:

Facility I.D.	Type	Storage Volume Cu. Yds.	Latitude	Longitude	Anticipated Construction Date

27.2 Did construction of any of the above structures begin prior to January 18, 1983? [ ] YES [**X**] NO. If "YES", provide the information required by 405 KAR 8:030, or 8:040, Section 25 for existing structures. Submit this information as "Attachment 27.2.A".

27.3 Will any coal mine waste be disposed of in abandoned underground mines?
[ ] YES [**X**] NO. If "YES", provide as "Attachment 27.3.A", the information to satisfy the requirements of 405 KAR 8:040, Sections 27 and 28.

27.4 Will coal mine waste materials, from activities located outside the proposed permit area, be disposed of within the proposed permit area?
[ ] YES [**X**] NO. If "YES", provide as "Attachment 27.4.A", a detailed discussion (based on relevant hydrologic, geotechnical, physical, and chemical analyses) to make a showing in accordance with 405 KAR 16:140 or 18:140, Section 1, that the disposal of such waste will not:

(a) Adversely affect water quality, water flow, or vegetation;
(b) Create public health hazards; and
(c) Cause instability in the disposal area(s).

27.5 Provide a detailed plan (including all engineering design calculations, cross-sections, maps and drawings) for each proposed structure. Each plan shall meet the applicable requirements of 405 KAR 8:030, Section 34, or 405 KAR 8:040, Section 34, as appropriate. The plan(s) shall be provided as "Attachment 27.5.A., 27.5.B, etc."
NOT APPLICABLE

28. Disposal of Waste Other Than Coal, Soil or Rock

28.1 Provide as "Attachment 28.1.A", a description of the measures to be used for the temporary storage and final disposal of waste such as: grease, lubricants, paints, flammable liquids, garbage, abandoned machinery, timber, brush, and other combustibles generated during the mining activities. Show all storage and/or disposal sites on the MRP Map.

SEE "ATTACHMENT 28.1.A"

29. Toxic Materials Handling Plan

29.1 Based on the results of the premining geologic sampling program, identify all acidic or toxic strata which will be encountered during the proposed mining operation:

Site No.	Thickness	Lithology	Elevation	Potential Acidity	Neutralization Potential
AF-441 S-13	**2.55**	**SANDSTONE**	**1744.45**	**0.94**	**0.50**
AF-441 S-16	**5.00**	**SANDSTONE**	**1729.45**	**0.31**	**0.08**
AF-443 S-5	**12.1**	**SHALE**	**1654.9**	**63.75**	**24.63**
AF-443 S-8	**3.6**	**SHALE**	**1645.1**	**11.25**	**4.00**

29.2 Describe how acidic and/or toxic strata will be handled to avoid contamination of surface and ground water resources within, and adjacent to the proposed permit area, and to minimize adverse effects on plant growth and land uses. Submit the description, if applicable, as "Attachment 29.2.A".

30. Surface and Ground Water Monitoring

30.1 Provide a detailed description of the in-stream surface water quality and quantity monitoring program to be used during the mining and reclamation operations. The description shall specifically address all of the following:

(a) the location of each sampling point and the rationale for selection
(b) the frequency of sample collection
(c) the method(s) to be used for sample collection
(d) the parameters to be tested
(e) the procedures to be used for reporting the analytical results of the testing program to DSMRE

Submit the description as "Attachment 30.1.A", and show the location of all monitoring points on the MRP Map.

SEE "ATTACHMENT 30.1.A"

"ATTACHMENT 28.1.A"

Temporary Storage:

All waste items will be placed and temporarily stored in a controlled manner, such as in water-tight metal drums, on a portion of the permit area. Placement and storage will ensure that leachate and runoff do not degrade surface and ground waters. Fires will be prevented. The area will remain stable and suitable for reclamation and revegetation.

Final Disposal:

Final disposal methods will include the following:

(1) All liquid wastes, debris and material constituting a fire or environmental hazard (grease, lubricants, paints, cans, oil drums, rags, fertilizer, sacks, etc.), will be periodically hauled to the nearest state approved landfill. This material will not be burned.

(2) Any woody vegetation encountered by mining or in construction of related facilities may be burned in a controlled manner or windrowed in a manner that will not cause instability.

(3) Abandoned machinery will be sold for scrap.

"Attachment 29.2.A"

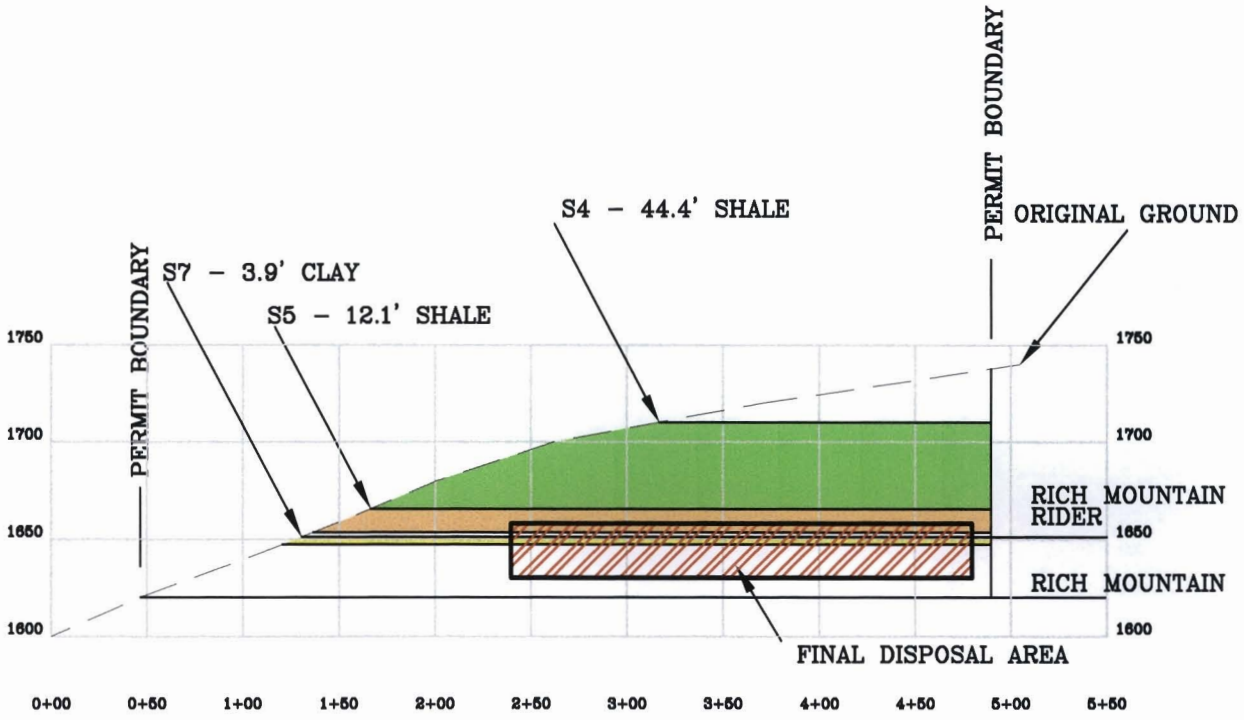
As discussed previously, most of the potential acidic material will be blended during the normal mining process including blasting, dozing, loading and end-dumping of backfill material,and should therefore not be acidic.

One strata within corehole AF-443 in particular has been identified as potential acidic, as see in the volume weighted Acid Base Account in Item 15.5.A, Sample 5 a 12.1 foot thick shale unit has a net acid-base of -39.12. This potentially acidic rock unit will be blended with the other strata encountered. No AMD or other detrimental effects should be produced at this site.

However, as a precautionary measure, if it is determined that the acidic material has not or will not be mixed adequately with the adjacent material, the acidic material will be placed back on the bench or in the backfill, isolated from air and groundwater seepage, and covered with a minimum of four (4) feet of non-toxic cohesive material. Toxic material, after being identified, will be placed away from the drainage course so as to avoid a threat of water pollution. This material shall be placed in its final destination within thirty (30) days of identification and covered with a minimum of four (4) feet of non-toxic material. If necessary, such material will be treated to neutralize toxicity. Material used to cover toxic material will be non-toxic and non-combustible.

"Attachment 29.2.B" shows the location of this strata and the proposed final disposal area, the final disposal shall be at least 10' above the lowest coal seam and located a minimum of 10' away from the highwall, and shall be located in an area where infiltration into the groundwater system shall be minimized.

TYPICAL SECTION
SHOWING POTENTIAL TOXIC MATERIAL



ACIDIC OR TOXIC STRATA

NON–TOXIC, NON–COMBUSTIBLE STRATA

NON–PERMEABLE STRATA

FINAL DISPOSAL OF ACIDIC OR TOXIC STRATA

NOTE: The final disposal area will be covered by a minimum of four (4) feet of nonacid–forming, nontoxic–forming material prior to backfilling.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
LICENSED PROFESSIONAL ENGINEER

I, Robert Brashear (signature) (license no.) 2/3/08 (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878–1381	
APPOLO FUELS, INC.	
807–0314 AMENDMENT 1	
"ATTACHMENT 29.02.B"	
DATE: 01–25–08	FILENAME: AT_29_02_B.DWG
SCALE: 1"=100'	DRAWN BY: MC

"Attachment 30.1.A"

IN-STREAM WATER MONITORING

Monitoring Points:

CF-4
CF-6
SC-1

Location/Rationale: The sample site reflects a drainage area which includes all proposed surface disturbance. (See ERI Map for exact location.)

Reported: Quarterly to DSMRE

Type of Sample: Grab sample from stream

PARAMETERS	FREQUENCY OF SAMPLE
Discharge	Quarterly
TDS or Sp. Conductance	
TSS	
pH	
Total Fe	
Total Mn	
Acidity	
Alkalinity	
Sulfate	

Surface water monitoring will continue until final bond release. The results of the data collection will be submitted to the appropriate regional office on or before the end of the first month following the calendar quarter in which data is collected. Prompt notification to the cabinet in writing and immediate corrective action will be taken if the data indicates a non-compliance.

Samples will be collected, and analyzed using methods described in Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985.

30.2 Submit as "Attachment 30.2.A", a description of the applicant's proposed KPDES point source discharge monitoring program. Discharges from sediment ponds, underground mines and other similar discharge points within the proposed permit area shall be monitored. The description shall, at a minimum address: (a) the frequency of sample collection; (b) the parameters to be tested; and (c) the procedures to be used for reporting the analytical results of the laboratory tests. Show the location of all sampling points on the MRP Map.

SEE "ATTACHMENT 30.2.A"

30.3 Provide, as "Attachment 30.3.A", a detailed description of the ground water quality and quantity monitoring program to be used during the mining and reclamation operations. The description shall specifically address all the following:

(a) the location of each sampling point and the rationale for selection
(b) the frequency of sample collection
(c) the method(s) to be used for sample collection
(d) the parameters to be tested
(e) the procedures to be used for reporting the analytical results of the testing program to DSMRE

Show the location of all sampling points on the MRP Map.

SEE "ATTACHMENT 30.3.A"

30.4 Provide a detailed description of each monitoring point proposed for use in the ground water monitoring program. The description shall address:

(a) the aquifer(s) to be monitored
(b) the construction specifications of each monitoring point
(c) the adequacy of each monitoring point, taking into account design, construction, and location to fulfill its intended use

Submit the description as "Attachment 30.4.A".

SEE "ATTACHMENT 30.4.A"

30.5 Provide the following information for the surface and ground water monitoring locations. If additional pages are necessary, submit as "Item 30.5 continued".

SEE "ATTACHMENT 30.5.A"

I.D. Number	Pond Number if Applicable	Type Surface/Ground	Latitude	Longitude

"Attachment 30.2.A"

KPDES POINT DISCHARGE MONITORING

Monitoring Points:

Pond 1	Pond 8
Pond 2	Pond 9
Pond 3	Pond 10
Pond 5	Pond 11
Pond 6	Pond 12
Pond 7	Pond 13

Reported: Quarterly to DSMRE as per KPDES standards

Type of Sample: Grab sample from sediment pond discharge point

PARAMETERS	**FREQUENCY OF SAMPLE**	
	During Mining	Reclamation**
Discharge	2/mo.	1/mo.
TDS or Specific Conductance	2/mo.	1/mo.
TSS	2/mo.	1/mo.
pH	2/mo.	1/mo.
Total Fe	2/mo.	1/mo.
Total Mn	2/mo.	1/mo.
Acidity	2/mo.	1/mo.
Alkalinity	2/mo.	1/mo.
Sulfate	2/mo.	1/mo.

** After Phase I bond release quarterly, then six months monitoring.

Water monitoring will continue until final bond release. The results of the data collection will be submitted to the appropriate regional office on or before the end of the first month following the calendar quarter in which data is collected. Prompt notification to the cabinet in writing and immediate corrective action will be taken if the data indicates a non-compliance.

"Attachment 30.3.A"

GROUND WATER MONITORING POINTS

Location/Rationale

Seep 12: Located on the Clear Fork in the stress-relief fracture system and should reflect any effects the operation might have on the ground water system. (See ERI Map for exact location.)

Reported: Quarterly to DSMRE

Type of Sample: Grab

Parameters	Frequency of Sample
Acidity	Quarterly
Alkalinity	
Diss. Fe	
Diss. Mn	
pH	
Sulfate	
TDS or Sp. Conductance	
Water level	

Ground water monitoring will continue until final bond release. The results of the data collection will be submitted to the appropriate regional office on or before the end of the first month following the calendar quarter in which data is collected. Prompt notification to the cabinet in writing and immediate corrective action will be taken if the data indicates a non-compliance.

Samples will be collected, and analyzed using methods described in Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985.

"Attachment 30.4.A"

DESCRIPTION OF GROUND WATER MONITORING POINTS

Seep 12: This site will monitor the shallow fracture zone on Clear Fork. The spring is at an approximate elevation of 1310 feet.

"ATTACHMENT 30.5.A"

I.D. Number	Pond Number if Applicable	Type Surface/Ground	Latitude	Longitude
CF-4	**NA**	**Surface**	**36º 35' 21"**	**83º 53' 37"**
CF-6	**NA**	**Surface**	**36º 35' 33"**	**83º 51' 49"**
SC-1	**NA**	**Surface**	**36º 35' 33"**	**83º 51' 50"**
Seep 12	**NA**	**Ground**	**36º 35' 20"**	**83º 53' 33"**
Pond 1	**Pond 1**	**KPDES**	**36º 35' 36"**	**83º 52' 31"**
Pond 5	**Pond 5**	**KPDES**	**36º 35' 57"**	**83º 51' 56"**
Pond 6	**Pond 6**	**KPDES**	**36º 35' 39"**	**83º 51' 59"**
Pond 7	**Pond 7**	**KPDES**	**36º 35' 39"**	**83º 51' 31"**
Pond 8	**Pond 8**	**KPDES**	**36º 35' 38"**	**83º 51' 17"**
Pond 9	**Pond 9**	**KPDES**	**36º 35' 35"**	**83º 51' 24"**
Pond 10	**Pond 10**	**KPDES**	**36º 35' 22"**	**83º 51' 39"**
Pond 11	**Pond 11**	**KPDES**	**36º 35' 17"**	**83º 51' 48"**
Pond 12	**Pond 12**	**KPDES**	**36º 35' 25"**	**83º 51' 56"**
Pond 13	**Pond 13**	**KPDES**	**36º 35' 26"**	**83º 52' 14"**

30.6 List the name and address of the laboratory which will perform required testing of water samples.

Name **STANDARD LABORATORIES, INC.**
Address **JACKSBORO, TENNESSEE**

31. Sediment Ponds and Impoundments

31.1 Complete the following table for each proposed sediment pond and impoundment. The number preceding the rows refer to the list of titles below the chart.

1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

1.) Facility ID No.
2.) Hazard Classification (A, B, or C)
3.) Total Drainage Area (Acres)
4.) Disturbed Drainage Area (Acres)
5.) Sediment Storage Capacity (Acre-Feet)
6.) Storage Capacity at Principal Spillway (Acre-Feet)
7.) Storage Capacity at Emergency Spillway (Acre-Feet)
8.) Structure Height at Emergency Spillway Measured from Upstream Toe (Feet)
9.) Storage Capacity at Top of Dam (Acre-Feet)
10.) Structure Height at Top of Dam Measured from Downstream Toe (Feet)
11.) Latitude
12.) Longitude

SEE "ATTACHMENT 31.1.A"

"ATTACHMENT 31.1.A"

1	Pond 1	Pond 5	Pond 6	Pond 7	Pond 8	Pond 9	Pond 10
2	A	A	A	A	A	A	A
3	221.40	23.70	45.90	43.80	58.40	76.00	60.30
4	44.00	10.80	11.70	13.20	11.10	18.7	15.20
5	28.50	0.54	0.66	0.66	0.15	0.21	0.21
6	NA	NA	NA	NA	NA	NA	NA
7	31.82	0.71	0.88	0.88	0.22	0.31	0.31
8	NA	NA	NA	NA	NA	NA	NA
9	42.08	0.97	1.30	1.30	0.45	0.62	0.62
10	NA	NA	NA	NA	NA	NA	NA
11	36 35 36	36 35 57	36 35 45	36 35 39	36 35 38	36 35 35	36 35 22
12	83 52 31	83 51 56	83 51 51	83 51 31	83 51 17	83 51 24	83 51 39

1.) Facility ID No.
2.) Hazard Classification (A, B, or C)
3.) Total Drainage Area (Acres)
4.) Disturbed Drainage Area (Acres)
5.) Sediment Storage Capacity (Acre-Feet)
6.) Storage Capacity at Principal Spillway (Acre-Feet)
7.) Storage Capacity at Emergency Spillway (Acre-Feet)
8.) Structure Height at Emergency Spillway Measured from Upstream Toe (Feet)
9.) Storage Capacity at Top of Dam (Acre-Feet)
10.) Structure Height at Top of Dam Measured from Downstream Toe (Feet)
11.) Latitude
12.) Longitude

"ATTACHMENT 31.1.A"

1	Pond 11	Pond 12	Pond 13				
2	A	A	A				
3	144.50	33.10	43.20				
4	18.80	18.30	8.90				
5	0.21	0.28	0.19				
6	NA	NA	NA				
7	0.31	0.38	0.27				
8	NA	NA	NA				
9	0.62	0.63	0.45				
10	NA	NA	NA				
11	36 35 14	36 35 25	36 35 26				
12	83 51 53	83 51 56	83 52 14				

1.) Facility ID No.
2.) Hazard Classification (A, B, or C)
3.) Total Drainage Area (Acres)
4.) Disturbed Drainage Area (Acres)
5.) Sediment Storage Capacity (Acre-Feet)
6.) Storage Capacity at Principal Spillway (Acre-Feet)
7.) Storage Capacity at Emergency Spillway (Acre-Feet)
8.) Structure Height at Emergency Spillway Measured from Upstream Toe (Feet)
9.) Storage Capacity at Top of Dam (Acre-Feet)
10.) Structure Height at Top of Dam Measured from Downstream Toe (Feet)
11.) Latitude
12.) Longitude

31.2 Were any of the structures listed in chart 31.1 constructed prior to January 18, 1983? [ ] YES [**X**] NO.
If "YES", identify each structure and submit as "Attachment 31.2.A, 31.2.B", etc., the descriptions and compliance plan(s) required by 405 KAR 8:030, Section 25, or 405 KAR 8:040, Section 25, as appropriate.

31.3 For each proposed impoundment submit the applicable design plans and descriptions, including compliance demonstration documents, as required by 405 KAR 8:030 or 8:040, Section 34. Design plans and descriptions shall be submitted as "Attachment 31.3.A, 31.3.B", etc. Compliance demonstration documents shall be appropriately labeled and submitted in a separate document cover entitled "Sediment Ponds - Compliance Demonstration Documents". Put the applicants name and the application number on the face of the document cover. If other state or federal agencies receive a copy of the permit application, a copy of the compliance demonstration documents shall also be provided to such agencies unless specifically waived.

SEE "ATTACHMENT 31.3.A"

NOTE: If any proposed sediment ponds are to be retained as permanent impoundments, the applicant shall ensure that such structures have been designed to meet the requirements of 405 KAR 16:100 or 405 KAR 18:100 as appropriate.

31.4 Will water be chemically treated at any of the proposed or existing sediment structures? [ ] YES [**X**] NO
If "YES", provide the following information:

I.D. Number	TREATMENT CHEMICALS	Describe the method of treatment application and any special structures or facilities to be used

If additional pages are necessary, submit as "Item 31.4 continued". If special structures are to be utilized, submit as "Attachment 31.4.A, 31.4.B" etc., supporting engineering designs and calculations.

"ATTACHMENT 31.3.A"

SILT STRUCTURE CONSTRUCTION NOTES

Prior to mining sediment control will be provided by construction of on-bench ponds where appropriate. Where drainage is controlled by on-bench structures, coal will be extracted prior to construction of on-bench ponds. Once mining takes place in areas proposed for on-bench structures, and until sediment control construction is completed, drainage will be diverted into mining pits and, if needed, to the area where an approved sediment structure exists. (No in-pit retention will be allowed to discharge without first passing through a sediment control structure.) Construction of on-bench sediment structures will immediately proceed following coal removal and care will be taken to provide alternate sediment control during construction. Alternate sediment control will include, but is not limited to, straw/hay bales, silt fence, sumps, and rock check dams.

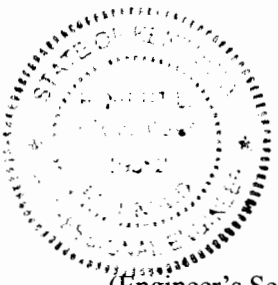
The pond areas will be cleared of all organic matter and the entire foundation surface scarified. The pond areas including the surrounding areas disturbed by construction shall be stabilized with respect of erosion by a vegetation cover or other means immediately after the pond is completed. The structure shall be routinely maintained during the mining operation. This maintenance includes insuring no spillways clog, prevention or correction of erosion at spillway outlets or on faces, maintaining a good vegetative cover. Vegetative growth shall be cut where necessary to facilitate inspection and repairs. Ditches and spillways shall be cleaned.

Note:

1) Pond 1 has been constructed with a on-bench configuration, the material of the solid berm as shown on the attached drawings is original soil material.

2) The drawin for Pond 1 shows the existing emergency spillway configuration at elevation 1407, along with the proposed modified emergency spillway configuration at elevation 1406.

CERTIFICATION OF DESIGN

I, _____,  19652, 2/6/08,
(Signature) (Engineer's Seal) (Registration No.) (Date Certified)

hereby certify, in accordance with 405 KAR 7:040, Section 10, that the design of each of the following facilities, whose design is included in this application, Application # **807-0314 Amendment 1** :

a) is in accordance with accepted engineering practices and recognized professional standards;
b) complies With the design requirements of KRS Chapter 350 and KAR Title 405; and
c) provided that the facility is properly constructed, operated and maintained, is adequate for the facility to meet the applicable performance standards of KRS Chapter 350 and KAR Title 405 insofar as such performance can reasonable be predicted by accepted engineering practices.

FACILITY TYPE: **WATER IMPOUNDMENT**
(One facility type only

FACILITY ID #	HAZARD CLASS *	DATE OF DESIGN	FACILITY ID #	HAZARD CLASS *	DATE OF DESIGN
POND 1	**A**	**02-09-08**	**(Temporary)**		
POND 5	**A**	**02-09-08**	**(Temporary)**		
POND 6	**A**	**02-09-08**	**(Temporary)**		
POND 7	**A**	**02-09-08**	**(Temporary)**		
POND 8	**A**	**02-09-08**	**(Temporary)**		
POND 9	**A**	**02-09-08**	**(Temporary)**		
POND 10	**A**	**02-09-08**	**(Temporary)**		
POND 11	**A**	**02-09-08**	**(Temporary)**		
POND 12	**A**	**02-09-08**	**(Temporary)**		
POND 13	**A**	**02-09-08**	**(Temporary)**		

TYPES OF FACILITIES:

-- sedimentation pond
-- excess spoil disposal fill
-- temporary water impoundment
-- permanent water impoundment
-- coal processing waste impoundment
-- coal processing waste dam
-- coal processing waste bank
-- road
-- postmining land use plan
-- permanent ditches

* Show hazard class, if applicable

Pond 1

SW #	Acres	Curve Number
1	156.0	73
2	6.2	86
3	9.2	79
4	10.4	74
5	21.4	73
6	18.2	69

Pond 5

SW #	Acres	Curve Number
1	12.9	73
2	3.5	74
3	4.3	79
4	3.0	86

Pond 6

SW #	Acres	Curve Number
1	34.2	73
2	5.7	79
3	6.0	86

Pond 7

SW #	Acres	Curve Number
1	30.6	73
2	4.7	74
3	4.8	79
4	3.7	86

Pond 8

SW #	Acres	Curve Number
1	47.3	73
2	5.4	79
3	5.7	86

Pond 9

SW #	Acres	Curve Number
1	57.3	73
2	5.9	74
3	7.3	79
4	5.5	86

Pond 10

SW #	Acres	Curve Number
1	45.1	73
2	4.2	74
3	6.6	79
4	4.4	86

Pond 11

SW #	Acres	Curve Number
1	125.7	73
2	9.5	79
3	9.3	86

Pond 12

SW #	Acres	Curve Number
1	14.8	73
2	7.2	74
3	7.1	79
4	4.0	86

Pond 13

SW #	Acres	Curve Number
1	34.3	73
2	4.5	79
3	4.4	86

LEGEND

Watershed ——————

Structure Watershed - - - - - - - - - - - -

Sub-Watershed .....

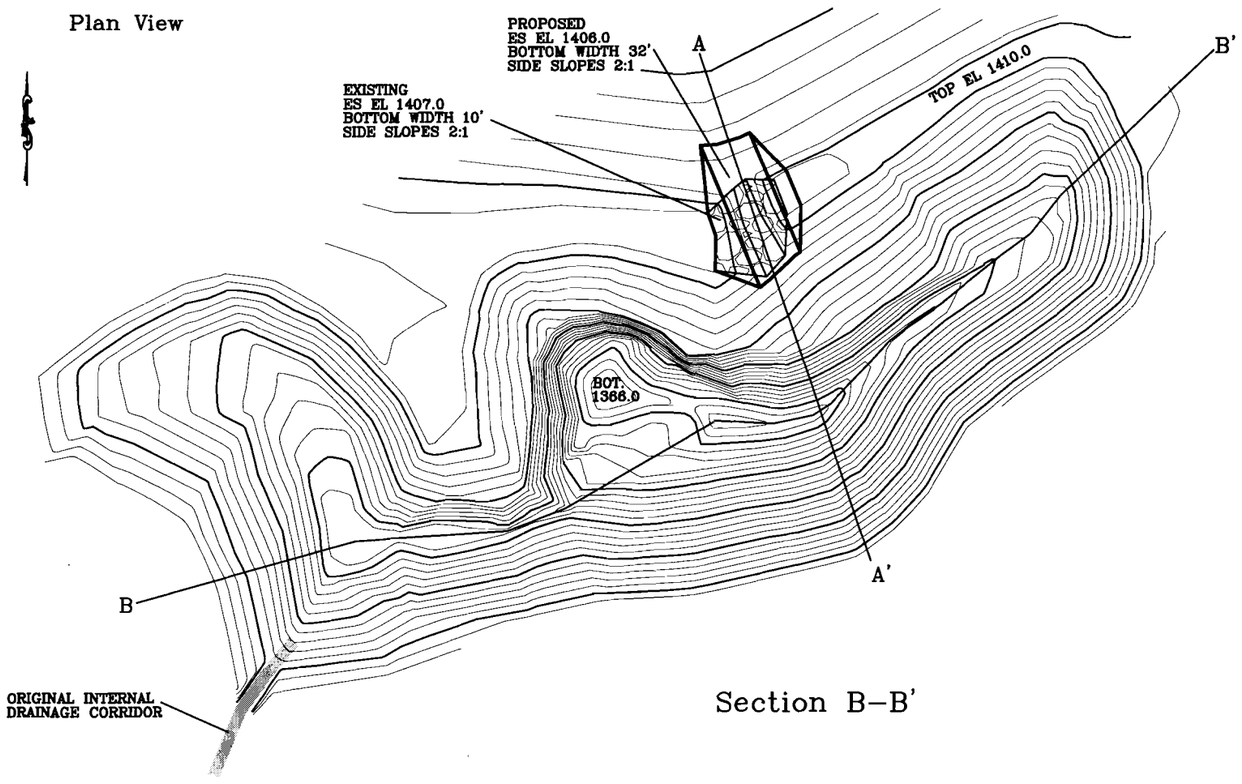
Diversion ——▶——▶——

I, Robert L. Brashear, 19652, 2/13/08 (signature) (license no.) (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct, as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and 405 KAR 7:040.

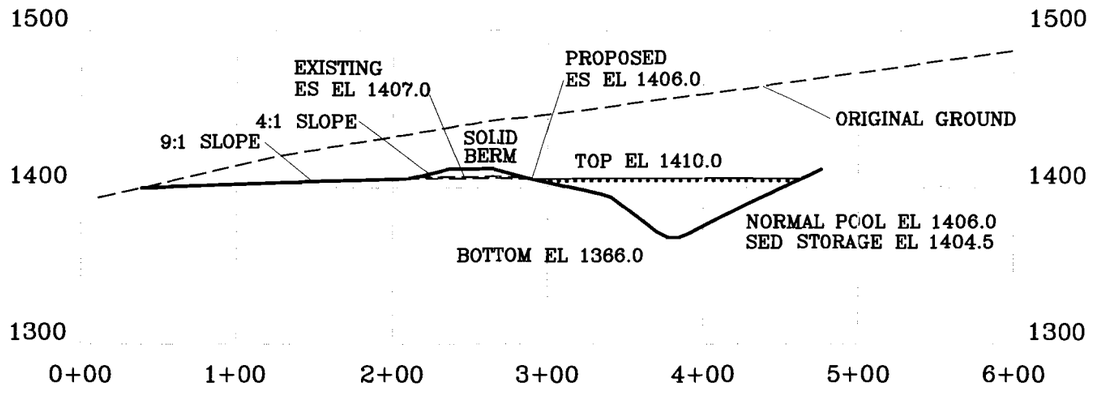
STATE OF KENTUCKY ROBERT L BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
WATERSHED SCHEMATIC	
DATE: 01-31-08	FILENAME: SCHEMATIC.DWG
SCALE: 1"=400'	DRAWN BY: MC

Plan View



Section A–A'



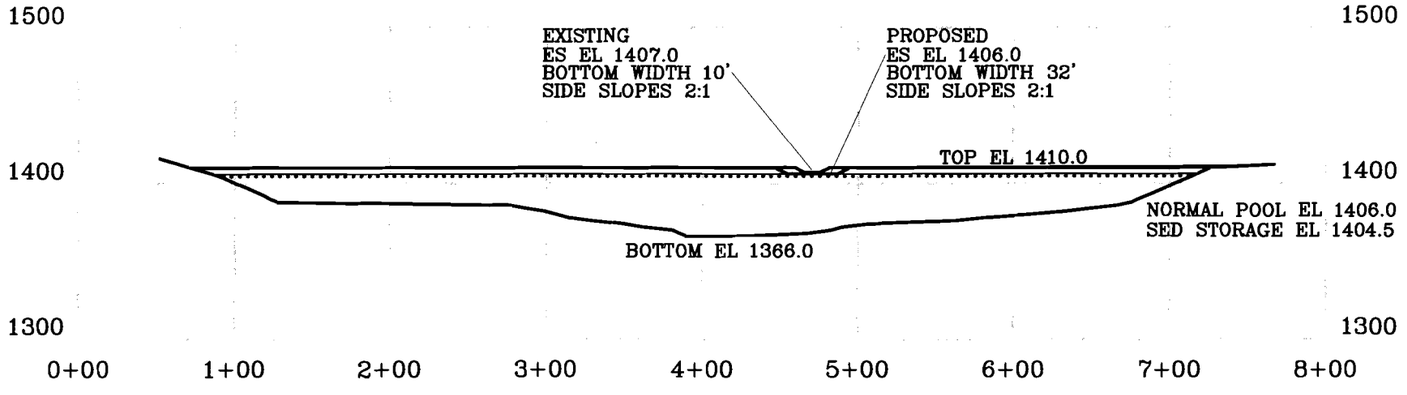
LEGEND

Ground Line ——————

Normal Pool Level ——————

Sediment Storage Level ·····

Section B–B'



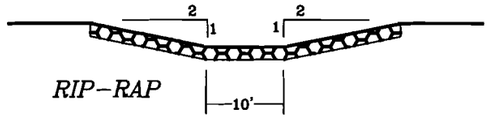
I, _____ (signature) _____ (license no.) _____ (date)
hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

	EXISTING	*PROPOSED*
Top of Pond	*1410.0*	*1410.0*
E.S.	*1407.0*	*1406.0*
Sed. Storage	*1406.0*	*1404.5*
Bottom	*1366.0*	*1366.0*

EXISTING

EMERGENCY SPILLWAY DETAIL

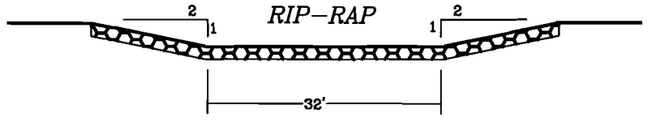
N.T.S.



PROPOSED

EMERGENCY SPILLWAY DETAIL

N.T.S.



Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878–1381

APPOLO FUELS, INC.

807–0314 AMENDMENT 1

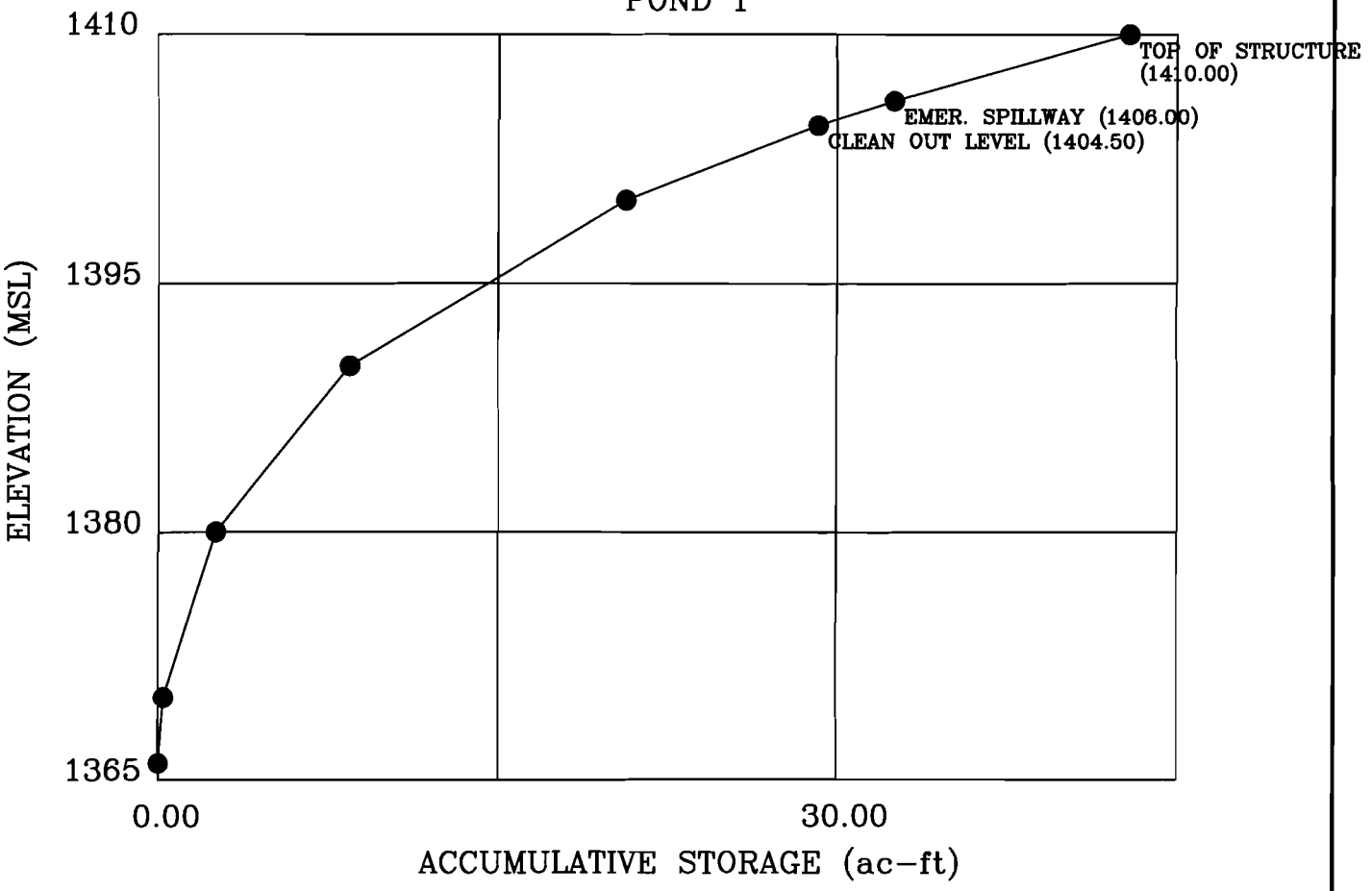
POND 1 AS–BUILT WITH PROP. MODIFICATIONS

DATE:	FILENAME:
02–08–08	POND–1 AS–BUILT.DWG
SCALE: 1"=100'	DRAWN BY: MC

AP. 807-0314 AM. 1

STAGE STORAGE CURVE

POND 1



STORAGE VOLUME COMPUTATIONS
807-0314 AM. 1
POND 1

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1366.00	N/A	N/A	0.0180					
				0.0570	4.00	0.2280	0.2280	4.00
1370.00	N/A	N/A	0.0960					
				0.2320	10.00	2.3200	2.5480	14.00
1380.00	N/A	N/A	0.3680					
				0.5920	10.00	5.9200	8.4680	24.00
1390.00	N/A	N/A	0.8160					
				1.2180	10.00	12.1800	20.6480	34.00
1400.00	N/A	N/A	1.6200					
				1.8925	4.50	8.5161	29.1641	38.50
1404.50	N/A	N/A	2.1650					
				2.2558	1.50	3.3837	32.5478	40.00
1406.00	N/A	N/A	2.3466					
				2.5888	4.00	10.3552	42.9030	44.00
1410.00	N/A	N/A	2.8310					

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
REGISTERED PROFESSIONAL ENGINEER

I, Robert L. Brashear, 19652, 12/3/08
(signature) (license no.) (date)
hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

APPOLO FUELS, INC.
PERMIT 807-0314
AMENDMENT 1

POND 1 "AS-BUILT"
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	156.000	0.000	0.000	0.000	73.000	S	407.68	31.698
	2	6.200	0.000	0.000	0.000	73.000	S	16.20	1.260
	3	9.200	0.000	0.000	0.000	73.000	S	24.04	1.869
	4	10.400	0.000	0.000	0.000	73.000	S	27.18	2.113
	5	21.400	0.000	0.000	0.000	73.000	S	55.93	4.348
	6	18.200	0.000	0.000	0.000	73.000	S	47.56	3.698
	Σ	**221.400**						**578.59**	**44.987**

APPOLO FUELS, INC.
PERMIT 807-0314
AMENDMENT 1

POND 1 "AS-BUILT"
10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

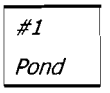
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 1



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	221.400	221.400	463.53	35.54	797.5	46,251	29.32	10.37
	Out			399.35	35.54	191.0	8,017	1.41	0.70

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	6.25
	Out	0.16

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.378%	100.000%
1.0000	86.658%	100.000%
0.5000	78.767%	100.000%
0.3000	73.767%	100.000%
0.2000	67.713%	100.000%
0.1000	55.822%	100.000%
0.0500	44.877%	100.000%
0.0300	35.822%	100.000%
0.0200	27.822%	100.000%
0.0100	18.767%	78.368%
0.0050	14.384%	60.062%
0.0030	9.329%	38.955%
0.0010	3.055%	12.756%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 1

Pond Inputs:

Initial Pool Elev:	1,406.00
Initial Pool:	3.32 ac-ft
*Sediment Storage:	28.50 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,406.00	10.00	2.00:1	2.00:1	32.00

Pond Results:

Peak Elevation:	1,408.48
H'graph Detention Time:	0.64 hrs
Pond Model:	CSTRS
Dewater Time:	1.14 days
Trap Efficiency:	76.05 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,404.50	2.123	0.000	0.000		Top of Sed. Storage
1,404.50	2.123	0.000	0.000		
1,405.00	2.184	1.077	0.000		
1,405.50	2.245	2.184	0.000		
1,406.00	2.306	3.322	0.000		Spillway #1
1,406.50	2.369	4.490	6.569	15.45	
1,407.00	2.432	5.691	84.604	11.40	
1,407.50	2.497	6.923	173.368	0.40	
1,408.00	2.562	8.188	279.601	0.15	
1,408.48	2.625	9.429	399.349	0.05	Peak Stage
1,408.50	2.628	9.485	404.791		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,409.00	2.695	10.816	548.139	
1,409.50	2.763	12.180	709.198	
1,410.00	2.831	13.578	887.726	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,404.50	0.000	0.000
1,404.50	0.000	0.000
1,405.00	0.000	0.000
1,405.50	0.000	0.000
1,406.00	0.000	0.000
1,406.50	6.569	6.569
1,407.00	84.604	84.604
1,407.50	173.368	173.368
1,408.00	279.601	279.601
1,408.50	404.791	404.791
1,409.00	548.139	548.139
1,409.50	709.198	709.198
1,410.00	887.726	887.726

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	156.000	0.000	0.000	0.000	73.000	S	323.24	24.644
	2	6.200	0.000	0.000	0.000	86.000	F	18.16	1.552
	3	9.200	0.000	0.000	0.000	79.000	F	22.83	1.822
	4	10.400	0.000	0.000	0.000	74.000	F	22.27	1.709
	5	21.400	0.000	0.000	0.000	73.000	S	44.34	3.381
	6	18.200	0.000	0.000	0.000	69.000	F	32.69	2.430
	Σ	**221.400**						**463.53**	**35.538**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	100.00	30.00	0.0030	1.0000	1	39.5	2,285	1.23	0.63
	2	0.220	100.00	30.00	0.8000	1.0000	2	577.2	415,696	265.84	151.76
	3	0.220	100.00	30.00	0.1400	1.0000	2	125.6	91,585	58.57	31.55
	4	0.220	100.00	30.00	0.0500	1.0000	2	42.7	34,937	22.34	11.63
	5	0.170	100.00	30.00	0.0030	1.0000	1	4.3	1,800	0.97	0.50
	6	0.220	100.00	20.00	0.0100	1.0000	2	8.3	5,011	3.20	1.60
	Σ							**797.5**	**46,251**	**29.32**	**10.37**

APPOLO FUELS, INC.

PERMIT 807-0314

AMENDMENT 1

POND 1 "AS-BUILT"

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

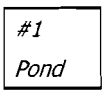
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 1



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	221.400	221.400	583.36	45.59	995.1	42,139	26.70	10.08
	Out			521.77	45.59	249.6	8,024	1.63	0.83

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	6.02
	Out	0.18

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.398%	100.000%
1.0000	86.691%	100.000%
0.5000	78.807%	100.000%
0.3000	73.807%	100.000%
0.2000	67.749%	100.000%
0.1000	55.864%	100.000%
0.0500	44.922%	100.000%
0.0300	35.864%	100.000%
0.0200	27.864%	100.000%
0.0100	18.807%	74.971%
0.0050	14.403%	57.418%
0.0030	9.346%	37.256%
0.0010	3.058%	12.189%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 1

Pond Inputs:

Initial Pool Elev:	1,406.00
Initial Pool:	3.32 ac-ft
*Sediment Storage:	28.50 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,406.00	10.00	2.00:1	2.00:1	32.00

Pond Results:

Peak Elevation:	1,408.91
H'graph Detention Time:	0.54 hrs
Pond Model:	CSTRS
Dewater Time:	1.15 days
Trap Efficiency:	74.91 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,404.50	2.123	0.000	0.000		Top of Sed. Storage
1,404.50	2.123	0.000	0.000		
1,405.00	2.184	1.077	0.000		
1,405.50	2.245	2.184	0.000		
1,406.00	2.306	3.322	0.000		Spillway #1
1,406.50	2.369	4.490	6.569	15.45	
1,407.00	2.432	5.691	84.604	11.35	
1,407.50	2.497	6.923	173.368	0.45	
1,408.00	2.562	8.188	279.601	0.15	
1,408.50	2.628	9.485	404.791	0.05	
1,408.91	2.683	10.571	521.774	0.05	Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,409.00	2.695	10.816	548.139	
1,409.50	2.763	12.180	709.198	
1,410.00	2.831	13.578	887.726	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,404.50	0.000	0.000
1,404.50	0.000	0.000
1,405.00	0.000	0.000
1,405.50	0.000	0.000
1,406.00	0.000	0.000
1,406.50	6.569	6.569
1,407.00	84.604	84.604
1,407.50	173.368	173.368
1,408.00	279.601	279.601
1,408.50	404.791	404.791
1,409.00	548.139	548.139
1,409.50	709.198	709.198
1,410.00	887.726	887.726

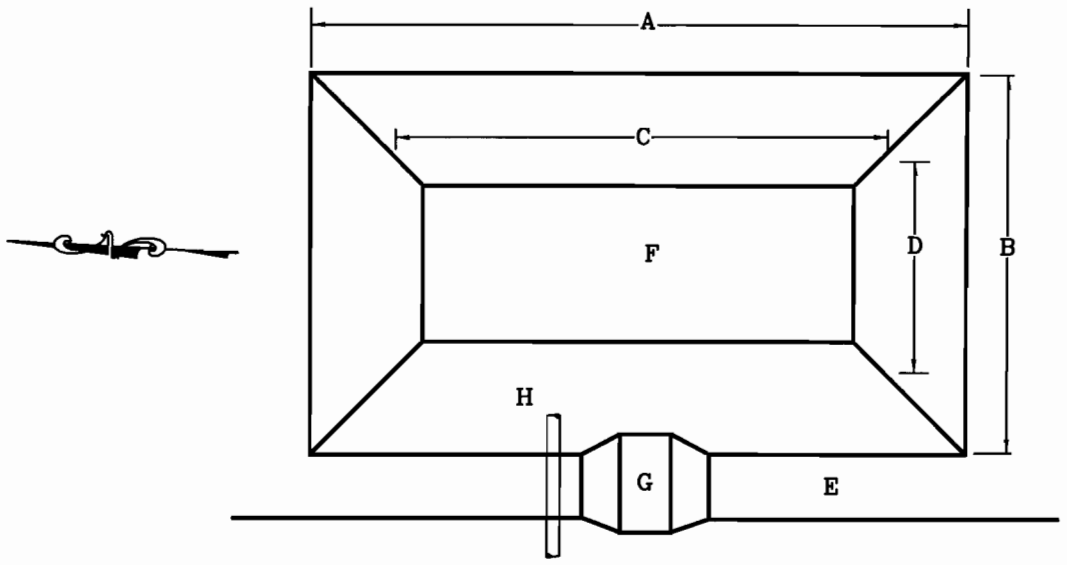
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	156.000	0.000	0.000	0.000	73.000	S	407.68	31.698
	2	6.200	0.000	0.000	0.000	86.000	F	21.67	1.888
	3	9.200	0.000	0.000	0.000	79.000	F	28.01	2.281
	4	10.400	0.000	0.000	0.000	74.000	F	27.94	2.188
	5	21.400	0.000	0.000	0.000	73.000	S	55.93	4.348
	6	18.200	0.000	0.000	0.000	69.000	F	42.13	3.191
	Σ	**221.400**						**583.36**	**45.594**

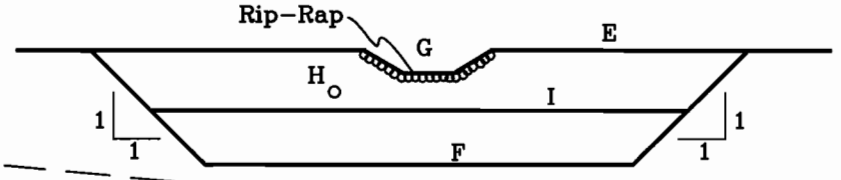
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	100.00	30.00	0.0030	1.0000	1	51.7	2,288	1.23	0.65
	2	0.220	100.00	30.00	0.8000	1.0000	2	711.2	418,598	267.70	153.36
	3	0.220	100.00	30.00	0.1400	1.0000	2	159.7	92,008	58.84	32.03
	4	0.220	100.00	30.00	0.0500	1.0000	2	55.7	35,013	22.39	11.85
	5	0.170	100.00	30.00	0.0030	1.0000	1	5.6	1,803	0.97	0.51
	6	0.220	100.00	20.00	0.0100	1.0000	2	11.1	5,005	3.20	1.64
	Σ							**995.1**	**42,139**	**26.70**	**10.08**

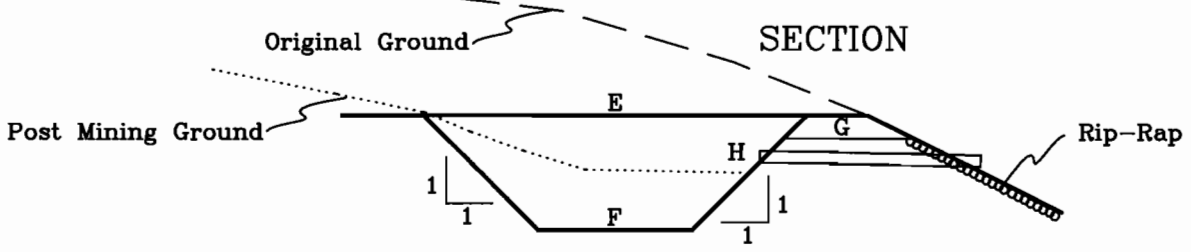
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 150
B TOP WIDTH 40
C BOTTOM LENGTH 130
D BOTTOM WIDTH 20
E TOP ELEVATION 1595
F BOTTOM ELEVATION 1585
G EMERGENCY SPILLWAY ELEVATION 1593
BOTTOM WIDTH 25 SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1591.5

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY

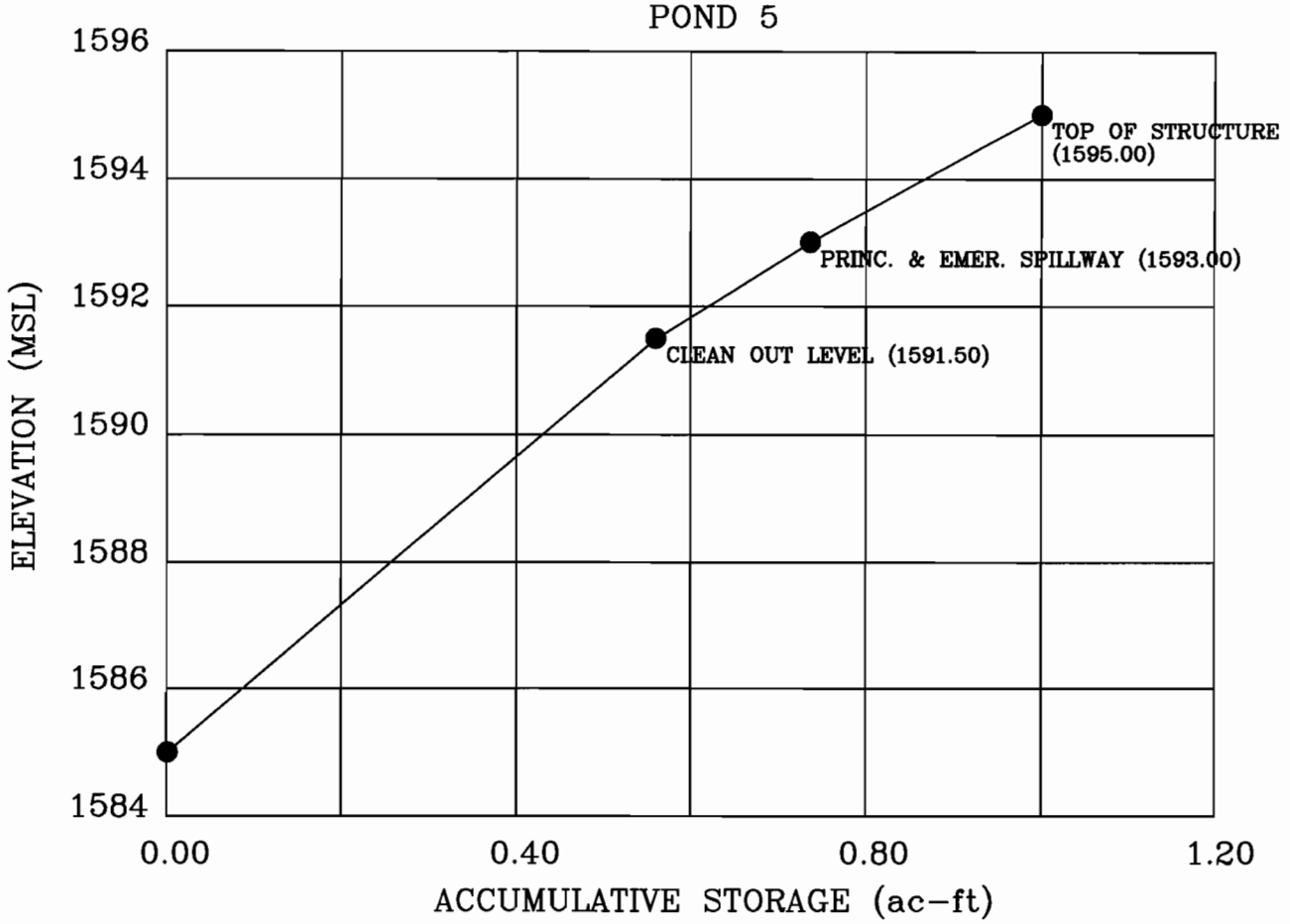
SIGNATURE 2/11/08 DATE

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
POND 5	
DATE: 02-09-08	FILENAME: POND 5.DWG
SCALE: NTS	DRAWN BY: MC

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 5



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 5

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1585.00	N/A	N/A	0.0600					
				0.0860	6.50	0.5590	0.5590	6.50
1591.50	N/A	N/A	0.1120					
				0.1180	1.50	0.1770	0.7360	8.00
1593.00	N/A	N/A	0.1240					
				0.1320	2.00	0.2640	1.0000	10.00
1595.00	N/A	N/A	0.1400					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 1(8), that this document is correct as determined by accepted engineering practices and includes all the information required by KRS Chapter 350 and KAR Title 405.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 5

25 YEAR 24 HOUR STORM

PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	12.900	0.000	0.000	0.000	73.000	S	33.71	2.621
	2	3.500	0.000	0.000	0.000	73.000	S	9.15	0.711
	3	4.300	0.000	0.000	0.000	73.000	S	11.24	0.874
	4	3.000	0.000	0.000	0.000	73.000	S	7.84	0.610
	Σ	**23.700**						**61.94**	**4.816**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 5

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

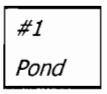
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 5



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	23.700	23.700	53.68	4.22	57.9	18,624	11.84	6.39
	Out			53.22	4.22	18.1	6,567	2.13	1.02

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	1.64
	Out	0.17

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.243%	100.000%
1.0000	86.422%	100.000%
0.5000	78.492%	100.000%
0.3000	73.492%	100.000%
0.2000	67.457%	100.000%
0.1000	55.527%	100.000%
0.0500	44.562%	100.000%
0.0300	35.527%	100.000%
0.0200	27.527%	88.330%
0.0100	18.492%	59.338%
0.0050	14.246%	45.713%
0.0030	9.211%	29.556%
0.0010	3.035%	9.739%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 5

Pond Inputs:

Initial Pool Elev:	1,593.00
Initial Pool:	0.17 ac-ft
*Sediment Storage:	0.54 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,593.00	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,593.89
H'graph Detention Time:	0.09 hrs
Pond Model:	CSTRS
Dewater Time:	0.53 days
Trap Efficiency:	68.84 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,591.50	0.108	0.000	0.000		Top of Sed. Storage
1,591.50	0.108	0.000	0.000		
1,592.00	0.112	0.055	0.000		
1,592.50	0.117	0.113	0.000		
1,593.00	0.121	0.172	0.000		Spillway #1
1,593.50	0.126	0.234	5.142	11.70	
1,593.89	0.129	0.284	53.223	1.00	Peak Stage
1,594.00	0.130	0.298	66.760		
1,594.50	0.135	0.364	137.574		
1,595.00	0.140	0.433	223.036		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,591.50	0.000	0.000
1,591.50	0.000	0.000
1,592.00	0.000	0.000
1,592.50	0.000	0.000
1,593.00	0.000	0.000
1,593.50	5.142	5.142
1,594.00	66.760	66.760
1,594.50	137.574	137.574
1,595.00	223.036	223.036

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	12.900	0.000	0.000	0.000	73.000	S	26.73	2.038
	2	3.500	0.000	0.000	0.000	74.000	F	7.49	0.575
	3	4.300	0.000	0.000	0.000	79.000	F	10.67	0.852
	4	3.000	0.000	0.000	0.000	86.000	F	8.79	0.751
	Σ	**23.700**						**53.68**	**4.215**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	2.0	1,426	0.77	0.40
	2	0.220	40.00	40.00	0.0500	1.0000	2	9.7	23,622	15.11	7.86
	3	0.220	40.00	40.00	0.1400	1.0000	2	41.1	64,831	41.46	22.28
	4	0.220	40.00	1.00	0.8000	1.0000	2	5.1	9,087	5.81	3.19
	Σ							**57.9**	**18,624**	**11.84**	**6.39**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 5

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

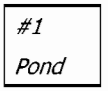
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 5



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	23.700	23.700	66.69	5.34	73.8	18,526	11.78	6.44
	Out			66.20	5.34	23.6	6,659	2.24	1.09

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	1.67
	Out	0.18

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.249%	100.000%
1.0000	86.434%	100.000%
0.5000	78.506%	100.000%
0.3000	73.506%	100.000%
0.2000	67.470%	100.000%
0.1000	55.542%	100.000%
0.0500	44.578%	100.000%
0.0300	35.542%	100.000%
0.0200	27.542%	86.057%
0.0100	18.506%	57.823%
0.0050	14.253%	44.534%
0.0030	9.217%	28.799%
0.0010	3.036%	9.487%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 5

Pond Inputs:

Initial Pool Elev:	1,593.00
Initial Pool:	0.17 ac-ft
*Sediment Storage:	0.54 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,593.00	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,594.00
H'graph Detention Time:	0.08 hrs
Pond Model:	CSTRS
Dewater Time:	0.53 days
Trap Efficiency:	68.00 %

Dewatering time is calculated from peak stage to lowest spillway

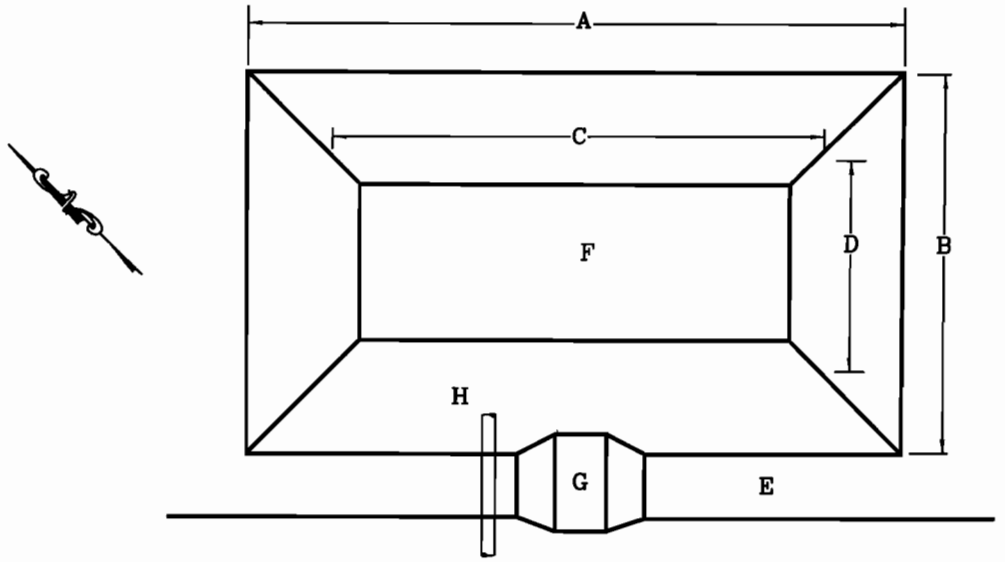
Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,591.50	0.108	0.000	0.000		Top of Sed. Storage
1,591.50	0.108	0.000	0.000		
1,592.00	0.112	0.055	0.000		
1,592.50	0.117	0.113	0.000		
1,593.00	0.121	0.172	0.000		Spillway #1
1,593.50	0.126	0.234	5.142	11.25	
1,594.00	0.130	0.297	66.201	1.50	Peak Stage
1,594.00	0.130	0.298	66.760		
1,594.50	0.135	0.364	137.574		
1,595.00	0.140	0.433	223.036		

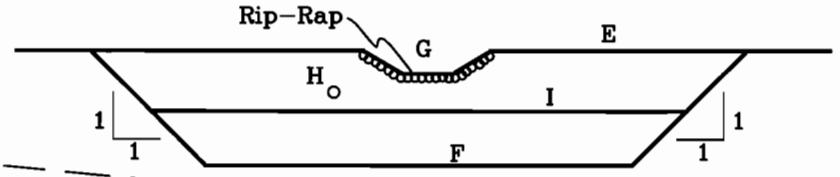
Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,591.50	0.000	0.000
1,591.50	0.000	0.000
1,592.00	0.000	0.000
1,592.50	0.000	0.000
1,593.00	0.000	0.000
1,593.50	5.142	5.142
1,594.00	66.760	66.760
1,594.50	137.574	137.574
1,595.00	223.036	223.036

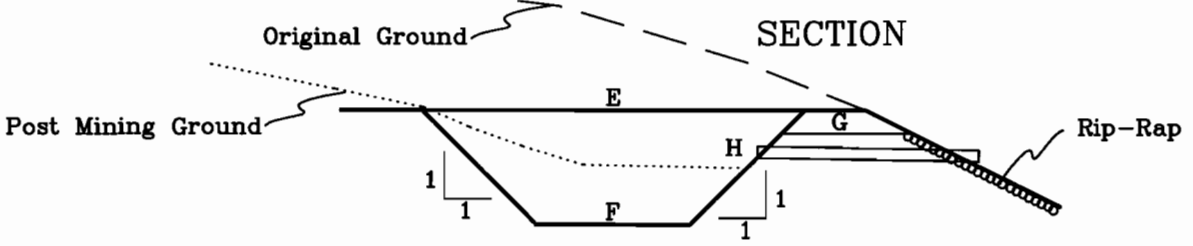
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 200
B TOP WIDTH 40
C BOTTOM LENGTH 180
D BOTTOM WIDTH 20
E TOP ELEVATION 1610
F BOTTOM ELEVATION 1600
G EMERGENCY SPILLWAY ELEVATION 1607.5
BOTTOM WIDTH 25' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1606

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY

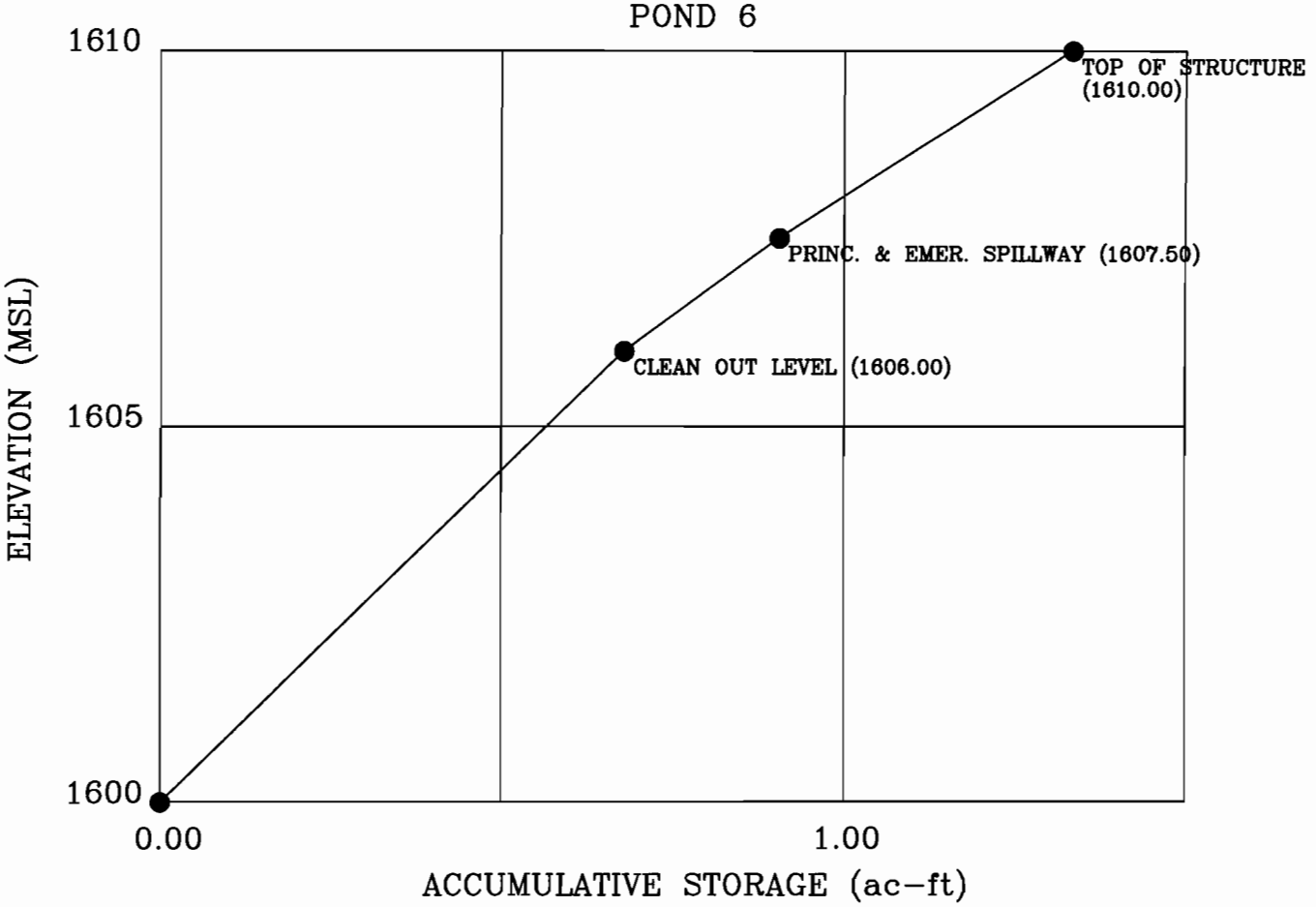
SIGNATURE 2/11/08 DATE

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878–1381	
APPOLO FUELS, INC.	
807–0314 AMENDMENT 1	
POND 6	
DATE: 02–09–08	FILENAME: POND 6.DWG
SCALE: NTS	DRAWN BY: MC

AP. 807-0314 AM. 1

STAGE STORAGE CURVE

POND 6



STORAGE VOLUME COMPUTATIONS
807-0314 AM. 1
POND 6

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1600.00	N/A	N/A	0.0830					
				0.1133	6.00	0.6798	0.6798	6.00
1606.00	N/A	N/A	0.1436					
				0.1512	1.50	0.2288	0.9066	7.50
1607.50	N/A	N/A	0.1588					
				0.1714	2.50	0.4284	1.3350	10.00
1610.00	N/A	N/A	0.1840					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L BRASHEAR 19552 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 6
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	34.200	0.000	0.000	0.000	73.000	S	89.38	6.949
	2	5.700	0.000	0.000	0.000	73.000	S	14.90	1.158
	3	6.000	0.000	0.000	0.000	73.000	S	15.68	1.219
	Σ	**45.900**						**119.95**	**9.327**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 6

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

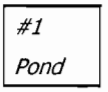
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 6



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	45.900	45.900	102.59	8.03	59.6	9,910	6.24	3.42
	Out			101.55	8.03	19.9	3,694	1.23	0.61

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.92
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.703%	100.000%
1.0000	87.222%	100.000%
0.5000	79.426%	100.000%
0.3000	74.426%	100.000%
0.2000	68.324%	100.000%
0.1000	56.527%	100.000%
0.0500	45.629%	100.000%
0.0300	36.527%	100.000%
0.0200	28.527%	85.494%
0.0100	19.426%	58.217%
0.0050	14.713%	44.093%
0.0030	9.611%	28.803%
0.0010	3.102%	9.296%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 6

Pond Inputs:

Initial Pool Elev:	1,607.50
Initial Pool:	0.22 ac-ft
*Sediment Storage:	0.66 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,607.50	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,608.75
H'graph Detention Time:	0.10 hrs
Pond Model:	CSTRS
Dewater Time:	0.54 days
Trap Efficiency:	66.63 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,606.00	0.139	0.000	0.000		Top of Sed. Storage
1,606.00	0.139	0.000	0.000		
1,606.50	0.144	0.071	0.000		
1,607.00	0.150	0.145	0.000		
1,607.50	0.155	0.221	0.000		Spillway #1
1,608.00	0.161	0.300	5.142	10.50	
1,608.50	0.166	0.381	66.760		
1,608.75	0.169	0.423	101.552	2.55	Peak Stage
1,609.00	0.172	0.466	137.574		
1,609.50	0.178	0.553	223.036		
1,610.00	0.184	0.644	324.530		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,606.00	0.000	0.000
1,606.00	0.000	0.000
1,606.50	0.000	0.000
1,607.00	0.000	0.000
1,607.50	0.000	0.000
1,608.00	5.142	5.142
1,608.50	66.760	66.760
1,609.00	137.574	137.574
1,609.50	223.036	223.036
1,610.00	324.530	324.530

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	34.200	0.000	0.000	0.000	73.000	S	70.87	5.403
	2	5.700	0.000	0.000	0.000	79.000	F	14.15	1.129
	3	6.000	0.000	0.000	0.000	86.000	F	17.57	1.502
	Σ	**45.900**						**102.59**	**8.033**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	6.1	1,603	0.86	0.45
	2	0.220	40.00	30.00	0.1400	1.0000	2	42.4	50,748	32.45	17.41
	3	0.220	40.00	1.00	0.8000	1.0000	2	11.1	9,871	6.31	3.47
	Σ							**59.6**	**9,910**	**6.24**	**3.42**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 6

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

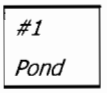
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 6



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	45.900	45.900	127.70	10.19	75.6	9,799	6.16	3.42
	Out			126.60	10.19	26.0	3,714	1.29	0.65

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.93
	Out	0.11

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.727%	100.000%
1.0000	87.263%	100.000%
0.5000	79.474%	100.000%
0.3000	74.474%	100.000%
0.2000	68.369%	100.000%
0.1000	56.579%	100.000%
0.0500	45.685%	100.000%
0.0300	36.579%	100.000%
0.0200	28.579%	82.963%
0.0100	19.474%	56.531%
0.0050	14.737%	42.780%
0.0030	9.632%	27.960%
0.0010	3.105%	9.014%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 6

Pond Inputs:

Initial Pool Elev:	1,607.50
Initial Pool:	0.22 ac-ft
*Sediment Storage:	0.66 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,607.50	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,608.92
H'graph Detention Time:	0.09 hrs
Pond Model:	CSTRS
Dewater Time:	0.55 days
Trap Efficiency:	65.55 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,606.00	0.139	0.000	0.000		Top of Sed. Storage
1,606.00	0.139	0.000	0.000		
1,606.50	0.144	0.071	0.000		
1,607.00	0.150	0.145	0.000		
1,607.50	0.155	0.221	0.000		Spillway #1
1,608.00	0.161	0.300	5.142	9.60	
1,608.50	0.166	0.381	66.760		
1,608.92	0.171	0.453	126.595	3.50	Peak Stage
1,609.00	0.172	0.466	137.574		
1,609.50	0.178	0.553	223.036		
1,610.00	0.184	0.644	324.530		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,606.00	0.000	0.000
1,606.00	0.000	0.000
1,606.50	0.000	0.000
1,607.00	0.000	0.000
1,607.50	0.000	0.000
1,608.00	5.142	5.142
1,608.50	66.760	66.760
1,609.00	137.574	137.574
1,609.50	223.036	223.036
1,610.00	324.530	324.530

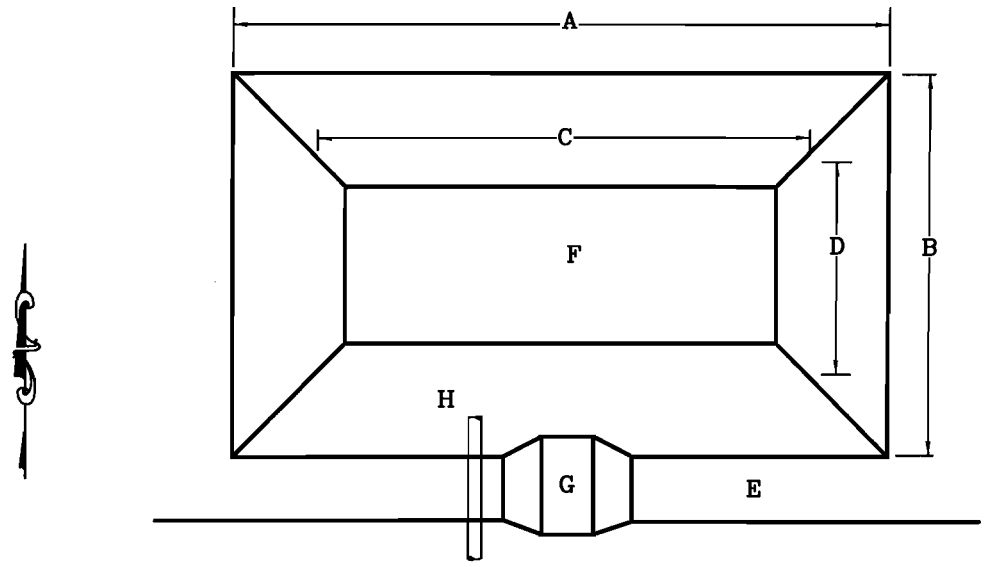
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	34.200	0.000	0.000	0.000	73.000	S	89.38	6.949
	2	5.700	0.000	0.000	0.000	79.000	F	17.35	1.413
	3	6.000	0.000	0.000	0.000	86.000	F	20.97	1.827
	Σ	**45.900**						**127.70**	**10.189**

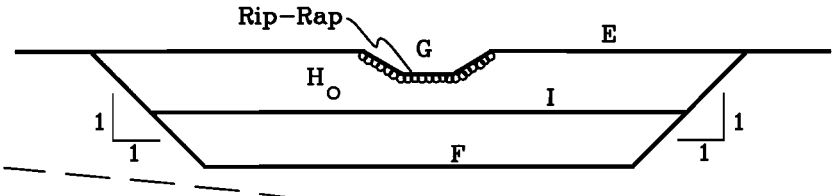
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	8.0	1,605	0.86	0.45
	2	0.220	40.00	30.00	0.1400	1.0000	2	53.9	50,987	32.61	17.68
	3	0.220	40.00	1.00	0.8000	1.0000	2	13.7	9,954	6.37	3.51
	Σ							**75.6**	**9,799**	**6.16**	**3.42**

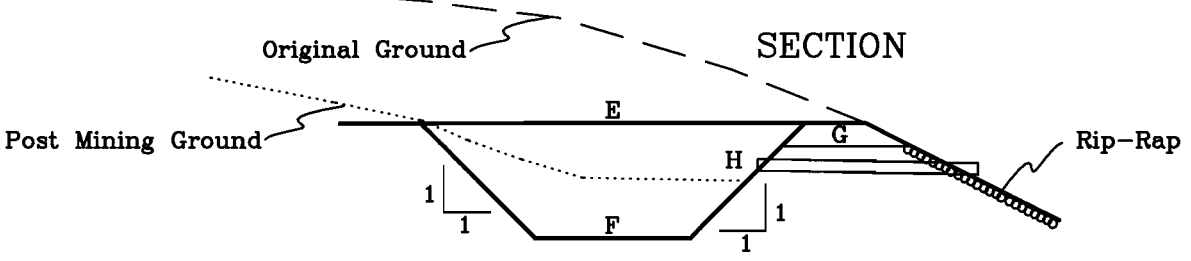
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 200'
B TOP WIDTH 40'
C BOTTOM LENGTH 180'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1605
F BOTTOM ELEVATION 1595
G EMERGENCY SPILLWAY ELEVATION 1602.5
BOTTOM WIDTH 25' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1601

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

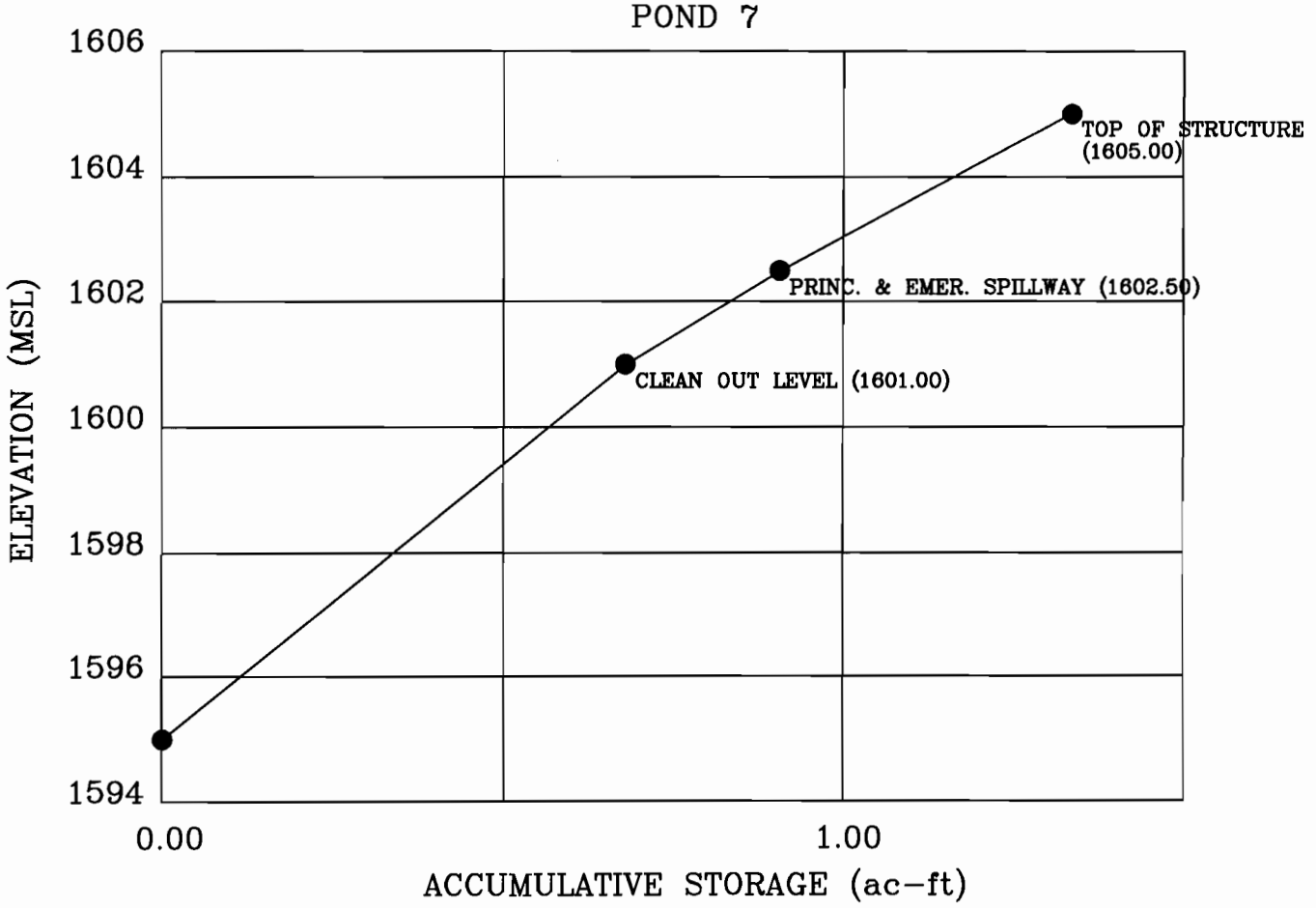
SIGNATURE 2-11-08 DATE

Prepared By:	RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
POND 7	
DATE: 02-09-08	FILENAME: POND 7.DWG
SCALE: NTS	DRAWN BY: MC

AP. 807-0314 AM. 1

STAGE STORAGE CURVE

POND 7



STORAGE VOLUME COMPUTATIONS
807-0314 AM. 1
POND 7

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1595.00	N/A	N/A	0.0830					
				0.1133	6.00	0.6798	0.6798	6.00
1601.00	N/A	N/A	0.1436					
				0.1512	1.50	0.2268	0.9066	7.50
1602.50	N/A	N/A	0.1588					
				0.1714	2.50	0.4284	1.3350	10.00
1605.00	N/A	N/A	0.1840					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:020, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required by it by KRS Chapter 350 and KAR Title 405.

COMMONWEALTH OF KENTUCKY
ROBERT BRASHEAR
19552
LICENSED PROFESSIONAL ENGINEER

SIGNATURE

7/25/07
DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 7
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	30.600	0.000	0.000	0.000	73.000	S	79.97	6.218
	2	4.700	0.000	0.000	0.000	73.000	S	12.28	0.955
	3	4.800	0.000	0.000	0.000	73.000	S	12.54	0.975
	4	3.700	0.000	0.000	0.000	73.000	S	9.67	0.752
	Σ	**43.800**						**114.46**	**8.900**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 7

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

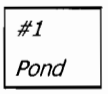
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 7



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	43.800	43.800	96.22	7.48	56.9	10,281	6.48	3.52
	Out			95.21	7.48	18.8	3,797	1.25	0.61

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.95
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.649%	100.000%
1.0000	87.129%	100.000%
0.5000	79.317%	100.000%
0.3000	74.317%	100.000%
0.2000	68.223%	100.000%
0.1000	56.411%	100.000%
0.0500	45.506%	100.000%
0.0300	36.411%	100.000%
0.0200	28.411%	86.225%
0.0100	19.317%	58.625%
0.0050	14.659%	44.487%
0.0030	9.565%	29.027%
0.0010	3.094%	9.390%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 7

Pond Inputs:

Initial Pool Elev:	1,602.50
Initial Pool:	0.22 ac-ft
*Sediment Storage:	0.66 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,602.50	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,603.70
H'graph Detention Time:	0.10 hrs
Pond Model:	CSTRS
Dewater Time:	0.54 days
Trap Efficiency:	67.05 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,601.00	0.139	0.000	0.000		Top of Sed. Storage
1,601.00	0.139	0.000	0.000		
1,601.50	0.144	0.071	0.000		
1,602.00	0.150	0.145	0.000		
1,602.50	0.155	0.221	0.000		Spillway #1
1,603.00	0.161	0.300	5.142	10.55	
1,603.50	0.166	0.381	66.760		
1,603.70	0.169	0.415	95.210	2.50	Peak Stage
1,604.00	0.172	0.466	137.574		
1,604.50	0.178	0.553	223.036		
1,605.00	0.184	0.644	324.530		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,601.00	0.000	0.000
1,601.00	0.000	0.000
1,601.50	0.000	0.000
1,602.00	0.000	0.000
1,602.50	0.000	0.000
1,603.00	5.142	5.142
1,603.50	66.760	66.760
1,604.00	137.574	137.574
1,604.50	223.036	223.036
1,605.00	324.530	324.530

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	30.600	0.000	0.000	0.000	73.000	S	63.41	4.834
	2	4.700	0.000	0.000	0.000	74.000	F	10.06	0.773
	3	4.800	0.000	0.000	0.000	79.000	F	11.91	0.951
	4	3.700	0.000	0.000	0.000	86.000	F	10.84	0.926
	Σ	**43.800**						**96.22**	**7.483**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	5.4	1,582	0.85	0.44
	2	0.220	40.00	30.00	0.0500	1.0000	2	10.1	18,451	11.80	6.13
	3	0.220	40.00	30.00	0.1400	1.0000	2	35.0	49,733	31.81	17.06
	4	0.220	40.00	1.00	0.8000	1.0000	2	6.5	9,317	5.96	3.27
	Σ							**56.9**	**10,281**	**6.48**	**3.52**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 7

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

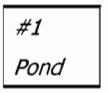
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 7



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	43.800	43.800	120.14	9.52	72.7	10,188	6.42	3.52
	Out			119.06	9.52	24.7	3,828	1.32	0.66

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.95
	Out	0.11

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.667%	100.000%
1.0000	87.160%	100.000%
0.5000	79.353%	100.000%
0.3000	74.353%	100.000%
0.2000	68.257%	100.000%
0.1000	56.450%	100.000%
0.0500	45.547%	100.000%
0.0300	36.450%	100.000%
0.0200	28.450%	83.684%
0.0100	19.353%	56.926%
0.0050	14.677%	43.170%
0.0030	9.580%	28.179%
0.0010	3.097%	9.109%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 7

Pond Inputs:

Initial Pool Elev:	1,602.50
Initial Pool:	0.22 ac-ft
*Sediment Storage:	0.66 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,602.50	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,603.87
H'graph Detention Time:	0.09 hrs
Pond Model:	CSTRS
Dewater Time:	0.55 days
Trap Efficiency:	66.00 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,601.00	0.139	0.000	0.000		Top of Sed. Storage
1,601.00	0.139	0.000	0.000		
1,601.50	0.144	0.071	0.000		
1,602.00	0.150	0.145	0.000		
1,602.50	0.155	0.221	0.000		Spillway #1
1,603.00	0.161	0.300	5.142	10.05	
1,603.50	0.166	0.381	66.760		
1,603.87	0.171	0.444	119.062	3.05	Peak Stage
1,604.00	0.172	0.466	137.574		
1,604.50	0.178	0.553	223.036		
1,605.00	0.184	0.644	324.530		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,601.00	0.000	0.000
1,601.00	0.000	0.000
1,601.50	0.000	0.000
1,602.00	0.000	0.000
1,602.50	0.000	0.000
1,603.00	5.142	5.142
1,603.50	66.760	66.760
1,604.00	137.574	137.574
1,604.50	223.036	223.036
1,605.00	324.530	324.530

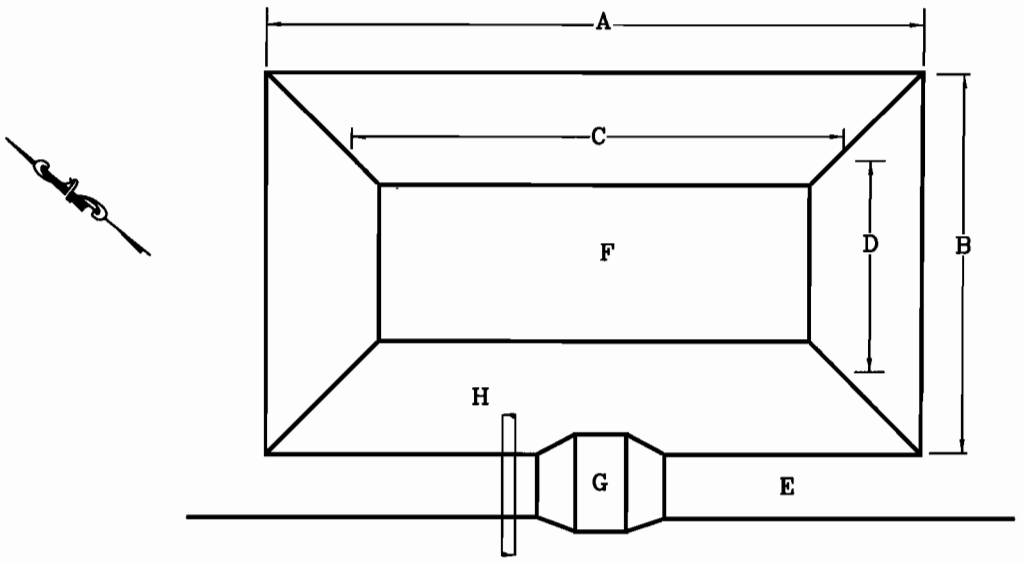
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	30.600	0.000	0.000	0.000	73.000	S	79.97	6.218
	2	4.700	0.000	0.000	0.000	74.000	F	12.63	0.989
	3	4.800	0.000	0.000	0.000	79.000	F	14.61	1.190
	4	3.700	0.000	0.000	0.000	86.000	F	12.93	1.127
	Σ	**43.800**						**120.14**	**9.523**

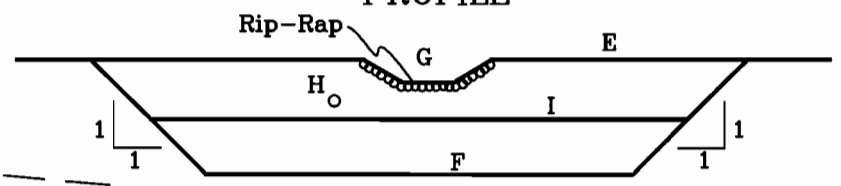
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	7.0	1,584	0.85	0.45
	2	0.220	40.00	30.00	0.0500	1.0000	2	13.2	18,492	11.83	6.25
	3	0.220	40.00	30.00	0.1400	1.0000	2	44.5	49,967	31.95	17.32
	4	0.220	40.00	1.00	0.8000	1.0000	2	8.0	9,395	6.01	3.31
	Σ							**72.7**	**10,188**	**6.42**	**3.52**

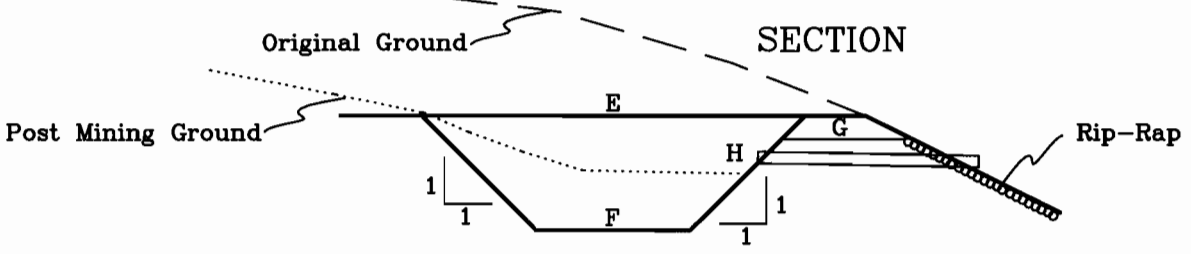
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 75'
B TOP WIDTH 40'
C BOTTOM LENGTH 55'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1590
F BOTTOM ELEVATION 1580
G EMERGENCY SPILLWAY ELEVATION 1586
BOTTOM WIDTH 10' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1584.5

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 4(1), that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

SIGNATURE 2/12/08 DATE

Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878-1381

APPOLO FUELS, INC.

807-0314 AMENDMENT 1

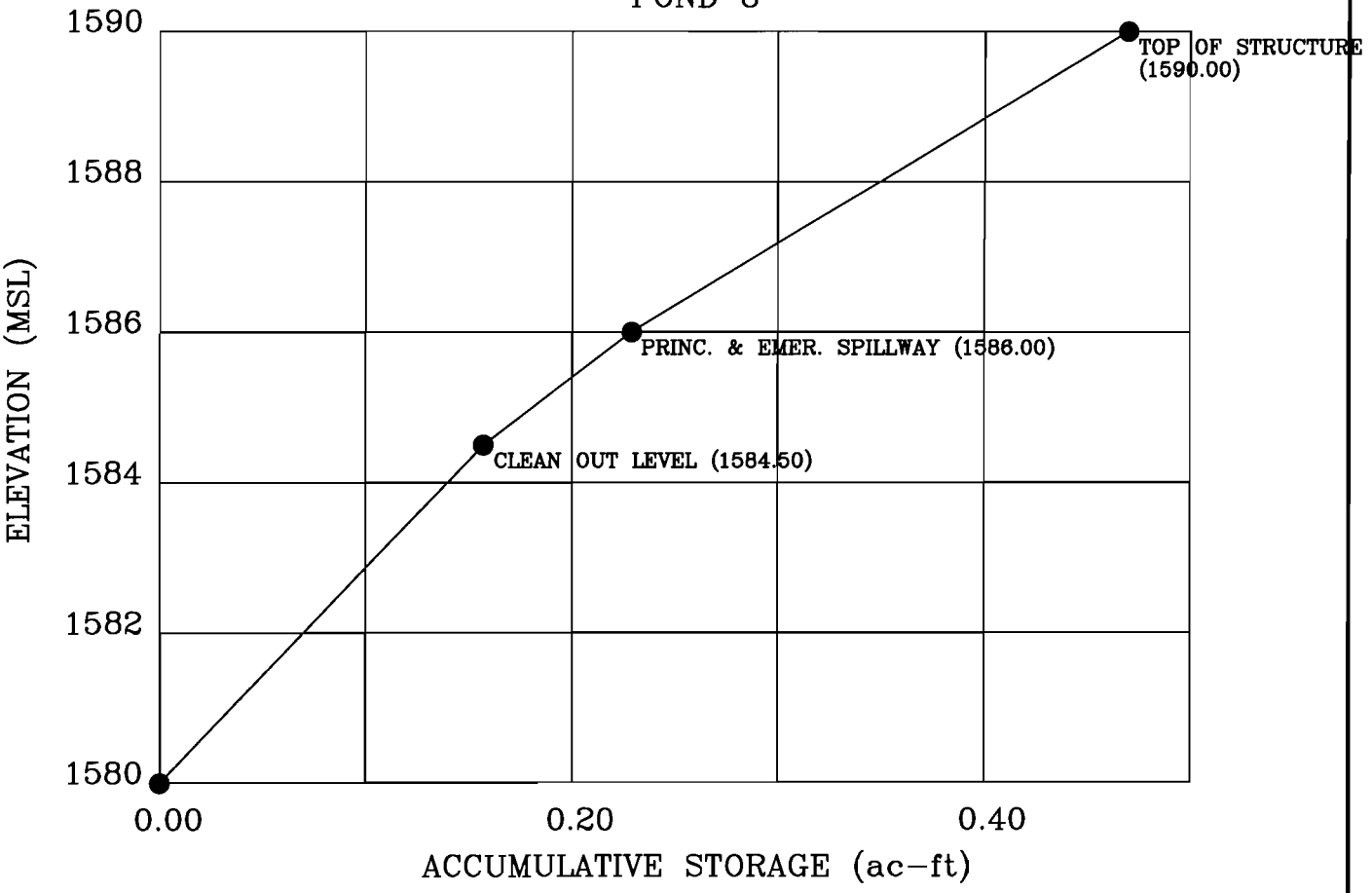
POND 8

DATE:	FILENAME:
02-09-08	POND 8.DWG
SCALE:	DRAWN BY:
NTS	MC

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 8



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 8

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1580.00	N/A	N/A	0.0250					
				0.0349	4.50	0.1571	0.1571	4.50
1584.50	N/A	N/A	0.0448					
				0.0481	1.50	0.0722	0.2292	6.00
1586.00	N/A	N/A	0.0514					
				0.0602	4.00	0.2408	0.4700	10.00
1590.00	N/A	N/A	0.0690					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 4(1), that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRAGHEAR 19652 LICENSED PROFESSIONAL ENGINEER

SIGNATURE 1/26/07 DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 8
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	47.300	0.000	0.000	0.000	73.000	S	123.61	9.611
	2	5.400	0.000	0.000	0.000	73.000	S	14.11	1.097
	3	5.700	0.000	0.000	0.000	73.000	S	14.90	1.158
	Σ	**58.400**						**152.62**	**11.867**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 8

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

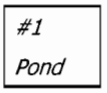
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 8



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	58.400	58.400	128.11	9.97	59.1	7,919	4.95	2.72
	Out			127.47	9.97	21.6	3,524	1.27	0.57

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.76
	Out	0.09

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	94.018%	100.000%
1.0000	87.771%	100.000%
0.5000	80.066%	100.000%
0.3000	75.066%	100.000%
0.2000	68.918%	100.000%
0.1000	57.213%	100.000%
0.0500	46.361%	100.000%
0.0300	37.213%	100.000%
0.0200	29.213%	80.102%
0.0100	20.066%	55.019%
0.0050	15.033%	41.220%
0.0030	9.885%	27.105%
0.0010	3.148%	8.630%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 8

Pond Inputs:

Initial Pool Elev:	1,586.00
Initial Pool:	0.07 ac-ft
*Sediment Storage:	0.15 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,586.00	10.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	1,588.25
H'graph Detention Time:	0.04 hrs
Pond Model:	CSTRS
Dewater Time:	0.53 days
Trap Efficiency:	63.53 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,584.49	0.042	0.000	0.000		Top of Sed. Storage
1,584.50	0.042	0.000	0.000		
1,585.00	0.044	0.022	0.000		
1,585.50	0.046	0.045	0.000		
1,586.00	0.049	0.068	0.000		Spillway #1
1,586.50	0.051	0.093	2.083	0.85	
1,587.00	0.054	0.120	28.541	11.80	
1,587.50	0.056	0.147	60.955		
1,588.00	0.058	0.175	102.032		
1,588.25	0.060	0.190	127.466	0.15	Peak Stage
1,588.50	0.061	0.205	152.957		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,589.00	0.064	0.237	214.007	
1,589.50	0.066	0.269	285.521	
1,590.00	0.069	0.303	367.859	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,584.49	0.000	0.000
1,584.50	0.000	0.000
1,585.00	0.000	0.000
1,585.50	0.000	0.000
1,586.00	0.000	0.000
1,586.50	2.083	2.083
1,587.00	28.541	28.541
1,587.50	60.955	60.955
1,588.00	102.032	102.032
1,588.50	152.957	152.957
1,589.00	214.007	214.007
1,589.50	285.521	285.521
1,590.00	367.859	367.859

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	47.300	0.000	0.000	0.000	73.000	S	98.01	7.472
	2	5.400	0.000	0.000	0.000	79.000	F	13.40	1.069
	3	5.700	0.000	0.000	0.000	86.000	F	16.70	1.427
	Σ	**58.400**						**128.11**	**9.968**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	8.7	1,666	0.90	0.46
	2	0.220	40.00	30.00	0.1400	1.0000	2	39.9	50,427	32.25	17.30
	3	0.220	40.00	1.00	0.8000	1.0000	2	10.5	9,811	6.27	3.45
	Σ							**59.1**	**7,919**	**4.95**	**2.72**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 8

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

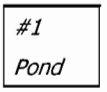
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 8



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	58.400	58.400	159.97	12.69	75.1	7,817	4.88	2.71
	Out			159.47	12.69	28.0	3,508	1.29	0.60

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.76
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	94.051%	100.000%
1.0000	87.828%	100.000%
0.5000	80.132%	100.000%
0.3000	75.132%	100.000%
0.2000	68.980%	100.000%
0.1000	57.285%	100.000%
0.0500	46.437%	100.000%
0.0300	37.285%	99.846%
0.0200	29.285%	78.423%
0.0100	20.132%	53.913%
0.0050	15.066%	40.346%
0.0030	9.914%	26.549%
0.0010	3.152%	8.442%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 8

Pond Inputs:

Initial Pool Elev:	1,586.00
Initial Pool:	0.07 ac-ft
*Sediment Storage:	0.15 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,586.00	10.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	1,588.55
H'graph Detention Time:	0.04 hrs
Pond Model:	CSTRS
Dewater Time:	0.53 days
Trap Efficiency:	62.66 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,584.49	0.042	0.000	0.000		Top of Sed. Storage
1,584.50	0.042	0.000	0.000		
1,585.00	0.044	0.022	0.000		
1,585.50	0.046	0.045	0.000		
1,586.00	0.049	0.068	0.000		Spillway #1
1,586.50	0.051	0.093	2.083	0.85	
1,587.00	0.054	0.120	28.541	11.45	
1,587.50	0.056	0.147	60.955	0.45	
1,588.00	0.058	0.175	102.032		
1,588.50	0.061	0.205	152.957		
1,588.55	0.061	0.209	159.468	0.05	Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,589.00	0.064	0.237	214.007	
1,589.50	0.066	0.269	285.521	
1,590.00	0.069	0.303	367.859	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,584.49	0.000	0.000
1,584.50	0.000	0.000
1,585.00	0.000	0.000
1,585.50	0.000	0.000
1,586.00	0.000	0.000
1,586.50	2.083	2.083
1,587.00	28.541	28.541
1,587.50	60.955	60.955
1,588.00	102.032	102.032
1,588.50	152.957	152.957
1,589.00	214.007	214.007
1,589.50	285.521	285.521
1,590.00	367.859	367.859

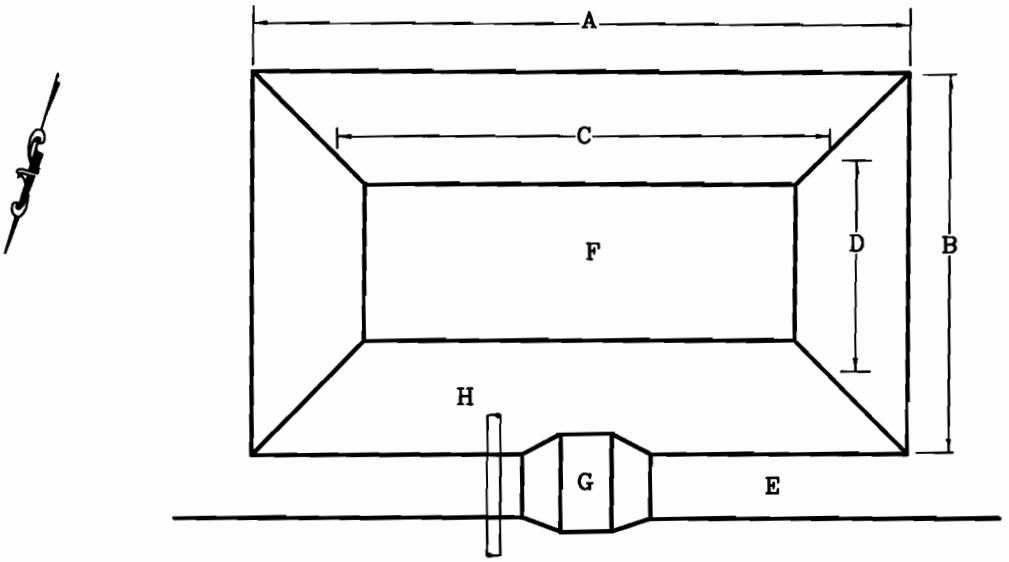
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	47.300	0.000	0.000	0.000	73.000	S	123.61	9.611
	2	5.400	0.000	0.000	0.000	79.000	F	16.44	1.339
	3	5.700	0.000	0.000	0.000	86.000	F	19.92	1.736
	Σ	**58.400**						**159.97**	**12.685**

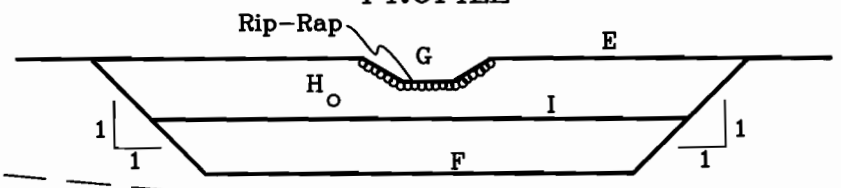
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	11.4	1,669	0.90	0.47
	2	0.220	40.00	30.00	0.1400	1.0000	2	50.8	50,664	32.40	17.57
	3	0.220	40.00	1.00	0.8000	1.0000	2	12.9	9,893	6.33	3.49
	Σ							**75.1**	**7,817**	**4.88**	**2.71**

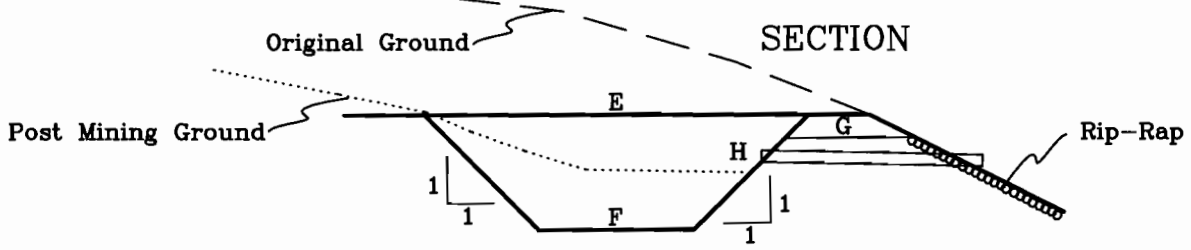
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 100'
B TOP WIDTH 40'
C BOTTOM LENGTH 80'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1600
F BOTTOM ELEVATION 1590
G EMERGENCY SPILLWAY ELEVATION 1596
BOTTOM WIDTH 12' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1594.5

I hereby certify, to the best of my knowledge, and belief, in accordance with 405 KAR 7:040 Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

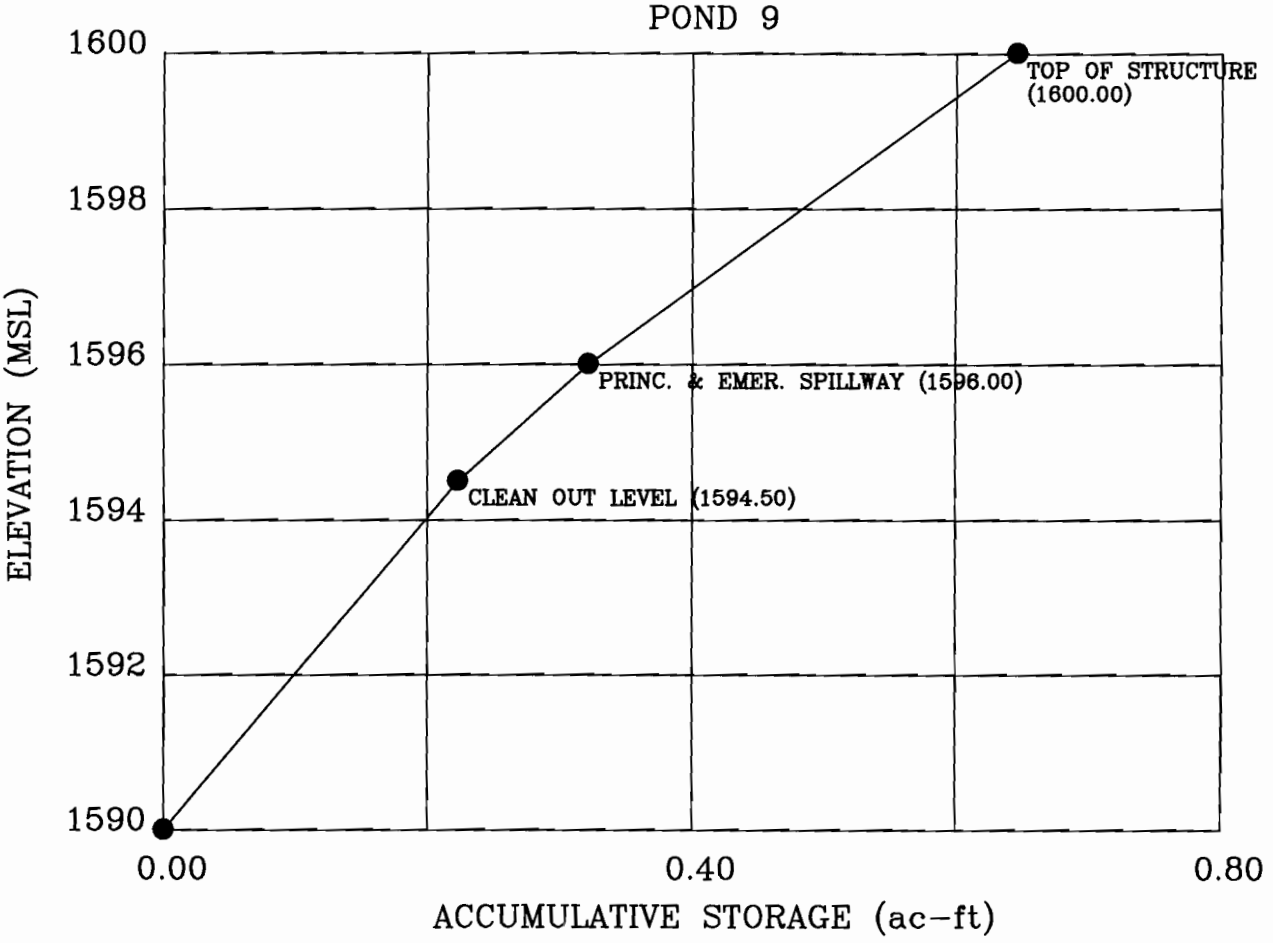
SIGNATURE 2/15/08 DATE

Prepared By:	RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
POND 9	
DATE: 02-09-08	FILENAME: POND 9.DWG
SCALE: NTS	DRAWN BY: MC

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 9



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 9

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1590.00	N/A	N/A	0.0370					
				0.0494	4.50	0.2222	0.2222	4.50
1594.50	N/A	N/A	0.0618					
				0.0659	1.50	0.0988	0.3210	6.00
1596.00	N/A	N/A	0.0700					
				0.0810	4.00	0.3240	0.6450	10.00
1600.00	N/A	N/A	0.0920					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

SIGNATURE 6/22/07 DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 9
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	57.300	0.000	0.000	0.000	73.000	S	149.74	11.643
	2	5.900	0.000	0.000	0.000	73.000	S	15.42	1.199
	3	7.300	0.000	0.000	0.000	73.000	S	19.08	1.483
	4	5.500	0.000	0.000	0.000	73.000	S	14.37	1.118
	Σ	**76.000**						**198.61**	**15.443**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 9

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

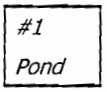
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 9



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	76.000	76.000	165.59	12.84	89.9	9,438	5.92	3.22
	Out			164.56	12.84	32.0	3,979	1.42	0.66

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.89
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.830%	100.000%
1.0000	87.444%	100.000%
0.5000	79.684%	100.000%
0.3000	74.684%	100.000%
0.2000	68.564%	100.000%
0.1000	56.804%	100.000%
0.0500	45.925%	100.000%
0.0300	36.804%	100.000%
0.0200	28.804%	80.883%
0.0100	19.684%	55.273%
0.0050	14.842%	41.677%
0.0030	9.722%	27.299%
0.0010	3.120%	8.762%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 9

Pond Inputs:

Initial Pool Elev:	1,596.00
Initial Pool:	0.09 ac-ft
*Sediment Storage:	0.21 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,596.00	10.00	2.00:1	2.00:1	12.00

Pond Results:

Peak Elevation:	1,598.40
H'graph Detention Time:	0.05 hrs
Pond Model:	CSTRS
Dewater Time:	0.54 days
Trap Efficiency:	64.39 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,594.49	0.059	0.000	0.000		Top of Sed. Storage
1,594.50	0.059	0.000	0.000		
1,595.00	0.061	0.031	0.000		
1,595.50	0.064	0.062	0.000		
1,596.00	0.067	0.095	0.000		Spillway #1
1,596.50	0.070	0.129	2.491	1.05	
1,597.00	0.073	0.165	33.633	11.80	
1,597.50	0.076	0.202	71.155		
1,598.00	0.079	0.241	118.128		
1,598.40	0.082	0.273	164.555	0.15	Peak Stage
1,598.50	0.082	0.281	175.760		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,599.00	0.085	0.323	244.230	
1,599.50	0.089	0.366	323.802	
1,600.00	0.092	0.412	414.783	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,594.49	0.000	0.000
1,594.50	0.000	0.000
1,595.00	0.000	0.000
1,595.50	0.000	0.000
1,596.00	0.000	0.000
1,596.50	2.491	2.491
1,597.00	33.633	33.633
1,597.50	71.155	71.155
1,598.00	118.128	118.128
1,598.50	175.760	175.760
1,599.00	244.230	244.230
1,599.50	323.802	323.802
1,600.00	414.783	414.783

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	57.300	0.000	0.000	0.000	73.000	S	118.73	9.052
	2	5.900	0.000	0.000	0.000	74.000	F	12.63	0.970
	3	7.300	0.000	0.000	0.000	79.000	F	18.12	1.446
	4	5.500	0.000	0.000	0.000	86.000	F	16.11	1.376
	Σ	**76.000**						**165.59**	**12.844**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	10.8	1,705	0.92	0.47
	2	0.220	40.00	30.00	0.0500	1.0000	2	13.1	18,958	12.12	6.30
	3	0.220	40.00	30.00	0.1400	1.0000	2	56.0	52,245	33.41	17.93
	4	0.220	40.00	1.00	0.8000	1.0000	2	10.1	9,769	6.25	3.43
	Σ							**89.9**	**9,438**	**5.92**	**3.22**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 9

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

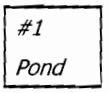
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 9



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	76.000	76.000	207.04	16.37	114.7	9,340	5.86	3.23
	Out			206.09	16.37	41.9	4,032	1.48	0.69

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.89
	Out	0.11

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.853%	100.000%
1.0000	87.483%	100.000%
0.5000	79.730%	100.000%
0.3000	74.730%	100.000%
0.2000	68.606%	100.000%
0.1000	56.854%	100.000%
0.0500	45.977%	100.000%
0.0300	36.854%	100.000%
0.0200	28.854%	79.076%
0.0100	19.730%	54.072%
0.0050	14.865%	40.739%
0.0030	9.741%	26.697%
0.0010	3.124%	8.560%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 9

Pond Inputs:

Initial Pool Elev:	1,596.00
Initial Pool:	0.09 ac-ft
*Sediment Storage:	0.21 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,596.00	10.00	2.00:1	2.00:1	12.00

Pond Results:

Peak Elevation:	1,598.72
H'graph Detention Time:	0.04 hrs
Pond Model:	CSTRS
Dewater Time:	0.54 days
Trap Efficiency:	63.51 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,594.49	0.059	0.000	0.000		Top of Sed. Storage
1,594.50	0.059	0.000	0.000		
1,595.00	0.061	0.031	0.000		
1,595.50	0.064	0.062	0.000		
1,596.00	0.067	0.095	0.000		Spillway #1
1,596.50	0.070	0.129	2.491	1.05	
1,597.00	0.073	0.165	33.633	11.45	
1,597.50	0.076	0.202	71.155	0.45	
1,598.00	0.079	0.241	118.128		
1,598.50	0.082	0.281	175.760		
1,598.72	0.084	0.299	206.093	0.05	Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,599.00	0.085	0.323	244.230	
1,599.50	0.089	0.366	323.802	
1,600.00	0.092	0.412	414.783	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,594.49	0.000	0.000
1,594.50	0.000	0.000
1,595.00	0.000	0.000
1,595.50	0.000	0.000
1,596.00	0.000	0.000
1,596.50	2.491	2.491
1,597.00	33.633	33.633
1,597.50	71.155	71.155
1,598.00	118.128	118.128
1,598.50	175.760	175.760
1,599.00	244.230	244.230
1,599.50	323.802	323.802
1,600.00	414.783	414.783

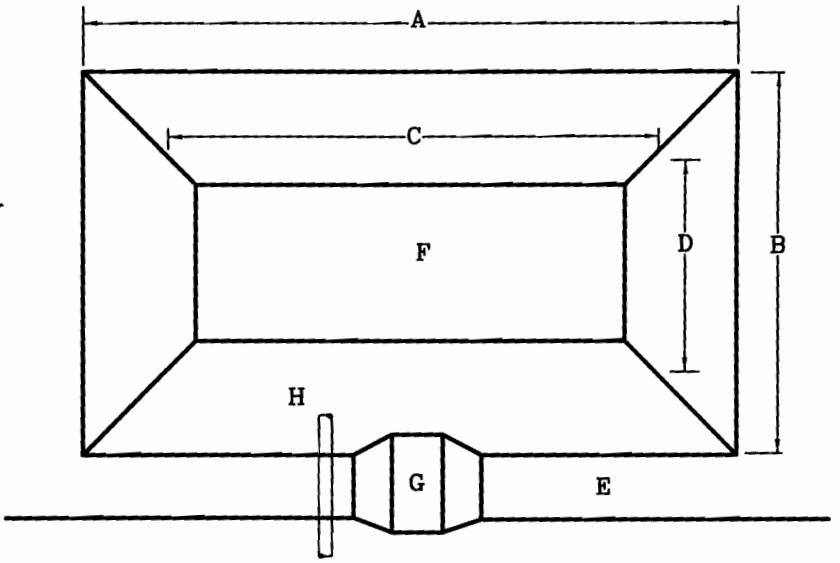
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	57.300	0.000	0.000	0.000	73.000	S	149.74	11.643
	2	5.900	0.000	0.000	0.000	74.000	F	15.85	1.241
	3	7.300	0.000	0.000	0.000	79.000	F	22.22	1.810
	4	5.500	0.000	0.000	0.000	86.000	F	19.22	1.675
	Σ	**76.000**						**207.04**	**16.369**

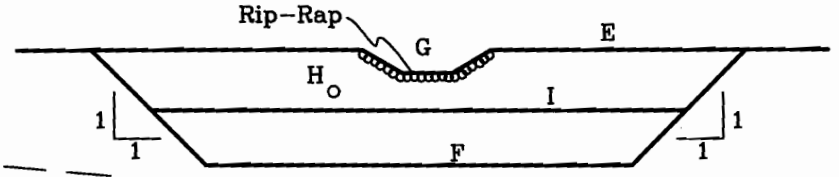
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	14.2	1,708	0.92	0.48
	2	0.220	40.00	30.00	0.0500	1.0000	2	17.0	18,999	12.15	6.42
	3	0.220	40.00	30.00	0.1400	1.0000	2	71.1	52,491	33.57	18.20
	4	0.220	40.00	1.00	0.8000	1.0000	2	12.4	9,851	6.30	3.48
	Σ							**114.7**	**9,340**	**5.86**	**3.23**

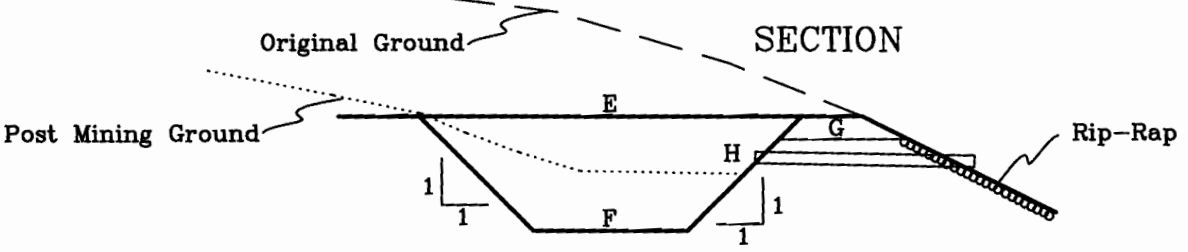
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 100'
B TOP WIDTH 40'
C BOTTOM LENGTH 80'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1630
F BOTTOM ELEVATION 1620
G EMERGENCY SPILLWAY ELEVATION 1626
BOTTOM WIDTH 12' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1624.5

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652

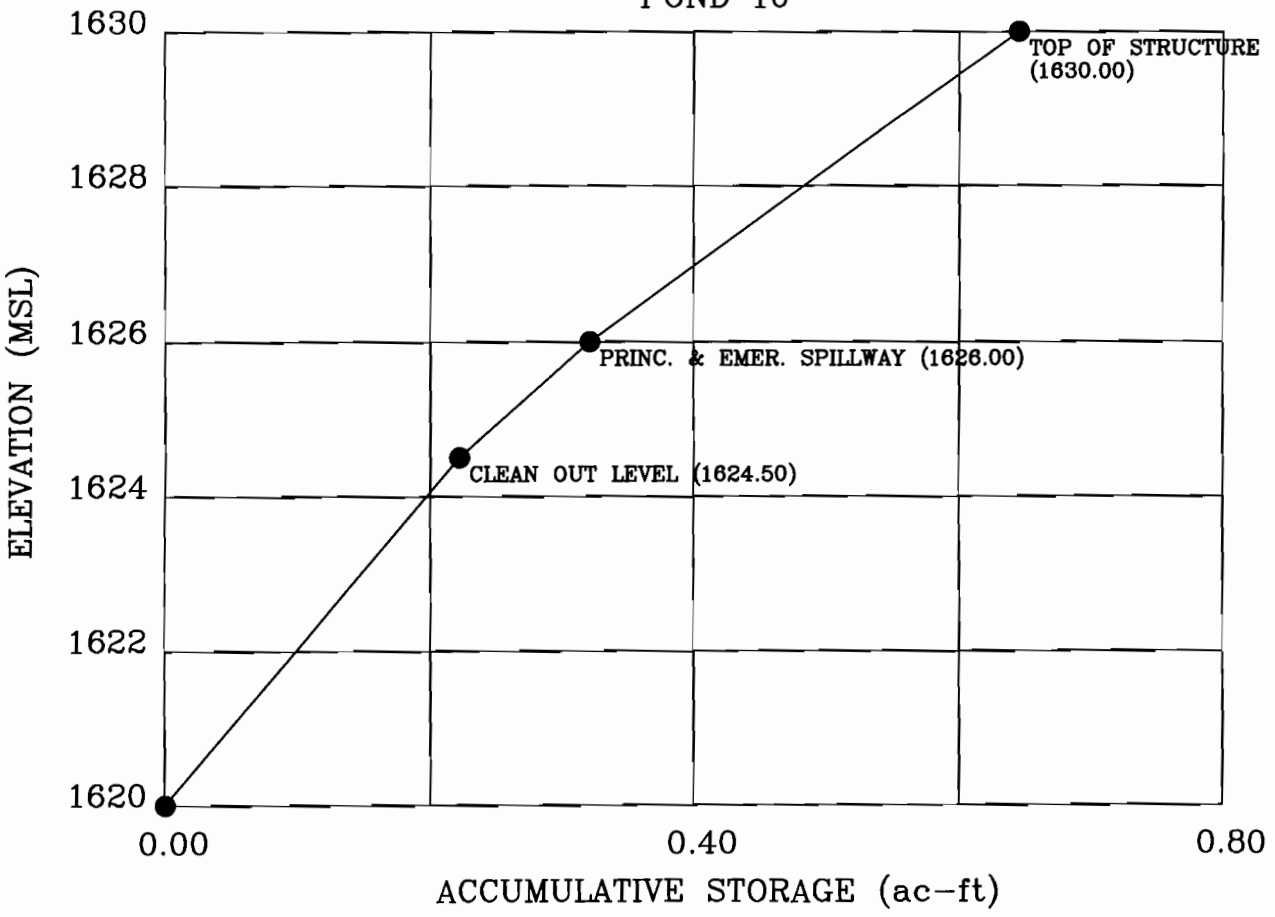
2/12/08

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
POND 10	
DATE: 02-09-08	FILENAME: POND 10.DWG
SCALE:	DRAWN BY:

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 10



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 10

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1620.00	N/A	N/A	0.0370					
				0.0494	4.50	0.2222	0.2222	4.50
1624.50	N/A	N/A	0.0618					
				0.0659	1.50	0.0988	0.3210	6.00
1626.00	N/A	N/A	0.0700					
				0.0810	4.00	0.3240	0.6450	10.00
1630.00	N/A	N/A	0.0920					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 3(1), that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

SIGNATURE DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 10
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	45.100	0.000	0.000	0.000	73.000	S	117.86	9.164
	2	4.200	0.000	0.000	0.000	73.000	S	10.98	0.853
	3	6.600	0.000	0.000	0.000	73.000	S	17.25	1.341
	4	4.400	0.000	0.000	0.000	73.000	S	11.50	0.894
	Σ	**60.300**						**157.58**	**12.253**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 10

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

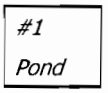
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 10



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	60.300	60.300	131.71	10.22	75.0	9,880	6.21	3.38
	Out			130.87	10.22	26.4	4,086	1.45	0.67

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.92
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.761%	100.000%
1.0000	87.323%	100.000%
0.5000	79.543%	100.000%
0.3000	74.543%	100.000%
0.2000	68.433%	100.000%
0.1000	56.654%	100.000%
0.0500	45.764%	100.000%
0.0300	36.654%	100.000%
0.0200	28.654%	81.538%
0.0100	19.543%	55.614%
0.0050	14.772%	42.035%
0.0030	9.661%	27.493%
0.0010	3.110%	8.851%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 10

Pond Inputs:

Initial Pool Elev:	1,626.00
Initial Pool:	0.09 ac-ft
*Sediment Storage:	0.21 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,626.00	10.00	2.00:1	2.00:1	12.00

Pond Results:

Peak Elevation:	1,628.11
H'graph Detention Time:	0.06 hrs
Pond Model:	CSTRS
Dewater Time:	0.54 days
Trap Efficiency:	64.86 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,624.49	0.059	0.000	0.000		Top of Sed. Storage
1,624.50	0.059	0.000	0.000		
1,625.00	0.061	0.031	0.000		
1,625.50	0.064	0.062	0.000		
1,626.00	0.067	0.095	0.000		Spillway #1
1,626.50	0.070	0.129	2.491	1.05	
1,627.00	0.073	0.165	33.633	11.90	
1,627.50	0.076	0.202	71.155		
1,628.00	0.079	0.241	118.128		
1,628.11	0.080	0.250	130.872	0.05	Peak Stage
1,628.50	0.082	0.281	175.760		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,629.00	0.085	0.323	244.230	
1,629.50	0.089	0.366	323.802	
1,630.00	0.092	0.412	414.783	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,624.49	0.000	0.000
1,624.50	0.000	0.000
1,625.00	0.000	0.000
1,625.50	0.000	0.000
1,626.00	0.000	0.000
1,626.50	2.491	2.491
1,627.00	33.633	33.633
1,627.50	71.155	71.155
1,628.00	118.128	118.128
1,628.50	175.760	175.760
1,629.00	244.230	244.230
1,629.50	323.802	323.802
1,630.00	414.783	414.783

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	45.100	0.000	0.000	0.000	73.000	S	93.45	7.125
	2	4.200	0.000	0.000	0.000	74.000	F	8.99	0.690
	3	6.600	0.000	0.000	0.000	79.000	F	16.38	1.307
	4	4.400	0.000	0.000	0.000	86.000	F	12.89	1.101
	Σ	**60.300**						**131.71**	**10.223**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	8.3	1,657	0.89	0.46
	2	0.220	40.00	30.00	0.0500	1.0000	2	8.9	18,206	11.64	6.05
	3	0.220	40.00	30.00	0.1400	1.0000	2	50.0	51,630	33.02	17.72
	4	0.220	40.00	1.00	0.8000	1.0000	2	7.8	9,512	6.08	3.34
	Σ							**75.0**	**9,880**	**6.21**	**3.38**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 10

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

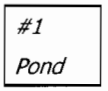
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 10



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	60.300	60.300	164.62	13.02	95.7	9,775	6.14	3.39
	Out			163.75	13.02	34.1	4,205	1.52	0.70

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.93
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.782%	100.000%
1.0000	87.360%	100.000%
0.5000	79.587%	100.000%
0.3000	74.587%	100.000%
0.2000	68.473%	100.000%
0.1000	56.700%	100.000%
0.0500	45.813%	100.000%
0.0300	36.700%	100.000%
0.0200	28.700%	80.420%
0.0100	19.587%	54.883%
0.0050	14.793%	41.452%
0.0030	9.680%	27.124%
0.0010	3.113%	8.724%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 10

Pond Inputs:

Initial Pool Elev:	1,626.00
Initial Pool:	0.09 ac-ft
*Sediment Storage:	0.21 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,626.00	10.00	2.00:1	2.00:1	12.00

Pond Results:

Peak Elevation:	1,628.40
H'graph Detention Time:	0.05 hrs
Pond Model:	CSTRS
Dewater Time:	0.54 days
Trap Efficiency:	64.31 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,624.49	0.059	0.000	0.000		Top of Sed. Storage
1,624.50	0.059	0.000	0.000		
1,625.00	0.061	0.031	0.000		
1,625.50	0.064	0.062	0.000		
1,626.00	0.067	0.095	0.000		Spillway #1
1,626.50	0.070	0.129	2.491	1.05	
1,627.00	0.073	0.165	33.633	11.80	
1,627.50	0.076	0.202	71.155		
1,628.00	0.079	0.241	118.128		
1,628.40	0.082	0.273	163.747	0.15	Peak Stage
1,628.50	0.082	0.281	175.760		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,629.00	0.085	0.323	244.230	
1,629.50	0.089	0.366	323.802	
1,630.00	0.092	0.412	414.783	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,624.49	0.000	0.000
1,624.50	0.000	0.000
1,625.00	0.000	0.000
1,625.50	0.000	0.000
1,626.00	0.000	0.000
1,626.50	2.491	2.491
1,627.00	33.633	33.633
1,627.50	71.155	71.155
1,628.00	118.128	118.128
1,628.50	175.760	175.760
1,629.00	244.230	244.230
1,629.50	323.802	323.802
1,630.00	414.783	414.783

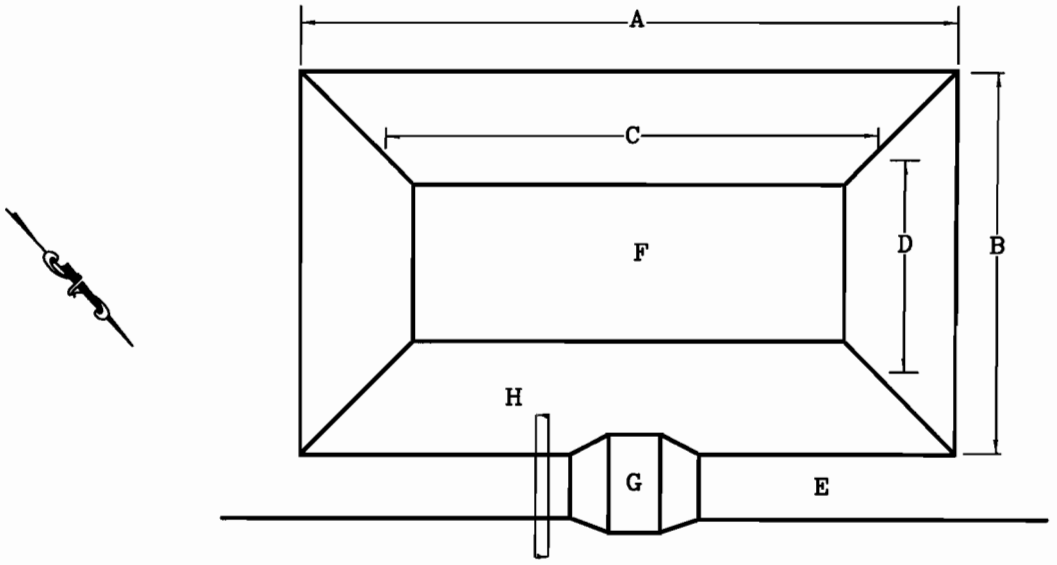
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	45.100	0.000	0.000	0.000	73.000	S	117.86	9.164
	2	4.200	0.000	0.000	0.000	74.000	F	11.28	0.884
	3	6.600	0.000	0.000	0.000	79.000	F	20.09	1.636
	4	4.400	0.000	0.000	0.000	86.000	F	15.38	1.340
	Σ	**60.300**						**164.62**	**13.024**

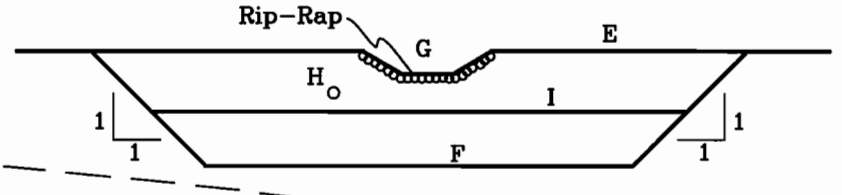
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	10.8	1,660	0.89	0.47
	2	0.220	40.00	30.00	0.0500	1.0000	2	11.6	18,246	11.67	6.16
	3	0.220	40.00	30.00	0.1400	1.0000	2	63.5	51,873	33.17	17.99
	4	0.220	40.00	1.00	0.8000	1.0000	2	9.7	9,592	6.13	3.38
	Σ							**95.7**	**9,775**	**6.14**	**3.39**

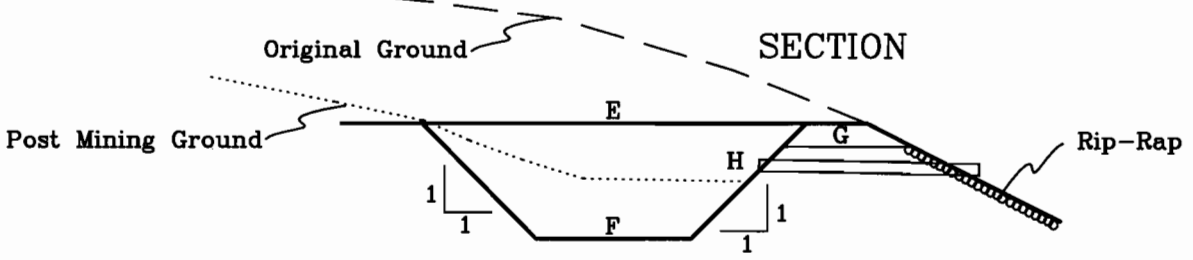
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 100'
B TOP WIDTH 40'
C BOTTOM LENGTH 80'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1630
F BOTTOM ELEVATION 1620
G EMERGENCY SPILLWAY ELEVATION 1626
BOTTOM WIDTH 25' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1624.5

I hereby certify, to the best of my knowledge, and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

SIGNATURE

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY

2/19/08
DATE

Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878-1381

APPOLO FUELS, INC.

807-0314 AMENDMENT 1

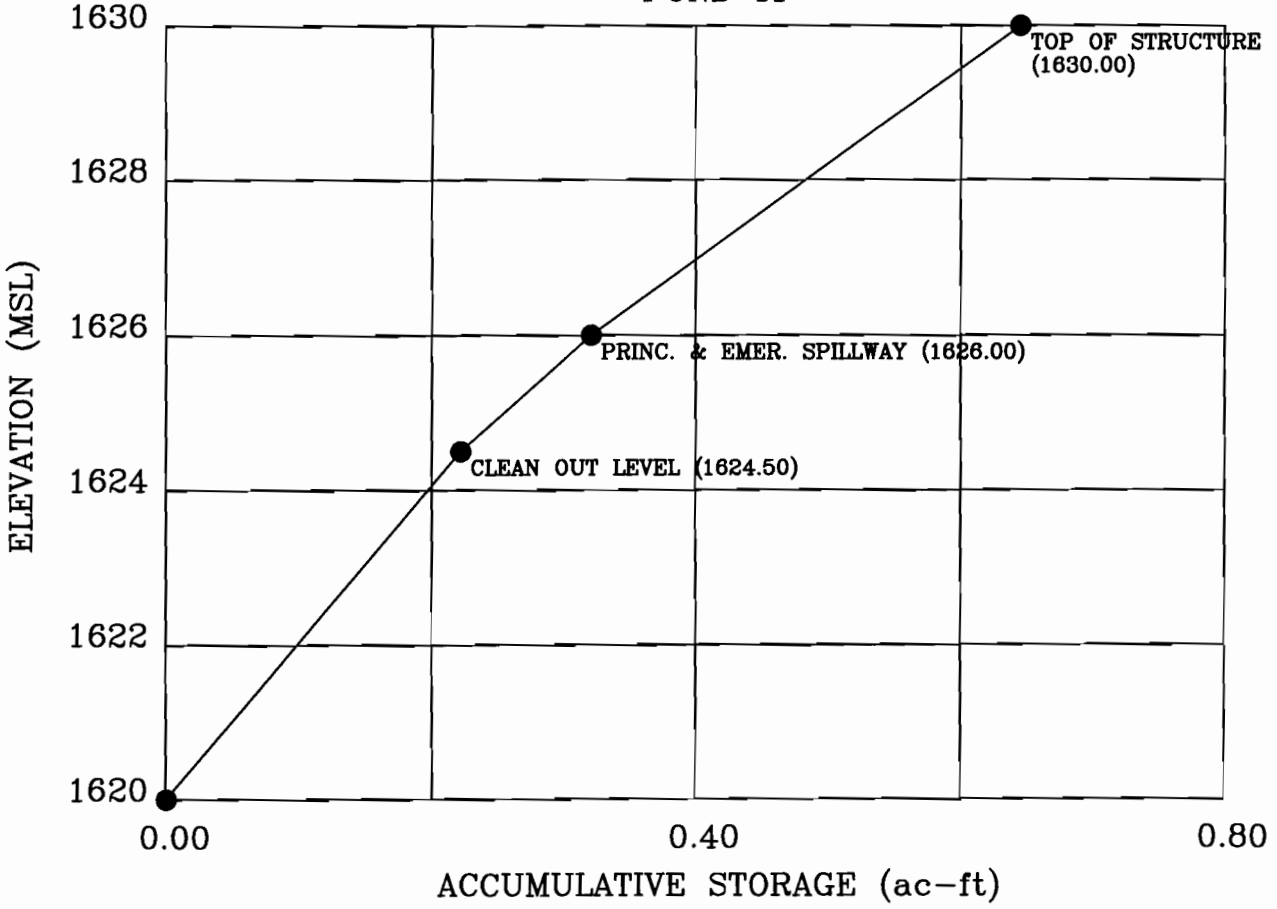
POND 11

DATE:	FILENAME:
02-09-08	POND 11.DWG
SCALE:	DRAWN BY:
NTS	MC

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 11



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 11

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1620.00	N/A	N/A	0.0370					
				0.0494	4.50	0.2222	0.2222	4.50
1624.50	N/A	N/A	0.0618					
				0.0659	1.50	0.0988	0.3210	6.00
1626.00	N/A	N/A	0.0700					
				0.0810	4.00	0.3240	0.6450	10.00
1630.00	N/A	N/A	0.0920					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

SIGNATURE

12/5/07
DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 11

25 YEAR 24 HOUR STORM

PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	125.700	0.000	0.000	0.000	73.000	S	328.50	25.541
	2	9.500	0.000	0.000	0.000	73.000	S	24.83	1.930
	3	9.300	0.000	0.000	0.000	73.000	S	24.30	1.890
	Σ	**144.500**						**377.63**	**29.361**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 11

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

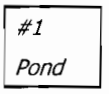
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 11



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	144.500	144.500	311.28	24.07	119.4	6,637	4.10	2.25
	Out			310.66	24.07	47.5	2,979	1.12	0.55

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.66
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	94.507%	100.000%
1.0000	88.621%	100.000%
0.5000	81.058%	100.000%
0.3000	76.058%	100.000%
0.2000	69.839%	100.000%
0.1000	58.276%	100.000%
0.0500	47.494%	100.000%
0.0300	38.276%	96.272%
0.0200	30.276%	76.150%
0.0100	21.058%	52.964%
0.0050	15.529%	39.058%
0.0030	10.310%	25.933%
0.0010	3.218%	8.095%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 11

Pond Inputs:

Initial Pool Elev:	1,626.00
Initial Pool:	0.09 ac-ft
*Sediment Storage:	0.21 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,626.00	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,628.43
H'graph Detention Time:	0.02 hrs
Pond Model:	CSTRS
Dewater Time:	0.52 days
Trap Efficiency:	60.24 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,624.49	0.059	0.000	0.000		Top of Sed. Storage
1,624.50	0.059	0.000	0.000		
1,625.00	0.061	0.031	0.000		
1,625.50	0.064	0.062	0.000		
1,626.00	0.067	0.095	0.000		Spillway #1
1,626.50	0.070	0.129	5.142	0.55	
1,627.00	0.073	0.165	66.760	11.80	
1,627.50	0.076	0.202	137.574		
1,628.00	0.079	0.241	223.036		
1,628.43	0.082	0.275	310.659	0.15	Peak Stage
1,628.50	0.082	0.281	324.530		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,629.00	0.085	0.323	441.596	
1,629.50	0.089	0.366	574.035	
1,630.00	0.092	0.412	721.794	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,624.49	0.000	0.000
1,624.50	0.000	0.000
1,625.00	0.000	0.000
1,625.50	0.000	0.000
1,626.00	0.000	0.000
1,626.50	5.142	5.142
1,627.00	66.760	66.760
1,627.50	137.574	137.574
1,628.00	223.036	223.036
1,628.50	324.530	324.530
1,629.00	441.596	441.596
1,629.50	574.035	574.035
1,630.00	721.794	721.794

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	125.700	0.000	0.000	0.000	73.000	S	260.46	19.857
	2	9.500	0.000	0.000	0.000	79.000	F	23.58	1.881
	3	9.300	0.000	0.000	0.000	86.000	F	27.24	2.328
	Σ	**144.500**						**311.28**	**24.066**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	26.1	1,874	1.01	0.52
	2	0.220	40.00	30.00	0.1400	1.0000	2	75.2	53,887	34.46	18.49
	3	0.220	40.00	1.00	0.8000	1.0000	2	18.1	10,402	6.65	3.65
	Σ							**119.4**	**6,637**	**4.10**	**2.25**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 11

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

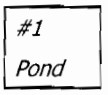
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 11



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	144.500	144.500	389.92	30.73	152.1	6,547	4.04	2.24
	Out			389.87	30.73	61.5	3,014	1.15	0.56

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.66
	Out	0.10

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	94.551%	100.000%
1.0000	88.697%	100.000%
0.5000	81.147%	100.000%
0.3000	76.147%	100.000%
0.2000	69.922%	100.000%
0.1000	58.372%	100.000%
0.0500	47.596%	100.000%
0.0300	38.372%	94.851%
0.0200	30.372%	75.075%
0.0100	21.147%	52.273%
0.0050	15.573%	38.496%
0.0030	10.349%	25.581%
0.0010	3.225%	7.971%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 11

Pond Inputs:

Initial Pool Elev:	1,626.00
Initial Pool:	0.09 ac-ft
*Sediment Storage:	0.21 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,626.00	10.00	2.00:1	2.00:1	25.00

Pond Results:

Peak Elevation:	1,628.78
H'graph Detention Time:	0.02 hrs
Pond Model:	CSTRS
Dewater Time:	0.52 days
Trap Efficiency:	59.55 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,624.49	0.059	0.000	0.000		Top of Sed. Storage
1,624.50	0.059	0.000	0.000		
1,625.00	0.061	0.031	0.000		
1,625.50	0.064	0.062	0.000		
1,626.00	0.067	0.095	0.000		Spillway #1
1,626.50	0.070	0.129	5.142	0.55	
1,627.00	0.073	0.165	66.760	11.45	
1,627.50	0.076	0.202	137.574		
1,628.00	0.079	0.241	223.036		
1,628.50	0.082	0.281	324.530		
1,628.78	0.084	0.304	389.873	0.50	Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
1,629.00	0.085	0.323	441.596	
1,629.50	0.089	0.366	574.035	
1,630.00	0.092	0.412	721.794	

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,624.49	0.000	0.000
1,624.50	0.000	0.000
1,625.00	0.000	0.000
1,625.50	0.000	0.000
1,626.00	0.000	0.000
1,626.50	5.142	5.142
1,627.00	66.760	66.760
1,627.50	137.574	137.574
1,628.00	223.036	223.036
1,628.50	324.530	324.530
1,629.00	441.596	441.596
1,629.50	574.035	574.035
1,630.00	721.794	721.794

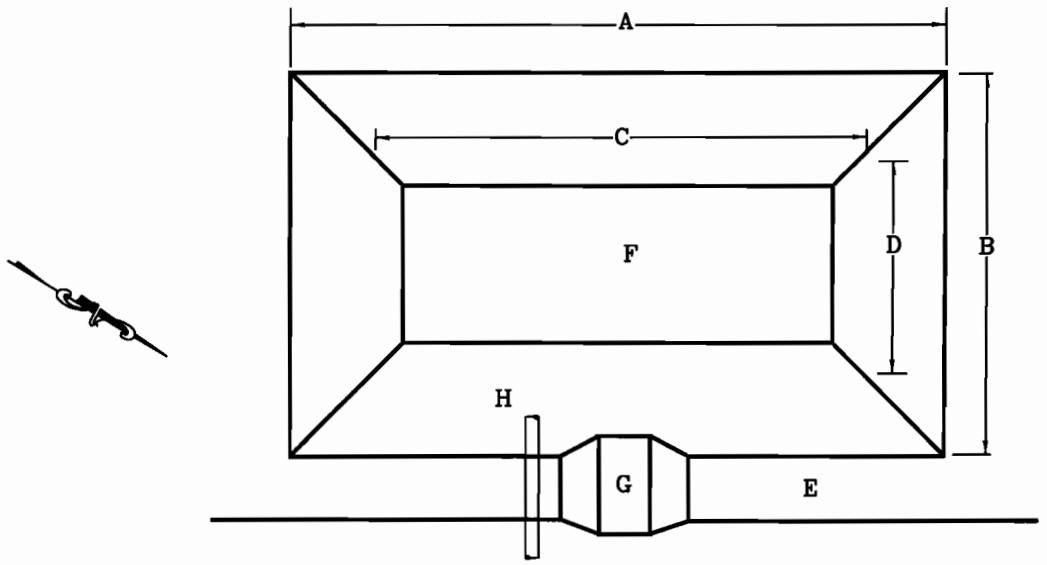
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	125.700	0.000	0.000	0.000	73.000	S	328.50	25.541
	2	9.500	0.000	0.000	0.000	79.000	F	28.92	2.355
	3	9.300	0.000	0.000	0.000	86.000	F	32.50	2.832
	Σ	**144.500**						**389.92**	**30.728**

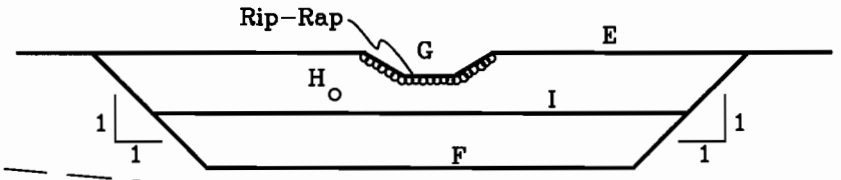
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	34.2	1,877	1.01	0.53
	2	0.220	40.00	30.00	0.1400	1.0000	2	95.5	54,140	34.62	18.78
	3	0.220	40.00	1.00	0.8000	1.0000	2	22.3	10,489	6.71	3.70
	Σ							**152.1**	**6,547**	**4.04**	**2.24**

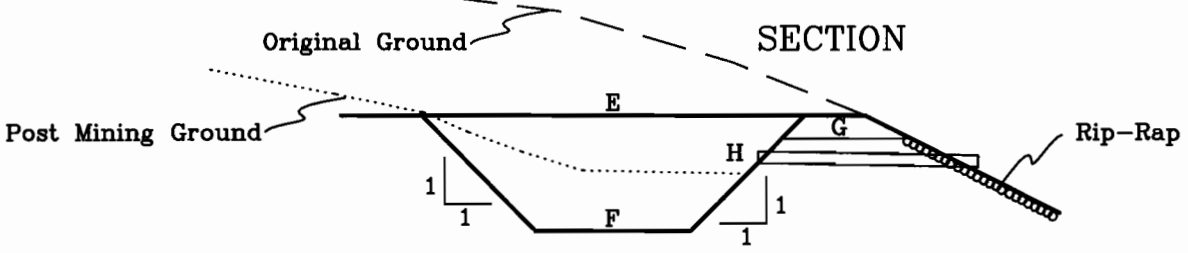
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 100'
B TOP WIDTH 40'
C BOTTOM LENGTH 80'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1655
F BOTTOM ELEVATION 1645
G EMERGENCY SPILLWAY ELEVATION 1652.0
BOTTOM WIDTH 10' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1650.5

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

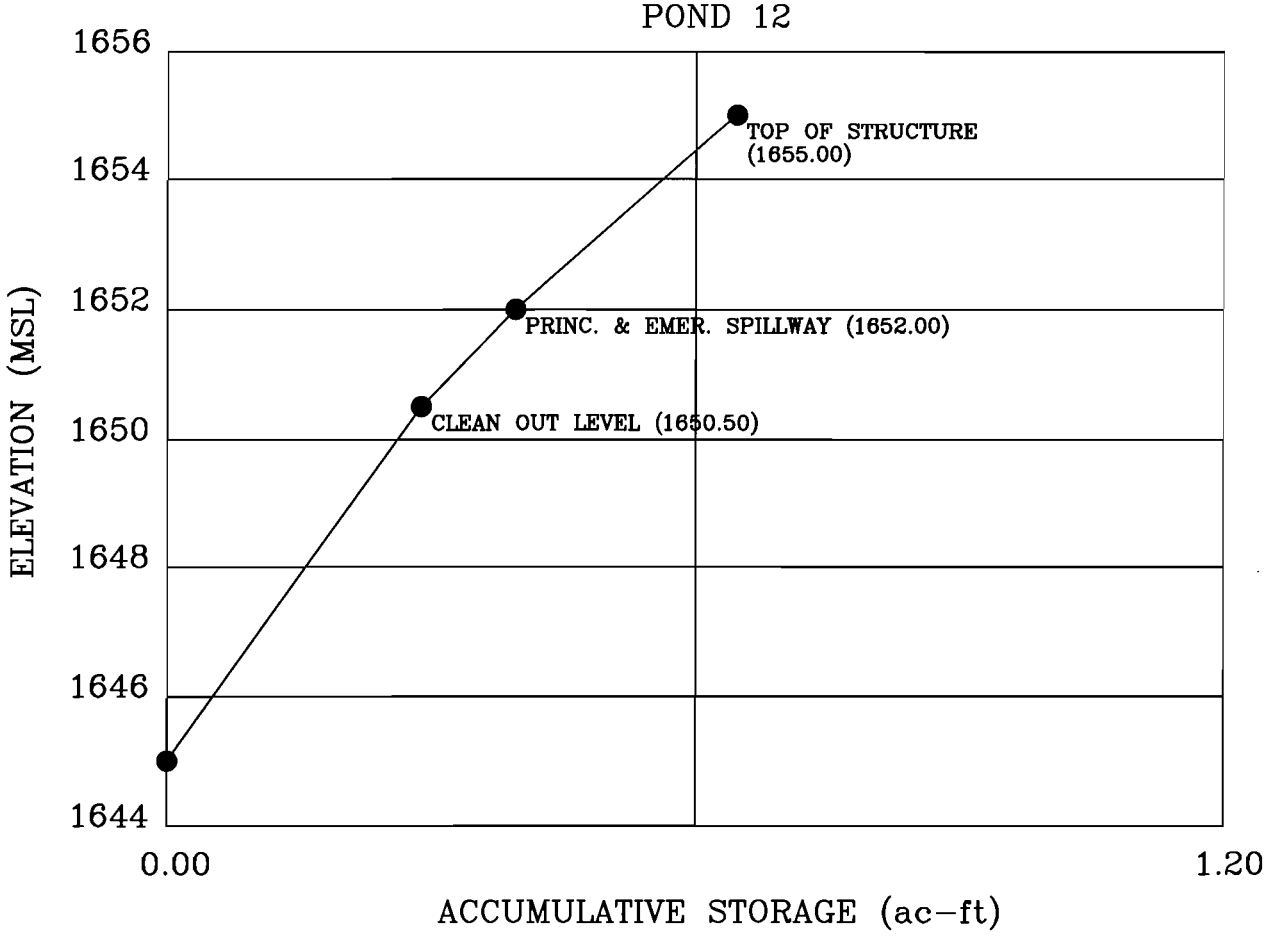
SIGNATURE 2 Feb 08 DATE

Prepared By:	RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381
APPOLO FUELS, INC.	
807-0314 AMENDMENT 1	
POND 12	
DATE: 02-09-08	FILENAME: POND 12.DWG
SCALE: NTS	DRAWN BY: MC

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 12



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 12

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1645.00	N/A	N/A	0.0373					
1650.50	N/A	N/A	0.0674	0.0523	5.50	0.2879	0.2879	5.50
1652.00	N/A	N/A	0.0756	0.0715	1.50	0.1072	0.3951	7.00
1655.00	N/A	N/A	0.0920	0.0838	3.00	0.2514	0.6465	10.00

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT C. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY

SIGNATURE

1/26/07
DATE

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 12

25 YEAR 24 HOUR STORM

PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	14.800	0.000	0.000	0.000	73.000	S	38.68	3.007
	2	7.200	0.000	0.000	0.000	73.000	S	18.82	1.463
	3	7.100	0.000	0.000	0.000	73.000	S	18.55	1.443
	4	4.000	0.000	0.000	0.000	73.000	S	10.45	0.813
	Σ	**33.100**						**86.50**	**6.726**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 12

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

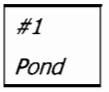
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 12



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	33.100	33.100	75.42	5.93	80.0	18,346	11.68	6.28
	Out			74.79	5.93	27.2	6,831	2.50	1.23

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	1.61
	Out	0.22

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.205%	100.000%
1.0000	86.356%	100.000%
0.5000	78.416%	100.000%
0.3000	73.416%	100.000%
0.2000	67.386%	100.000%
0.1000	55.445%	100.000%
0.0500	44.475%	100.000%
0.0300	35.445%	100.000%
0.0200	27.445%	80.676%
0.0100	18.416%	54.133%
0.0050	14.208%	41.764%
0.0030	9.178%	26.979%
0.0010	3.030%	8.906%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 12

Pond Inputs:

Initial Pool Elev:	1,652.00
Initial Pool:	0.10 ac-ft
*Sediment Storage:	0.28 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,652.00	10.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	1,653.67
H'graph Detention Time:	0.09 hrs
Pond Model:	CSTRS
Dewater Time:	0.55 days
Trap Efficiency:	65.98 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,650.50	0.064	0.000	0.000		Top of Sed. Storage
1,651.00	0.067	0.033	0.000		
1,651.50	0.070	0.067	0.000		
1,652.00	0.073	0.103	0.000		Spillway #1
1,652.50	0.076	0.140	2.083	7.15	
1,653.00	0.079	0.179	28.541	5.95	
1,653.50	0.082	0.219	60.955		
1,653.67	0.083	0.233	74.791	0.05	Peak Stage
1,654.00	0.085	0.261	102.032		
1,654.50	0.089	0.304	152.957		
1,655.00	0.092	0.350	214.007		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,650.50	0.000	0.000
1,651.00	0.000	0.000
1,651.50	0.000	0.000
1,652.00	0.000	0.000
1,652.50	2.083	2.083
1,653.00	28.541	28.541
1,653.50	60.955	60.955
1,654.00	102.032	102.032
1,654.50	152.957	152.957
1,655.00	214.007	214.007

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	14.800	0.000	0.000	0.000	73.000	S	30.67	2.338
	2	7.200	0.000	0.000	0.000	74.000	F	15.42	1.183
	3	7.100	0.000	0.000	0.000	79.000	F	17.62	1.406
	4	4.000	0.000	0.000	0.000	86.000	F	11.72	1.001
	Σ	**33.100**						**75.42**	**5.929**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	2.4	1,450	0.78	0.40
	2	0.220	40.00	30.00	0.0500	1.0000	2	16.3	19,413	12.41	6.45
	3	0.220	40.00	30.00	0.1400	1.0000	2	54.2	52,075	33.30	17.87
	4	0.220	40.00	1.00	0.8000	1.0000	2	7.0	9,404	6.01	3.30
	Σ							**80.0**	**18,346**	**11.68**	**6.28**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 12

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

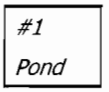
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 12



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	33.100	33.100	93.62	7.50	102.0	18,276	11.63	6.34
	Out			92.95	7.50	34.6	6,868	2.50	1.24

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	1.64
	Out	0.19

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.211%	100.000%
1.0000	86.366%	100.000%
0.5000	78.427%	100.000%
0.3000	73.427%	100.000%
0.2000	67.397%	100.000%
0.1000	55.458%	100.000%
0.0500	44.488%	100.000%
0.0300	35.458%	100.000%
0.0200	27.458%	80.875%
0.0100	18.427%	54.276%
0.0050	14.214%	41.865%
0.0030	9.183%	27.048%
0.0010	3.031%	8.926%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 12

Pond Inputs:

Initial Pool Elev:	1,652.00
Initial Pool:	0.10 ac-ft
*Sediment Storage:	0.28 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,652.00	10.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	1,653.89
H'graph Detention Time:	0.08 hrs
Pond Model:	CSTRS
Dewater Time:	0.55 days
Trap Efficiency:	66.05 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,650.50	0.064	0.000	0.000		Top of Sed. Storage
1,651.00	0.067	0.033	0.000		
1,651.50	0.070	0.067	0.000		
1,652.00	0.073	0.103	0.000		Spillway #1
1,652.50	0.076	0.140	2.083	6.15	
1,653.00	0.079	0.179	28.541	7.00	
1,653.50	0.082	0.219	60.955		
1,653.89	0.085	0.252	92.949	0.05	Peak Stage
1,654.00	0.085	0.261	102.032		
1,654.50	0.089	0.304	152.957		
1,655.00	0.092	0.350	214.007		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,650.50	0.000	0.000
1,651.00	0.000	0.000
1,651.50	0.000	0.000
1,652.00	0.000	0.000
1,652.50	2.083	2.083
1,653.00	28.541	28.541
1,653.50	60.955	60.955
1,654.00	102.032	102.032
1,654.50	152.957	152.957
1,655.00	214.007	214.007

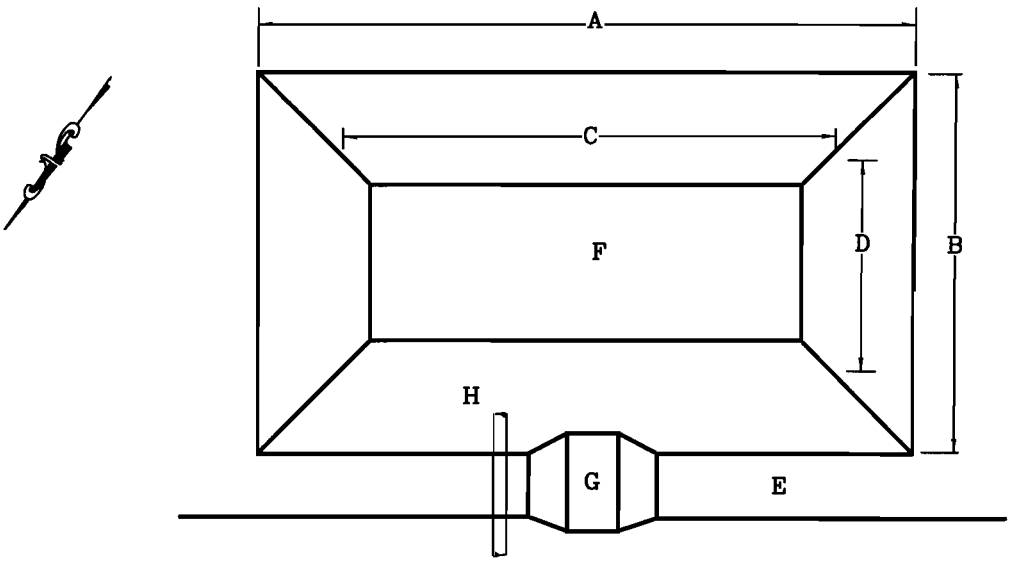
Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	14.800	0.000	0.000	0.000	73.000	S	38.68	3.007
	2	7.200	0.000	0.000	0.000	74.000	F	19.35	1.515
	3	7.100	0.000	0.000	0.000	79.000	F	21.61	1.760
	4	4.000	0.000	0.000	0.000	86.000	F	13.98	1.218
	Σ	**33.100**						**93.62**	**7.500**

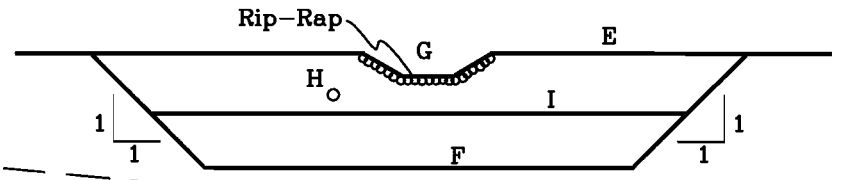
Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	3.1	1,452	0.78	0.41
	2	0.220	40.00	30.00	0.0500	1.0000	2	21.3	19,455	12.44	6.57
	3	0.220	40.00	30.00	0.1400	1.0000	2	69.0	52,320	33.46	18.14
	4	0.220	40.00	1.00	0.8000	1.0000	2	8.7	9,483	6.06	3.35
	Σ							**102.0**	**18,276**	**11.63**	**6.34**

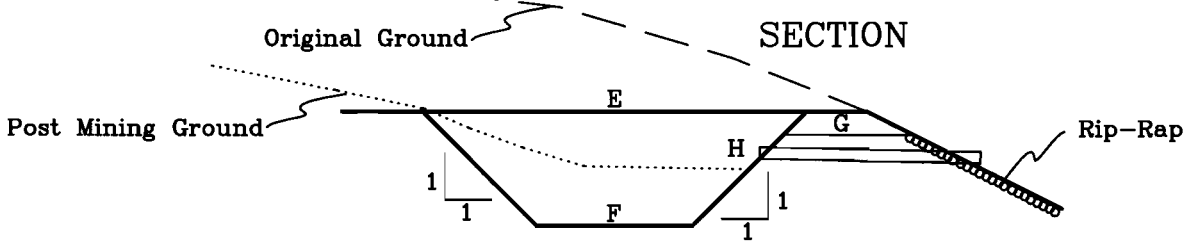
PLAN VIEW



PROFILE



SECTION



A TOP LENGTH 75'
B TOP WIDTH 40'
C BOTTOM LENGTH 55'
D BOTTOM WIDTH 20'
E TOP ELEVATION 1685
F BOTTOM ELEVATION 1675
G EMERGENCY SPILLWAY ELEVATION 1682
BOTTOM WIDTH 15' SIDESLOPES L 2:1 R 2:1
H PRINCIPAL SPILLWAY ELEVATION ---
--- OF --- CMP @ 2% SLOPE
I SEDIMENT CLEANOUT ELEVATION 1680.5

I hereby certify, to the best of my knowledge, and belief, in accordance with 405 KAR 7:040, Section 4(2), that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

SIGNATURE 2/16/08 DATE

Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878–1381

APPOLO FUELS, INC.

807–0314 AMENDMENT 1

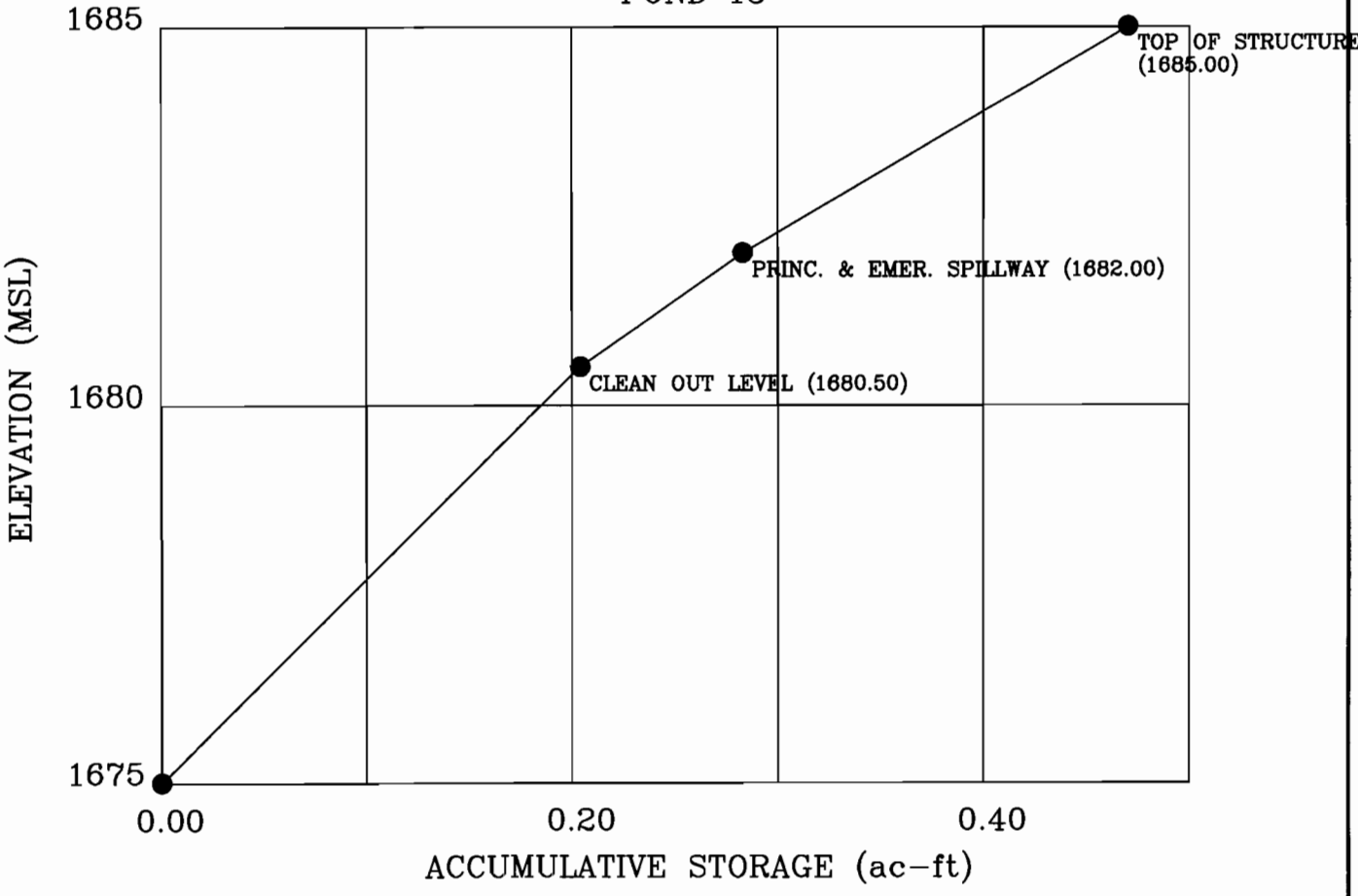
POND 13

DATE:	FILENAME:
02–09–08	POND 13.DWG
SCALE:	DRAWN BY:
NTS	MC

AP. 807-0314 AM 1

STAGE STORAGE CURVE

POND 13



STORAGE VOLUME COMPUTATIONS
807-0314 AM 1
POND 13

ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
1675.00	N/A	N/A	0.0250					
				0.0371	5.50	0.2041	0.2041	5.50
1680.50	N/A	N/A	0.0492					
				0.0525	1.50	0.0787	0.2828	7.00
1682.00	N/A	N/A	0.0558					
				0.0624	3.00	0.1872	0.4700	10.00
1685.00	N/A	N/A	0.0690					

I hereby certify, to the best of my knowledge and belief, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

10652

SIGNATURE

1-26-07

DATE

PROFESSIONAL ENGINEER

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 13
25 YEAR 24 HOUR STORM
PRE-MINING

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	34.300	0.000	0.000	0.000	73.000	S	89.64	6.970
	2	4.500	0.000	0.000	0.000	73.000	S	11.76	0.914
	3	4.400	0.000	0.000	0.000	73.000	S	11.50	0.894
	Σ	**43.200**						**112.90**	**8.778**

APPOLO FUELS, INC.
807-0314
AMENDMENT 1

POND 13

10 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

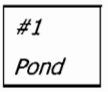
Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	4.500 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 13



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	43.200	43.200	95.13	7.41	46.5	8,376	5.25	2.88
	Out			94.66	7.41	16.4	3,619	1.27	0.57

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.80
	Out	0.08

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.904%	100.000%
1.0000	87.572%	100.000%
0.5000	79.834%	100.000%
0.3000	74.834%	100.000%
0.2000	68.703%	100.000%
0.1000	56.964%	100.000%
0.0500	46.095%	100.000%
0.0300	36.964%	100.000%
0.0200	28.964%	81.922%
0.0100	19.834%	56.097%
0.0050	14.917%	42.190%
0.0030	9.786%	27.678%
0.0010	3.131%	8.856%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 13

Pond Inputs:

Initial Pool Elev:	1,682.00
Initial Pool:	0.07 ac-ft
*Sediment Storage:	0.19 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,682.00	10.00	2.00:1	2.00:1	15.00

Pond Results:

Peak Elevation:	1,683.57
H'graph Detention Time:	0.05 hrs
Pond Model:	CSTRS
Dewater Time:	0.52 days
Trap Efficiency:	64.64 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,680.51	0.047	0.000	0.000		Top of Sed. Storage
1,681.00	0.049	0.023	0.000		
1,681.50	0.051	0.048	0.000		
1,682.00	0.054	0.075	0.000		Spillway #1
1,682.50	0.056	0.102	3.103	7.55	
1,683.00	0.058	0.130	41.275		
1,683.50	0.061	0.160	86.470		
1,683.57	0.061	0.165	94.660	5.00	Peak Stage
1,684.00	0.064	0.192	142.306		
1,684.50	0.066	0.224	210.030		
1,685.00	0.069	0.258	289.670		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,680.51	0.000	0.000
1,681.00	0.000	0.000
1,681.50	0.000	0.000
1,682.00	0.000	0.000
1,682.50	3.103	3.103
1,683.00	41.275	41.275
1,683.50	86.470	86.470
1,684.00	142.306	142.306
1,684.50	210.030	210.030
1,685.00	289.670	289.670

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	34.300	0.000	0.000	0.000	73.000	S	71.07	5.418
	2	4.500	0.000	0.000	0.000	79.000	F	11.17	0.891
	3	4.400	0.000	0.000	0.000	86.000	F	12.89	1.101
	Σ	**43.200**						**95.13**	**7.411**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	6.1	1,603	0.86	0.45
	2	0.220	40.00	30.00	0.1400	1.0000	2	32.5	49,357	31.56	16.93
	3	0.220	40.00	1.00	0.8000	1.0000	2	7.8	9,512	6.08	3.34
	Σ							**46.5**	**8,376**	**5.25**	**2.88**

APPOLO FUELS, INC.

807-0314

AMENDMENT 1

POND 13

25 YEAR 24 HOUR STORM

Marvin Campbell

RLB Engineering, PSC
202 East 4th Street
London, KY 40741

Phone: (606) 878-1381
Email: marvin_camp_rlb@alltel.net

General Information

Storm Information:

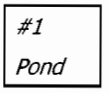
Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	5.200 inches

Particle Size Distribution:

Size (mm)	undisturbed	disturbed
3.0000	100.000%	100.000%
2.0000	99.900%	93.000%
1.0000	98.000%	86.000%
0.5000	92.000%	78.000%
0.3000	87.000%	73.000%
0.2000	80.000%	67.000%
0.1000	70.000%	55.000%
0.0500	60.000%	44.000%
0.0300	50.000%	35.000%
0.0200	42.000%	27.000%
0.0100	32.000%	18.000%
0.0050	21.000%	14.000%
0.0030	15.000%	9.000%
0.0010	4.000%	3.000%
0.0001	0.000%	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	POND 13



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1	In	43.200	43.200	118.71	9.42	59.0	8,271	5.18	2.88
	Out			118.27	9.42	21.4	3,681	1.33	0.60

The 24 hour Arithmetic Average (24AA) is under review. It is anticipated that the 24AA will be replaced by the peak settleable solids concentration (ml/l) with the addition of new sediment input factor values.

The 24AA is provided for your convenience during this transition period.

		24AA (ml/l)
#1	In	0.80
	Out	0.09

Particle Size Distribution(s) at Each Structure

Structure #1:

Size (mm)	In	Out
3.0000	100.000%	100.000%
2.0000	93.933%	100.000%
1.0000	87.623%	100.000%
0.5000	79.893%	100.000%
0.3000	74.893%	100.000%
0.2000	68.758%	100.000%
0.1000	57.028%	100.000%
0.0500	46.164%	100.000%
0.0300	37.028%	100.000%
0.0200	29.028%	80.052%
0.0100	19.893%	54.860%
0.0050	14.947%	41.219%
0.0030	9.811%	27.057%
0.0010	3.135%	8.646%
0.0001	0.000%	0.000%

Structure Detail:

Structure #1 (Pond)

POND 13

Pond Inputs:

Initial Pool Elev:	1,682.00
Initial Pool:	0.07 ac-ft
*Sediment Storage:	0.19 ac-ft
Dead Space:	40.00 %

**Sediment capacity was entered by user*

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
1,682.00	10.00	2.00:1	2.00:1	15.00

Pond Results:

Peak Elevation:	1,683.78
H'graph Detention Time:	0.04 hrs
Pond Model:	CSTRS
Dewater Time:	0.53 days
Trap Efficiency:	63.74 %

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
1,680.51	0.047	0.000	0.000		Top of Sed. Storage
1,681.00	0.049	0.023	0.000		
1,681.50	0.051	0.048	0.000		
1,682.00	0.054	0.075	0.000		Spillway #1
1,682.50	0.056	0.102	3.103	6.60	
1,683.00	0.058	0.130	41.275	5.95	
1,683.50	0.061	0.160	86.470		
1,683.78	0.063	0.178	118.266	0.05	Peak Stage
1,684.00	0.064	0.192	142.306		
1,684.50	0.066	0.224	210.030		
1,685.00	0.069	0.258	289.670		

Detailed Discharge Table

Elevation	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
1,680.51	0.000	0.000
1,681.00	0.000	0.000
1,681.50	0.000	0.000
1,682.00	0.000	0.000
1,682.50	3.103	3.103
1,683.00	41.275	41.275
1,683.50	86.470	86.470
1,684.00	142.306	142.306
1,684.50	210.030	210.030
1,685.00	289.670	289.670

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	34.300	0.000	0.000	0.000	73.000	S	89.64	6.970
	2	4.500	0.000	0.000	0.000	79.000	F	13.70	1.115
	3	4.400	0.000	0.000	0.000	86.000	F	15.38	1.340
	Σ	**43.200**						**118.71**	**9.425**

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.170	75.00	30.00	0.0030	1.0000	1	8.0	1,606	0.87	0.45
	2	0.220	40.00	30.00	0.1400	1.0000	2	41.4	49,589	31.71	17.19
	3	0.220	40.00	1.00	0.8000	1.0000	2	9.7	9,592	6.13	3.38
	Σ							**59.0**	**8,271**	**5.18**	**2.88**

31.5 Provide a plan for the periodic maintenance of all sediment structures and discuss the proposed sediment clean-out schedule. Provide information as "Attachment 31.5.A".

SEE "ATTACHMENT 31.5.A"

31.6 Provide a removal plan for all temporary impoundments. Submit as "Attachment 31.6.A".

SEE "ATTACHMENT 31.6.A"

32. Diversions

32.1 Is authorization to conduct mining and reclamation operations or to construct mining related facilities within 100 feet of an intermittent or perennial stream being requested? [**X**] YES [ ] NO. If "YES", provide the following information for all of the following.

(a) A map showing the location(s) where such authorization is requested, and the proposed disturbance(s)/facility(ies) with an indication of the specific distance to the stream(s). Submit as "Attachment 32.1.A".

(b) Cross-sections and a longitudinal profile of the stream's premining and postmining configuration. Submit as "Attachment 32.1.B".

(c) A description, including maps, plans, drawings, etc., of the specific measures to be taken to protect the stream(s) during the mining and reclamation operation. Submit as "Attachment 32.1.C".

32.2 Will the disturbances referenced in item 32.1 result in the temporary or permanent diversion of an intermittent or perennial stream?
[ ] YES [**X**] NO. If "YES", provide as "Attachment 32.2.A.", the design calculations and other pertinent information to demonstrate compliance with 405 KAR 16:080, Section 2, or 405 KAR 18:080, Section 2, as appropriate.

32.3 Complete the following chart for all diversions:

SEE "ATTACHMENT 32.3.A"

Diversion Number	Length of Diversion	Design Storm	Type of Channel	Design Velocity	Average Slope	Erosion Control Methods

"Attachment 31.5.A"

PERIODIC MAINTENANCE OF SEDIMENT STRUCTURES

Accumulated sediment will be removed from each sediment pond when the design sediment storage volume has been filled to capacity. The clean-out stage for each structure is shown on the appropriate Silt Structure Design Sheet. A backhoe, clam, etc. will be used to dip the sediment from the pond. Sediment that is cleaned out of the basins will be tested prior to disposal. Sediment material will be hauled to a permitted area, allowed to dry, then placed into its final configuration. Toxic sediment will be disposed in accordance with the approved acid/toxic material disposal plan.

Sediment structures will be periodically inspected by mining personel to determine if they are functioning properly or need to be cleaned out, additionally annual maintenance inspections will be conducted pursuant to the current DNR DMRE program.

"Attachment 31.6.A"

Pursuant to landowner comments the ponds are to be reclaimed to wetlands prior to final bond release. The reclamation to wetlands will take place after Phase II bond release and/or two years growing time from final seeding, only after approval by field personel. The reclamation to wetlandsis to be accomplished by cutting down the spillway elevation and/or grading material from the surrounding area into the bottom of the pond, thereby leaving the depth to be approximately two (2) feet deep. If the spillway is cut down it will be rip-rapped sufficiently to prevent any erosion of discharging water.

"ATTACHMENT 32.1.A"

Mining within 100' of streams consist of temporary impacts within zero (0) feet of streams as described below, including Drainage Corridor, Stream 181+00, and construction of Road 5 and 6. These impacts have been included in separately submitted USACOE 404 and DNR 401 Water Quality Certification applications and will be mitigated for as required. See the MRP-ERI-BLASTING Map for the location of these structures, located within 100' of, Unnamed Tributary of Clear Fork, Steve Creek and Clear Fork. See the list below for further details of these structures.

Impact Site	Latitude	Longitude	Flow Regime	Length	Type of Impact	Drainage Area
DRAINAGE CORRIDOR	36º 35' 29"	83º 52' 34"	Intermittent	1468'	Temporary	159
STREAM 181+00	36º 35' 15"	83º 52' 29"	Intermittent	375'	Temporary	127
ROAD 5	36º 35' 11"	83" 51' 42"	Perennial	75'	Temporary	455
ROAD 6	36º 35' 37"	83º 51' 15"	Perennial	75'	Temporary	882

"ATTACHMENT 32.1.B"

See list below and attached details for the cross-section, profile etc. of the proposed impact areas premining and postmining configuration.

Impact Site	Bankfull Depth	Bankfull Width	Flood Prone Width	Sinuosity	Slope %	Channel Composition	Rosgen Classification
DRAINAGE CORRIDOR	0.14	2.8	3.5	1.029	11	Cobble	A3a+
STREAM 181+00	0.59	5.4	6.2	1.072	5	Cobble	A3
ROAD 5	1.25	15.1	19.4	1.005	7	Boulder	A2
ROAD 6	1.58	19.3	25.5	1.002	6	Boulder	A2

"ATTACHMENT 32.1.C"

Prior to mining the applicant will obtain all necessary permits and/or approvals needed to complete the project as proposed. All stream impacts will be monitored during mining and will be mitigated for as needed. Prior to any mining related construction, temporary sediment control will be provided by construction of straw bale silt checks with silt fence.

The impacted streams will be enhanced, replaced and/or re-established to the pre-mining cross-sectional area and profile. The restored stream and any applicable mitigation areas will be enhanced by placement of cross-vanes, J-Hooks, Random Boulder Placement, Wedge Dams, Channel Blocks, Cover Logs, and Bank Cribs as needed. Materials needed for mitigation enhancement including stone and logs will be taken from within the permit area. The disturbed areas will be vegetated and the riparian zones replaced.

Temporary Impacts

Drainage Corridor

The Drainage Corridor is located between the mining area and existing Pond 1, and may be impacted by the buildup of sediments, this siltation process will not significantly alter the cross section and profile of the affected stream channels. Riparian vegetation along the drainage corridors will not be affected or disturbed. Yearly monitoring of the drainage corridors by pebble count will indicate if siltation has decreased, remained constant or increased. If siltation levels increase then enhancements such as cross-vanes etc. will be placed into the streams to decrease the siltation levels to be equal to or less than that which existed prior to mining. All enhancements within these areas will be completed in a non invasive manner and will require only minimal vegetative and riparian zone replacements. Additionally water stored within Pond 1 may be pumped and used to flush sediment from within the Drainage Corridors.

Stream 181+00

One (1) area is proposed to be mined through and backfilled, this area is designated as Stream 181+00 and is an intermittent stream. During the backfill operation this stream will be re-established to assimilate the pre-mining profile, cross-section and stream composition. Existing substrate material will be removed prior to mining where possible, this substrate material will be temporarily stored and used during the stream re-establishment. Additionally shot rock may also be used during the stream re-establishment. Any shot rock used must be durable material of a non-acidic non-toxic composition such as the hard massive sandstone as shown in Item 15 of this application. Prior to substrate placement the re-established stream channel will be lined with clay or other impervious material, this material is to be compacted sufficiently to prevent water from sturating the backfilled spoil material to prevent destabilization of the re-established stream channel. Care will be taken to ensure that the channel composition assimilates the pre-mining conditions, any substrate placed into the re-established stream be will have a minimum depth of six inches. The re-established stream will be enhanced by placement of cross-vanes etc., these areas will be vegetated and the riparian zones replaced.

Road Crossings

Road 5 and Road 6 are proposed to be constructed by this application, construction will be completed by following the plans outlined in Item 33.1.

The road crossings are proposed to be temporary and will be removed after a minimum of two years of growing time after reclamation within their respective watersheds. The stream will be re-established to the pre-mining cross-sectional area and profile configuration, and will be enhanced by placement of cross-vanes etc. and will be vegetated and the riparian zones replaced.

Existing Riparian Zone Description

The impact area lies within a mixed mesophytic deciduous forest. Many of the impacted streams are within upland reaches of the surface water system and therefore the species of the mixed forest are in essence the riparian species located adjacent to the streams themselves. The dominant trees of the mixed forest canopy are American Beech, Red Oak, White Oak, Black Oak, Black Walnut, Red Maple Shellbark Hickory, Hemlock, Yellow Poplar, Eastern Red Cedar, Black Gum and Persimmon. Within the understory characteristic species include Dogwood, Sourwood, Redbud, Holly, Serviceberry, Cucumber Tree and Sassafras.

Enhancement Structures - Construction and Application

Cross Vane – Cross Vanes are to be constructed within the bankfull cross-sectional area of the stream reach and should be located in the transitional areas between bends of streams with sinuosity. Cross Vanes are to be constructed of local native rock from within the stream channel and adjacent areas when possible, shot rock from the mining area may be used if it is non-toxic/non-acidic. The construction of a cross vane will flush sediment away from substrate within the stream bed and will provide pool areas and vertical drops rather than a uniform stream depth.

J-Hook – J-Hooks are similar to cross vane's and should also be constructed within the bankfull cross-sectional area of the stream reach and should also be constructed with the same rock material. J-Hooks should be constructed along the outside bank of stream bends, thereby pulling the thalweg (or deepest part of the stream channel) away from the stream bank, thus reducing the instability and possibility of erosion.

Random Boulder Placement – Random boulders are to be constructed with local native rock from areas adjacent to the stream bed. The random boulders are to be placed within riffles, runs and glides and should be one to two feet in diameter. The placement of the boulders will diversity stream flow patterns and provided additional habitat within the streams biological community.

Wedge Dam – Wedge Dams are very similar to cross vanes in function and should be constructed at similar locations within the stream reach. The most significant difference between wedge dams and cross vanes is that wedge dams are constructed of woody material and are of a more temporary nature. Wedge dams located within temporary impact areas such as Drainage Corridors can be constructed with fall logs or any other species. Wedge dams located within off-site enhancement areas should be constructed with hemlock or black locust due to their decay resistance and durability, logs should be pinned into place.

Channel Block – Channel Blocks are to be constructed by placing one or multiple logs strategically to block the flow from entering the minor branches where a stream has become braided (multiple channels), logs should be pinned into place and rocks should be placed alongside for stability.

Cover Log – Cover logs are to be constructed along the outside bank of stream bends to aid in reducing instability and the possibility of erosion. Cover logs should be constructed with hemlock or black locust due to their decay resistance and durability.

Bank Crib – Bank cribs are very similar to cover logs and should be constructed at similar locations within the stream reach. Bank cribs should be constructed in the same manner as cover logs and then are to be shored up with the addition of available native stone.

Riparian Zone Revegetation Plan

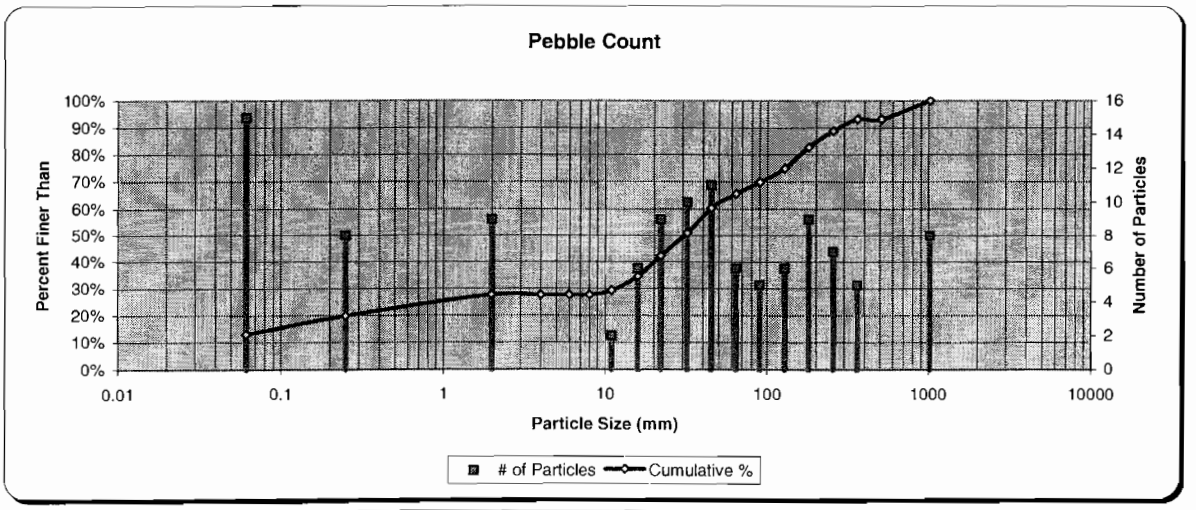
All areas of affected streams impacted will be revegetated if required due to removal or lack of riparian vegetation. A riparian zone will be planted to a minimum of fifty feet wide along the banks of these streams. Initial vegetative protection will be provided by planting a combination of grass species as outlined in the ground cover species listed below, trees and shrubs will also be planted either mechanically or manually in a random pattern to a rate of 436 trees and shrubs per acre. The trees and shrubs to be planted should include at least six species of trees and shrubs, including at least two hard mast species, two soft mast species and three shrub species, with tree species comprising of at least 75 percent of the total. The riparian species are to be planted adjacent to the re-established and/or enhanced streams down to the normal water height.

Riparian Zone Revegetation Plan							
Grass Species	choose four or more	Timothy	Barnyard Grass	Annual Rye	Alsike Clover	Smartweed	Spangle Grass
		Orchard Grass	Red Clover	Millet	Wild Rye	Deertongue Grass	Switch Cane
Tree Species	choose two or more	Northern Red Oak	Black Walnut	Post Oak	Pin Oak	Cherrybark Oak	Shingle Oak
		Swamp Chestnut Oak	Bur Oak	Black Oak	American Beech	Red Maple	Shellbark Hickory
	choose two or more	Hemlock	Shining Sumac	Black Willow	Green Ash	Yellow Poplar	Persimmon
		Eastern Cottonwood	American Elm	River Birch	Red Elm	Eastern Red Cedar	Black Gum
Shrub Species	choose three or more	Bicolor Lespedeza	Alder	American Plum	Arrow Wood	Deciduous Holly	Viburnum
		Red Bud	Gray Dogwood	Silky Dogwood	Spice Bush	Sassafras	Elderberry

Appolo Fuels, Inc.
DMRE #807-0314 AMENDMENT 1

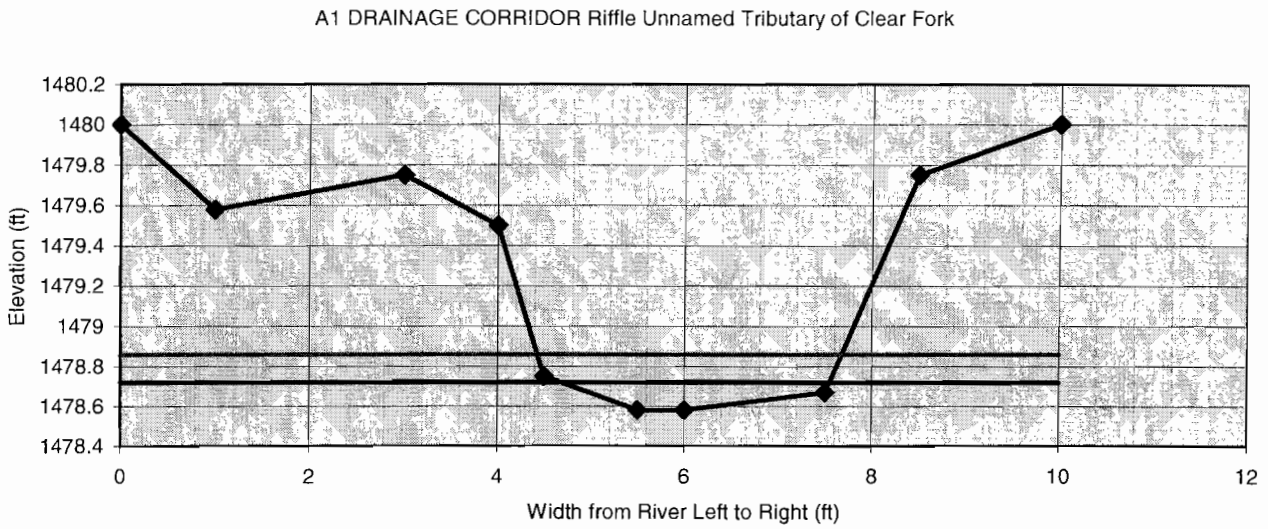
A1-DRAINAGE CORRIDOR May 9, 2005

	Particle	mm	mm	Total #	Item %	Cumulative %
Silt	Silt/Clay	<.062	0.062	15	12.93%	12.93%
Sand	Fine	.062-.25	0.25	8	6.90%	19.83%
	Coarse	.25-2	2	9	7.76%	27.59%
Gravel	Very Fine	2-4	4		0.00%	27.59%
	Fine	4-6	6		0.00%	27.59%
	Fine	6-8	8		0.00%	27.59%
	Medium	8-11	11	2	1.72%	29.31%
	Medium	11-16	16	6	5.17%	34.48%
	Coarse	16-22	22	9	7.76%	42.24%
	Coarse	22-32	32	10	8.62%	50.86%
	Very Coarse	32-45	45	11	9.48%	60.34%
	Very Coarse	45-64	64	6	5.17%	65.52%
Cobble	Small	64-90	90	5	4.31%	69.83%
	Small	90-128	128	6	5.17%	75.00%
	Large	128-180	180	9	7.76%	82.76%
	Large	180-256	256	7	6.03%	88.79%
Boulder	Small	256-362	362	5	4.31%	93.10%
	Small	362-512	512		0.00%	93.10%
	Medium	512-1024	1024	8	6.90%	100.00%
	Large	1024-2048	2048		0.00%	100.00%
	Very Large	2048-4096	4096		0.00%	100.00%
	Bedrock					
			Total:	116		



Size Percent Less Than (mm)						particle size distribution		
D16	D35	D50	D65	D84	D95	gradation	geo mean	std dev
0	16	31	62	194	620	136.8	4.7	41.0

Cross Section



section:	A1 DRAINAGE CORRIDOR
	Riffle
stream:	Unnamed Tributary of Clear Fork
location:	
description:	Appolo Fuels, Inc. 807-0314
height of instrument (ft):	1480.00

notes	omit pt.	distance (ft)	FS (ft)	elevation
		0	0	1480
		1	0.42	1479.58
		3	0.25	1479.75
		4	0.5	1479.5
		4.5	1.25	1478.75
		5.5	1.42	1478.58
		6	1.42	1478.58
		7.5	1.33	1478.67
		8.5	0.25	1479.75
		10	0	1480

FS bankfull	FS top of bank	W fpa (ft)	channel slope (%)	Manning's "n"
1.28		3.5	11	0.15
1478.72	---			

dimensions			
0.3	x-section area	0.1	d mean
2.9	width	2.9	wet P
0.1	d max	0.1	hyd radi
0.0	bank ht	30.4	w/d ratio
3.5	W flood prone area	1.2	ent ratio

hydraulics	
0.7	velocity (ft/sec)
0.2	discharge rate, Q (cfs)
0.64	shear stress ((lbs/ft sq)
0.57	shear velocity (ft/sec)
0.440	unit stream power (lbs/ft/sec)
0.15	Froude number
1.2	friction factor u/u*
40.4	threshold grain size (mm)

check from channel material			
194	measured D84 (mm)		
0.1	relative roughness	-1.9	fric. factor
-0.094	Manning's n from channel material		

EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
(Family Level Taxonomy - Riffle Only Sample)

Project ID:	APPOLO FUELS, INC. 807-0314 AMENDMENT 1
Stream/Reach:	A1-DRAINAGE CORRIDOR - EXISTING
Assessment Objectives:	ESTIMATE QUALITY/INTEGRITY OF STREAM REACH

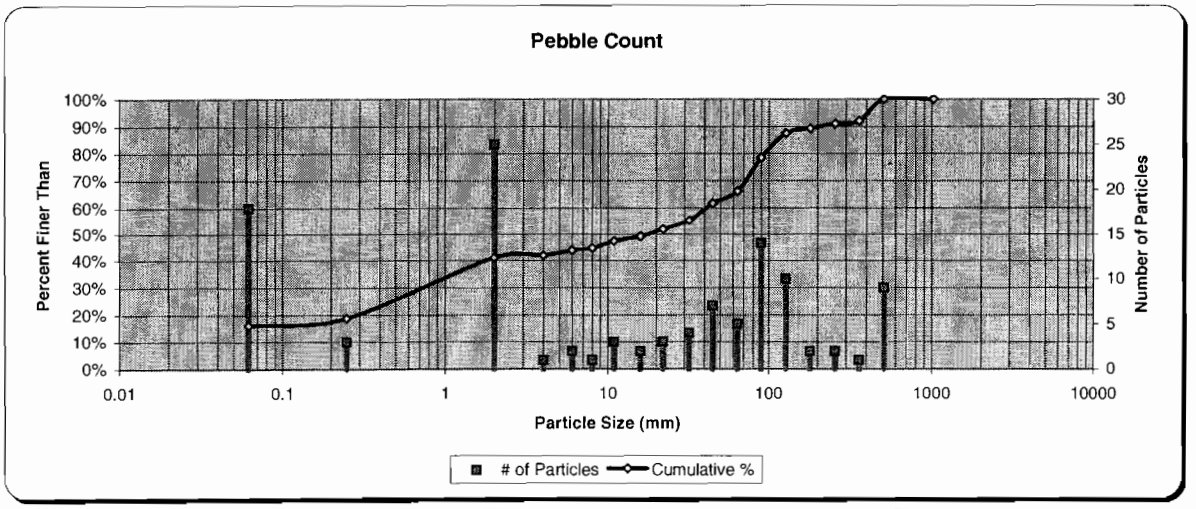
EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.70	Ecological Integrity Index (Habitat Integrity + Conductivity)

	Variables	Measure	Units
>>>>>>>	Enter quantitative or categorical measure from Field Data Sheet in shaded cells		
	RBP Habitat Parameters		
	1. Epifaunal Substrate	16	no units (0-20)
	2. Embeddedness	13	no units (0-20)
	3. Velocity/Depth Regime	10	no units (0-20)
	4. Sediment Deposition	11	no units (0-20)
	5. Channel Flow Status	13	no units (0-20)
	6. Channel Alteration	11	no units (0-20)
	7. Freq. Of Riffles (bends)	10	no units (0-20)
	8. Bank stability (both combined)	16	no units (0-20)
	9. Veg. Protection (both combined)	18	no units (0-20)
	10. Riparian Width (both combined)	18	no units (0-20)
	Total Habitat Score	136	no units
	Habitat Integrity Index		Subindex: 0.46
	Macroinvertebrate Data - Family Level (Riffle Only)		
	11. Family Taxa Richness		# of taxa sampled
	12. Family EPT Richness		# of EPT species sampled
	13. % Ephemeroptera		% Mayflies (0-100)
	14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)
	16. mFBI		no units
	Macroinvertebrate Bioassessment	NA	no units: NA
	Conductivity	170	microMHOs: 0.94

Appolo Fuels, Inc.
DMRE #807-0314 AMENDMENT 1

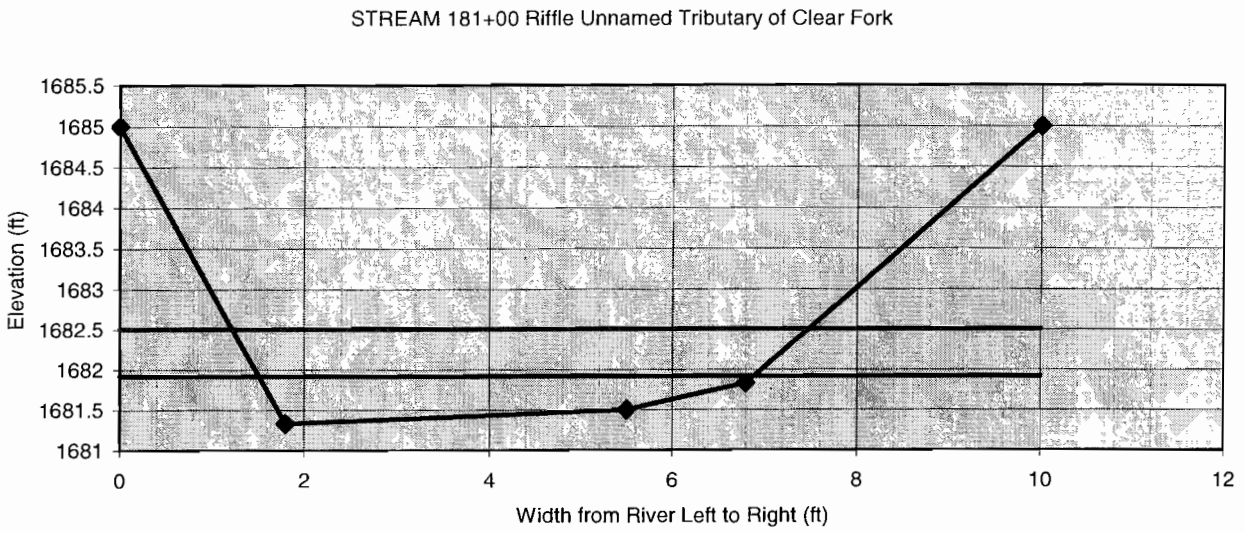
STREAM 181+00 November 30, 2007

	Particle	mm	mm	Total #	Item %	Cumulative %
Silt	Silt/Clay	<.062	0.062	18	16.07%	16.07%
Sand	Fine	.062-.25	0.25	3	2.68%	18.75%
	Coarse	.25-2	2	25	22.32%	41.07%
Gravel	Very Fine	2-4	4	1	0.89%	41.96%
	Fine	4-6	6	2	1.79%	43.75%
	Fine	6-8	8	1	0.89%	44.64%
	Medium	8-11	11	3	2.68%	47.32%
	Medium	11-16	16	2	1.79%	49.11%
	Coarse	16-22	22	3	2.68%	51.79%
	Coarse	22-32	32	4	3.57%	55.36%
	Very Coarse	32-45	45	7	6.25%	61.61%
	Very Coarse	45-64	64	5	4.46%	66.07%
Cobble	Small	64-90	90	14	12.50%	78.57%
	Small	90-128	128	10	8.93%	87.50%
	Large	128-180	180	2	1.79%	89.29%
	Large	180-256	256	2	1.79%	91.07%
Boulder	Small	256-362	362	1	0.89%	91.96%
	Small	362-512	512	9	8.04%	100.00%
	Medium	512-1024	1024		0.00%	100.00%
	Large	1024-2048	2048		0.00%	100.00%
	Very Large	2048-4096	4096		0.00%	100.00%
	Bedrock					
			Total:	112		



Size Percent Less Than (mm)						particle size distribution		
D16	D35	D50	D65	D84	D95	gradation	geo mean	std dev
0	1	18	59	111	413	146.6	2.6	42.4

Cross Section



section: **STREAM 181+00**
Riffle
stream: **Unnamed Tributary of Clear Fork**
location:
description: **Appolo Fuels, Inc. 807-0314 AMENDMENT 1**
height of instrument (ft): **1685.00**

notes	omit pt.	distance (ft)	FS (ft)	elevation
	☐	0	0	1685
	☐	1.8	3.67	1681.33
	☐	5.5	3.5	1681.5
	☐	6.8	3.17	1681.83
	☐	10	0	1685
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			

FS bankfull	FS top of bank	W fpa (ft)	channel slope (%)	Manning's "n"
3.08		**6.2**	**5**	**0.15**
1681.92	---			

dimensions			
2.3	x-section area	0.4	d mean
5.4	width	5.8	wet P
0.6	d max	0.4	hyd radi
0.0	bank ht	12.6	w/d ratio
6.2	W flood prone area	1.2	ent ratio

hydraulics	
1.2	velocity (ft/sec)
2.7	discharge rate, Q (cfs)
1.23	shear stress ((lbs/ft sq)
0.79	shear velocity (ft/sec)
1.579	unit stream power (lbs/ft/sec)
0.10	Froude number
1.5	friction factor u/u*
107.7	threshold grain size (mm)

check from channel material			
111	measured D84 (mm)		
1.2	relative roughness	3.2	fric. factor
0.070	Manning's n from channel material		

EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
(Family Level Taxonomy - Riffle Only Sample)

Project ID:	APPOLO FUELS, INC. 807-0314 AMENDMENT 1
Stream/Reach:	STREAM 181+00 - EXISTING
Assessment Objectives:	ESTIMATE QUALITY/INTEGRITY OF STREAM REACH

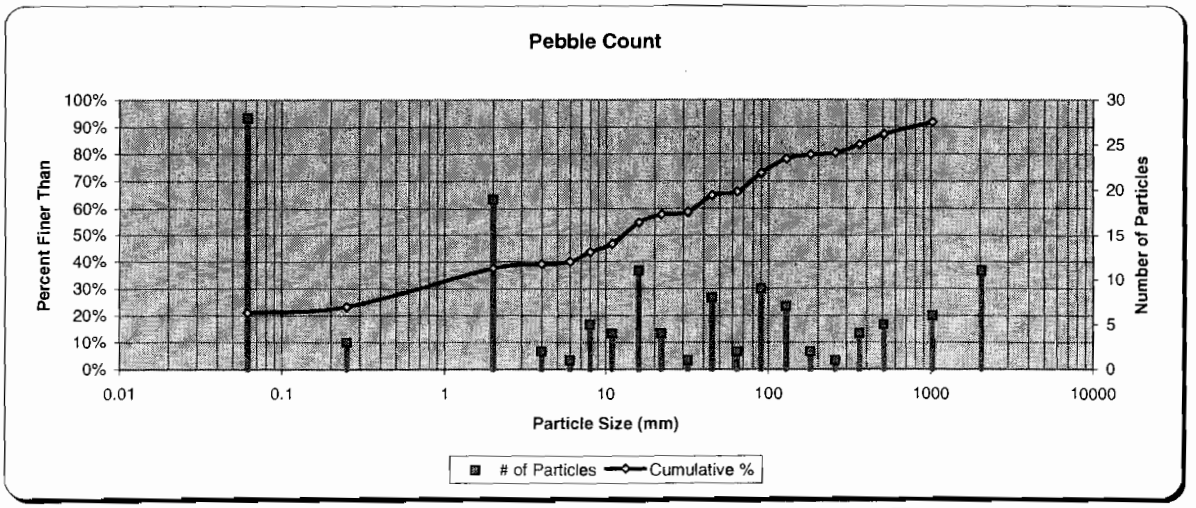
EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.44	Ecological Integrity Index (Habitat Integrity + Conductivity)

	Variables	Measure	Units
>>>>>>>	Enter quantitative or categorical measure from Field Data Sheet in shaded cells		
	RBP Habitat Parameters		
	1. Epifaunal Substrate	4	no units (0-20)
	2. Embeddedness	5	no units (0-20)
	3. Velocity/Depth Regime	5	no units (0-20)
	4. Sediment Deposition	7	no units (0-20)
	5. Channel Flow Status	13	no units (0-20)
	6. Channel Alteration	6	no units (0-20)
	7. Freq. Of Riffles (bends)	5	no units (0-20)
	8. Bank stability (both combined)	16	no units (0-20)
	9. Veg. Protection (both combined)	16	no units (0-20)
	10. Riparian Width (both combined)	15	no units (0-20)
	Total Habitat Score	92	no units
	Habitat Integrity Index		Subindex: 0.10
	Macroinvertebrate Data - Family Level (Riffle Only)		
	11. Family Taxa Richness		# of taxa sampled
	12. Family EPT Richness		# of EPT species sampled
	13. % Ephemeroptera		% Mayflies (0-100)
	14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)
	16. mFBI		no units
	Macroinvertebrate Bioassessment	NA	no units — NA
	Conductivity	225	microMHOs — 0.79

Appolo Fuels, Inc.
DMRE #807-0314 AMENDMENT 1

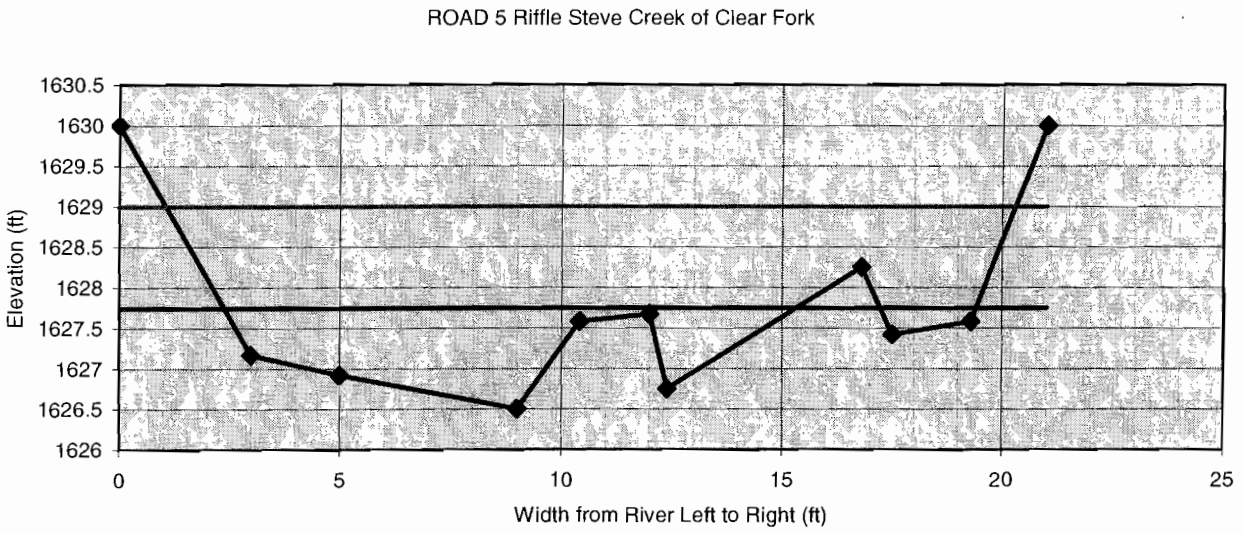
ROAD 5 November 30, 2007

	Particle	mm	mm	Total #	Item %	Cumulative %
Silt	Silt/Clay	<.062	0.062	28	21.05%	21.05%
Sand	Fine	.062-.25	0.25	3	2.26%	23.31%
	Coarse	.25-2	2	19	14.29%	37.59%
Gravel	Very Fine	2-4	4	2	1.50%	39.10%
	Fine	4-6	6	1	0.75%	39.85%
	Fine	6-8	8	5	3.76%	43.61%
	Medium	8-11	11	4	3.01%	46.62%
	Medium	11-16	16	11	8.27%	54.89%
	Coarse	16-22	22	4	3.01%	57.89%
	Coarse	22-32	32	1	0.75%	58.65%
	Very Coarse	32-45	45	8	6.02%	64.66%
	Very Coarse	45-64	64	2	1.50%	66.17%
Cobble	Small	64-90	90	9	6.77%	72.93%
	Small	90-128	128	7	5.26%	78.20%
	Large	128-180	180	2	1.50%	79.70%
	Large	180-256	256	1	0.75%	80.45%
Boulder	Small	256-362	362	4	3.01%	83.46%
	Small	362-512	512	5	3.76%	87.22%
	Medium	512-1024	1024	6	4.51%	91.73%
	Large	1024-2048	2048	11	8.27%	100.00%
	Very Large	2048-4096	4096		0.00%	100.00%
	Bedrock					
			Total:	133		



Size Percent Less Than (mm)						particle size distribution		
D16	D35	D50	D65	D84	D95	gradation	geo mean	std dev
0	1	13	49	381	1347	118.2	4.9	78.3

Cross Section



section:	ROAD 5
	Riffle
stream:	Steve Creek of Clear Fork
location:	
description:	Appolo Fuels, Inc. 807-0314 AMENDMENT 1
height of instrument (ft):	1630.00

notes	omit pt.	distance (ft)	FS (ft)	elevation
		0	0	1630
		3	2.83	1627.17
		5	3.08	1626.92
		9	3.5	1626.5
		10.4	2.42	1627.58
		12	2.33	1627.67
		12.4	3.25	1626.75
		16.8	1.75	1628.25
		17.5	2.58	1627.42
		19.3	2.42	1627.58
		21	0	1630

FS bankfull	FS top of bank	W fpa (ft)	channel slope (%)	Manning's "n"
2.25		19.4	7	0.15
1627.75	---			

dimensions			
9.1	x-section area	0.6	d mean
15.1	width	16.8	wet P
1.3	d max	0.5	hyd radi
0.0	bank ht	25.1	w/d ratio
19.4	W flood prone area	1.3	ent ratio

hydraulics	
1.7	velocity (ft/sec)
15.9	discharge rate, Q (cfs)
2.37	shear stress ((lbs/ft sq)
1.11	shear velocity (ft/sec)
4.600	unit stream power (lbs/ft/sec)
0.16	Froude number
1.6	friction factor u/u*
~~391.2~~	threshold grain size (mm)

check from channel material			
381	measured D84 (mm)		
0.5	relative roughness	1.0	fric. factor
0.231	Manning's n from channel material		

EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
(Family Level Taxonomy - Riffle Only Sample)

Project ID:	APPOLO FUELS, INC. 807-0314 AMENDMENT 1
Stream/Reach:	ROAD 5 - EXISTING
Assessment Objectives:	ESTIMATE QUALITY/INTEGRITY OF STREAM REACH

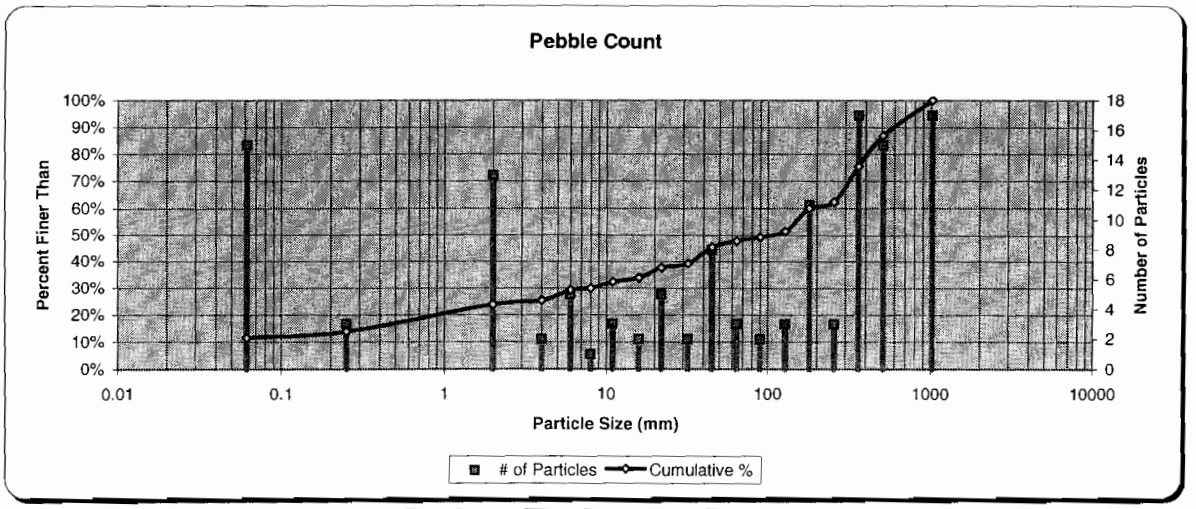
EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.44	Ecological Integrity Index (Habitat Integrity + Conductivity)

	Variables	Measure	Units
>>>>>>>	Enter quantitative or categorical measure from Field Data Sheet in shaded cells		
	RBP Habitat Parameters		
	1. Epifaunal Substrate	15	no units (0-20)
	2. Embeddedness	15	no units (0-20)
	3. Velocity/Depth Regime	12	no units (0-20)
	4. Sediment Deposition	12	no units (0-20)
	5. Channel Flow Status	13	no units (0-20)
	6. Channel Alteration	14	no units (0-20)
	7. Freq. Of Riffles (bends)	14	no units (0-20)
	8. Bank stability (both combined)	17	no units (0-20)
	9. Veg. Protection (both combined)	16	no units (0-20)
	10. Riparian Width (both combined)	17	no units (0-20)
	Total Habitat Score	145	no units
	Habitat Integrity Index		Subindex: 0.58
	Macroinvertebrate Data - Family Level (Riffle Only)		
	11. Family Taxa Richness		# of taxa sampled
	12. Family EPT Richness		# of EPT species sampled
	13. % Ephemeroptera		% Mayflies (0-100)
	14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)
	16. mFBI		no units
	Macroinvertebrate Bioassessment	NA	no units: NA
	Conductivity	414	microMHOs: 0.30

Appolo Fuels, Inc.
DMRE #807-0314 AMENDMENT 1

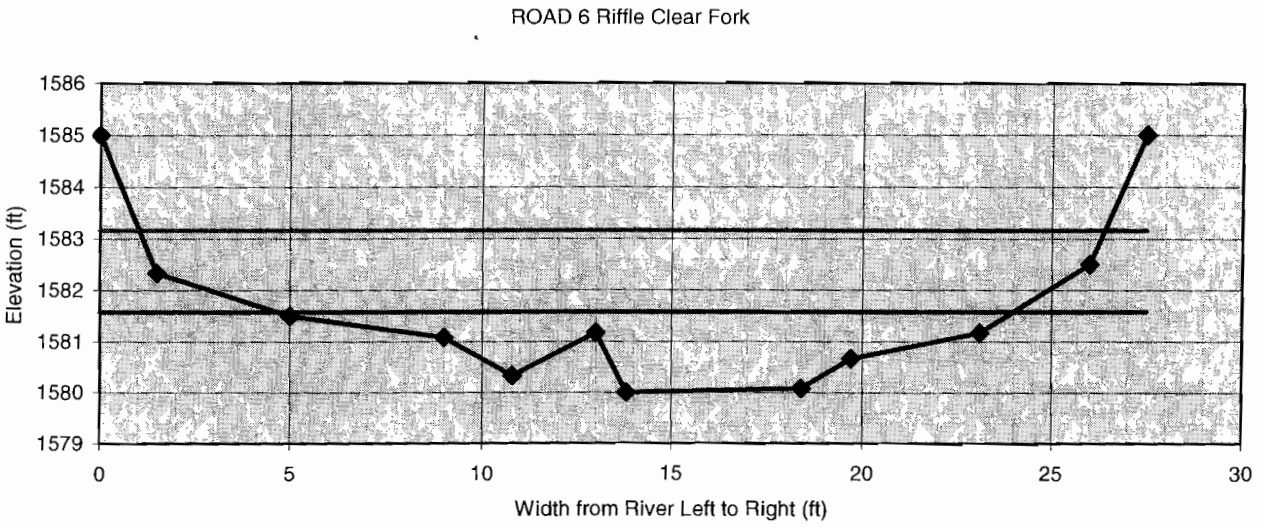
ROAD 6 November 30, 2007

	Particle	mm	mm	Total #	Item %	Cumulative %
Silt	Silt/Clay	<.062	0.062	15	11.54%	11.54%
Sand	Fine	.062-.25	0.25	3	2.31%	13.85%
	Coarse	.25-2	2	13	10.00%	23.85%
Gravel	Very Fine	2-4	4	2	1.54%	25.38%
	Fine	4-6	6	5	3.85%	29.23%
	Fine	6-8	8	1	0.77%	30.00%
	Medium	8-11	11	3	2.31%	32.31%
	Medium	11-16	16	2	1.54%	33.85%
	Coarse	16-22	22	5	3.85%	37.69%
	Coarse	22-32	32	2	1.54%	39.23%
	Very Coarse	32-45	45	8	6.15%	45.38%
	Very Coarse	45-64	64	3	2.31%	47.69%
Cobble	Small	64-90	90	2	1.54%	49.23%
	Small	90-128	128	3	2.31%	51.54%
	Large	128-180	180	11	8.46%	60.00%
	Large	180-256	256	3	2.31%	62.31%
Boulder	Small	256-362	362	17	13.08%	75.38%
	Small	362-512	512	15	11.54%	86.92%
	Medium	512-1024	1024	17	13.08%	100.00%
	Large	1024-2048	2048		0.00%	100.00%
	Very Large	2048-4096	4096		0.00%	100.00%
	Bedrock					
			Total:	130		



Size Percent Less Than (mm)						particle size distribution		
D16	D35	D50	D65	D84	D95	gradation	geo mean	std dev
0	18	101	275	469	786	131.7	13.5	34.6

Cross Section



section: ROAD 6
Riffle
stream: Clear Fork
location:
description: Appolo Fuels, Inc. 807-0314 AMENDMENT 1
height of instrument (ft): 1585.00

notes	omit pt.	distance (ft)	FS (ft)	elevation
	☐	0	0	1585
	☐	1.5	2.67	1582.33
	☐	5	3.5	1581.5
	☐	9	3.92	1581.08
	☐	10.8	4.67	1580.33
	☐	13	3.83	1581.17
	☐	13.8	5	1580
	☐	18.4	4.92	1580.08
	☐	19.7	4.33	1580.67
	☐	23.1	3.83	1581.17
	☐	26	2.5	1582.5
	☐	27.5	0	1585
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			

☐

FS bankfull	FS top of bank	W fpa (ft)	channel slope (%)	Manning's "n"
3.42		25.5	6	0.15
1581.58	---			

dimensions			
16.4	x-section area	0.9	d mean
19.3	width	20.5	wet P
1.6	d max	0.8	hyd radi
0.0	bank ht	22.7	w/d ratio
25.5	W flood prone area	1.3	ent ratio

hydraulics	
2.1	velocity (ft/sec)
34.4	discharge rate, Q (cfs)
3.00	shear stress ((lbs/ft sq)
1.24	shear velocity (ft/sec)
6.670	unit stream power (lbs/ft/sec)
0.16	Froude number
1.7	friction factor u/u*
~~616.9~~	threshold grain size (mm)

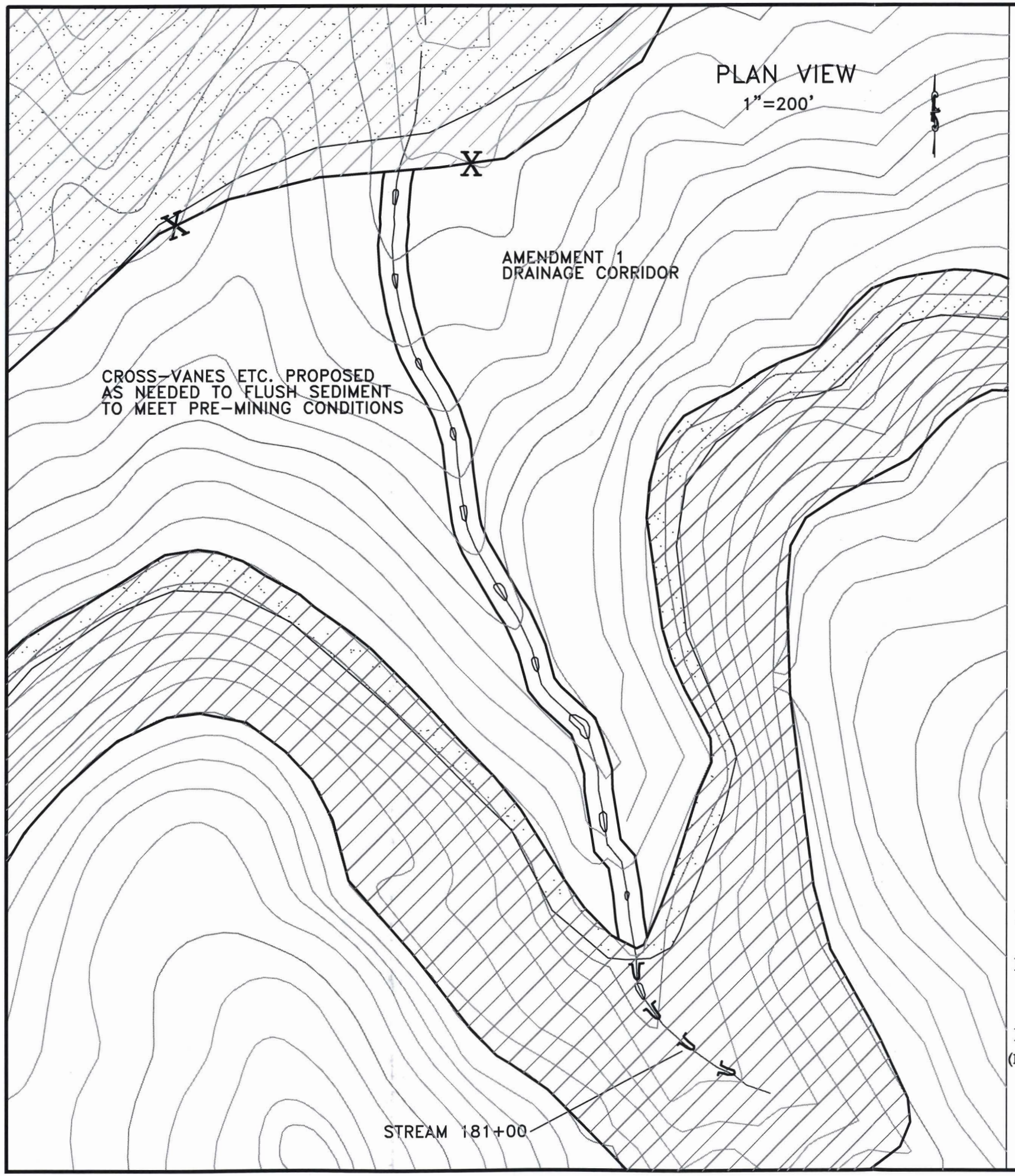
check from channel material			
469	measured D84 (mm)		
0.6	relative roughness	1.4	fric. factor
0.185	Manning's n from channel material		

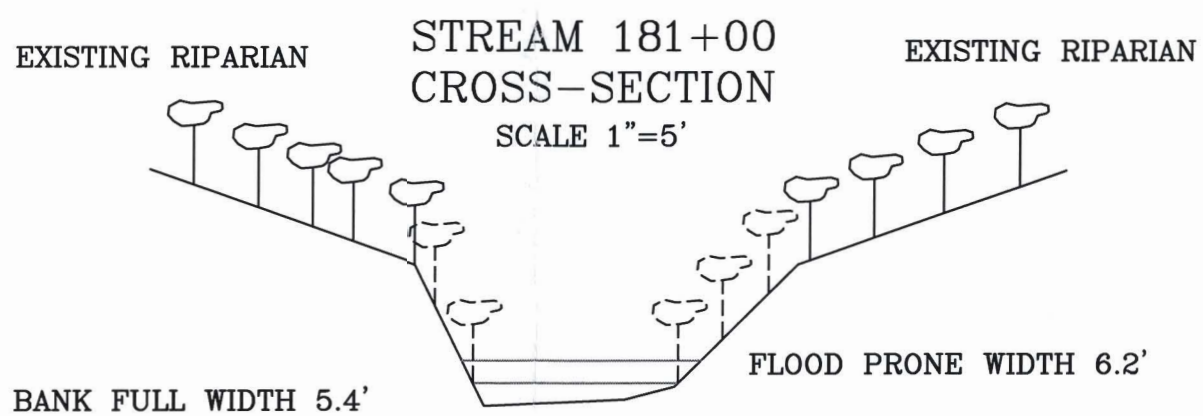
EII Calculation for High Gradient Streams in Eastern Kentucky Coalfield (Version 2002.6)
(Family Level Taxonomy - Riffle Only Sample)

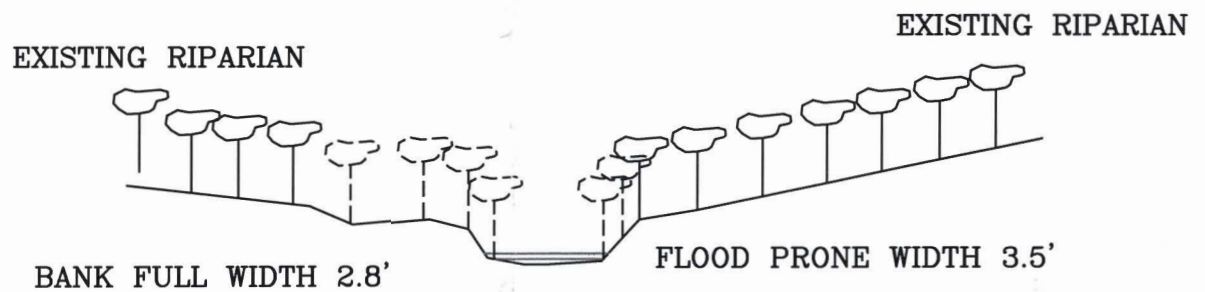
Project ID:	APPOLO FUELS, INC. 807-0314 AMENDMENT 1
Stream/Reach:	ROAD 6 - EXISTING
Assessment Objectives:	ESTIMATE QUALITY/INTEGRITY OF STREAM REACH

EII	Model
NA	Ecological Integrity Index (MBI + Habitat Integrity + Conductivity)
0.35	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	12	no units (0-20)
	2. Embeddedness	12	no units (0-20)
	3. Velocity/Depth Regime	17	no units (0-20)
	4. Sediment Deposition	9	no units (0-20)
	5. Channel Flow Status	13	no units (0-20)
	6. Channel Alteration	16	no units (0-20)
	7. Freq. Of Riffles (bends)	18	no units (0-20)
	8. Bank stability (both combined)	16	no units (0-20)
	9. Veg. Protection (both combined)	16	no units (0-20)
	10. Riparian Width (both combined)	17	no units (0-20)
	Total Habitat Score	146	no units
	Habitat Integrity Index		Subindex: 0.60
	Macroinvertebrate Data - Family Level (Riffle Only)		
	11. Family Taxa Richness		# of taxa sampled
	12. Family EPT Richness		# of EPT species sampled
	13. % Ephemeroptera		% Mayflies (0-100)
	14. % Chironomidae & Oligochaeta		% Midges & Worms (0-100)
	16. mFBI		no units
	Macroinvertebrate Bioassessment	NA	no units — Subindex: NA
	Conductivity	843	microMHOs — Subindex: 0.10







EXISTING POOL

PROPOSED CROSS-VANE

PROPOSED RIPARIAN
(PLANT ON RANDOM PATTERN WITH 10' SPACING)

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
LICENSED PROFESSIONAL ENGINEER

I, Robert Brashear, 19652, 2/3/08
(signature) (license no.) (date)
hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct, as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title, 405.

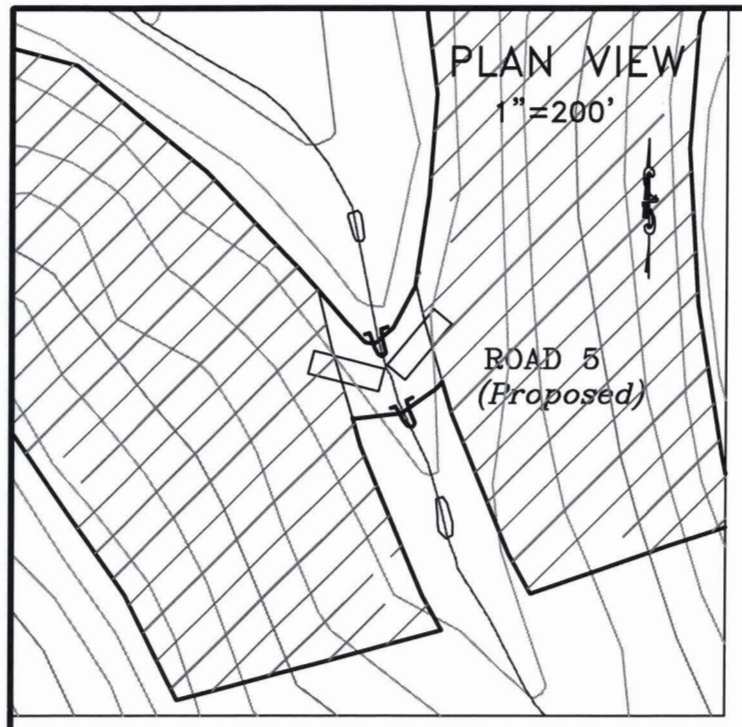
Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878-1381

APPOLO FUELS, INC.

807-0314 AMENDMENT 1

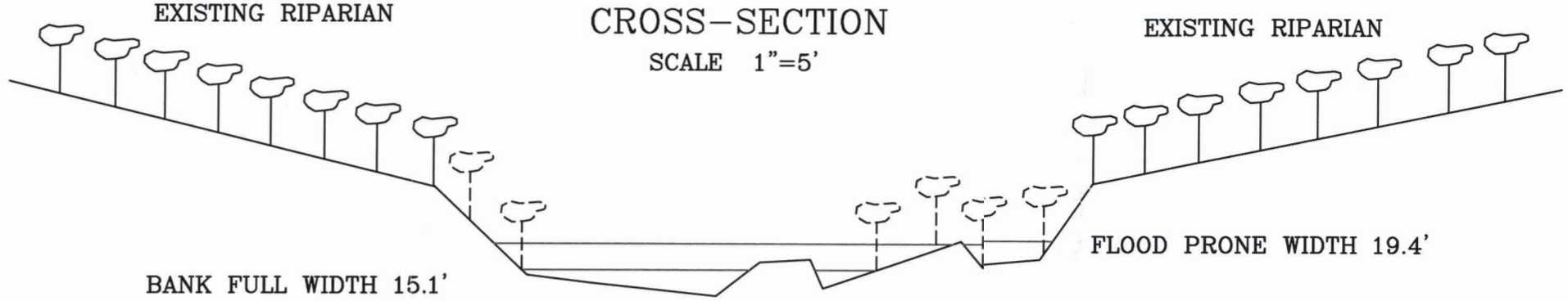
A1 DC & 181+00 STREAM DETAILS

DATE:	FILENAME:
02-02-08	STREAM-PROFILES.DWG
SCALE: AS SHOWN	DRAWN BY: MC



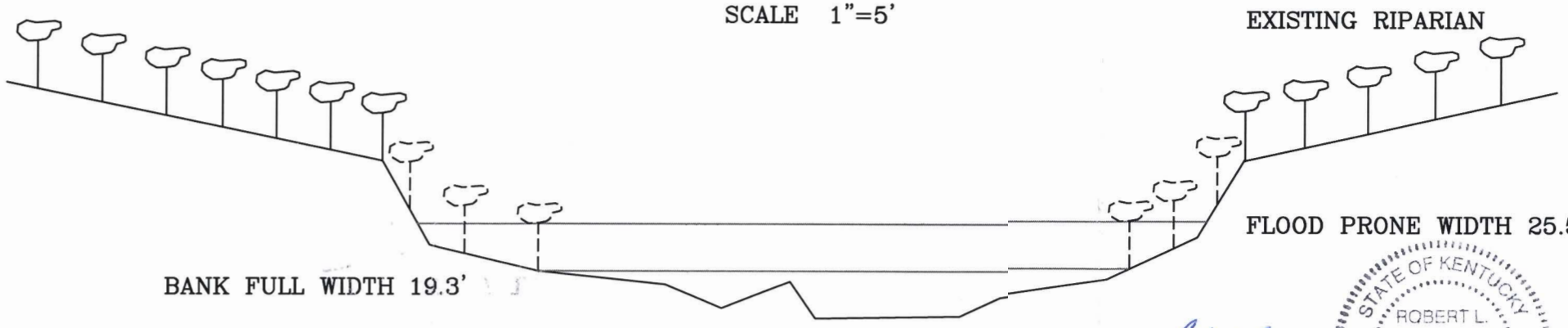
ROAD 5 – STREAM CROSS–SECTION

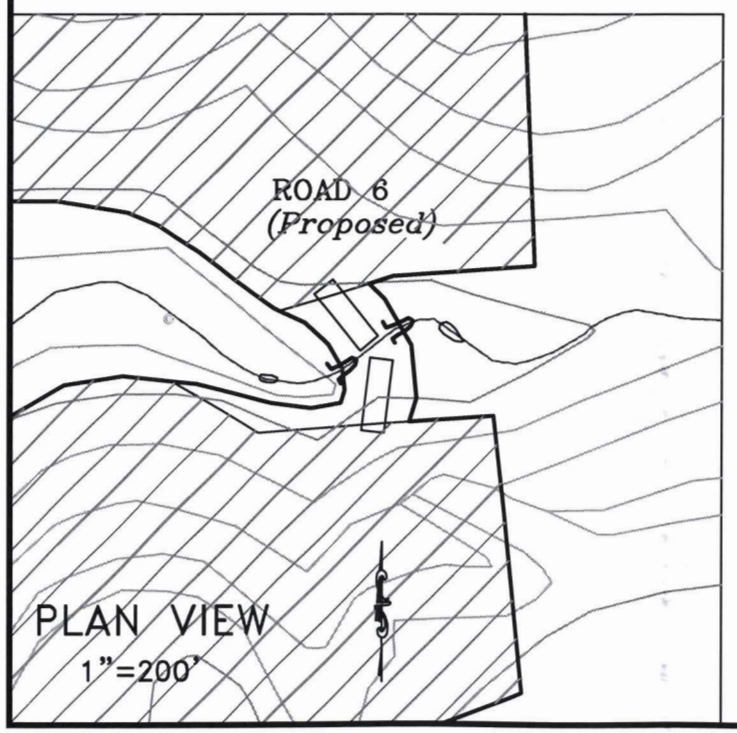
SCALE 1"=5'



ROAD 6 – STREAM CROSS–SECTION

SCALE 1"=5'





EXISTING POOL

PROPOSED CROSS–VANE

PROPOSED RIPARIAN
(PLANT ON RANDOM PATTERN WITH 10' SPACING)

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
PROFESSIONAL ENGINEER

I, Robert Brashear (signature) (license no.) 2/5/08 (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

Prepared By: RLB Engineering, PSC
202 East 4th Street, London, KY 40741
(606) 878–1381

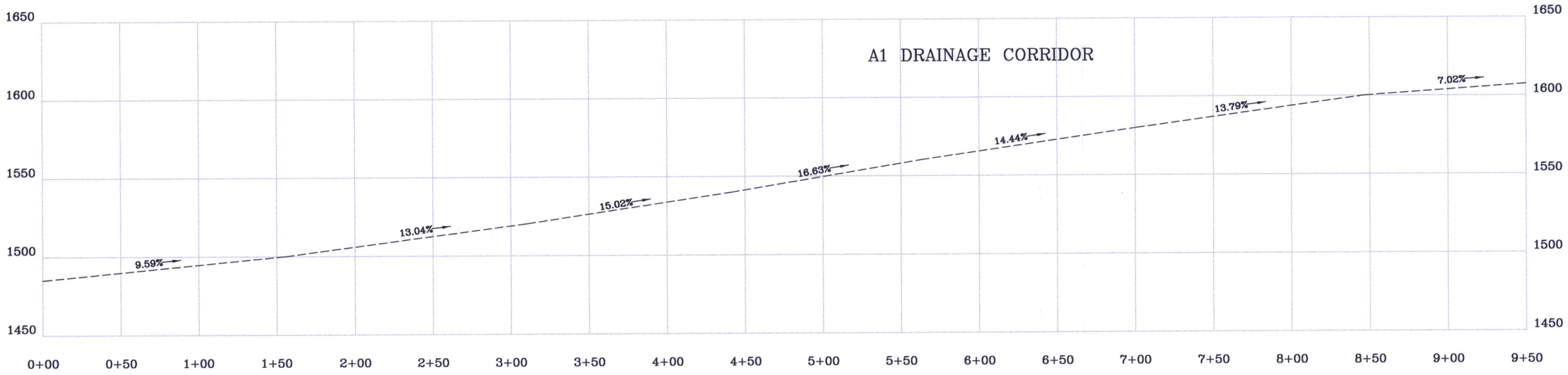
APPOLO FUELS, INC.

807–0314 AMENDMENT 1

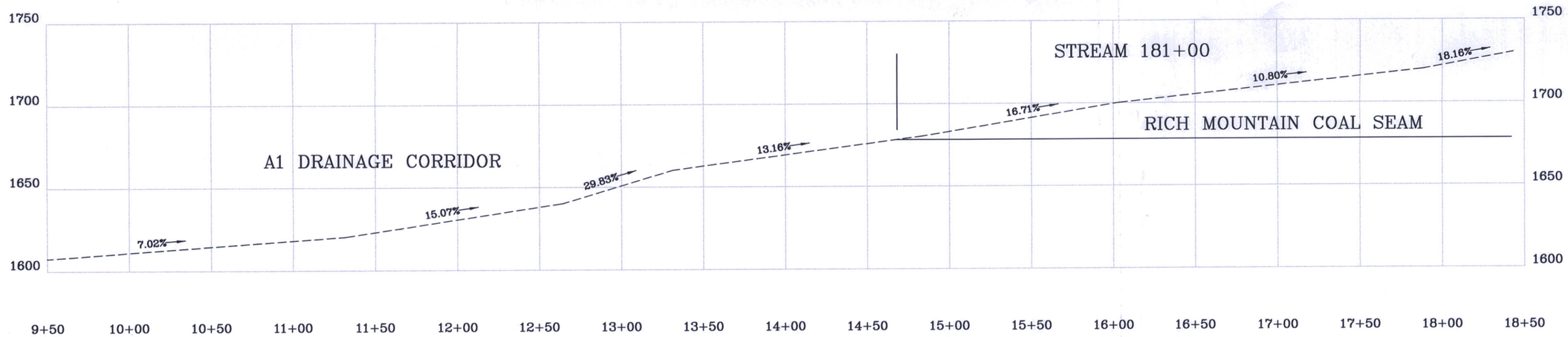
ROAD 5 & 6 STREAM DETAILS

DATE:	FILENAME:
02–02–08	STREAM–PROFILES.DWG
SCALE: AS SHOWN	DRAWN BY: MC

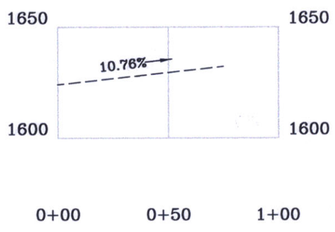
A1 DRAINAGE CORRIDOR & STREAM 181+00 – PROFILE



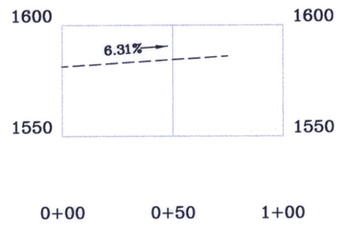
A1 DRAINAGE CORRIDOR & STREAM 181+00 – PROFILE



ROAD 5 – PROFILE



ROAD 6 – PROFILE



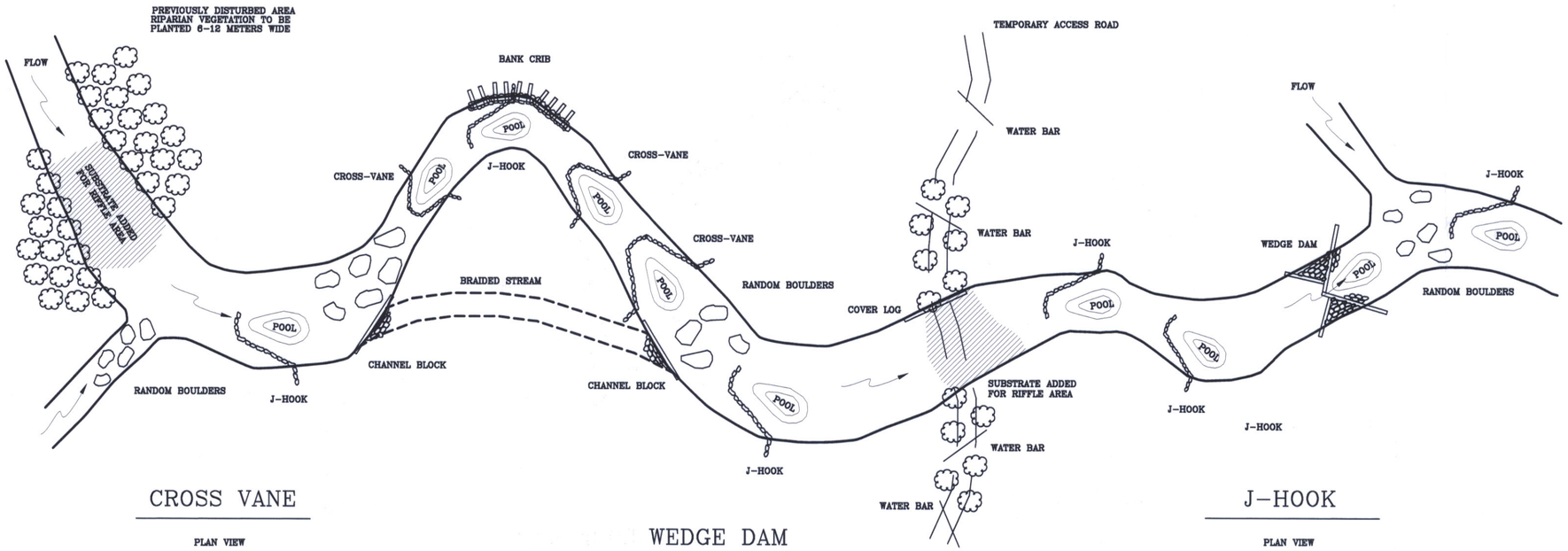
EXISTING GROUND LINE ---------

I, Robert Brashear (signature) 19652 (license no.) 2/13/08 (date)
hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and 405 KAR Title 405.

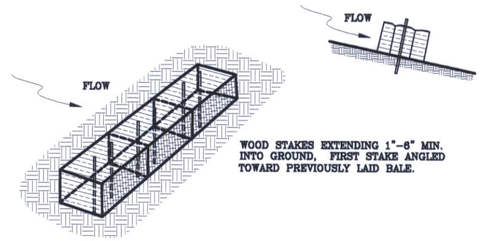
STATE OF KENTUCKY ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC.	
PERMIT 807-0314 AMENDMENT 1	
STREAM PROFILES	
DATE: 02-02-08	FILENAME: STREAM-PROFILES.DWG
SCALE: 1"=50'	DRAWN BY: MC

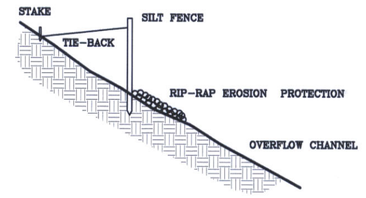
TYPICAL STREAM RECLAMATION SEGMENT



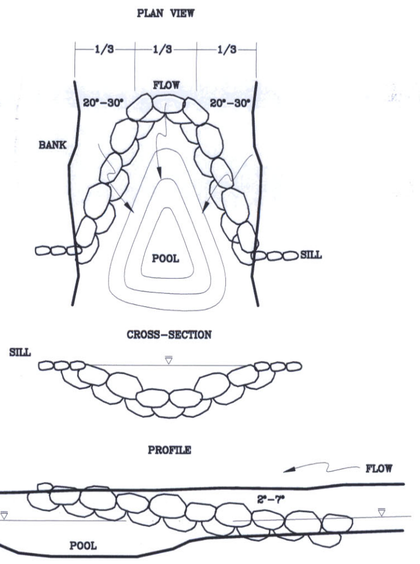
TEMPORARY BALE SILT CHECK



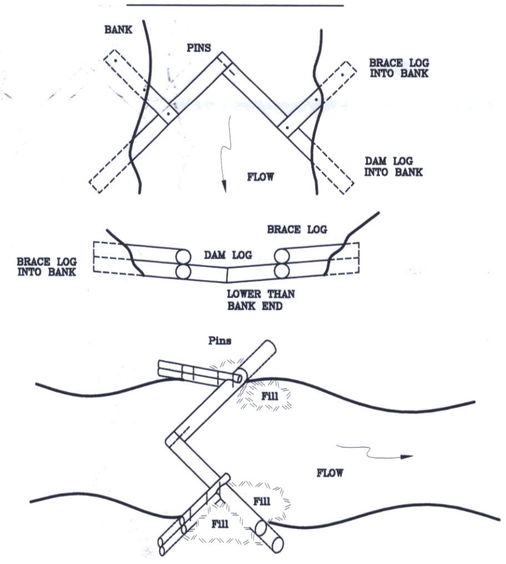
SILT FENCE DIAGRAM



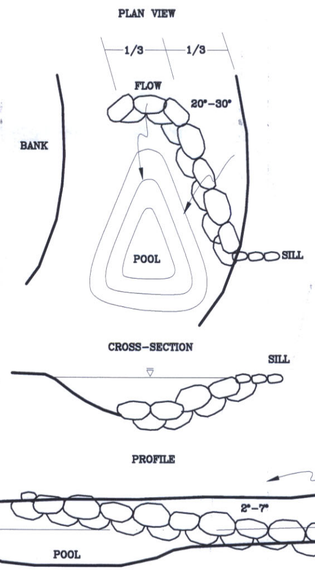
CROSS VANE



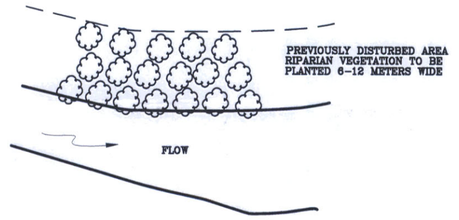
WEDGE DAM



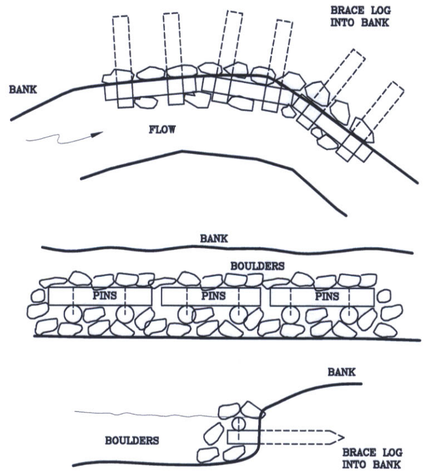
J-HOOK



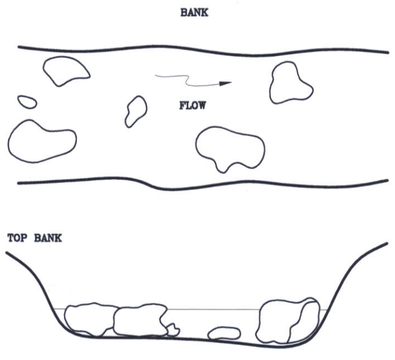
RIPARIAN ZONE PLANTING DETAIL



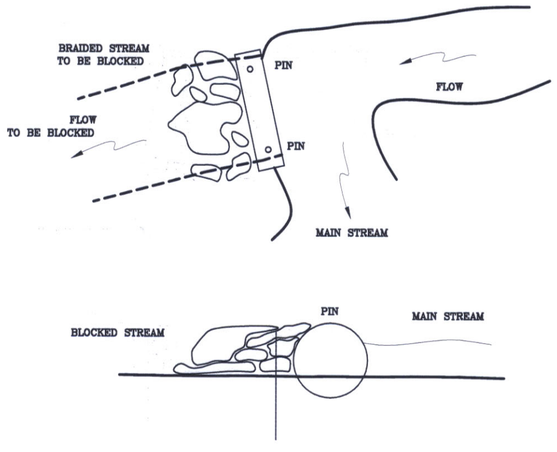
BANK CRIB



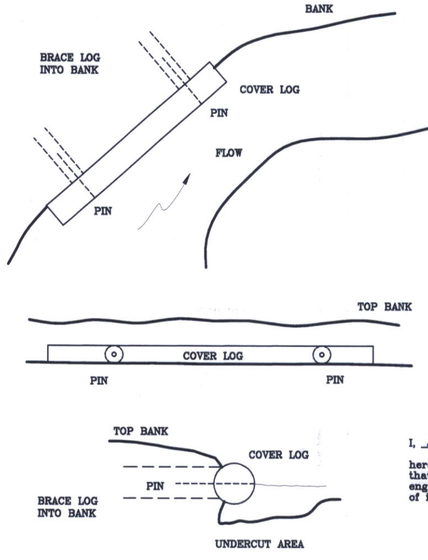
RANDOM BOULDER PLACEMENT



CHANNEL BLOCK



COVER LOG



I, Robert L. Brashear (signature) (license no.) 11/26/07 (date) hereby certify, in accordance with 405 KAR 7:060, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
PROFESSIONAL ENGINEER

Prepared By:	RLB Engineering, PSC 401 South Dixie St.,Suite "A", London, KY 40741 (606) 878-1381
APPOLO FUELS, INC.	
PERMIT 807-0314	
STREAM MITIGATION & ENHANCEMENT	
DATE: 01-25-07	FILENAME: AT-32-1-B.DWG
SCALE: NTS	DRAWN BY: MC

"ATTACHMENT 32.3.A"

Diversion Number	Length of Diversion	Design Storm	Type of Channel	Design Velocity	Average Slope	Erosion Control Methods
DD-9	580	100 YR	TRIANGULAR	3.7	1%	GRASS
DD-10	160	100 YR	TRIANGULAR	4.3	1%	GRASS
DD-11	230	100 YR	TRIANGULAR	1.5	1%	GRASS
DD-12	1165	100 YR	TRIANGULAR	4.3	1%	GRASS
DD-13	525	100 YR	TRIANGULAR	3.0	10%	GRASS
DD-14	705	100 YR	TRIANGULAR	9.8	5%	ROCK
DD-15	230	100 YR	TRIANGULAR	1.5	1%	GRASS
DD-16	800	100 YR	TRIANGULAR	8.0	1%	ROCK
DD-17	1400	100 YR	TRIANGULAR	5.5	1%	ROCK
DD-18	740	100 YR	TRIANGULAR	3.2	1%	GRASS
DD-19	1270	100 YR	TRIANGULAR	8.0	1%	ROCK
DD-20	1110	100 YR	TRIANGULAR	4.3	1%	GRASS
DD-21	1115	100 YR	TRIANGULAR	6.7	1%	ROCK
DD-22	720	100 YR	TRIANGULAR	4.3	1%	GRASS
DD-23	1670	100 YR	TRIANGULAR	4.9	1%	GRASS
DD-24	300	100 YR	TRIANGULAR	1.2	1%	GRASS
DD-25	500	100 YR	TRIANGULAR	3.2	1%	GRASS
DD-26	860	100 YR	TRIANGULAR	3.7	1%	GRASS
DD-27	2890	100 YR	TRIANGULAR	11.9	1%	ROCK
DC-1 ORG.	800	100 YR	TRIANGULAR	41.5	5%	ROCK

32.3 Are any of the proposed diversions to be retained as permanent facilities?
[X] YES [ ] NO. If "YES", list the identification numbers of those diversions. **ALL DITCHES** _____. Additionally, provide as "Attachment 32.3.A", detailed designs cross-sections, calculations, and drawings for each proposed diversion ditch to demonstrate compliance with 405 KAR 16:080, Section 1, as appropriate.

33. Transportation Facilities Plan

33.1 Describe the transportation plan for the proposed permit area. The plan shall include a discussion of road maintenance, appropriate maps, cross sections, and specifications for each road width, gradient, surface, cut, fill embankment, culvert, bridge, drainage ditch, and drainage structure. Submit the description as "Attachment 33.1.A".

SEE "ATTACHMENT 33.1.A"

33.2 Are roads for which construction began prior to January 18, 1983, proposed for use within the permit area?
[X] YES [ ] NO. If "YES", clearly identify the extent of such roads on the MRP Map and submit the information required to demonstrate compliance with 405 KAR 8:030, Section 25, or 405 KAR 8:040, Section 25 as appropriate. Submit the information as "Attachment 33.2.A".

SEE "ATTACHMENT 33.2.A"

33.3 Will conveyors and/or rail systems be located within the proposed permit area? [ ] YES [X] NO If "YES", submit a description as "Attachment 33.3.A" and show on the MRP Map.

33.4 Does the applicant propose to use alternate specifications for any road or portions of road within the permit area?
[X] YES [ ] NO. If "YES", describe the specification to be modified and provide required justification. Submit as "Attachment 33.4.A".

SEE "ATTACHMENT 33.4.A"

33.5 Describe the measures to be used to ensure that interests of the public are protected if a waiver to conduct surface disturbances within 100' from the right-of-way of any public road or to relocate a public road is being requested. Submit this description as "Attachment 33.5.A".

NOT APPLICABLE

34. Air Pollution Control Plan

34.1 For proposed permit area, describe the fugitive dust control plan to be employed during site preparation, mining, and reclamation. When required, provide an air quality monitoring program and locate monitoring station(s) on the MRP Map. Submit this information as "Attachment 34.1.A".

SEE "ATTACHMENT 34.1.A"

RLB ENGINEERING, PSC

For:	APPOLO FUELS, INC.	Date:	02/09/2008
Permit:	807-0314 AM. 1	By:	M.C.
Description:	Peak Flow Determination Diversion Ditch - Flows		

Rational Equation: $Q = C\ I\ A$

Where : Q = Peak Flow (cfs)
C = Runoff Coefficient
I = Rainfall Intensity (iph)
A = Drainage Area (Acres)

Diversion	Runoff Coefficient C	Time of Concentration Tc	Rainfall Intensity i	Watershed Area A	Design Flow q
DD-9	0.18	< 5 Min.	8.4	6.3	9.5
DD-10	0.15	< 5 Min.	8.4	9.1	11.5
DD-11	0.15	< 5 Min.	8.4	1.6	2.0
DD-12	0.15	< 5 Min.	8.4	10.0	12.6
DD-13	0.15	< 5 Min.	8.4	2.6	3.3
DD-14	0.15	< 5 Min.	8.4	24.2	30.5
DD-15	0.15	< 5 Min.	8.4	1.7	2.1
DD-16	0.15	< 5 Min.	8.4	26.1	32.9
DD-17	0.15	< 5 Min.	8.4	14.5	18.3
DD-18	0.15	< 5 Min.	8.4	5.3	6.7
DD-19	0.15	< 5 Min.	8.4	27.7	34.9
DD-20	0.15	< 5 Min.	8.4	9.9	12.5
DD-21	0.15	< 5 Min.	8.4	22.2	28.0
DD-22	0.15	< 5 Min.	8.4	8.6	10.8
DD-23	0.15	< 5 Min.	8.4	10.9	13.7
DD-24	0.15	< 5 Min.	8.4	1.4	1.8
DD-25	0.15	< 5 Min.	8.4	6.2	7.8
DD-26	0.15	< 5 Min.	8.4	8.0	10.1
DD-27	0.15	< 5 Min.	8.4	47.6	60.0
DC-1 ORG.	0.15	< 5 Min.	8.4	221.4	279.0

STATE OF KENTUCKY
ROBERT L
BRASHEAR
19652
LICENSED
PROFESSIONAL ENGINEER

I, _____ 2/11/08
(signature) (registration no.) (date)

hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

RLB ENGINEERING, PSC

For: APPOLO FUELS, INC.
Permit: 807-0314 AM. 1
Description: Diversion Ditch - Designs

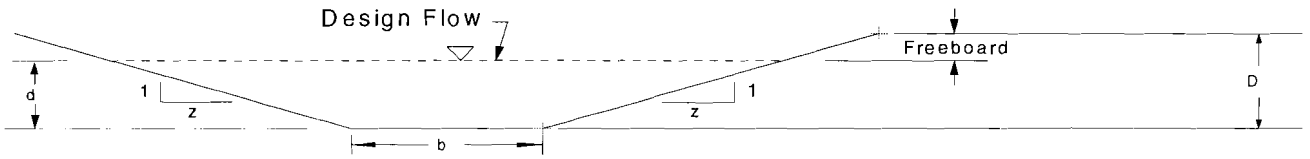
Date: 01/16/2007
By: M.C.

Ditch Design :

Trapezodial Ditch Configuration
Side Slopes : 2.0 2.0

Manning's n: Grass 0.035
Rock 0.044

Reference	Length ft.	Design Q c.f.s.	Diversion Slope %	Lining	d ft.	Mannings n	Side Slope H:1 V	Bottom Width ft.	Ditch Q c.f.s.	Freeboard ft.	Depth D ft.	Velocity V f.p.s.
DD-9	580	9.5	1	Grass	1.4	0.035	2.0	0	10.4	0.3	1.7	3.7
DD-10	1160	11.5	1	Grass	1.5	0.035	2.0	0	12.9	0.3	1.8	4.3
DD-11	230	2.0	1	Grass	0.9	0.035	2.0	0	2.8	0.3	1.2	1.5
DD-12	1165	12.6	1	Grass	1.5	0.035	2.0	0	12.9	0.3	1.8	4.3
DD-13	525	3.3	10	Grass	0.7	0.035	2.0	0	4.1	0.3	1.0	3.0
DD-14	705	30.5	5	Rock	1.7	0.044	2.0	0	33.3	0.3	2.0	9.8
DD-15	230	2.1	1	Grass	0.9	0.035	2.0	0	2.8	0.3	1.2	1.5
DD-16	800	32.9	1	Rock	2.3	0.044	2.0	0	36.9	0.3	2.6	8.0
DD-17	1400	18.3	1	Rock	1.9	0.044	2.0	0	20.8	0.3	2.2	5.5
DD-18	740	6.7	1	Grass	1.3	0.035	2.0	0	8.4	0.3	1.6	3.2
DD-19	1270	34.9	1	Rock	2.3	0.044	2.0	0	36.9	0.3	2.6	8.0
DD-20	1110	12.5	1	Grass	1.5	0.035	2.0	0	12.9	0.3	1.8	4.3



TYPICAL SECTION
(NOT TO SCALE)

When Velocity (V) is equal to or exceeds 5 fps, the diversion will be either rip-rap lined or cut to rock.

I, _____ 7/25/07
(signature) (registration no.) (date)

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
LICENSED PROFESSIONAL ENGINEER

hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

RLB ENGINEERING, PSC

For: APPOLO FUELS, INC.
Permit: 807-0314 AM. 1
Description: Diversion Ditch - Designs

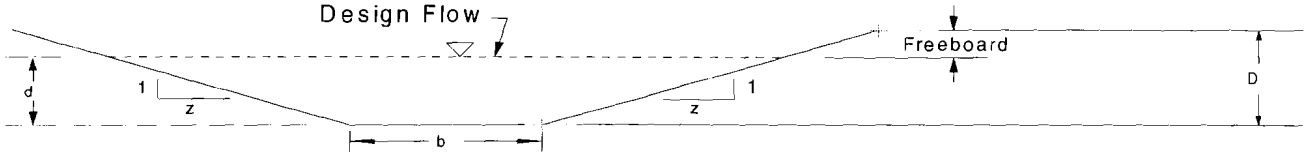
Date: 02/09/2008
By: M.C.

Ditch Design :

Trapezodial Ditch Configuration
Side Slopes : 2.0 2.0

Manning's n: Grass 0.035
Rock 0.044

Reference	Length ft.	Design Q c.f.s.	Diversion Slope %	Lining	d ft.	Mannings n	Side Slope H:1 V	Bottom Width ft.	Ditch Q c.f.s.	Freeboard ft.	Depth D ft.	Velocity V f.p.s.
DD-21	580	28.0	1	Rock	2.1	0.044	2.0	0	28.1	0.3	2.4	6.7
DD-22	1160	10.8	1	Grass	1.5	0.035	2.0	0	12.9	0.3	1.8	4.3
DD-23	230	13.7	1	Grass	1.6	0.035	2.0	0	15.6	0.3	1.9	4.9
DD-24	1165	1.8	1	Grass	0.8	0.035	2.0	0	1.9	0.3	1.1	1.2
DD-25	525	7.8	1	Grass	1.3	0.035	2.0	0	8.4	0.3	1.6	3.2
DD-26	860	10.1	1	Grass	1.4	0.035	2.0	0	10.4	0.3	1.7	3.7
DD-27	2890	60.0	1	Rock	2.8	0.044	2.0	0	66.5	0.3	3.1	11.9
DC-1 ORG.	800	279.0	5	Rock	3.5	0.044	2.0	0	290.4	0.3	3.8	41.5



TYPICAL SECTION
(NOT TO SCALE)

When Velocity (V) is equal to or exceeds 5 fps, the diversion will be either rip-rap lined or cut to rock.

I, _____ (signature) STATE OF KENTUCKY ROBERT L. BRASHEAR 19652 LICENSED PROFESSIONAL ENGINEER (registration no.) 2/11/08 (date)

hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

"ATTACHMENT 33.1.A"

Four (4) haul road will be used by this permit. Haul Road 3 and 4 are existing, however these roads will need to be modified to meet the enclosed design. These roads will be constructed and/or modified to a running width of 20 to 30 feet and an average overall width of fifty and seventy-five feet as indicated by the enclosed design. Roads 5 and 6 are proposed and will be constructed with a running width of 20 to 30 feet and an average overall width of seventy-five feet as indicated by the enclosed design. Culverts will be installed as shown on the MRP Map, calculations for culvert sizing has been included. These culverts have been designed to pass a ten year twenty-four hour precipitation event without causing overtopping of the roads, and will not cause adverse effects on upstream properties outside the permit boundary, since there are none adjacent. These roads will be surfaced with a durable non acid/toxic material, such as crushed limestone gravel.

For the proposed road construction shall be done as outlined in 405 KAR 16:220. Vegetation shall not be cleared for more than the width necessary for road cut/fill and associated ditch construction, to serve traffic needs, and for utilities. Temporary erosion control measures, such as hay bales or silt fences, shall be implemented during construction to minimize sedimentation and erosion until permanent control measures can be established.

All outslopes shall be constructed in horizontal lifts and shall be compacted as necessary to ensure stability. Outslopes shall not exceed 1v:2h except where the fill material is a minimum of 85% rock, in which case the outslope shall not exceed 1v:1.35h. All culverts will be covered with a minimum of one foot of compacted fill material. The road shall be surfaced with a durable, non-acid/toxic material, such as crushed limestone gravel. Rip-rap will be placed around all culvert inlets and at the end of each section of road ditch.

The road will be visually inspected by the company on a regular basis. Following the inspection, any ditch line or culvert that is silted to a significantly reduced capacity should be cleaned out. Any area of the road surface that is washed or eroded will be regraded and resurfaced with a durable non acid/toxic material, such as crushed limestone, and the grade lines maintained so that the roadway, shoulders and ditch line approximately conform to the certified as-built drawings. Dust will be controlled by watering, applying calcium chloride or other appropriate methods.

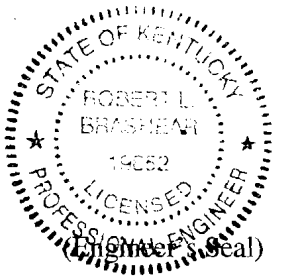
Road 3 & 4 are proposed to be left as permanent structures.

"ATTACHMENT 33.1.A Continued"

The attached ditch/culvert designs were based on the Rational Formula Q=CIA. To depict a worse case formula a Tc of Zero was used to determine the Intensity for a ten year storm.

Ditch No. Culvert No.	"C"	Intensity	Area Acres	Q CFS
RD-4 0+85	0.18	6.26	13.5	15.2
RD-4 18+75	0.18	6.26	40.6	45.8
RD-5 0+60	0.18	6.26	449.5	506.5
RD-6 0+75	0.18	6.26	880.3	991.9

CERTIFICATION OF DESIGN

I, Robert Brashear, 

19652, 2/5/08,
(Signature) (Engineer's Seal) (Registration No.) (Date Certified)

hereby certify, in accordance with 405 KAR 7:040, Section 10, that the design of each of the following facilities, whose design is included in this application, Application # **807-0314 Amendment 1** :

a) is in accordance with accepted engineering practices and recognized professional standards;
b) complies With the design requirements of KRS Chapter 350 and KAR Title 405; and
c) provided that the facility is properly constructed, operated and maintained, is adequate for the facility to meet the applicable performance standards of KRS Chapter 350 and KAR Title 405 insofar as such performance can reasonable be predicted by accepted engineering practices.

FACILITY TYPE: **ROAD**
(One facility type only

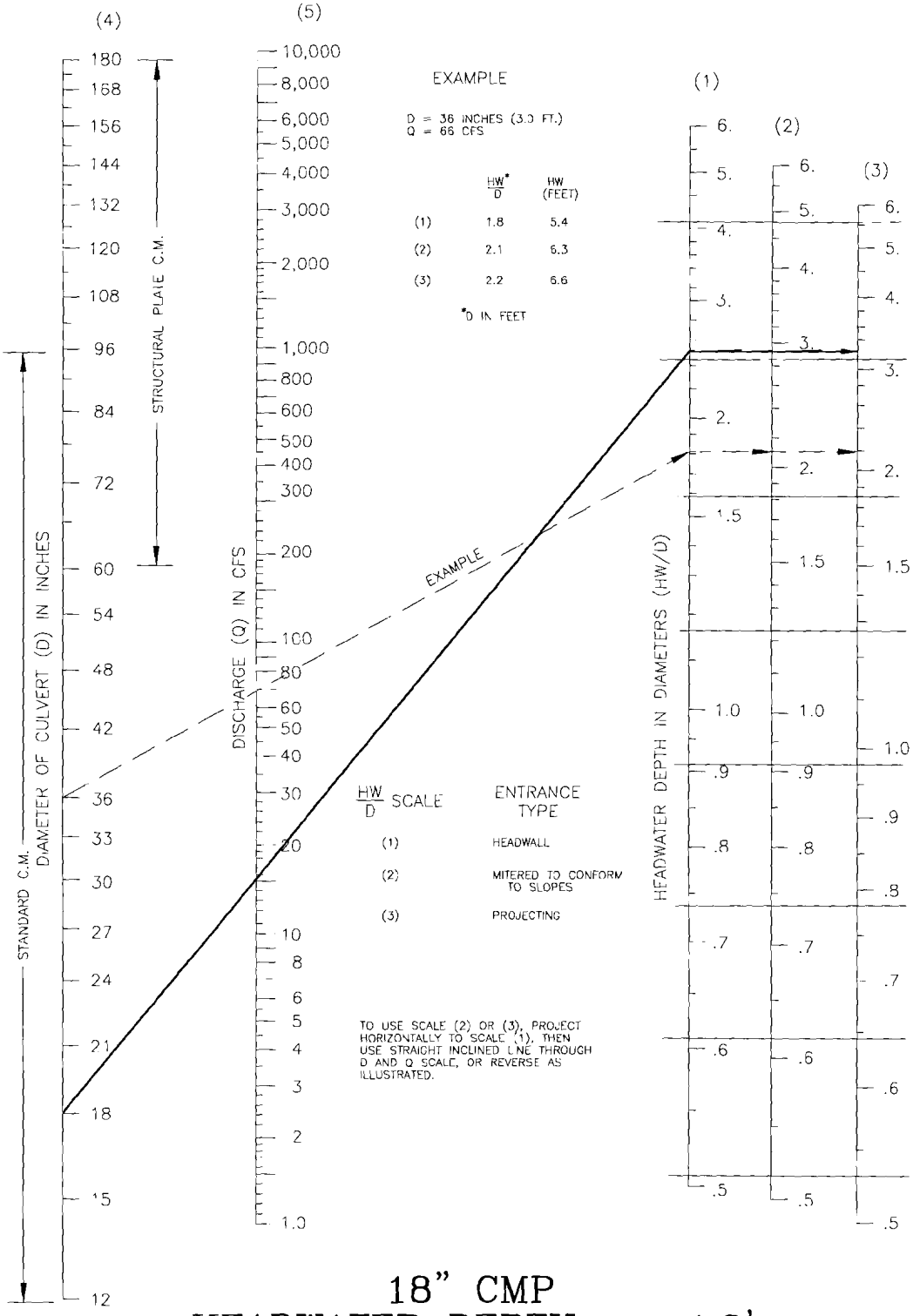
FACILITY ID #	HAZARD CLASS *	DATE OF DESIGN	FACILITY ID #	HAZARD CLASS *	DATE OF DESIGN
ROAD 3 (PERMANENT)		**02-02-08**			
ROAD 4 (PERMANENT)		**02-02-08**			
ROAD 5 (TEMPORARY)		**02-02-08**			
ROAD 6 (TEMPORARY)		**02-02-08**			

TYPES OF FACILITIES:

-- sedimentation pond
-- excess spoil disposal fill
-- temporary water impoundment
-- permanent water impoundment
-- coal processing waste impoundment
-- coal processing waste dam
-- coal processing waste bank
-- road
-- postmining land use plan
-- permanent ditches

* Show hazard class, if applicable

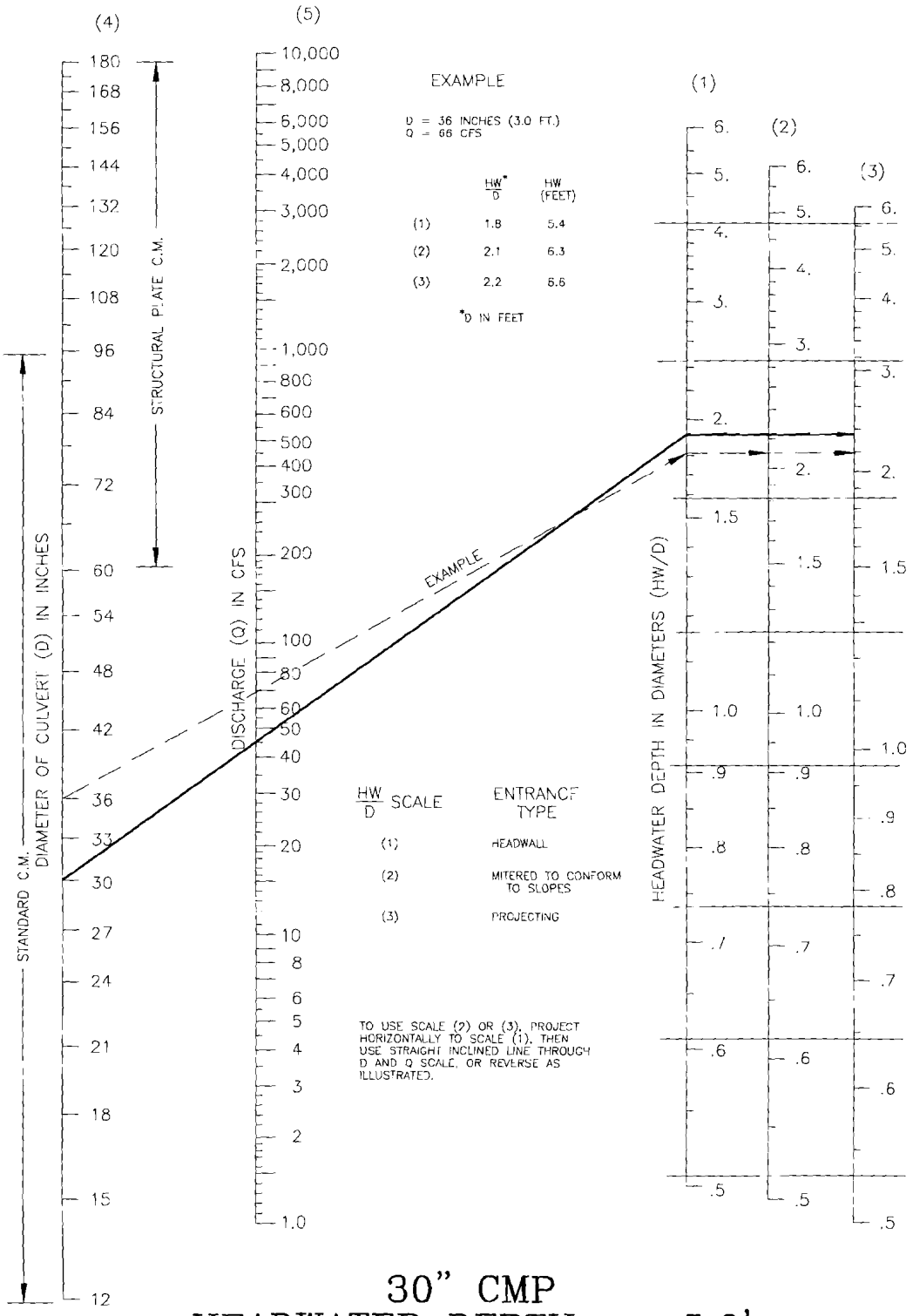
PERMIT 807-0413
ROAD "4"
CULVERT @ 0+85



18" CMP
HEADWATER DEPTH = 4.8'

HEADWATER DEPTH FOR CM PIPE CULVERTS WITH INLET CONTROL
(REF. HYD. ENG. CIR. NO.5, USBPR, 1965)

PERMIT 807-0413
ROAD "4"
CULVERT @ 18+75

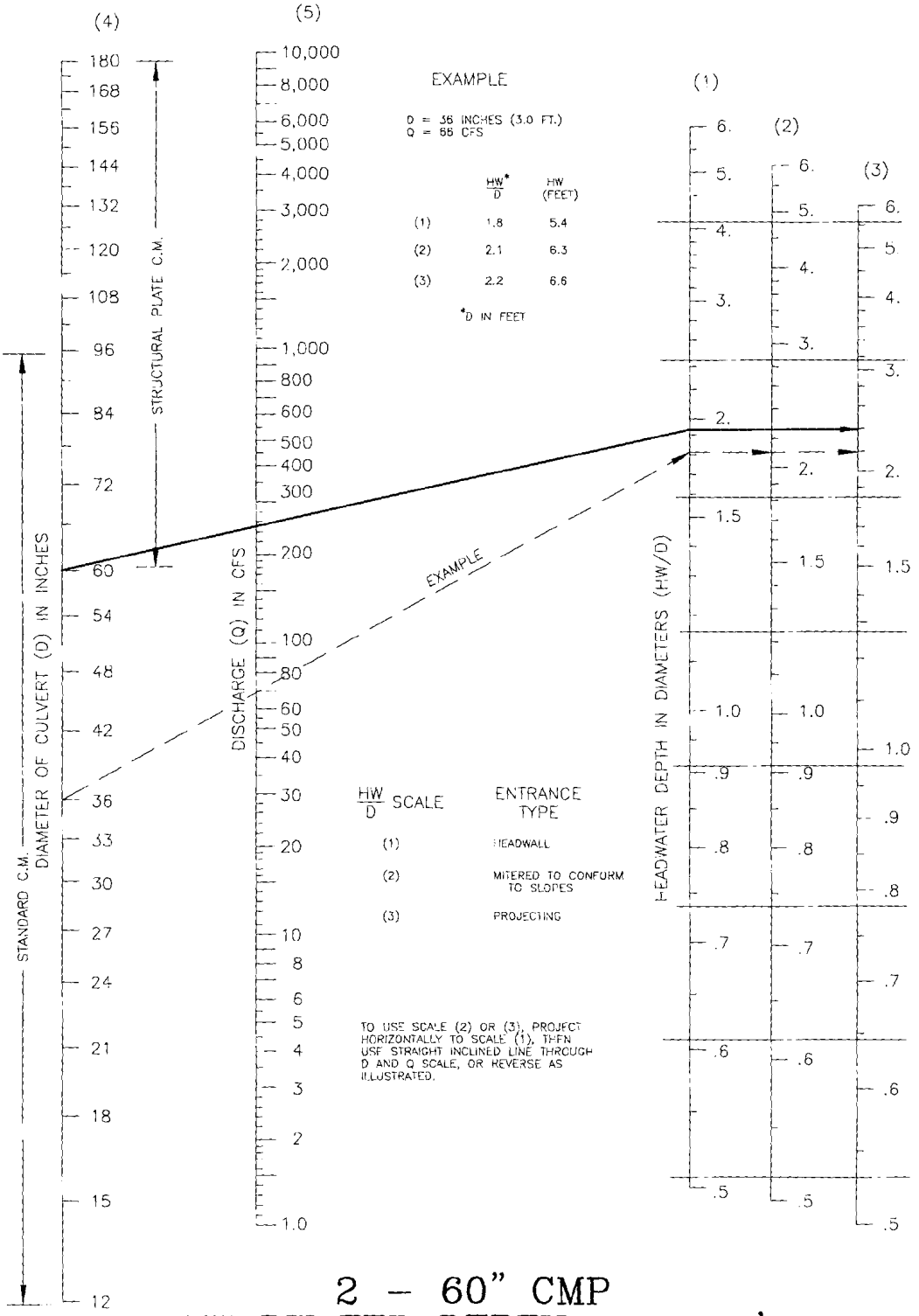


30" CMP
HEADWATER DEPTH = 5.9'

HEADWATER DEPTH FOR CM PIPE CULVERTS WITH INLET CONTROL
(REF. HYD. ENG. CIR. NO.5, USBPR, 1965)

EXHIBIT 13-1

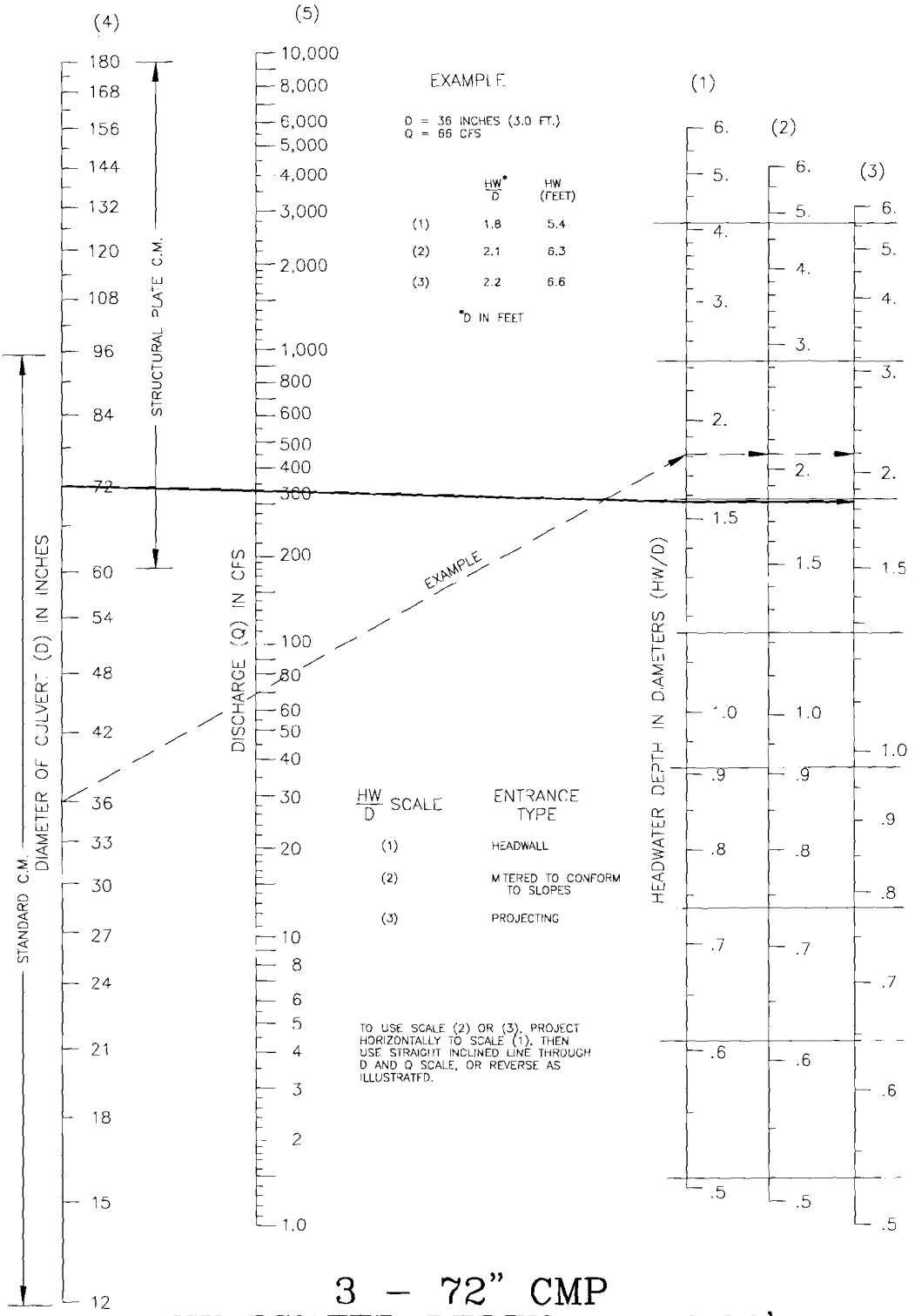
PERMIT 807-0413
ROAD "5"
CULVERT @ 0+60



2 - 60" CMP
HEADWATER DEPTH = 12.0'

HEADWATER DEPTH FOR CM PIPE CULVERTS WITH INLET CONTROL
(REF. HYD. ENG. CIR. NO.5, USBPR, 1965)

PERMIT 807-0413
ROAD "6"
CULVERT @ 0+75

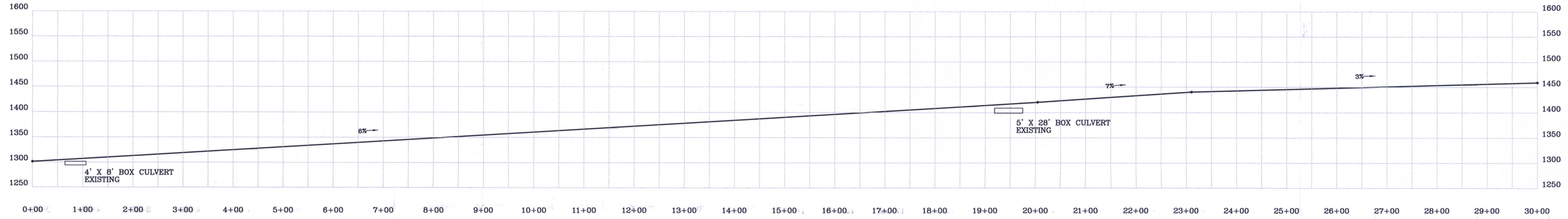


3 - 72" CMP
HEADWATER DEPTH = 10.98'

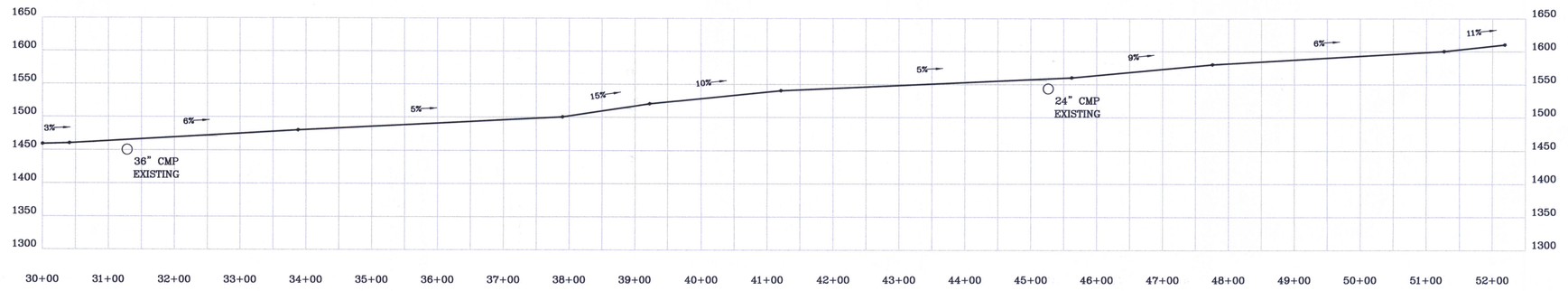
HEADWATER DEPTH FOR CM PIPE CULVERTS WITH INLET CONTROL
(REF. HYD. ENG. CIR. NO.5, USBPR, 1965)

EXHIBIT 13-1

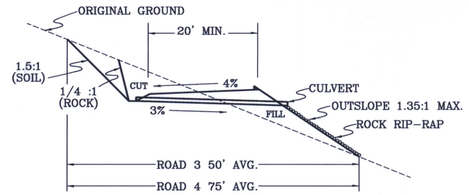
ROAD 3
PROFILE
1"=100'



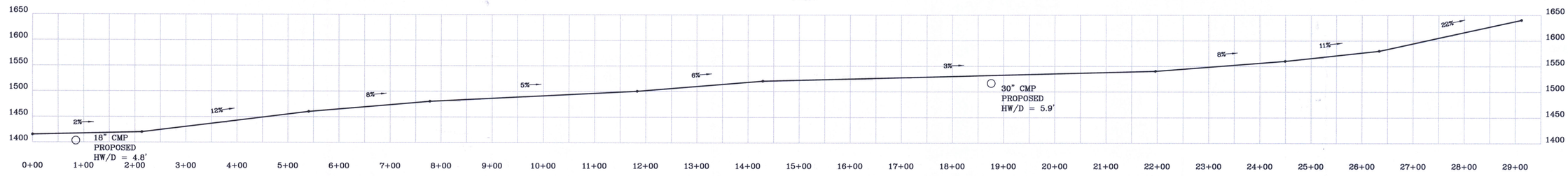
ROAD 3
PROFILE
1"=100'



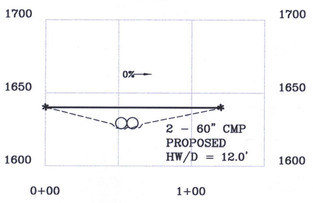
ROADS 3 & 4
TYPICAL SECTION
AT CULVERT
NOT TO SCALE



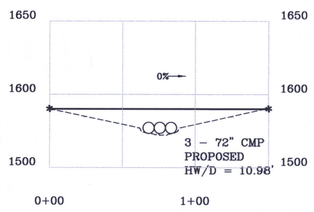
ROAD 4
PROFILE
1"=100'



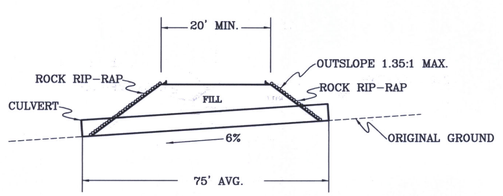
ROAD 5
PROFILE
1"=50'



ROAD 6
PROFILE
1"=50'



ROAD 5 & 6
SECTION
AT CULVERT
NOT TO SCALE



I, Robert L. Brashear (signature) 19652 (license no.) 2/16/08 (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct, as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
LICENSED PROFESSIONAL ENGINEER

Prepared By: RLB Engineering, PSC 202 East 4th Street, London, KY 40741 (606) 878-1381	
APPOLO FUELS, INC.	
PERMIT 807-0314 AMENDMENT 1	
ROAD PROFILES	
DATE: 02-01-08	FILENAME: ROADS.DWG
SCALE: AS SHOWN	DRAWN BY: MC

"ATTACHMENT 33.2.A"

Roads 3 and 4 are existing roads shown on the Mining and Reclamation Plan map. A profile and cross section are included in Item 33.1. A waiver from the culvert spacing requirements is included in Items 33.1 and 33.4. The road is believed to be constructed in the 1950s or 1960s.

Design specifications for the modification of the road are included in Item 33.1. Construction will begin immediately after permit issuance, and be completed within several days. The roads will be monitored by inspecting the road surface for erosion and the ditches and culverts for excess sedimentation. Maintenance procedures are outlined in Item 33.1. The risk of harm to the environment during modification will be minimized by disturbing the least area possible to make the proposed changes.

"Attachment 33.4.A"

This operation proposes alternate specifications for two (2) coal haul roads, the alternate specifications are as follows: Haul Road 3 request culvert spacing variance. Haul Road 4 request culvert spacing and grade variance.

The applicant requests the use of alternative road specifications as per 405 KAR 16:220, Section 1(3), as follows. The alternate specifications for culvert spacing will not degrade the degree of safety, stability or environmental protection that would be provided by compliance with the culvert spacing requirements.

Culverts are proposed to be installed at the locations shown on the MRP Map, and road plans. The culvert spacing will exceed those recommended, however no additional culverts are necessary due to the small drainage areas controlled, the request for alternate culvert spacing will not lead to an increase in erosion, therefore this request is considered justified and approvable.

Haul Road 4 is existing and has been used previously to haul coal from the Rich Mountain seam, associated with the pre-law mining previously discussed. The portions of this road wich exceed the required grade specifications are as follows: From station 2+15 to 5+40 there is 325' of roadway at a grade of 12%. From station 24+50 to 26+35 there is 185' of roadway at a grade of 11%. From station 26+35 to 29+20 there is 285' of roadway at a grade of 22%. This existing road is stable as is, to modify the grade would create additional environmental impacts due to increased disturbance. The short distances listed above which exceed the grade limitations will pose no safety threat to equipment operators as these distances will not adversley impede the safe braking of equipment, thereby allowing safe speeds along this roadway.

Additionally Haul Roads 3 and 4 are proposed as permanent to provide access as requested by the land owners in conjunction with the post mining land use of fish and wildlife habitat.

STATE OF KENTUCKY
ROBERT L. BRASHEAR
19652
REGISTERED PROFESSIONAL ENGINEER

I, _____ 2/11/08
(signature) Registration No. (date)

hereby certify, in accordance with 405 KAR 7:040E, Section 10, that this document is determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.

"Attachment 34.1.A"

AIR POLLUTION CONTROL PLAN

Air quality problems are not anticipated for this mine site. Routine dust control measures will be implemented as needed. These include;

- periodic watering of unpaved roads.
- chemical stabilization of unpaved roads with application of non-toxic soil cement or dust pallatives.
- prompt removal of coal, road, soil, or other dust-forming debris from roads and grading of unpaved roads to stabilize road surface.
- revegetation, mulching, or otherwise stabilizing the surface of all areas adjoining the roads that are a source of dust.
- restricting travel of vehicles on any roads other than those established.
- minimizing the area of disturbed lands.
- prompt revegetation or other stabilization of disturbed lands.
- planting of special wind vegetation at critical points in the permit area.

35. Subsidence Control

35.1 If this is an application which includes underground or auger mining, provide as "Attachment 35.1.A", the information required to demonstrate compliance with 405 KAR 8:040, Section 26.

SEE "ATTACHMENT 35.1.A"

35.2 Does the proposed method of operation include standard room and pillar mining? [X] NO [ ] YES. If "YES", describe the thickness and engineering properties of clays and soft rock located immediately above and below the coal seam(s) to be mined. If none exists, briefly describe the stratum immediately above and below all coal seams to be mined with this method. Submit description and related information as "Attachment 35.2.A".

35.3 If this application is for a surface mine, indicate if any portion of the proposed permit area have been "undermined". [ ] YES [X] NO. If "YES", provide a map showing the extent of the underground workings and describe the potential affects subsidence may have on structures such as dams, coal waste disposal areas, fills and other such structures. Submit this information as "Attachment 35.3.A".

36. Applicant/Authorized Agent Signature

36.1 The undersigned, being first duly sworn, states that he/she has read all the information provided in form MPA-03, Technical Information For A Mining Permit, of this application and has found it to be true and correct. The undersigned further acknowledges that any information provided or omitted herein for the purpose of defrauding or misleading the Natural Resources and Environmental Protection Cabinet may result in criminal charges being instituted pursuant to applicable state laws.

Applicant Company Name **APPOLO FUELS, INC.**

Name of Applicant or Agent
Whose Signature Appears Below **GARY ASHER**

Signature of Operator or Agent* Gary Asher

Date of signature 1/25/07

Subscribed and sworn to before me by **GARY ASHER**,

This the 25TH Day of JANUARY, 2007.

Notary Public

My commission Expires 2/5/08 State in which Commissioned **KENTUCKY**

ROBERT L. BRASHEAR NOTARY PUBLIC KY STATE AT LARGE

*NOTE: If signer is other than president or secretary of a corporation, attach a notarized copy of power of attorney, or resolution of board of directors which grants signer the legal authority to represent the applicant in this application. (Does not apply to a single proprietorship or partnership.)

"Attachment 35.1.A"

A subsidence survey of the proposed mine area was conducted from site observations and recent topographic maps. All surface facilities (dwellings, power line structures, gas wells, gas lines, roads, etc...) adjacent to the permit area were identified. No structures or facilities have been identified within or adjacent to the proposed permit area that will require any specific subsidence protection plans.


404 MITIGATION LEGEND
PERMANENT STREAM LOSS
TEMPORARILY AFFECTED STREAM
STREAM RE-ESTABLISHMENT OR ENHANCEMENT AREA
LOCATION OF CROSS-SECTION AND PEBBLE COUNT
LAND USE LEGEND
-UF- UPLAND FOREST
-PM- PREVIOUS MINING
-R- RESIDENTIAL
THE DIP REFLECTS THE LOCAL DIRECTION OF GROUNDWATER FLOW WITHIN THE PRESSURE-HEAD ZONE
UTILITY OWNERSHIP
ELECTRIC - KENTUCKY UTILITIES
WATER - CLEAR FORK UTILITY DISTRICT
GAS WELLS/LINES - DAUGHERTY PETROLEUM, INC.
Note: WPP, LLC owns all surface and mineral, within and adjacent to the permit area, individual property lines are shown as appropriate around residential ownership areas.
Back Creek
Sowder Creek
Maiden
Branch
Turner Spur
Pruden
Hollow
Fonde
Marsee
Clear
Fork
CLEAR FORK
Rich Mountain
Rich Mtn
1/2 MILE BOUNDARY
1,000' BLASTING RADIUS
807-5157 UNDERGROUND AREA
807-5202 UNDERGROUND AREA
WPP LLC (FEE)
ROAD 3 (Existing)
ROAD 4 (Existing)
ROAD 1 (Existing)
ROAD 2 (Existing)
ROAD 5 (Proposed)
ROAD 6 (Proposed)
BELL CO
CLAIBORNE CO
KENTUCKY
TENNESSEE
Abandoned Mine Jellico Seam
COMPANY NAME: APPOLO FUELS, INC.
MINE NAME: FONDE - HIGHWALL MINER
ADDRESS: P.O. BOX 1727, MIDDLESBORO, KY 40965
COUNTY: BELL
APPLICATION NO.: 807-0314 AMENDMENT 1
MAP SCALE: 1" = 400'
CONTOUR INTERVAL: 20'
QUADRANGLE: EAGAN - 4257 III SW FORK RIDGE - 4257 III SE
LATITUDE: 36° 35' 39"
LONGITUDE: 83° 52' 39"
LOCATION IN DETAIL: 0.5 MILES EAST FROM KY 74 JUNCTION WITH KY 535.
SEAM | ELEVATION | TYPE OF MINING | ACRES EXIST. | AM. 1 | TOTAL
JELLICO | 1420' +/- | CONTOUR/RE-MINING | 67.92 | --- | 67.92
RICH MOUNTAIN/RIDER | 1700' +/- 1730+/- | CONTOUR/RE-MINING | 3.90 | 152.61 | 156.51
JELLICO | 1420' +/- | AUGER | 90.76 | --- | 90.76
RICH MOUNTAIN | 1700' +/- | AUGER | --- | +299.9 | 299.9
NON COAL WASTE
TOPSOIL STORAGE
DIVERSIONS
SLOPE
NON-EXISTENT BUILDING
PROPERTY LINES
WATERSHED BOUNDARY
GEOLOGIC SAMPLE POINT
ADIT
UTILITY LINE
UTILITY WELL
POWER LINE
PERMIT BOUNDARY
PREVIOUSLY MINED AREA
CULVERT
SUSPECTED UNDERGROUND WORKS (Jellico Seam)
EXISTING SLIDE
EXPLOSIVES STORAGE AREA (Location may change based upon site conditions as required by other agencies.)
COAL SEAM OUTCROP
TOPSOIL/ALTERNATE SAMPLE
WATER MONITORING POINTS: KPDES DISCHARGE GROUNDWATER SURFACE WATER
GROUNDWATER USER
DIRECTION OF GROUNDWATER FLOW
PRE-LAW MINING
OTHER AREAS TYPE
DRAINAGE CORRIDOR 1.50 +1.68 3.18
SILT STRUCTURES TYPE
EMBANKMENT
DUG-OUT (PROPOSED)
POND 1-10 & 12-13 (ACREAGE INCLUDED IN MINING AREA)
ROADS (EXISTING)
ROAD 1 - 50' X 2015' = 2.31
ROAD 2 - 100' X 2200' = 4.30
ROAD 3 - 50' X 5220' = 5.99
ROAD 4 - 75' X 2920' = 5.03
6.61 +11.02 17.63
ROADS (PROPOSED)
ROAD 5 - 75' X 120' = 0.21
ROAD 6 - 75' X 150' = 0.26
--- +0.47 0.47
POND ACCESS ROADS (PROPOSED)
POND ACCESS
ROBERT L. BRASHEAR 19652
I, (signature) (license no.) (date) hereby certify, in accordance with 405 KAR 7:040, Section 10, that this document is correct as determined by accepted engineering practices and includes all the information required of it by KRS Chapter 350 and KAR Title 405.
TOTAL SURFACE AREA 79.93 +165.78 245.71
AUGER AREA 90.76 +299.90 390.66
TOTAL PERMITTED AREA 170.69 +465.68 636.37
DATE: 02-07-08
REVISION/NO. DATE BY
RLB
RLB Engineering, PSC.
202 East 4th Street
LONDON, KENTUCKY 40741
(606) 878-1381
TITLE: MRP - ERI MAP