



BF 389-101.1

Darmac 14

AMD Passive Treatment System

Project #: BF 389-101.1 (Primacy Bond Forfeiture)

Project Name: Darmac Coal, Inc. (Darmac 14)

Municipality: East Franklin Twp.

County: Armstrong County

USGS Quad: Kittanning

Site Lat./Long. 40° 49' 13" N
79° 33' 51" W

Problem Area: PA 2944 Whitesell School South

Feature Numbers: Possibly P1 & P3
portals that may have been sealed in 1965



Project Goal

The goal of this project is to meet Bond Forfeiture program requirements along with increasing the pH and Alkalinity. The amount of metals will be decreased to help restore Glade Run for trout fishing.

Project Design Information

The project engineers and designers were John Stefanko and Dick Brenneman. The construction engineer/inspectors were Tom Malesky, Larry Mohny, and D. Eckenrode. PJ Shah and Mitch Smith were the O&M and / or water samplers. The project was completed on July 16, 1998 with the cost of the project totaling \$520,286.00. The system type is 300' x 20' x 8' ALD, 0.75 acre combination Settling Pond/Aerobic Wetland. U S Bureau of Mines recommendations of 80% (or greater) CaCO₃ (3" to 4" dia.) limestone. USBM's criteria based on a 7-hour retention time, 20 -year life, and 150 gpm flow would be ~2,400 tons limestone, and a 0.75 acre aerobic wetland for iron removal. 2691 tons AASHTO No. 1 was installed.

Water Data Information

Raw Water Quality (Design): Net Alkaline Discharge

Design Flow Rate	150 gpm
Receiving Stream	UNT to Glade Run
DEP Labs SIS Project ID	BF 389-101.1
pH	6.3
Iron (total)	33 mg/l
Manganese (total)	24 mg/l
Aluminum (total)	0.1 mg/l
Alkalinity	210 mg/l
Net Acidity	-112 mg/l
Sulfate	650 mg/l



SIS Monitoring Point ID Alias: PC 11-1, PC 11-2, PC 11-3, PC 11-4, PC 11-5, PC 11-6, PC 11-7, PC 11-8, PC 11-9

Project Description (How Influent and Effluent are measured)

1. Raw water enters (~300'LX20'WX8'D) ALD
2. Water exits ALD via ~270 LF 12" HDPE pipe
3. Water exits 12" HDPE trap & elevated pipe outlet
4. Pipe outlet enters ~190 LF R-4 rock-lined channel
5. Channel outlets into ~3' deep, ~ 280 foot long settling pond
6. Settling pond enters ~240 foot long shallow wetland through a R-5 rock filter "baffle"
7. Wetland outlets to rock-lined outlet via 18" HDPE pipe principal spillway
8. Wetland outlets to UNT to Glade Run ~180' from spillway
9. UNT outlets into Glade Run ~900' away from UNT. The 9 water sampling SIS monitoring Point Alias ID's are PC11-1 through PC 11-9
10. Flow must be bucket-measured at elevated 12" ALD outlet pipe and wetland outlet pipe due to lack of weirs. Water must be ladled out of ALD inlet cleanout pipe. There is no way to measure influent flow rate, but should be same as ALD outflow rate. BAMR CO sampled initially, then Cambria took over sampling.

O M & R History

08/13/1999: Development Authority relocated stream & dug through the AMD discharge causing water to bypass the system. Clay seal was installed along the ALD to keep water in.

05/19/2000: BAMR Cambria memos BAMR CO that new discharge (PC11-9) is discovered, & sampling began immediately.

06/19/2002: A resident complained plugged spillway pipe causing pond to overtop and flood their yard.

07/2002: Property owner, Charles Crowe, threw BD Crew off property when cleaning pipe, causing an Administrative Order legal process to begin.

04/14/2005: Snyder Brothers, Inc. installed gas line over the ALD, but stated they did not excavate into the ALD & did not compromise the system.

04/29/2005: Administrative Order issued to Charles Crowe.

05/26/2005: BD crew repaired smashed spillway pipe and excavated emergency spillway 6" above spillway pipe. Water sampling was interrupted during the period that we had issues with Crowe.

06/04/2008: For a period after Jack Eury (previous sampler) retired no one was sampling. Mitch Smith took over sampling duties and 1st sampled on 06/04/2008.

Watershed Restoration Efforts & Partner Viability

Arrowhead Chapter of Trout Unlimited. No information on other watershed restoration efforts.



Evaluation

Evaluation Date: June 4, 2008

The evaluators were Dave Fromell, Steve Golembiewski, PJ Shah, and Mitch Smith. During the field review discussion Dave Fromell, Steve Golembiewski, PJ Shah, & Mitch Smith walked the site and inspected the system. Locations of all 9 sampling points were walked to show Mitch (who replaced Dale Eury) where to sample. Mitch's first round of sampling began the day of this inspection. Outflows were not bucket-tested due to flow volume (ALD outflow PC 11-6 est ~120 gpm) and lack of a bucket. The majority of wetland vegetation was dead, probably due to inundation when the outlet pipe was plugged for a long period of time until repairs could be made in 2005, however cattails were growing near the pond outlet. The R-5 rock baffle was not visible, which could mean that the water is still a bit too deep. The untreated discharge, PC 11-9, est ~60 gpm. The system is currently working well, and generally has been since it was constructed. Project goals to increase pH and Alkalinity, & decrease metals loading were met. Glade Run water quality has improved, however another (new) discharge (PC 11-9), which remains untreated, still exists at the site. It is the evaluator's understanding that the District Mining Office is investigating treatment options for this new discharge (PC 11-9).



Recommendations

No retrofit/repairs/modifications recommended at this time, as the system is still functioning as designed. However, future improvements, which could be undertaken by the BD Crew, include installing one weir, either at the outlet of the ALD, or the outlet of the Wetland, installing one or two "floating" baffles in the settling pond, & re-establishing wetland vegetation. These improvements could be undertaken when the pond needs cleaned.

Property Owner Information

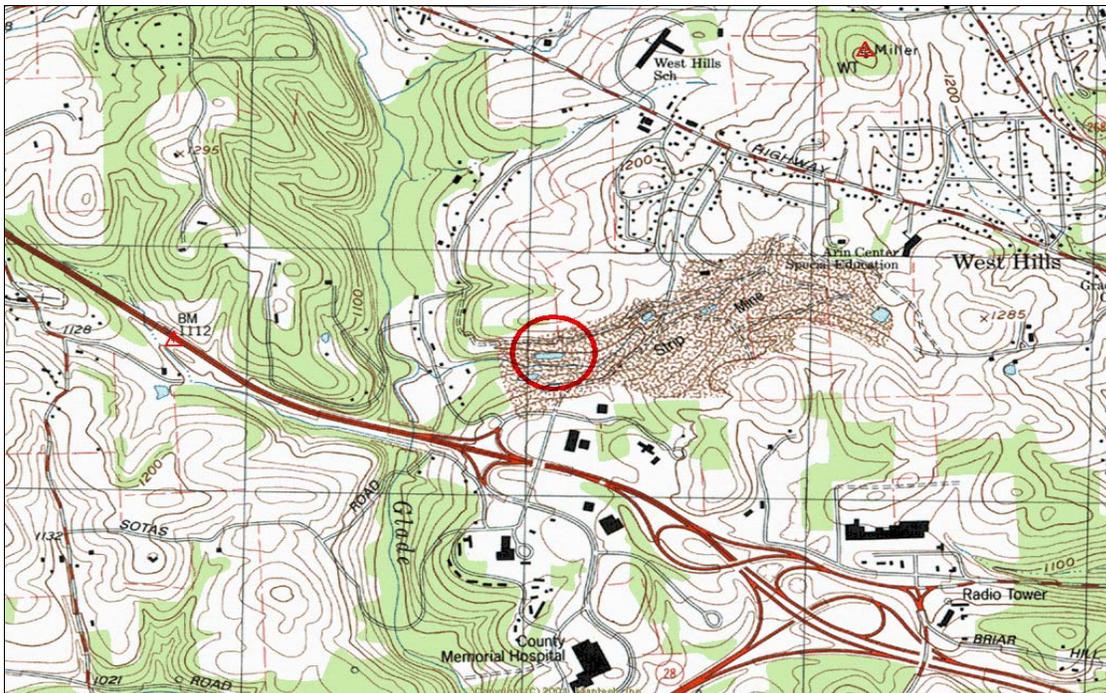
Property Owner 1

Charles H. Crowe, RR 3, Kittanning, PA 16201; phone # unlisted

Property Owner 2

Armstrong County Industrial Development Authority, 402 Market Street, Kittanning, PA 16201; 724-548-1500

Property Access Status: Perpetual access for maintenance written in Construction Easement Agreement. Administrative Order sent to Crowe 04/29/2005 due to him throwing the BD crew off his property July 2002. Since the Order was issued, no access issues have been experienced.



From Kittanning: Take Route 422 West toward Pittsburgh. Cross the Allegheny River and go past the interchange for Route 28. Take the exit that says "West Hills (Industrial Park)". Bear right onto North Park Drive off the exit ramp. Turn left onto Parkview Drive. Site is on the left side of Parkview Drive (across the road from the Veterinarian's office).

DEP Laboratory Sample Submission Sheet

LAB USE ONLY
Date Received:

Bureau of Abandoned Mine Reclamation
5th Floor
Rachel Carson State Office Building
Harrisburg, PA 17105-8476

Telephone: 717-783-2267

SIS

OCT 26 2005

Program:

0	0	1	5
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Funding Link:

0	3	8
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Reason:

0	1
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Collector ID:

7	4	1	1
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Date Collected: (MM-DD-YY)

0	9	2	1	0	5
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SAC:

0	7	1	9
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Routine Monitoring Form att: Dave Formell

Project : Darmac Coal Company BF 389 -101.1

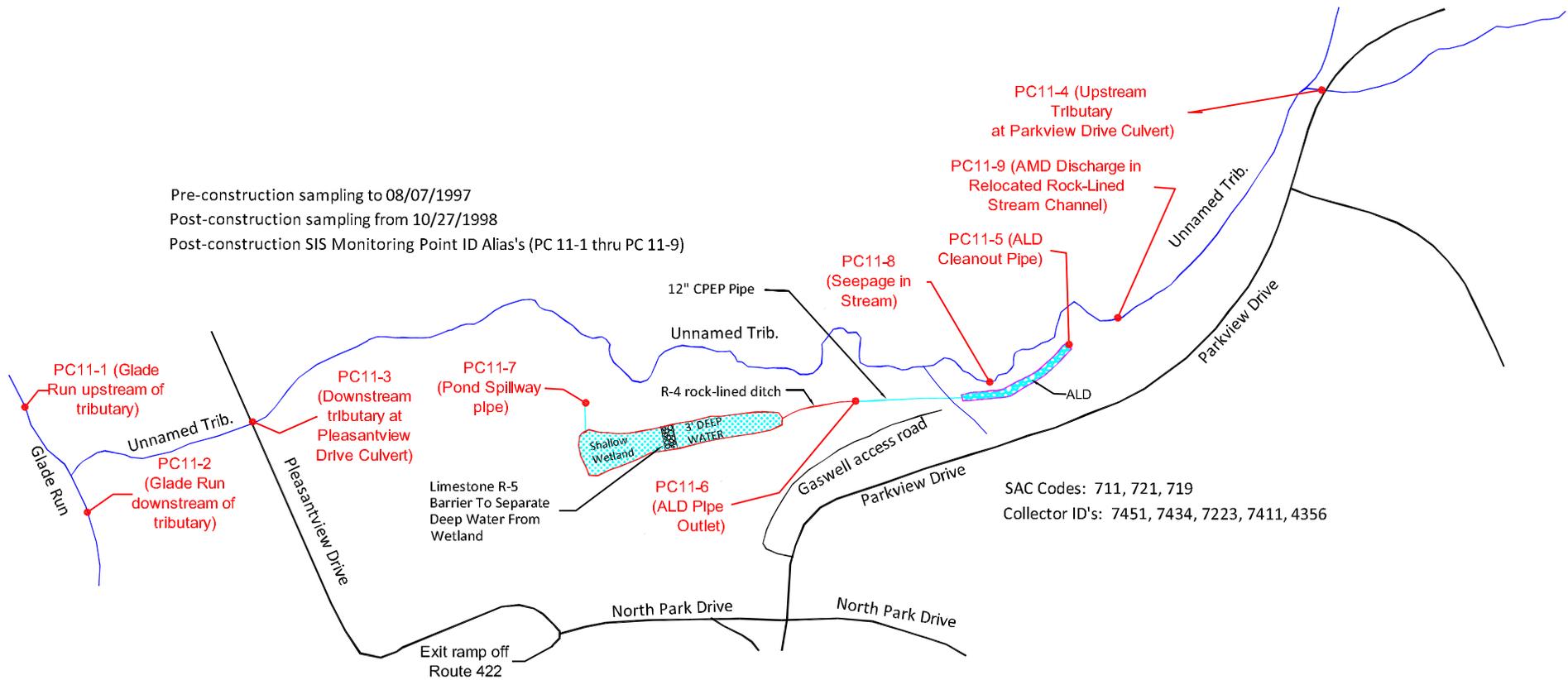
Seq. # <small>(001-999)</small>	Time: <small>(HH:MM)</small>	Monitoring Point ID Alias:	Point Description: *	Field Measurements:					Lab Number
				pH	D.O. <small>(mg/l)</small>	Cond. <small>(umho/cm)</small>	Flow		
					(GPM)	E/M			
0 2 4		PC 11-1	Glade Run Up Stream						
0 2 5		PC 11-2	Glade Run Down Stream						
0 2 6		PC 11-3	Tributary Down stream of System						
0 2 7		PC 11-4	Tributary Up stream of System						
0 2 8		PC 11-5	6" clean out pipe						
0 2 9		PC 11-6	12" outlet pipe of ALD					M	
0 3 0		PC 11-7	Wetlands Pond outlet					M	
0 3 1		PC 11-8	Seepage along rip/rap						
0 3 2		PC 11-9	New discharge along rip/rap						

Weather Conditions:

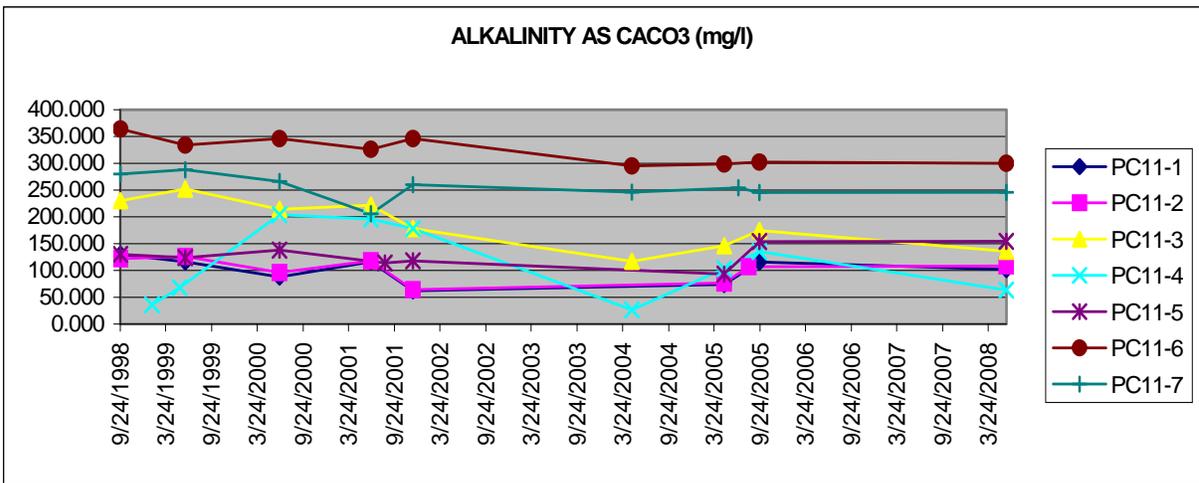
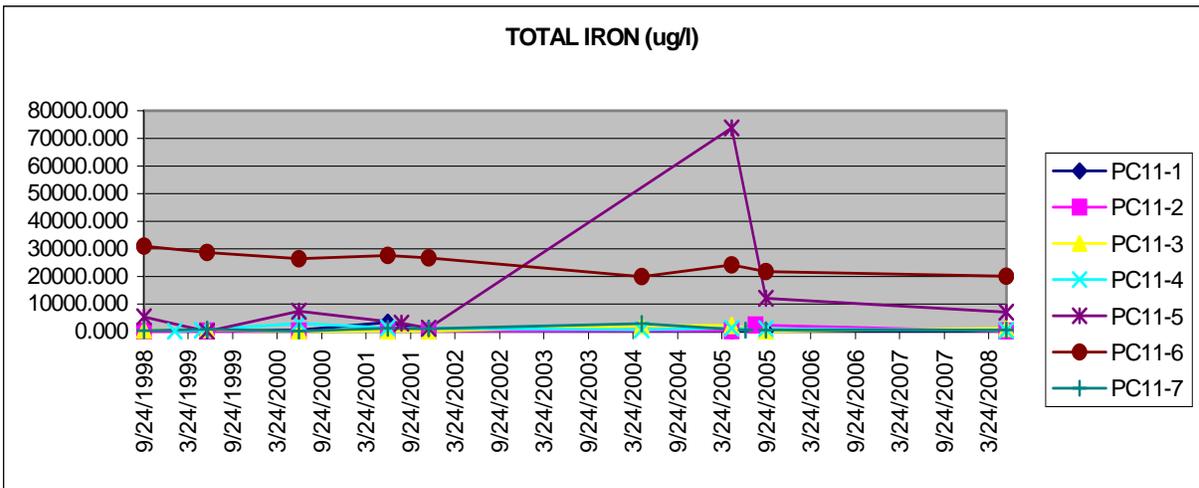
Comments:

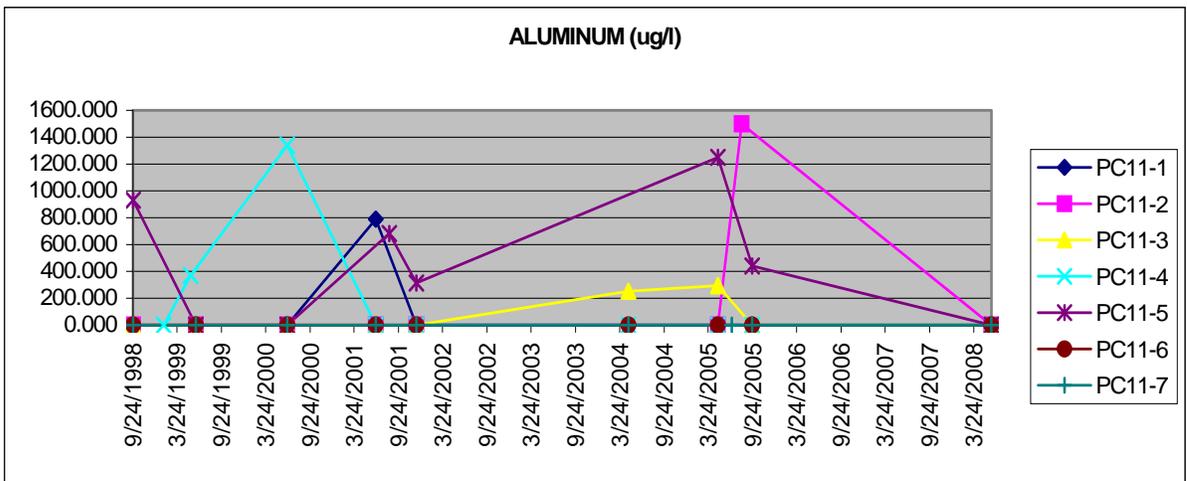
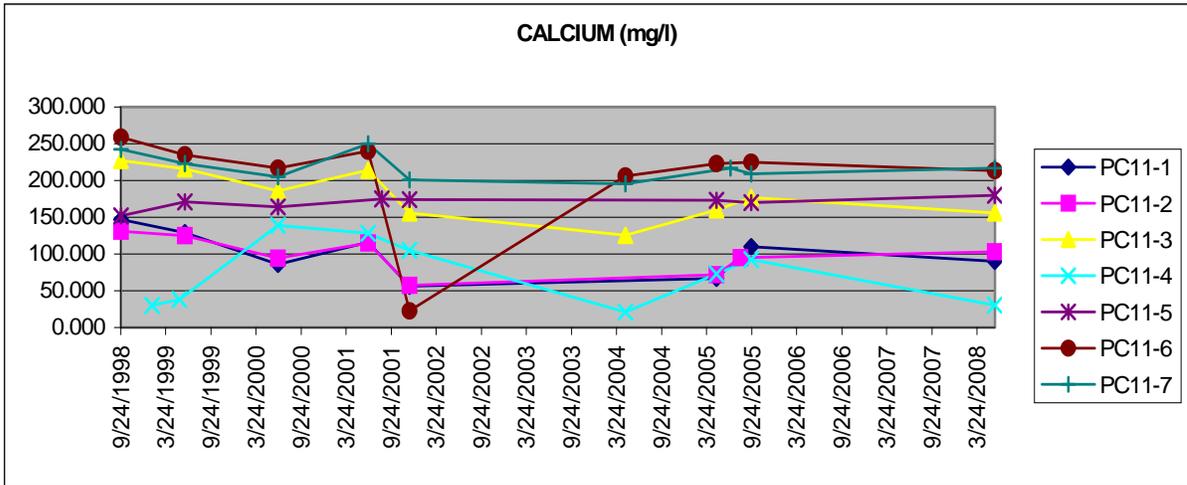
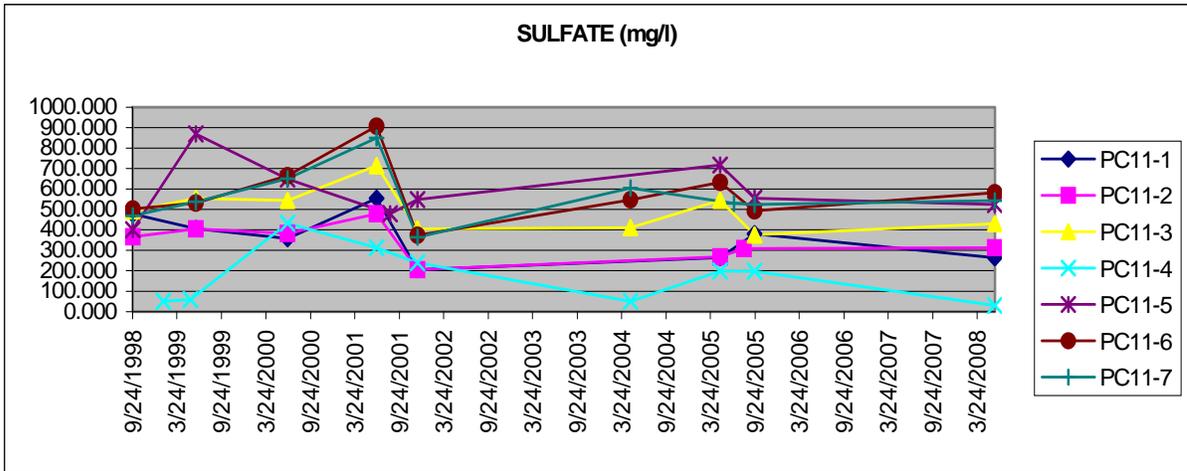
Collector Name (Please Print): Jack E Eury Signature: _____

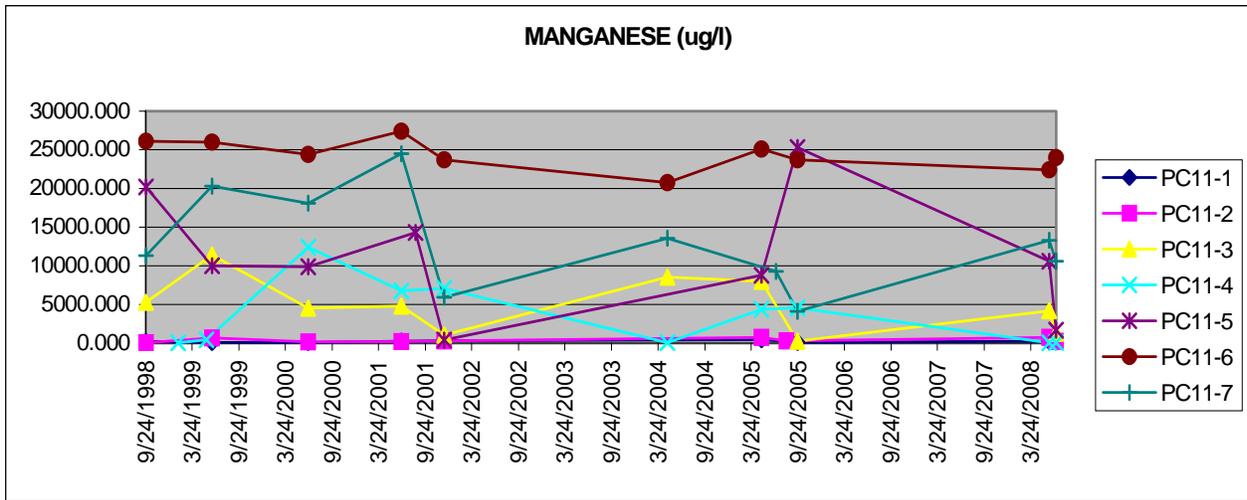
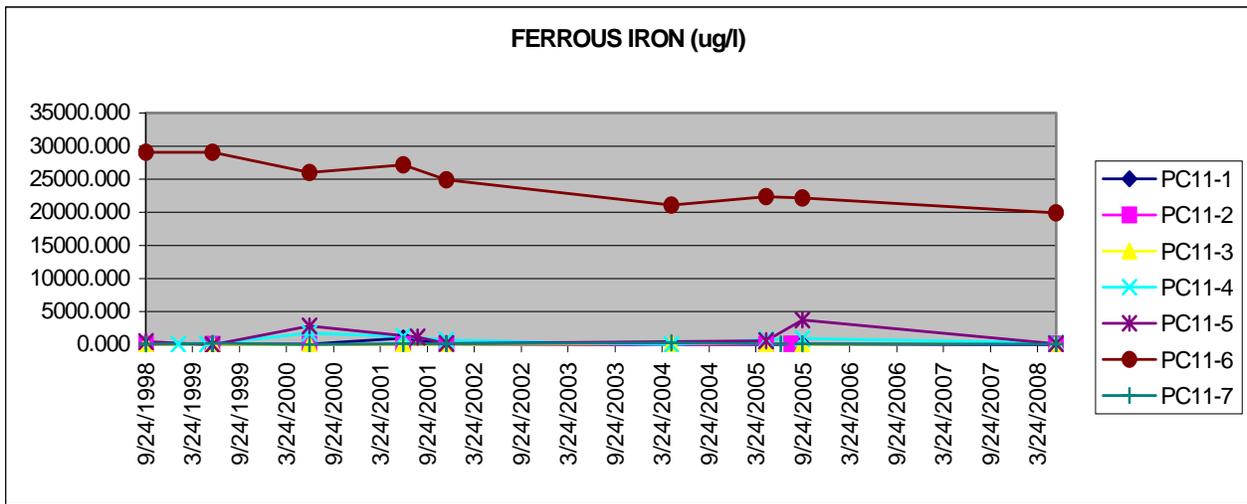
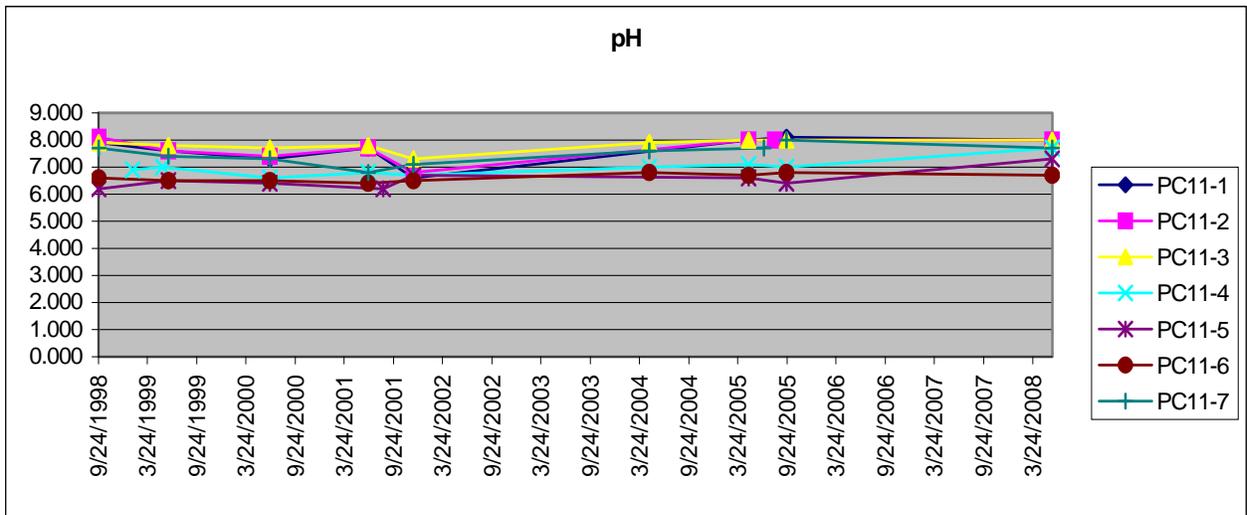
* For non-established monitoring points, include latitude/longitude. Indicate datum and method in comments.



BF 389-101.1 Darmac 14
East Franklin Twp. Armstrong Co.
Water Sampling Locations

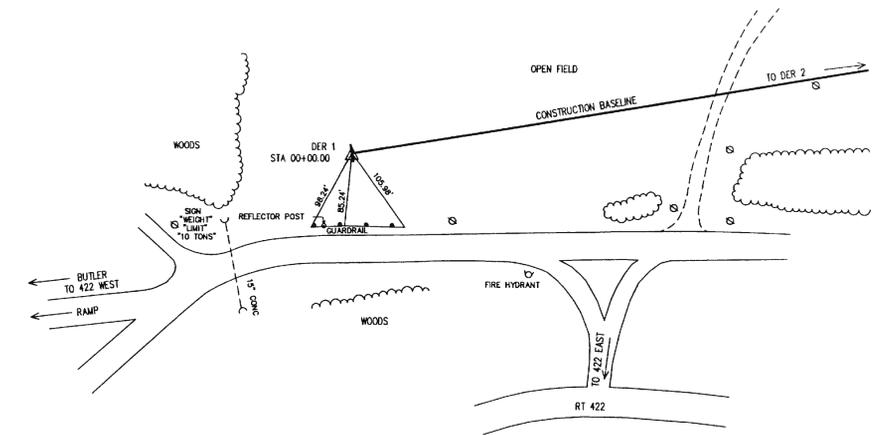






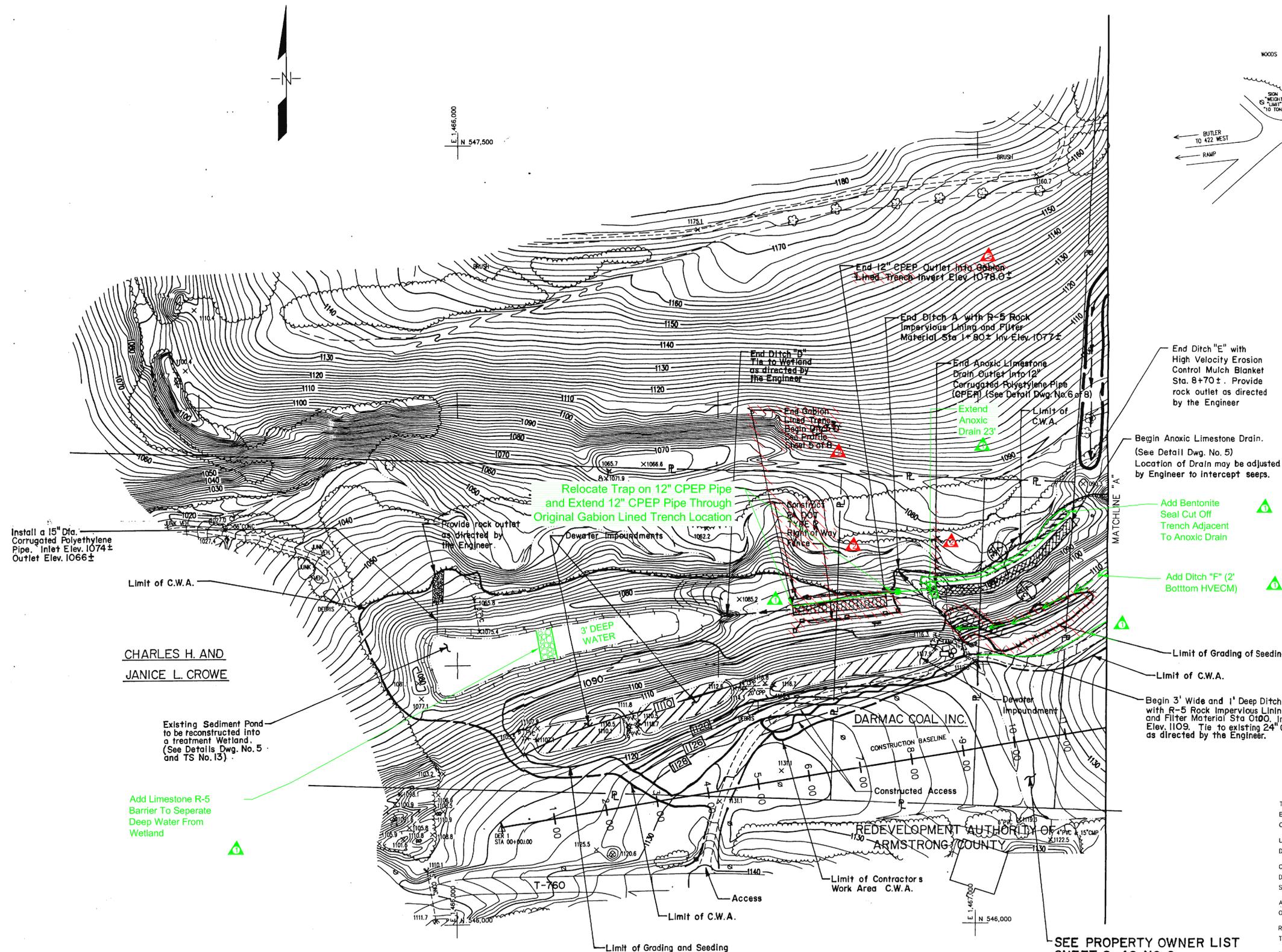
BENCH MARK DATA					
BM NO.	BASELINE STA.	ELEVATION	DESCRIPTION	N. COORDINATE	E. COORDINATE
DER 1	00+00.00	1120.71	IRON PIN AND CAP	546188.039	1466086.211
DER 2	18+03.12	1167.630	IRON PIN AND CAP	546479.414	1467865.635

CONSTRUCTION BASELINE DATA

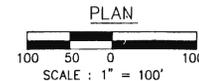


NOTES:

- All sedimentation pond drainage pipes within the grading areas and as specified on the drawings shall be removed and stockpiled outside the grading areas but within the Contractor's Work Area.
- During Construction protect all utility poles within the Contractor's Work Area.
- All abandoned equipment within the Contractor's Work Area shall be removed and disposed of by the Contractor.



- End Ditch "E" with High Velocity Erosion Control Mulch Blanket Sta. 8+70 ±. Provide rock outlet as directed by the Engineer
- Begin Anoxic Limestone Drain. (See Detail Dwg. No. 5) Location of Drain may be adjusted by Engineer to intercept seeps.
- Add Bentonite Seal Cut Off Trench Adjacent To Anoxic Drain
- Add Ditch "F" (2' Bottom HVECM)
- Limit of Grading of Seeding
- Limit of C.W.A.
- Begin 3' Wide and 1' Deep Ditch A with R-5 Rock Impervious Lining and Filter Material Sta 0+00, Invert Elev. 1109. Tie to existing 24" CMP as directed by the Engineer.



TOPOGRAPHY BY:
BARTON AERIAL TECHNOLOGIES, INC.
COLUMBUS, OHIO 43229

USING AERIAL PHOTOGRAPHY
DATED 4-26-95.

COORDINATES ARE ON A RANDOM
DATA BASE, RELATIVE TO THIS
SITE ONLY.

ALL ELEVATIONS SHOWN ARE BASED
ON U.S.G.S. DATUM

RELATIVE ERROR OF CLOSURE FOR
TRAVERSE

TRAVERSE ADJUSTMENT BY COMPASS
RULE METHOD.

ALL DIMENSIONS AND EXISTING
CONDITIONS SHALL BE CHECKED
AND VERIFIED BY CONTRACTOR
AT THE SITE.

NO.	DATE	REVISION	APPR.
1	12/21/00	"AS-BUILT" DELETIONS	J.R.S.
2	12/21/00	"AS-BUILT" ADDITIONS	J.R.S.

SUBMITTED: *[Signature]*
PROJECT ENGINEER

RECOMMENDED: *[Signature]*
PROJECT COORDINATOR

APPROVED: *[Signature]*
CHIEF - DIVISION OF ACID MINE DRAINAGE ABATEMENT



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CONTRACT NO. BF 389-101.1

ABANDONED MINE LAND
RECLAMATION PROJECT
DARMAC COAL, INC.
DARMAC 14 SITE
SMP 03840112
EAST FRANKLIN TOWNSHIP ARMSTRONG COUNTY

PLAN

DRAWN BY: LFK	DATE: 9-23-97	DRAWING NO.:
CHECKED BY: JIS	SCALE: 1"=100'	3 of 8

SEE PROPERTY OWNER LIST
SHEET 2 of 8 NO. 6

CHARLES H. AND
JANICE L. CROWE

Existing Sediment Pond
to be reconstructed into
a treatment Wetland.
(See Details Dwg. No. 5
and TS No. 13)

Add Limestone R-5
Barrier To Separate
Deep Water From
Wetland

Install a 15" Dia.
Corrugated Polyethylene
Pipe. Inlet Elev. 1074 ±
Outlet Elev. 1066 ±

Relocate Trap on 12" CPEP Pipe
and Extend 12" CPEP Pipe Through
Original Gabion Lined Trench Location

DARMAC COAL INC.

REDEVELOPMENT AUTHORITY OF
ARMSTRONG COUNTY

