Ohio Environmental Protection Agency
John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

January 3, 2012

Re: Perry County
Buckingham Coal Co. #6 Underground Mine
Compliance Evaluation Inspection/
Reconnaissance Inspection
NPDES Permit 0IL00144*CD
Correspondence (IWW)

Mr. Ronald Bird, Exec. Vice President
Buckingham Coal Company
P.O. Box 400
Corning, Ohio 43730

Dear Mr. Bird:

On April 18, 2011, I conducted a compliance evaluation inspection of the Buckingham Coal Co. No. 6 Underground Mine facility, located in Monroe Township, Perry County. Jeff McClain, Property Manager, represented Buckingham Coal Co and accompanied me during the inspection. Jason Plummer of Linn Engineering, your environmental consulting company, was also present for the inspection. The purpose of the inspection was to determine Buckingham Coal Company's compliance with NPDES Permit Number 0IL00144*CD and the Ohio Water Pollution Control Act, Revised Code Chapter 6111. On November 30, 2011, I conducted a reconnaissance inspection, with Jeff McClain representing the facility.

As a result of the inspection and review of our files, I have the following comments:

1. There was reportedly about 2 inches of rainfall on April 16, 2011, two days prior to the inspection. Weather had also been rainy in the days prior to the November 30, 2011 inspection.

2. A review of the Discharge Monitoring Reports (DMR's) for the period April 2010 thru August 2011, revealed one effluent limitation violation for Total Manganese at outfall 005 (2,550 ug/l average for March 2011, with a limitation of 2,000 ug/l average) and no frequency violations.

3. On April 18, 2011, I observed the following regarding each outfall:

    a. Outfall 001 was not discharging due to low water level. A tanker truck was being utilized to remove sludge from the pond at the time of the inspection. About 18-25 loads are hauled out by vac truck, one time/day each month, and taken to the refuse disposal area.

Southeast District Office
2195 Front Street
Logan, OH 43138-8637

740 | 385 8501
740 | 385 6490 (fax)
www.epa.ohio.gov

b. The outfall 002 pond no longer exists. This water now goes to the refuse disposal impoundment.

c. Outfall 003 effluent was clear and of low flow. This pond discharge does not flow much; most water from the coal handling area goes to the outfall 004 pond or the outfall 005 pond.

d. Outfall 004 effluent was clear and of low flow. Adjustment of pH here is reportedly never needed. About 500 gpd comes from washing down areas above.

e. Outfall 005 (pond 1C) had no discharge.

f. Outfall 006 (sewage treatment outfall) effluent looked clear and of low flow. The sand filters were clean and the aerobic system was operating.

g. Photos were taken. See attached.

4. Regarding the coal related samples, the permittee is not utilizing proper preservation techniques and chain-of-custody forms for the samples which are sent to the outside lab for analysis. Samples are reportedly collected and kept overnight for pick-up in the morning by the lab contractor. The samples are not immediately put on ice and are not necessarily being refrigerated each time. The samples (for TSS, Iron and Manganese) must immediately be refrigerated (iced in a cooler to < 6°C) upon collection, unless in the case of metals, the samples are preserved with HNO3. Regarding the sewage treatment plant sampling, chain of custody forms are reportedly not utilized.

5. Regarding the coal related outfall sampling, Buckingham is often reporting pH analysis results which are provided by the Ream & Haager Laboratory. The pH results which the outside lab provides cannot be utilized for DMR reporting purposes. Only pH results which are obtained from immediate on-site analysis (within 0.25 hours) are acceptable for DMR reporting purposes. Buckingham Coal Co. sometimes reports pH results obtained on-site with the use of a Hach 17-N device. This pH analysis method is not an approved method for this. Only an electrode/electrometric method is acceptable for DMR reporting purposes.

6. On November 30, 2011, I observed the following regarding each outfall and area:

a. Outfall 001 effluent (referred to as ODNR pond #6) was slightly cloudy in appearance (although the water was not sampled) and had a good flow and steady flow exiting to pond 6A. Pond 6A effluent travels to pond 6C, then to pond #7, before exiting to the unnamed tributary of Dotson Creek. Effluent to the unnamed tributary appeared clear and was of a steady low flow. The appearance of all of the above described ponds was slightly grayish in color.

b. Outfall 003 effluent was clear and of very low flow.

c. Outfall 004 effluent was clear, of steady but low flow. The receiving ditch/stream appeared fine.

d. Outfall 005 effluent was clear and just a trickle of flow.

e. Outfall 006 effluent was clear but of very low flow (trickle). The sand filters were all clean and the aerobic system running.

f. Along the beltline at the north end, some small accumulations of coal pieces could be seen on the ground, in an area where storm runoff goes to a pond which is not an NPDES regulated pond. Also, some water runoff in a ditch along the north end of the belt line appeared to have coal contamination and this water goes to the nearby stream without the benefit of treatment in a pond. This coal material should be cleaned up and not allowed to accumulate.

g. Photos were taken. See attached.

Attached is a copy of the inspection report, as well as a copy of the general lab criteria report. Overall the facility appeared to be in compliance with the NPDES permit on both of the inspection dates listed above. Buckingham Coal Co. should take the appropriate actions to address items 4 and 5 above.

Please respond to this letter within 14 days of the date of this letter.

Sincerely,

Dan Messerly

Dan Messerly
District Staff Engineer
Division of Surface Water

DM/dh

Enclosures

c: Jeff McClain, Buckingham Coal Company
c: Tara Wilson, Linn Engineering

NPDES
Compliance Inspection Report

A. NATIONAL DATA SYSTEM CODING

Permit No.	NPDES No.	Date	Inspection Type	Inspector	Facility Type
0IL00144*CD	OH0135151	April 18, 2011	C	S	2

B. FACILITY DATA

Name & Location of Facility Inspected	Entry Time	Permit Effective Date
Buckingham Coal Co., #6 Underground Mine Township Road 295 Monroe Township, Perry County	a.m.	June 1, 2008
	Exit Time	**Permit Expiration Date**
	5 p.m. - 6 p.m.	October 31, 2011

Name(s) & Title(s) of On-Site Representative(s)				Phone Number(s)
Jeff McClain, Property Manager				(740) 347-4565
Name, Address, & Title of Responsible Official				**Phone Number**
Ronald Bird, Executive Vice President Office Mailing:	Buckingham Coal Co. P.O. Box 400 Corning, Ohio 43730	Office Location:	Buckingham Coal Co. 14755 T.R. 295 SE Glouster, Ohio	(740) 347-4565

C. AREAS EVALUATED DURING INSPECTION

S	Permit	S	Flow Measurement	N/A	Pretreatment
S	Records/Reports	N/A	Laboratory	N/A	Compliance Schedules
S	Operations & Maintenance	S	Effluent/Receiving Waters	S	Self-Monitoring Program
S	Facility Site Review	N/A	Sludge Storage/Disposal		Other
N/A	Collection System				

(S = Satisfactory; M = Marginal; U = Unsatisfactory; N = Not Evaluated; N/A = Not Applicable)

D. SUMMARY OF FINDINGS/COMMENTS (attach additional sheets if necessary)

See attached letter, photos, and lab criteria report.

Dan Messerly

Dan Messerly, Inspector, Ohio EPA, Southeast District Office — Date: 1/4/12

Jennifer M. Witte, Reviewer, Ohio EPA, Southeast District Office — Date

NPDES
Compliance Inspection Report

A. NATIONAL DATA SYSTEM CODING

Permit No.	NPDES No.	Date	Inspection Type	Inspector	Facility Type
0IL00144*CD	OH0135151	November 30,, 2011	R	S	2

B. FACILITY DATA

Name & Location of Facility Inspected	Entry Time	Permit Effective Date
Buckingham Coal Co., #6 Underground Mine Township Road 295 Monroe Township, Perry County	~12:00 p.m.	June 1, 2008
	Exit Time	**Permit Expiration Date**
	4:00 p.m.	October 31, 2011

Name(s) & Title(s) of On-Site Representative(s)				Phone Number(s)
Jeff McClain, Property Manager				(740) 347-4565
Name, Address, & Title of Responsible Official				**Phone Number**
Ronald Bird, Executive Vice President Office Mailing:	Buckingham Coal Co. P.O. Box 400 Corning, Ohio 43730	Office Location:	Buckingham Coal Co. 14755 T.R. 295 SE Glouster, Ohio	(740) 347-4565

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N/A	Collection System				

(S = Satisfactory; M = Marginal; U = Unsatisfactory; N = Not Evaluated; N/A = Not Applicable)

D. SUMMARY OF FINDINGS/COMMENTS (attach additional sheets if necessary)

See attached letter and photos.

Dan Messerly — 1/4/12

Dan Messerly, Inspector, Ohio EPA, Southeast District Office — Date

Jennifer M. Witte — 1/4/12

Jennifer M. Witte, Reviewer, Ohio EPA, Southeast District Office — Date

General Lab Criteria

Facility: Buckingham Coal Co., #6 Mine, 0IL00144*CD, April 18, 2011

Criteria	Standard Methods Requirement			Rating
Balance		**Acceptable?**		
• Standard Weights	• Either NIST Class s or ASTM/ANSI Class 1 weights[1,2]	☐ Yes	☐ No	
• Calibration Frequency/ Documentation	• Calibration verification required at least once each day the balance is used[3]	☐ Yes	☐ No	
• Cleanliness, air movement, vibration	• Cleanliness of balance is a must and air movement and vibration needs to be kept to a minimum[1]	☐ Yes	☐ No	
• Other	• Service and recalibrate annually (manufacturer representative or comparable)[1]	☐ Yes	☐ No	
	• Must be able to measure to 0.1 grams[4]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
	• Log book maintained[6]	☐ Yes	☐ No	
Comments: N/A				

Criteria	Standard Methods Requirement			Rating
Drying Oven (Suspended Solids)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature recorded with each use[4]	☐ Yes	☐ No	
	• Log book maintained[6]	☐ Yes	☐ No	
• Calibration Frequency/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]. Correction factor posted on thermometer/equipment[1]	☐ Yes	☐ No	
• Other	• Thermometer temperature in 0.1°C increments[5]	☐ Yes	☐ No	
	• Acceptable temperature range is 103° – 105°F[4]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
Comments: N/A				

Criteria	Standard Methods Requirement			Rating
pH Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3]	☒ Yes	☐ No	A
	• Log book maintained[9]	☐ Yes	☒ No	
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket anticipated result[7]	☐ Yes	☒ No	
• Slope Documentation/ Acceptability	• Slope acceptable range indicated on benchsheet[2]	☐ Yes	☒ No	
• Buffer Expiration Date	• Buffers must not be expired	☐ Yes	☐ No	
• Other	• Instrument manual available	☐ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[8]	☐ Yes	☐ No	
Comments: Use Hach Model 17-N for analysis for pH (colorometric) Also have Eutech Oakton ISO 900 electronic pH meter which they do not use. (Have 4.0, 7.0, 10.0 buffers to calibrate Eutech meter) Sewage treatment palnt operator uses his own pH and D.O. compliant meters (Wisecarver Environmental)				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Dissolved Oxygen Meter		**Acceptable?**		
• Calibration Method	• Air or known DO calibration method[10]	☒ Yes	☐ No	A
	• Calibration per manufacturer specification[10]	☒ Yes	☐ No	
• Calibration Frequency/ Documentation	• Logbook maintained[9]	☐ Yes	☒ No	
	• Calibration verification required at least once each day the meter is used. Instrument self-calibrates.[3]	☒ Yes	☐ No	
• Other	• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)[11]	☐ Yes	☐ No	
	• Instrument manual available	☒ Yes	☐ No	
Comments: Wisecarver Environmental collects the sewage treatment plant samples, and has their own D.O. meter (Yellow Springs model).				

Criteria	Standard Methods Requirement			Rating
Incubator (CBOD/E-Coli)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature checked/recorded twice daily for each shelf in use[1]	☐ Yes	☐ No	
	• Temperature checked/recorded daily[2] (CBOD)	☐ Yes	☐ No	
	• Acceptable temperature range (CBOD) is 20°C ±1.0°[12]	☐ Yes	☐ No	
	• Acceptable temperature range (E-Coli) is 35°C ±0.5°[22]	☐ Yes	☐ No	
	• Logbook maintained[9]	☐ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☐ No	
	• Temperature correction information posted on incubator[1]	☐ Yes	☐ No	
• E-Coli can use multiple tubes (five 20 ml or ten 10 mg), or mfg's multi-well tray	• E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb)[23]	☐ Yes	☐ No	
• Other	• Instrument manual available	☐ Yes	☐ No	
	• Temperature Log (thermometer reads to 0.1 Celsius)[5]	☐ Yes	☐ No	
Comments: N/A				

Criteria	Standard Methods Requirement			Rating
Refrigerator		**Acceptable?**		
• Temperature Recordkeeping	• Temperature Log (thermometer reads to 0.1 Celsius)[5]	☐ Yes	☒ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	
• Other	• Thermometer held in water bath[1]	☐ Yes	☐ No	
	• Refrigerator temperature ≤6° Celsius[13]	☐ Yes	☐ No	
	• Do not store volatile solvents, food, or beverages[14]	☐ Yes	☐ No	
Comments: Not Evaluated Coal related sampling done Wednesday, picked up by Ream & Haager on Thursday morning. During hot weather, samples are stored overnight in cooler or in the refrigerator. Sewage treatment system samples are put on ice immediately by Wisecarver Environmental. MASI analyzes them.				

Criteria	Standard Methods Requirement			Rating
Chlorine Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• pH/millivolt meter read to 0.1 mV[15]	☐ Yes	☐ No	A
	• Calibration verification required for testing over long period of	☒ Yes	☐ No	

General Lab Criteria

	time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3]			
• Calibration Method	• Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters or calibration per manufacturer specification[16]	☐ Yes	☐ No	
	• Standards used for calibration not expired	☐ Yes	☐ No	
• Slope Documentation/ Acceptability	• Calibration curve (acceptable slope)	☐ Yes	☐ No	
• Other	• Electrode free of deposits and foreign material	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☒ No	
	• Instrument manual available	☒ Yes	☐ No	
Comments: Wisecarver Environmental collects STP samples and utilizes Hach field test kit.				

Criteria	Standard Methods Requirement			Rating
Ammonia Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)[3]	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
• Slope Acceptability	• Verify calibration slope is acceptable (per mfg. spec.)	☐ Yes	☐ No	
• Calibration Method	• Standards used for calibration (3 ammonia solutions of 10 mg/l, 1 mg/l, and 0.1 mg/l) or per mfg. spec.[17]	☐ Yes	☐ No	
	• Standards used for calibration not expired	☐ Yes	☐ No	
• Other	• Electrode free of deposits and foreign material	☐ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[18]	☐ Yes	☐ No	
	• Instrument manual available	☐ Yes	☐ No	
Comments: N/A Wisecarver Environmental collects STP samples and MASI analyzes them.				

Criteria	Standard Methods Requirement			Rating
Sample Collection/Handling		**Acceptable?**		
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed)[19]	☒ Yes	☐ No	M
• Chain of Custody	• Chain of custody (description, date, time, signature)[19]	☐ Yes	☒ No	
• Other	• Composite samples refrigerated during sample collection[14]	☐ Yes	☐ No	
	• Equipment blanks utilized[14]	☐ Yes	☐ No	
	• SOP for cleaning of sampling equipment	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
Comments: For coal related samples, sample bottles are labeled but no chain of custody forms used. For STP samples, bottles are labeled and lab form used, but no chain of custody form is used.				

Criteria	Standard Methods Requirement			Rating
Desiccator		**Acceptable?**		
• General Criteria	• Properly working seals	☐ Yes	☐ No	
	• Desiccant fresh (blue color)	☐ Yes	☐ No	
• Documentation	• Log book being maintained[9]	☐ Yes	☐ No	
Comments: N/A				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Bench Sheets		**Acceptable?**		
• General Criteria	• Date(s)[2]	☐ Yes	☐ No	
	• Analyst initials[2]	☐ Yes	☐ No	
	• Blue or black ink pen[2]	☐ Yes	☐ No	
	• Calibration information[2]	☐ Yes	☐ No	
	• Equations, calculations, units for all measurements, notations, and results present[2]	☐ Yes	☐ No	
	• Corrections, single line through, initialed and dated[2]	☐ Yes	☐ No	
Comments: N/A				

Criteria	Standard Methods Requirement			Rating
Hot Water Bath (Fecal Coliform/E. Coli)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature Log (thermometer reads 0.2° C)[21]	☐ Yes	☐ No	
	• Incubator temperature 44.5° C ±0.2° [21/24]	☐ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth)[1,5]	☐ Yes	☐ No	
Comments: N/A				

Criteria	Standard Methods Requirement			Rating
Autoclaves/Steam Sterilizers		**Acceptable?**		
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C[25]	☐ Yes	☐ No	
	• 10 to 30 minutes time based on material being sterilized[26]	☐ Yes	☐ No	
• Documentation	• Verify the autoclave temperature weekly by using a maximum registering thermometer (MRT) to confirm that 121°C has been reached as measured in the exhaust[1]	☐ Yes	☐ No	
	• Date, contents, sterilization time and temperature, total time in autoclave, and analyst's initials should be recorded each time the autoclave is used[1]	☐ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☐ No	
	• Log book being maintained[9]	☐ Yes	☐ No	
• Performance Checks	• Test monthly for efficacy using a biological such as commercially available *Geobacillus stearothermophilus* in spore strips, suspensions, or capsules[1]	☐ Yes	☐ No	
Comments: N/A				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Final Effluent Temperature Monitoring		**Acceptable?**		
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer. Device has self-calibration [1,2]	☐ Yes	☒ No	**A**
	• Thermometer reads in increments of at least 0.1°C[5]	☒ Yes	☐ No	
	• Log book being maintained[2]	☐ Yes	☒ No	
Comments: Wisecarver Environmental collects STP samples Temperature taken with infrared device.				

Number of Criteria Rated:	**Acceptable**	4
	Marginal	1
	Unacceptable	0
	Total Number of Areas Rated	5

Acceptable Ratings – No action required (recommend SOP's written or updated, perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, written response not required).	
Marginal Ratings – Improvements required, written response required (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response).	
Unsatisfactory Rating – Improvements required, written response required, NOV issued (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response to NOV).	
Consider recommending PAI Audit from DES when:	>60% of ratings are Marginal >45% of ratings are a combination of Marginal or Unacceptable >30% of ratings are Unacceptable

General Lab Criteria

Notation of Referenced Method

1	Method 9020-B, Item 4	14	Method 1060A, Item 1
2	Method 1020-A, Item 1	15	Method 4500-Cl I, Item 2
3	Method 1020-B, Item 10	16	Method 4500-Cl I, Item 4
4	Method 2540-B, Item 2	17	Method 4500-NH3 D, Item 4
5	Method 2550-B, Item 1	18	Method 4500-NH3 D, Item 2
6	Method 1020-B, Item 1	19	Method 1060-B, Item 2
7	Method 4500-H B, Item 4	20	Method 1060-B, Item 1
8	Method 4500-H B, Item 2	21	Method 9222D, Item 1
9	Method 1020-B, Item 2	22	Method 9223 B, Item 2
10	Method 4500-O B, Item 3	23	Method 9223 B, Item 3
11	Method 4500-O G, Item 3	24	Method 1603, Item 2
12	Method 5210-B, Item 5	25	Method 9030-B, Item 3
13	CFR 136.3, Table II	26	Method 9020 B, Table IV

Equipment Logbook Content – All maintenance performed on a piece of equipment should be documented in the logbook. This should include parts replacement and routine maintenance activities. Entries should include date, maintenance performed and initials of person making entry.

Preservation and Holding Times

Parameter	Container	Min. Sample Size (mL)	Sample Type	Preservation	Maximum Storage Time	
					Recommended	Regulatory
BOD / CBOD	P, G	1000	G, C	Refrigerate ≤6°C	6h	48h
TSS	P, G	200	G, C	Refrigerate ≤6°C	7 d	7 d
pH	P, G	50	G	Analyze immediately	0.25h	0.25 h
NH3-N	P, G	500	G, C	Analyze as soon as possible or add H_2SO_4 to pH <2, Refrigerate ≤6°C	7 d	28 d
TRC	P, G	500	G	Analyze immediately	0.25h	0.25 h
DO (electrode)	G, BOD Bottle	300	G	Analyze immediately	0.25h	0.25 h
Temperature	P, G	--	G	Analyze immediately	0.25h	0.25 h
Metals, general	P, G	1000	G, C	For dissolved filter immediately and add HNO_3 to pH <2	6 months	6 months
Purgeables by purge and trap	G (PTFE lined lid)	40 (X2)	G	HCl to pH <2, Refrigerate ≤6°C	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	G, C	Refrigerate ≤6°C	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate ≤6°C	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate ≤10°C If chlorine present, add sodium thiosulfate tablet	6 hrs transport. Start analysis within 2 hrs of receipt in lab.	
Oil and Grease	G	1000	G	HCl or H_2SO_4 to pH <2, Refrigerate ≤6°C	28 d	28 d

General Lab Criteria

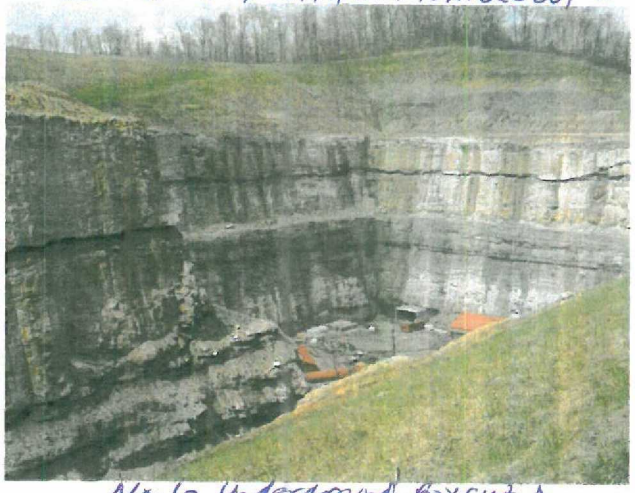
Approved Standard Methods	
CBOD / BOD 5 Day	Std Methods 5210-B
Ammonia, Selective Electrode Method	Std Methods 4500-NH3 D
Total Residual Chlorine, DPD Colorimetric Method	Std Methods 4500-Cl G
Total Suspended Solids, Dried at 103-105°C	Std Methods 2540-D
Dissolved Oxygen, Membrane Electrode Method	Std Methods 4500-O G
pH, Electrometric Method	Std Methods 4500-H+ B
Fecal Coliform, Membrane Filter Procedure	Std Methods 9222D
Escherichia Coli, Enzyme Substrate Test	Std Method 9223B
Escherichia Coli Membrane Filtration Procedure	EPA Method 1603
Oil and Grease	USEPA 1664A or Std Methods 5520B
Metals, general	USEPA 200, Std Methods 3111B or C, or 3120B
Volatiles (Purgeables by purge and trap)	USEPA 6210, Std Methods 624
Semi-Volatiles (Base/Neutrals and acids)	USEPA 6410, Std Methods 625
Pesticides	USEPA 6410 and 6630, Std Methods 608

Buckingham Coal No. 6 Underground 01L00144*CD Apr. 18 2011 Perry County AQM.

ODNR Pond 6 with exit to NPDES 001 ^

Pond 6 to NPDES 003 ^

Pond 1C (to NPDES 025) ~



No. 6 Underground Box cut ^

ODNR Pond 6A ^

Pond 1C (to NPDES 005)

NPDES 005 ^

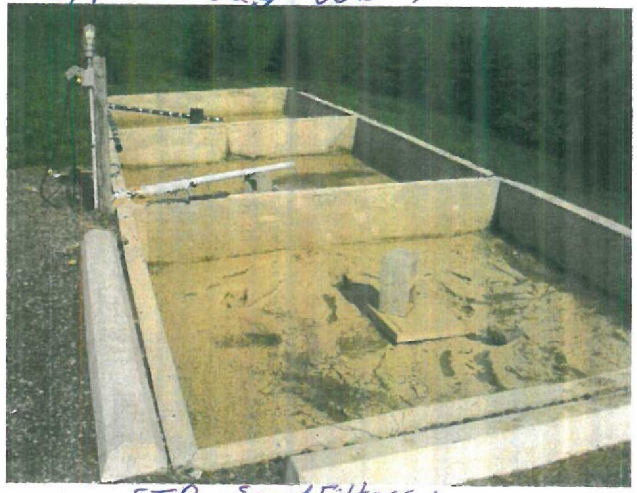
ODNR Pond 6C ^

Perry County
Buckingham Coal No. 6 Undgr.
OIL00144*CD
CEI Apr 18, 2011
D.M.

NPDES 004 ^

STP NPDES 006 ^

Pond to NPDES 004 ^



STP Sand Filters ^

STP ^

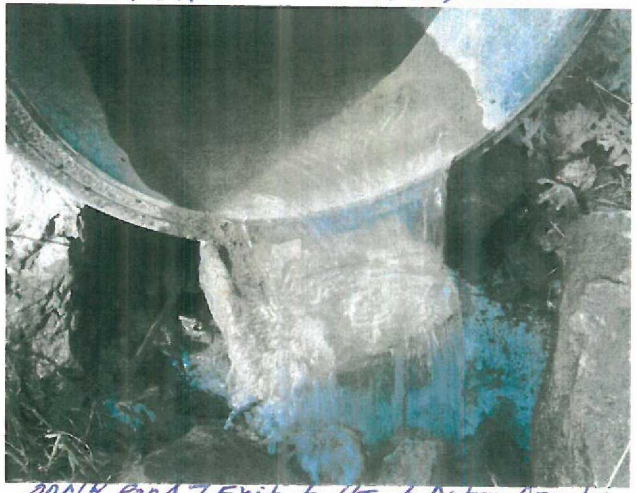
NPDES 003 ^

STP to NPDES 006 ^

STP ^

Buckingham Coal No. 6 Underground OIL00144*CD Nov. 30, 2011 Perry County A.9m.

ODNR Pond 6A Exit ^



ODNR Pond 7 Exit to UT to Dotson Creek ^

North Belt Line ^

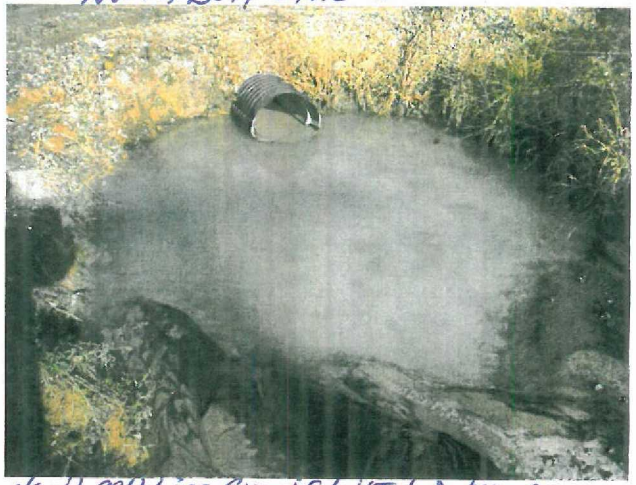
Pond 6 Exit to NPDES 001 ^

ODNR Pond 7 ^

North Belt Line ^

ODNR Pond 6 with Exit to NPDES 001 ^

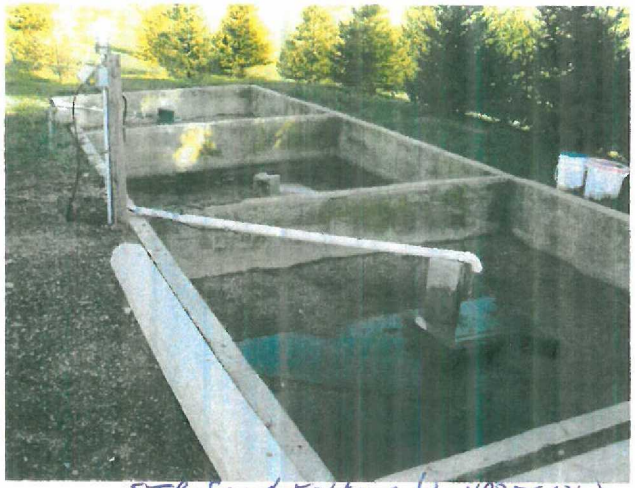
Upper End of ODNR Pond 6 C ^



North Belt Line Run off to UT to Dotson Cr.

Perry County
Buckingham Coal No. 6
Underground
01L00144*CD
CEI Nov. 30, 2011
D.J.M.

Pond 1C ↗ (to NPDES 005)



STP Sand Filters (to NPDES 006)

NPDES 003 ↗

NPDES Outfall 005 ↗

NPDES 006 to Pond

Pond to NPDES 003 ↗

Pond 1C Exit to NPDES 005 ↗

STP Outfall NPDES 006 ↗