NORTHAMERICAN COAL CORPORATION
FALKIRK MINE

THE FALKIRK MINING COMPANY
2801 1st St. SW
P.O. Box 1087
Underwood, ND 58576-1087
(701) 442-5751 • Fax (701) 250-2473

May 4, 2009

Mr. James R. Deutsch
Director, Reclamation Division
ND Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505-0480

RE: Questions Concerning Construction and Reconstruction of P-E13-01

Dear Mr. Deutsch:

The items listed below address the questions in the correspondence sent by your office dated April 27, 2009.

1. Please describe how the fill was compacted around the barrel in the construction of the embankment.

The drop inlet spillway was backfilled using a scraper. No manually operated power tampers or plate vibrators were used. A copy of the compaction testing results from Midwest Testing Laboratory is enclosed for your review. The test results indicate that compaction met the specified density requirements.

2. Please describe practices which were taken at the time of construction to ensure that a proper interface was formed between the virgin ground (topsoil stripped) and the embankment materials.

As noted in the construction inspection report, the drop inlet spillway bed was constructed with a scraper and blade. It was not noted in the construction log if scarification of the embankment footprint was performed. Typically, scarification of the embankment footprint is performed with the blade ripper.

3. In addition, please explain any changes which are planned for the reconstruction of the embankment. For instance, indicate if anti-seep collars will be installed or if the elevation or slope of the barrel will be changed.

No changes will be made to the Impoundment Construction Guidelines in Permit NAFK-8405 as stated in the P-E13-01 Investigation Report dated April 14, 2009. The Falkirk

Mine will follow through with the use of hand and mechanical compaction equipment around the barrel of the drop-inlet spillway during reconstruction. There will be no anti-seep collars added or design changes to the drop-inlet spillway elevation or slope. Additional fill material will be placed around the riser. The spillway barrel will be replaced with a new barrel. After reconstruction is completed, an as-built survey of the pond embankment will be made and the as-built drawing will be updated accordingly.

As stated in the P-E13-01 Investigation Report dated April 14, 2009, the exact cause of the piping feature is difficult to determine. The failure likely can be attributed to either the properties of the fill material that was placed, the degree of compaction, or a combination of both.

If you have any questions, feel free to contact me at 701-250-2495.

Sincerely,

THE FALKIRK MINING COMPANY

David Beck

David Beck, PE
Senior Civil Engineer

Enc.

MIDWEST TESTING LABORATORY

1805 Hancock Dr. / P.O. Box 2084 / Bismarck, North Dakota 58502
Phone (701) 258-2833 / Fax (701) 258-2857

REPORT OF: DENSITY TESTS OF COMPACTED FILL

PROJECT: Falkirk Pond P-E13-01
Underwood, North Dakota

DATE: November 6, 2007

REPORTED TO: The Falkirk Mining Co
PO Box 1087
Underwood, ND 58576-1087

COPIES:

PROJECT NO: B8762

TEST NUMBER:	1	2	3	4
DATE TAKEN:	11-2-07	11-2-07	11-2-07	11-2-07
LOCATION:	Pond embankment, Sta 1+20, On centerline	Pond embankment, Sta 1+50, 4' Right of centerline	Pond embankment, Sta 1+25, On centerline	Pond embankment, Sta 1+20, 2' Right of centerline
DEPTH BELOW FINAL ELEVATION:	9'	9'	8'	7'
SOIL CLASSIFICATION:	SANDY LEAN CLAY-brown (CL)			
FIELD DENSITY DETERMINATION:	Nuclear Density Method, ASTM:D2922-96			
DRY DENSITY (PCF):	104	104.5	103	106
MOISTURE CONTENT (%):	15.6	15.7	17.7	17.4
LABORATORY MOISTURE – DENSITY RELATION:	Standard Proctor, ASTM:D698-00a, Method "A"			
MAXIMUM DRY DENSITY (PCF):	106.5	106.5	106.5	106.5
OPTIMUM MOISTURE (%):	17.5	17.5	17.5	17.5
TEST RESULTS:				
RELATIVE DENSITY (%):	97.5	98	96.5	99.5
SPECIFIED DENSITY (%):	95	95	95	95
SPECIFIED MOISTURE (%):	15.5-20.5	15.5-20.5	15.5-20.5	15.5-20.5

REMARKS: The above test locations were selected by Midwest Testing Laboratory, Inc. Compaction meets the above specified density requirements in the above test areas. Moisture meets specifications in the above test areas.

SIGNED _____

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COPIES:

PROJECT NO: B8762

TEST NUMBER:	5	6	7	8
DATE TAKEN:	11-2-07	11-2-07	11-2-07	11-2-07
LOCATION:	Pond embankment, Sta 1+55, 4' Right of centerline	Pond embankment, Sta 1+60, 5' Right of centerline	Pond embankment, Sta 1+10, 7' Right of centerline	Pond embankment, Sta 1+80, 3' Right of centerline
DEPTH BELOW FINAL ELEVATION:	8'	7'	6'	6'
SOIL CLASSIFICATION:	SANDY LEAN CLAY-brown (CL)			
FIELD DENSITY DETERMINATION:	Nuclear Density Method, ASTM:D2922-96			
DRY DENSITY (PCF):	104.5	103.5	106	103
MOISTURE CONTENT (%):	16.4	17.3	17.4	17.9
LABORATORY MOISTURE – DENSITY RELATION:	Standard Proctor, ASTM:D698-00a, Method "A"			
MAXIMUM DRY DENSITY (PCF):	106.5	106.5	106.5	106.5
OPTIMUM MOISTURE (%):	17.5	17.5	17.5	17.5
TEST RESULTS:				
RELATIVE DENSITY (%):	98	97	99.5	96.5
SPECIFIED DENSITY (%):	95	95	95	95
SPECIFIED MOISTURE (%):	15.5-20.5	15.5-20.5	15.5-20.5	15.5-20.5

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TEST NUMBER:	9	10	11	12
DATE TAKEN:	11-2-07	11-2-07	11-2-07	11-2-07
LOCATION:	Pond embankment, Sta 1+20, On centerline	Pond embankment, Sta 1+70, 3' Right of centerline	Pond embankment, Sta 1+10, 2' Right of centerline	Pond embankment, Sta 1+90, On centerline
DEPTH BELOW FINAL ELEVATION:	5'	5'	4 ½'	4 ½'
SOIL CLASSIFICATION:	SANDY LEAN CLAY-brown (CL)			
FIELD DENSITY DETERMINATION:	Nuclear Density Method, ASTM:D2922-96			
DRY DENSITY (PCF):	106	105.5	105	106
MOISTURE CONTENT (%):	17.4	16.4	16.6	16.9
LABORATORY MOISTURE – DENSITY RELATION:	Standard Proctor, ASTM:D698-00a, Method "A"			
MAXIMUM DRY DENSITY (PCF):	106.5	106.5	106.5	106.5
OPTIMUM MOISTURE (%):	17.5	17.5	17.5	17.5
TEST RESULTS:				
RELATIVE DENSITY (%):	99.5	99	98.5	99.5
SPECIFIED DENSITY (%):	95	95	95	95
SPECIFIED MOISTURE (%):	15.5-20.5	15.5-20.5	15.5-20.5	15.5-20.5

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TEST NUMBER:	13	14	15	16
DATE TAKEN:	11-2-07	11-2-07	11-2-07	11-2-07
LOCATION:	Pond embankment, Sta 2+00, 2' Right of centerline	Pond embankment, Sta 1+20, 2' Left of centerline	Pond embankment, Sta 1+15, On centerline	Pond embankment, Sta 1+95, On centerline
DEPTH BELOW FINAL ELEVATION:	4'	4'	3'	3'
SOIL CLASSIFICATION:	SANDY LEAN CLAY-brown (CL)			
FIELD DENSITY DETERMINATION:	Nuclear Density Method, ASTM:D2922-96			
DRY DENSITY (PCF):	105	103	104	106
MOISTURE CONTENT (%):	18.4	17.9	18.3	17.4
LABORATORY MOISTURE – DENSITY RELATION:	Standard Proctor, ASTM:D698-00a, Method "A"			
MAXIMUM DRY DENSITY (PCF):	106.5	106.5	106.5	106.5
OPTIMUM MOISTURE (%):	17.5	17.5	17.5	17.5
TEST RESULTS:				
RELATIVE DENSITY (%):	98.5	96.5	97.5	99.5
SPECIFIED DENSITY (%):	95	95	95	95
SPECIFIED MOISTURE (%):	15.5-20.5	15.5-20.5	15.5-20.5	15.5-20.5

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TEST NUMBER:	17	18	19	20
DATE TAKEN:	11-2-07	11-2-07	11-2-07	11-2-07
LOCATION:	Pond embankment, Sta 1+80, On centerline	Pond embankment, Sta 1+10, 3' Left of centerline	Pond embankment, Sta 1+05, 2' Left of centerline	Pond embankment, Sta 1+95, 1' Right of centerline
DEPTH BELOW FINAL ELEVATION:	2'	2'	1'	1'
SOIL CLASSIFICATION:	SANDY LEAN CLAY-brown (CL)			
FIELD DENSITY DETERMINATION:	Nuclear Density Method, ASTM:D2922-96			
DRY DENSITY (PCF):	105.5	105	104.5	105
MOISTURE CONTENT (%):	16.9	18.6	16.6	17.7
LABORATORY MOISTURE – DENSITY RELATION:	Standard Proctor, ASTM:D698-00a, Method "A"			
MAXIMUM DRY DENSITY (PCF):	106.5	106.5	106.5	106.5
OPTIMUM MOISTURE (%):	17.5	17.5	17.5	17.5
TEST RESULTS:				
RELATIVE DENSITY (%):	99	98.5	98	98.5
SPECIFIED DENSITY (%):	95	95	95	95
SPECIFIED MOISTURE (%):	15.5-20.5	15.5-20.5	15.5-20.5	15.5-20.5

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PROJECT:	Falkirk Pond P-E13-01 Underwood, North Dakota	DATE:	November 6, 2007
REPORTED TO:	The Falkirk Mining Co PO Box 1087 Underwood, ND 58576-1087	COPIES:	
PROJECT NO:	B8762		

TEST NUMBER:	21	22
DATE TAKEN:	11-2-07	11-2-07
LOCATION:	Pond embankment, Sta 1+00, On centerline	Pond embankment, Sta 1+90, On centerline
DEPTH BELOW FINAL ELEVATION:	At grade	At grade
SOIL CLASSIFICATION:	SANDY LEAN CLAY-brown (CL)	
FIELD DENSITY DETERMINATION:	Nuclear Density Method, ASTM:D2922-96	
DRY DENSITY (PCF):	101	106
MOISTURE CONTENT (%):	18.1	17.2
LABORATORY MOISTURE – DENSITY RELATION:	Standard Proctor, ASTM:D698-00a, Method "A"	
MAXIMUM DRY DENSITY (PCF):	106.5	106.5
OPTIMUM MOISTURE (%):	17.5	17.5
TEST RESULTS:		
RELATIVE DENSITY (%):	95	99.5
SPECIFIED DENSITY (%):	95	95
SPECIFIED MOISTURE (%):	15.5-20.5	15.5-20.5

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