

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)	DATE: 3/5/86	SHEET OF 1 SHEETS
CONTRACTOR: Continental Drilling-U.S.	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT)	FT.
HOLE NO.: 1	DEPTH DRILLED (START OF SHIFT)	FT.
SURFACE ELEV.:	TOTAL DRILLED (DURING SHIFT)	FT.

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	57.0		RQD	Overburden	0.0	57.0
57.0	63.0	5.7	2.6	Gray Med. Hard Sandstone W/Badly Broken Stks.	57.0	67.5
63.0	67.5	2.9	.9	Gray Badly Broken Shale	67.5	73.5
67.5	72.0	2.4	0.0	Coal & Dark Gray Shale	73.5	74.5
72.0	73.5	1.4	0.0	Gray Badly Broken Shale	74.5	79.5
73.5	83.5	10.0	2.6	Dark Gray Shale	79.5	87.9
83.5	93.5	10.0	6.0	Dark Gray Shale W/Sandstone Streaks	87.9	93.5
93.5	103.5	10.0	8.7	Gr. Med. Hd. Sandstone W/Dk. Gr. Shale Stks.	93.5	111.2
103.5	113.5	9.7	5.0	Dark Gray Shale	111.2	113.0
				Wood	113.0	113.2
113.5	123.2	0.0	0.0	Void 10.0	113.2	123.2
				Gray Shale	123.2	123.7
				Coal	123.7	128.7
123.2	133.2	8.9	2.8	Gray Shale	128.7	133.2

Bottom of Hole 133.2  
 Top of Rock 57.0  
 Water Level 50.0  
 Lost Water 61.3

Tom Growden  
 DRILLER'S SIGNATURE

## CONTINENTAL DRILLING — U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5			DATE: 5/20/86		SHEET 1 OF 1 SHEETS	
CONTRACTOR: Continental Drilling-U.S. / DER			SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:			DEPTH DRILLED (END OF SHIFT) 142.0 FT.			
HOLE NO.: 2			DEPTH DRILLED (START OF SHIFT) 0 FT.			
SURFACE ELEV.:			TOTAL DRILLED (DURING SHIFT) FT.			
DRILLING RUNS ( FT )		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS ( DESCRIPTION )	DRILL TIME	
FROM	TO				START	STOP
0.0	51.0		RQD	Overburden	0.0	51.0
51.0	61.0	6.1	1.5	Gray Broken Sandstone	51.0	52.4
				Coal	52.4	53.2
				Gray Broken Sandstone	53.2	61.0
61.0	71.0	10.0	7.9	Gray Med. Hard Sandstone W/Shale Strks.	61.0	91.8
71.0	81.0	10.0	8.1	Dark Gray Shale	91.8	92.0
81.0	91.0	10.0	7.8	Coal	92.0	92.6
91.0	92.6	1.6	.6	Void	92.6	105.9
92.6	105.9	Void		Coal & Dark Gray Shale	105.9	106.7
105.9	114.0	7.2	.7	Gray Med. Hard Sandstone	106.7	107.3
				Dark Gray Shale W/Coal Streaks	107.3	117.5
114.0	124.0	10.0	4.3	Gray Shale	117.5	132.8
				Coal	132.8	133.5
124.0	134.0	10.0	7.2	Dark Gray Shale	133.5	134.0
				Coal	134.0	138.7
				Dark Gray Shale	138.7	139.9
134.0	142.0	8.0	.5	Gray Shale	139.9	142.0

Lost Water 92.6  
 Top of Rock 51.0  
 Bottom of Hole 142.0  
 Water Level 71.5  
 Cement Hole 61.0 - 51.0  
 1-94 Lb. bag

Tom Growden

DRILLER'S SIGNATURE

## CONTINENTAL DRILLING — U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5			DATE: 5/22/86		SHEET 1 OF 1 SHEETS	
CONTRACTOR: Continental Drilling-U.S.			SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:			DEPTH DRILLED (END OF SHIFT):		190.0 FT.	
HOLE NO.: 3			DEPTH DRILLED (START OF SHIFT):		0 FT.	
SURFACE ELEV.:			TOTAL DRILLED (DURING SHIFT):		FT.	
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	34.0			Overburden	0.0	34.0
34.0	44.0	4.0		Gray Sandstone W/Gray Clay Seams (B. Broken)	34.0	69.5
44.0	54.0	3.9		Dark Gray Sandstone W/Coal Streaks	69.5	74.1
54.0	64.0	4.0		Flush Material W/Coal	74.1	81.0
64.0	73.5	5.3		Dark Gray Shale W/Sandstone Streaks	81.0	90.6
73.5	80.5	4.8		Gr. Sandstone W/Shale Streaks	90.6	110.7
80.5	84.0	3.5		Dark Gray Shale	110.7	115.8
84.0	94.0	10.0		Coal	115.8	116.7
94.0	104.0	10.0		Dark Gray Shale	116.7	119.0
104.0	114.0	10.0		Coal	119.0	124.8
114.0	124.0	10.0		Void	124.8	130.1
				Coal	130.1	131.3
				Void	131.3	132.5
124.0	134.0	2.6		Dark Gr. Shale W/Coal Streaks	132.5	136.7
134.0	144.0	10.0		Lt. Gray Shale W/Dk Gray Streaks	136.7	153.1
144.0	154.0	10.0		Lt. Gray Shale W/Sandstone Streaks	153.1	164.0
154.0	164.0	10.0		Dark Gray Shale	164.0	167.2
				Lt. Gray Shale W/Dark Gray Streaks	167.2	173.6
164.0	174.0	9.6		Void	173.6	182.1
				Loose Coal	182.1	183.0
174.0	186.0	3.5		Dk Gray Shale, Badly Broken	183.0	188.1
186.0	190.0	4.0		Lt. Gray Sandstone	188.1	190.0

Bottom of Hole 190.0  
 Water Level 49.2  
 Lost Water 57.4  
 Cement Hole 44.0 - 34.0  
 1-95 Lb. Bag

8 Core Boxes

Harvey Cole

DRILLER'S SIGNATURE

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5			DATE:			SHEET 1 OF 1 SHEETS	
CONTRACTOR:			SHIFT: LOCATION:				
BID ITEM NO.:			DEPTH DRILLED (END OF SHIFT) 18.5 FT.				
HOLE NO.: 3-A			DEPTH DRILLED (START OF SHIFT) 0 FT.				
SURFACE ELEV.:			TOTAL DRILLED (DURING SHIFT) FT.				
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME		
FROM	TO				START	STOP	
0.0	11.1			Overburden			
11.1	15.5			Gray Shale			
15.5	18.5			Coal (loose)			

Hit coal 15.5  
They think it was old wash tunnel.  
Inspector stopped hole.

Lost Water 15.5  
Cement Hole 18.5 - 8.5  
1-94 Lb. bag

Harvey Cole  
DRILLER'S SIGNATURE

## CONTINENTAL DRILLING — U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5			DATE: 5/14/86		SHEET <u>1</u> OF <u>1</u> SHEETS	
CONTRACTOR:			SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:			DEPTH DRILLED (END OF SHIFT) 168.0 FT.			
HOLE NO.: 4			DEPTH DRILLED (START OF SHIFT) 0 FT.			
SURFACE ELEV.:			TOTAL DRILLED (DURING SHIFT) FT.			
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	30.0			Overburden	0.0	30.0
30.0	35.0	4.6		Gray Sandstone	30.0	53.2
35.0	45.0	9.6		Dark Gray Shale	53.2	56.1
45.0	54.0	8.8		Coal	56.1	56.9
54.0	55.0	1.0		Light Gray Shale W/Clay Seams	56.9	75.1
55.0	60.0	4.4		Gray Sandstone W/Dk. Gray Shale Seams	75.1	92.6
60.0	65.2	5.2		Dark Gray Shale	92.6	97.8
65.2	75.2	10.0		Coal	97.8	98.7
75.2	85.2	10.0		Void	98.7	111.3
85.2	95.2	10.0		Coal (loose)	111.3	111.9
95.2	105.2	3.5		Dark Gray Shale W/Coal Streaks	111.9	114.4
105.2	115.2	3.9		Lt. Gray Shale W/Dark Gray Shale Stks.	114.4	127.1
115.2	125.2	10.0		Coal	127.1	127.7
125.2	135.2	10.0		Dk. Gray Shale W/Coal Stks.	127.7	129.4
135.2	145.2	10.0		Coal	129.4	130.1
145.2	155.2	10.0		Lt. Gray Shale W/Dk. Gray Streaks	130.1	153.0
				Coal	153.0	155.2
				Binder, Dark Gray Shale	155.2	155.7
				Coal	155.7	158.3
				Dark Gray Shale W/Coal Streaks	158.3	160.2
155.2	165.2	10.0		Coal	160.2	166.0
165.2	168.0	1.9		Dark Gray Shale	166.0	168.0
<p>Lost Water 33.8  Water Level 32.4  Bottom of Hole 168.0  Cement Hole 40.0 - 30.0  1-94 Lb. bag  9 Core Boxes</p> <p style="text-align: right;">Harvey Cole  DRILLER'S SIGNATURE</p>						

**CONTINENTAL DRILLING COMPANY DRILLING LOG**

PROJECT: <b>OSM 40(5123)101.5</b>	DATE:	SHEET <u>1</u> OF <u>1</u> SHEETS
CONTRACTOR:		SHIFT: LOCATION: <b>Pittston, PA Site 3</b>
BID ITEM NO.:	DEPTH DRILLED (END OR SHIFT) <b>3.5</b> FT.	
HOLE NO.: <b>4-A</b>	DEPTH DRILLED (START OF SHIFT) <b>0</b> FT.	
FIELD BOOK NO.: PAGE:		TOTAL DRILLED (DURING SHIFT) FT.

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	ROCK TYPE (FT.)	
FROM	TO				FROM	TO
0.0	1.0			Blacktop - Brick Street		
1.0	3.5			Cobbles, Sand & Gravel		

Inspector stopped hole because of water running thru foundation of building.  
 Inspector said to forget about this hole.

Lost Water 1.0

Harvey Cole  
 DRILLER'S SIGNATURE

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5		DATE: 4/9/86	SHEET OF 1 SHEETS
CONTRACTOR: Continental Drilling-US		SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:		DEPTH DRILLED (END OF SHIFT)	184.5 FT.
HOLE NO.: 5		DEPTH DRILLED (START OF SHIFT)	0 FT.
SURFACE ELEV.:		TOTAL DRILLED (DURING SHIFT)	FT.

DRILLING RUNS ( FT )		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS ( DESCRIPTION )	DRILL TIME	
FROM	TO				START	STOP
0.0	44.0		RQD	Overburden	0.0	44.0
44.0	54.0	7.4	1.6	Gray Broken Sandstone	44.0	53.6
54.0	64.0	7.8	3.0	Gray Badly Broken Shale	53.6	72.2
64.0	74.0	8.0	.4	Gray Shale W/Sandstone Streaks	72.2	83.8
74.0	84.0	9.3	5.2	Gr. Med. Hard Sandstone W/Shale Streaks	83.8	103.2
84.0	94.0	10.0	7.6	Dark Gray Shale	103.2	107.7
94.0	104.0	10.0	6.6	Coal	107.7	127.9
104.0	114.0	10.0	2.4	Gray Sandy Shale	127.9	148.2
114.0	124.0	10.0	0.0	Dark Gray Shale & Coal	148.2	148.9
124.0	134.0	10.0	6.4	Gray Sandy Shale	148.9	168.6
134.0	140.5	6.5	4.7	Coal	168.6	170.5
140.5	150.5	10.0	4.3	Dark Gray Shale	170.5	171.0
150.5	160.5	10.0	7.9	Coal	171.0	173.5
160.5	170.5	10.0	8.9	Dark Gray Shale	173.5	174.4
170.5	180.5	10.0	2.8	Coal	174.4	180.3
180.5	184.5	4.0	4.0	Dark Gray Shale	180.3	181.8
				Gray Med. Hard Sandstone	181.8	184.5

Top of Rock 44.0  
 Bottom of Hole 184.5  
 Water Level 56.0  
 Cement Hole 54.0-44.0  
 1-80 Lb. Bag

Tom Growden  
 DRILLER'S SIGNATURE

**CONTINENTAL DRILLING COMPANY DRILLING LOG**

PROJECT: OSM 40(5123)101.5	DATE: 2/3/86	SHEET OF 1 2 SHEETS
CONTRACTOR: Continental Drilling-U.S.	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT) 173.5 FT.	
HOLE NO.: 6	DEPTH DRILLED (START OF SHIFT) 0 FT.	
FIELD BOOK NO.:	TOTAL DRILLED (DURING SHIFT) FT.	
PAGE:		

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	ROCK TYPE (FT.)	
FROM	TO				FROM	TO
0	37.1			Overburden	0	37.1
37.1	43.6	100%		Gray Sandstone	37.1	44.7
43.6	44.7	100%		Badly Broken Gray Sandstone & Shale	44.7	51.4
44.7	51.4	36%		Voids Not more than .1 through run		
51.4	53.6	22%		Broken Shale/Gravelly Gr. Sandstone & Shale	51.4	53.6
53.6	54.8	100%		Badly Broken Gray Shale	53.6	54.8
54.8	59.3	94%		Badly Broken Gray Sandstone	54.8	62.2
59.3	62.2	93%		Badly Broken Gray Shale	62.2	62.9
				Coal	62.9	63.4
				Coal & Clay	63.4	63.9
62.2	67.2	100%		Badly Broken Gray Shale	63.9	70.1
67.2	73.6	94%		Gray Shale	70.1	73.6
73.6	78.6	98%		Gray Sandy Shale	73.6	83.6
78.6	83.6	100%		Gray Sandstone/Shale Stks./Vertical Breaks	83.6	93.2
83.6	93.2	98%		Gray Sandstone W/Shale	93.2	103.2
93.2	103.2	100%		Lost Core Barrel in Mine	103.2	105.5
103.2	119.6			Void	105.5	119.6
119.6	123.6	93%		Gray Shale	119.6	130.3
123.6	133.6	100%		Gray Sandstone	130.3	138.2
133.6	143.6	100%		Gray Shale	138.2	149.1
				Gray Sandstone	149.1	153.2
143.6	153.6	98%		Gray Shale	153.2	153.6

Hole Caving, Ream Casing to 70.0  
 Hit Opening 14' Ream Casing to 119.6  
 Lost Core Barrel & 2' Run in Mine  
 Water Loss 104.4

Russell Pees

DRILLER'S SIGNATURE



CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5		DATE: 4/4/86	SHEET OF 1 SHEETS
CONTRACTOR: Continental Drilling-U.S.		SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:		DEPTH DRILLED (END OF SHIFT): 132.0 FT.	
HOLE NO.: 7		DEPTH DRILLED (START OF SHIFT): 0 FT.	
SURFACE ELEV.:		TOTAL DRILLED (DURING SHIFT):	FT.

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	52.0		RQD	Overburden	0.0	52.0
52.0	60.0	7.1	4.2	Gray Med. Hard Sandstone	52.0	60.0
60.0	63.5	2.6	.6	Gray Broken Med. Hard Sandstone	60.0	72.8
63.5	73.5	9.7	3.5	Gray Broken Shale	72.8	76.1
73.5	83.5	9.1	5.2	Gray Shale W/Sandstone Streaks	76.1	83.5
83.5	93.5	9.7	6.5	Gray Med. Hard Sandstone W/Shale	83.5	109.0
93.5	103.5	9.6	6.3	Dark Gray Shale	109.0	114.1
103.5	113.5	9.3	6.5	Coal	114.1	118.9
113.5	115.0	1.5	.9	Void 4.5	118.9	123.4
115.0	124.0	4.5	3.2	Coal	123.4	124.0
124.0	132.0	8.0	5.8	Dark Gray Shale	124.0	125.0
				Gray Sandy Shale	125.0	132.0

Top of Rock 52.0  
 Bottom of Hole 132.0  
 Dry Hole  
 Cement Hole 62.0 - 52.0  
 1-80 Lb. bag

Tom Growden  
 DRILLER'S SIGNATURE

## CONTINENTAL DRILLING — U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5			DATE: 3/24/86	SHEET OF 1 2 SHEETS		
CONTRACTOR: Continental Drilling-U.S.			SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:			DEPTH DRILLED (END OF SHIFT): 175.6 FT.			
HOLE NO.: 8			DEPTH DRILLED (START OF SHIFT): 0 FT.			
SURFACE ELEV.:			TOTAL DRILLED (DURING SHIFT): FT.			
DRILLING RUNS (FT.)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	61.0		RQD	Overburden	0.0	61.0
61.0	64.7	3.7	3.2	Gray Med. Hard Sandstone	61.0	65.8
				Coal W/Dark Gray Shale	65.8	67.5
64.7	72.0	5.8	.4	Gray Badly Broken Shale	67.5	86.2
72.0	74.0	1.8	0.0	Gray Med. Hard Broken Sandstone	86.2	94.0
74.0	84.0	9.5	3.2	Gray Med. Hard Sandstone W/Shale Streaks	94.0	107.9
84.0	94.0	10.0	2.7	Void	107.9	108.5
94.0	104.0	10.0	3.6	Gray Shale	108.5	109.1
				Void 1.2	109.1	110.3
				Gray Shale	110.3	111.4
104.0	114.0	5.6	0.0	Void 2.6	111.4	114.0
				Gray Shale	114.0	114.3
				Void .8	114.3	115.1
				Gray Shale	115.1	115.5
				Void 1.5	115.5	117.0
				Gray Shale	117.0	117.4
				Void 2.2	117.4	119.6
				Gray Shale	119.6	120.0
				Void .9	120.0	120.9
				Coal	120.9	123.5
114.0	124.0	4.8	0.0	Gray Shale	123.5	124.8
124.0	134.0	9.8	8.0	Gray Sandy Shale	124.8	153.2
<p>Top of Rock 61.0  Bottom of Hole 175.6  Cement Hole 71.0 - 61.0  1-80 Lb. Bag</p>						
					T. Growden	
					DRILLER'S SIGNATURE	

## CONTINENTAL DRILLING - U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5			DATE: 1/15/86 2/26/86		SHEET 1 OF 2 SHEETS	
CONTRACTOR: Continental Drilling-U.S.			SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:			DEPTH DRILLED (END OF SHIFT)		132.0 FT.	
HOLE NO.: 9			DEPTH DRILLED (START OF SHIFT)		0 FT.	
SURFACE ELEV.:			TOTAL DRILLED (DURING SHIFT) FT.			
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0	34.1			Overburden	0	34.1
34.1	39.1	90%		Broken Gray Sandstone	34.1	37.9
39.1	43.6	63%		Badly Broken Gray Sandstone	37.9	40.2
				Gray Sandstone	40.2	41.4
				Badly Broken Gray Sandstone/Mud Seams	41.4	43.6
43.6	47.6	80%		Broken Gray Sandstone	43.6	47.6
				Gray Sandstone	47.6	49.5
47.6	50.6	100%		Broken Gray Sandstone	49.5	50.6
50.6	53.6	60%		Badly Broken Gray Sandstone	50.6	57.9
53.6	56.9	98%		Broken Gray Shale	57.9	59.4
56.9	61.9	75%		Gray Broken Sandstone/Shale/Coal	59.4	61.9
61.9	63.6	0		Coal/Clay/Mud	61.9	63.6
				Coal & Clay	63.6	65.6
63.6	66.6	80%		Gray Shale	65.6	67.1
				Badly Broken Gray Shale	67.1	67.2
				Gray Shale	67.2	67.8
				Badly Broken Gray Shale	67.8	67.9
				Gray Shale	67.9	69.2
66.6	70.3	88%		Badly Broken Gray Shale	69.2	71.4
70.3	71.4	22%		Gray Shale	71.4	77.3
71.4	77.3	98%		Gray Shale/Sandstone Streaks	77.3	83.4
77.3	83.9			Gray Sandstone/Shale Streaks	83.4	83.9
<p>Water Loss 54.2  Water Loss 106.0  Plug Set At 44.0 Put 10' Cement in Hole-Backfill  Bottom of Hole 132.0</p>						
					<p>Russell Pees  DRILLER'S SIGNATURE</p>	

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5	DATE: 6/4/86	SHEET 1 OF 1 SHEETS
CONTRACTOR:	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT) 150.0 FT.	
HOLE NO.: 10	DEPTH DRILLED (START OF SHIFT) 0 FT.	
SURFACE ELEV.:	TOTAL DRILLED (DURING SHIFT) FT.	

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
					START	STOP
				Overburden	0.0	150.0

Cement Hole 150.0 - 140.0  
 1-95 Lb bag

Harvey Cole  
 DRILLER'S SIGNATURE

CONTINENTAL DRILLING COMPANY DRILLING LOG

PROJECT: OSM 40(5123)101.5	DATE: 3/12/86	SHEET <u>1</u> OF <u>1</u> SHEETS
CONTRACTOR:	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT) 182.5 FT.	
HOLE NO.: 11	DEPTH DRILLED (START OF SHIFT) 0 FT.	
FIELD BOOK NO.:	TOTAL DRILLED (DURING SHIFT) FT.	
PAGE:		

DRILLING RUNS (FT.)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	ROCK TYPE (FT.)	
FROM	TO				FROM	TO
0.0	62.0		RQD	Overburden	0.0	62.0
62.0	68.5	5.8	4.0	Gray Med. Hard Sandstone W/Broke Sandstone	62.0	70.2
68.5	73.5	3.8	1.1	Gray Badly Broken Shale	70.2	75.4
				Coal & Dark Gray Shale	75.4	75.9
73.5	81.0	5.9	0.0	Gray Badly Broken Shale	75.9	82.1
81.0	91.0	10.0	3.0	Gray Shale W/Sandstone Streaks	82.1	92.3
91.0	101.0	10.0	3.0	Gray Med. Hard Sandstone W/Shale Strks.	92.3	116.9
101.0	111.0	10.0	4.7	Gray Shale	116.9	119.7
111.0	121.0	9.7	3.6	Coal	119.7	131.2
121.0	126.5	5.5	0.0	Gray Shale	131.2	133.5
126.5	133.5	7.0	2.3	Gray Sandy Shale	133.5	143.8
133.5	143.5	10.0	7.3	Gray Med. Hard Sandstone	143.8	160.4
143.5	153.0	9.5	9.2	Gr. Med. Hard Sandstone W/Shale Strks.	160.4	162.8
153.0	162.5	9.5	5.9	Gray Shale	162.8	166.5
162.5	172.5	10.0	4.8	Coal	166.5	180.1
172.5	182.5	10.0	6.0	Gray Shale	180.1	182.0
				Gray Sandy Shale	182.0	182.5

Top of Rock 62.0  
 Bottom of Hole 182.5  
 Lost Water 119.7  
 Water Level 46.0  
 Cement Hole 72.0 - 62.0  
 1-94 Lb. bag

Thomas Growden  
 DRILLER'S SIGNATURE

CONTINENTAL DRILLING COMPANY DRILLING LOG

PROJECT: OSM 40(5123)101.5	DATE: 6/2/86	SHEET OF 1 SHEETS
CONTRACTOR:	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT) 200.0 FT.	
HOLE NO.: 12	DEPTH DRILLED (START OF SHIFT) 0 FT.	
FIELD BOOK NO.:	TOTAL DRILLED (DURING SHIFT) FT.	
PAGE:		

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	ROCK TYPE (FT.)	
FROM	TO				FROM	TO
0.0	54.0			Overburden	0.0	54.0
54.0	64.0	1.5		Gr. Sandstone W/Gr. Clay Seams Broken B.	54.0	78.1
64.0	74.0	2.3		Gr. Shale W/Gr. Clay Seams Broken Badly	78.1	101.4
74.0	80.1	6.0		Dk. Gr. Shale W/Gr. Sandstone Streaks	101.4	108.7
80.1	84.0	2.0		Gr. Sandstone W/1"-2" Dk. Shale Seams	108.7	131.4
84.0	87.2	2.6		Dark Gray Shale	131.4	138.5
87.2	90.0	2.6		Coal	138.5	157.5
90.0	91.0	.7		Dk. Gray Shale W/Coal Streaks	157.5	159.0
91.0	92.2	1.0		Coal	159.0	159.6
92.2	94.0	.5		Dark Gray Shale	159.6	161.8
94.0	96.5	1.2		Light Gr. Shale W/Sandstone Streaks	161.8	167.3
96.5	100.0	1.0		Gr. Sandstone W/Shale Streaks	167.3	169.8
100.0	110.0	8.0		Lt. Gr. Shale W/Sandstone Streaks	169.8	179.9
110.0	120.0	10.0		Gray Shale	179.9	183.2
120.0	130.0	10.0		Void	183.2	192.5
130.0	140.0	10.0		Coal	192.5	195.8
140.0	150.0	8.0		Gray Shale	195.8	197.3
150.0	160.0	10.0		Gray Sandstone	197.3	200.0
160.0	170.0	10.0				
170.0	180.0	10.0				
180.0	190.0	3.2				
190.0	196.0	3.3				
196.0	200.0	4.0				

Bottom of Hole 200.0  
 Lost Water 57.2  
 Water Level 54.6  
 Cement Hole 64.0 54.0

Harvey Cole  
 DRILLER'S SIGNATURE

## CONTINENTAL DRILLING - U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5				DATE: 4/2/86		SHEET OF 1 SHEETS	
CONTRACTOR: Continental Drilling-U.S.				SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:				DEPTH DRILLED (END OF SHIFT) 144.0 FT.			
HOLE NO.: 13				DEPTH DRILLED (START OF SHIFT) 0 FT.			
SURFACE ELEV.:				TOTAL DRILLED (DURING SHIFT) FT.			
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME		
FROM	TO				START	STOP	
0.0	54.5		RQD	Overburden	0.0	54.5	
54.5	64.0	4.8	2.4	Gray Med. Hard Sandstone	54.5	69.3	
64.0	74.0	7.8	5.8	Void 1.0	69.3	70.3	
				Gray Med. Hard Sandstone	70.3	72.3	
				Void 1.2	72.3	73.5	
				Gray Med. Hard Sandstone	73.5	74.0	
74.0	84.0	7.0	2.1	Gray Badly Broken Sandstone	74.0	82.8	
84.3	94.0	7.2	3.5	Gray Badly Broken Shale	82.8	84.3	
				Coal	84.3	85.7	
				Gray Broken Shale	85.7	90.0	
				Gray Sandy Shale	90.0	94.0	
				Gray Broken Shale	94.0	95.1	
94.0	104.0	10.0	4.4	Dark Gray Shale W/Sandstone Streaks	95.1	104.6	
104.0	114.0	10.0	3.7	Gray Med. Hard Sandstone W.Shale Streaks	104.6	124.0	
114.0	124.0	10.0	8.5	Gray Broken Shale	124.0	127.3	
124.0	134.0	10.0	1.4	Coal	127.3	140.0	
134.0	138.5	4.5	0.0	Gray Shale	140.0	140.5	
138.5	144.0	4.7	1.3	Gray Sandy Shale	140.5	144.0	

Top of Rock 54.5  
Bottom of Hole 144.0  
Water Level 93.0  
Cement Hole 64.5 - 54.5  
1-80 lb. bag  
Lost Water 69.3

Tom Growden

DRILLER'S SIGNATURE

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5				DATE: 5/14/86	SHEET 1 OF 1 SHEETS	
CONTRACTOR: Continental Drilling-U.S.				SHIFT: LOCATION: Pittston, PA Site 3		
BID ITEM NO.:				DEPTH DRILLED (END OF SHIFT) 195.0 FT.		
HOLE NO.: 14				DEPTH DRILLED (START OF SHIFT) 0 FT.		
SURFACE ELEV.:				TOTAL DRILLED (DURING SHIFT) FT.		
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	50.0		RQD	Overburden	0.0	50.0
50.0	56.0	4.2	0.0	Gray Badly Broken Shale	50.0	92.5
56.0	60.2	2.8	0.0	Gray Sandy Shale W/Sandstone Streaks	92.5	103.0
60.2	64.0	3.6	.6	Gray Medium Hard Sandstone	103.0	124.0
64.0	70.0	5.5	0.0	Dark Gray Shale	124.0	130.4
70.0	78.0	7.3	0.0	Coal	130.4	140.7
78.0	88.0	5.2	0.0	Dark Gray Shale W/Coal Streaks	140.7	144.0
88.0	98.0	4.5	1.5	Gray Shale	144.0	183.7
98.0	104.0	5.6	3.5	Void 4.8	183.7	188.5
104.0	114.0	10.0	5.7	Coal	188.5	192.4
114.0	124.0	10.0	4.5	Gray Sandy Shale	192.4	195.0
124.0	134.0	7.4	.9			
134.0	144.0	10.0	3.1			
144.0	154.0	9.7	6.7			
154.0	164.0	10.0	6.0			
164.0	172.0	8.0	4.7			
172.0	180.0	8.0	4.0			
180.0	190.0	5.2	3.1			
190.0	195.0	4.5	1.0			
Top of Rock 50.0 Bottom of Hole 195.0 Lost Water 107.0 Cement Hole 60.0 - 50.0 Water Level 52.0						
					Thomas Growden DRILLER'S SIGNATURE	



CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5				DATE: 4/30/86	SHEET 1 OF 1 SHEETS	
CONTRACTOR: Continental Drilling-U.S.				SHIFT: LOCATION: Pittston, PA Site 3		
BID ITEM NO.:				DEPTH DRILLED (END OF SHIFT) 125.0 FT.		
HOLE NO.: 15				DEPTH DRILLED (START OF SHIFT) 0 FT.		
SURFACE ELEV.:				TOTAL DRILLED (DURING SHIFT) FT.		
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	38.0		RQD	Overburden	0.0	38.0
38.0	45.0	7.0	3.2	Gray Med. Hard Sandstone	38.0	43.8
45.0	54.0	5.3	2.0	Coal & Gray Clay	43.8	47.0
54.0	58.0	3.8	.4	Gray Broken Shale W/Sandstone Streaks	47.0	51.0
58.0	64.0	4.4	0.0	Gray Badly Broken Shale & Clay	51.0	69.8
64.0	68.5	2.9	0.0	Gray Med. Hard Sandstone W/Shale Stks.	69.8	96.2
68.5	75.0	6.5	3.7	Gray Shale	96.2	101.3
75.0	85.0	10.0	6.6	Coal	101.3	113.5
85.0	95.0	10.0	8.8	Void	113.5	117.4
95.0	105.0	10.0	4.6	Dark Gray Shale	117.4	125.0
105.0	115.0	1.6	0.0			
115.0	125.0	7.6	3.0			

Top of Rock 38.0  
 Bottom of Hole 125.0  
 Lost Water 95.0  
 Cement Hole 48.0 - 38.0  
 1-80 Lb. Bag

Tom Growden  
 DRILLER'S SIGNATURE

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5	DATE: 5/28/86	SHEET OF 1 SHEETS
CONTRACTOR:	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT)	118.0 FT.
HOLE NO.: 16	DEPTH DRILLED (START OF SHIFT)	0 FT.
SURFACE ELEV.:	TOTAL DRILLED (DURING SHIFT)	FT.

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	40.0	RQD		Overburden	0.0	40.0
40.0	44.0	3.4	1.3	Gray Badly Broken Sandstone	40.0	74.0
44.0	54.0	6.0	1.4	Gray Medium Hard Sandstone W/Shale Stks.	74.0	89.0
54.0	64.0	4.7	0.6	Dark Gray Shale	89.0	96.1
64.0	74.0	4.6	1.0	Coal	96.1	96.9
74.0	84.0	10.0	8.2	Dark Gray Shale	96.9	99.2
84.0	94.0	8.0	.8	Coal	99.2	104.8
94.0	104.0	10.0	2.8	Void 4.2	104.8	109.0
				Coal & Dark Gray Shale	109.0	109.5
				Void 1.8	109.5	111.3
104.0	114.0	4.0	0.0	Coal	111.3	114.1
114.0	118.0	4.0	.7	Gray Shale	114.1	118.0

Top of Rock 40.0  
 Bottom of Hole 118.0  
 Lost Water 81.2  
 Water Level 86.0  
 Cement Hole 50.0 - 40.0  
 1-94 Lb Bag

Tom Growden  
 DRILLER'S SIGNATURE

CONTINENTAL DRILLING - U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5		DATE: 5/28/86	SHEET OF 1 SHEETS
CONTRACTOR:		SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:		DEPTH DRILLED (END OF SHIFT): 118.0 FT.	
HOLE NO.: 16		DEPTH DRILLED (START OF SHIFT): 0 FT.	
SURFACE ELEV.:		TOTAL DRILLED (DURING SHIFT): FT.	

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	40.0	RQD		Overburden	0.0	40.0
40.0	44.0	3.4	1.3	Gray Badly Broken Sandstone	40.0	74.0
44.0	54.0	6.0	1.4	Gray Medium Hard Sandstone W/Shale Stks.	74.0	89.0
54.0	64.0	4.7	0.6	Dark Gray Shale	89.0	96.1
64.0	74.0	4.6	1.0	Coal	96.1	96.9
74.0	84.0	10.0	8.2	Dark Gray Shale	96.9	99.2
84.0	94.0	8.0	.8	Coal	99.2	104.8
94.0	104.0	10.0	2.8	Void 4.2	104.8	109.0
				Coal & Dark Gray Shale	109.0	109.5
				Void 1.8	109.5	111.3
104.0	114.0	4.0	0.0	Coal	111.3	114.1
114.0	118.0	4.0	.7	Gray Shale	114.1	118.0

Top of Rock 40.0  
 Bottom of Hole 118.0  
 Lost Water 81.2  
 Water Level 86.0  
 Cement Hole 50.0 - 40.0  
 1-94 Lb Bag

Tom Growden  
 DRILLER'S SIGNATURE

## CONTINENTAL DRILLING — U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5				DATE: 4/15/86		SHEET <u>1</u> OF <u>1</u> SHEETS	
CONTRACTOR: Continental Drilling-U.S.				SHIFT: LOCATION: Pittston, PA Site 3			
BID ITEM NO.:				DEPTH DRILLED (END OF SHIFT) 100.0 FT.			
HOLE NO.: 17				DEPTH DRILLED (START OF SHIFT) 0 FT.			
SURFACE ELEV.:				TOTAL DRILLED (DURING SHIFT) FT.			
DRILLING RUNS ( FT )		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS ( DESCRIPTION )	DRILL TIME		
FROM	TO				START	STOP	
0.0	24.5		RQD	Overburden	0.0	24.5	
				Gray Broken Sandstone W/Clay	24.5	26.3	
				Coal, Clay & Broken Sandstone	26.3	27.8	
24.5	34.0	8.0	1.2	Gray Broken Sandstone W/Clay	27.8	40.0	
34.0	43.0	9.0	2.3	Gray Badly Broken Shale	40.0	42.0	
43.0	45.0	2.0	0.0	Gray Medium Hard Sandstone	42.0	70.5	
45.0	55.0	8.5	1.7	Gray Sandstone W/Shale Streaks	70.5	74.4	
55.0	65.0	10.0	7.1	Void	74.4	78.0	
65.0	75.0	9.4	3.2	Dark Gray Shale	78.0	78.6	
75.0	78.0	0.0	0	Void	78.6	82.6	
				Dark Gray Shale	82.6	83.0	
				Void	83.0	85.8	
				Dark Gray Shale	85.8	86.3	
78.0	88.2	1.5	1.1	Void	86.3	88.2	
88.2	95.0	4.5	0.0	Gray Broken Shale	88.2	89.5	
				Void	89.5	90.2	
				Gray Badly Broken Shale	90.2	91.0	
				Void	91.0	92.6	
				Coal	92.6	95.0	
				Dark Gray Shale W/Coal Streaks	95.0	95.9	
95.0	100.0	5.0	2.5	Dark Gary Shale	95.9	100.0	

Top of Rock 24.5  
Bottom of Hole 100.0  
Lost Water 74.4  
Cement Hole 34.5 - 24.5  
1-80 Lb Bag

Tom Crowden  
DRILLER'S SIGNATURE

## CONTINENTAL DRILLING — U.S.

## DRILLING LOG

PROJECT: OSM 40(5123)101.5				DATE: 4/15/86	SHEET OF 1 SHEETS	
CONTRACTOR: Continental Drilling-U.S.				SHIFT: LOCATION: Pittston, PA Site 3		
BID ITEM NO.:				DEPTH DRILLED (END OF SHIFT): 100.0 FT.		
HOLE NO.: 17				DEPTH DRILLED (START OF SHIFT): 0 FT.		
SURFACE ELEV.:				TOTAL DRILLED (DURING SHIFT):	FT.	
DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	24.5		RQD	Overburden	0.0	24.5
				Gray Broken Sandstone W/Clay	24.5	26.3
				Coal, Clay & Broken Sandstone	26.3	27.8
24.5	34.0	8.0	1.2	Gray Broken Sandstone W/Clay	27.8	40.0
34.0	43.0	9.0	2.3	Gray Badly Broken Shale	40.0	42.0
43.0	45.0	2.0	0.0	Gray Medium Hard Sandstone	42.0	70.5
45.0	55.0	8.5	1.7	Gray Sandstone W/Shale Streaks	70.5	74.4
55.0	65.0	10.0	7.1	Void	74.4	78.0
65.0	75.0	9.4	3.2	Dark Gray Shale	78.0	78.6
75.0	78.0	0.0	0	Void	78.6	82.6
				Dark Gray Shale	82.6	83.0
				Void	83.0	85.8
				Dark Gray Shale	85.8	86.3
78.0	88.2	1.5	1.1	Void	86.3	88.2
88.2	95.0	4.5	0.0	Gray Broken Shale	88.2	89.5
				Void	89.5	90.2
				Gray Badly Broken Shale	90.2	91.0
				Void	91.0	92.6
				Coal	92.6	95.0
				Dark Gray Shale W/Coal Streaks	95.0	95.9
95.0	100.0	5.0	2.5	Dark Gary Shale	95.9	100.0

Top of Rock 24.5  
Bottom of Hole 100.0  
Lost Water 74.4  
Cement Hole 34.5 - 24.5  
1-80 Lb Bag

Tom Growden  
DRILLER'S SIGNATURE

CONTINENTAL DRILLING — U.S.

DRILLING LOG

PROJECT: OSM 40(5123)101.5	DATE: 4/23/86	SHEET OF 1 SHEETS
CONTRACTOR: Continental Drilling-U.S.	SHIFT: LOCATION: Pittston, PA Site 3	
BID ITEM NO.:	DEPTH DRILLED (END OF SHIFT) 140.0 FT.	
HOLE NO.: 18	DEPTH DRILLED (START OF SHIFT) 0 FT.	
SURFACE ELEV.:	TOTAL DRILLED (DURING SHIFT) FT.	

DRILLING RUNS (FT)		% CORE RECOVERY	BOX OR SAMPLE NO.	CLASSIFICATION OF MATERIALS (DESCRIPTION)	DRILL TIME	
FROM	TO				START	STOP
0.0	57.5		RQD	Overburden	0.0	57.5
57.5	65.0	4.0	1.5	Gray Broken Sandstone	57.5	65.0
65.0	75.0	6.4	.4	Dark Gray Broken Shale	65.0	77.2
75.0	85.0	9.6	7.4	Gray Med. Hard Sandstone W/Shale Strks.	77.2	105.6
85.0	95.0	10.0	9.5	Dark Gray Shale	105.6	107.9
95.0	105.0	10.0	6.7	Void	107.9	109.0
				Dark Gray Shale	109.0	111.0
105.0	115.0	4.9	4.0	Void	111.0	115.5
				Gray Clay & Shale	115.5	115.9
				Dark Gray Shale	115.9	116.5
				Void	116.5	121.0
				Coal & Dark Gray Shale	121.0	122.3
115.0	124.0	1.2	.6	Void	122.3	123.0
124.0	134.0	3.9	0.0	Coal	123.0	136.6
134.0	140.0	6.0	1.5	Dark Gray Shale	136.6	140.0

Lost Water 107.9  
 Top of Rock 57.5  
 Bottom of Hole 140.0  
 Cement Hole 67.5 - 57.5  
 1-80 Lb. Bag

Tom Growden  
 DRILLER'S SIGNATURE