PR- Wapiti 80(4)A

Confidential

Coal Analysis

685

APPENDIX IV

ANALYTICAL DATA

Sample Description 80-100 A

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 31.66 (d.b)

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	35.6	9.4	35.6	9.4
1.40-1.50	19.3	21.1	54.9	13.5
1.50-1.60	9.7	30.9	64.6	16.1
1.60-1.70	9.1	40.8	73.7	19.2
1.70-1.80	6.6	49.1	80.3	21.6
1.80-1.90	3.2	54.9	83.5	22.9
+1.90	16.5	68.7	100.0	30.4

Screen % 72.2

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 24.6 (d.b)

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	52.6	7.0	52.6	7.0
1.40-1.50	12.9	20.0	65.5	9.6
1.50-1.60	8.3	28.4	73.8	11.7
1.60-1.70	6.4	37.2	80.2	13.7
1.70-1.80	3.8	45.4	84.0	15.1
1.80-1.90	2.3	52.3	86.3	16.1
+1.90	13.7	70.0	100.0	23.5

Screen % 18.3

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 24.0 (d.b)

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	77.6	18.8	77.6	18.8
30 x 45	10.8	19.3	88.4	18.9
45 x 60	2.8	23.6	91.2	19.0
60 x 90	0.3	35.8	91.5	19.1
90 x 120	0.3	49.0	91.8	19.2
Tails	8.2	70.4	100.0	23.4

Screen % 9.5

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	51.6	12.6	61.1	14.4
1.60	58.6	15.5	68.1	16.7
1.70	66.7	18.3	76.2	19.0

Sample Description 80-101

SINK / FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 36.5

Screen % 73.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	30.4	9.4	30.4	9.4
1.40-1.50	12.1	22.7	42.5	13.2
1.50-1.60	9.2	29.7	51.7	16.1
1.60-1.70	8.2	38.7	59.9	19.2
1.70-1.80	8.0	46.5	67.9	22.4
1.80-1.90	8.5	54.7	76.4	26.0
+1.90	23.6	70.4	100.0	36.5

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 27.1

Screen % 18.5

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	45.7	6.9	45.7	6.9
1.40-1.50	12.2	18.7	57.9	9.4
1.50-1.60	10.0	27.7	67.9	12.1
1.60-1.70	4.3	36.6	72.2	13.5
1.70-1.80	4.3	46.5	76.5	15.4
1.80-1.90	0.5	55.3	77.0	15.7
+1.90	23.0	62.8	100.0	26.5

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 27.5

Screen % 8.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	47.9	16.5	47.9	16.5
30 x 45	5.2	21.7	53.1	17.0
45 x 60	2.2	22.9	55.3	17.2
60 x 90	1.5	27.4	56.8	17.5
90 x 120	0.7	33.4	57.5	17.7
Tails	42.5	38.5	100.0	26.5

Products:

	Plus 100 mesh		Inc. Raw minus 100 mesh	
	WT. %	ASH %	WT. %	ASH %
@ 1.50	41.9	12.2	50.0	14.7
1.60	50.5	15.1	58.6	16.8
1.70	57.4	17.8	65.5	19.0

Sample Description 80-102

SINK / FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 33.6

Screen % 71.2

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	34.6	10.1	34.6	10.1
1.40-1.50	14.3	22.4	48.9	13.7
1.50-1.60	8.3	30.2	57.2	16.1
1.60-1.70	6.5	39.8	63.7	18.5
1.70-1.80	4.3	47.7	68.0	20.4
1.80-1.90	7.8	54.6	75.8	23.9
+1.90	24.2	66.3	100.0	34.1

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 25.6

Screen % 17.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	51.8	6.6	51.8	6.6
1.40-1.50	14.4	20.0	66.2	14.7
1.50-1.60	7.5	29.1	73.7	16.1
1.60-1.70	4.6	38.0	78.3	17.4
1.70-1.80	3.6	45.4	81.9	18.7
1.80-1.90	2.6	55.6	84.5	19.8
+1.90	15.5	72.9	100.0	28.0

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 28.1

Screen % 10.9

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	76.3	17.9	76.3	17.9
30 x 45	3.7	26.2	80.0	18.3
45 x 60	0.9	30.4	80.9	18.4
60 x 90	0.5	35.2	81.4	18.5
90 x 120	0.5	41.4	81.9	18.7
Tails	18.1	67.7	100.0	21.5

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	46.6	14.0	57.5	16.7
1.60	53.9	16.1	64.8	18.1
1.70	59.3	18.3	70.2	19.8

Sample Description 80-106

SINK / FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 28.9

Screen % 77.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	41.7	9.8	41.7	9.8
1.40-1.50	16.1	22.6	57.8	13.4
1.50-1.60	11.0	30.1	68.8	16.0
1.60-1.70	9.3	39.1	78.1	18.8
1.70-1.80	5.0	46.3	83.1	20.4
1.80-1.90	4.1	53.8	87.2	22.0
+1.90	12.8	70.7	100.0	28.2

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 22.8

Screen % 15.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	56.6	8.4	56.6	8.4
1.40-1.50	12.9	20.5	59.5	12.4
1.50-1.60	8.6	28.9	68.1	14.5
1.60-1.70	6.6	37.4	74.7	16.5
1.70-1.80	3.4	44.9	78.1	17.8
1.80-1.90	2.5	51.0	80.6	18.8
+1.90	9.4	74.4	100.0	22.1

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 29.3

Screen % 6.5

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	71.6	17.4	71.6	17.4
30 x 45	4.7	22.5	76.3	17.7
45 x 60	1.6	35.5	77.9	18.1
60 x 90	1.3	38.5	79.2	18.4
90 x 120	0.4	45.8	79.6	18.6
Tails	20.4	67.5	100.0	28.5

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	54.3	13.2	60.8	14.9
1.60	64.2	15.7	70.7	17.0
1.70	72.5	18.4	79.0	19.3

Sample Description 78-85 / 80-113

SINK / FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 26.4

Screen % 90.5

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	32.2	8.4	32.2	8.4
1.40-1.50	25.1	20.7	57.3	13.8
1.50-1.60	12.0	30.9	69.3	16.8
1.60-1.70	11.6	39.2	80.9	20.0
1.70-1.80	7.3	44.9	88.2	22.0
1.80-1.90	3.2	50.9	91.4	23.0
+1.90	8.6	68.3	100.0	26.9

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 22.3

Screen % 7.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	47.6	6.4	47.6	6.4
1.40-1.50	16.7	18.2	64.3	9.5
1.50-1.60	9.3	28.0	73.6	11.8
1.60-1.70	6.7	36.3	80.3	13.9
1.70-1.80	4.8	43.0	85.1	15.5
1.80-1.90	4.6	48.7	89.7	17.2
+1.90	10.3	70.7	100.0	22.7

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 26.6

Screen % 1.9

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	68.6	21.4	68.6	21.4
30 x 45	10.3	20.9	78.9	21.3
45 x 60	2.3	22.8	81.2	21.4
60 x 90	1.0	33.0	82.2	21.5
90 x 120	1.6	40.0	83.8	21.9
Tails	16.2	51.4	100.0	26.7

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	56.8	13.4	58.7	13.8
1.60	68.3	16.4	70.2	16.7
1.70	79.3	19.5	81.2	19.7

Sample Description 79-87 / 80-117

SINK / FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 28.5

Screen % 91.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	39.5	10.1	39.5	10.1
1.40-1.50	22.8	19.3	62.3	13.5
1.50-1.60	9.0	29.6	71.3	15.5
1.60-1.70	5.1	38.3	76.4	17.0
1.70-1.80	4.6	46.5	81.0	18.7
1.80-1.90	4.5	53.0	85.5	20.5
+1.90	14.5	68.8	100.0	27.5

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 22.4

Screen % 7.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	55.3	6.0	55.3	6.0
1.40-1.50	16.3	18.1	71.6	8.8
1.50-1.60	7.1	26.9	78.7	10.4
1.60-1.70	5.0	35.0	83.7	11.9
1.70-1.80	2.8	44.7	86.5	12.9
1.80-1.90	2.5	51.3	89.0	14.0
+1.90	11.0	69.2	100.0	20.1

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 26.6

Screen % 2.0

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	65.2	18.3	65.2	18.3
30 x 45	8.5	20.8	73.7	18.6
45 x 60	1.3	24.1	75.0	18.7
60 x 90	0.8	36.4	75.8	18.9
90 x 120	1.3	39.0	77.1	19.2
Tails	22.9	48.5	100.0	25.9

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	61.7	13.1	63.7	13.5
1.60	70.4	15.1	72.4	15.4
1.70	75.4	16.6	77.4	16.9

Sample Description Portal Channel - Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 34.8(db)

Screen % 77.5

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	-	-	-	
1.40-1.50	12.4	12.6	12.4	12.6
1.50-1.60	25.4	18.0	37.8	16.2
1.60-1.70	20.9	29.2	58.7	20.8
1.70-1.80	9.7	39.5	68.4	23.5
1.80-1.90	7.7	47.2	76.1	25.9
+190	23.9	65.8	100.0	35.4

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 35.3(db)

Screen % 15.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	0.1	10.1	0.1	10.1
1.40-1.50	8.2	11.4	8.3	11.4
1.50-1.60	30.3	15.7	38.6	14.8
1.60-1.70	21.6	22.7	60.2	17.6
1.70-1.80	11.9	33.6	72.1	20.3
1.80-1.90	5.8	42.5	77.9	21.9
+1.90	22.1	70.5	100.0	32.6

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 42.9(db)

Screen % 7.21

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	3.6	35.5	3.6	35.5
30 x 45	2.8	36.7	6.4	36.0
45 x 60	4.2	36.8	10.6	36.4
60 x 90	5.8	36.9	16.4	36.6
90 x 120	3.6	37.0	20.0	36.6
Tails	80.0	43.7	100.0	42.3

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	10.9	12.5	18.1	24.6
1.60	35.2	16.0	42.4	20.6
1.70	54.7	20.3	61.9	22.9

Sample Description 34' Far Channel - Adit No.1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 42.8

Screen % 85.00

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	1.5	7.9	1.5	7.9
1.40-1.50	15.7	12.2	17.2	11.8
1.50-1.60	16.2	23.3	33.4	17.4
1.60-1.70	10.0	32.5	43.4	20.9
1.70-1.80	8.1	40.4	51.5	23.9
1.80-1.90	8.0	48.4	59.5	27.2
+1.90	40.5	62.0	100.0	41.3

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 30.5

Screen % 11.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	3.9	7.3	3.9	7.3
1.40-1.50	37.2	10.1	41.1	9.8
1.50-1.60	18.1	18.3	59.2	12.4
1.60-1.70	8.1	28.5	67.3	14.4
1.70-1.80	4.4	36.5	71.7	15.7
1.80-1.90	4.0	44.1	75.7	17.2
+1.90	24.3	67.9	100.0	29.5

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 38.6

Screen % 4.0

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	2.9	27.8	2.9	27.8
30 x 45	3.2	30.6	6.1	29.3
45 x 60	3.7	30.8	9.8	29.8
60 x 90	7.4	32.4	17.2	30.9
90 x 120	6.6	33.3	23.8	31.6
Tails	76.2	40.0	100.0	38.0

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	19.1	11.4	23.1	16.1
1.60	34.9	16.5	38.9	18.8
1.70	44.3	19.8	48.3	21.4

Sample Description 34' - Top Ply - Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 24.7

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	1.9	8.2	1.9	8.2
1.40-1.50	51.4	11.5	53.3	11.4
1.50-1.60	13.9	22.3	67.2	13.6
1.60-1.70	9.0	32.6	76.2	15.9
1.70-1.80	7.4	41.0	83.6	18.1
1.80-1.90	5.1	51.1	88.7	20.0
+1.90	11.3	59.7	100.0	24.5

Screen % 87.9

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 19.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	3.0	9.5	3.0	9.5
1.40-1.50	52.3	10.6	55.3	10.5
1.50-1.60	16.1	18.5	71.4	12.3
1.60-1.70	12.1	27.3	83.5	14.5
1.70-1.80	7.0	33.3	90.5	16.0
1.80-1.90	2.5	45.0	93.0	16.7
+1.90	7.0	59.1	100.0	19.7

9.6

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 26.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

2.5

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	52.2	11.3	54.7	11.9
1.60	66.0	13.4	68.5	13.9
1.70	75.0	15.7	77.5	16.0

Sample Description 34' - Middle Ply - Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 61.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	0	-		
1.40-1.50	0.8	10.6	0.8	10.6
1.50-1.60	3.9	20.9	4.7	19.1
1.60-1.70	5.2	31.6	9.9	25.7
1.70-1.80	5.6	39.6	15.5	30.7
1.80-1.90	7.3	49.1	22.8	36.0
+1.90	77.2	69.1	100.0	61.7

Screen % 84.1

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 52.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	-	-	-	-
1.40-1.50	6.4	10.6	6.4	10.6
1.50-1.60	14.0	17.2	20.4	15.1
1.60-1.70	9.6	27.2	30.0	19.0
1.70-1.80	6.6	36.4	36.6	22.1
1.80-1.90	5.1	44.8	41.7	24.9
+1.90	58.3	71.6	100.0	52.1

Screen % 10.3

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 56.7

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	8.9	47.8	8.9	47.8
30 x 45	3.5	50.7	12.4	48.6
45 x 60	1.6	50.8	14.0	48.9
60 x 90	3.1	52.0	17.1	49.4
90 x 120	5.0	55.7	22.1	50.9
Tails	77.9	60.8	100.0	58.6

Screen % 5.6

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	1.4	10.6	7.0	47.5
1.60	6.1	17.6	11.7	36.3
1.70	11.4	23.9	17.0	34.7

Sample Description 34' - Lower Ply - Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 23.1

Screen % 80.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	12.4	7.3	12.4	7.3
1.40-1.50	32.5	12.3	44.9	10.9
1.50-1.60	23.3	24.5	68.2	15.6
1.60-1.70	22.4	33.9	90.6	20.1
1.70-1.80	4.7	43.8	95.3	21.3
1.80-1.90	3.6	49.5	98.9	22.3
+1.90	1.1	59.5	100.0	22.7

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 15.6

Screen % 14.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	10.9	6.5	10.9	6.5
1.40-1.50	56.3	11.2	67.2	10.4
1.50-1.60	19.9	18.8	87.1	12.3
1.60-1.70	7.9	31.3	95.0	13.9
1.70-1.80	2.5	39.9	97.5	14.6
1.80-1.90	1.3	51.2	98.8	15.2
+1.90	1.2	62.6	100.0	15.7

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 17.8

Screen % 5.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	5.6	16.5	5.6	16.5
30 x 45	2.3	17.0	7.9	16.6
45 x 60	2.8	17.5	10.7	16.9
60 x 90	4.4	17.6	15.1	17.1
90 x 120	6.7	17.6	21.8	17.2
Tails	78.2	18.7	100.0	18.0

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	45.7	10.8	50.8	11.5
1.60	67.4	15.0	72.5	15.2
1.70	86.6	19.1	91.7	18.9

Sample Description 45' - Face Channel - Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 28.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	25.0	8.0	25.0	8.0
1.40-1.50	30.6	14.5	55.6	11.6
1.50-1.60	13.8	25.9	69.4	14.4
1.60-1.70	6.1	35.9	75.5	16.2
1.70-1.80	5.7	43.5	81.2	18.1
1.80-1.90	3.8	50.6	85.0	19.5
+1.90	15.0	71.8	100.0	27.4

Screen % 89.9

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 21.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	28.8	6.4	28.8	6.4
1.40-1.50	38.0	10.5	66.8	8.7
1.50-1.60	10.7	22.0	77.5	10.6
1.60-1.70	6.6	31.7	84.1	12.2
1.70-1.80	3.4	39.5	87.5	13.3
1.80-1.90	2.6	45.5	90.1	14.2
+1.90	9.9	72.4	100.0	20.0

7.9

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 27.5

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	19.1	18.0	19.1	18.0
30 x 45	2.9	18.4	22.0	18.1
45 x 60	4.3	20.1	26.3	18.4
60 x 90	5.4	20.2	31.7	18.7
90 x 120	3.7	20.7	35.4	18.9
Tails	64.6	31.3	100.0	26.9

2.2

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	55.3	11.3	57.5	11.9
1.60	68.5	14.1	70.7	14.5
1.70	74.5	15.8	76.7	16.1

Sample Description 45' - Upper Ply Channel - Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 14.75

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	54.8	7.0	54.8	7.0
1.40-1.50	24.7	12.1	79.5	8.6
1.50-1.60	6.3	24.7	85.8	9.8
1.60-1.70	4.1	36.0	89.9	11.0
1.70-1.80	3.1	43.3	93.0	12.0
1.80-1.90	2.5	49.7	95.5	13.0
+1.90	4.5	63.7	100.0	15.3

Screen % 81.0

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 13.8

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	37.1	6.2	37.1	6.2
1.40-1.50	43.6	10.5	80.7	8.5
1.50-1.60	8.0	21.1	88.7	9.7
1.60-1.70	3.7	29.7	92.4	10.5
1.70-1.80	2.1	36.3	94.5	11.0
1.80-1.90	1.2	44.4	95.7	11.5
+1.90	4.3	62.6	100.0	13.7

Screen % 14.3

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 19.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	8.7	15.1	8.7	15.1
30 x 45	6.0	15.8	14.7	15.4
45 x 60	5.6	16.0	20.3	15.6
60 x 90	7.1	16.2	27.4	15.7
90 x 120	4.1	18.0	31.5	16.0
Tails	68.5	19.5	100.0	18.4

Screen % 4.7

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	75.9	8.6	80.6	9.2
1.60	82.2	9.8	86.9	10.3
1.70	86.0	10.9	90.7	11.3

Sample Description Adit #1 (45') Middle Ply

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 53.2

Screen % 87.5

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	2.7	7.7	2.7	7.7
1.40-1.50	7.4	14.5	10.1	12.7
1.50-1.60	13.3	25.7	23.4	20.1
1.60-1.70	9.9	36.4	33.3	24.9
1.70-1.80	3.8	41.6	37.1	26.6
1.80-1.90	3.8	46.3	40.9	28.5
+1.90	59.1	70.8	100.0	53.5

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 42.9

Screen % 8.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	8.9	6.9	8.9	6.9
1.40-1.50	19.7	11.9	28.6	10.3
1.50-1.60	14.8	20.5	43.4	13.8
1.60-1.70	8.6	30.3	52.0	16.5
1.70-1.80	5.2	38.3	57.2	18.5
1.80-1.90	3.2	46.8	60.4	20.0
+1.90	39.6	72.8	100.0	40.9

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 49.3

Screen % 3.6

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	5.8	26.5	5.8	26.5
30 x 45	1.2	28.0	7.0	26.8
45 x 60	1.3	34.4	8.3	28.0
60 x 90	4.7	41.4	13.0	32.8
90 x 120	7.7	46.1	20.7	37.8
Tails	79.3	53.3	100.0	50.1

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	11.3	12.3	14.9	21.2
1.60	24.4	19.1	28.0	23.0
1.70	33.7	23.8	37.2	26.3

Sample Description 45' - Lower Ply Channel Adit No. 1

SINK / FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 20.4

Screen % 85.8

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	31.5	7.8	31.5	7.8
1.40-1.50	29.1	14.5	60.6	11.0
1.50-1.60	16.8	26.8	77.4	14.4
1.60-1.70	11.4	35.8	88.8	17.2
1.70-1.80	7.4	44.2	96.2	19.3
1.80-1.90	2.3	51.2	98.5	20.0
+1.90	1.5	69.3	100.0	20.7

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 15.5

11.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	38.1	6.6	38.1	6.6
1.40-1.50	38.2	11.1	76.3	8.9
1.50-1.60	9.3	23.20	85.6	10.4
1.60-1.70	6.0	31.9	91.6	11.8
1.70-1.80	3.2	39.8	95.8	12.6
1.80-1.90	1.8	46.8	96.2	13.5
+1.90	3.4	66.4	100.0	15.2

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 18.7

3.2

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	11.0	13.6	11.0	13.6
30 x 45	2.7	13.9	13.7	13.7
45 x 60	5.0	15.2	18.7	14.1
60 x 90	6.3	15.4	25.0	14.4
90 x 120	3.0	15.6	28.0	14.5
Tails	72.0	19.5	100.0	18.1

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	60.4	10.7	63.6	11.1
1.60	75.8	13.9	79.0	14.1

Sample Description Adit #1 (55') Face Channel

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 27.8

Screen % 87.1

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	26.4	6.9	26.4	6.9
1.40-1.50	23.3	14.2	49.7	10.3
1.50-1.60	12.6	25.6	62.3	13.4
1.60-1.70	11.2	34.8	73.5	16.7
1.70-1.80	7.4	43.3	80.9	19.1
1.80-1.90	5.3	49.2	86.2	21.0
+1.90	13.8	66.3	100.0	27.2

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 21.8

Screen % 9.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	26.2	6.5	26.2	6.5
1.40-1.50	36.5	10.6	62.7	8.9
1.50-1.60	11.6	19.9	74.3	10.6
1.60-1.70	6.7	30.4	81.0	12.2
1.70-1.80	4.1	38.5	85.1	13.5
1.80-1.90	3.0	47.2	88.1	14.7
+1.90	11.9	67.5	100.0	20.9

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 28.5

Screen % 3.0

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	6.9	17.5	6.9	17.5
30 x 45	3.1	20.8	10.0	18.5
45 x 60	3.0	21.8	13.0	19.3
60 x 90	7.0	23.3	20.0	20.7
90 x 120	5.4	23.6	25.4	21.3
Tails	74.6	30.5	100.0	28.2

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	49.5	10.1	52.5	11.2
1.60	61.7	13.0	64.7	13.7
1.70	72.0	16.2	75.0	16.7

Sample Description Adit #1 (55') Upper Ply

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 20.0

Screen % 86.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	50.4	10.6	50.4	10.6
1.40-1.50	25.9	20.1	76.3	13.8
1.50-1.60	7.8	27.4	84.1	15.1
1.60-1.70	3.2	36.9	87.3	15.9
1.70-1.80	5.2	43.7	92.5	17.4
1.80-1.90	5.2	52.7	97.7	19.3
+1.90	2.3	62.5	100.0	20.3

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 17.9

Screen % 10.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	43.8	7.8	43.8	7.8
1.40-1.50	29.6	14.2	73.4	10.4
1.50-1.60	10.7	22.2	84.1	11.9
1.60-1.70	4.5	31.1	88.6	12.9
1.70-1.80	4.1	41.0	92.7	14.1
1.80-1.90	2.5	49.2	95.2	15.0
+1.90	4.8	62.2	100.0	17.3

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 23.3

Screen % 2.8

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		NSS		
60 x 90				
90 x 120				
Tails				

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	73.9	13.4	76.7	13.8
1.60	81.8	14.8	84.6	15.1
1.70	85.0	15.6	87.8	15.8

Sample Description Adit #1 (55') Middle Ply

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 58.4

Screen % 82.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	0.4	11.7	0.4	11.7
1.40-1.50	1.5	13.8	1.9	13.4
1.50-1.60	4.7	24.0	6.6	20.9
1.60-1.70	10.3	32.4	16.9	27.9
1.70-1.80	7.5	41.1	24.4	32.0
1.80-1.90	6.7	47.9	31.1	35.4
+1.90	68.9	67.8	100.0	57.7

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 48.9

10.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	1.3	9.9	1.3	9.9
1.40-1.50	7.8	12.4	9.1	12.0
1.50-1.60	10.7	18.3	19.8	15.4
1.60-1.70	14.3	27.7	34.1	20.6
1.70-1.80	9.8	36.8	43.9	24.2
1.80-1.90	6.4	45.8	50.3	26.9
+1.90	49.7	68.6	100.0	47.6

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 55.3

6.2

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	7.0	49.7	7.0	49.7
30 x 45	2.9	49.9	9.9	49.8
45 x 60	1.9	50.9	11.8	49.9
60 x 90	2.7	53.0	14.5	50.5
90 x 120	3.2	53.5	17.7	51.1
Tails	82.3	56.2	100.0	55.3

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	2.6	12.7	8.8	42.7
1.60	7.7	19.2	13.9	35.3
1.70	17.7	26.4	23.9	33.9

Sample Description Adit #1 (55') Lower Ply

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 22.6

Screen % 86.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	9.1	8.6	9.1	8.6
1.40-1.50	45.4	14.0	54.5	13.1
1.50-1.60	21.3	23.7	75.8	16.1
1.60-1.70	10.3	34.0	86.1	18.2
1.70-1.80	5.0	42.7	91.1	19.6
1.80-1.90	3.5	49.5	94.6	20.7
+1.90	5.4	64.1	100.0	23.0

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 17.9

Screen % 10.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	13.5	8.0	13.5	8.0
1.40-1.50	56.1	10.9	69.6	10.3
1.50-1.60	13.8	19.3	83.4	11.8
1.60-1.70	6.2	30.2	89.6	13.1
1.70-1.80	3.7	37.9	93.3	14.1
1.80-1.90	2.0	47.5	95.3	14.8
+1.90	4.7	65.2	100.0	17.1

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 21.2

Screen % 3.2

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	6.0	17.3	6.0	17.3
30 x 45	4.4	17.9	10.4	17.6
45 x 60	4.9	18.0	15.3	17.7
60 x 90	7.9	18.5	23.2	18.0
90 x 120	7.1	18.8	30.3	18.2
Tails	69.7	22.0	100.0	20.8

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	54.3	12.7	57.5	13.2
1.60	74.2	15.6	77.4	15.8

Sample Description Adit #1 73' Face Channel

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 34.0 (db)

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	26.7	9.1	26.7	9.1
1.40-1.50	17.5	17.3	44.2	12.3
1.50-1.60	11.1	27.5	55.3	15.4
1.60-1.70	7.4	37.1	62.7	18.0
1.70-1.80	7.0	43.0	69.7	20.5
1.80-1.90	2.0	49.3	71.7	21.3
+1.90	28.3	66.4	100.0	34.0

Screen % 85.6

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 24.8 (db)

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	35.9	6.1	35.9	6.1
1.40-1.50	22.3	13.4	58.2	8.9
1.50-1.60	9.4	24.2	67.6	11.0
1.60-1.70	5.9	33.7	73.5	12.8
1.70-1.80	4.9	42.6	78.4	14.7
1.80-1.90	3.2	49.3	81.6	16.1
+1.90	18.4	67.0	100.0	25.4

10.5

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 3.08 (db)

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	16.6	20.8	16.6	20.8
30 x 45	7.6	27.4	24.2	22.9
45 x 60	5.5	27.6	29.7	23.7
60 x 90	11.1	29.0	40.8	25.2
90 x 120	7.8	29.7	48.6	25.9
Tails	51.4	35.7	100.0	30.9

3.9

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	43.9	11.8	47.8	13.4
1.60	54.4	14.8	58.3	15.9
1.70	61.4	17.3	65.3	18.1

Sample Description Adit #1 73' Upper Face Ply

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 28.6

Screen % 85.8

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	40.2	6.8	40.2	6.8
1.40-1.50	10.7	20.9	50.9	9.8
1.50-1.60	10.2	31.6	61.1	13.4
1.60-1.70	9.4	40.4	70.5	17.0
1.70-1.80	8.8	47.5	79.3	20.4
1.80-1.90	8.4	55.4	87.7	23.7
+1.90	12.3	63.9	100.0	28.7

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 15.4

Screen % 11.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	60.9	5.1	60.9	5.1
1.40-1.50	13.9	16.4	74.8	7.2
1.50-1.60	5.3	27.5	80.1	8.5
1.60-1.70	4.8	37.5	84.9	10.2
1.70-1.80	3.3	44.5	88.2	11.5
1.80-1.90	3.0	51.2	91.2	12.8
+1.90	8.8	66.3	100.0	17.5

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 21.1

Screen % 2.9

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	64.3	16.6	64.3	16.6
30 x 45	4.4	17.3	68.7	16.6
45 x 60	2.7	17.5	71.4	16.7
60 x 90	1.8	19.6	73.2	16.8
90 x 120	0.2	19.7	73.4	16.8
Tails	26.6	30.4	100.0	20.4

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	52.2	9.4	55.1	10.0
1.60	61.5	12.7	64.4	13.1
1.70	70.1	16.1	73.0	16.3

Sample Description Adit #1 73' Middle Dirt Ply

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 56.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	1.8	8.6	1.8	8.6
1.40-1.50	1.9	16.9	3.7	12.9
1.50-1.60	5.5	27.1	9.2	21.4
1.60-1.70	7.4	36.2	16.6	28.0
1.70-1.80	11.7	44.3	28.3	34.7
1.80-1.90	13.2	49.1	41.5	39.3
+1.90	58.5	68.2	100.0	56.2

Screen % 88.2

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 45.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	13.0	5.6	13.0	5.6
1.40-1.50	9.1	13.1	22.1	8.7
1.50-1.60	6.6	22.4	28.7	11.8
1.60-1.70	7.3	33.5	36.0	16.2
1.70-1.80	8.1	42.0	44.1	21.0
1.80-1.90	9.4	48.8	53.5	25.9
+1.90	46.5	68.4	100.0	45.6

Screen % 8.7

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 51.4

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	18.5	37.4	18.5	37.4
30 x 45	2.4	39.4	20.9	37.6
45 x 60	2.0	39.5	22.9	37.8
60 x 90	3.0	40.2	25.9	38.2
90 x 120	1.5	44.0	27.4	38.5
Tails	72.6	57.2	100.0	52.1

Screen % 3.1

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	5.2	11.3	8.3	26.3
1.60	10.6	19.2	13.7	26.5
1.70	17.7	26.0	20.8	29.8

Sample Description Adit #1 73' Lower Coal Ply

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 23.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	18.7	7.4	18.7	7.4
1.40-1.50	30.8	14.6	49.5	11.9
1.50-1.60	23.6	25.2	73.1	16.2
1.60-1.70	15.4	34.3	88.5	19.3
1.70-1.80	7.1	43.4	95.6	21.1
1.80-1.90	2.2	49.6	97.8	21.8
+1.90	2.2	67.2	100.0	22.8

Screen % 78.9

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 17.7

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	22.5	6.0	22.5	6.0
1.40-1.50	48.6	12.1	71.1	10.2
1.50-1.60	12.5	23.4	83.6	12.1
1.60-1.70	7.8	32.8	91.4	13.9
1.70-1.80	3.9	41.2	95.3	15.0
1.80-1.90	2.0	47.6	97.3	15.7
+1.90	2.7	63.8	100.0	17.0

13.9

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 19.0

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	14.0	18.3	14.0	18.3
30 x 45	9.1	18.8	23.1	18.5
45 x 60	14.7	18.3	37.8	18.4
60 x 90	11.2	18.0	49.0	18.3
90 x 120	4.8	17.3	53.8	18.2
Tails	46.2	19.2	100.0	18.7

7.2

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	49.0	11.5	56.2	12.5
1.60	69.3	15.5	76.5	15.8
1.70	82.5	18.5	89.7	18.5

Sample Description Adit #1 84.5' Face Channel

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 35.5

Screen % 85.5

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	21.7	7.6	21.7	7.6
1.40-1.50	14.6	15.6	36.3	10.8
1.50-1.60	7.1	25.9	43.4	13.3
1.60-1.70	6.7	37.1	50.1	16.5
1.70-1.80	14.2	44.2	64.3	22.6
1.80-1.90	14.6	51.3	78.9	27.9
+1.90	21.1	67.7	100.0	36.3

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 28.3

Screen % 10.8

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	35.5	5.3	35.5	5.3
1.40-1.50	18.0	13.0	53.5	7.9
1.50-1.60	6.6	25.1	60.1	9.8
1.60-1.70	6.2	35.5	66.3	12.2
1.70-1.80	4.6	41.8	70.9	14.1
1.80-1.90	7.2	47.5	78.1	17.2
+1.90	21.9	63.6	100.0	27.4

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 32.8

Screen % 3.7

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	47.7	26.9	47.7	26.9
30 x 45	8.9	33.6	56.6	28.0
45 x 60	7.7	33.5	64.3	28.6
60 x 90	3.5	30.8	67.8	28.7
90 x 120	1.8	30.4	69.6	28.8
Tails	30.4	39.4	100.0	32.0

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	36.8	10.3	40.5	12.4
1.60	43.6	12.8	47.3	14.4
1.70	50.0	15.9	53.7	17.1

Sample Description Adit #1 84.5' Upper Coal Ply

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 26.1

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	48.2	7.8	48.2	7.8
1.40-1.50	11.8	21.2	60.0	10.4
1.50-1.60	8.9	30.9	68.9	13.1
1.60-1.70	8.3	39.3	77.2	15.9
1.70-1.80	7.4	48.3	84.6	18.7
1.80-1.90	6.6	52.9	91.2	21.2
+1.90	8.8	66.7	100.0	25.2

Screen % 76.1

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 17.5

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	67.5	5.5	67.5	5.5
1.40-1.50	9.2	18.0	76.7	7.0
1.50-1.60	5.9	28.3	82.6	8.5
1.60-1.70	2.8	36.5	85.4	9.4
1.70-1.80	2.8	44.1	88.2	10.5
1.80-1.90	2.8	50.3	91.0	11.8
+1.90	9.0	66.3	100.0	16.7

Screen % 17.8

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 19.6

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	63.9	13.0	63.9	13.0
30 x 45	4.3	14.0	68.2	13.1
45 x 60	4.3	18.6	72.5	13.4
60 x 90	3.2	29.4	75.7	14.1
90 x 120	5.3	32.0	81.0	15.2
Tails	19.0	32.4	100.0	18.5

Screen % 6.1

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	59.4	9.6	65.5	10.5
1.60	67.1	12.1	73.2	12.7
1.70	73.9	14.6	80.0	15.0

Sample Description Adit #1 84.5' Middle Dirt Ply

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 45.4

Screen % 85.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	7.1	6.2	7.1	6.2
1.40-1.50	8.5	21.4	15.6	14.5
1.50-1.60	11.1	29.6	26.7	20.8
1.60-1.70	13.7	39.5	40.4	27.1
1.70-1.80	15.2	46.3	55.6	32.3
1.80-1.90	12.4	52.7	68.0	36.1
+1.90	32.0	67.9	100.0	46.3

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 39.0

10.7

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	16.2	4.6	16.2	4.6
1.40-1.50	5.7	17.1	21.9	7.9
1.50-1.60	5.3	26.9	27.2	11.6
1.60-1.70	5.3	35.4	32.5	15.5
1.70-1.80	6.1	21.7	38.6	16.4
1.80-1.90	42.7	46.7	81.3	32.3
+1.90	18.7	66.9	100.0	38.8

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 41.7

3.7

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	15.7	13.5	19.4	18.9
1.60	25.8	19.7	29.5	22.5
1.70	38.1	26.0	41.8	27.4

Sample Description Adit #1 (84.5') Lower Coal Ply

SINK/FLOAT ANALYSIS

Size Fraction: +28 mesh

Raw Ash 18.9

Screen % 81.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	40.7	6.8	40.7	6.8
1.40-1.50	29.7	15.5	70.4	10.5
1.50-1.60	13.4	25.7	83.8	12.9
1.60-1.70	9.1	35.1	92.9	15.1
1.70-1.80	1.9	43.4	94.8	15.6
1.80-1.90	1.4	51.9	96.2	16.2
+1.90	3.8	66.3	100.0	18.1

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 14.0

Screen % 14.1

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	52.9	5.2	52.9	5.2
1.40-1.50	26.7	12.4	79.6	7.6
1.50-1.60	8.8	23.9	88.4	9.2
1.60-1.70	5.3	33.1	93.7	10.6
1.70-1.80	2.2	41.3	95.9	11.3
1.80-1.90	1.2	52.1	97.1	11.8
+1.90	2.9	58.1	100.0	13.1

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 16.5

Screen % 4.3

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	68.6	10.0	72.9	10.4
1.60	80.9	12.3	85.2	12.5
1.70	89.0	14.4	93.3	14.5

Sample Description Adit #2 (25') Face Channel

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 29.0

Screen % 79.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	1.5	9.1	1.5	9.1
1.40-1.50	22.3	14.1	23.8	13.8
1.50-1.60	32.0	21.7	55.8	18.3
1.60-1.70	18.8	30.7	74.6	21.4
1.70-1.80	8.1	40.7	82.7	23.3
1.80-1.90	6.2	47.8	88.9	25.0
+1.90	11.1	64.0	100.0	29.4

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 26.5

Screen % 14.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	2.8	8.2	2.8	8.2
1.40-1.50	31.5	12.7	34.3	12.3
1.50-1.60	26.8	19.5	61.1	15.5
1.60-1.70	13.7	28.9	74.8	17.9
1.70-1.80	9.8	36.5	84.6	20.1
1.80-1.90	4.7	46.1	89.3	21.5
+1.90	10.7	64.3	100.0	26.0

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 33.4

Screen % 6.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	12.3	33.7	12.3	33.7
30 x 45	6.5	32.2	18.8	33.2
45 x 60	12.3	32.8	31.1	33.0
60 x 90	10.1	31.8	41.2	32.7
90 x 120	7.3	30.5	48.5	32.4
Tails	51.5	33.2	100.0	32.3

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	23.8	13.5	29.9	17.6
1.60	53.1	17.9	59.2	19.5
1.70	70.1	20.9	76.2	21.9

Sample Description Adit #2 (39') Face

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 26.2

Screen % 89.7

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	24.7	7.1	24.7	7.1
1.40-1.50	22.8	16.4	47.5	11.6
1.50-1.60	15.6	25.4	63.1	15.0
1.60-1.70	14.0	37.6	77.1	19.1
1.70-1.80	9.9	45.4	87.0	22.1
1.80-1.90	7.0	51.5	94.0	24.3
+1.90	6.0	65.2	100.0	26.7

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 18.6

Screen % 8.2

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	38.9	5.8	38.9	5.8
1.40-1.50	26.4	13.0	65.3	8.7
1.50-1.60	14.6	22.3	79.9	11.2
1.60-1.70	7.6	31.9	87.5	13.0
1.70-1.80	4.5	41.4	92.0	14.4
1.80-1.90	2.8	48.7	94.8	15.4
+1.90	5.2	65.7	100.0	18.0

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 24.0

Screen % 2.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	48.0	11.3	50.1	11.8
1.60	63.2	14.6	65.3	14.9
1.70	76.4	18.5	78.5	18.6

Sample Description Adit #2 (39') Middle Dirt Ply

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 63.9

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	1.9	5.5	1.9	5.5
1.40-1.50	3.3	18.3	5.2	13.6
1.50-1.60	3.6	26.6	8.8	18.9
1.60-1.70	3.0	34.1	11.8	22.8
1.70-1.80	2.1	41.9	13.9	25.7
1.80-1.90	6.5	50.1	20.4	33.5
+1.90	79.6	70.5	100.0	63.0

Screen % 89.4

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 50.3

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	7.5	3.8	7.5	3.8
1.40-1.50	12.7	11.2	20.2	8.5
+1.50	79.8	59.4	100.0	49.1

Screen % 6.5

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 61.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

Screen % 4.1

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	5.9	12.6	10.0	32.5

Sample Description Adit #2 (39') Top Coal Ply

SINK/FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 23.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	51.1	7.7	51.1	7.7
1.40-1.50	3.5	18.3	54.6	8.4
1.50-1.60	8.8	27.5	63.4	11.0
1.60-1.70	11.4	37.8	74.8	15.1
1.70-1.80	12.6	46.4	87.4	19.6
1.80-1.90	9.2	51.9	96.6	22.7
+1.90	3.4	58.3	100.0	23.9

Screen % 89.4

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 16.6

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	52.5	6.0	52.5	6.0
1.40-1.50	23.3	13.0	75.8	8.2
1.50-1.60	6.7	24.0	82.5	9.4
1.60-1.70	5.3	33.2	87.8	10.9
1.70-1.80	4.7	43.4	92.5	12.5
1.80-1.90	2.7	49.9	95.2	13.6
+1.90	4.8	60.5	100.0	15.8

Screen % 8.1

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 21.8

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

Screen % 2.5

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	54.9	8.4	57.4	9.0
1.60	63.4	10.8	65.9	11.2
1.70	74.0	14.7	76.5	14.9

Sample Description Adit #2 (39') Bottom Boney

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 22.1

Screen % 91.2

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	23.0	8.7	23.0	8.7
1.40-1.50	36.2	16.5	59.2	13.5
1.50-1.60	19.1	24.1	78.3	16.1
1.60-1.70	10.7	34.6	89.0	18.3
1.70-1.80	5.3	42.8	94.3	19.7
1.80-1.90	1.6	49.4	95.9	20.2
+1.90	4.1	66.1	100.0	22.0

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 18.0

Screen % 6.7

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	32.1	7.0	32.1	7.0
1.40-1.50	35.7	13.1	67.8	10.2
1.50-1.60	16.1	21.9	83.9	12.5
1.60-1.70	8.6	30.3	92.5	14.1
1.70-1.80	2.9	41.7	95.4	15.0
1.80-1.90	1.4	47.0	96.8	15.4
+1.90	3.2	66.0	100.0	17.0

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 21.0

Screen % 2.1

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec				
30 x 45				
45 x 60		N.S.S.		
60 x 90				
90 x 120				
Tails				

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	58.5	13.3	60.6	13.6
1.60	77.0	15.8	79.1	15.9
1.70	87.4	18.0	89.5	18.1

Sample Description Adit #2 (39') Partial Face

SINK / FLOAT ANALYSIS

Size Fraction

+28 mesh

Raw Ash 26.6

Screen % 90.4

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	0.6	10.5	0.6	10.5
1.40-1.50	25.5	12.2	26.1	12.2
1.50-1.60	32.7	20.2	58.8	16.6
1.60-1.70	15.6	30.6	74.4	19.6
1.70-1.80	10.4	39.4	84.8	22.0
1.80-1.90	7.0	46.9	91.8	23.9
+1.90	8.2	65.8	100.0	27.3

SINK / FLOAT ANALYSIS

28 mesh x 100 mesh

Raw Ash 25.1

Screen % 7.0

S.G. FRACTION	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
-1.40	0.4	7.6	0.4	7.6
1.40-1.50	34.8	10.5	35.2	10.5
1.50-1.60	29.9	16.9	65.1	13.4
1.60-1.70	12.9	27.3	78.0	15.7
1.70-1.80	8.1	36.7	86.1	17.7
1.80-1.90	4.6	45.1	90.7	19.1
+1.90	9.3	66.6	100.0	23.5

FROTH FLOTATION TEST

100 mesh x 0

Raw Ash 30.1

Screen % 2.6

FROTH TEST	WT. %	ASH %	Cumulative WT. %	Cumulative ASH %
30 sec	6.7	26.4	6.7	26.4
30 x 45	3.2	26.1	9.9	26.3
45 x 60	3.4	26.9	13.3	26.5
60 x 90	3.8	26.5	17.1	26.5
90 x 120	3.4	26.1	20.5	26.4
Tails	79.5	28.3	100.0	27.9

Products:

	Plus 100 mesh WT. %	Plus 100 mesh ASH %	Inc. Raw minus 100 mesh WT. %	Inc. Raw minus 100 mesh ASH %
@ 1.50	26.1	12.0	28.7	13.6
1.60	57.7	16.4	60.3	17.0
1.70	72.8	19.3	75.4	19.7

GULF-WAPITI-ADIT #1 BULK SAMPLE

SIZE & RAW ANALYSIS, d.b.: AS RECEIVED RAW COAL

SIZE FRACTION	WT. %	ASH %	S %	Btu/lb	Cumulative	
					WT. %	ASH %
100mm x 50 mm	3.8	39.2	0.44	7713	3.8	39.2
50mm x 25 mm	10.7	37.3	0.47	7895	14.5	37.8
25mm x 12.5mm	16.5	33.5	0.47	8501	31.0	35.5
12.5mm x 6mm	15.3	33.2	0.42	8579	46.3	34.7
6mm x 3mm	15.5	26.7	0.48	9378	61.8	32.7
3mm x 0.5mm	27.5	19.3	0.55	10487	89.3	28.6
0.5mm x 0.15mm	7.7	19.4	0.58	10427	97.0	27.9
0.15mm x 0	3.0	24.7	0.53	9437	100.0	27.8

WT% + 100mm = 0.2% - crushed to pass 100mm

SIZE & RAW ANALYSIS, d.b.: ATTRITED RAW COAL

SIZE FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
+ 100 mm	nil	-	-	-
100mm x 50mm	0.4	44.4	0.4	44.4
50mm x 25mm	2.9	43.5	3.3	43.6
25mm x 12.5mm	8.0	44.2	11.3	44.0
12.5mm x 6mm	15.2	39.0	26.5	41.1
6mm x 3mm	17.4	31.5	43.9	37.3
3mm x 0.5mm	37.1	20.3	81.0	29.5
0.5mm x 0.15mm	12.2	19.4	93.2	28.2
0.15mm x 0	6.8	23.3	100.0	27.9

GULF-WAPITI-ADIT #1 BULK SAMPLE

SINK / FLOAT ANALYSIS, d.b.: 100mm x 50mm (WT. % = 3.8)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	1.9	7.8	1.9	7.8
1.35 - 1.40	12.7	12.9	14.6	12.2
1.40 - 1.45	7.5	16.6	22.1	13.7
1.45 - 1.50	11.5	18.8	33.6	15.5
1.50 - 1.55	9.1	25.3	42.7	17.6
1.55 - 1.60	3.8	29.8	46.5	18.6
1.60 - 1.70	5.3	40.3	51.8	20.8
1.70 - 1.80	16.9	46.9	68.7	27.2
1.80 - 1.90	14.4	60.3	83.1	32.9
1.90 - 2.00	5.0	65.0	88.1	34.8
+ 2.00	11.9	72.3	100.0	39.2

N.B. All sink-float analyses and froth flotation test were done on as received size fractions (un-attrited).

GULF-WAPITI-ADIT #1 BULK SAMPLE

SINK / FLOAT ANALYSIS, d.b.: 50mm x 25mm (WT. % = 10.7)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	2.5	7.4	2.5	7.4
1.35 - 1.40	10.7	12.4	13.2	11.5
1.40 - 1.45	8.2	16.2	21.4	13.3
1.45 - 1.50	15.5	19.5	36.9	15.9
1.50 - 1.55	7.7	24.7	44.6	17.4
1.55 - 1.60	8.1	31.6	52.7	19.6
1.60 - 1.70	8.6	38.7	61.3	22.3
1.70 - 1.80	6.3	47.0	67.6	24.6
1.80 - 1.90	10.5	55.3	78.1	28.7
1.90 - 2.00	7.4	63.4	85.5	31.7
+ 2.00	14.5	70.6	100.0	37.3

SINK / FLOAT ANALYSIS, d.b.: 25mm x 12.5mm (WT. % = 16.5)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	4.8	6.4	4.8	6.4
1.35 - 1.40	7.8	9.9	12.6	8.6
1.40 - 1.45	13.2	14.2	25.8	11.4
1.45 - 1.50	12.7	19.5	38.5	14.1
1.50 - 1.55	10.2	25.6	48.7	16.5
1.55 - 1.60	4.7	30.2	53.4	17.7
1.60 - 1.70	12.0	37.7	65.4	21.4
1.70 - 1.80	12.9	46.9	78.3	25.6
1.80 - 1.90	6.3	55.7	84.6	27.8
1.90 - 2.00	6.7	63.5	91.3	30.4
+ 2.00	8.7	70.6	100.0	33.9

GULF-WAPITI-ADIT #1 BULK SAMPLE

SINK/FLOAT ANALYSIS, d.b.: 12.5mm x 6mm (WT. % = 15.3)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	7.8	6.7	7.8	6.7
1.35 - 1.40	11.3	11.2	19.1	9.4
1.40 - 1.45	7.0	14.9	26.1	10.8
1.45 - 1.50	11.3	19.0	37.4	13.3
1.50 - 1.55	9.1	24.9	46.5	15.6
1.55 - 1.60	5.6	29.8	52.1	17.1
1.60 - 1.70	11.9	36.8	64.0	20.8
1.70 - 1.80	15.1	45.6	79.1	25.5
1.80 - 1.90	6.7	54.6	85.8	27.8
1.90 - 2.00	5.7	62.9	91.5	30.0
+ 2.00	8.5	71.0	100.0	33.5

SINK/FLOAT ANALYSIS, d.b.: 6mm x 3mm (WT. % = 15.5)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	8.8	5.8	8.8	5.8
1.35 - 1.40	16.4	9.2	25.2	8.0
1.40 - 1.45	10.9	13.2	36.1	9.6
1.45 - 1.50	12.3	17.8	48.4	11.7
1.50 - 1.55	8.4	21.9	56.8	13.2
1.55 - 1.60	6.7	27.5	63.5	14.7
1.60 - 1.70	10.7	34.8	74.2	17.6
1.70 - 1.80	12.2	44.4	86.4	21.4
1.80 - 1.90	4.6	53.5	91.0	23.0
1.90 - 2.00	3.5	61.1	94.5	24.4
+ 2.00	5.5	72.0	100.0	27.0

GULF-WAPITI-ADIT #1 BULK SAMPLE

SINK / FLOAT ANALYSIS, d.b.: 3mm x 0.5mm (WT. % = 27.5)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	11.5	5.1	11.5	5.1
1.35 - 1.40	29.1	7.0	40.6	6.5
1.40 - 1.45	15.4	11.3	56.0	7.8
1.45 - 1.50	14.9	16.8	70.9	9.7
1.50 - 1.55	6.2	22.9	77.1	10.7
1.55 - 1.60	4.1	27.3	81.2	11.6
1.60 - 1.70	5.7	33.9	86.9	13.0
1.70 - 1.80	5.4	43.6	92.3	14.8
1.80 - 1.90	2.7	53.3	95.0	15.9
1.90 - 2.00	1.3	60.1	96.3	16.5
+ 2.00	3.7	72.1	100.0	18.6

SINK / FLOAT ANALYSIS, d.b.: 0.5mm x 0.15mm (WT. % = 7.7).

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	8.9	3.6	8.9	3.6
1.35 - 1.40	11.6	6.0	20.5	5.0
1.40 - 1.45	31.9	8.8	52.4	7.3
1.45 - 1.50	12.2	13.4	64.6	8.4
1.50 - 1.55	8.6	17.1	73.2	9.5
1.55 - 1.60	4.4	22.7	77.6	10.2
1.60 - 1.70	9.4	31.2	87.0	12.5
1.70 - 1.80	3.3	43.1	90.3	13.6
1.80 - 1.90	2.0	49.9	92.3	14.4
1.90 - 2.00	1.4	55.2	93.7	15.0
+ 2.00	6.3	79.4	100.0	19.1

GULF-WAPITI-ADIT #1 BULK SAMPLE

FROTH FLOTATION TEST, d.b. : 0.15mm x 0 (WT. % = 3.0)

PRODUCT	WT. %	ASH %	Cumulative	
			WT. %	ASH %
STAGE I	13.7	24.3	13.7	24.3
STAGE II	7.9	24.5	21.6	24.4
TAILINGS	78.4	25.3	100.0	25.1

F.F. PARAMETERS ----- Pulp Density = 10%

Reagent = 4:1=Ker:MIBC

Dosage = 0.50 lb/Ton

Conditioning Time = 60 seconds

Stage I = 1st min. Froth

Stage II = 2nd min. Froth

GULF-WAPITI-ADIT #2 BULK SAMPLE

SIZE & RAW ANALYSIS, d.b.: AS RECEIVED RAW COAL

SIZE FRACTION	WT. %	ASH %	S %	Btu / lb	Cumulative	
					WT. %	ASH %
50 x 25	1.6		-	-	1.6	-
25 x 12.5	6.4	40.3	0.34	7398	8.0	40.3
12.5 x 6	10.0	42.1	0.28	6915	18.0	41.3
6 x 3	24.0	30.9	0.36	8707	42.0	35.4
3 x 0.5	42.9	21.7	0.37	9830	84.9	28.5
0.5 x 0.15	9.7	29.8	0.48	8587	94.6	28.6
0.15 x 0	5.4	39.7	0.45	7204	100.0	29.2

WT% + 100 MM=0.3 - crushed to pass 100 MM
WT% 100 MM x 50 MM = 1.0 crushed to pass 50 MM

SIZE & RAW ANALYSIS, d.b.: ATTRITED RAW COAL

SIZE FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
+ 12.5 MM	0.8	55.6	0.8	55.6
12.5MM x 6	7.5	45.6	8.3	46.6
6 x 3	22.7	35.3	31.0	38.3
3 x 0.5	49.4	22.1	80.4	28.4
0.5 x 0.15	11.3	28.7	91.7	28.4
0.15 x 0	8.3	38.5	100.0	29.2

GULF-WAPITI-ADIT #2 BULK SAMPLE

SINK / FLOAT ANALYSIS, d.b.: 50MMx12.5MM (WT. % = 8.0)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	3.9	6.3	3.9	6.3
1.35 - 1.40	3.9	9.9	7.8	8.1
1.40 - 1.45	15.3	14.6	23.1	12.4
1.45 - 1.50	14.5	19.1	37.6	15.0
1.50 - 1.55	7.1	23.4	44.7	16.3
1.55 - 1.60	4.0	28.8	48.7	17.3
1.60 - 1.70	7.0	36.4	55.7	19.7
1.70 - 1.80	9.4	46.5	65.1	23.6
1.80 - 1.90	8.5	53.1	73.6	27.0
1.90 - 2.00	3.3	58.8	76.9	28.4
+ 2.00	23.1	76.8	100.0	39.6

SINK / FLOAT ANALYSIS, d.b.: 12.5MMx6MM (WT. % = 10.0).

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	5.0	6.5	5.0	6.5
1.35 - 1.40	3.5	10.4	8.5	8.1
1.40 - 1.45	5.5	15.0	14.0	10.8
1.45 - 1.50	8.6	19.0	22.6	13.9
1.50 - 1.55	7.1	23.6	29.7	16.2
1.55 - 1.60	5.8	29.0	35.5	18.3
1.60 - 1.70	11.4	36.4	46.9	22.7
1.70 - 1.80	14.8	45.1	61.7	28.1
1.80 - 1.90	12.9	52.3	74.6	32.3
1.90 - 2.00	6.8	58.3	81.4	34.4
+ 2.00	18.6	75.1	100.0	42.0

GULF-WAPITI-ADIT #2 BULK SAMPLE

SINK / FLOAT ANALYSIS, d.b.: 6MM x 3MM (WT. % = 24.0)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	6.6	7.0	6.6	7.0
1.35 - 1.40	8.0	9.3	14.6	8.3
1.40 - 1.45	13.1	13.4	27.7	10.7
1.45 - 1.50	13.4	18.3	41.1	13.2
1.50 - 1.55	9.6	23.1	50.7	15.1
1.55 - 1.60	7.9	28.0	58.6	16.8
1.60 - 1.70	11.9	35.1	70.5	19.9
1.70 - 1.80	10.4	44.1	80.9	23.0
1.80 - 1.90	8.1	50.9	89.0	25.5
1.90 - 2.00	3.6	57.4	92.6	26.8
+ 2.00	7.4	74.8	100.0	30.3

SINK / FLOAT ANALYSIS, d.b.: 3MM x 0.5MM (WT. % = 42.9).

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	10.4	5.2	10.4	5.2
1.35 - 1.40	13.1	7.8	23.5	6.6
1.40 - 1.45	21.1	10.6	44.6	8.5
1.45 - 1.50	16.1	15.1	60.7	10.3
1.50 - 1.55	9.5	20.0	70.2	11.6
1.55 - 1.60	6.8	24.8	77.0	12.7
1.60 - 1.70	7.6	31.4	84.6	14.4
1.70 - 1.80	4.8	40.5	89.4	15.8
1.80 - 1.90	3.4	48.5	92.8	17.0
1.90 - 2.00	1.8	54.7	94.6	17.7
+ 2.00	5.4	76.1	100.0	20.9

GULF-WAPITI-ADIT #2 BULK SAMPLE

WAPITI 2.

SINK / FLOAT ANALYSIS, d.b.: 0.50MMx0.15MM (WT. % = 9.7)

S.G. FRACTION	WT. %	ASH %	Cumulative	
			WT. %	ASH %
- 1.35	5.4	7.0	5.4	7.0
1.35 - 1.40	9.4	7.9	14.8	7.6
1.40 - 1.45	16.8	9.9	31.6	8.8
1.45 - 1.50	13.3	13.2	44.9	10.1
1.50 - 1.55	10.9	16.9	55.8	11.4
1.55 - 1.60	8.4	21.2	64.2	12.7
1.60 - 1.70	9.7	27.5	73.9	14.7
1.70 - 1.80	5.3	37.9	79.2	16.2
1.80 - 1.90	3.1	47.3	82.3	17.4
1.90 - 2.00	2.2	54.7	84.5	18.4
+ 2.00	15.5	88.2	100.0	29.2

GULF-WAPITI-ADIT #2 BULK SAMPLE

FROTH FLOTATION TEST, d.b. : 0.15MM x 0 (WT.% = 5.4)

PRODUCT	WT.%	ASH %	S%	Cumulative	
				WT.%	ASH%
STAGE I	13.5	34.6	0.49	13.5	34.6
STAGE II	8.8	38.3	0.44	22.3	36.1
TAILINGS	77.7	40.0	0.44	100.0	39.1

F.F. PARAMETERS ----- Pulp Density = 10%

Reagent = 4:1 = Kerosene:MIBC

Dosage = 0.50/lb/Ton

Conditioning Time = 60 seconds

Stage I = 1st Minute Froth

Stage II = 2nd Minute Froth

GULF-WAPITI-ADIT #2 BULK SAMPLE

CLEAN COAL COMPOSITE: ULTIMATE ANALYSIS

H O	C	H	N	ASH	S	O (by diff.)	BASIS
7.46	62.09	3.50	0.67	7.03	0.30	18.95	a.d.b.
-	67.10	3.78	0.72	7.60	0.32	20.48	d.b.
-	72.62	4.09	0.78	-	0.35	22.16	d.a.f.

PR-Wapiti 80(10)A

NorWest

Gulf Canada Resources Inc.
Wapiti Project
1979 -1980

Coal License Number 4982
Peace River District
Map Number 93P/7
Latitude 55° 23' 30"
Longitude 120° 47'

REPORT ON EXPERIMENTAL TEST TO DRIVE A SMALL DIAMETER CHANNEL IN A COAL SEAM

Gulf Canada Resources Inc.
Norwest Resource Consultants Ltd.
July 10, 1980

Province of British Columbia

MEMORANDUM

TO: Alex
Geology

FROM:

SUBJECT: Gulf - Wapiti Project

DATE: 82/01/27

- [ ] For Your Information
- [ ] Please O.K. and Return
- [ ] Please Discuss With Me
- [ ] Per Your Request
- [ ] For Your Signature
- [x] Please Process
- [ ] Return With More Details
- [ ] Investigate and Report
- [ ] Please Answer
- [ ] For Your File

Enclosed is a report on Gulf's experimental in-situ coal gasification project. No work credit has been claimed at this time but may be requested in near future.

Earl

REPLY:

WRITE YOUR REPLY AND RETURN THIS SHEET

Fold Here for Window Envelope

Fold Here for Window Envelope

NorWest

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FIGURES

NorWest

1.0 Terms of Reference

Norwest Resource Consultants Ltd. were retained by Gulf Canada Resources Inc. to observe and report, as an independent consultant, on an experimental test to drive a small diameter channel in a coal seam. The report would include:

a) A description of the equipment and procedures.

b) A description of the results of the experiment.

c) A list of the personnel present during the experiment.

2.0 Summary

a) The first experimental burn test was on March 21, 1980. The nozzle of the feed coil was advanced approximately 15" from the directional elbow of the feed pipe into the coal seam. The time from the start up of the coal ignition system to the time of the withdrawal of the feed coil was approximately 7 hours and 15 minutes.

b) The second experimental burn test was on March 31, 1980. From the feed gauge readings, the nozzle of the feed coil was probably not out of the feed pipe. The test probably failed due to problems with the coal ignition system. The time from start up of the coal ignition system to the time of withdrawal of the feed coil was about 5 hours and 40 minutes.

c) The third experimental burn test was on April 2 and April 3, 1980. The nozzle of the feed coil was advanced approximately 5 feet 6 inches from the directional elbow of the feed pipe into the coal seam. The time from the start up of the coal ignition system to the time of the withdrawal of the feed coil was about 33 hours and 15 minutes.

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3.0 Location

The site for the experimental burn tests was located some 43 miles south and west of the City of Dawson Creek in British Columbia at approximately mile 22 on the Flatbed Road. (Heritage Highway) The tests were conducted on British Columbia Coal License Number 4982 held by Gulf Canada Resources Inc. (See Figures 1 and 2)

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4.0 Introduction

4.1 Preparation

Gulf Canada Resources Inc. completed a drilling and geophysical logging program on their coal licenses in the Wapiti area prior to the experimental burn test. The specific site for the burn test was selected from the coal outcrop appearing along the cut bank of the Flatbed Road. An application for the burn test was made to the Government of British Columbia and after receiving approval to proceed an access road was built to the site and the area was cleared. Prior to the actual burn test, a pilot hole in the site area had been drilled and geophysically logged. Only radio active logs were run due to a lack of water in the drill hole. The logs were sidewall densilog and gamma ray neutron. The coal seam had been cored and a description of the core had been made. The office and warehouse trailers, the fuel tanks, electrical generator and other support equipment were moved to the site. A rat hole auger rig drilled a 21 inch diameter hole to the top of the coal seam and a 15 inch inside diameter steel casing was set in place from the surface of the ground to the top of the coal seam. A gas line was installed from the casing to a flare stack to burn the product gases from the coal burn. The equipment for the burn test such as the rig, the compressors and the hydraulic mechanism was also moved to the site. The specially constructed liner, which included the feed pipe and directional elbow for the feed coil, the propane lines and electrical lines for the ignition system, and the water pipe for flooding or pumping, was brought to the site and installed in the steel casing.

4.2 Operation

The rig used for the experimental test to drive a small diameter channel in a coal seam was constructed by Mr. Karol Sabol, P.Eng. and B.J.K. Engineering Ltd. under license on patents developed by Mr. Karol Sabol. (Drill Tool Technology - Canada Patent Number 1061772)

The experiment was conducted to test the capabilities of the rig to drive a small diameter channel in a coal seam in a controlled direction for a distance of 400 feet at a penetration rate of approximately 50 feet per day.

The basis of the operation was to first install the liner inside the 15 inch inside diameter casing and then position the rig over the test hole. The flexible coil was inserted into the feed pipe and advanced by means of the hydraulic feed mechanism to the directional elbow. The coal seam was ignited by a propane flame. The propane was ignited by an electrical heating coal and combustion was supported by a controlled volume of compressed air which was fed through the feed coil to the nozzle. The coal ignition system was located at the exit from the directional elbow. After the coal had been ignited, the propane was shut off and the flow of compressed air was increased to maintain the combustion of the coal. The flexible coil is sheathed by links of heat resistant steel which allow the coil to bend in only one direction and also lock into a rigid pipe after advancing out of the directional elbow into the coal seam in a horizontal direction. The feed coil is then fed by the hydraulic feed mechanism through the feed pipe into the coal seam as the small diameter channel is burned through the coal. The product gases are fed by the return air stream through the liner and casing then exhausted out the gas line to the flare stack. (See Figure 3) During the burn tests the air quality around the site and the rig where the men were working was tested periodically for any harmful gases that might develop from the experiment.

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4.3 Personnel

The principal personnel present during the experiments were:

K. Sabol	President of B.J.K. Engineering Ltd. and developer of the patent.
J. Ponto	B.J.K. Engineering Ltd.
T. Rojek	B.J.K. Engineering Ltd.
W. Dow	Gulf Canada Resources Inc.
A. Ree	Gulf Canada Resources Inc.
D. McVicar	Gulf Canada Resources Inc.
K. Rakhit	Gulf Canada Resources Inc.
W. Hardcastle	Norwest Resource Consultants Ltd.

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5.0 Experiments

5.1 First Burn Test

The first experimental burn test was performed on March 21, 1980 in a south westerly direction (034° T). The test was to burn the channel in the coal for about 165 feet in the direction of the major cleat in the coal. The start up of the ignition system was at 14:15 hours in the afternoon and the coal was ignited by 17:15 hours. The first burn test is summarized in Table 1.

The temperature at the lower thermocouple varied from approximately 550°C to 800°C. There was a short peak temperature of 842°C. The upper thermocouple read about 248°C. At 21:30 hours the feed nozzle would not advance any further into the coal seam and it was decided to abandon the test and pull the feed coil. The gauge reading registered 15 feet when the feed coil was pulled out of the feed pipe which was an indication that approximately 15 feet of the outside links were broken off the feed coil and missing. Some of the sheathing was torn away and the exposed flexible inner core was stretched and damaged.

The temperature of the lower thermocouple was observed for a few hours while waiting for a water truck. The temperature dropped from 360°C at 22:00 hours on March 21 to 100°C at 2:00 hours in the morning of March 22. When the water truck arrived the hole was flooded with water to extinguish any fire in the coal seam.

On March 22, the liner was pulled out of the hole. The liner, feed coil etc. were examined and measurements made. There were 4 coil links and the coil nozzle hanging from the exit of the feed pipe by a couple of wires. There were also 55 coil links still inside the feed pipe.

The actual measurements taken after recovering the separated links were 55 - 3" links in the feed pipe and the 4 links plus the nozzle outside the directional elbow of the feed pipe. This agreed with the 15 feet registered on the gauge. The measurements on Figure 4 show the distance from the reading gauge to the exit of the feed pipe to be 44'0". The feed coil advanced to a gauge reading of 45'3". From the observations and measurements it would appear that the feed coil was only about 15" out of the directional elbow of the feed pipe and into the coal seam.

The burn marks noted on the liner and the water pipe were measured and are shown on Figure 5. These measurements agreed with the log of the coal seam. (See Figures 8 and 9 by W. Dow).

The sides of the hole below the casing were probed using a jerry built tool consisting of a pointed board and two ropes. We were able to ascertain that the void caused by the burning coal was approximately 38'10" below the flange on the casing. Also that there were no other voids around the hole.

During the burn test there was considerable pressure applied to the feed coil by the hydraulic system on the rig. On more than one occasion the pressure actually lifted the rig off the ground a few inches placing the load directly on the feed coil. It is believed that the feed coil was well supported inside the feed pipe but probably buckled where it was out of the directional elbow of the feed pipe and against either the parting in the coal seam or against coal that was not burning. The buckling caused the feed coil to catch on the directional elbow of the feed pipe when being pulled out and thus caused the feed coil to break at a weak point.

It was suggested that a down hole camera be used to photograph the hole below the casing to obtain pictures of the burn test. Also that the hole be geophysically logged. The logs run on the hole on March 27, 1980 were gamma ray neutron and sidewall densilog. An attempt was made to run a focus beam resistivity log, however, the water level was only about one foot above the bottom of the casing and there was too much interference for a decent log. The results of this work are summarized on Figure 9.

5.2 Second Burn Test

The second experimental burn test was performed on March 31, 1980. Prior to this test the damage to the rig from the first burn test had to be repaired by B.J.K. Engineering Ltd. The second test was essentially the same in direction and distance. However, the exit of the directional elbow was raised 10" higher in the coal seam than the first test. (See Figure 6)

The ignition system was started at 19:20 hours and the gauge reading for the advance of the nozzle of the feed coil was 42'3". Therefore the nozzle was still inside the feed pipe. There were problems with the propane regulator and this had to be changed. The burn test is summarized in Table 2. The second burn test was abandoned shortly after midnight on April 1. The feed coil nozzle was probably not out of the feed pipe.

Subsequent investigation revealed that very little propane was used during the second test at least up to the time that the change was made to another propane tank. The check on the first propane tank showed that only about .8 pounds were used in 3 to 4 hours. When the liner was pulled out of the hole, the roofing paper wrapped around the bottom of the liner was only burned in the area of the exit of the directional elbow. There were also two soft damp lumps of clay in the elbow of the feed pipe near the exit. If there had been any amount of heat, the lumps would have been dried out and baked hard. The possible reason for the failure of the second test was that the 1 mm orifice on the propane nozzle was partially plugged.

5.3 Third Burn Test

The third experimental burn test was performed on April 2 and April 3, 1980 in a south easterly direction at 90° from the first burn test (124° T). The test was to burn the channel in the coal seam for about 400 feet in the direction of the minor cleat in the coal. The exit of the directional elbow was also raised 10" higher in the coal seam than the second test. (See Figure 7)

The ignition system was started at 13:45 hours on April 2. The burn test is summarized in Table 3 which shows the more significant times, temperatures etc. of the third test.

The problem with the propane occurred again, however, the coal was finally ignited by 17:30 hours on April 2. Twice during the burn test, water plugged the exhaust gas line to the flare stack causing a build up of pressure and a blow out of steam and water up the flare stack and the coil feed pipe. Also at 20:30 hours on April 3 two compressors were connected to one receiver tank and to the feed coil.

The measurements on Figure 7 show the distance from the reading gauge to the exit of the feed pipe to be 44'4". The feed coil advanced to a gauge reading of 49'10". This indicates that the nozzle advanced 5'6" from the liner into the coal seam. The following summary show the rate of advance:

Time		Advance
21:30 - 1:00	3½ hours	1 foot
1:00 - 1:46	3/4 hour	1 foot
1:46 - 2:45	1 hour	1 foot
2:45 - 6:30	3 3/4 hours	1 foot
6:30 - 17:00	10½ hours	1 foot

The test was abandoned at 23:00 hours on April 3 and the feed coil was pulled out of the feed pipe. The coil was broken and similar damage occurred as happened in the first burn test. When the damage was assessed, it was believed that only the nozzle was lost down the hole. Several links had been damaged and from their appearance it was reasoned that the nozzle had turned upward against coal face and crushed and bent the next four links. After completion of the third burn test the liner was left in place in the steel casing and will be removed later. It may be possible to assess the results of this burn test more fully at that time. The nozzle may also be recovered to verify the reasoning for the damage to the feed coil.

6.0 Recommendations

Considerable major redesign would be necessary before the equipment could be used on a large scale. The rig is not mobile enough and should be mounted on a track or rubber tired vehicle. The auxiliary equipment such as the control panel, hydraulic pump unit and compressor should be mounted on possibly a second vehicle. The rig should have hydraulic leveling devices at the four corners.

There are some minor design changes that could be made if another experimental burn test is anticipated such as:

a) An improved brake system on the drum coil.
b) Gauges for reading thermocouple temperatures should be mounted permanently on the control panel.
c) A gauge to measure air flow from the compressor to feed coil should be added.
d) A gauge to measure propane flow should be added.
e) A system to ensure that the directional elbow of the feed pipe and the feed coil and the nozzle are in alignment.
f) The propane line should be modified to prevent a recurrence of the problems encountered in the second burn test.

7.0 References

Application dated September 25, 1979 by Gulf Canada Resources Inc. to the Government of British Columbia to carry out an Experimental Test to Drive a Small Diameter Channel in a Coal Seam.

TABLE 1

FIRST BURN TEST

March 21, 1980

Time	Temp. °C	Feed Gauge	Remarks
14:15			Started ignition system
17:15	650	44'5"	Coal ignited
19:00	750	45'1"	
20:00	550	45'3"	
21:00	545	45'3"	
21:20	554	45'3"	Upper thermocouple 248° C
21:30			Test abandoned and pulled feed coil

TABLE 2

SECOND BURN TEST

March 31, 1980

Time	Temp. °C	Feed Gauge	Remarks
19:20			Started ignition system
20:00	190	42'3"	
20:15	302	42'3"	
20:30	294	42'3"	
20:45	195	42'3"	Increased propane pressure
21:00	267	42'9"	Dropped to 244°C
21:15	276	42'9"	
21:30	492	42'9"	
21:45	670	42'10"	
22:00	415	42'11"	
22:15	263		Dropped to 188°C
22:30	239		
22:45	150		Changed propane tanks
23:30	743	43'5"	
23:45	700		
24:00	700		
April 1, 1980			
0:15	575		
0:30	320		
0:45	234		
1:00	180		Test abandoned and pulled feed coil

TABLE 3

THIRD BURN TEST

April 2, 1980

Time	Temp °C	Feed Gauge	Remarks
13:45			Started ignition system
14:00			Trouble with propane feed
14:30			Disconnect propane to blow out lines
15:15			Change propane tanks
15:30	179	43'9"	
16:00	312		
16:30	304		
17:00	364		
17:30			First sign of burning
18:00	772		
18:30	520		
19:00	574		
19:30	540		
20:00	571		Upper thermo couple 232°C
20:30	533		Upper thermo couple 250°C
21:00	595	44'1"	Upper thermo couple 272°C
21:30	682	44'10"	
22:25	1000	45'0"	Upper thermo couple 298°C
22:54	877	45'3"	

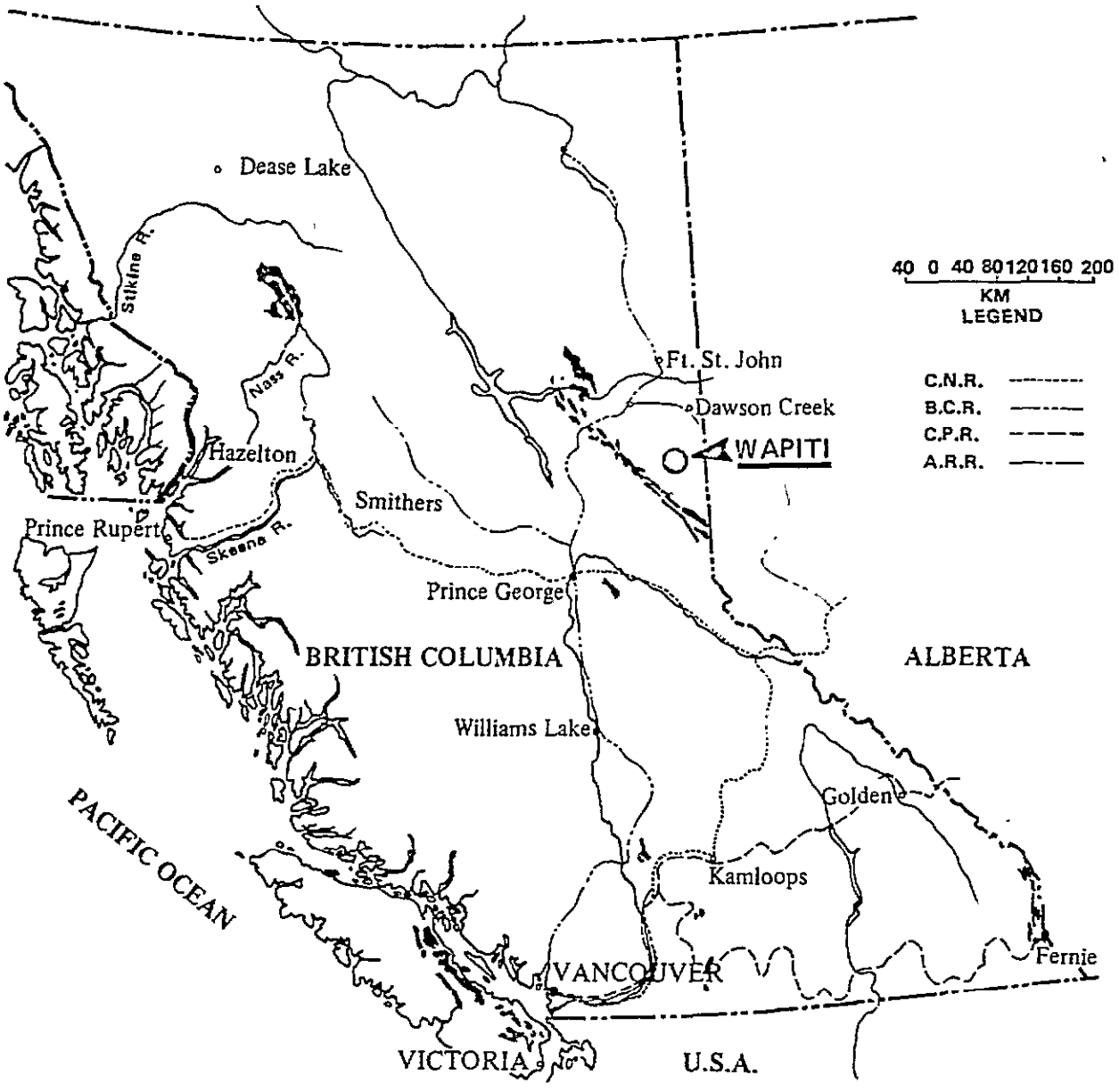
NorWest

April 3, 1980

Time	Temp °C	Feed Gauge	Remarks
0:16	649	45'4"	
0:43	626	45'8"	
1:00	631	45'11"	
1:14	586	46'2"	
1:34	563	46'8"	Upper thermo couple 279°C
1:46	575	46'11"	
2:02	547	47'3"	Upper thermo couple 283°C
2:31	554	47'8"	Upper thermo couple 289°C
2:45	552	47'11"	Upper thermo couple 289°C
3:15	570	48'1"	Upper thermo couple 291°C
4:20	568	48'2"	
5:20	573	48'3"	
6:05	591	48'8"	
6:30	595	48'11"	
6:42	589	49'2"	
7:10	588	49'4"	
8:40	592	49'6"	
8:58	590	49'8"	
10:50			Water plug on flare line
13:13	559	49'9"	
13:55			Water plug on flare line
14:32	526	49'2"	
15:00	509	49'6"	

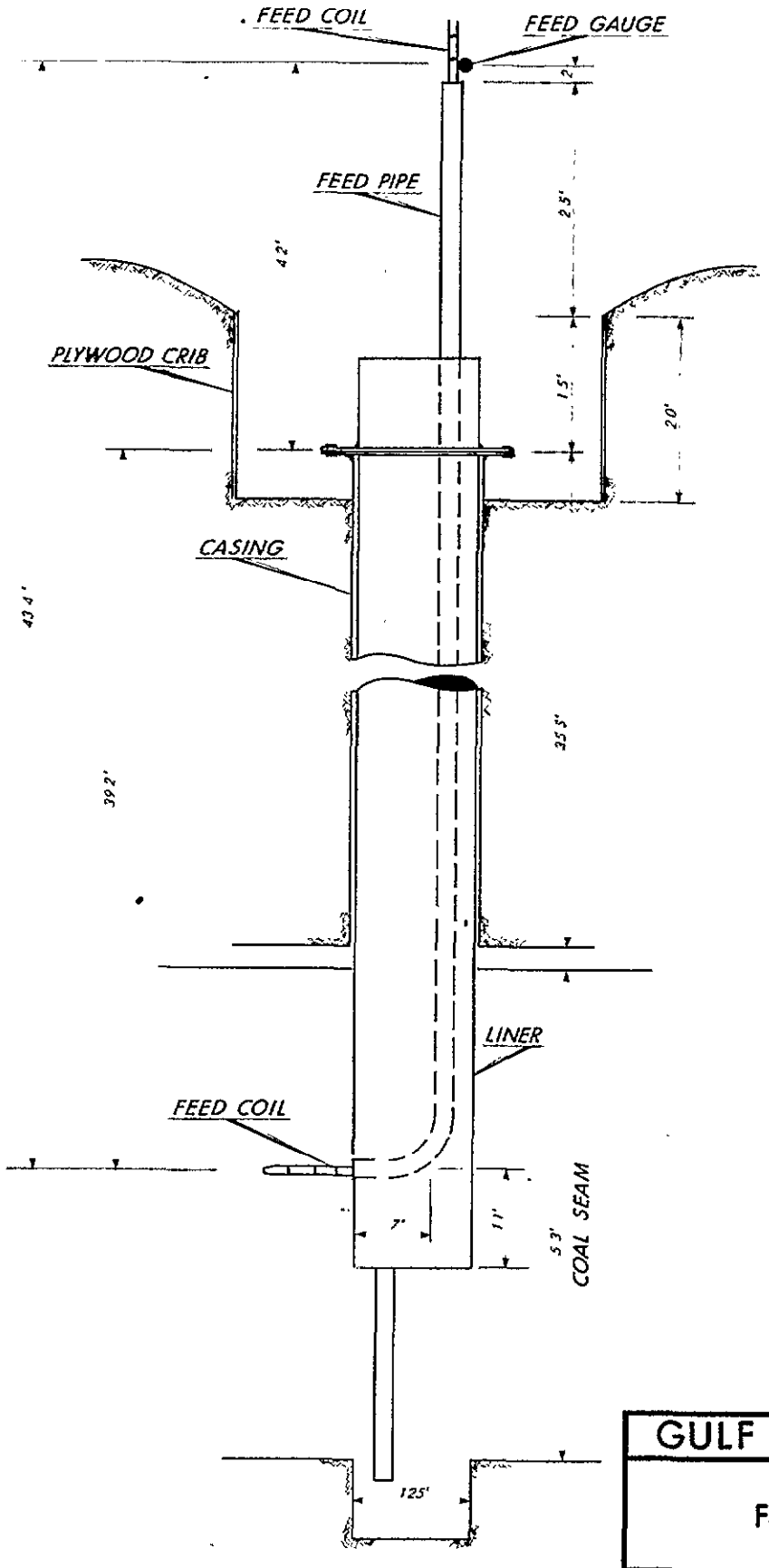
NorWest

Time	Temp ^{o}C	Feed Gauge	Remarks
16:26	511	49'9"	
17:07	513	49'10"	
20:21	540	49'10"	
20:30			Connected two compressors to one receiver tank to the feed coil.
23:00			Test abandoned and pulled feed coil.

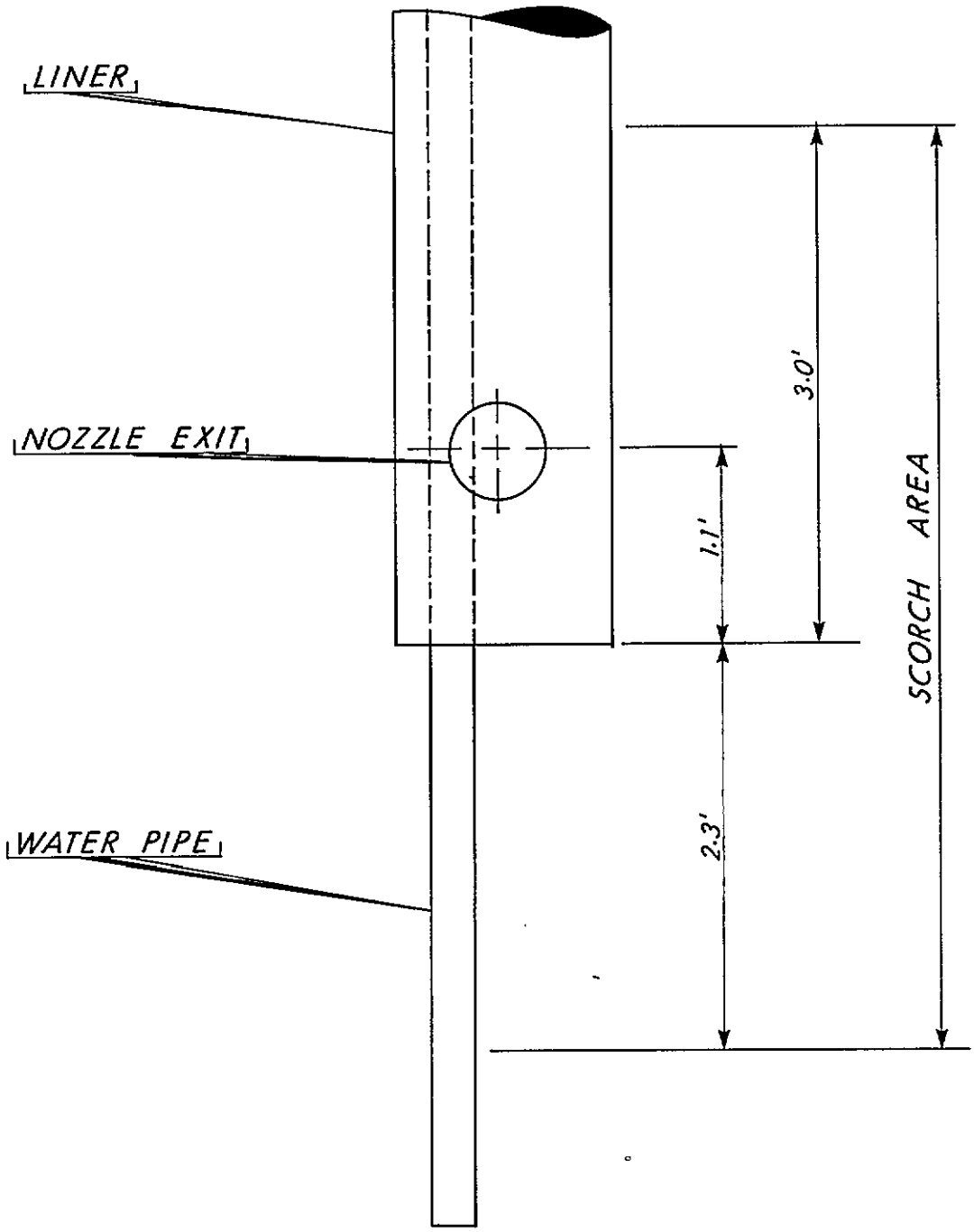


GULF CANADA RESOURCES INC. Coal Division CALGARY ALBERTA	Gulf
LOCATION MAP OF THE WAPITI COAL PROJECT	
DRAWN BY: DATE: SCALE	
PREPARED BY: DRAWING No.	
APPROVED BY: DATE: NOV./80 FIG. 1	

FILE No. 79452—1



GULF CANADA RES. INC.		
WAPITI PROJECT FIRST BURN TEST		
Drawn: D. R.		Date: JULY '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
NorWest	Dwg No.	FIG. No. 4

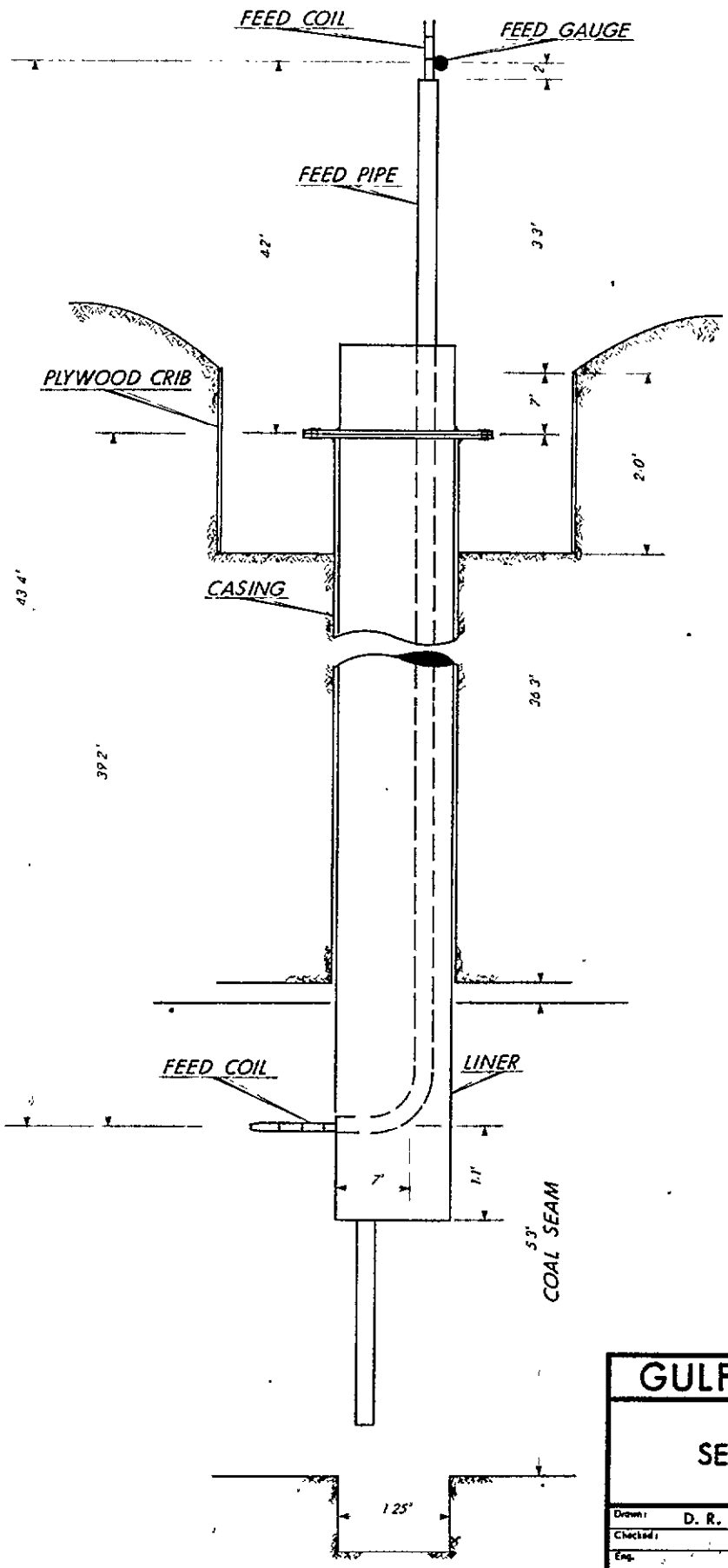


GULF CANADA RES. INC.

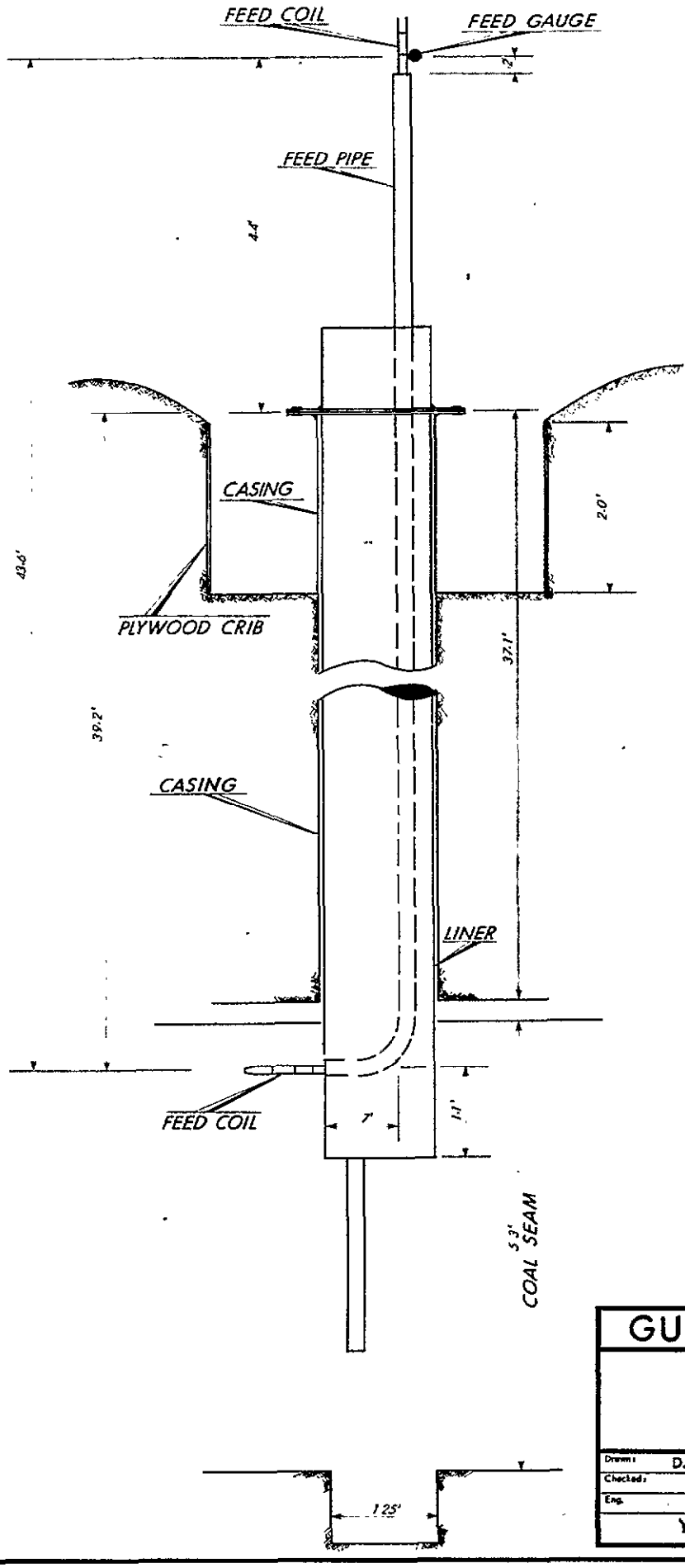
WAPITI PROJECT

AREA OF BURN

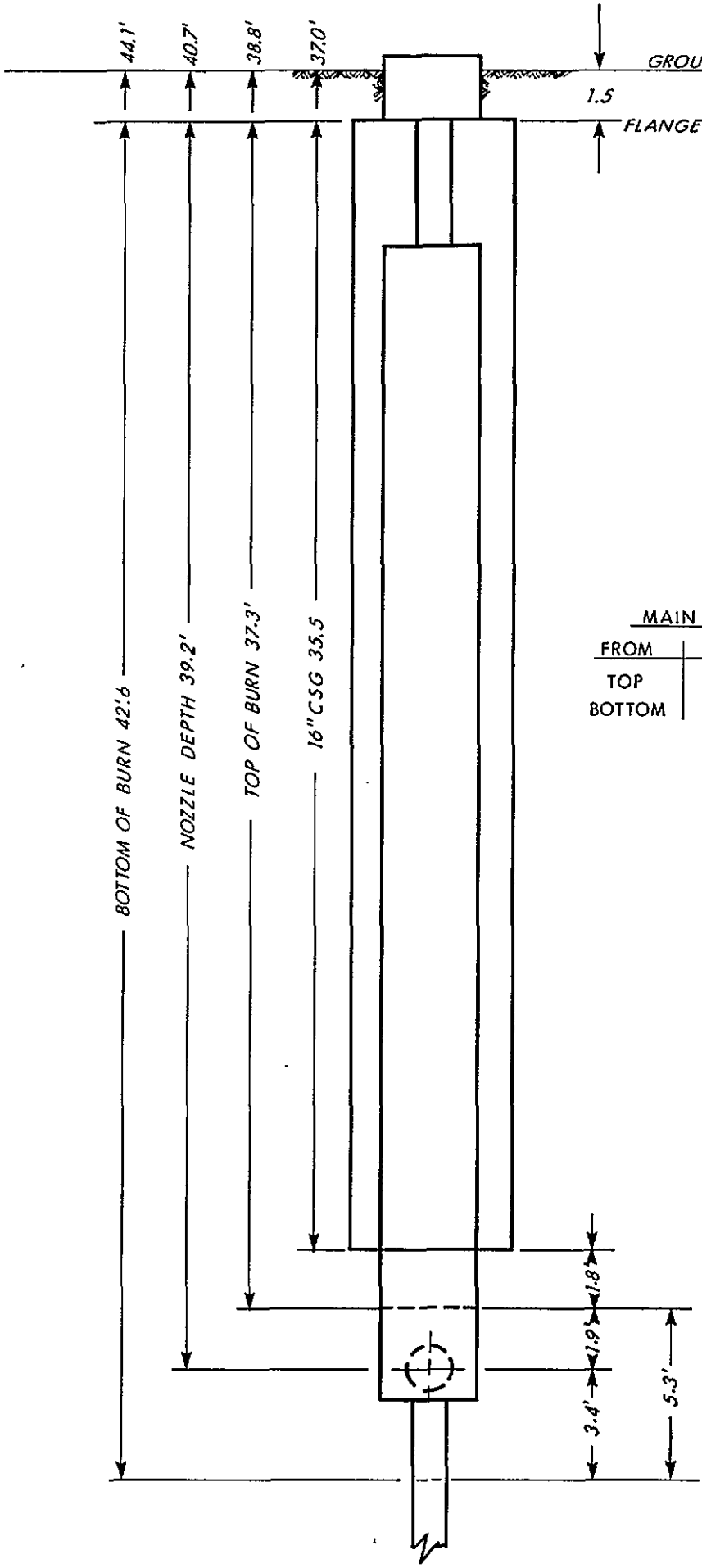
Drawn: D. R.		Date: JULY '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
NorWest	Dwg No. FIG. No. 5	



GULF CANADA RES. INC.		
WAPITI PROJECT		
SECOND BURN TEST		
Drawn: D. R.		Date: JULY '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
	Dwg No.	FIG. No. 6



GULF CANADA RES. INC.		
WAPITI PROJECT		
THIRD BURN TEST		
Drawn: D. R.		Date: JULY '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
Northwest	Dwg No. FIG. No. 7	



MAIN PARTING 0.9 THICK

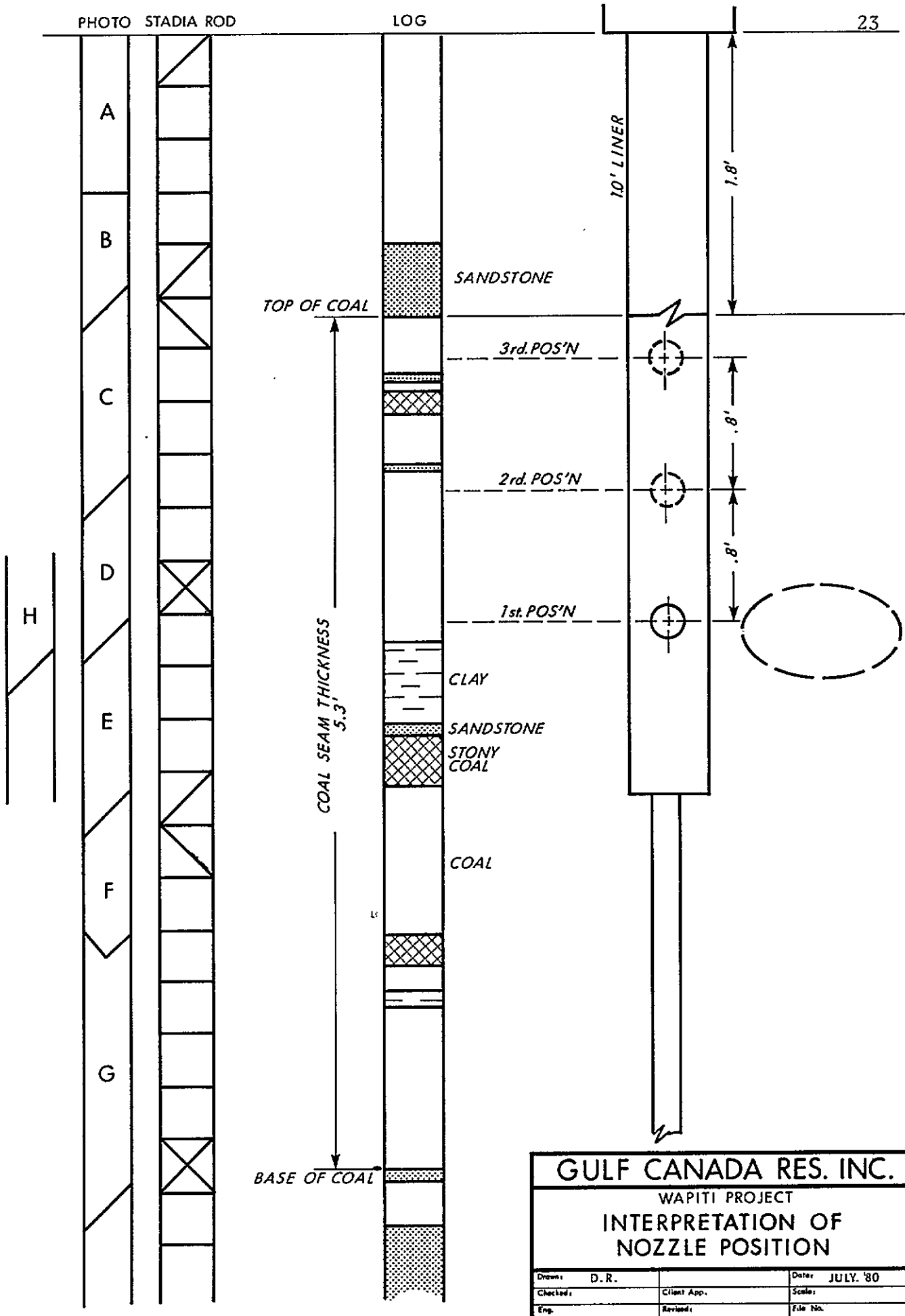
FROM	FLANGE	GROUND
TOP	39.3'	40.8'
BOTTOM	40.2'	41.7'

GULF CANADA RES. INC.

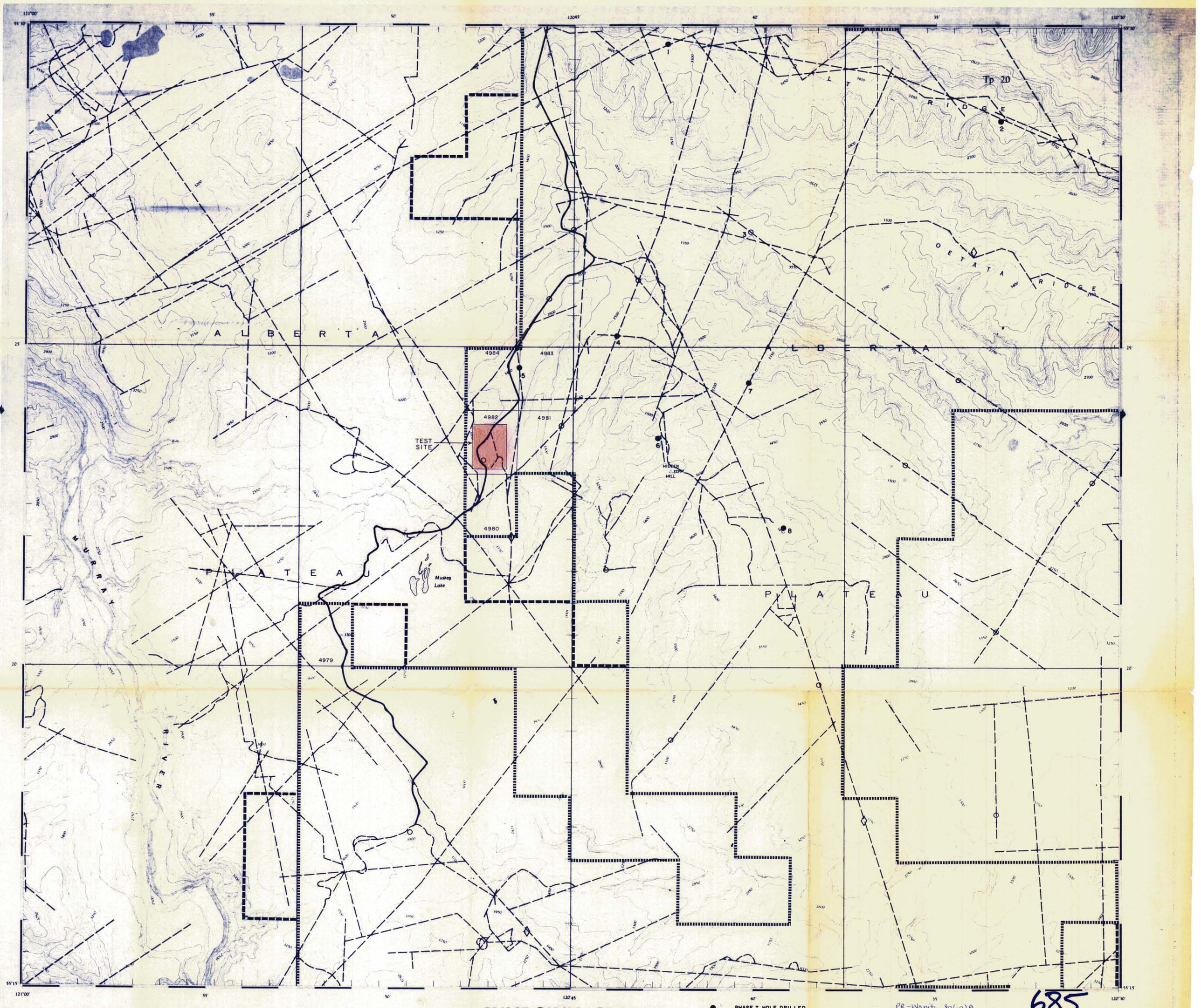
WAPITI PROJECT

FIRST BURN TEST MEASUREMENTS

Drawn: D. R.		Date: JULY '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
Northwest	Dwg No. FIG. No. 8	



GULF CANADA RES. INC.		
WAPITI PROJECT		
INTERPRETATION OF NOZZLE POSITION		
Drawn: D.R.		Date: JULY. '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
	Dwg No.	FIG. No. 9



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SUNDOWN CREEK

PEACE RIVER DISTRICT

BRITISH COLUMBIA

SCALE 1:50,000 ÉCHELLE

- ● PHASE I HOLE DRILLED
- ○ PHASE II PROPOSED ROTARY
- ◊ PHASE III PROPOSED DIAMOND DRILL HOLE
- EXISTING LICENSE
- LICENSES APPLIED FOR

PR-Wapiti 80(10)A

GULF CANADA RESOURCES INC.

WAPITI PROJECT

SITE LOCATION

EXPERIMENTAL TEST

685

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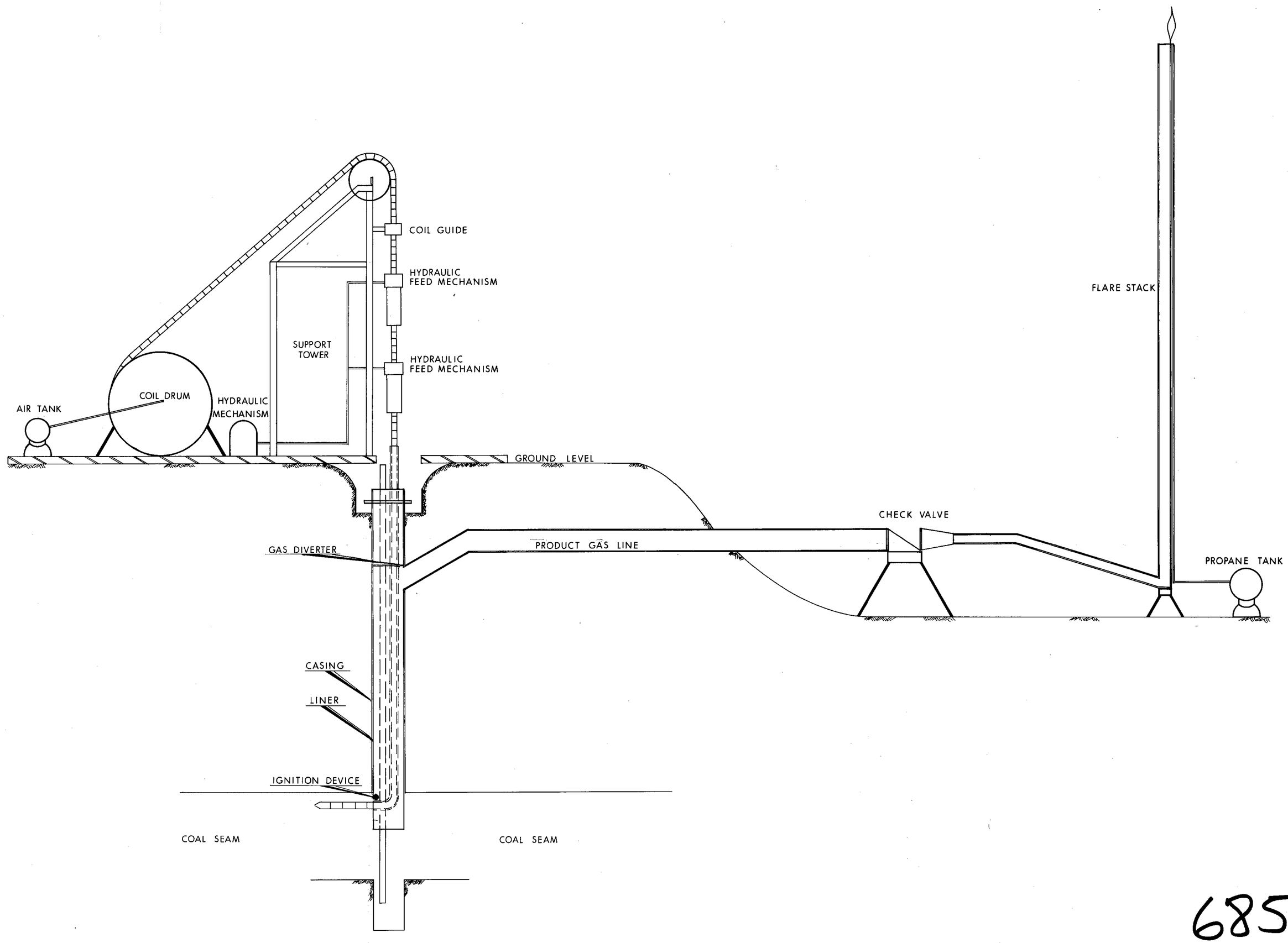
Fig 2

SHEET 93P/7



685

PR Wapiti 80(10)A

GULF CANADA RES. INC.		
WAPITI PROJECT		
SKETCH OF RIG		
Drawn: D.R.		Date: JULY '80
Checked:	Client App.	Scale:
Eng.	Revised:	File No.
NorWest	Dwg No.	FIG. No 3

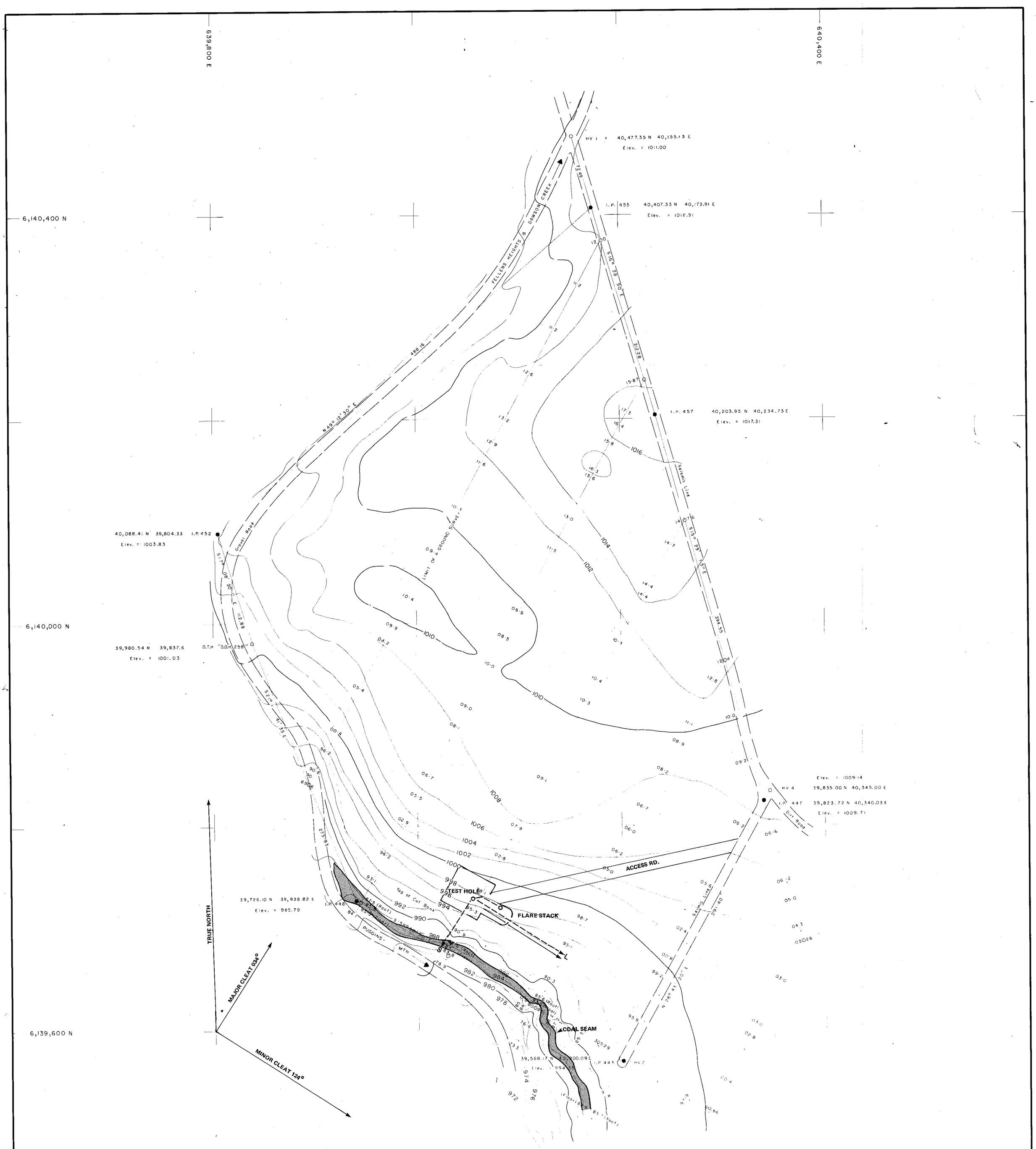


FIGURE 2A

GULF CANADA RESOURCES INC.

WAPITI PROJECT

EXPERIMENTAL TEST

NORTHEAST BRITISH COLUMBIA

685

SCALE 1:2000

LEGEND:

Galvanized iron bar .....

Nail or spike .....

SURVEY NOTE:
Ground survey by D. WATSON B.C.L.S. 1979. Survey based on assumed U.T.M. zone 10 coordinates of HV1: 6,140,477.35N 640,155.13E Elevation 1011.0m.

50 40 30 20 10 0 50 100 150 200 250 300 METRES

2 metre contours

FIGURE 2A
GULF WAPITI PROJECT

PR-Wapiti 80(10)A

FILE NO. 79397-1C