APPENDICES

A. List of Surface Ownership Map - Surface and Coal Ownership.

B. Groundwater Flow into the Emery Underground Hydrologic Monitoring Plan Mine. Table 1 - Sampling and Analyses of Surface Water. Table 2 - Sampling & Analyse's of Ground Water Map - Surface Monitoring Sites.

C. Detailed Drill Hole Descriptions Map - Drill Hole Locations and Description.

D. Available Electric Logs of Drill Holes.

F. Cross Section A-A'
Cross Section B-B'
Cross Section C-C'
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F. Map - Area Topography
Map - Coal Structure Isopach to bottom "IJ" Seam
Map - Overburden Isopach to the "IJ" seam

G. Map - Coal Thickness Isopach for Combined "IJ" Seam
Map - Practical Mining Thickness Isopach of "IJ" Seam

H. Raw Coal Quality Data

I. Map - Detailed Five Year Forecast
Map - Location of Surface Facilities

J. Map - Location of Surface Facilities

K. Subsidence
Map - Location of Proposed Subsidence Monitoring Stations

RECEIVED
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DIVISION OF OIL, GAS, & MINING

M 23-101 (A) CC
10M 2-61 SHO
JJV-4
CCC-2

LABORATORY REPORT OF ANALYSES

COMPANY: PITTSBURGH COAL COMPANY
DIVISION OF CONSOLIDATION COAL CO.

FROM:
REPRESENTING: Utah Drill Core FC #2
1.60 Float Fraction
February 1, 1963

DATE REPORTED: 3-[illegible]-63 CHARGE:

LAB. NO.	DATE	IDENTIFICATION	ANALYSIS						
			Mois.	Vol.	C.	Ash	Sul.	BTU	Ign
3-JV-1	2-1-63	Utah Drill Core FC #2 - #1 Bench							
		-Air Dry "A"	2.5	39.6	51.7	6.2	0.30	13220	2[illegible]
		-Mois. Free	-	40.6	53.0	6.4	0.40	13560	
		-Mois. & Ash Free	-	43.4	56.6	-	-	14[illegible]00	
3-JV-2	"	Utah Drill Core FC #2 - #2 Bench							
		-Air Dry "B"	2.4	39.6	50.7	7.3	0.36	13000	2[illegible]
		-Mois. Free	-	40.6	51.9	7.5	0.37	13[illegible]00	
		-Mois. & Ash Free	-	43.9	56.1	-	-	14[illegible]	
3-JV-3	"	Utah Drill Core FC #2 - #3 Bench							
		-Air Dry "C"	2.5	41.1	50.5	5.9	0.34	13350	[illegible]
		-Mois. Free	-	42.1	51.8	6.1	0.35	13[illegible]	
		-Mois. & Ash Free	-	44.8	55.2	-	-	14[illegible]	
3-JV-4	"	Utah Drill Core FC #2 - #4 Bench							
		-Air Dry "D"	2.6	39.7	49.7	8.0	0.28	13020	2[illegible]
		-Mois. Free	-	40.8	51.0	8.2	0.29	13[illegible]70	
		-Mois. & Ash Free	-	44.4	55.6	-	-	14[illegible]	
3-JV-5	"	Utah Drill Core FC #2 - #5 Bench							
		-Air Dry "E"	2.5	38.4	51.5	7.6	0.45	12950	[illegible]
		-Mois. Free	-	39.4	52.8	7.8	0.47	13280	
		-Mois. & Ash Free	-	42.7	57.3	-	-	[illegible]	

SIGNED: G. G. [illegible]

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 16, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80
PHONE 303 255-33

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

		Sample identification by Consolidation Coal Co.
Kind of sample reported to us	Hole #FC-58	Hole #FC-58 716.5' - 721.4'
Sample taken at	Emery Field, Utah	"IJ" SEAM
Sample taken by	Consolidation Coal Co.	
Date sampled	XXXXX	

Analysis report no. 72-1020

PROXIMATE ANALYSIS

	As received	Dry basis	MAF basis
% Moisture	4.81	XXXXX	XXXXX
% Ash	41.31	43.40	XXXXX
% Volatile	26.96	28.32	50.04
% Fixed Carbon	26.92	28.28	49.96
	100.00	100.00	100.00
Btu	6996	7350	12985
% Sulfur	0.75	0.79	XXXXX

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

RAH/es

Charter Member

CT&E Co.
A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-6434

July 21, 1969

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample Identification by Consolidation Coal Co.

Kind of sample reported to us: Hole #FC-58

Hole #FC-58
721.4' - 733.0'
.02' shale at bottom

"IJ" SEAM

Sample taken at: Emery Field, Utah

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-1021

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.72	XXXXX
% Ash	11.68	12.13
% Volatile	37.34	38.78
% Fixed Carbon	47.26	49.09
	100.00	100.00
Btu	12069	12525
% Sulfur	0.95	0.99

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.72	XXXXX
% Carbon	67.79	70.41
% Hydrogen	4.85	5.04
% Nitrogen	1.21	1.25
% Chlorine	0.05	0.05
% Sulfur	0.95	0.99
% Ash	11.68	12.13
% Oxygen (diff.)	9.75	10.13
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2410°F
Softening (h=w)	2460°F
Softening (h=1/2w)	2485°F
Fluid	2610°F

HARDGROVE GRINDABILITY INDEX = 38.4
% EQUILIBRIUM MOISTURE = 3.51

Respectfully submitted,

CT&E Co.

R. A. Houser

R. A. HOUSER, District Manager

RAH/es

Charter Member

CT & E Co.
A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 16, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 8025
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample Identification by Consolidation Coal Co.

Kind of sample reported to us	Hole No. FC-58	Hole No. FC-58 733.0' - 735.2' "IJ" SEAM
Sample taken at	Emery Field, Utah	
Sample taken by	Consolidation Coal Co.	
Date sampled	XXXXX	

Analysis report no. 72-1122

PROXIMATE ANALYSIS

	As received	Dry basis	MAF basis
% Moisture	4.60	XXXXX	XXXXX
% Ash	6.70	7.02	XXXXX
% Volatile	37.92	39.75	42.75
% Fixed Carbon	50.78	53.23	57.25
	100.00	100.00	100.00
Btu	12803	13420	14433
% Sulfur	0.57	0.60	XXXXX

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

DAH/es

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

August 1, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3377

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample identification by Consolidation Coal Co.

Kind of sample reported to us Hole #FC-58

Hole #FC-58
752.3' - 759.9'

Sample taken at Emery Field, Utah

Sample taken by Consolidation Coal Co.

Date sampled XXXXX

Analysis report no. 72-7076 (Additional Analyses)

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	5.17	XXXXX
% Ash	10.19	10.75
% Volatile	34.77	36.65
% Fixed Carbon	49.87	52.60
	100.00	100.00
Btu	12138	12800
% Sulfur	0.99	1.04

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	5.17	XXXXX
% Carbon	68.75	72.50
% Hydrogen	4.83	5.09
% Nitrogen	1.19	1.25
% Chlorine	0.04	0.04
% Sulfur	0.99	1.04
% Ash	10.19	10.75
% Oxygen (diff.)	8.84	9.33
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2[illegible]°F
Softening (H=W)	2305°F
Softening (H=1/2W)	2345°F
Fluid	2600°F

H = Height
W = Width

HARDGROVE GRINDABILITY INDEX = 41.3
% EQUILIBRIUM MOISTURE = 4.16

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

RAH/es

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-6434

July 22, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Hole EFC-59	Hole EFC-59 826.0' - 832.7'
Sample taken at	Emery Field, Utah	"I" SEAM
Sample taken by	Consolidation Coal Co.	
Date sampled	XXXXX	

Analysis report no. 72-7047

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.61	XXXXX
% Ash	8.80	9.13
% Volatile	38.85	40.31
% Fixed Carbon	48.74	50.56
	100.00	100.00
Btu	12661	13135
% Sulfur	0.58	0.60

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.61	XXXXX
% Carbon	70.91	73.56
% Hydrogen	5.15	5.34
% Nitrogen	1.33	1.38
% Chlorine	0.09	0.09
% Sulfur	0.58	0.60
% Ash	8.80	9.13
% Oxygen (diff.)	9.64	10.00
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2[illegible]0°F
Softening (H=W)	2300°F
Softening (H=1/2W)	2410°F
Fluid	2505°F

H = Height
W = Width

HARDGROVE GRINDABILITY INDEX = 39.4
% EQUILIBRIUM MOISTURE = [illegible]

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

RAH/es

Charter Member

AUG 1 9 1969

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 220 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

August 18, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Hole #FC-61 Sample #1

Hole #FC-61
Sample #1
909.0' - 917.3'
402 grams of bone coal
4001 grams of coal

Sample taken at: Emery Field, Utah

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 70-2039

PROXIMATE ANALYSIS	As Received	Dry basis
% Moisture	3.52	XXXXX
% Ash	9.46	9.81
% Volatile	39.01	40.43
% Fixed Carbon	48.01	49.76
	100.00	100.00
Btu	12505	12961
% Sulfur	1.31	1.36

ULTIMATE ANALYSIS	As Received	Dry basis
% Moisture	3.52	XXXXX
% Carbon	70.07	72.63
% Hydrogen	5.07	5.25
% Nitrogen	1.30	1.35
% Chlorine	0.04	0.04
% Sulfur	1.31	1.36
% Ash	9.46	9.81
% Oxygen (diff.)	9.23	9.56
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2475°F
Softening (H=W)	2425°F
Softening (H=1/2W)	2535°F
Fluid	2655°F

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

RAH/es

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 220 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-0434

September 11, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Hole #FC-62 Sample #1	Hole #FC-62 Sample #1 753.2' - 758.0'
Sample taken at	Emery Field, Utah	"J" SEAM
Sample taken by	Consolidation Coal Co.	
Date sampled	XXXXX	

Analysis report no. 72-2237

PROXIMATE ANALYSIS

	As Received	Dry basis
% Moisture	2.80	XXXXX
% Ash	14.24	14.65
% Volatile	38.11	39.21
% Fixed Carbon	44.85	46.14
	100.00	100.00
Btu	11806	12145
% Sulfur	3.00	3.09

ULTIMATE ANALYSIS

	As Received	Dry basis
% Moisture	2.80	XXXXX
% Carbon	65.85	67.75
% Hydrogen	4.82	4.96
% Nitrogen	1.07	1.10
% Chlorine	0.05	0.05
% Sulfur	3.00	3.09
% Ash	14.24	14.65
% Oxygen (diff.)	8.16	8.39
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2100°F
Softening (H=W)	2445°F
Softening (H=1/2W)	2470°F
Fluid	2520°F

Respectfully submitted,

CT&E Co.

R. A. Houser

R. A. HOUSER, District Manager

RAH/es

Charter Member

CT&E Co.
A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

September 11, 1969

MA[illegible] HODE[illegible]
2180 EAST 40[illegible] AVE[illegible]
DENVER, COLO[illegible]DO 80[illegible]
PHONE 303 255-[illegible]

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Hole #FC-62 Sample #2	Hole #FC-62 Sample #2 758.0' - 762.5' "J" SEAM
Sample taken at	Emery Field, Utah	
Sample taken by	Consolidation Coal Co.	
Date sampled	XXXXX	

Analysis report no. 72-8233

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.80	XXXXX
% Ash	7.25	7.46
% Volatile	40.52	41.69
% Fixed Carbon	49.43	50.85
	100.00	100.00
Btu	12987	13361
% Sulfur	2.07	2.13

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.80	XXXXX
% Carbon	72.45	74.54
% Hydrogen	5.30	5.45
% Nitrogen	1.25	1.29
% Chlorine	0.00	0.00
% Sulfur	2.07	2.13
% Ash	7.25	7.46
% Oxygen (diff.)	8.88	9.13
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2050°F
Softening (H=W)	2100°F
Softening (H=1/2 W)	2125°F
Fluid	2240°F

H = Height
W = Width

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

RAH/es

Charter Member

CT&E Co.
A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

September 11, 1969

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80
PHONE 303 355-33

CONSOLIDATION COAL COMPANY
Exploration Dept.
Library, Pennsylvania 15129

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Hole #FC-62 Sample #4	Hole #FC-62 Sample #4 778.6' - 784.5'
Sample taken at	Emery Field, Utah	"I" SEAM
Sample taken by	Consolidation Coal Co.	
Date sampled	XXXXX	

Analysis report no. 72-2233

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.03	XXXXX
% Ash	5.26	5.48
% Volatile	37.51	39.09
% Fixed Carbon	53.20	55.43
	100.00	100.00
Btu	13114	13665
% Sulfur	0.60	0.63

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.03	XXXXX
% Carbon	74.51	77.64
% Hydrogen	5.02	5.23
% Nitrogen	1.28	1.33
% Chlorine	0.07	0.07
% Sulfur	0.60	0.63
% Ash	5.26	5.48
% Oxygen (diff.)	9.23	9.62
	100.00	100.00

FUSION TEMPERATURE OF ASH

	Reducing
Initial Deformation	2100°F
Softening (H=W)	2200°F
Softening (H=1/2W)	2250°F
Fluid	2445°F

H = Height
W = Width

Respectfully submitted,

CT&E Co.

R. A. HOUSER, District Manager

Charter Member

RAH/es

H-10

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	XXXXX
Sample taken by	Consolidation Coal Co.
Date sampled	XXXXX

Drill Hole No FC-79
376.8' - 377.8'
Sample 1
"I" Seam

Analysis report no. 72-7720

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.02	XXXXX
% Ash	12.11	12.62
% Volatile	36.08	37.59
% Fixed Carbon	47.79	49.79
	100.00	100.00
Btu	12093	12599
% Sulfur	0.45	0.47

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	XXXXXX
Sample taken by	Consolidation Coal Co.
Date sampled	XXXXXX

Drill Hole No. FC-79
377.8' - 378.8'
Sample 2
"I" Seam

Analysis report no. 72-7721

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.93	XXXXX
% Ash	5.29	5.56
% Volatile	38.36	40.35
% Fixed Carbon	51.42	54.09
	100.00	100.00
Btu	12875	13543
% Sulfur	0.41	0.43

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

H-12

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Drill Hole No. FC-79
378.8' - 379.8'
Sample 3

Kind of sample reported to us: Coal

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7722

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.44	XXXXX
% Ash	7.39	7.73
% Volatile	36.44	38.13
% Fixed Carbon	51.73	54.14
	100.00	100.00
Btu	12701	13291
% Sulfur	0.35	0.37

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

P2

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole FC-79
379.8' - 380.8'
Sample 4

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7723

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	5.12	XXXXX
% Ash	4.74	5.00
% Volatile	39.56	41.69
% Fixed Carbon	50.58	53.31
	100.00	100.00
Btu	12912	13609
% Sulfur	0.29	0.31

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

H-14

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
380.8' - 381.8'
Sample 5

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7724

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.94	XXXXX
% Ash	5.59	5.82
% Volatile	41.17	42.86
% Fixed Carbon	49.30	51.32
	100.00	100.00
Btu	13255	13799
% Sulfur	0.34	0.35

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

H-15

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

P2.

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
381.8' - 382.8'
Sample 6

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7725

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.67	XXXXX
% Ash	5.66	5.88
% Volatile	42.79	44.42
% Fixed Carbon	47.88	49.70
	100.00	100.00
Btu	13204	13707
% Sulfur	0.29	0.30

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO

GENERAL OFFICES 228 NORTH LA SALLE STREET CHICAGO ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER COLORADO 80205
PHONE 303 255 3371

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	XXXXX
Sample taken by	Consolidation Coal Co.
Date sampled	XXXXX

Drill Hole No. FC-79
382.8' - 383.8'
Sample 7

Analysis report no 72-7726

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.69	XXXXX
% Ash	30.49	31.66
% Volatile	31.25	32.45
% Fixed Carbon	34.57	35.89
	100.00	100.00
Btu	9010	9355
% Sulfur	0.33	0.34

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H = W)	XXXXX	XXXXX
Softening (H = ½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co

L. W. Taylor

L W. TAYLOR, District Manager

Charter Member

LWT/ps

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Drill Hole No. FC-79
383.8' - 384.8'
Sample 8

Kind of sample reported to us: Coal

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7727

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.15	XXXXX
% Ash	7.02	7.32
% Volatile	39.56	41.27
% Fixed Carbon	49.27	51.41
	100.00	100.00
Btu	12884	13442
% Sulfur	0.23	0.24

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
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July 21, 1971

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

Sample identification by: Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
384.8' - 385.8'
Sample 9

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7728

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.06	XXXXX
% Ash	4.34	4.52
% Volatile	39.84	41.53
% Fixed Carbon	51.76	53.95
	100.00	100.00
Btu	13370	13936
% Sulfur	0.33	0.34

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

Charter Member

LWT/ps

H-19

CT & E Co.

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July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
385.8' - 386.8'
Sample 10

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7729

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.15	XXXXX
% Ash	6.86	7.16
% Volatile	42.15	43.98
% Fixed Carbon	46.84	48.86
	100.00	100.00
Btu	12816	13371
% Sulfur	0.28	0.29

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H = W)	XXXXX	XXXXX
Softening (H = ½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

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July 21, 1971

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

Sample identification by

Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
386.8' - 387.8'
Sample 11

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7730

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture		
% Ash	4.29	XXXXX
% Volatile	9.40	9.82
% Fixed Carbon	37.60	39.29
	48.71	50.89
	100.00	100.00
Btu	12446	13004
% Sulfur	0.31	0.32

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

Charter Member

LWT/ps

H-21

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

P2

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
387.8' - 388.8'
Sample 12

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7731

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.97	XXXXX
% Ash	11.40	11.87
% Volatile	36.32	37.82
% Fixed Carbon	48.31	50.31
	100.00	100.00
Btu	12267	12774
% Sulfur	0.33	0.34

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

H-22

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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P2

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
388.8' - 389.8'
Sample 13

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7732

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.13	XXXXX
% Ash	6.09	6.29
% Volatile	40.03	41.32
% Fixed Carbon	50.75	52.39
	100.00	100.00
Btu	13151	13576
% Sulfur	0.29	0.30

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H = W)	XXXXX	XXXXX
Softening (H = ½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

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GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

72

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
389.8' - 390.8'
Sample 14

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7733

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.08	XXXXX
% Ash	7.18	7.49
% Volatile	40.16	41.87
% Fixed Carbon	48.58	50.64
	100.00	100.00
Btu	12872	13420
% Sulfur	0.31	0.32

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

72

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
390.8' - 391.8'
Sample 15

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7734

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.99	XXXXX
% Ash	14.80	15.42
% Volatile	39.26	40.89
% Fixed Carbon	41.95	43.69
	100.00	100.00
Btu	11458	11934
% Sulfur	0.33	0.34

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

H-25

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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July 21, 1971

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
391.8' - 392.8'
Sample 16

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7735

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.71	XXXXX
% Ash	10.26	10.77
% Volatile	36.36	38.16
% Fixed Carbon	48.67	51.07
	100.00	100.00
Btu	12188	12790
% Sulfur	0.34	0.36

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H = W)	XXXXX	XXXXX
Softening (H = ½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-6434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	XXXXX
Sample taken by	Consolidation Coal Co.
Date sampled	XXXXX

Drill Hole No. FC-79
392.8' - 393.8'
Sample 17

Analysis report no. 72-7736

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.58	XXXXX
% Ash	4.24	4.44
% Volatile	38.91	40.78
% Fixed Carbon	52.27	54.78
	100.00	100.00
Btu	13386	14028
% Sulfur	0.29	0.30

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES. 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	XXXXX
Sample taken by	Consolidation Coal Co.
Date sampled	XXXXX

Drill Hole No FC-79
393.8' - 394.8'
Sample 18

Analysis report no. 72-7737

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.93	XXXXX
% Ash	5.44	5.66
% Volatile	39.28	40.89
% Fixed Carbon	51.35	53.45
	100.00	100.00
Btu	13183	13722
% Sulfur	0.31	0.32

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
394.8' - 395.8'
Sample 19

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7738

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.56	XXXXX
% Ash	2.99	3.13
% Volatile	41.84	43.84
% Fixed Carbon	50.61	53.03
	100.00	100.00
Btu	13449	14091
% Sulfur	0.45	0.47

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

H-29

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

July 21, 1971

SINCE 1908

CONSOLIDATION COAL COMPANY
P. O. Box 563
Price, Utah 84501

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Drill Hole No. FC-79
395.8' - 396.6'
Sample 20

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: XXXXX

Analysis report no. 72-7739

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.07	XXXXX
% Ash	11.93	12.44
% Volatile	39.90	41.59
% Fixed Carbon	44.10	45.97
	100.00	100.00
Btu	12131	12646
% Sulfur	0.43	0.45

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H = W)	XXXXX	XXXXX
Softening (H = ½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

LWT/ps

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 21, 1974

Sample Identification by

Consolidation Coal Co.

Kind of sample reported to us	Coal	Parting (Sand Stone) Core Hole No. FC-279 Footage 653.6' - 654.4' (0.8') Date Sampled 4-25-74
Sample taken at	Emery Project	
Sample taken by	Consolidation Coal Co.	
Date sampled	Rec'd 5-14-74	

Analysis report no. 72-20866

SHORT PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.45	XXXXX
% Ash	83.79	85.89
Btu	604	619
% Sulfur	1.42	1.46

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Charter Member

LWT/ko

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

SINCE 1908

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 21, 1974

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal	Parting (Clay & Bone) Core Hole No. FC-279 Footage 659.55' - 661.00' (1.45') Date Sampled 4-25-74
Sample taken at	Emery Project	
Sample taken by	Consolidation Coal Co.	
Date sampled	Rec'd 5-14-74	

Analysis report no. 72-20939

SHORT PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.07	XXXXX
% Ash	74.91	78.09
Btu	1563	1629
% Sulfur	0.71	0.74

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H Is Cone Height
W Is Cone Width

Charter Member

LWT/ko

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

PLEASE ADDRESS ALL CORRESPONDENCE TO:
775 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. 303-255-3371
303-255-0391

SINCE 1908

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 2, 1974

Sample Identification by

Consolidation Coal Co.

Kind of sample reported to us	Coal	Core Hole No. FC-279 663' - 665'
Sample taken at	Emery Project	
Sample taken by	Consolidation Coal Co.	
Date sampled	Received 5-14-74	

Analysis report no. 72-20941-A (corrected)

Ash (dry basis) = 4.19

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

SINCE 1908

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 21, 1974

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Rec'd 5-14-74

Parting (Siltstone, Shale & Bone)
Core Hole No. FC-279
Footage 672.2' - 676.3' (4.1')
Date Sampled 4-25-74

Analysis report no. 72-20945

SHORT PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.98	XXXXX
% Ash	75.03	77.33
Btu	2643	2724
% Sulfur	1.76	1.81

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Charter Member

LWT/ko

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

CT & E Co.

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SINCE 1909

OFFICE TEL. 303-255-3371
303-255-0391

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 21, 1974

Sample identification by

Consolidation Coal Co.

Kind of sample reported to us: Coal

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Rec'd 5-14-74

Core Hole No. FC-279
Footage 653.6' - 684.7' (31.10)
Each individual sample stage crushed to 1" top size and submitted to organic liquids at 1.60 specific gravity.
Date Sampled 4-25-74

Analysis report no.

FOOTAGE Increment	FOOTAGE Analyzed	WGHT. Gms.	LAB. Number	% RECOVERY AT 1.60 Sp. Gr.	DRY BASIS %Ash	DRY BASIS %Sulfur
654.40' - 656.70'	2.3	654.1	72-20867-A	32.75	15.92	0.93
656.70' - 659.55'	2.85	1908.5	72-20868-A	74.55	9.80	0.99
661.00' - 663.00'	2.0	1758.7	72-20940-A	99.79	8.57	1.57
663.00' - 665.00'	2.0	~~1383.8~~ 1647.6	72-20941-A	99.13	~~12.27~~ 4.9	0.88
665.00' - 667.00'	2.0	1524.8	72-20942-A	85.67	10.57	0.72
667.00' - 669.00'	2.0	1647.1	72-20943-A	95.90	6.80	1.11
669.00' - 672.20'	3.2	2703.3	72-20944-A	96.84	4.74	0.75
676.30' - 677.00'	.70	~~475.1~~ 576.67	72-20946-A	89.98	7.61	1.29
677.00' - 679.00'	2.0	1632.3	72-20947-A	92.36	8.98	0.88
679.00' - 681.00'	2.0	1654.2	72-20948-A	98.63	6.27	0.60
681.00' - 683.00'	2.0	1626.8	72-20949-A	99.14	4.44	0.72
683.00' - 684.70'	1.7	1308.3	72-20950-A	99.79	4.05	0.75

See Lab. Nos. 72-20866 (653.6' - 654.4') and 72-20939 (659.55' - 661.00') and 72-20945 (672.2' - 676.3') for roof, floor, and/or parting analysis

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

H-35

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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SINCE 1908

OFFICE TEL. 303-255-3371
303-255-0391

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 21, 1974

Sample identification by Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Rec'd 5-14-74

Core Hole No. FC-279
Footage 653.6' - 684.7' (31.10')
Each individual sample stage crushed to 1" top size and submitted to organic liquids at 1.60 specific gravity.
Date Sampled 4-25-74

Analysis report no.

FOOTAGE Increment	FOOTAGE Analyzed	WGHT. Gms.	LAB. Number	% REJECT AT 1.60 Sp. Gr.	DRY BASIS %Ash	DRY BASIS %Sulfur
654.40' - 656.70'	2.3	1342.9	72-20867-B	67.25	64.21	1.04
656.70' - 659.55'	2.85	651.5	72-20868-B	25.45	55.40	1.26
661.00' - 663.00'	2.0	3.7	72-20940-B	0.21	43.67	1.12
663.00' - 665.00'	2.0	12.2	72-20941-B	0.87	41.78	0.53
665.00' - 667.00'	2.0	255.0	72-20942-B	14.33	39.42	0.56
667.00' - 669.00'	2.0	70.5	72-20943-B	4.10	35.65	14.56
669.00' - 672.20'	3.2	88.3	72-20944-B	3.16	63.71	1.27
676.30' - 677.00'	.70	52.9	72-20946-B	10.02	54.00	4.71
677.00' - 679.00'	2.0	135.0	72-20947-B	7.64	44.50	0.98
679.00' - 681.00'	2.0	23.0	72-20948-B	1.37	53.58	4.61
681.00' - 683.00'	2.0	14.1	72-20949-B	0.86	38.15	7.11
683.00' - 684.70'	1.7	2.8	72-20950-B	0.21	45.13	5.85

Dee Lab. Nos. 72-20866 (653.6' - 654.4') and 72-20939 (659.55' - 661.00') and 72-20945 (672.2' - 676.3') for roof, floor, and/or parting analysis

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT&E Co.

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303-255-0391

SINCE 1909

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 22, 1974

Sample identification by	Consolidation Coal Co. Core Hole No. FC-279 663.00' - 669.00' 1.60 Float Composite
Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Received 5-14-74

Analysis report no. 72-22497 Page 1

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.25	xxxxx
% Ash	7.46	7.71
% Volatile	38.65	39.95
% Fixed Carbon	50.64	52.34
	100.00	100.00
Btu	12831	13262
% Sulfur	0.78	0.81

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	3.25	xxxxx
% Carbon	72.03	74.45
% Hydrogen	5.21	5.38
% Nitrogen	0.60	0.62
% Chlorine	0.02	0.02
% Sulfur	0.78	0.81
% Ash	7.46	7.71
% Oxygen (diff)	10.65	11.01
	100.00	100.00

SULFUR FORMS

	As received	Dry basis
Pyritic Sulfur	0.06	0.06
Sulfate Sulfur	0.00	0.00
Organic Sulfur (diff)	0.72	0.75
Total Sulfur	0.78	0.81

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2560 °F	2590 °F
Softening (H=W)	2590 °F	2640 °F
Softening (H=1/2W)	2615 °F	2670 °F
Fluid	2630 °F	2690 °F

HARDGROVE GRINDABILITY INDEX = 36.3 at 2.47 % Moisture

EQUILIBRIUM MOISTURE = 3.98

FREE SWELLING INDEX = xxxxx
LWT/KO

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

Charter Member

CT&E Co.

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303-255-0391

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 22, 1974

Sample identification by: Consolidation Coal Co.

Core Hole No. FC-279
663.00' - 669.00'
1.60 Float Composite

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Received 5-14-74

Analysis report no. 72-22497 Page 2

MINERAL ANALYSIS OF ASH	%
Phos. pentoxide, P_2O_5	0.28
Silica, SiO_2	51.03
Ferric oxide, Fe_2O_3	3.10
Alumina, Al_2O_3	26.97
Titania, TiO_2	0.98
Lime, CaO	6.00
Magnesia, MgO	1.84
Sulfur trioxide, SO_3	5.67
Potassium oxide, K_2O	0.16
Sodium oxide, Na_2O	1.99
Undetermined	1.98
	100.00

WATER SOLUBLE ALKALIES

% Na_2O = .028
% K_2O = .006

Alkalies as Na_2O, DCB = 0.17

SILICA VALUE = 82.35

ESTIMATED VISCOSITY at critical visc. temp. of 2815 °F = 210 Poises
T_{250} = 2810 °F

LWT/ko

Respectfully submitted,
CT&E Co.
L. W. Taylor
L.W. TAYLOR, District Manager

Charter Member

CT&E Co.

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SINCE 1908

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 14, 1974

Sample Identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Core Hole No. FC-279
661.00' - 669.00'
1.60 Float Composite

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-14-74

Analysis report no. 72-22724 Page 1

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.86	xxxxx
% Ash	7.81	8.04
% Volatile	37.90	39.02
% Fixed Carbon	51.43	52.94
	100.00	100.00
Btu	12802	13179
% Sulfur	1.02	1.05

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.86	xxxxx
% Carbon	72.11	74.23
% Hydrogen	5.12	5.27
% Nitrogen	0.95	0.98
% Chlorine	0.01	0.01
% Sulfur	1.02	1.05
% Ash	7.81	8.04
% Oxygen (diff)	10.12	10.42
	100.00	100.00

SULFUR FORMS

	As received	Dry basis
Pyritic Sulfur	0.09	0.09
Sulfate Sulfur	0.01	0.01
Organic Sulfur (diff)	0.92	0.95
Total Sulfur	1.02	1.05

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2380 °F	2400 °F
Softening (H=W)	2420 °F	2425 °F
Softening (H=1/2W)	2455 °F	2480 °F
Fluid	2470 °F	2530 °F

HARDGROVE GRINDABILITY INDEX =35.9 at 2.65 % Moisture

EQUILIBRIUM MOISTURE =4.21

FREE SWELLING INDEX =xxxxx
LWT/ko

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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303-255-0391

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 14, 1974

Sample Identification by Consolidation Coal Company

Kind of sample reported to us	Coal	Core Hole No. FC-279 661.00' - 669.00' 1.60 Float Composite
Sample taken at	Emery Project	
Sample taken by	Consolidation Coal Company	
Date sampled	Received 5-14-74	

Analysis report no. 72-22724 Page 2

MINERAL ANALYSIS OF ASH	%
Phos. pentoxide, P_2O_5	0.18
Silica, SiO_2	59.71
Ferric oxide, Fe_2O_3	3.78
Alumina, Al_2O_3	22.56
Titania, TiO_2	0.98
Lime, CaO	2.18
Magnesia, MgO	1.75
Sulfur trioxide, SO_3	3.83
Potassium oxide, K_2O	0.52
Sodium oxide, Na_2O	2.08
Undetermined	2.43
	100.00

WATER SOLUBLE ALKALIES

% Na_2O = .042
% K_2O = .009

Alkalies as Na_2O, DCB = 0.19

SILICA VALUE = 88.56

ESTIMATED VISCOSITY at critical visc. temp. of 2655°F ≥2000Poises
T_{250} ≥3100°F

LWT/ko

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

Charter Member

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 8, 1974

Sample identification by

Consolidation Coal Co.

Core Hole No. FC-279
661.0' - 669.0'
Raw Coal Composite

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Received 5-14-74

Analysis report no. 72-22724-x Page 1

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.69	xxxxx
% Ash	8.69	8.93
% Volatile	38.71	39.78
% Fixed Carbon	49.91	51.29
	100.00	100.00
Btu	12640	12989
% Sulfur	1.23	1.26

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.69	xxxxx
% Carbon	71.27	73.24
% Hydrogen	5.09	5.23
% Nitrogen	1.13	1.16
% Chlorine	0.01	0.01
% Sulfur	1.23	1.26
% Ash	8.69	8.93
% Oxygen (diff)	9.89	10.17
	100.00	100.00

SULFUR FORMS

	As received	Dry basis
Pyritic Sulfur	0.28	0.29
Sulfate Sulfur	0.00	0.00
Organic Sulfur (diff)	0.94	0.97
Total Sulfur	1.23	1.26

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2345 °F	2380 °F
Softening (H=W)	2360 °F	2390 °F
Softening (H=1/2W)	2370 °F	2400 °F
Fluid	2390 °F	2410 °F

HARDGROVE GRINDABILITY INDEX = xxxxx at xxxxx % Moisture

EQUILIBRIUM MOISTURE = xxxxx

FREE SWELLING INDEX = xxxxx
LWT/ko

L. W. Taylor

H-41

CT & E Co.

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CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 8, 1974

Sample identification by

Consolidation Coal Co.

Kind of sample reported to us	Coal	Core Hole No. FC-279 661.0' - 699.0' Raw Coal Composite
Sample taken at	Emery Project	
Sample taken by	Consolidation Coal Co.	
Date sampled	Received 5-14-74	

Analysis report no. 72-22724-x Page 2

MINERAL ANALYSIS OF ASH	%
Phos. pentoxide, P_2O_5	0.17
Silica, SiO_2	46.99
Ferric oxide, Fe_2O_3	6.55
Alumina, Al_2O_3	25.82
Titania, TiO_2	1.43
Lime, CaO	8.03
Magnesia, MgO	2.47
Sulfur trioxide, SO_3	4.16
Potassium oxide, K_2O	0.31
Sodium oxide, Na_2O	2.17
Undetermined	1.90
	100.00

WATER SOLUBLE ALKALIES

% Na_2O = .044
% K_2O = .008

Alkalies as Na_2O, DCB = 0.21

SILICA VALUE = 73.38

ESTIMATED VISCOSITY at critical visc. temp. of 2570°F = 340 Poises
T_{250} = 2600°F

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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SINCE 1908

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 24, 1974

Sample Identification by Consolidation Coal Co.

Kind of sample reported to us: Coal

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Rec'd 5-24-74

Core Hole No. FC-280
Footage 435.0' - 462.0' (27.00')
Each individual sample stage crushed to 1" top size and submitted to organic liquids at 1.60 specific gravity.
Date Sampled 5-1-74

Analysis report no.

FOOTAGE Increment	FOOTAGE Analyzed	WGHT. Gms.	LAB. Number	% RECOVERY AT 1.60 Sp. Gr.	DRY BASIS %Ash	DRY BASIS %Sulfur
436.10' - 438.35'	2.25	1429.6	72-21708-A	92.32	9.99	1.48
439.25' - 441.00'	1.75	1070.0	72-21710-A	89.70	15.66	1.96
441.00' - 443.00'	2.0	1232.1	72-21711-A	94.70	7.95	0.78
443.00' - 445.00'	2.0	1335.9	72-21712-A	94.37	6.96	0.54
445.00. - 447.00'	2.0	1405.1	72-21713-A	98.93	11.33	0.42
447.00' - 449.00'	2.0	1312.9	72-21714-A	95.07	5.10	0.31
449.00' - 451.00'	2.0	1389.0	72-21715-A	97.67	10.81	0.37
451.00' - 453.00'	2.0	1314.8	72-21716-A	99.12	5.85	0.32
453.00' - 455.00'	2.0	1287.3	72-21717-A	99.39	7.82	0.33
455.00' - 457.00'	2.0	1301.5	72-21718-A	96.66	4.65	0.30
457.00' - 459.90'	2.90	1901.4	72-21719-A	98.79	4.95	0.44

See Lab. Nos. 72-21707 (435.0' - 436.1') and 72-21709 (438.35' - 439.25') and 72-21720 (459.9' - 462.0') for roof, floor, and/or parting analysis.

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 24, 1974

Sample identification by

Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Rec'd 5-24-74

Core Hole No. FC-280
Footage 435.0' - 462.0' (27.00')
Each individual sample stage crushed to 1" top size and submitted to organic liquids at 1.60 specific gravity.
Date Sampled 5-1-74

Analysis report no.

FOOTAGE Increment	FOOTAGE Analyzed	WGHT. Gms.	Lab. Number	% REJECT AT 1.60 Sp. Gr.	DRY BASIS %Ash	DRY BASIS %Sulfur
436.10' - 438.35'	2.25	119.0	72-21708-B	7.68	50.07	8.51
439.25' - 441.00'	1.75	122.9	72-21710-B	10.30	43.76	5.09
441.00' - 443.00'	2.0	68.9	72-21711-B	5.30	44.02	17.83
443.00' - 445.00'	2.0	79.7	72-21712-B	5.63	74.20	0.12
445.00' - 447.00'	2.0	15.2	72-21713-B	1.07	22.45	0.48
447.00' - 449.00'	2.0	68.1	72-21714-B	4.93	50.36	0.71
449.00' - 451.00'	2.0	33.1	72-21715-B	2.33	32.64	0.78
451.00' - 453.00'	2.0	117.0	72-21716-B	0.88	46.71	0.49
453.00' - 455.00'	2.0	7.9	72-21717-B	0.61	47.78	1.26
455.00' - 457.00'	2.0	45.0	72-21718-B	3.34	43.44	0.23
457.00' - 459.00'	2.90	23.3	72-21719-B	1.21	56.60	0.28

See Lab. Nos. 72-21707 (435.0' - 436.1') and 72-21709 (438.35' - 439.25') and 72-21720 (459.9' - 462.0') for roof, floor, and/or parting analysis.

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

SINCE 1908

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 24, 1974

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

Sample Identification by

Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Rec'd 5-24-74

Parting (Shale & Sand Stone)
Core Hole No. FC-280
Footage 435.0' - 436.1' (1.1')
Date Sampled 5-1-74

Analysis report no. 72-21707

SHORT PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.88	XXXXX
% Ash	73.65	77.43
Btu	1849	1944
% Sulfur	0.97	1.02

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H Is Cone Height
W Is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

H-95

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-6434

SINCE 1908

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 255-3371

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 24, 1974

Sample Identification by

Consolidation Coal Co.

Kind of sample reported to us	Coal
Sample taken at	Emery Project
Sample taken by	Consolidation Coal Co.
Date sampled	Rec'd 5-24-74

Parting (Shale & Siltstone)
Core Hole No. FC-280
Footage 438.35' - 439.25' (.90')
Date Sampled 5-1-74

Analysis report no. 72-21709

SHORT PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	5.27	XXXXX
% Ash	57.29	60.48
Btu	4007	4230
% Sulfur	1.36	1.44

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H = W)	XXXXX	XXXXX
Softening (H = ½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

SINCE 1908

CONSOLIDATION COAL COMPANY
43 Denver Technological Center
Englewood, Colorado 80110

June 24, 1974

MAIL ADDRESS
2180 EAST 40TH AVENUE
DENVER, COLORADO 80205
PHONE 303 295-3371

		Sample identification by Consolidation Coal Co.
Kind of sample reported to us	Coal	Parting (Clay) Core Hole No. FC-280 Footage 459.9' - 462.0' (2.10') Date Sampled 5-1-74
Sample taken at	Emery Project	
Sample taken by	Consolidation Coal Co.	
Date sampled	Rec'd 5-24-74	

Analysis report no. 72-21720

SHORT PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	4.69	XXXXX
% Ash	88.98	93.36
Btu	10	11
% Sulfur	0.03	0.03

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	XXXXX	XXXXX
Softening (H=W)	XXXXX	XXXXX
Softening (H=½W)	XXXXX	XXXXX
Fluid	XXXXX	XXXXX

H is Cone Height
W is Cone Width

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

LWT/ko

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

PLEASE ADDRESS ALL CORRESPONDENCE TO:
775 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. 303-255-3371
303-255-0391

SINCE 1908

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 28, 1974

Sample identification by

Consolidation Coal Co.

Core Hole No. FC-280
443.00' - 453.00'
1.60 Float Composite

Kind of sample reported to us: Coal

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-24-74

Analysis report no. 72-22709 Page 1

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.71	xxxxx
% Ash	7.88	8.10
% Volatile	39.17	40.26
% Fixed Carbon	50.24	51.64
	100.00	100.00
Btu	12874	13233
% Sulfur	0.41	0.42

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.71	xxxxx
% Carbon	72.10	74.11
% Hydrogen	5.30	5.45
% Nitrogen	1.44	1.48
% Chlorine	0.02	0.02
% Sulfur	0.41	0.42
% Ash	7.88	8.10
% Oxygen (diff)	10.14	10.42
	100.00	100.00

SULFUR FORMS

	As received	Dry basis
Pyritic Sulfur	0.06	0.06
Sulfate Sulfur	0.00	0.00
Organic Sulfur (diff)	0.35	0.36
Total Sulfur	0.41	0.42

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2360 °F	2370 °F
Softening (H=W)	2385 °F	2390 °F
Softening (H=1/2W)	2400 °F	2410 °F
Fluid	2415 °F	2430 °F

HARDGROVE GRINDABILITY INDEX = 38.6 at 2.54 % Moisture

EQUILIBRIUM MOISTURE = 3.71

FREE SWELLING INDEX = xxxxx LWT/ko

Respectfully submitted,

CT&E Co.

L.W. TAYLOR, District Manager

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

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OFFICE TEL. 303-255-3371
303-255-0391

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 28, 1974

Sample identification by: Consolidation Coal Co.

Core Hole No. FC-280
443.00' - 453.00'
1.60 Float Composite

Kind of sample reported to us: Coal

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-24-74

Analysis report no. 72-22709 Page 2

MINERAL ANALYSIS OF ASH	%
Phos. pentoxide, P_2O_5	0.16
Silica, SiO_2	46.20
Ferric oxide, Fe_2O_3	3.52
Alumina, Al_2O_3	26.68
Titania, TiO_2	0.98
Lime, CaO	9.11
Magnesia, MgO	1.68
Sulfur trioxide, SO_3	6.05
Potassium oxide, K_2O	0.37
Sodium oxide, Na_2O	2.56
Undetermined	2.69
	100.00

WATER SOLUBLE ALKALIES

% Na_2O = .047
% K_2O = .006

Alkalies as Na_2O, DCB = 0.23

SILICA VALUE = 76.35

ESTIMATED VISCOSITY at critical visc. temp. of 2600 °F = 440 Poises
T_{250} = 2660 °F

LWT/ko

Respectfully submitted,
CT&E Co.
L.W. Taylor
L.W. TAYLOR, District Manager

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

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OFFICE TEL. 303-255-3371
303-255-0391

SINCE 1908

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 22, 1974

Sample Identification by

Consolidation Coal Co.

Core Hole No. FC-280
443.0' - 453.0'
Raw Coal Composite

Kind of sample reported to us: Coal

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-1-74

Analysis report no. 72-22709-X Page 1

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.28	xxxxx
% Ash	9.65	9.88
% Volatile	39.28	40.20
% Fixed Carbon	48.79	49.92
	100.00	100.00
Btu	12518	12810
% Sulfur	0.43	0.44

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.28	xxxxx
% Carbon	70.33	71.97
% Hydrogen	5.25	5.37
% Nitrogen	1.22	1.25
% Chlorine	0.02	0.02
% Sulfur	0.43	0.44
% Ash	9.65	9.88
% Oxygen (diff)	10.82	11.07
	100.00	100.00

SULFUR FORMS

	As received	Dry basis
Pyritic Sulfur	0.03	0.03
Sulfate Sulfur	0.00	0.00
Organic Sulfur (diff)	0.40	0.41
Total Sulfur	0.43	0.44

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2300 °F	2340 °F
Softening (H=W)	2315 °F	2350 °F
Softening (H=1/2W)	2330 °F	2360 °F
Fluid	2350 °F	2370 °F

HARDGROVE GRINDABILITY INDEX = xxxx at xxxxx % Moisture

EQUILIBRIUM MOISTURE = xxxxx

FREE SWELLING INDEX = xxxxx
LWT/ko

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

AMERICAN COUNCIL OF INDEPENDENT LABORATORIES, INC.

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.

GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

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303-255-0391

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 22, 1974

Sample Identification by

Consolidation Coal Co.

Core Hole No. FC-280
443.0' - 453.0'
Raw Coal Composite

Kind of sample reported to us: Coal

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-1-74

Analysis report no. 72-22709-X Page 2

MINERAL ANALYSIS OF ASH	%
Phos. pentoxide, P_2O_5	0.25
Silica, SiO_2	44.96
Ferric oxide, Fe_2O_3	3.84
Alumina, Al_2O_3	21.04
Titania, TiO_2	0.88
Lime, CaO	15.86
Magnesia, MgO	3.47
Sulfur trioxide, SO_3	4.85
Potassium oxide, K_2O	0.33
Sodium oxide, Na_2O	2.09
Undetermined	2.43
	100.00

WATER SOLUBLE ALKALIES

% Na_2O = .049
% K_2O = .006

Alkalies as Na_2O, DCB = 0.23

SILICA VALUE = 65.99

ESTIMATED VISCOSITY at critical visc. temp. of 2530 °F = 135 Poises
T250 = 2430 °F

LWT/ko

Respectfully submitted,

CT & E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

Charter Member

CT&E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
GENERAL OFFICES: 228 NORTH LA SALLE STREET, CHICAGO, ILLINOIS 60601 • AREA CODE 312 726-8434

PLEASE ADDRESS ALL CORRESPONDENCE TO:
0775 EAST 51st AVE., DENVER, COLO. 80239

OFFICE TEL. 303-255-3371
303-255-0391

SINCE 1929

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 28, 1974

Sample Identification by

Consolidation Coal Co.

Core Hole No. FC-280
443.00' - 453.00'
1.60 Float Composite

Kind of sample reported to us: Coal

Sample taken at: Emery Project

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-24-74

Analysis report no. 72-22709 Page 1

PROXIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.71	xxxxx
% Ash	7.88	8.10
% Volatile	39.17	40.26
% Fixed Carbon	50.24	51.64
	100.00	100.00
Btu	12874	13233
% Sulfur	0.41	0.42

ULTIMATE ANALYSIS

	As received	Dry basis
% Moisture	2.71	xxxxx
% Carbon	72.10	74.11
% Hydrogen	5.30	5.45
% Nitrogen	1.44	1.48
% Chlorine	0.02	0.02
% Sulfur	0.41	0.42
% Ash	7.88	8.10
% Oxygen (diff)	10.14	10.42
	100.00	100.00

SULFUR FORMS

	As received	Dry basis
Pyritic Sulfur	0.06	0.06
Sulfate Sulfur	0.00	0.00
Organic Sulfur (diff)	0.35	0.36
Total Sulfur	0.41	0.42

FUSION TEMPERATURE OF ASH

	Reducing	Oxidizing
Initial Deformation	2360 °F	2370 °F
Softening (H=W)	2385 °F	2390 °F
Softening (H=1/2W)	2400 °F	2410 °F
Fluid	2415 °F	2430 °F

HARDGROVE GRINDABILITY INDEX = 38.6 at 2.54 % Moisture

EQUILIBRIUM MOISTURE = 3.71

FREE SWELLING INDEX = xxxxx
LWT/ko

Respectfully submitted,

CT&E Co.

L. W. Taylor

L.W. TAYLOR, District Manager

Charter Member

CT & E Co.

A DIVISION OF COMMERCIAL TESTING & ENGINEERING CO.
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OFFICE TEL. 303-255-3371
303-255-0391

CONSOLIDATION COAL COMPANY
5889 South Syracuse Circle
Plaza Colorado Building
Englewood, Colorado 80110

Oct. 28, 1974

Sample Identification by

Consolidation Coal Co.

Core Hole No. FC-280
443.00' - 453.00'
1.60 Float Composite

Kind of sample reported to us: Coal

Sample taken at: XXXXX

Sample taken by: Consolidation Coal Co.

Date sampled: Received 5-24-74

Analysis report no. 72-22709 Page 2

MINERAL ANALYSIS OF ASH	%
Phos. pentoxide, P_2O_5	0.16
Silica, SiO_2	46.20
Ferric oxide, Fe_2O_3	3.52
Alumina, Al_2O_3	26.68
Titania, TiO_2	0.98
Lime, CaO	9.11
Magnesia, MgO	1.68
Sulfur trioxide, SO_3	6.05
Potassium oxide, K_2O	0.37
Sodium oxide, Na_2O	2.56
Undetermined	2.69
	100.00

WATER SOLUBLE ALKALIES

% Na_2O = .047
% K_2O = .006

Alkalies as Na_2O, DCB = 0.23

SILICA VALUE = 76.35

ESTIMATED VISCOSITY at critical visc. temp. of 2600 °F = 440 Poises
T_{250} = 2660 °F

LWT/ko

Respectfully submitted,

CT&E Co.

L.W. Taylor

L.W. TAYLOR, District Manager

Charter Member

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-1 FC-378 Date _____

Seam I-1 Sample _____ of _____ Location: T 22S R 6E S 29 SW¼NE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal _____ Shale X Other _____ Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-1 Core Crushed To 1/4" x 0 "

	From	To		
Sample Depth	506.8	507.3 Ft.	Weight	826 gms
Screen Size		X mm	Weight	gms
Specific Gravity	S	X F	Weight	gms

Moisture Determinations: Air Dry 0.33 Residual 0.50 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	0.83	85.85	2.67	1044		
Dry	0.00	86.56	2.69	1052		

MAF BTU 7831

Apparent Specific Gravity 2.43 at Moisture 0.83

Soluble Alkalies: Na_2O _____ K_2O _____

Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

H-54

ALR 83001

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

F[illegible] Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-1 FC-378 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 SW¼NE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal X Shale _____ Other _____ Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-2 Core Crushed To 1" x 0"

	From	To		
Sample Depth	507.3	512.0 Ft.	Weight	4488 gms
Screen Size		X mm	Weight	gms
Specific Gravity	S	X F	Weight	gms

Moisture Determinations: Air Dry 1.20 Residual 1.88 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received						
Dry						

MAF BTU _____

Apparent Specific Gravity 1.65 at Moisture 2.91

Soluble Alkalies: Na_2O _____ K_2O _____

A[illegible] Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

H-55

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

F[illegible]Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-1 FC-378 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 SW¼NE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal X Shale _____ Other _____ Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-2 Float Core Crushed To 1" x 0"

	From	To		
Sample Depth	507.3	512.0	Ft.	Weight _____ gms
Screen Size	25.4	X 0	mm	Weight 1241.7* gms
Specific Gravity	S	X 1.60	F	Weight _____ gms

Moisture Determinations: Air Dry 1.20 Residual 1.99 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	3.17	11.72	1.19	12,201		
Dry	0.00	12.10	1.22	12,600		

MAF BTU 14,334

Apparent Specific Gravity _____ at Moisture _____

Soluble Alkalies: Na_2O _____ K_2O _____

A[illegible] Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.
* Only 1/2 of the original sample was floated due to the large sample size.

H-56

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-1 FC-378 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 SW¼NE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal X Shale _____ Other _____ Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-2 Sink Core Crushed To 1" x 0"

	From	To		
Sample Depth	507.3	512.0 Ft.	Weight	gms
Screen Size	25.4	X 0 mm	Weight	gms
Specific Gravity	1.60 S	X F	Weight 1114.5*	gms

Moisture Determinations: Air Dry 1.20 Residual 1.76 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	2.94	68.39	2.02	3231		
Dry	0.00	70.46	2.08	3328		

MAF BTU 11,268

Apparent Specific Gravity _____ at Moisture _____

Soluble Alkalies: Na_2O _____ K_2O _____

Ash Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.
* Only 1/2 of the original sample was floated due to the large sample size

H-57

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal ____ Shale ____ Other Roof

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 2/20/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-2866-13-1

Company Identification Hole No. E-1 (FC 378)
Section 29 TP22S, RG 6E, Emery Longwall
Emery, Utah

Comments: ____

	From	To		
Sample Depth	512	512.8	Ft.	Weight 1,140 gms
Screen Size	____ x	____	mm (Rd.)	Weight ____ gms
Screen Size	____ x	____	mm (Sq.)	Weight ____ gms
Specific Gravity	____ S x	____	F	Weight ____ gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
7.52	3.55	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
2.36	10.[illegible]	88.27	0.41	329

H-58

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-2 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29, TP22S, RG 6E, Emery Longwall
Emery, Utah

	From		To		Weight	
Sample Depth	512.8		513.8	Ft.	834	gms
Screen Size		x		mm (Rd.)		gms
Screen Size		x		mm (Sq.)		gms
Specific Gravity	S	x	1.60	F	740.4	gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.62	0.52	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.41	3.13	13.93	1.16	12,274

H-59

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal xx Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-2 (S)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29 TP 22S, RG6E, Emery Longwall
Emery, Utah

	From	To			
Sample Depth	512.8	513.8	Ft.	Weight	834 gms
Screen Size		x	mm (Rd.)	Weight	gms
Screen Size		x	mm (Sq.)	Weight	gms
Specific Gravity	1.60 S	x	F	Weight	54.6 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.62	0.64	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.41	3.24	53.34	9.80	6151

H-60

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 2/20/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-2866-13-3 (F)

Company Identification Hole No. E-1 (FC 378) Section 29 TP22S, RG6E, Emery Longwall Emery, Utah

Comments: ____

	From		To		
Sample Depth	514		516	Ft.	Weight 1,484 gms
Screen Size	____	x	____	mm(Rd.)	Weight ____ gms
Screen Size	____	x	____	mm(Sq.)	Weight ____ gms
Specific Gravity	____ S	x	1.60	F	Weight 1391.8 gms

FROTH FLOTATION TEST

Indicate Method ____

Concentration ____

Reagent ____

Lbs/Ton ____

Conditioning Time ____ Minutes

Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.34	0.50	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.83	7.08	0.85	13,239

H-61

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Entry Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 1/16/76

Core Crushed To 1/4 x 0 - 60 Mesh

Lab Identification 268-2866-13-3 (S)

Company Identification Hole No. E-1(FC 378)
Section 29,TP 22S, RG6E, Emery Longwall
Emery, Utah

Comments: ____

	From	To		
Sample Depth	514	516	Ft.	Weight 1,484 gms
Screen Size	____ x	____	mm(Rd.)	Weight ____ gms
Screen Size	____ x	____	mm(Sq.)	Weight ____ gms
Specific Gravity	1.60 S x	____	F	Weight 25.4 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.34	0.79	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	3.11	40.70	5.37	7415

H-62

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-4 (F)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29, TP 22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	516		518	Ft.	Weight 1,669 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1498.2 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.83	0.66	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.48	6.74	.57	13,275

H-63

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-4 (S)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29, TP 22S, RG6E, Emery Longwall
Emery, Utah

	From	To		
Sample Depth	516	518	Ft.	Weight 1,669 gms
Screen Size		x	mm(Rd.)	Weight gms
Screen Size		x	mm(Sq.)	Weight gms
Specific Gravity	1.60 S	x	F	Weight 82.1 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.83	1.06	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.87	44.68	0.45	7026

H-64

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-5 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29, TP 22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	518		520	Ft.	Weight 1,792 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1501.7 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.87	0.90	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.38	2.75	12.21	0.44	12,647

H-65

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 2/20/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-2866-13-5 (F)

Company Identification Hole No. E-1 (FC 378) Section 29, TP 22S, RG6E, Emery Longwall Emery, Utah

Comments: ____

	From		To		
Sample Depth	518		520	Ft.	Weight 1,792 gms
Screen Size	____	x	____	mm(Rd.)	Weight ____ gms
Screen Size	____	x	____	mm(Sq.)	Weight ____ gms
Specific Gravity	____ S	x	1.60	F	Weight 1501.7 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.87	0.90	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.38	2.75	12.21	0.44	12,647

H-65

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-5 (S)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29, TP 22S, RG6E, Emery Longwall
Emery, Utah

	From	To			
Sample Depth	518	520	Ft.	Weight	1,792 gms
Screen Size	____ x	____	mm(Rd.)	Weight	____ gms
Screen Size	____ x	____	mm(Sq.)	Weight	____ gms
Specific Gravity	1.60 S x	____	F	Weight	219.8 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.87	0.37	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.38	2.23	44.43	0.37	7427

H-66

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-6 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29, TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	520		522	Ft.	Weight 1,554 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm (Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1450.9 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.00	0.86	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.30	2.84	4.87	0.37	13,671

H-67

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 2/20/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-2866-13-6 (S)

Company Identification Hole No. E-1 (FC 378)
Section 29, TP22S, RG6E, Emery Longwall
Emery, Utah

Comments: ____

	From		To			
Sample Depth	520		522	Ft.	Weight	1554 gms
Screen Size	____	x	____	mm (Rd.)	Weight	____ gms
Screen Size	____	x	____	mm (Sq.)	Weight	____ gms
Specific Gravity	1.60 S	x	____	F	Weight	38.4 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.00	0.86	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.30	2.84	29.61	0.44	9109

H-68

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-7 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1(FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	522		524	Ft.	Weight 1,699 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1426.2 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.05	0.94	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.42	2.97	10.75	0.41	12,804

H-69

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 2/20/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-2866-13-7 (S)

Company Identification Hole No. E-1(FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

Comments: ____

	From		To			
Sample Depth	522		524	Ft.	Weight	1,699 gms
Screen Size	____	x	____	mm(Rd.)	Weight	____ gms
Screen Size	____	x	____	mm(Sq.)	Weight	____ gms
Specific Gravity	1.60 S	x	____	F	Weight	194.8 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.05	0.45	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.42	2.49	51.01	.28	5939

H-70

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 1/16/76

Lab Identification 268-3866-13-8 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	524		526	Ft.	Weight 1,484 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1389.3 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.59	1.03	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.60	6.39	0.40	13,530

H-71

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-8 (S)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29 TP 22S, RG6E, Emery Longwall
Emery, Utah

	From	To		
Sample Depth	524	526	Ft.	Weight 1,484 gms
Screen Size	____ x	____	mm(Rd.)	Weight ____ gms
Screen Size	____ x	____	mm (Sq.)	Weight ____ gms
Specific Gravity	1.60 S x	____	F	Weight 30.0 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.59	0.58	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.16	40.25	0.92	5744

H-72

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By Jim Shaffer Date 1/16/76

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 1/16/76

Carrier ____ Date ____

Analyzed By Don Morris Date 2/20/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-2866-13-9 (S)

Company Identification Hole No. E-1 (FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

Comments: ____

	From	To		
Sample Depth	526	528	Ft.	Weight 1,726 gms
Screen Size	____ x	____	mm(Rd.)	Weight ____ gms
Screen Size	____ x	____	mm(Sq.)	Weight ____ gms
Specific Gravity	1.60 S x	____	F	Weight 73.3 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.54	0.50	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	2.03	31.67	0.43	8013

4-73

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

E[illegible] Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-9 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1(FC 378
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	526		528	Ft.	Weight 1,726 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1589.7 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.54	0.94	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	2.47	9.98	0.39	13,114

H-74

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-10 (S)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1(FC 378)
Section TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	528		530	Ft.	Weight 1,656 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	1.60 S	x		F	Weight 41.0 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.55	0.52	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.06	40.48	0.49	6594

H-75

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-10 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1(FC 378
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	528		530	Ft.	Weight 1,656 gms
Screen Size	____	x	____	mm(Rd.)	Weight ____ gms
Screen Size	____	x	____	mm (Sq.)	Weight ____ gms
Specific Gravity	____ S	x	1.60	F	Weight 1541.6 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.55	1.55	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	3.08	7.34	0.47	13,355

H-76

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-11 (S)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1(FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	530		532	Ft.	Weight 1,569 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	1.60 S	x		F	Weight 15.2 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.54	0.82	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.43	2.35	32.92	1.03	8710

A-77

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

E[illegible]y Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-11 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1(FC 378)
Section 29. TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	530		532	Ft.	Weight 1,569 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1490.9 gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.54	1.11	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.43	2.63	5.15	0.43	13,706

H-78

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-12 (F)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No., E-1(FC 378
Section 29, TP22S, RG6E, Emery Longwall
Emery, Utah

	From	To		
Sample Depth	532	533.9	Ft.	Weight 1,654 gms
Screen Size	____ x	____	mm(Rd.)	Weight ____ gms
Screen Size	____ x	____	mm (Sq.)	Weight ____ gms
Specific Gravity	____ S x	1.60	F	Weight 1550.2 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.39	1.06	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.30	2.44	4.97	0.55	13,674

H-79

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab y Use

SAMPLE DATA

Kind: X Core ____ Channel ____ Other ____

Material: Coal X Shale ____ Other ____

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-12 (S)

Comments:

Condition of Core As Received:

Wet X Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From	To			
Sample Depth	532	533.9	Ft.	Weight	1,654 gms
Screen Size			x ____ mm(Rd.)	Weight	____ gms
Screen Size			x ____ mm(Sq.)	Weight	____ gms
Specific Gravity	1.60 S		x ____ F	Weight	20.3 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.39	0.73	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.30	2.11	30.73	0.90	9211

480

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: x Core ____ Channel ____ Other ____

Material: Coal ____ Shale ____ Other Floor

Requested By Jim Shaffer Date 1/16/76

Received By Accu-Labs Research Date 1/16/76

Analyzed By Don Morris Date 2/20/76

Lab Identification 268-2866-13-13

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Hole No. E-1 (FC 378)
Section 29 TP22S, RG6E, Emery Longwall
Emery, Utah

	From		To		
Sample Depth	534		534.5	Ft.	Weight 808 gms
Screen Size	____	x	____	mm(Rd.)	Weight ____ gms
Screen Size	____	x	____	mm(Sq.)	Weight ____ gms
Specific Gravity	____ S	x	____ F		Weight ____ gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
6.32	1.25	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
2.44	7.49	90.78	0.27	84

H-81

Hole E-2

FC-380

accu-labs research, inc.
11485 W. 48th Ave. / Wheat Ridge, Colorado 80033 / (303) 423-2766

April 14, 1976

Mr. B.D. Singh
Consolidation Coal Co

RE: 268-3081-13

REPORT OF ANALYSIS

Utah: S. 29
T. 22 S., R. 6 E.

ALR Designation	Sponsor Designation	Raw Sp. Gr.	At as Rec. Moisture
	Emery Longwall Hole No. E 3		
268-3081-13 -1	410.65 - 411.15	2.05	11.58
-2	411.15 - 413.25	1.37	7.01
-3	415.85 - 416.8	1.47	3.76
-4	416.8 - 418.8	1.32	2.74
-5	418.8 - 420.8	1.37	2.40
-6	420.8 -422.8	1.36	2.38
-7	422.8 - 424.8	1.32	2.28
-8	424.8 - 426.1	1.38	2.19
-9	426.55 - 428.55	1.32	2.50
-10	428.55 - 430.55	1.35	2.58
-11	430.55 - 432.55	1.31	2.94
-12	432.55 - 435.2	1.31	3.16
-13	435.2 - 435.7	1.97	5.72

By: D.L. Morris
D.L. Morris
Fuels Chemist

A-82

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core____ Channel____ Other Floor

Condition of Core as Received:

Material: Coal____ Shale x Other____

Wet____ Dry____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact____ Broken x Other____

Received By: Accu-Labs Date 3/26/76

Carrier____ Date____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4 x 0 - 60Mesh

Lab Identification 268-3081-13-13

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	435.2		435.7	Ft.	Weight 774	gms
Screen Size		x		mm	Weight	gms
Specific Gravity	S	x		F	Weight	gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.22	1.39	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		79.81	0.19	1894

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

H-83

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-12 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	432.55		435.2	Ft.	Weight 2357	gms
Screen Size		x		mm	Weight	gms
Specific Gravity	1.60 S	x		F	Weight 28.3	gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.55	1.17	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		32.89	.68	7341

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Condition of Core as Received:

Material: Coal x Shale ____ Other ____

Wet ____ Dry ____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact ____ Broken x Other ____

Received By: Accu-Labs Date 3/26/76

Carrier ____ Date ____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4 x 0 - 60Mesh

Lab Identification 268-3081-13-12 (F)

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	432.55		435.2	Ft.	Weight	2357 gms
Screen Size	____	x	____	mm	Weight	____ gms
Specific Gravity	____ S	x	1.60	F	Weight	2282.9 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.55	2.64	____

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
____	____	5.06	.53	13713

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	
____	____	____	____	____	____

H-8c

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-11 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	430.55		432.55	Ft.	Weight	1505 gms
Screen Size		x		mm	Weight	gms
Specific Gravity	S	x	1.60	F	Weight	1416.4 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.47	2.54	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		4.60	.41	13868

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

4-96

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Lr Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Condition of Core as Received:

Material: Coal x Shale ____ Other ____

Wet ____ Dry ____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact ____ Broken x Other ____

Received By: Accu-Labs Date 3/26/76

Carrier ____ Date ____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4 x 0 - 60Mesh

Lab Identification 268-3081-13-11 (S)

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-3RO

	From	To		
Sample Depth	430.55	432.55	Ft.	Weight 1505 gms
Screen Size	____ x	____	mm	Weight ____ gms
Specific Gravity	1.60 S x	____	F	Weight 62.2 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.47	1.25	____

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
____	____	38.85	.45	5728

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	
____	____	____	____	____	____

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Data _____ _____ _____ E _____

y Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Condition of Core as Received:

Material: Coal x Shale ____ Other ____

Wet ____ Dry ____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact ____ Broken x Other ____

Received By: Accu-Labs Date 3/26/76

Carrier ____ Date ____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4 x 0 -60 Mesh

Lab Identification 268-3081-13-10 (S)

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From	To		
Sample Depth	428.55	430.55	Ft.	Weight 1446 gms
Screen Size	____ x	____	mm	Weight ____ gms
Specific Gravity	1.60 S x	____	F	Weight 33.0 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.58	1.55	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		23.43	.46	9174

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3 / 26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-10 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	428.55		430.55	Ft.	Weight 1446 gms
Screen Size		x		mm	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1379.4 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.58	2.02	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		9.46	.41	13081

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____
Lab Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-9 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From	To			
Sample Depth	426.55	428.55	Ft.	Weight	1645 gms
Screen Size		x	mm	Weight	gms
Specific Gravity	1.60 S	x	F	Weight	43.0 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.35	0.98	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		31.86	.33	6832

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26.76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-9 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	426.55		428.55	Ft.	Weight 1645 gms
Screen Size		x		mm	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 1569.3 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.35	2.19	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		7.05	.45	13516

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

d: Core x Channel ____ Other ____ Condition of Core as Received:

terial: Coal x Shale ____ Other ____ Wet ____ Dry ____ Condensation x

Requested By: B.D. Singh Date 3/26/76 Intact ____ Broken x Other ____

R ceived By: Accu-Labs Date 3/26/76 Carrier ____ Date ____

nalyzed By: D.L. Morris Date 4/14/76 Core Crushed To 1/4 x 0 - 60 Mesh

Identification 268-3081-13-8 (S) Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
nple Depth	424.8		426.1	Ft.	Weight	1103 gms
reen Size		x		mm	Weight	gms
ic Gravity	1.60 S	x		F	Weigh.	65.7 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.27	0.93	

s Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

atile Matter	Fixed Carbon	Ash	Sulfur	Btu
		55.77	.67	5109

MISCELLANEOUS ANALYSIS

parent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-8 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	424.8		426.1	Ft.	Weight	1103 gms
Screen Size		x		mm	Weight	gms
Specific Gravity		S x	1.60	F	Weight	1018.6 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.27	1.99	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		11.37	.53	12682

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core ___ x Channel ___ Other ___

Material: Coal ___ x ___ Shale ___ Other ___

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-7 (S)

Condition of Core as Received:

Wet ___ Dry ___ Condensation ___ x ___

Intact ___ Broken ___ x ___ Other ___

Carrier ___ Date ___

Core Crushed To 1/4 x 0 - 60Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	422.8		424.8	Ft.	Weight 1069	gms
Screen Size		x		mm	Weight	gms
Specific Gravity	1.60 S	x		F	Weight 60.6	gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.27	0.73	

As Received: Moisture ___ Ash ___ Sulfur ___ Btu ___ MAF: ___

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		43.26	.25	6944

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Condition of Core as Received:

Material: Coal x Shale ____ Other ____

Wet ____ Dry ____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact ____ Broken x Other ____

Received By: Accu-Labs Date 3/26/76

Carrier ____ Date ____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4 x 0 - 60 Mesh

Lab Identification 268-3081-13-7 (F)

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	422.8		424.8	Ft.	Weight 1069 gms
Screen Size	____	x	____	mm	Weight ____ gms
Specific Gravity	____ S	x	1.60	F	Weight 991.5 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.27	2.10	____

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
____	____	4.74	.66	13881

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture
____ ____	____ ____	____ ____

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-6 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From	To			
Sample Depth	420.8	422.8	Ft.	Weight	1340 gms
Screen Size		x	mm	Weight	gms
Specific Gravity	1.60 S	x	F	Weight	162.5 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.34	1.06	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		44.09	5.21	5694

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture

H-91

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-6 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60Mesh

Company Identification Emery Longwall

Hole E3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	420.8		422.8	Ft.	Weight	1340 gms
Screen Size		x		mm	Weight	gms
Specific Gravity		S x	1.60	F	Weight	1151.0 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.34	2.19	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		7.44	.79	13275

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-5 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 -60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	418.8		420.8	Ft.	Weight 1457	gms
Screen Size	____	x	____	mm	Weight ____	gms
Specific Gravity 1.60	S	x	____	F	Weight 103.0	gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.28	1.70	____

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
____	____	45.06	1.81	5534

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	
____	____	____	____	____	____

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-5 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	418.8		420.8	Ft.	Weight 1457 gms
Screen Size		x		mm	Weight ____ gms
Specific Gravity		S x	1.60	F	Weight 1334.8 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.28	2.16	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		12.16	1.14	12667

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-4 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	416.8		418.8	Ft.	Weight 1601 gms
Screen Size		x		mm	Weight ____ gms
Specific Gravity	1.60 S	x		F	Weight 28.9 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.36	1.53	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		24.99	1.74	8361

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

File Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-4 (F)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

Hole E3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	416.8		418.8	Ft.	Weight	1601 gms
Screen Size		x		mm	Weight	gms
Specific Gravity	S	x	1.60	F	Weight	1534.9 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
0.36	2.40	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		7.22	.98	13347

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-3 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	415.85		416.8	Ft.	Weight 754 gms
Screen Size	____	x	____	mm	Weight ____ gms
Specific Gravity 1.60 S		x	____	F	Weight 131.5 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.82	1.47	____

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
____	____	60.96	2.21	5301

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture
____ ____	____ ____	____ ____

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-3 FC-380 Date _____

Seam I-J Sample _____ of _____ Location: T22S R 6E S 29 NW¼SE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal _____ Shale _____ Other X Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-7 Core Crushed To 1/4" x 0"

	From	To		
Sample Depth	414.05	415.85 Ft.	Weight	1816 gms
Screen Size	_____	X _____ mm	Weight	_____ gms
Specific Gravity	_____ S	X _____ F	Weight	_____ gms

Moisture Determinations: Air Dry 4.72 Residual 4.57 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	9.07	81.28	0.96	381		
Dry	0.00	89.40	1.06	419		

MAF BTU 3953

Apparent Specific Gravity 2.29 at Moisture 9.07

Soluble Alkalies: Na_2O _____ K_2O _____

Ash Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Kind: Core_____ Channel_____ Other Roof

Condition of Core as Received:

Material: Coal_____ Shale x Other_____

Wet_____ Dry_____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact____ Broken x Other_____

Received By: Accu-Labs Date 3/26/76

Carrier_____ Date_____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4x0 -60 Mesh

Lab Identification 268-3081-13-1

Company Identification Emery Longwall

Hole E3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From	To			
Sample Depth	410.65	411.15	Ft.	Weight	619.0 gms
Screen Size	_____ x	_____	mm	Weight	_____ gms
Specific Gravity	_____ S x	_____	F	Weight	_____ gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
4.93	2.18	_____

As Received: Moisture _____ Ash _____ Sulfur_____ Btu_____ MAF:_____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
_____	_____	66.59	2.85	3922

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture
_____ _____	_____ _____	_____ _____

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Use

SAMPLE DATA

Mud: Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By: B.D. Singh Date 3/26/76

Received By: Accu-Labs Date 3/26/76

Analyzed By: D.L. Morris Date 4/14/76

Lab Identification 268-3081-13-2 (S)

Condition of Core as Received:

Wet ____ Dry ____ Condensation x

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To		
Sample Depth	411.15		413.25	Ft.	Weight 1479 gms
Screen Size		x		mm	Weight ____ gms
Specific Gravity	1.60 S	x		F	Weight 141.5 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
5.02	2.23	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		49.24	3.89	6261

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture	True Sp. Gr. at Moisture	Grindability at Moisture

H-106

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

ry Use

SAMPLE DATA

Kind: Core x Channel ____ Other ____

Condition of Core as Received:

Material: Coal x Shale ____ Other ____

Wet ____ Dry ____ Condensation x

Requested By: B.D. Singh Date 3/26/76

Intact ____ Broken x Other ____

Received By: Accu-Labs Date 3/26/76

Carrier ____ Date ____

Analyzed By: D.L. Morris Date 4/14/76

Core Crushed To 1/4 x 0 - 60 Mesh

Lab Identification 268-3081-13-2 (F)

Company Identification Emery Longwall

HoleE3, Sec29, Tp22s, Rg6E, Emery, Utah

FC-380

	From		To			
Sample Depth	411.15		413.25	Ft.	Weight	1479 gms
Screen Size		x		mm	Weight	gms
Specific Gravity		S x	1.60	F	Weight	1286.5 gms

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
5.02	2.09	

As Received: Moisture ____ Ash ____ Sulfur ____ Btu ____ MAF: ____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Volatile Matter	Fixed Carbon	Ash	Sulfur	Btu
		9.50	1.71	12944

MISCELLANEOUS ANALYSIS

Apparent Sp. Gr. at Moisture		True Sp. Gr. at Moisture		Grindability at Moisture	

11 102

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

F[illegible]ata _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-3 FC-380 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 NW¼SE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal X Shale _____ Other _____ Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-6 Core Crushed To 1" x 0"

	From	To		
Sample Depth	408.3	410.65	Ft.	Weight 1721 gms
Screen Size		X	mm	Weight gms
Specific Gravity	S	X	F	Weight gms

Moisture Determinations: Air Dry 0.39 Residual 2.11 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received						
Dry						

MAF BTU _____

Apparent Specific Gravity 1.71 at Moisture 2.49

Soluble Alkalies: Na_2O _____ K_2O _____

Ash Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

F[illegible]ata _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-3 FC-380 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 NW¼SE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal X Shale _____ Other _____ Wet _____ Dry x Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact ____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-6 Sink Core Crushed To 1" x 0"

	From	To		
Sample Depth	408.3	410.65 Ft.	Weight	gms
Screen Size	25.4	X 0 mm	Weight	gms
Specific Gravity	1.60 S	X F	Weight 1043.7	gms

Moisture Determinations: Air Dry 0.39 Residual 2.23 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	2.61	71.57	2.36	2968		
Dry	0.00	73.49	2.42	3047		

MAF BTU 11,497

Apparent Specific Gravity _____ at Moisture _____

Soluble Alkalies: Na_2O _____ K_2O _____

Ash Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

F[illegible]ata _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-3 FC-380 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 NW¼SE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal X Shale _____ Other _____ Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-6 Float Core Crushed To 1" x 0"

	From	To		
Sample Depth	408.3	410.65 Ft.	Weight	gms
Screen Size	25.4 X	0 mm	Weight	gms
Specific Gravity	S X	1.60 F	Weight 622.2	gms

Moisture Determinations: Air Dry 0.39 Residual 1.90 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	2.28	9.96	2.67	12,754		
Dry	0.00	10.19	2.73	13,052		

MAF BTU 14,533

Apparent Specific Gravity _____ at Moisture _____

Soluble Alkalies: Na_2O _____ K_2O _____

A[illegible] Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

ALP 80001 H-110

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-3 FC-380 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 N½SE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal _____ Shale _____ Other sandstone Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-5 Core Crushed To 1/4" x 0"

	From	To		
Sample Depth	407.8	408.3 Ft.	Weight	777 gms
Screen Size		X mm	Weight	gms
Specific Gravity	S	X F	Weight	gms

Moisture Determinations: Air Dry 5.24 Residual 0.10 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	5.33	93.22	0.54	112		
Dry	0.00	98.48	0.57	118		

MAF BTU 7763

Apparent Specific Gravity 2.39 at Moisture 5.33

Soluble Alkalies: Na_2O _____ K_2O _____

Ash Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: _____ Core x Channel _____ Other _____

Material: Coal _____ Shale _____ Other Roof

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-1

Comments:

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 20 TP22S, Rg 6E Emery, Utah

	From	To			
Sample Depth	565.8	568	Ft.	Weight	189 gms
Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
Screen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
Specific Gravity	_____ S x	_____	F	Weight	_____ gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.65	2.30	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.82	4.89	55.14	0.21	5,542

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

F Use

SAMPLE DATA

id: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ___ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 Mesh

ab Identification 268-2785-15-2 (S)

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29 TP22S, Rg 6E Emery, Utah

mments: _____

	From	To			
nple Depth	565	568	Ft.	Weight	1792 gms
n Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
creen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
ecific Gravity	1.60 S x	_____	F	Weight	55.5 (S) gms

FROTH FLOTATION TEST

ndicate Method _____

Concentration _____

agent _____

Lbs/Ton _____

nditioning Time _____ Minutes

Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.77	1.49	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

pparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	3.23	40.50	0.30	7,668

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CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

id: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ___ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

ab Identification 268-2785-15-2 (F)

Company Identification Emery Longwall FC 382
Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

mments: _____

	From		To		
nple Depth	565		568	Ft.	Weight 1792 gms
n Size	_____	x	_____	mm(Rd.)	Weight _____ gms
creen Size	_____	x	_____	mm(Sq.)	Weight _____ gms
ecific Gravity	_____ S	x	1.60 F		Weight 1667.1 gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

agent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.77	2.21	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

pparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.39	3.94	7.85	0.55	13,237

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ____ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

ab Identification 268-2785-15-3 (S)

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29 TP22S, Rg 6E Emery, Utah

mments: _____

	From	To			
nple Depth	568	570	Ft.	Weight	1647 gms
n Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
creen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
ecific Gravity	1.60 S x	_____	F	Weight	20.0 (S) gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.50	1.42	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

parent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	2.90	30.57	0.33	8,196

4-115

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

F Use

SAMPLE DATA

nd: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ___ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/75

Core Crushed To 1/4 x 0 - 60 mesh

Lab Identification 268-2785-15-3 (F)

Company Identification Emery Longwall FC 382
Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

mments: _____

	From		To			
nple Depth	568		570	Ft.	Weight	1647 gms
Size	_____	x	_____	mm(Rd.)	Weight	_____ gms
creen Size	_____	x	_____	mm(Sq.)	Weight	_____ gms
ecific Gravity	_____ S	x	1.60	F	Weight	1572.3 (F) gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.50	2.24	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

parent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.34	3.71	6.39	0.38	12,638

H-116

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

E Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

aterial: Coal x Shale _____ Other _____

Requested By James D. Shaffer Date 12/8/75

R ceived By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-4 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

	From	To		
Sample Depth	570	572 Ft.	Weight	1845 gms
Screen Size	_____ x	_____ mm(Rd.)	Weight	_____ gms
Screen Size	_____ x	_____ mm(Sq.)	Weight	_____ gms
Specific Gravity	_____ S x	1.60 F	Weight	1339.2 (F) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.58	1.97	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.42	3.52	8.33	0.33	12,309

H-117

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: ____ Core x Channel ____ Other ____

Condition of Core As Received:

Material: Coal x Shale ____ Other ____

Wet x Dry ____ Condensation ____

Requested By James D. Shaffer Date 12/8/75

Intact ____ Broken x Other ____

Received By Accu-Labs Research Date 12/8/75

Carrier ____ Date ____

Analyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

Lab Identification 268-2785-15-4 (S)

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29 TP22S, Rg 6E Emery, Utah

Comments: ____

	From	To		
Sample Depth	570	572	Ft.	Weight 1845 gms
Screen Size	____ x	____	mm(Rd.)	Weight ____ gms
Screen Size	____ x	____	mm(Sq.)	Weight ____ gms
Specific Gravity	1.60 S x	____	F	Weight 442.0)S) gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.58	1.23	____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.42	2.79	43.58	0.24	7,232

H-118

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

id: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ____ Broken x Other _____

R_ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

Analyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

Lab Identification 268-2785-15-5 (F)

Company Identification FC 382 Emery Longwall

Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

mments: _____

	From		To			
nple Depth	572		574	Ft.	Weight	1730 gms
Size	_____	x	_____	mm(Rd.)	Weight	_____ gms
Screen Size	_____	x	_____	mm(Sq.)	Weight	_____ gms
ecific Gravity	_____ S	x	1.60	F	Weight	1530.1 (F) gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.91	2.04	_____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

pparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	3.91	6.39	0.35	13,396

H-119

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: ____ Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-5 (S)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

	From	To			
Sample Depth	572	574	Ft.	Weight	1730 gms
Screen Size		x	mm(Rd.)	Weight	gms
Screen Size		x	mm(Sq.)	Weight	gms
Specific Gravity	1.60 S	x	F	Weight	138.5 (S) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.91	1.34	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	3.22	44.11	0.20	6,339

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact _____ Broken x Other _____

R ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By DonMorris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

ab Identification 268-2785-15-6(S)

Company Identification FC 382 Emery Longwall

Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

mments: _____

	From	To		
nple Depth	574	576	Ft.	Weight 1503 gms
Size	_____ x	_____	mm(Rd.)	Weight _____ gms
creen Size	_____ x	_____	mm(Sq.)	Weight _____ gms
ecific Gravity	1.60 S x	_____	F	Weight 53.1 (S) gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.63	0.52	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

pparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.32	3.14	23.80	0.15	8,898

H-121

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Ir Data _____ _____ _____ E _____

F Use

SAMPLE DATA

Kind: _____ Core x Channel _____ Other _____

Material: Coal x Shale _____ Other _____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-6 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29 TP22S, Rg 6E
Emery, Utah

	From		To			
Sample Depth	574		576	Ft.	Weight	1503 gms
Screen Size	_____	x	_____	mm(Rd.)	Weight	_____ gms
Screen Size	_____	x	_____	mm(Sq.)	Weight	_____ gms
Specific Gravity	_____ S	x	1.60	F	Weight	1380.2 (F) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.63	1.89	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.32	4.47	4.10	0.35	12,946

H-122

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: x Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-7 (S)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

	From	To			
Sample Depth	576	577.63	Ft.	Weight	1228 gms
Screen Size	____ x	____	mm(Rd.)	Weight	____ gms
Screen Size	____ x	____	mm(Sq.)	Weight	____ gms
Specific Gravity	1.60 S x	____	F	Weight	14.6 (S) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.78	1.79	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.33	3.54	20.80	0.41	10,886

4-12.3

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ____ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 Mesh

Lab Identification 268-2785-15-7 (F)

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29, TP22S, Rg 6E Emery, Utah

mments: _____

nple Depth From 576 To 577.63 Ft. Weight 1228 gms

n Size _____ x _____ mm(Rd.) Weight _____ gms

Screen Size _____ x _____ mm(Sq.) Weight _____ gms

cific Gravity _____ S x 1.60 F Weight 1160.8 (F) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
1.78	1.93	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

parent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.33	3.68	7.13	0.45	13,360

H-124

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Ir Data _____ _____ _____ E _____

F Use

SAMPLE DATA

nd: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal _____ Shale _____ Other Parting

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact ____ Broken x Other _____

Received By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

Analyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

Lab Identification 268-2785-15-8

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29, TP22S, Rg 6E Emery, Utah

Comments: _____

	From	To			
Sample Depth	577.63	577.81	Ft.	Weight	1849 gms
Chip Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
Screen Size	_____ x	_____	mm (Sq.)	Weight	_____ gms
Specific Gravity	_____ S x	_____	F	Weight	_____ gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.21	2.19	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
2.35	4.35	75.54	0.42	2,144

H-125

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

Data _____ _____ _____ E _____

Entry Use

Project Emery Longwall Hole No. E-5 FC-382 Date _____

Seam I-J Sample _____ of _____ Location: T 22S R 6E S 29 SW¼NE¼

SAMPLE DATA

Kind: Core X Channel _____ Other _____ Condition of Core As Received:

Material Coal _____ Shale _____ Other sandstone Wet _____ Dry X Condensation _____

Requested By J. Shaffer Date 6-3-76 Intact _____ Broken X Other _____

Analyzed By Accu-Labs Date 6-29-76 Carrier _____ Date _____

Lab Identification 268-3362-9-9 Core Crushed To 1/4" x 0"

	From	To		
Sample Depth	577.81	583.92 Ft.	Weight	10,445 gms
Screen Size	_____	X _____ mm	Weight	_____ gms
Specific Gravity	_____ S	X _____ F	Weight	_____ gms

Moisture Determinations: Air Dry 2.27 Residual 0.24 Equilibrium _____

Proximate Analysis:	Moisture *	Ash	Sulfur	BTU	F. Carbon	V. Matter
As Received	2.50	94.54	0.14	111		
Dry	0.00	96.97	0.14	114		

MAF BTU 3775

D.L Morey

Apparent Specific Gravity 2.52 at Moisture 2.50

Soluble Alkalies: Na_2O _____ K_2O _____

Ash Fusion Temperatures (Reducing atmosphere):

ID _____ H=W _____ H=1/2W _____ Fluid _____

As Received moisture will vary depending on field conditions and drilling methods.

H-126

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

E Use

SAMPLE DATA

id: ____ Core x Channel ____ Other ____

Condition of Core As Received:

aterial: Coal x Shale ____ Other Parting

Wet x Dry ____ Condensation ____

Requested By James D. Shaffer Date 12/8/75

Intact ____ Broken x Other ____

R ceived By Accu-Labs Research Date 12/8/75

Carrier ____ Date ____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

ab Identification 268-2785-15-9

FC 382

Company Identification Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

mments: ____

	From	To			
nple Depth	583.92	584.46	Ft.	Weight	750 gms
n Size	____ x	____	mm(Rd.)	Weight	____ gms
creen Size	____ x	____	mm(Sq.)	Weight	____ gms
ecific Gravity	____ S x	____	F	Weight	____ gms

FROTH FLOTATION TEST

ndicate Method ____ Concentration ____

gent ____ Lbs/Ton ____

nditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.23	1.13	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

pparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
2.07	3.33	63.43	1.27	4,524

H-127

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: ____ Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-10(S)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To - 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, T22S, Rg 6E
Emery, Utah

	From	To			
Sample Depth	584.46	587	Ft.	Weight	2278 gms
Screen Size		x	mm(Rd.)	Weight	gms
Screen Size		x	mm(Sq.)	Weight	gms
Specific Gravity	1.60 S	x	F	Weight	3470 (S) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.12	2.09	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.38	4.17	54.66	0.28	5,771

H-128

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: _____ Core x Channel _____ Other _____

Material: Coal x Shale _____ Other _____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-10 (F)

Comments: _____

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x o - 60 mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

	From	To			
Sample Depth	584.46	587	Ft.	Weight	2278 gms
Screen Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
Screen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
Specific Gravity	_____ S x	1.60	F	Weight	1856.3 (F) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.12	2.68	_____

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.38	4.74	7.05	0.54	13,376

H-129

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

For Use

SAMPLE DATA

Kind: _____ Core x Channel _____ Other _____

Material: Coal x Shale _____ Other _____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-11 (S)

Comments: _____

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

	From	To			
Sample Depth	587	589	Ft.	Weight	1748 gms
Screen Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
Screen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
Specific Gravity	1.60 S x	_____	F	Weight	36.8 (S) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.53	1.35	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	3.85	30.23	0.70	8,050

H130

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By James D. Shaffer Date 12/8/75

Intact _____ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 Mesh

ab Identification 268-2785-15-11 (F)

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29, TP22S, RG 6E Emery, Utah

nments: _____

	From	To			
nple Depth	587	589	Ft.	Weight	1748 gms
Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
creen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
cific Gravity	_____ S x	1.60	F	Weight	1653.7 (F) gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.53	2.63	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

parent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.35	5.09	6.62	0.44	13,472

H-131

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

E y Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29, TP22S, Rg 6E Emery, Utah

Material: Coal x Shale _____ Other _____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-12 (S)

Comments: _____

Sample Depth From 589 To 590.5 Ft. Weight 1600 gms

Size _____ x _____ mm(Rd.) Weight _____ gms

Screen Size _____ x _____ mm(Sq.) Weight _____ gms

Specific Gravity 1.60 S x _____ F Weight 55.1 (S) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.45	1.23	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.32	3.65	31.99	0.56	7,461

H-132

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

r Data _____ _____ _____ E _____

Use

SAMPLE DATA

d: _____ Core x Channel _____ Other _____

Condition of Core As Received:

aterial: Coal x Shale _____ Other _____

Wet x Dry _____ Condensation _____

Requested By Jamed D. Shaffer Date 12/8/75

Intact ____ Broken x Other _____

ceived By Accu-Labs Research Date 12/8/75

Carrier _____ Date _____

alyzed By Don Morris Date 1/12/76

Core Crushed To 1/4 x 0 - 60 mesh

ab Identification 268-2785-15-12 (F)

Company Identification FC 382 Emery Longwall Hole No. E-5, Section 29, TP22S, Rg 6E Emery, Utah

nments: _____

	From	To			
nple Depth	589	590.5	Ft.	Weight	1600 gms
n Size	_____ x	_____	mm(Rd.)	Weight	_____ gms
creen Size	_____ x	_____	mm(Sq.)	Weight	_____ gms
cific Gravity	_____ S x	1.60	F	Weight	1489.0 (F) gms

FROTH FLOTATION TEST

ndicate Method _____ Concentration _____

gent _____ Lbs/Ton _____

nditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.45	2.56	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

parent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.32	4.95	7.34	0.47	13,846

H-132

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: ____ Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-13 (LOST)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

Sample Depth From 590.5 LOST To 591 Ft. Weight ____ gms

Screen Size ____ x ____ mm(Rd.) Weight ____ gms

Screen Size ____ x ____ mm(Sq.) Weight ____ gms

Specific Gravity ____ S x ____ F Weight ____ gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu

H-134

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: ____ Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-14 (S)

Comments: _____

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

	From	To			
Sample Depth	591	593	Ft.	Weight	1675 gms
Screen Size	____ x	____	mm(Rd.)	Weight	____ gms
Screen Size	____ x	____	mm(Sq.)	Weight	____ gms
Specific Gravity	1.60 S x	____	F	Weight	1043.1 (S) gms

FROTH FLOTATION TEST

Indicate Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.89	1.83	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.56	4.67	86.72	0.21	754

H-135

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

For Data _____ _____ _____ E _____

Lab Use

SAMPLE DATA

Kind: ____ Core x Channel ____ Other ____

Material: Coal x Shale ____ Other ____

Requested By James D. Sahffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-14 (F)

Comments:

Condition of Core As Received:

Wet x Dry ____ Condensation ____

Intact ____ Broken x Other ____

Carrier ____ Date ____

Core Crushed To 1/4 x 0 - 60 Mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

	From		To		
Sample Depth	591		593	Ft.	Weight 1675 gms
Screen Size		x		mm(Rd.)	Weight ____ gms
Screen Size		x		mm(Sq.)	Weight ____ gms
Specific Gravity	S	x	1.60	F	Weight 531.7 gms

FROTH FLOTATION TEST

Indicate Method ____ Concentration ____

Reagent ____ Lbs/Ton ____

Conditioning Time ____ Minutes Frothing Time ____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
2.89	2.41	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
1.56	5.23	5.69	0.54	13,507

H-136

CONSOLIDATION COAL COMPANY

LAB ANALYSIS REPORT

F 'a _____ _____ _____ E _____

E se

SAMPLE DATA

Kind: _____ Core x Channel _____ Other _____

Material: Coal _____ Shale _____ Other Bottom

Requested By James D. Shaffer Date 12/8/75

Received By Accu-Labs Research Date 12/8/75

Analyzed By Don Morris Date 1/12/76

Lab Identification 268-2785-15-15

Comments: _____

Condition of Core As Received:

Wet x Dry _____ Condensation _____

Intact _____ Broken x Other _____

Carrier _____ Date _____

Core Crushed To 1/4 x 0 - 60 mesh

Company Identification FC 382 Emery Longwall
Hole No. E-5, Section 29, TP22S, Rg 6E
Emery, Utah

Sample Depth From 593 To 593.6 Ft. Weight 1393 gms

Screen Size _____ x _____ mm(Rd.) Weight _____ gms

Screen Size _____ x _____ mm(Sq.) Weight _____ gms

Specific Gravity _____ S x _____ F Weight _____ gms

FROTH FLOTATION TEST

Reagent Method _____ Concentration _____

Reagent _____ Lbs/Ton _____

Conditioning Time _____ Minutes Frothing Time _____ Minutes

MOISTURE DETERMINATIONS

Air Dry	Residual	Equilibrium
3.84	1.89	

REPORT ALL ANALYSES ON A DRY BASIS

PROXIMATE ANALYSIS

Apparent Sp. Gr.	at Moisture	Ash	Sulfur	Btu
2.54	5.66	91.42	[illegible]	N/A

H-137

APPENDIX K
SUBSIDENCE

SUMMARY:

Preliminary rock mechanics work for the Emery Mine has been completed by the Research and Development Department of Continental Oil Company. Basic compressive strengths of the overburden and coal were used along with empirical formulas, to determine the stability of the pillars in the production panels.

The results of this work have shown that the panel entry pillars will remain stable, with a 2 to 1 safety factor, to a depth of 700-780 feet. The room pillars will remain stable, with a 1.3 to 1 safety factor, to a depth of 300-400 feet. These results indicate that some convergence can be expected; however, since total pillar recovery is not planned major caving is not anticipated.

MECHANICAL PROPERTIES OF THE OVERBURDEN AND COAL:

Core samples obtained in drilling have been tested in the Rock Mechanics Laboratory of Conoco. The results of these property tests, indicate that the coal has an average compressive strength of 5097 psi. The sandstone and siltstone in the roof are relatively well cemented, competent, medium strong rock with compressive strengths varying from 5000 to 18,000 psi.

The strength of the in-situ coal pillar can be estimated with the use of the following empirical formulas:

$$\sigma p(psi) = 8423\ W^{.5}\ H^{-1}$$

Where W is the pillar width in inches and H is the mining height in inches.

This formula has been developed from laboratory data collected from cores in eastern coal field with comparable strength characteristics.

DETAILED CALCULATION FOR STABLE MINING DEPTH

A. Panel Entries

1. 16' wide entries

Supporting capability of a 64' X 64' pillar

$$\sigma_p = 8423x(64 \times 12)^{.5}x(8 \times 12)^{-1} = 2432 \text{ psi}$$

$$\text{Extraction Ratio } R = \frac{80^2 - 64^2}{80^2} = .36$$

Stable mining depth with a safety factor of 2

$$D = \frac{2432 \times (1-R)}{2} = 778 \text{ feet}$$

2. 18' wide entries

Supporting capability of a 62' x 62' pillar

$$\sigma_p = 8423x(62 \times 12)^{.5} \times (8 \times 12)^{-1} = 2393 \text{ psi}$$

Extraction Ratio R = .40

Stable mining depth with a safety factor of 2

$$D = \frac{2393 \times (1-R)}{2} = 718 \text{ feet}$$

B. Rooms

1. 16' wide rooms

Supporting capability of a 24' x 34' pillar

$$\sigma_p = 8423 \times (24 \times 12)^{.5} \times (9 \times 12)^{-1} = 1324 \text{ psi}$$

Extraction Ratio R = .59

Stable depth with a safety factor of 1.3

$$D = \frac{1324 \times (1-R)}{1.3} = 418 \text{ feet}$$

2. 18' wide rooms

Supporting capability of a 22' x 32' pillar

$$\sigma_p = 8423 \times (22 \times 12)^{.5} \times (9 \times 12)^{-1} = 1267 \text{ psi}$$

Extraction Ratio R = .65

Stable depth with a safety factor of 1.3

$$D = \frac{1267 \times (1-R)}{1.3} = 341 \text{ feet}$$

MONITORING PLAN

Consol will set up a subsidence monitoring grid, consisting of three permanent elevation stations per panels. (See Map: Location of Proposed Subsidence Monitoring Stations.) These monuments will be designed to withstand frost heave, deterioration or destraction from adverse weather conditions, and disturbance by livestock or wildlife. Monuments will be checked semi-annually by Consol or their designated representative, by means of accurate surveying methods. In addition, visual observations of surface conditions above the underground mine, including areas within the angle of draw, will be completed semi-annually.

All of the subsidence monitoring data will be submitted to the Mining Supervisor in a formal report on an annual basis.

Consol, in consultation with the Mining Supervisor, will periodically review the annual subsidence reports and develop reclamation measures, if necessary, for the surface effects of underground mining operations. Actions might include backfilling of subsided areas and fissures, fencing and installation of warning signs near slopes or cliff faces made unstable by subsidence, and other measures as necessary and appropriate. Any reclamation measures will be coordinated with the surface management agency and surface owners so that all actions taken are legally appropriate and in compliance.