UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

GEOPHYSICAL LOGS AND COAL ANALYSIS REPORT OF ROTARY HOLES DRILLED IN 1977 IN TRACT 98, KEMMERER COAL DISTRICT, LINCOLN COUNTY, WYOMING

By Donald C. Alvord

Open-File Report 77-828

1977

This report has not been edited
for conformity with Geological
Survey editorial standards or
stratigraphic nomenclature.

CONTENTS

	Page
Introduction	1
Coal analysis report	7
References	32

ILLUSTRATIONS
(Figures 3-8 in pocket)

Figure 1.	Index map	2
2.	Cross sections	3
3-8.	Geophysical logs:	
	3. Drill-hole No. T98-1	
	4. Drill-hole No. T98-2	
	5. Drill-hole No. T98-3	
	6. Drill-hole No. T98-4	
	7. Drill-hole No. T98-5	
	8. Drill-hole No. T98-6	

TABLES

Table 1.	Summary of drill-hole information	4
2.	Summary of coal analyses	5

GEOPHYSICAL LOGS AND COAL ANALYSIS REPORT OF ROTARY HOLES DRILLED IN 1977 IN TRACT 98, KEMMERER COAL DISTRICT, LINCOLN COUNTY, WYOMING

By

Donald C. Alvord

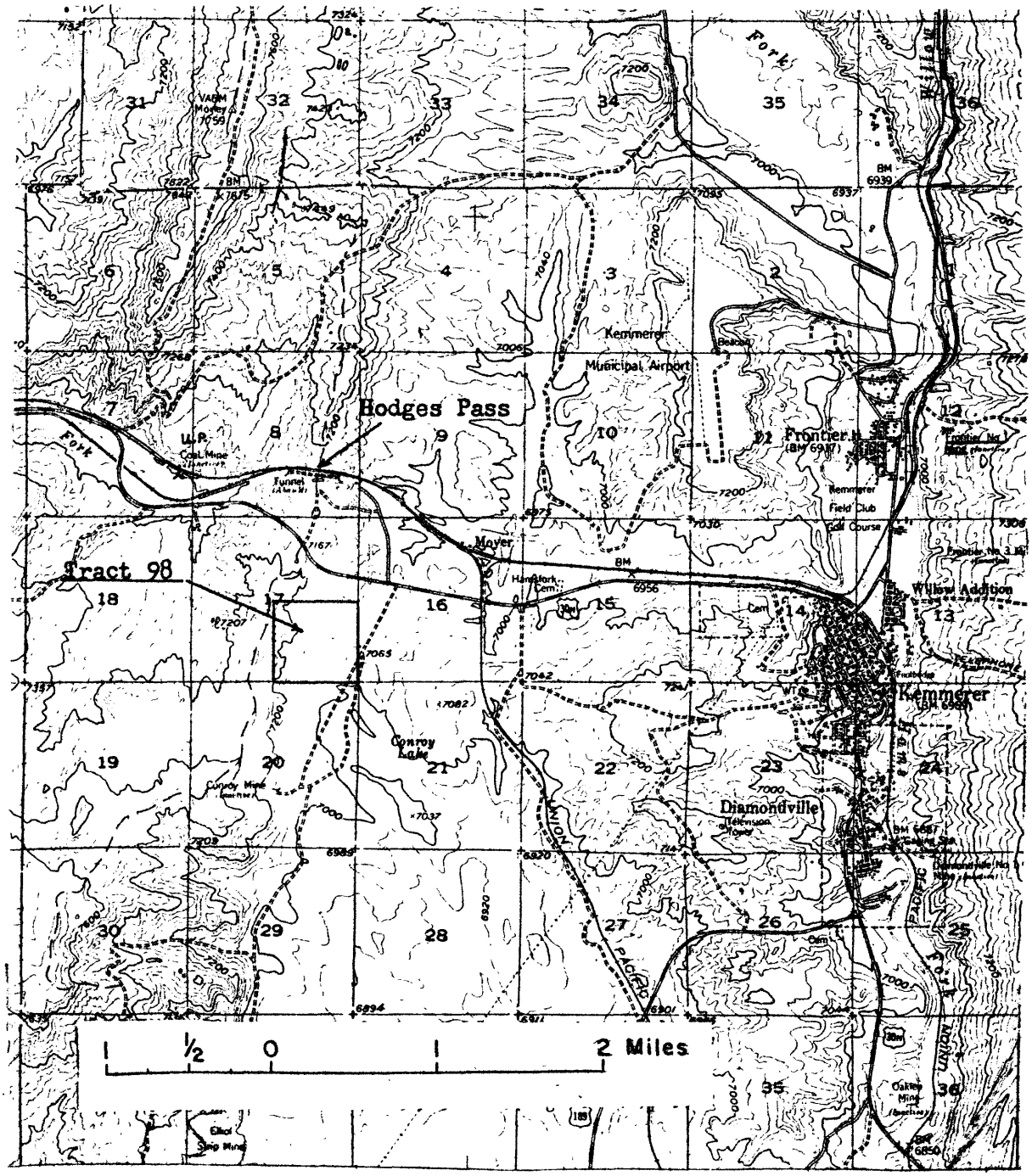
INTRODUCTION

This report presents geophysical logs and coal-sample analyses for six rotary-drill holes completed by the U.S. Geological Survey in Federal Tract 98 (SE¼ sec. 17, T. 21 N., R. 116 W., 6th P.M.), Lincoln County, Wyoming (fig. 1). Data obtained were needed to determine the coal resources underlying the area covered by competitive lease application W-59509.

The sedimentary rocks drilled are in the lower part of the Adaville Formation (Upper Cretaceous); at the surface strata strike N. 10°E and dip 18°W. Regional geology of the area was reported by Rubey, Oriel, and Tracey (1975) and the coal geology of the area was discussed by Glass (1975).

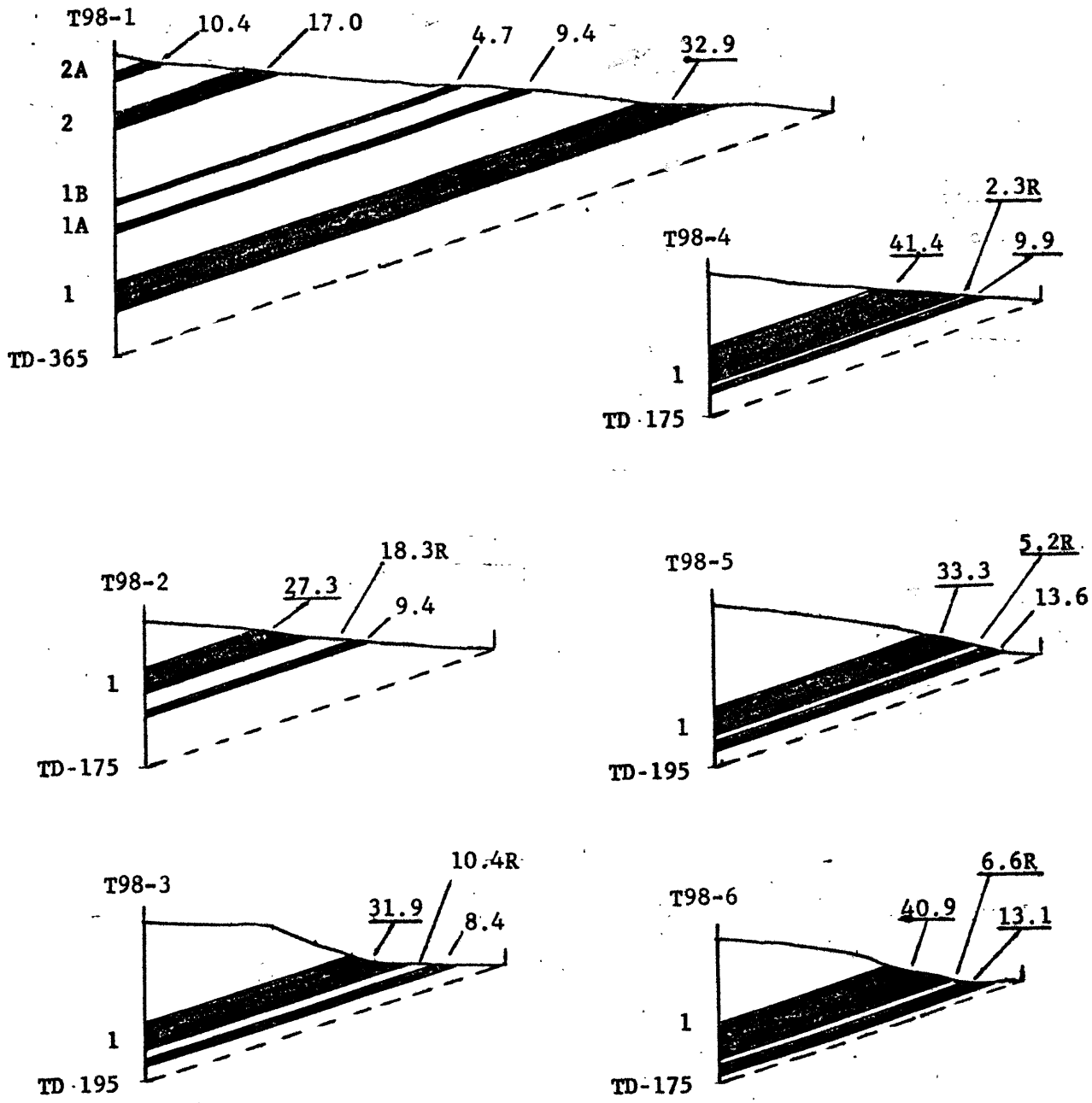
The thickness, position, and quality of the coals penetrated are summarized in figure 2 and tables 1 and 2. Figures 3-8 are three-arm caliper, gamma-gamma, natural gamma, and neutron geophysical logs obtained from the six holes.

R. 116 W.



T. ~~29~~ 21 N.

Figure 1.--Part of topographic map of Kemmerer 15-minute quadrangle showing location of Tract 98, Kemmerer coal district, Lincoln County, Wyo.



T98-6	Rotary-hole number	5.2R	Thickness of rock parting
TD-175	Total depth of hole		
40.9	Thickness of coal bed	2A	Coal seam no. in the Adaville Formation

Figure 2.--Cross sections projecting the coal beds penetrated by U.S. Geological Survey drilling, April 1977, Tract 98, Lincoln County, Wyo. Vertical and horizontal scale is 1 inch = 200 ft; sections are projected normal to strike; area dip averages 18°; all data in ft.

Table 1.--Summary of drill-hole information, tract 98, SE¼ sec. 17, T. 21 N., R. 116 W., 6th P.M., Lincoln County, Wyoming.

[Holes were drilled vertically through strata dipping 18° west. FNL, feet from north boundary of tract 98; FWL, feet from west boundary of tract 98; FSL, feet from south boundary of tract. Measurements are from locations surveyed at 1:2,400 scale. All measurements are in feet]

Rotary hole No.	Location of drill hole	Collar altitude	Total depth drilled	Coal logged	
				Vertical penetration	Stratigraphic thickness
T98-1	210 FNL	7,225	365	21 - 32	10.4
	140 FWL			71 - 89	17
				175 -180	4.7
				202.5-212.5	9.4
				275 -310	32.9
T98-2	500 FNL	7,177	175	58 - 87	27.3
	480 FWL			106.5-116.5	9.4
T98-3	1,180 FNL	7,224	195	122 -156	31.9
	330 FWL			160 -161	.9
				167 -176	8.4
T98-4	1,010 FSL	7,183	175	91 -135	41.4
	170 FWL			137.5-148	9.9
T98-5	630 FSL	7,212	195	113 -114	.9
	85 FWL			117 -119	1.9
				122 -157.5	33.3
				163 -177.5	13.6
T98-6	260 FSL	7,205	175	103.5-147	40.9
	15 FWL			154 -168	13.1

Table 2.--Summary of coal analyses data obtained from drill holes in tract 98, SE¼ sec. 17, T. 21 N., R. 116 W., 6th P.M., Lincoln County, Wyoming.

[Standard coal analyses (USBM lab. Nos. K-73200 through K-73224) by U.S. Bureau of Mines, Pittsburgh, Pa., dated 05-27-77. UB, upper bench; LB, lower bench; rank (acc. to ASTM): Subb, subbituminous b; Subc, subbituminous c. Analysis on as-received basis. All measurements in feet.]

Drill-hole No.	Depth of sample interval	Adaville seam No.	Thickness of drilled column[1]	Proximate analysis (percent)				Ultimate analysis (percent)	Heating value Btu/lb	Btu/lb (moist, mm-free)	Fixed carbon (dry, mm-free)	Rank
				Moisture	Ash	Volatile matter	Fixed carbon	sulfur				
98-1	21 - 30	2A	9	19.5	18	28.2	34.3	0.7	8,004	9,939	55.95	Subb[2]
98-1	71 - 89	2	18	20.2	9.7	31.3	38.8	.5	9,271	10,360	56.01	Subb[2]
98-1	175 -180	1B	5	13.2	41	21.7	24.1	1.2	5,786	10,400	57.14	Subb[2]
98-1	202.5-210	1A	7.5	18.5	22.4	27.5	31.6	.5	7,695	10,155	57.03	Subb[2]
98-1	275 -290	1	15	31.1	16.6	24.6	27.7	.5	6,884			
	290 -305	1	15	27.7	16.6	25.3	30.4	1	7,331			
			Σ=30	X=29.4	16.6	24.95	29.05	0.75	7,107	8,658	55.3	Subc[3]
98-2	58 -75	1 UB	17	20.9	3.3	34.2	41.6	0.6	10,093			
	75 -85	1 UB	10	20.8	4.1	34.6	40.5	1.7	9,962			
			Σ=27	X=20.9	3.6	34.3	41.2	1.01	10,044			
98-2	110 -115	1 LB	5	21.1	5.8	34.6	38.3	4.2	9,683			
98-3	125 -130	1 UB	5	16.7	14.6	32.2	35.5	0.5	9,114			
	130 -150	1 UB	20	17.8	8.8	34.2	39.2	.5	9,818			
	150 -155	1 UB	5	17.3	6.3	35.6	40.8	.9	10,226			
			Σ=30	X=17.5	9.4	34.1	38.8	0.6	9,769			
98-3	165 -175	1 LB	10	18.2	10.6	34.3	36.9	3.4	9,395			
98-4	91 -105	1 UB	14	20.6	7.1	33.8	38.5	0.9	9,619			
	105 -120	1 UB	15	21.8	4.5	33.5	40.2	.5	9,814			
	120 -135	1 UB	15	22	5.8	33.7	38.5	1.7	9,582			
			Σ=44	X=21.5	5.8	33.7	39.1	1.0	9,673			
	137.5-148	1 LB	10.5	22.5	19.5	28.5	29.1	2.9	7,580			

Table 2.--Summary of coal analyses data obtained from drill holes in tract 98, SE¼ sec. 17, T. 21 N., R. 116 W., 6th P.M., Lincoln County, Wyoming--continued

Drill-hole No.	Depth of sample interval	Adaville seam No.	Thickness of drilled column[1]	Proximate analysis (percent)				Ultimate analysis (percent) sulfur	Heating value Btu/lb	Btu/lb (moist, mm-free)	Fixed carbon (dry, mm-free)	Rank
				Moisture	Ash	Volatile matter	Fixed carbon					
98-5	122 -140	1 UB	18	19.4	11.8	31.8	37	0.5	9,183			
	140 -155	1 UB	15	19.6	10.4	32.5	37.5	.7	9,361			
	155 -157.5	1 UB	2.5	22.8	16.9	28.4	31.9	1.7	7,935			
			Σ=35.5	X=19.7	11.6	31.9	36.9	0.7	9,170			
	163 -177.5	1 LB	14.5	21.3	13.2	30.8	34.7	2.9	8,643			
98-6	105 -115	1 UB	10	21.4	9.4	31.9	37.3	0.7	9,161			
	115 -140	1 UB	25	21.7	5.7	33.7	38.9	.5	9,674			
	140 -147	1 UB	7	20.1	4.5	34.1	41.3	1.3	10,042			
			Σ=42	X=21.4	6.4	33.3	38.9	0.7	9,613			
98-6	155 -168	1 LB	13	22.1	7.5	33.7	36.7	3.3	9,339			
Range and thickness-weighted average of samples from the Adaville No. 1 seam		Upper bench - Range:		16.7-22.8	3.3-16.9	28.4-35.6	31.9-41.6	0.5-1.7	7,935-10,226			
		Upper bench - Avg:		20.4	7.4	33.4	38.9	0.8	9,631	10,474	54.5	Subb
		Lower bench - Range:		18.2-22.5	5.8-19.5	28.9-34.8	29.1-38.3	2.9-4.2	7,580-9,683			
		Lower bench - Avg:		21.1	11.9	32.2	34.8	3.2	8,843	10,169	53.4	Subb

[1]In feet, uncorrected to stratigraphic thickness
[2]Rank is tentative owing to inadequate number of samples
[3]Owing to contamination by caving and by water occurring at top of seam, this sample is not included in the average for the Adaville No. 1 seam

Σ = Arithmetic sum

$\overline{X}$ = thickness-weighted arithmetic mean

$\overline{X} = \frac{\Sigma WiXi}{\Sigma Wi}$; where Wi = thickness, Xi = assay value

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73200

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-1-1, DRILL CORE

OPERATOR: -

MINE: 21 - 30'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #2A

TOWN: -

DATE OF SAMPLING: 04-08-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 9.6	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE][1]
PROXIMATE ANALYSIS			
MOISTURE	19.5	N/A	N/A
VOLATILE MATTER	28.2	35.0	45.0
FIXED CARBON	34.3	42.7	55.0
ASH	18.0	22.3	N/A
ULTIMATE ANALYSIS			
HYDROGEN	5.6	4.3	5.5
CARBON	46.0	57.1	73.5
NITROGEN	.9	1.1	1.5
SULFUR	.7	.8	1.1
OXYGEN [IND]	28.8	14.3	18.4
ASH	18.0	22.3	N/A
HEATING VALUE[BTU/LB]	8004	9938	12790
ASH - INITIAL DEFORMATION	2650 F		
SOFTENING TEMP	2750 F		
FLUID TEMP	2800 F		
SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.03	.03	.04
PYRITIC	.10	.12	.16
ORGANIC	.54	.67	.87

[1]Expression in brackets means "moist-free, ash-free" basis

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73201

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-1-2, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 71 - 89'
BED: - Adaville #2

DATE OF SAMPLING: 04-08-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: D. C. Alvord

AIR DRY LOSS 6.2	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	20.2	N/A	N/A
VOLATILE MATTER	31.3	39.2	44.6
FIXED CARBON	38.8	48.6	55.4
ASH	9.7	12.2	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.0	4.7	5.4
CARBON	53.1	66.6	75.8
NITROGEN	1.1	1.3	1.5
SULFUR	.5	.7	.8
OXYGEN [IND]	29.5	14.5	16.5
ASH	9.7	12.2	N/A
HEATING VALUE[BTU/LB]	9271	11616	13224

ASH - INITIAL DEFORMATION 2315 F
SOFTENING TEMP 2415 F
FLUID TEMP 2515 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.16	.20	.23
ORGANIC	.37	.46	.52

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73202

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-1-3, DRILL CORE

OPERATOR: -

MINE: 175 - 180'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1B

TOWN: -

DATE OF SAMPLING: 04-08-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 5.1	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	13.2	N/A	N/A
VOLATILE MATTER	21.7	25.1	47.5
FIXED CARBON	24.1	27.6	52.5
ASH	41.0	47.3	N/A
ULTIMATE ANALYSIS			
HYDROGEN	4.0	2.9	5.5
CARBON	33.3	38.4	72.8
NITROGEN	.7	.8	1.5
SULFUR	1.2	1.4	2.6
OXYGEN [IND]	19.8	9.3	17.6
ASH	41.0	47.3	N/A
HEATING VALUE[BTU/LB]	5786	6668	12642
ASH - INITIAL DEFORMATION	2445 F		
SOFTENING TEMP	2555 F		
FLUID TEMP	2655 F		
SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.04
PYRITIC	.69	.80	1.51
ORGANIC	.48	.56	1.06

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73203

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-1-4, DRILL CORE

OPERATOR: -

MINE: 202.5 - 210'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1A

TOWN: -

DATE OF SAMPLING: 04-08-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 8.5	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	18.5	N/A	N/A
VOLATILE MATTER	27.5	33.7	46.5
FIXED CARBON	31.6	38.8	53.5
ASH	22.4	27.5	N/A
ULTIMATE ANALYSIS			
HYDROGEN	5.4	4.1	5.6
CARBON	44.4	54.5	75.2
NITROGEN	1.0	1.2	1.6
SULFUR	.5	.6	.8
OXYGEN [IND]	26.3	12.1	16.6
ASH	22.4	27.5	N/A
HEATING VALUE[BTU/LB]	7695	9444	13035
SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.27	.34	.47
ORGANIC	.20	.25	.34

ASH - INITIAL DEFORMATION 2265 F
SOFTENING TEMP 2355 F
FLUID TEMP 2465 F

10

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73204

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-1-5, DRILL CORE

OPERATOR: -

MINE: 275 - 290'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-08-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 21.9	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	31.1	N/A	N/A
VOLATILE MATTER	24.6	35.7	47.0
FIXED CARBON	27.7	40.2	53.0
ASH	16.6	24.1	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.5	4.4	5.8
CARBON	39.0	56.7	74.7
NITROGEN	.7	1.0	1.3
SULFUR	.5	.7	1.0
OXYGEN [IND]	36.7	13.0	17.2
ASH	16.6	24.1	N/A
HEATING VALUE[BTU/LB]	6884	9998	13178

ASH - INITIAL DEFORMATION 2155 F
SOFTENING TEMP 2255 F
FLUID TEMP 2365 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.23	.33	.43
ORGANIC	.26	.37	.49

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73205

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-1-6, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 290 - 305'
BED: - Adaville #1

DATE OF SAMPLING: 04-08-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: D. C. Alvord

AIR DRY LOSS 18.5	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	27.7	N/A	N/A
VOLATILE MATTER	25.3	35.0	45.4
FIXED CARBON	30.4	42.0	54.6
ASH	16.6	23.0	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.2	4.3	5.6
CARBON	42.1	58.3	75.6
NITROGEN	.7	.9	1.2
SULFUR	1.0	1.3	1.7
OXYGEN [IND]	33.4	12.2	15.8
ASH	16.6	23.0	N/A
HEATING VALUE[BTU/LB]	7331	10134	13153

ASH - INITIAL DEFORMATION 2155 F
SOFTENING TEMP 2250 F
FLUID TEMP 2360 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.35	.48	.63
ORGANIC	.61	.84	1.10

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73206

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-2-1, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 58 - 75'
BED: - Adaville #1

DATE OF SAMPLING: 04-09-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 7.6	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	20.9	N/A	N/A
VOLATILE MATTER	34.2	43.3	45.2
FIXED CARBON	41.6	52.5	54.8
ASH	3.3	4.2	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.4	5.2	5.4
CARBON	57.6	72.8	76.0
NITROGEN	1.1	1.4	1.4
SULFUR	.6	.7	.8
OXYGEN [IND]	31.0	15.7	16.4
ASH	3.3	4.2	N/A
HEATING VALUE[BTU/LB]	10093	12755	13311

ASH - INITIAL DEFORMATION 2045 F
SOFTENING TEMP 2155 F
FLUID TEMP 2265 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.10	.13	.13
ORGANIC	.47	.60	.62

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73207

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-2-2, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 75 - 85'
BED: - Adaville #1

DATE OF SAMPLING: 04-09-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 8.3	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	20.8	N/A	N/A
VOLATILE MATTER	34.6	43.7	46.0
FIXED CARBON	40.5	51.1	54.0
ASH	4.1	5.2	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.4	5.2	5.4
CARBON	56.6	71.5	75.4
NITROGEN	1.0	1.2	1.3
SULFUR	1.7	2.1	2.2
OXYGEN [IND]	30.3	14.9	15.7
ASH	4.1	5.2	N/A
HEATING VALUE[BTU/LB]	9962	12579	13269

ASH - INITIAL DEFORMATION 2115 F
SOFTENING TEMP 2205 F
FLUID TEMP 2295 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.25	.31	.33
ORGANIC	1.39	1.76	1.86

14

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73208

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-2-3, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 110 - 115'
BED: - Adaville #1

DATE OF SAMPLING: 04-09-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 8.8	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	21.1	N/A	N/A
VOLATILE MATTER	34.8	44.0	47.5
FIXED CARBON	38.3	48.7	52.5
ASH	5.8	7.3	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.2	4.9	5.3
CARBON	53.7	68.1	73.5
NITROGEN	.8	1.0	1.1
SULFUR	4.2	5.3	5.7
OXYGEN [IND]	29.2	13.3	14.3
ASH	5.8	7.3	N/A
HEATING VALUE[BTU/LB]	9683	12269	13238

ASH - INITIAL DEFORMATION 2110 F
SOFTENING TEMP 2215 F
FLUID TEMP 2310 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.45	.57	.61
ORGANIC	3.74	4.74	5.11

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73209

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-3-1, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 125 - 130'
BED: - Adaville #1

DATE OF SAMPLING: 04-10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 4.7	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	16.7	N/A	N/A
VOLATILE MATTER	33.2	39.9	48.4
FIXED CARBON	35.5	42.6	51.6
ASH	14.6	17.5	N/A
ULTIMATE ANALYSIS			
HYDROGEN	5.9	4.9	5.9
CARBON	51.8	62.2	75.4
NITROGEN	.9	1.1	1.4
SULFUR	.5	.6	.7
OXYGEN [IND]	26.2	13.7	16.6
ASH	14.6	17.5	N/A
HEATING VALUE[BTU/LB]	9114	10940	13260

ASH - INITIAL DEFORMATION 2330 F
SOFTENING TEMP 2435 F
FLUID TEMP 2545 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.08	.09	.11
ORGANIC	.39	.47	.57

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73210

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-3-2, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 130 - 150'
BED: - Adaville #1

DATE OF SAMPLING: 04-10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 4.2	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	17.8	N/A	N/A
VOLATILE MATTER	34.2	41.5	46.5
FIXED CARBON	39.2	47.8	53.5
ASH	8.8	10.7	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.0	4.9	5.5
CARBON	56.0	68.2	76.3
NITROGEN	.9	1.1	1.2
SULFUR	.5	.7	.7
OXYGEN [IND]	27.7	14.5	16.2
ASH	8.8	10.7	N/A
HEATING VALUE[BTU/LB]	9818	11939	13367

ASH - INITIAL DEFORMATION 2415 F
SOFTENING TEMP 2515 F
FLUID TEMP 2605 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.08	.09	.10
ORGANIC	.46	.56	.63

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73211

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-3-3, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 150 - 155'
BED: - Adaville #1

DATE OF SAMPLING: 04-10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 4.9	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	17.3	N/A	N/A
VOLATILE MATTER	35.6	43.1	46.6
FIXED CARBON	40.8	49.3	53.4
ASH	6.3	7.6	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.1	5.0	5.5
CARBON	58.1	70.3	76.1
NITROGEN	1.0	1.2	1.2
SULFUR	.9	1.1	1.2
OXYGEN [IND]	27.6	14.8	16.0
ASH	6.3	7.6	N/A
HEATING VALUE[BTU/LB]	10226	12370	13383
ASH - INITIAL DEFORMATION	2205 F		
SOFTENING TEMP	2305 F		
FLUID TEMP	2415 F		
SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.11	.14	.15
ORGANIC	.79	.96	1.03

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73212

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-3-4, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 165 - 175'
BED: - Adaville #1

DATE OF SAMPLING: 04-10 77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 7.7	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	18.2	N/A	N/A
VOLATILE MATTER	34.3	41.9	48.2
FIXED CARBON	36.9	45.1	51.8
ASH	10.6	13.0	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.2	5.1	5.9
CARBON	52.6	64.4	73.9
NITROGEN	.8	.9	1.1
SULFUR	3.4	4.1	4.7
OXYGEN [IND]	26.4	12.5	14.3
ASH	10.6	13.0	N/A
HEATING VALUE[BTU/LB]	9395	11490	13201

ASH - INITIAL DEFORMATION 2160 F
SOFTENING TEMP 2265 F
FLUID TEMP 2355 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.61	.75	.86
ORGANIC	2.74	3.35	3.85

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73213

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-4-1, DRILL CORE

OPERATOR: -

MINE: 91 - 105'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING:04--10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 7.9	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	20.6	N/A	N/A
VOLATILE MATTER	33.8	42.6	46.8
FIXED CARBON	38.5	48.4	53.2
ASH	7.1	9.0	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.5	5.3	5.9
CARBON	55.2	69.5	76.3
NITROGEN	.9	1.2	1.3
SULFUR	.5	.7	.7
OXYGEN [IND]	29.7	14.3	15.7
ASH	7.1	9.0	N/A
HEATING VALUE[BTU/LB]	9619	12114	13307

ASH - INITIAL DEFORMATION 2255 F
SOFTENING TEMP 2355 F
FLUID TEMP 2455 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.08	.10	.11
ORGANIC	.44	.56	.61

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73214

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-4-2, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 105 - 120'
BED: - Adaville #1

DATE OF SAMPLING: 04-10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: D. C. Alvord

AIR DRY LOSS 10.5	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	21.8	N/A	N/A
VOLATILE MATTER	33.5	42.8	45.4
FIXED CARBON	40.2	51.4	54.6
ASH	4.5	5.8	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.4	5.1	5.4
CARBON	56.2	71.8	76.2
NITROGEN	.9	1.1	1.2
SULFUR	.5	.7	.7
OXYGEN [IND]	31.5	15.6	16.5
ASH	4.5	5.8	N/A
HEATING VALUE[BTU/LB]	9814	12549	13315

ASH - INITIAL DEFORMATION 2165 F
SOFTENING TEMP 2255 F
FLUID TEMP 2355 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.07	.09	.10
ORGANIC	.45	.57	.61

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73215

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-4-3, DRILL CORE

OPERATOR: -

MINE: 120 - 135'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 11.2	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	22.0	N/A	N/A
VOLATILE MATTER	33.7	43.2	46.7
FIXED CARBON	38.5	49.4	53.3
ASH	5.8	7.4	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.4	5.0	5.4
CARBON	54.3	69.6	75.2
NITROGEN	.8	1.0	1.1
SULFUR	1.7✓	2.1	2.3
OXYGEN [IND]	31.0	14.7	15.9
ASH	5.8	7.4	N/A
HEATING VALUE[BTU/LB]	9582	12284	13272
ASH - INITIAL DEFORMATION	2255 F		
SOFTENING TEMP	2365 F		
FLUID TEMP	2465 F		
SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.02
PYRITIC	.11	.14	.15
ORGANIC	1.54✓	1.98	2.14

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73216

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-4-4, DRILL CORE

OPERATOR: -

MINE: 137.5 - 148'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-10-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 14.5	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	22.5	N/A	N/A
VOLATILE MATTER	28.9	37.3	49.9
FIXED CARBON	29.1	37.5	50.1
ASH	19.5	25.2	N/A
ULTIMATE ANALYSIS			
HYDROGEN	5.8	4.2	5.7
CARBON	42.3	54.6	72.9
NITROGEN	.6	.8	1.1
SULFUR	2.9	3.7	5.0
OXYGEN [IND]	29.0	11.5	15.4
ASH	19.5	25.2	N/A
HEATING VALUE[BTU/LB]	7580	9782	13072

ASH - INITIAL DEFORMATION 2455 F
SOFTENING TEMP 2560 F
FLUID TEMP 2660 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.03	.03	.04
PYRITIC	.44	.57	.77
ORGANIC	2.43	3.13	4.19

23

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73217

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-5-1, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 122 - 140'
BED: - Adaville #1

DATE OF SAMPLING: 04 -11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: D. C. Alvord

AIR DRY LOSS 6.7	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	19.4	N/A	N/A
VOLATILE MATTER	31.8	39.4	46.2
FIXED CARBON	37.0	46.0	53.8
ASH	11.8	14.6	N/A
ULTIMATE ANALYSIS			
HYDROGEN	5.9	4.7	5.5
CARBON	52.6	65.2	76.4
NITROGEN	.9	1.1	1.3
SULFUR	.5	.6	.7
OXYGEN [IND]	28.4	13.9	16.3
ASH	11.8	14.6	N/A
HEATING VALUE[BTU/LB]	9183	11390	13336

ASH - INITIAL DEFORMATION 2455 F
SOFTENING TEMP 2565 F
FLUID TEMP 2655 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.09	.12	.14
ORGANIC	.35	.44	.51

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73218

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-5-2, DRILL CORE

OPERATOR: -

MINE: 140 - 155'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 8.4	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	19.6	N/A	N/A
VOLATILE MATTER	32.5	40.4	46.4
FIXED CARBON	37.5	46.7	53.6
ASH	10.4	12.9	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.0	4.7	5.4
CARBON	53.4	66.5	76.3
NITROGEN	.8	1.0	1.2
SULFUR	.7	.9	1.0
OXYGEN [IND]	28.7	14.0	16.1
ASH	10.4	12.9	N/A
HEATING VALUE[BTU/LB]	9361	11645	13369

ASH - INITIAL DEFORMATION 2475 F
SOFTENING TEMP 2565 F
FLUID TEMP 2660 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.07	.09	.10
ORGANIC	.61	.76	.88

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73219

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-5-3, DRILL CORE

OPERATOR: -

MINE: 155 - 157.5'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 14.1	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	22.8	N/A	N/A
VOLATILE MATTER	28.4	36.8	47.1
FIXED CARBON	31.9	41.3	52.9
ASH	16.9	21.9	N/A
ULTIMATE ANALYSIS			
HYDROGEN	5.8	4.3	5.5
CARBON	44.8	58.0	74.3
NITROGEN	.6	.8	1.1
SULFUR	1.7	2.2	2.8
OXYGEN [IND]	30.0	12.7	16.2
ASH	16.9	21.9	N/A
HEATING VALUE[BTU/LB]	7935	10276	13163

ASH - INITIAL DEFORMATION 2445 F
SOFTENING TEMP 2565 F
FLUID TEMP 2665 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.15	.19	.24
ORGANIC	1.55	2.00	2.57

26

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73220

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-5-4, DRILL CORE

OPERATOR: -

MINE: 163 - 177.5'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: D. C. Alvord

AIR DRY LOSS 12.7

	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	21.3	N/A	N/A
VOLATILE MATTER	30.8	39.1	47.0
FIXED CARBON	34.7	44.1	53.0
ASH	13.2	16.8	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.0	4.6	5.6
CARBON	48.5	61.7	74.1
NITROGEN	.7	.9	1.0
SULFUR	2.9	3.7	4.5
OXYGEN [IND]	28.6	12.3	14.8
ASH	13.2	16.8	N/A
HEATING VALUE[BTU/LB]	8643	10988	13199

ASH - INITIAL DEFORMATION 2455 F
SOFTENING TEMP 2565 F
FLUID TEMP 2665 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.03
PYRITIC	.29	.37	.44
ORGANIC	2.61	3.32	3.99

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73221

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-6-1, DRILL CORE

OPERATOR: -

MINE: 105 - 115'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: A. A. Aigen

AIR DRY LOSS 8.7	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	21.4	N/A	N/A
VOLATILE MATTER	31.9	40.5	46.0
FIXED CARBON	37.3	47.5	54.0
ASH	9.4	12.0	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.1	4.7	5.3
CARBON	52.5	66.8	75.9
NITROGEN	.9	1.2	1.4
SULFUR	.7	.9	1.0
OXYGEN [IND]	30.3	14.4	16.3
ASH	9.4	12.0	N/A
HEATING VALUE[BTU/LB]	9161	11647	13238

ASH - INITIAL DEFORMATION 2155 F
SOFTENING TEMP 2265 F
FLUID TEMP 2365 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.29	.37	.42
ORGANIC	.39	.50	.57

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73222

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-6-2, DRILL CORE

OPERATOR: -
STATE: WY COUNTY: LINCOLN
TOWN: -

MINE: 115 - 140'
BED: - Adaville #1

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77
COLLECTOR: A. A. Aigen

AIR DRY LOSS 10.6	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	21.7	N/A	N/A
VOLATILE MATTER	33.7	43.1	46.5
FIXED CARBON	38.9	49.7	53.5
ASH	5.7	7.2	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.4	5.1	5.6
CARBON	55.5	70.9	76.4
NITROGEN	.8	1.0	1.1
SULFUR	.5	.6	.7
OXYGEN [IND]	31.1	15.0	16.2
ASH	5.7	7.2	N/A
HEATING VALUE[BTU/LB]	9674	12356	13320
ASH - INITIAL DEFORMATION	2255 F		
SOFTENING TEMP	2345 F		
FLUID TEMP	2445 F		
SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.01	.01	.01
PYRITIC	.06	.08	.09
ORGANIC	.42	.54	.58

COAL ANALYSIS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

LAB NO. K73223

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-6-3, DRILL CORE

OPERATOR: -

MINE: 140 - 147'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: A. A. Aigen

AIR DRY LOSS 7.7	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	20.1	N/A	N/A
VOLATILE MATTER	34.1	42.7	45.3
FIXED CARBON	41.3	51.7	54.7
ASH	4.5	5.6	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.2	5.0	5.3
CARBON	57.4	71.8	76.1
NITROGEN	.8	1.1	1.1
SULFUR	1.3	1.7	1.8
OXYGEN [IND]	29.7	14.8	15.7
ASH	4.5	5.6	N/A
HEATING VALUE[BTU/LB]	10042	12575	13323

ASH - INITIAL DEFORMATION 2205 F
SOFTENING TEMP 2305 F
FLUID TEMP 2415 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.02
PYRITIC	.14	.17	.18
ORGANIC	1.16	1.46	1.54

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

COAL ANALYSIS REPORT

LAB NO. K73224

ORGANIZATION: USGS, DENVER

SAMPLE ID: USGS,D, T98-6-4, DRILL CORE

OPERATOR: -

MINE: 155 - 168'

STATE: WY COUNTY: LINCOLN

BED: - Adaville #1

TOWN: -

DATE OF SAMPLING: 04-11-77 DATE RECEIVED: 5-16-77 DATE OF REPORT: 5-27-77

COLLECTOR: A. A. Aigen

AIR DRY LOSS 12.9	COAL [AS RECD.]	COAL [MOIST FREE]	COAL [MOIST,ASH FREE]
PROXIMATE ANALYSIS			
MOISTURE	22.1	N/A	N/A
VOLATILE MATTER	33.7	43.3	47.9
FIXED CARBON	36.7	47.1	52.1
ASH	7.5	9.6	N/A
ULTIMATE ANALYSIS			
HYDROGEN	6.2	4.9	5.4
CARBON	52.2	67.0	74.2
NITROGEN	.7	.9	1.0
SULFUR	3.3	4.3	4.7
OXYGEN [IND]	30.0	13.3	14.7
ASH	7.5	9.6	N/A
HEATING VALUE[BTU/LB]	9339	11994	13270

ASH - INITIAL DEFORMATION 2165 F
SOFTENING TEMP 2270 F
FLUID TEMP 2375 F

SULFUR FORMS BY ATOMIC ABSORPTION			
SULFATE	.02	.02	.02
PYRITIC	.30	.38	.42
ORGANIC	3.01	3.86	4.27

REFERENCES

Glass, G. B., 1975, Review of Wyoming coal fields, 1975: Geol. Survey of Wyoming Misc. Publ., 21 p.

Rubey, W. W., Oriel, S. S., and Tracey, Jr., J. I., 1975, Geology of the Sage and Kemmerer 15-minute quadrangles, Lincoln County, Wyoming: U.S. Geol. Survey Prof. Paper 855, 18 p.