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CONFIDENTIAL ANALYSES
FROM APPENDIX IV,
VOLUME III
DDH83001

CONFIDENTIAL

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DDH 83001

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - 1 SAMPLE ID - 6358 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	RELATIVE WEIGHT % - 100.00 ASH % - C.V. (MJ/KG)	CUM. C.V.
1.70	74.49	10.74	74.49	10.74	25.51	64.61	29.27	29.27
2.60	25.51	64.61	100.00	24.48			9.29	24.17

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 14/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.39
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00564
		SPECIFIC GRAVITY	1.56
RESIDUAL MOISTURE %	2.54	FSI	__._
ASH %	25.98	HGI	45.0
VOLATILE MATTER %	6.67	CO2 %	0.57
FIXED CARBON %	64.81		

GROSS CALORIFIC VALUE (MJ/KG) 23.98
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 07/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	83.72	24.77	__._	24.48	2.48	6.21	0.42
0.60	0.15	10.91	27.16	__._	23.19	2.54	6.66	0.43
0.15	0.00	5.37	34.29	__._	20.01	2.58	7.61	0.42

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 09/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.54
CARBON	%	64.88
HYDROGEN	%	2.26
SULPHUR	%	0.39
NITROGEN	%	0.68
ASH	%	25.98
OXYGEN	%	3.27

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 14/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1290.0	INITIAL TEMP.(C)	1210.0
SOFTENING TEMP.(C)	1450.0	SOFTENING TEMP.(C)	1400.0
HEMISPHERICAL TEMP.(C)	1485.0	HEMISPHERICAL TEMP.(C)	1430.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 18/11/83

SILICON DIOXIDE %	(SIO2)	64.47
ALUMINIUM OXIDE %	(AL2O3)	24.92
FERRIC OXIDE %	(FE2O3)	3.72
TITANIUM DIOXIDE %	(TIO2)	0.56
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.17
CALCIUM OXIDE %	(CAO)	0.80
MAGNESIUM OXIDE %	(MGO)	1.38
SULPHUR TRIOXIDE %	(SO3)	0.81
SODIUM OXIDE %	(NA2O)	1.43
POTASSIUM OXIDE %	(K2O)	0.98

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 07/11/83

PYRITE	%	2.00
SULPHATE	%	8.00
ORGANIC	%	90.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM I SAMPLE ID - 1 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 83.72 ASH % - 24.77

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	43.93	6.15	43.93	6.15	56.07	40.68		
1.60	23.20	16.13	67.13	9.60	32.87	58.00		
1.70	6.16	25.77	73.29	10.96	26.71	65.44		
1.80	4.61	34.24	77.90	12.34	22.10	71.95		
1.90	2.32	42.18	80.22	13.20	19.78	75.44		
2.00	1.70	49.26	81.92	13.95	18.08	77.90		
2.10	1.37	55.06	83.29	14.62	16.71	79.77		
2.60	16.71	79.77	100.00	25.51				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 10.91 ASH % - 27.16

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	47.13	4.06	47.13	4.06	52.87	49.10		
1.60	16.27	14.21	63.40	6.66	36.60	64.60		
1.70	5.56	23.11	68.96	7.99	31.04	72.04		
1.80	4.00	30.87	72.96	9.25	27.04	78.12		
1.90	2.23	37.33	75.19	10.08	24.81	81.79		
2.00	1.65	45.11	76.84	10.83	23.16	84.41		
2.10	1.31	51.30	78.15	11.51	21.85	86.39		
2.60	21.85	86.39	100.00	27.87				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM I SAMPLE ID - 1 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 5.37 ASH % - 34.29

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	51.57	17.49	51.57	17.49	48.43	50.75		
45.00	16.24	20.52	67.81	18.22	32.19	66.00		
60.00	4.02	23.98	71.83	18.54	28.17	71.99		
90.00	2.69	36.79	74.52	19.20	25.48	75.71		
120.00	1.60	55.73	76.12	19.96	23.88	77.05		
300.00	23.88	77.05	100.00	33.60				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.48	30.06	25.17
0.60	0.15	1.54	6.10	0.67
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 DATE ANALYSED 04/01/84
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.43
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.22	FSI	__._
ASH %	4.82	HGI	35.0
VOLATILE MATTER %	6.36	CO2 %	0.07
FIXED CARBON %	87.60		

GROSS CALORIFIC VALUE (MJ/KG) 32.71
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.22
CARBON	%	87.76
HYDROGEN	%	2.52
SULPHUR	%	0.43
NITROGEN	%	0.98
ASH	%	4.82
OXYGEN	%	2.27

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 16/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1280.0	INITIAL TEMP.(C)	1240.0
SOFTENING TEMP.(C)	1500.0	SOFTENING TEMP.(C)	1285.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/01/84

SILICON DIOXIDE %	(SIO2)	62.23
ALUMINIUM OXIDE %	(AL2O3)	24.01
FERRIC OXIDE %	(FE2O3)	3.24
TITANIUM DIOXIDE %	(TIO2)	1.25
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.51
CALCIUM OXIDE %	(CAO)	0.55
MAGNESIUM OXIDE %	(MGO)	1.10
SULPHUR TRIOXIDE %	(SO3)	0.22
SODIUM OXIDE %	(NA2O)	1.32
POTASSIUM OXIDE %	(K2O)	0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 30/01/84

PYRITE	%	5.00
SULPHATE	%	2.00
ORGANIC	%	93.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.63	58.00	48.56
0.60	0.15	1.90	8.31	0.91
0.15	0.00	0.00	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 DATE ANALYSED 04/01/84
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.48
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.64	FSI	__._
ASH %	8.91	HGI	36.0
VOLATILE MATTER %	7.23	CO2 %	0.11
FIXED CARBON %	82.22		

GROSS CALORIFIC VALUE (MJ/KG) 30.73
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.64
CARBON	%	82.34
HYDROGEN	%	2.55
SULPHUR	%	0.48
NITROGEN	%	0.91
ASH	%	8.91
OXYGEN	%	3.17

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 16/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1390.0	INITIAL TEMP.(C)	1235.0
SOFTENING TEMP.(C)	1500.0	SOFTENING TEMP.(C)	1475.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/01/84

SILICON DIOXIDE %	(SIO2)	69.73
ALUMINIUM OXIDE %	(AL2O3)	20.84
FERRIC OXIDE %	(FE2O3)	3.21
TITANIUM DIOXIDE %	(TIO2)	0.86
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.30
CALCIUM OXIDE %	(CAO)	0.55
MAGNESIUM OXIDE %	(MGO)	1.09
SULPHUR TRIOXIDE %	(SO3)	0.20
SODIUM OXIDE %	(NA2O)	1.21
POTASSIUM OXIDE %	(K2O)	1.06

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 30/01/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	41.64	34.86
0.60	0.15	2.10	2.56	0.28
0.15	0.00	300.00	5.37	5.37

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 04/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.38
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	2.50	FSI	__._
ASH %	24.81	HGI	48.0
VOLATILE MATTER %	8.73	CO2 %	0.15
FIXED CARBON %	63.96		

GROSS CALORIFIC VALUE (MJ/KG) 24.17
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.50
CARBON	%	64.09
HYDROGEN	%	1.95
SULPHUR	%	0.38
NITROGEN	%	0.73
ASH	%	24.81
OXYGEN	%	5.54

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 17/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1360.0	INITIAL TEMP.(C)	1295.0
SOFTENING TEMP.(C)	1460.0	SOFTENING TEMP.(C)	1400.0
HEMISPHERICAL TEMP.(C)	1490.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 23/01/84

SILICON DIOXIDE %	(SIO2)	71.12
ALUMINIUM OXIDE %	(AL2O3)	17.99
FERRIC OXIDE %	(FE2O3)	4.10
TITANIUM DIOXIDE %	(TIO2)	0.11
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.20
CALCIUM OXIDE %	(CAO)	1.05
MAGNESIUM OXIDE %	(MGO)	1.86
SULPHUR TRIOXIDE %	(SO3)	0.85
SODIUM OXIDE %	(NA2O)	1.13
POTASSIUM OXIDE %	(K2O)	1.11

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 30/01/84

PYRITE	%	11.00
SULPHATE	%	5.00
ORGANIC	%	84.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	3.85	3.22
0.60	0.15	___.__	___.__	0.00
0.15	0.00	120.00	4.09	0.22

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 04/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.38
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.64	FSI	__._
ASH %	21.76	HGI	___._
VOLATILE MATTER %	7.17	CO2 %	0.25
FIXED CARBON %	69.43		

GROSS CALORIFIC VALUE (MJ/KG) 25.95
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.64
CARBON	%	70.02
HYDROGEN	%	2.23
SULPHUR	%	0.38
NITROGEN	%	0.76
ASH	%	21.26
OXYGEN	%	3.71

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 16/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1290.0	INITIAL TEMP.(C)	1260.0
SOFTENING TEMP.(C)	1445.0	SOFTENING TEMP.(C)	1400.0
HEMISPHERICAL TEMP.(C)	1470.0	HEMISPHERICAL TEMP.(C)	1465.0
FLUID TEMP.(C)	1490.0	FLUID TEMP.(C)	1485.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/01/84

SILICON DIOXIDE %	(SIO2)	71.91
ALUMINIUM OXIDE %	(AL2O3)	16.35
FERRIC OXIDE %	(FE2O3)	4.11
TITANIUM DIOXIDE %	(TIO2)	0.66
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.19
CALCIUM OXIDE %	(CAO)	0.41
MAGNESIUM OXIDE %	(MGO)	1.49
SULPHUR TRIOXIDE %	(SO3)	0.38
SODIUM OXIDE %	(NA2O)	0.88
POTASSIUM OXIDE %	(K2O)	0.88

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 1
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 30/01/84

PYRITE	%	11.00
SULPHATE	%	2.00
ORGANIC	%	87.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - I SAMPLE ID - 6359 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	RELATIVE WEIGHT % - CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	84.08	6.69	84.08	6.69	15.92	71.51	29.71	29.71
2.60	15.92	71.51	100.00	17.01			5.93	25.92

100.00 ASH % -

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SPLIT SAMPLE ID HD1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 14/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.41
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00465
		SPECIFIC GRAVITY	1.56
RESIDUAL MOISTURE %	4.17	FSI	__._
ASH %	16.66	HGI	37.0
VOLATILE MATTER %	10.73	CO2 %	0.11
FIXED CARBON %	68.44		

GROSS CALORIFIC VALUE (MJ/KG) 26.20
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SPLIT SAMPLE ID SZ1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 07/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	86.59	15.06	__._	27.82	3.80	8.85	0.43
0.60	0.15	9.33	19.83	__._	22.60	6.55	16.41	0.41
0.15	0.00	4.08	31.93	__._	17.80	6.69	17.99	0.35

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID UL1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 09/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	4.17
CARBON	%	71.60
HYDROGEN	%	2.35
SULPHUR	%	0.41
NITROGEN	%	0.78
ASH	%	16.66
OXYGEN	%	4.03

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 14/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1235.0	INITIAL TEMP.(C)	1130.0
SOFTENING TEMP.(C)	1280.0	SOFTENING TEMP.(C)	1185.0
HEMISPHERICAL TEMP.(C)	1305.0	HEMISPHERICAL TEMP.(C)	1220.0
FLUID TEMP.(C)	1335.0	FLUID TEMP.(C)	1265.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 18/11/83

SILICON DIOXIDE %	(SIO2)	52.04
ALUMINIUM OXIDE %	(AL2O3)	18.47
FERRIC OXIDE %	(FE2O3)	9.82
TITANIUM DIOXIDE %	(TIO2)	0.75
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.71
CALCIUM OXIDE %	(CAO)	2.91
MAGNESIUM OXIDE %	(MGO)	2.05
SULPHUR TRIOXIDE %	(SO3)	2.72
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	0.83

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 07/11/83

PYRITE	%	12.00
SULPHATE	%	2.00
ORGANIC	%	86.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM I SAMPLE ID - 2 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 86.59 ASH % - 15.06

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	68.67	4.76	68.67	4.76	31.33	40.17		
1.60	13.69	11.10	82.36	5.81	17.64	62.74		
1.70	4.10	14.07	86.46	6.21	13.54	77.47		
1.80	1.50	22.19	87.96	6.48	12.04	84.36		
1.90	0.55	35.46	88.51	6.66	11.49	86.70		
2.10	0.55	50.53	89.06	6.93	10.94	88.52		
2.60	10.94	88.52	100.00	15.86				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 9.33 ASH % - 19.83

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	28.24	3.72	28.24	3.72	71.76	26.62		
1.60	22.08	8.44	50.32	5.79	49.68	34.70		
1.70	23.20	11.41	73.52	7.56	26.48	55.10		
1.80	8.23	19.22	81.75	8.74	18.25	71.29		
1.90	3.06	30.25	84.81	9.51	15.19	79.55		
2.10	1.91	43.55	86.72	10.26	13.28	84.73		
2.60	13.28	84.73	100.00	20.15				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM I SAMPLE ID - 2 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 4.08 ASH % - 31.93

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	16.68	18.52	16.68	18.52	83.32	33.34		
45.00	3.97	24.86	20.65	19.74	79.35	33.77		
60.00	1.28	28.66	21.93	20.26	78.07	33.85		
90.00	2.25	32.56	24.18	21.40	75.82	33.89		
300.00	75.82	33.89	100.00	30.87				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.52	63.26	54.78
0.60	0.15	1.56	3.64	0.34
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 | DATE ANALYSED 05/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.50
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.36	FSI	__._
ASH %	4.72	HGI	32.0
VOLATILE MATTER %	7.31	CO2 %	0.07
FIXED CARBON %	86.61		

GROSS CALORIFIC VALUE (MJ/KG) 32.52
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.36
CARBON	%	86.68
HYDROGEN	%	2.62
SULPHUR	%	0.50
NITROGEN	%	0.97
ASH	%	4.72
OXYGEN	%	3.15

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 17/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1265.0	INITIAL TEMP.(C)	1255.0
SOFTENING TEMP.(C)	1430.0	SOFTENING TEMP.(C)	1290.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1320.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 23/01/84

SILICON DIOXIDE %	(SIO2)	43.54
ALUMINIUM OXIDE %	(AL2O3)	32.29
FERRIC OXIDE %	(FE2O3)	3.18
TITANIUM DIOXIDE %	(TIO2)	0.88
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.81
CALCIUM OXIDE %	(CAO)	2.25
MAGNESIUM OXIDE %	(MGO)	0.90
SULPHUR TRIOXIDE %	(SO3)	1.03
SODIUM OXIDE %	(NA2O)	1.50
POTASSIUM OXIDE %	(K2O)	0.70

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 30/01/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.27	77.29	66.93
0.60	0.15	2.03	8.06	0.75
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 04/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.46
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	3.39	FSI	__._
ASH %	7.23	HGI	34.0
VOLATILE MATTER %	9.59	CO2 %	0.12
FIXED CARBON %	79.79		

GROSS CALORIFIC VALUE (MJ/KG) 30.05
NET CALORIFIC VALUE (MJ/KG) __._

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	3.39
CARBON	%	80.10
HYDROGEN	%	2.32
SULPHUR	%	0.46
NITROGEN	%	0.91
ASH	%	7.23
OXYGEN	%	5.59

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP3
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 17/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1265.0	SOFTENING TEMP.(C)	1235.0
HEMISPHERICAL TEMP.(C)	1320.0	HEMISPHERICAL TEMP.(C)	1270.0
FLUID TEMP.(C)	1390.0	FLUID TEMP.(C)	1335.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP3
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 23/01/84

SILICON DIOXIDE %	(SIO2)	43.23
ALUMINIUM OXIDE %	(AL2O3)	27.72
FERRIC OXIDE %	(FE2O3)	6.40
TITANIUM DIOXIDE %	(TIO2)	0.76
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.21
CALCIUM OXIDE %	(CAO)	5.14
MAGNESIUM OXIDE %	(MGO)	3.87
SULPHUR TRIOXIDE %	(SO3)	3.19
SODIUM OXIDE %	(NA2O)	1.51
POTASSIUM OXIDE %	(K2O)	0.92

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP3
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 30/01/84

PYRITE	%	7.00
SULPHATE	%	2.00
ORGANIC	%	91.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN . BLK LR DS DDH83001

SAMPLE ID 2 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	15.24	13.20
0.60	0.15	2.10	4.46	0.42
0.15	0.00	300.00	4.08	4.08

GCRI COAL DIVISION | COALCOMP | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 05/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.39
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	5.49	FSI	__._
ASH %	18.97	HGI	46.0
VOLATILE MATTER %	15.89	CO2 %	0.08
FIXED CARBON %	59.65		

GROSS CALORIFIC VALUE (MJ/KG) 22.83
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	5.49
CARBON	%	64.94
HYDROGEN	%	1.95
SULPHUR	%	0.39
NITROGEN	%	0.73
ASH	%	18.97
OXYGEN	%	7.53

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 18/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1205.0	INITIAL TEMP.(C)	1165.0
SOFTENING TEMP.(C)	1235.0	SOFTENING TEMP.(C)	1180.0
HEMISPHERICAL TEMP.(C)	1250.0	HEMISPHERICAL TEMP.(C)	1215.0
FLUID TEMP.(C)	1265.0	FLUID TEMP.(C)	1250.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/01/84

SILICON DIOXIDE %	(SIO2)	41.69
ALUMINIUM OXIDE %	(AL2O3)	21.96
FERRIC OXIDE %	(FE2O3)	10.51
TITANIUM DIOXIDE %	(TIO2)	0.35
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.13
CALCIUM OXIDE %	(CAO)	7.89
MAGNESIUM OXIDE %	(MGO)	6.14
SULPHUR TRIOXIDE %	(SO3)	1.70
SODIUM OXIDE %	(NA2O)	1.03
POTASSIUM OXIDE %	(K2O)	0.75

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 2
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 30/01/84

PYRITE	%	26.00
SULPHATE	%	5.00
ORGANIC	%	69.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - H SAMPLE ID - 6360 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	51.77	14.62	51.77	14.62	48.23	60.86	28.67	28.67
2.60	48.23	60.86	100.00	36.92			10.46	19.89

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 17/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.42
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00448
		SPECIFIC GRAVITY	1.66
RESIDUAL MOISTURE %	1.58	FSI	__._
ASH %	38.58	HGI	48.0
VOLATILE MATTER %	6.20	CO2 %	1.93
FIXED CARBON %	53.64		

GROSS CALORIFIC VALUE (MJ/KG) 19.63
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 17/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	86.25	37.51	__._	20.17	1.37	6.28	0.45
0.60	0.15	9.37	43.54	__._	17.89	1.40	7.25	0.45
0.15	0.00	4.38	47.58	__._	15.84	1.57	7.44	0.56

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 09/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.58
CARBON	%	54.23
HYDROGEN	%	2.09
SULPHUR	%	0.42
NITROGEN	%	0.52
ASH	%	38.58
OXYGEN	%	2.58

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 14/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1275.0	INITIAL TEMP.(C)	1190.0
SOFTENING TEMP.(C)	1345.0	SOFTENING TEMP.(C)	1325.0
HEMISPHERICAL TEMP.(C)	1380.0	HEMISPHERICAL TEMP.(C)	1355.0
FLUID TEMP.(C)	1420.0	FLUID TEMP.(C)	1405.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 21/11/83

SILICON DIOXIDE %	(SIO2)	64.92
ALUMINIUM OXIDE %	(AL2O3)	19.87
FERRIC OXIDE %	(FE2O3)	3.50
TITANIUM DIOXIDE %	(TIO2)	0.50
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.40
CALCIUM OXIDE %	(CAO)	2.25
MAGNESIUM OXIDE %	(MGO)	2.48
SULPHUR TRIOXIDE %	(SO3)	1.74
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	0.62

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 07/11/83

PYRITE	%	26.00
SULPHATE	%	2.00
ORGANIC	%	72.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM H SAMPLE ID - 3 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 86.25 ASH % - 37.51

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	1.06	1.11	1.06	1.11	98.94	37.26		
1.45	13.86	4.10	14.92	3.89	85.08	42.66		
1.50	9.49	11.37	24.41	6.80	75.59	46.59		
1.55	13.86	18.31	38.27	10.97	61.73	52.94		
1.60	5.09	22.07	43.36	12.27	56.64	55.71		
1.70	11.38	28.19	54.74	15.58	45.26	62.63		
1.80	7.47	35.83	62.21	18.01	37.79	67.93		
1.90	3.81	40.47	66.02	19.31	33.98	71.01		
2.00	4.18	45.72	70.20	20.88	29.80	74.55		
2.10	3.22	49.33	73.42	22.13	26.58	77.61		
2.60	26.58	77.61	100.00	36.87				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 9.37 ASH % - 43.54

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	4.75	1.36	4.75	1.36	95.25	44.37		
1.45	18.38	4.42	23.13	3.79	76.87	53.92		
1.50	5.56	10.31	28.69	5.05	71.31	57.32		
1.55	4.98	14.04	33.67	6.38	66.33	60.57		
1.60	2.23	17.58	35.90	7.08	64.10	62.07		
1.70	10.05	22.67	45.95	10.49	54.05	69.40		
1.80	5.01	30.09	50.96	12.42	49.04	73.41		
1.90	3.79	36.60	54.75	14.09	45.25	76.49		
2.00	3.79	43.86	58.54	16.02	41.46	79.48		
2.10	1.94	50.30	60.48	17.12	39.52	80.91		
2.60	39.52	80.91	100.00	42.33				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM H SAMPLE ID - 3 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 4.38 ASH % - 47.58

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	32.92	16.05	32.92	16.05	67.08	62.76		
45.00	3.98	27.49	36.90	17.28	63.10	64.98		
60.00	4.09	32.92	40.99	18.84	59.01	67.21		
90.00	1.84	38.01	42.83	19.67	57.17	68.15		
120.00	1.69	45.67	44.52	20.65	55.48	68.83		
300.00	55.48	68.83	100.00	47.38				

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 02/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1195.0
SOFTENING TEMP.(C)	1490.0	SOFTENING TEMP.(C)	1440.0
HEMISPHERICAL TEMP.(C)	1495.0	HEMISPHERICAL TEMP.(C)	1495.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 25/01/84

SILICON DIOXIDE %	(SIO2)	67.40
ALUMINIUM OXIDE %	(AL2O3)	19.63
FERRIC OXIDE %	(FE2O3)	3.20
TITANIUM DIOXIDE %	(TIO2)	1.29
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.73
CALCIUM OXIDE %	(CAO)	0.69
MAGNESIUM OXIDE %	(MGO)	0.99
SULPHUR TRIOXIDE %	(SO3)	0.20
SODIUM OXIDE %	(NA2O)	1.28
POTASSIUM OXIDE %	(K2O)	0.69

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 31/01/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 — SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 — SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.47	16.55	14.27
0.60	0.15	1.50	2.70	0.25
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 — DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 — DATE ANALYSED 05/01/84
SPLIT SAMPLE ID CC1 — ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.62
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.65	FSI	__._
ASH %	4.98	HGI	33.0
VOLATILE MATTER %	5.63	CO2 %	0.05
FIXED CARBON %	88.74		

GROSS CALORIFIC VALUE (MJ/KG) 33.47
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP2 — DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 — DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.65
CARBON	%	88.66
HYDROGEN	%	2.63
SULPHUR	%	0.62
NITROGEN	%	1.09
ASH	%	4.98
OXYGEN	%	1.37

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.54	29.35	25.31
0.60	0.15	1.69	4.27	0.40
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 05/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.60
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.80	FSI	__.__
ASH %	9.43	HGI	34.0
VOLATILE MATTER %	5.49	CO2 %	0.11
FIXED CARBON %	84.28		

GROSS CALORIFIC VALUE (MJ/KG) 31.59
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 06/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.80
CARBON	%	84.10
HYDROGEN	%	2.49
SULPHUR	%	0.60
NITROGEN	%	0.82
ASH	%	9.43
OXYGEN	%	1.76

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 18/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1290.0	INITIAL TEMP.(C)	1240.0
SOFTENING TEMP.(C)	1465.0	SOFTENING TEMP.(C)	1450.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/01/84

SILICON DIOXIDE %	(SIO2)	68.65
ALUMINIUM OXIDE %	(AL2O3)	17.95
FERRIC OXIDE %	(FE2O3)	2.83
TITANIUM DIOXIDE %	(TIO2)	1.12
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.44
CALCIUM OXIDE %	(CAO)	2.06
MAGNESIUM OXIDE %	(MGO)	0.39
SULPHUR TRIOXIDE %	(SO3)	0.49
SODIUM OXIDE %	(NA2O)	1.13
POTASSIUM OXIDE %	(K2O)	0.71

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 30/01/84

PYRITE	%	7.00
SULPHATE	%	1.00
ORGANIC	%	92.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.00	45.66	39.38
0.60	0.15	1.90	2.53	0.24
0.15	0.00	120.00	1.95	0.09

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 06/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.48
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	2.10	FSI	__._
ASH %	25.43	HGI	40.0
VOLATILE MATTER %	8.09	CO2 %	0.86
FIXED CARBON %	64.38		

GROSS CALORIFIC VALUE (MJ/KG) 23.91
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.10
CARBON	%	64.49
HYDROGEN	%	1.90
SULPHUR	%	0.48
NITROGEN	%	0.60
ASH	%	25.43
OXYGEN	%	5.00

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 19/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1320.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1450.0	SOFTENING TEMP.(C)	1445.0
HEMISPHERICAL TEMP.(C)	1475.0	HEMISPHERICAL TEMP.(C)	1470.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/01/84

SILICON DIOXIDE %	(SIO2)	76.47
ALUMINIUM OXIDE %	(AL2O3)	12.50
FERRIC OXIDE %	(FE2O3)	2.69
TITANIUM DIOXIDE %	(TIO2)	0.62
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.10
CALCIUM OXIDE %	(CAO)	1.52
MAGNESIUM OXIDE %	(MGO)	1.79
SULPHUR TRIOXIDE %	(SO3)	1.06
SODIUM OXIDE %	(NA2O)	0.76
POTASSIUM OXIDE %	(K2O)	0.53

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 31/01/84

PYRITE	%	23.00
SULPHATE	%	2.00
ORGANIC	%	75.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	16.91	14.58
0.60	0.15	1.80	0.44	0.04
0.15	0.00	120.00	1.95	0.09

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 05/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.49
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.36	FSI	__._
ASH %	23.46	HGI	39.0
VOLATILE MATTER %	6.55	CO2 %	0.35
FIXED CARBON %	68.63		

GROSS CALORIFIC VALUE (MJ/KG) 25.52
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.36
CARBON	%	68.67
HYDROGEN	%	2.05
SULPHUR	%	0.49
NITROGEN	%	0.62
ASH	%	23.46
OXYGEN	%	3.35

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 18/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1290.0	INITIAL TEMP.(C)	1260.0
SOFTENING TEMP.(C)	1465.0	SOFTENING TEMP.(C)	1455.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/01/84

SILICON DIOXIDE %	(SIO2)	76.18
ALUMINIUM OXIDE %	(AL2O3)	13.05
FERRIC OXIDE %	(FE2O3)	2.47
TITANIUM DIOXIDE %	(TIO2)	0.74
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.02
CALCIUM OXIDE %	(CAO)	0.81
MAGNESIUM OXIDE %	(MGO)	1.36
SULPHUR TRIOXIDE %	(SO3)	0.77
SODIUM OXIDE %	(NA2O)	0.85
POTASSIUM OXIDE %	(K2O)	0.57

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 3
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 31/01/84

PYRITE	%	16.00
SULPHATE	%	2.00
ORGANIC	%	82.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - H SAMPLE ID - 6361 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	• C.V. (MJ|KG)	CUM. C.V.
1.70	93.00	14.02	93.00	14.02	7.00	49.70	29.08	29.08
2.60	7.00	49.70	100.00	16.52			14.09	28.03

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 27/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.43
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00501
		SPECIFIC GRAVITY	1.48
RESIDUAL MOISTURE %	1.47	FSI	__._
ASH %	16.74	HGI	38.0
VOLATILE MATTER %	5.39	CO2 %	1.46
FIXED CARBON %	76.40		

GROSS CALORIFIC VALUE (MJ/KG) 28.45
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 4 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 02/11/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	88.52	15.30	__._	29.29	1.35	5.35	0.43
0.60	0.15	8.18	23.19	__._	26.27	1.13	5.99	0.41
0.15	0.00	3.30	35.04	__._	21.00	1.40	7.74	0.42

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 09/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.47
CARBON	%	76.43
HYDROGEN	%	2.46
SULPHUR	%	0.43
NITROGEN	%	0.68
ASH	%	16.74
OXYGEN	%	1.79

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 15/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1245.0	INITIAL TEMP.(C)	1180.0
SOFTENING TEMP.(C)	1270.0	SOFTENING TEMP.(C)	1235.0
HEMISPHERICAL TEMP.(C)	1310.0	HEMISPHERICAL TEMP.(C)	1260.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1305.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 21/11/83

SILICON DIOXIDE %	(SIO2)	53.48
ALUMINIUM OXIDE %	(AL2O3)	19.88
FERRIC OXIDE %	(FE2O3)	8.16
TITANIUM DIOXIDE %	(TIO2)	0.84
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.55
CALCIUM OXIDE %	(CAO)	3.98
MAGNESIUM OXIDE %	(MGO)	2.96
SULPHUR TRIOXIDE %	(SO3)	3.36
SODIUM OXIDE %	(NA2O)	1.22
POTASSIUM OXIDE %	(K2O)	0.66

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 07/11/83

PYRITE	%	7.00
SULPHATE	%	2.00
ORGANIC	%	91.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM H SAMPLE ID - 4 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 88.52 ASH % - 15.30

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	1.11	1.11	1.11	1.11	98.89	15.14		
1.45	36.49	4.41	37.60	4.31	62.40	21.41		
1.50	24.03	10.59	61.63	6.76	38.37	28.19		
1.55	15.64	17.44	77.27	8.92	22.73	35.59		
1.60	4.13	21.73	81.40	9.57	18.60	38.67		
1.70	6.59	28.35	87.99	10.98	12.01	44.33		
1.80	3.26	33.93	91.25	11.80	8.75	48.21		
1.90	1.99	37.57	93.24	12.35	6.76	51.34		
2.00	1.64	41.56	94.88	12.85	5.12	54.47		
2.10	0.72	43.25	95.60	13.08	4.40	56.31		
2.60	4.40	56.31	100.00	14.98				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 8.18 ASH % - 23.51

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	7.62	1.11	7.62	1.11	92.38	25.19		
1.45	33.61	4.51	41.23	3.88	58.77	37.01		
1.50	11.41	10.23	52.64	5.26	47.36	43.46		
1.55	10.21	22.80	62.85	8.11	37.15	49.14		
1.70	13.22	26.98	76.07	11.39	23.93	61.38		
1.80	4.36	32.82	80.43	12.55	19.57	67.75		
1.90	2.40	38.92	82.83	13.31	17.17	71.78		
2.00	2.18	44.42	85.01	14.11	14.99	75.75		
2.10	1.02	49.53	86.03	14.53	13.97	77.67		
2.60	13.97	77.67	100.00	23.35				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM H SAMPLE ID - 4 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 3.30 ASH % - 35.04

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	62.72	19.56	62.72	19.56	37.28	63.41		
45.00	4.08	33.95	66.80	20.44	33.20	67.03		
300.00	33.20	67.03	100.00	35.91				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 — SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 — SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.46	37.54	33.23
0.60	0.15	1.49	4.12	0.34
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 — DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 — DATE ANALYSED 06/01/84
SPLIT SAMPLE ID CC1 — ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.51
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.65	FSI	__._
ASH %	4.80	HGI	___._
VOLATILE MATTER %	5.10	CO2 %	0.19
FIXED CARBON %	89.45		

GROSS CALORIFIC VALUE (MJ/KG) 33.69
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP2 — DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 — DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.65
CARBON	%	89.67
HYDROGEN	%	2.69
SULPHUR	%	0.51
NITROGEN	%	0.89
ASH	%	4.80
OXYGEN	%	0.79

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 19/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1210.0	INITIAL TEMP.(C)	1180.0
SOFTENING TEMP.(C)	1420.0	SOFTENING TEMP.(C)	1340.0
HEMISPHERICAL TEMP.(C)	1455.0	HEMISPHERICAL TEMP.(C)	1435.0
FLUID TEMP.(C)	1480.0	FLUID TEMP.(C)	1475.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/01/84

SILICON DIOXIDE %	(SIO2)	57.03
ALUMINIUM OXIDE %	(AL2O3)	25.43
FERRIC OXIDE %	(FE2O3)	5.19
TITANIUM DIOXIDE %	(TIO2)	1.16
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.69
CALCIUM OXIDE %	(CAO)	1.84
MAGNESIUM OXIDE %	(MGO)	1.66
SULPHUR TRIOXIDE %	(SO3)	0.45
SODIUM OXIDE %	(NA2O)	1.95
POTASSIUM OXIDE %	(K2O)	0.68

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/02/84

PYRITE	%	8.00
SULPHATE	%	2.00
ORGANIC	%	90.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.63	74.41	65.87
0.60	0.15	1.64	5.70	0.47
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 06/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.45
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.79	FSI	__._
ASH %	9.82	HGI	34.0
VOLATILE MATTER %	6.11	CO2 %	0.21
FIXED CARBON %	83.28		

GROSS CALORIFIC VALUE (MJ/KG) 31.34
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.79
CARBON	%	83.59
HYDROGEN	%	2.51
SULPHUR	%	0.45
NITROGEN	%	0.82
ASH	%	9.82
OXYGEN	%	2.02

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 02/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1215.0	INITIAL TEMP.(C)	1175.0
SOFTENING TEMP.(C)	1465.0	SOFTENING TEMP.(C)	1410.0
HEMISPHERICAL TEMP.(C)	1485.0	HEMISPHERICAL TEMP.(C)	1480.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/01/84

SILICON DIOXIDE %	(SIO2)	64.14
ALUMINIUM OXIDE %	(AL2O3)	22.34
FERRIC OXIDE %	(FE2O3)	3.68
TITANIUM DIOXIDE %	(TIO2)	1.36
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.86
CALCIUM OXIDE %	(CAO)	0.83
MAGNESIUM OXIDE %	(MGO)	1.49
SULPHUR TRIOXIDE %	(SO3)	0.43
SODIUM OXIDE %	(NA2O)	1.49
POTASSIUM OXIDE %	(K2O)	0.64

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/02/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	50.98	45.13
0.60	0.15	2.10	2.92	0.24
0.15	0.00	45.00	2.20	0.07

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 06/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.40
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.00	FSI	__._
ASH %	21.54	HGI	___._
VOLATILE MATTER %	7.81	CO2 %	0.23
FIXED CARBON %	69.65		

GROSS CALORIFIC VALUE (MJ/KG) 26.34
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.00
CARBON	%	70.63
HYDROGEN	%	2.16
SULPHUR	%	0.40
NITROGEN	%	0.67
ASH	%	21.54
OXYGEN	%	3.60

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP5
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 19/01/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1215.0	INITIAL TEMP.(C)	1160.0
SOFTENING TEMP.(C)	1255.0	SOFTENING TEMP.(C)	1200.0
HEMISPHERICAL TEMP.(C)	1280.0	HEMISPHERICAL TEMP.(C)	1270.0
FLUID TEMP.(C)	1315.0	FLUID TEMP.(C)	1310.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP5
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 23/01/84

SILICON DIOXIDE %	(SIO2)	56.24
ALUMINIUM OXIDE %	(AL2O3)	17.33
FERRIC OXIDE %	(FE2O3)	8.18
TITANIUM DIOXIDE %	(TIO2)	0.33
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.44
CALCIUM OXIDE %	(CAO)	4.97
MAGNESIUM OXIDE %	(MGO)	4.94
SULPHUR TRIOXIDE %	(SO3)	0.99
SODIUM OXIDE %	(NA2O)	1.17
POTASSIUM OXIDE %	(K2O)	0.52

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP5
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 31/01/84

PYRITE	%	13.00
SULPHATE	%	2.00
ORGANIC	%	85.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 — SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 — SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	2.32	2.05
0.60	0.15	1.70	0.59	0.05
0.15	0.00	45.00	2.20	0.07

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4 — DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 — DATE ANALYSED 06/01/84
SPLIT SAMPLE ID CC1 — ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.38
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.41	FSI	__._
ASH %	24.72	HGI	___._
VOLATILE MATTER %	7.27	CO2 %	1.13
FIXED CARBON %	66.60		

GROSS CALORIFIC VALUE (MJ/KG) 24.88
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP6 — DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 — DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.41
CARBON	%	66.58
HYDROGEN	%	2.13
SULPHUR	%	0.38
NITROGEN	%	0.66
ASH	%	24.72
OXYGEN	%	4.12

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 02/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1215.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1350.0	SOFTENING TEMP.(C)	1325.0
HEMISPHERICAL TEMP.(C)	1360.0	HEMISPHERICAL TEMP.(C)	1340.0
FLUID TEMP.(C)	1425.0	FLUID TEMP.(C)	1380.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 20/01/84

SILICON DIOXIDE %	(SIO2)	64.37
ALUMINIUM OXIDE %	(AL2O3)	16.97
FERRIC OXIDE %	(FE2O3)	4.71
TITANIUM DIOXIDE %	(TIO2)	0.94
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.27
CALCIUM OXIDE %	(CAO)	2.07
MAGNESIUM OXIDE %	(MGO)	2.68
SULPHUR TRIOXIDE %	(SO3)	0.63
SODIUM OXIDE %	(NA2O)	0.95
POTASSIUM OXIDE %	(K2O)	0.54

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 4
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 31/01/84

PYRITE	%	3.00
SULPHATE	%	3.00
ORGANIC	%	94.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - H SAMPLE ID - 6362 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	34.97	14.65	34.97	14.65	65.03	68.04	29.52	29.52
2.60	65.03	68.04	100.00	49.37			7.10	14.94

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 28/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.28
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00564
		SPECIFIC GRAVITY	1.89
RESIDUAL MOISTURE %	1.69	FSI	__._
ASH %	49.94	HGI	59.0
VOLATILE MATTER %	9.68	CO2 %	4.02
FIXED CARBON %	38.69		

GROSS CALORIFIC VALUE (MJ/KG) 14.75
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 02/11/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	87.46	49.18	__._	14.85	1.71	9.24	0.27
0.60	0.15	8.82	45.81	__._	16.05	1.49	8.27	0.36
0.15	0.00	3.72	54.50	__._	12.42	1.57	9.69	0.52

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 09/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.69
CARBON	%	42.09
HYDROGEN	%	1.66
SULPHUR	%	0.28
NITROGEN	%	0.40
ASH	%	49.94
OXYGEN	%	3.94

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 15/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1175.0
SOFTENING TEMP.(C)	1275.0	SOFTENING TEMP.(C)	1225.0
HEMISPHERICAL TEMP.(C)	1300.0	HEMISPHERICAL TEMP.(C)	1250.0
FLUID TEMP.(C)	1335.0	FLUID TEMP.(C)	1330.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 22/11/83

SILICON DIOXIDE %	(SIO2)	51.61
ALUMINIUM OXIDE %	(AL2O3)	19.71
FERRIC OXIDE %	(FE2O3)	7.77
TITANIUM DIOXIDE %	(TIO2)	0.50
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.27
CALCIUM OXIDE %	(CAO)	4.24
MAGNESIUM OXIDE %	(MGO)	3.72
SULPHUR TRIOXIDE %	(SO3)	1.29
SODIUM OXIDE %	(NA2O)	1.39
POTASSIUM OXIDE %	(K2O)	0.85

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 07/11/83

PYRITE	%	32.00
SULPHATE	%	4.00
ORGANIC	%	64.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

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DATA SOURCE - KPNLRDDH83001 SEAM - SEAM H SAMPLE ID - 5 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 87.46 ASH % - 49.18

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	13.60	5.13	13.60	5.13	86.40	54.97		
1.50	7.15	11.50	20.75	7.32	79.25	58.89		
1.55	3.95	17.33	24.70	8.92	75.30	61.07		
1.70	9.87	24.40	34.57	13.34	65.43	66.60		
1.80	5.45	33.72	40.02	16.12	59.98	69.59		
1.90	2.46	37.13	42.48	17.33	57.52	70.98		
2.00	2.51	40.47	44.99	18.63	55.01	72.37		
2.10	1.95	44.66	46.94	19.71	53.06	73.39		
2.60	53.06	73.39	100.00	48.19				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 8.82 ASH % - 45.81

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	3.08	1.70	3.08	1.70	96.92	46.56		
1.45	16.06	4.85	19.14	4.34	80.86	54.84		
1.50	8.92	10.39	28.06	6.27	71.94	60.35		
1.55	5.27	17.08	33.33	7.98	66.67	63.78		
1.60	2.57	19.13	35.90	8.77	64.10	65.57		
1.70	6.79	25.19	42.69	11.38	57.31	70.35		
1.80	3.52	33.07	46.21	13.04	53.79	72.79		
1.90	2.23	38.93	48.44	14.23	51.56	74.25		
2.00	2.11	44.37	50.55	15.49	49.45	75.53		
2.10	1.47	50.00	52.02	16.46	47.98	76.31		
2.60	47.98	76.31	100.00	45.18				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM H SAMPLE ID - 5 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 3.72 ASH % - 54.50

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	51.01	35.21	51.01	35.21	48.99	73.73		
45.00	5.10	49.58	56.11	36.52	43.89	76.54		
300.00	43.89	76.54	100.00	54.08				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.45	11.90	10.41
0.60	0.15	1.47	2.00	0.18
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 | DATE ANALYSED 09/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.56
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.57	FSI	__._
ASH %	5.09	HGI	___._
VOLATILE MATTER %	5.58	CO2 %	0.20
FIXED CARBON %	88.76		

GROSS CALORIFIC VALUE (MJ/KG) 33.64
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.57
CARBON	%	88.67
HYDROGEN	%	2.65
SULPHUR	%	0.56
NITROGEN	%	0.87
ASH	%	5.09
OXYGEN	%	1.59

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED __/__/__

INSUFFICIENT SAMPLE FOR ANALYSIS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 03/02/84

SILICON DIOXIDE %	(SIO2)	56.81
ALUMINIUM OXIDE %	(AL2O3)	23.57
FERRIC OXIDE %	(FE2O3)	3.95
TITANIUM DIOXIDE %	(TIO2)	1.41
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.91
CALCIUM OXIDE %	(CAO)	2.57
MAGNESIUM OXIDE %	(MGO)	1.85
SULPHUR TRIOXIDE %	(SO3)	1.39
SODIUM OXIDE %	(NA2O)	1.42
POTASSIUM OXIDE %	(K2O)	0.60

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 31/01/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.59	23.33	20.40
0.60	0.15	1.65	3.47	0.31
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 09/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.55
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.63	FSI	__._
ASH %	8.30	HGI	___._
VOLATILE MATTER %	5.55	CO2 %	0.34
FIXED CARBON %	85.52		

GROSS CALORIFIC VALUE (MJ/KG) 32.31
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 07/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.63
CARBON	%	85.59
HYDROGEN	%	2.53
SULPHUR	%	0.55
NITROGEN	%	0.84
ASH	%	8.30
OXYGEN	%	1.56

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED __/__/__

INSUFFICIENT SAMPLE FOR ANALYSIS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 03/02/84

SILICON DIOXIDE %	(SIO2)	62.31
ALUMINIUM OXIDE %	(AL2O3)	19.06
FERRIC OXIDE %	(FE2O3)	4.11
TITANIUM DIOXIDE %	(TIO2)	1.62
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.82
CALCIUM OXIDE %	(CAO)	3.10
MAGNESIUM OXIDE %	(MGO)	2.23
SULPHUR TRIOXIDE %	(SO3)	1.57
SODIUM OXIDE %	(NA2O)	1.21
POTASSIUM OXIDE %	(K2O)	0.74

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 31/01/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.10	29.16	25.50
0.60	0.15	2.10	2.58	0.23
0.15	0.00	30.00	1.90	0.07

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 09/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.45
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.97	FSI	__._
ASH %	24.67	HGI	___._
VOLATILE MATTER %	8.25	CO2 %	2.62
FIXED CARBON %	66.11		

GROSS CALORIFIC VALUE (MJ/KG) 24.96
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.97
CARBON	%	66.44
HYDROGEN	%	2.15
SULPHUR	%	0.45
NITROGEN	%	0.64
ASH	%	24.67
OXYGEN	%	4.68

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED __/__/__

INSUFFICIENT SAMPLE FOR ANALYSIS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 06/02/84

SILICON DIOXIDE %	(SIO2)	62.12
ALUMINIUM OXIDE %	(AL2O3)	15.66
FERRIC OXIDE %	(FE2O3)	4.97
TITANIUM DIOXIDE %	(TIO2)	0.64
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.37
CALCIUM OXIDE %	(CAO)	6.79
MAGNESIUM OXIDE %	(MGO)	4.19
SULPHUR TRIOXIDE %	(SO3)	3.10
SODIUM OXIDE %	(NA2O)	0.95
POTASSIUM OXIDE %	(K2O)	0.58

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 01/02/84

PYRITE	%	13.00
SULPHATE	%	2.00
ORGANIC	%	85.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	6.90	6.03
0.60	0.15	1.70	0.30	0.03
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 09/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.42
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.05	FSI	__._
ASH %	25.26	HGI	___._
VOLATILE MATTER %	8.10	CO2 %	1.98
FIXED CARBON %	65.59		

GROSS CALORIFIC VALUE (MJ/KG) 24.83
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.05
CARBON	%	65.99
HYDROGEN	%	2.07
SULPHUR	%	0.42
NITROGEN	%	0.55
ASH	%	25.26
OXYGEN	%	4.66

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED __/__/__

INSUFFICIENT SAMPLE FOR ANALYSIS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 03/02/84

SILICON DIOXIDE %	(SIO2)	65.26
ALUMINIUM OXIDE %	(AL2O3)	15.79
FERRIC OXIDE %	(FE2O3)	4.32
TITANIUM DIOXIDE %	(TIO2)	1.08
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.43
CALCIUM OXIDE %	(CAO)	4.85
MAGNESIUM OXIDE %	(MGO)	3.19
SULPHUR TRIOXIDE %	(SO3)	2.41
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	0.53

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 5
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 31/01/84

PYRITE	%	14.00
SULPHATE	%	2.00
ORGANIC	%	84.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - G SAMPLE ID - 6363 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	41.88	13.70	41.88	13.70	58.12	61.34	29.19	29.19
2.60	58.12	61.34	100.00	41.39			9.76	17.90

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SPLIT SAMPLE ID HD1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 18/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.51
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00711
		SPECIFIC GRAVITY	1.78
RESIDUAL MOISTURE %	1.33	FSI	__._
ASH %	42.75	HGI	54.0
VOLATILE MATTER %	7.21	CO2 %	3.65
FIXED CARBON %	48.71		

GROSS CALORIFIC VALUE (MJ/KG) 17.88
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SPLIT SAMPLE ID SZ1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 17/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	79.93	46.33	__._	16.38	1.30	6.94	0.44
0.60	0.15	13.20	34.26	__._	21.44	1.24	6.51	0.47
0.15	0.00	6.87	40.30	__._	18.48	1.49	7.18	0.46

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID UL1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 09/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.33
CARBON	%	49.54
HYDROGEN	%	1.74
SULPHUR	%	0.51
NITROGEN	%	0.53
ASH	%	42.75
OXYGEN	%	3.60

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 15/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1245.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1290.0	SOFTENING TEMP.(C)	1250.0
HEMISPHERICAL TEMP.(C)	1315.0	HEMISPHERICAL TEMP.(C)	1290.0
FLUID TEMP.(C)	1360.0	FLUID TEMP.(C)	1320.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 22/11/83

SILICON DIOXIDE %	(SIO2)	61.06
ALUMINIUM OXIDE %	(AL2O3)	16.70
FERRIC OXIDE %	(FE2O3)	5.90
TITANIUM DIOXIDE %	(TIO2)	0.73
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.21
CALCIUM OXIDE %	(CAO)	2.91
MAGNESIUM OXIDE %	(MGO)	2.76
SULPHUR TRIOXIDE %	(SO3)	2.08
SODIUM OXIDE %	(NA2O)	1.07
POTASSIUM OXIDE %	(K2O)	1.16

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 07/11/83

PYRITE	%	35.00
SULPHATE	%	2.00
ORGANIC	%	63.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM G SAMPLE ID - 6 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 79.93 ASH % - 46.33

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	12.06	3.47	12.06	3.47	87.94	51.26		
1.50	6.49	9.37	18.55	5.53	81.45	54.59		
1.55	5.91	21.26	24.46	9.33	75.54	57.20		
1.70	14.16	23.92	38.62	14.68	61.38	64.88		
1.80	4.76	34.37	43.38	16.84	56.62	67.44		
1.90	5.73	39.84	49.11	19.53	50.89	70.55		
2.00	5.36	44.71	54.47	22.00	45.53	73.59		
2.10	4.57	50.51	59.04	24.21	40.96	76.17		
2.60	40.96	76.17	100.00	45.49				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 13.20 ASH % - 34.26

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	1.22	0.95	1.22	0.95	98.78	33.92		
1.45	29.62	3.83	30.84	3.72	69.16	46.81		
1.50	8.54	9.20	39.38	4.91	60.62	52.10		
1.55	6.36	17.64	45.74	6.68	54.26	56.14		
1.70	11.07	20.90	56.81	9.45	43.19	65.18		
1.80	4.65	30.14	61.46	11.01	38.54	69.40		
1.90	3.19	36.88	64.65	12.29	35.35	72.34		
2.00	3.22	43.20	67.87	13.76	32.13	75.26		
2.10	2.46	49.33	70.33	15.00	29.67	77.41		
2.60	29.67	77.41	100.00	33.52				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM G SAMPLE ID - 6 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 6.87 ASH % - 40.30

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	57.33	22.41	57.33	22.41	42.67	63.03		
45.00	7.96	36.24	65.29	24.10	34.71	69.17		
60.00	2.67	46.41	67.96	24.97	32.04	71.07		
300.00	32.04	71.07	100.00	39.74				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.48	13.34	10.66
0.60	0.15	1.50	5.09	0.67
0.15	0.00	---.--	---.--	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 | DATE ANALYSED 10/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.62
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.67	FSI	__._
ASH %	4.71	HGI	37.0
VOLATILE MATTER %	5.38	CO2 %	0.14
FIXED CARBON %	89.24		

GROSS CALORIFIC VALUE (MJ/KG) 33.64
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.67
CARBON	%	89.34
HYDROGEN	%	2.67
SULPHUR	%	0.62
NITROGEN	%	0.95
ASH	%	4.71
OXYGEN	%	1.04

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 08/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1435.0	SOFTENING TEMP.(C)	1430.0
HEMISPHERICAL TEMP.(C)	1485.0	HEMISPHERICAL TEMP.(C)	1465.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 24/01/84

SILICON DIOXIDE %	(SIO2)	48.18
ALUMINIUM OXIDE %	(AL2O3)	29.11
FERRIC OXIDE %	(FE2O3)	4.00
TITANIUM DIOXIDE %	(TIO2)	2.18
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.58
CALCIUM OXIDE %	(CAO)	2.07
MAGNESIUM OXIDE %	(MGO)	0.79
SULPHUR TRIOXIDE %	(SO3)	0.37
SODIUM OXIDE %	(NA2O)	1.53
POTASSIUM OXIDE %	(K2O)	0.97

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 01/02/84

PYRITE	%	3.00
SULPHATE	%	2.00
ORGANIC	%	95.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.57	20.41	16.13
0.60	0.15	1.74	7.63	1.01
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 09/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.55
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.08	FSI	__._
ASH %	9.31	HGI	___._
VOLATILE MATTER %	6.81	CO2 %	0.19
FIXED CARBON %	82.80		

GROSS CALORIFIC VALUE (MJ/KG) 31.07
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.08
CARBON	%	83.86
HYDROGEN	%	2.53
SULPHUR	%	0.55
NITROGEN	%	0.92
ASH	%	9.31
OXYGEN	%	1.75

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP3
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 07/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1190.0
SOFTENING TEMP.(C)	1460.0	SOFTENING TEMP.(C)	1415.0
HEMISPHERICAL TEMP.(C)	1500.0	HEMISPHERICAL TEMP.(C)	1500.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP3
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 23/01/84

SILICON DIOXIDE %	(SIO2)	55.46
ALUMINIUM OXIDE %	(AL2O3)	24.45
FERRIC OXIDE %	(FE2O3)	3.65
TITANIUM DIOXIDE %	(TIO2)	1.64
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.79
CALCIUM OXIDE %	(CAO)	1.23
MAGNESIUM OXIDE %	(MGO)	1.37
SULPHUR TRIOXIDE %	(SO3)	0.41
SODIUM OXIDE %	(NA2O)	1.28
POTASSIUM OXIDE %	(K2O)	1.41

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP3
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 01/02/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	21.80	17.42
0.60	0.15	2.00	4.02	0.53
0.15	0.00	60.00	4.67	0.32

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 10/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.43
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	2.60	FSI	__._
ASH %	21.90	HGI	47.0
VOLATILE MATTER %	8.73	CO2 %	0.69
FIXED CARBON %	66.77		

GROSS CALORIFIC VALUE (MJ/KG) 24.87
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.60
CARBON	%	66.79
HYDROGEN	%	2.06
SULPHUR	%	0.43
NITROGEN	%	0.76
ASH	%	21.90
OXYGEN	%	5.46

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 08/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1240.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1460.0	SOFTENING TEMP.(C)	1420.0
HEMISPHERICAL TEMP.(C)	1480.0	HEMISPHERICAL TEMP.(C)	1450.0
FLUID TEMP.(C)	1495.0	FLUID TEMP.(C)	1495.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/01/84

SILICON DIOXIDE %	(SIO2)	61.50
ALUMINIUM OXIDE %	(AL2O3)	24.61
FERRIC OXIDE %	(FE2O3)	3.30
TITANIUM DIOXIDE %	(TIO2)	0.84
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.87
CALCIUM OXIDE %	(CAO)	1.37
MAGNESIUM OXIDE %	(MGO)	1.28
SULPHUR TRIOXIDE %	(SO3)	0.52
SODIUM OXIDE %	(NA2O)	1.27
POTASSIUM OXIDE %	(K2O)	1.29

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 01/02/84

PYRITE	%	7.00
SULPHATE	%	2.00
ORGANIC	%	91.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	14.22	11.37
0.60	0.15	___.__	___.__	0.00
0.15	0.00	60.00	4.67	0.32

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 10/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.44
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.96	FSI	__._
ASH %	25.95	HGI	50.0
VOLATILE MATTER %	8.73	CO2 %	0.86
FIXED CARBON %	63.36		

GROSS CALORIFIC VALUE (MJ/KG) 23.68
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.96
CARBON	%	63.28
HYDROGEN	%	1.94
SULPHUR	%	0.44
NITROGEN	%	0.70
ASH	%	25.95
OXYGEN	%	5.73

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 08/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1230.0	INITIAL TEMP.(C)	1190.0
SOFTENING TEMP.(C)	1430.0	SOFTENING TEMP.(C)	1395.0
HEMISPHERICAL TEMP.(C)	1450.0	HEMISPHERICAL TEMP.(C)	1440.0
FLUID TEMP.(C)	1475.0	FLUID TEMP.(C)	1475.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/01/84

SILICON DIOXIDE %	(SIO2)	60.99
ALUMINIUM OXIDE %	(AL2O3)	24.09
FERRIC OXIDE %	(FE2O3)	3.49
TITANIUM DIOXIDE %	(TIO2)	0.76
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.49
CALCIUM OXIDE %	(CAO)	1.38
MAGNESIUM OXIDE %	(MGO)	1.99
SULPHUR TRIOXIDE %	(SO3)	0.36
SODIUM OXIDE %	(NA2O)	1.28
POTASSIUM OXIDE %	(K2O)	1.50

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 6
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 01/02/84

PYRITE	%	14.00
SULPHATE	%	2.00
ORGANIC	%	84.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

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DATA SOURCE - KPNLRDDH83001 SEAM - G SAMPLE ID - 6364 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	0.28	16.24	0.28	16.24	99.72	89.65	28.17	28.17
2.60	99.72	89.65	100.00	89.44			0.01	0.09

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - G SAMPLE ID - 6365 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	12.21	10.45	12.21	10.45	87.79	71.48	30.80	30.80
2.60	87.79	71.48	100.00	64.03			7.20	10.08

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - G SAMPLE ID - 6367 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	18.30	15.44	18.30	15.44	81.70	61.65	28.27	28.27
2.60	81.70	61.65	100.00	53.19			11.00	14.16

GCRI COAL DIVISION | HEAD | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 | DATE ANALYSED 19/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.26
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00671
		SPECIFIC GRAVITY	1.85
RESIDUAL MOISTURE %	1.43	FSI	__._
ASH %	53.80	HGI	64.0
VOLATILE MATTER %	6.12	CO2 %	3.14
FIXED CARBON %	38.65		

GROSS CALORIFIC VALUE (MJ/KG) 13.81
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | SIZE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 | DATE ANALYSED 17/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	82.99	56.07	__._	13.47	1.44	5.85	0.24
0.60	0.15	11.26	44.29	__._	17.10	1.22	6.35	0.33
0.15	0.00	5.75	47.15	__._	16.28	1.53	6.98	0.31

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.43
CARBON	%	38.72
HYDROGEN	%	1.39
SULPHUR	%	0.26
NITROGEN	%	0.52
ASH	%	53.80
OXYGEN	%	3.88

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 16/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1310.0	INITIAL TEMP.(C)	1220.0
SOFTENING TEMP.(C)	1410.0	SOFTENING TEMP.(C)	1330.0
HEMISPHERICAL TEMP.(C)	1445.0	HEMISPHERICAL TEMP.(C)	1385.0
FLUID TEMP.(C)	1480.0	FLUID TEMP.(C)	1445.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 23/11/83

SILICON DIOXIDE %	(SIO2)	64.92
ALUMINIUM OXIDE %	(AL2O3)	19.87
FERRIC OXIDE %	(FE2O3)	5.87
TITANIUM DIOXIDE %	(TIO2)	0.46
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.05
CALCIUM OXIDE %	(CAO)	0.79
MAGNESIUM OXIDE %	(MGO)	1.88
SULPHUR TRIOXIDE %	(SO3)	0.77
SODIUM OXIDE %	(NA2O)	1.25
POTASSIUM OXIDE %	(K2O)	1.15

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/11/83

PYRITE	%	15.00
SULPHATE	%	4.00
ORGANIC	%	81.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM G SAMPLE ID - 7 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 82.99 ASH % - 56.07

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	3.27	3.42	3.27	3.42	96.73	56.72		
1.50	2.63	9.09	5.90	5.95	94.10	58.06		
1.55	1.50	19.32	7.40	8.66	92.60	58.68		
1.70	8.33	22.52	15.73	16.00	84.27	62.26		
1.80	9.31	32.61	25.04	22.17	74.96	65.94		
1.90	7.44	38.64	32.48	25.95	67.52	68.95		
2.00	9.93	44.60	42.41	30.31	57.59	73.15		
2.10	4.60	48.92	47.01	32.13	52.99	75.25		
2.60	52.99	75.25	100.00	54.98				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 11.26 ASH % - 44.29

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	0.84	1.17	0.84	1.17	99.16	43.65		
1.45	17.83	3.96	18.67	3.83	81.33	52.35		
1.50	5.33	8.96	24.00	4.97	76.00	55.39		
1.55	4.59	15.56	28.59	6.67	71.41	57.95		
1.60	2.71	16.59	31.30	7.53	68.70	59.58		
1.70	8.08	22.07	39.38	10.51	60.62	64.58		
1.80	6.08	29.18	45.46	13.01	54.54	68.53		
1.90	4.99	35.61	50.45	15.25	49.55	71.84		
2.00	5.26	42.18	55.71	17.79	44.29	75.37		
2.10	2.34	47.69	58.05	18.99	41.95	76.91		
2.60	41.95	76.91	100.00	43.29				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDOH83001 SEAM - SEAM G SAMPLE ID - 7 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 5.75 ASH % - 47.15

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	39.40	26.47	39.40	26.47	60.60	59.74		
45.00	8.74	30.48	48.14	27.20	51.86	64.68		
60.00	5.31	33.24	53.45	27.80	46.55	68.26		
90.00	7.11	40.59	60.56	29.30	39.44	73.25		
300.00	39.44	73.25	100.00	46.63				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.58	7.21	5.98
0.60	0.15	1.68	4.33	0.49
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 10/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.50
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.10	FSI	__._
ASH %	9.36	HGI	38.0
VOLATILE MATTER %	7.19	CO2 %	0.30
FIXED CARBON %	82.35		

GROSS CALORIFIC VALUE (MJ/KG) 31.13
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 08/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.10
CARBON	%	82.61
HYDROGEN	%	2.48
SULPHUR	%	0.50
NITROGEN	%	0.89
ASH	%	9.36
OXYGEN	%	3.06

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 09/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1175.0
SOFTENING TEMP.(C)	1405.0	SOFTENING TEMP.(C)	1340.0
HEMISPHERICAL TEMP.(C)	1430.0	HEMISPHERICAL TEMP.(C)	1370.0
FLUID TEMP.(C)	1450.0	FLUID TEMP.(C)	1440.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/01/84

SILICON DIOXIDE %	(SIO2)	55.93
ALUMINIUM OXIDE %	(AL2O3)	21.46
FERRIC OXIDE %	(FE2O3)	7.79
TITANIUM DIOXIDE %	(TIO2)	1.69
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.33
CALCIUM OXIDE %	(CAO)	0.55
MAGNESIUM OXIDE %	(MGO)	2.06
SULPHUR TRIOXIDE %	(SO3)	0.33
SODIUM OXIDE %	(NA2O)	1.14
POTASSIUM OXIDE %	(K2O)	1.15

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/02/84

PYRITE	%	4.00
SULPHATE	%	2.00
ORGANIC	%	94.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	4.40	3.65
0.60	0.15	1.80	0.31	0.03
0.15	0.00	30.00	2.26	0.13

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 10/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.43
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.62	FSI	__._
ASH %	22.79	HGI	45.0
VOLATILE MATTER %	8.48	CO2 %	0.71
FIXED CARBON %	67.11		

GROSS CALORIFIC VALUE (MJ/KG) 24.87
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.62
CARBON	%	67.37
HYDROGEN	%	2.03
SULPHUR	%	0.43
NITROGEN	%	0.73
ASH	%	22.79
OXYGEN	%	5.03

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 09/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1160.0
SOFTENING TEMP.(C)	1370.0	SOFTENING TEMP.(C)	1320.0
HEMISPHERICAL TEMP.(C)	1400.0	HEMISPHERICAL TEMP.(C)	1360.0
FLUID TEMP.(C)	1450.0	FLUID TEMP.(C)	1405.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 26/01/84

SILICON DIOXIDE %	(SIO2)	59.42
ALUMINIUM OXIDE %	(AL2O3)	19.61
FERRIC OXIDE %	(FE2O3)	9.14
TITANIUM DIOXIDE %	(TIO2)	1.07
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.24
CALCIUM OXIDE %	(CAO)	0.55
MAGNESIUM OXIDE %	(MGO)	2.45
SULPHUR TRIOXIDE %	(SO3)	0.18
SODIUM OXIDE %	(NA2O)	1.12
POTASSIUM OXIDE %	(K2O)	1.13

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 7
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 01/02/84

PYRITE	%	21.00
SULPHATE	%	2.00
ORGANIC	%	77.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - F SAMPLE ID - 6368 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	66.54	11.68	66.54	11.68	33.46	47.06	30.12	30.12
2.60	33.46	47.06	100.00	23.52			16.08	25.42

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - F SAMPLE ID - 6369 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00

RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	10.88	11.03	10.88	11.03	89.12	69.40	30.51	30.51
2.60	89.12	69.40	100.00	63.05			9.18	11.50

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - F SAMPLE ID - 6370 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	40.44	15.49	40.44	15.49	59.56	49.05	25.10	25.10
2.60	59.56	49.05	100.00	35.48			15.81	19.57

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - F SAMPLE ID - 6371 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	18.88	7.24	18.88	7.24	81.12	65.92	31.78	31.78
2.60	81.12	65.92	100.00	54.84			8.79	13.13

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS DDH83001

SAMPLE ID 8 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 21/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.86
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00799
		SPECIFIC GRAVITY	1.70
RESIDUAL MOISTURE %	1.42	FSI	__._
ASH %	36.68	HGI	49.0
VOLATILE MATTER %	6.30	CO2 %	3.37
FIXED CARBON %	55.60		

GROSS CALORIFIC VALUE (MJ/KG) 20.74
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 8 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 18/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	84.40	38.58	__._	19.59	1.28	6.57	0.86
0.60	0.15	10.98	30.55	__._	23.30	1.21	6.20	0.86
0.15	0.00	4.62	40.05	__._	19.28	1.47	6.56	0.70

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 10/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.42
CARBON	%	56.45
HYDROGEN	%	1.83
SULPHUR	%	0.86
NITROGEN	%	0.49
ASH	%	36.68
OXYGEN	%	2.27

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 16/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1265.0	INITIAL TEMP.(C)	1185.0
SOFTENING TEMP.(C)	1315.0	SOFTENING TEMP.(C)	1280.0
HEMISPHERICAL TEMP.(C)	1355.0	HEMISPHERICAL TEMP.(C)	1315.0
FLUID TEMP.(C)	1395.0	FLUID TEMP.(C)	1350.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 24/11/83

SILICON DIOXIDE %	(SIO2)	53.46
ALUMINIUM OXIDE %	(AL2O3)	19.96
FERRIC OXIDE %	(FE2O3)	7.71
TITANIUM DIOXIDE %	(TIO2)	0.59
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.71
CALCIUM OXIDE %	(CAO)	2.35
MAGNESIUM OXIDE %	(MGO)	2.54
SULPHUR TRIOXIDE %	(SO3)	2.32
SODIUM OXIDE %	(NA2O)	1.12
POTASSIUM OXIDE %	(K2O)	1.35

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 08/11/83

PYRITE	%	54.00
SULPHATE	%	1.00
ORGANIC	%	45.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM F SAMPLE ID - 8 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 84.40 ASH % - 38.58

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.43	6.49	1.96	6.49	1.96	93.51	39.87		
1.45	5.13	4.71	11.62	3.17	88.38	41.91		
1.48	4.61	7.36	16.23	4.36	83.77	43.81		
1.50	3.84	10.09	20.07	5.46	79.93	45.43		
1.55	6.47	13.15	26.54	7.33	73.46	48.27		
1.60	7.21	19.19	33.75	9.87	66.25	51.43		
1.70	9.63	24.83	43.38	13.19	56.62	55.96		
1.80	8.97	31.13	52.35	16.26	47.65	60.63		
1.90	5.75	37.74	58.10	18.39	41.90	63.78		
2.00	7.30	44.12	65.40	21.26	34.60	67.92		
2.10	3.96	49.60	69.36	22.88	30.64	70.29		
2.60	30.64	70.29	100.00	37.41				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 10.98 ASH % - 30.55

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.43	12.69	2.09	12.69	2.09	87.31	33.03		
1.45	9.38	4.36	22.07	3.05	77.93	36.49		
1.48	9.04	6.86	31.11	4.16	68.89	40.37		
1.50	6.35	9.23	37.46	5.02	62.54	43.53		
1.55	9.15	12.43	46.61	6.47	53.39	48.87		
1.60	7.70	17.37	54.31	8.02	45.69	54.17		
1.70	6.29	26.04	60.60	9.89	39.40	58.66		
1.80	5.01	30.25	65.61	11.44	34.39	62.80		
1.90	3.59	35.54	69.20	12.69	30.80	65.98		
2.00	4.14	42.44	73.34	14.37	26.66	69.64		
2.10	1.57	48.03	74.91	15.08	25.09	70.99		
2.60	25.09	70.99	100.00	29.11				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - SEAM F SAMPLE ID - 8 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 4.62 ASH % - 40.05

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	56.92	19.22	56.92	19.22	43.08	65.39		
45.00	5.70	38.43	62.62	20.97	37.38	69.50		
60.00	1.57	40.21	64.19	21.44	35.81	70.79		
90.00	2.88	48.11	67.07	22.58	32.93	72.77		
300.00	32.93	72.77	100.00	39.11				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.49	17.18	14.50
0.60	0.15	1.50	4.37	0.48
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 | DATE ANALYSED 12/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.72
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.61	FSI	__.__
ASH %	5.57	HGI	37.0
VOLATILE MATTER %	5.46	CO2 %	0.22
FIXED CARBON %	88.36		

GROSS CALORIFIC VALUE (MJ/KG) 33.27
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.61
CARBON	%	88.33
HYDROGEN	%	2.59
SULPHUR	%	0.72
NITROGEN	%	0.87
ASH	%	5.57
OXYGEN	%	1.31

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 10/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1215.0	INITIAL TEMP.(C)	1180.0
SOFTENING TEMP.(C)	1255.0	SOFTENING TEMP.(C)	1205.0
HEMISPHERICAL TEMP.(C)	1270.0	HEMISPHERICAL TEMP.(C)	1225.0
FLUID TEMP.(C)	1305.0	FLUID TEMP.(C)	1250.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 27/01/84

SILICON DIOXIDE %	(SIO2)	41.87
ALUMINIUM OXIDE %	(AL2O3)	26.30
FERRIC OXIDE %	(FE2O3)	8.42
TITANIUM DIOXIDE %	(TIO2)	2.01
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.91
CALCIUM OXIDE %	(CAO)	4.79
MAGNESIUM OXIDE %	(MGO)	1.97
SULPHUR TRIOXIDE %	(SO3)	0.70
SODIUM OXIDE %	(NA2O)	1.29
POTASSIUM OXIDE %	(K2O)	0.93

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP2
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 14/02/84

PYRITE	%	7.00
SULPHATE	%	1.00
ORGANIC	%	92.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.62	30.16	25.46
0.60	0.15	1.71	6.81	0.75
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 11/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.80
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.08	FSI	__._
ASH %	9.94	HGI	37.0
VOLATILE MATTER %	6.63	CO2 %	0.24
FIXED CARBON %	82.35		

GROSS CALORIFIC VALUE (MJ/KG) 30.46
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.08
CARBON	%	82.52
HYDROGEN	%	2.45
SULPHUR	%	0.80
NITROGEN	%	0.80
ASH	%	9.94
OXYGEN	%	2.41

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1215.0	INITIAL TEMP.(C)	1160.0
SOFTENING TEMP.(C)	1280.0	SOFTENING TEMP.(C)	1220.0
HEMISPHERICAL TEMP.(C)	1310.0	HEMISPHERICAL TEMP.(C)	1240.0
FLUID TEMP.(C)	1370.0	FLUID TEMP.(C)	1280.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 27/01/84

SILICON DIOXIDE %	(SIO2)	48.87
ALUMINIUM OXIDE %	(AL2O3)	24.68
FERRIC OXIDE %	(FE2O3)	7.87
TITANIUM DIOXIDE %	(TIO2)	1.61
PHOSPHOROUS PENTOXIDE %	(P2O5)	3.09
CALCIUM OXIDE %	(CAO)	4.43
MAGNESIUM OXIDE %	(MGO)	1.99
SULPHUR TRIOXIDE %	(SO3)	0.71
SODIUM OXIDE %	(NA2O)	1.33
POTASSIUM OXIDE %	(K2O)	1.22

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 14/02/84

PYRITE	%	8.00
SULPHATE	%	1.00
ORGANIC	%	91.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	33.83	28.55
0.60	0.15	2.10	4.28	0.47
0.15	0.00	300.00	4.62	4.62

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 12/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.86
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	2.11	FSI	__._
ASH %	27.75	HGI	51.0
VOLATILE MATTER %	8.25	CO2 %	0.85
FIXED CARBON %	61.89		

GROSS CALORIFIC VALUE (MJ/KG) 23.28
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	2.11
CARBON	%	62.06
HYDROGEN	%	1.89
SULPHUR	%	0.86
NITROGEN	%	0.67
ASH	%	27.75
OXYGEN	%	4.66

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 13/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1220.0	INITIAL TEMP.(C)	1175.0
SOFTENING TEMP.(C)	1350.0	SOFTENING TEMP.(C)	1275.0
HEMISPHERICAL TEMP.(C)	1385.0	HEMISPHERICAL TEMP.(C)	1330.0
FLUID TEMP.(C)	1425.0	FLUID TEMP.(C)	1385.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 27/01/84

SILICON DIOXIDE %	(SIO2)	55.87
ALUMINIUM OXIDE %	(AL2O3)	23.84
FERRIC OXIDE %	(FE2O3)	7.04
TITANIUM DIOXIDE %	(TIO2)	0.74
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.30
CALCIUM OXIDE %	(CAO)	1.36
MAGNESIUM OXIDE %	(MGO)	2.06
SULPHUR TRIOXIDE %	(SO3)	0.45
SODIUM OXIDE %	(NA2O)	1.26
POTASSIUM OXIDE %	(K2O)	1.46

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP5 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 14/02/84

PYRITE	%	51.00
SULPHATE	%	1.00
ORGANIC	%	48.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	3.66	3.09
0.60	0.15	1.80	0.24	0.03
0.15	0.00	90.00	3.10	0.14

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 12/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	1.08
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.42	FSI	__._
ASH %	21.96	HGI	___._
VOLATILE MATTER %	7.82	CO2 %	0.99
FIXED CARBON %	68.80		

GROSS CALORIFIC VALUE (MJ/KG) 25.70
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.42
CARBON	%	68.81
HYDROGEN	%	2.21
SULPHUR	%	1.08
NITROGEN	%	0.67
ASH	%	21.96
OXYGEN	%	3.85

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 10/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1200.0	INITIAL TEMP.(C)	1135.0
SOFTENING TEMP.(C)	1300.0	SOFTENING TEMP.(C)	1250.0
HEMISPHERICAL TEMP.(C)	1330.0	HEMISPHERICAL TEMP.(C)	1285.0
FLUID TEMP.(C)	1380.0	FLUID TEMP.(C)	1300.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 27/01/84

SILICON DIOXIDE %	(SIO2)	53.43
ALUMINIUM OXIDE %	(AL2O3)	22.34
FERRIC OXIDE %	(FE2O3)	9.41
TITANIUM DIOXIDE %	(TIO2)	1.04
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.29
CALCIUM OXIDE %	(CAO)	3.05
MAGNESIUM OXIDE %	(MGO)	2.09
SULPHUR TRIOXIDE %	(SO3)	0.75
SODIUM OXIDE %	(NA2O)	1.01
POTASSIUM OXIDE %	(K2O)	1.11

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 8
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 14/02/84

PYRITE	%	23.00
SULPHATE	%	1.00
ORGANIC	%	75.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 13/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRDDH83001 SEAM - E SAMPLE ID - 6372 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	79.95	9.35	79.95	9.35	20.05	44.63	29.99	29.99
2.60	20.05	44.63	100.00	16.42			14.70	26.92

GCRI COAL DIVISION | HEAD | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 | DATE ANALYSED 20/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.45
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00847
		SPECIFIC GRAVITY	1.54
RESIDUAL MOISTURE %	1.41	FSI	__._
ASH %	17.43	HGI	53.0
VOLATILE MATTER %	6.32	CO2 %	3.69
FIXED CARBON %	74.84		

GROSS CALORIFIC VALUE (MJ/KG) 28.11
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | SIZE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 | DATE ANALYSED 17/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	74.78	19.78	__._	27.04	1.07	6.96	0.43
0.60	0.15	17.45	12.89	__._	29.46	1.16	6.00	0.44
0.15	0.00	7.77	17.79	__._	27.55	1.50	6.15	0.43

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.41
CARBON	%	75.04
HYDROGEN	%	2.13
SULPHUR	%	0.45
NITROGEN	%	0.77
ASH	%	17.43
OXYGEN	%	2.77

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 16/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1195.0	INITIAL TEMP.(C)	1180.0
SOFTENING TEMP.(C)	1230.0	SOFTENING TEMP.(C)	1205.0
HEMISPHERICAL TEMP.(C)	1250.0	HEMISPHERICAL TEMP.(C)	1225.0
FLUID TEMP.(C)	1275.0	FLUID TEMP.(C)	1245.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 23/11/83

SILICON DIOXIDE %	(SIO2)	44.37
ALUMINIUM OXIDE %	(AL2O3)	17.81
FERRIC OXIDE %	(FE2O3)	8.63
TITANIUM DIOXIDE %	(TIO2)	0.49
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.09
CALCIUM OXIDE %	(CAO)	9.07
MAGNESIUM OXIDE %	(MGO)	5.20
SULPHUR TRIOXIDE %	(SO3)	4.84
SODIUM OXIDE %	(NA2O)	1.00
POTASSIUM OXIDE %	(K2O)	0.62

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/11/83

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

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DATA SOURCE - KPNLRDDH83001 SEAM - SEAM E SAMPLE ID - 9 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 74.78 ASH % - 19.78

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	23.91	3.31	23.91	3.31	76.09	24.20		
1.50	20.28	8.75	44.19	5.81	55.81	29.81		
1.55	16.76	13.36	60.95	7.88	39.05	36.87		
1.60	3.85	16.78	64.80	8.41	35.20	39.07		
1.70	11.63	21.53	76.43	10.41	23.57	47.72		
1.80	4.82	29.81	81.25	11.56	18.75	52.33		
1.90	3.16	34.24	84.41	12.41	15.59	55.99		
2.10	4.04	39.70	88.45	13.65	11.55	61.69		
2.60	11.55	61.69	100.00	19.20				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 17.45 ASH % - 12.89

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	40.03	3.31	40.03	3.31	59.97	19.82		
1.50	17.64	6.92	57.67	4.41	42.33	25.20		
1.55	16.21	15.71	73.88	6.89	26.12	31.08		
1.70	14.29	16.17	88.17	8.40	11.83	49.10		
1.80	2.48	26.28	90.65	8.89	9.35	55.15		
1.90	1.38	31.37	92.03	9.22	7.97	59.27		
2.00	1.07	36.35	93.10	9.53	6.90	62.82		
2.10	0.56	39.97	93.66	9.72	6.34	64.84		
2.60	6.34	64.84	100.00	13.21				

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GULF CANADA RESOURCES INC. - COAL DIVISION

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DATA SOURCE - KPNLRDDH83001 SEAM - SEAM E SAMPLE ID - 9 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 7.77 ASH % - 17.79

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	66.40	10.11	66.40	10.11	33.60	32.50		
45.00	15.62	14.85	82.02	11.01	17.98	47.83		
60.00	4.36	24.35	86.38	11.69	13.62	55.34		
90.00	1.70	37.29	88.08	12.18	11.92	57.92		
300.00	11.92	57.92	100.00	17.63				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP2 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.48	26.98	20.18
0.60	0.15	1.51	10.63	1.85
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP2 | DATE ANALYSED 11/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.20
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.63	FSI	__._
ASH %	4.70	HGI	___._
VOLATILE MATTER %	5.14	CO2 %	0.15
FIXED CARBON %	89.53		

GROSS CALORIFIC VALUE (MJ/KG) 33.36
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP2 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.63
CARBON	%	89.70
HYDROGEN	%	2.62
SULPHUR	%	0.20
NITROGEN	%	0.72
ASH	%	4.70
OXYGEN	%	1.43

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1240.0
SOFTENING TEMP.(C)	1330.0	SOFTENING TEMP.(C)	1300.0
HEMISPHERICAL TEMP.(C)	1380.0	HEMISPHERICAL TEMP.(C)	1330.0
FLUID TEMP.(C)	1490.0	FLUID TEMP.(C)	1360.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 26/01/84

SILICON DIOXIDE %	(SIO2)	41.87
ALUMINIUM OXIDE %	(AL2O3)	29.31
FERRIC OXIDE %	(FE2O3)	5.64
TITANIUM DIOXIDE %	(TIO2)	1.31
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.98
CALCIUM OXIDE %	(CAO)	3.76
MAGNESIUM OXIDE %	(MGO)	2.49
SULPHUR TRIOXIDE %	(SO3)	0.91
SODIUM OXIDE %	(NA2O)	1.50
POTASSIUM OXIDE %	(K2O)	0.85

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP2 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 02/02/84

PYRITE	%	10.00
SULPHATE	%	5.00
ORGANIC	%	85.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.68	55.41	41.44
0.60	0.15	2.14	16.42	2.87
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 11/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.54
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.99	FSI	__._
ASH %	9.55	HGI	___._
VOLATILE MATTER %	6.65	CO2 %	0.52
FIXED CARBON %	82.81		

GROSS CALORIFIC VALUE (MJ/KG) 31.20
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.99
CARBON	%	82.92
HYDROGEN	%	2.57
SULPHUR	%	0.54
NITROGEN	%	0.73
ASH	%	9.55
OXYGEN	%	2.70

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 03/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1235.0
SOFTENING TEMP.(C)	1285.0	SOFTENING TEMP.(C)	1260.0
HEMISPHERICAL TEMP.(C)	1300.0	HEMISPHERICAL TEMP.(C)	1280.0
FLUID TEMP.(C)	1305.0	FLUID TEMP.(C)	1300.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 26/01/84

SILICON DIOXIDE %	(SIO2)	45.82
ALUMINIUM OXIDE %	(AL2O3)	22.32
FERRIC OXIDE %	(FE2O3)	6.11
TITANIUM DIOXIDE %	(TIO2)	0.43
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.99
CALCIUM OXIDE %	(CAO)	5.54
MAGNESIUM OXIDE %	(MGO)	3.60
SULPHUR TRIOXIDE %	(SO3)	2.86
SODIUM OXIDE %	(NA2O)	1.41
POTASSIUM OXIDE %	(K2O)	0.79

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK LR DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 01/02/84

PYRITE	%	2.00
SULPHATE	%	2.00
ORGANIC	%	96.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP5 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	2.60	47.80	35.80
0.60	0.15	2.10	5.71	1.00
0.15	0.00	300.00	7.77	7.77

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP5 | DATE ANALYSED 11/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.41
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.49	FSI	__._
ASH %	23.79	HGI	___._
VOLATILE MATTER %	8.98	CO2 %	3.84
FIXED CARBON %	65.74		

GROSS CALORIFIC VALUE (MJ/KG) 24.50
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP5 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.49
CARBON	%	66.61
HYDROGEN	%	1.96
SULPHUR	%	0.41
NITROGEN	%	0.58
ASH	%	23.79
OXYGEN	%	5.16

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP5
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 09/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1195.0	INITIAL TEMP.(C)	1170.0
SOFTENING TEMP.(C)	1215.0	SOFTENING TEMP.(C)	1190.0
HEMISPHERICAL TEMP.(C)	1230.0	HEMISPHERICAL TEMP.(C)	1210.0
FLUID TEMP.(C)	1240.0	FLUID TEMP.(C)	1235.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP5
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 26/01/84

SILICON DIOXIDE %	(SIO2)	44.78
ALUMINIUM OXIDE %	(AL2O3)	13.79
FERRIC OXIDE %	(FE2O3)	9.37
TITANIUM DIOXIDE %	(TIO2)	0.24
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.75
CALCIUM OXIDE %	(CAO)	10.27
MAGNESIUM OXIDE %	(MGO)	7.19
SULPHUR TRIOXIDE %	(SO3)	1.76
SODIUM OXIDE %	(NA2O)	0.90
POTASSIUM OXIDE %	(K2O)	0.71

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP5
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 02/02/84

PYRITE	%	10.00
SULPHATE	%	2.00
ORGANIC	%	88.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	5.35	4.00
0.60	0.15	___.__	___.__	0.00
0.15	0.00	300.00	7.77	7.77

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 11/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.44
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.91	FSI	__.__
ASH %	21.03	HGI	___.__
VOLATILE MATTER %	8.07	CO2 %	2.00
FIXED CARBON %	69.99		

GROSS CALORIFIC VALUE (MJ/KG) 26.11
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 09/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.91
CARBON	%	70.41
HYDROGEN	%	1.99
SULPHUR	%	0.44
NITROGEN	%	0.58
ASH	%	21.03
OXYGEN	%	4.64

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP6
SPLIT SAMPLE ID AF1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 03/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1225.0	INITIAL TEMP.(C)	1195.0
SOFTENING TEMP.(C)	1250.0	SOFTENING TEMP.(C)	1230.0
HEMISPHERICAL TEMP.(C)	1275.0	HEMISPHERICAL TEMP.(C)	1265.0
FLUID TEMP.(C)	1300.0	FLUID TEMP.(C)	1290.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP6
SPLIT SAMPLE ID AM1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 26/01/84

SILICON DIOXIDE %	(SIO2)	46.90
ALUMINIUM OXIDE %	(AL2O3)	21.09
FERRIC OXIDE %	(FE2O3)	9.56
TITANIUM DIOXIDE %	(TIO2)	0.23
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.83
CALCIUM OXIDE %	(CAO)	7.81
MAGNESIUM OXIDE %	(MGO)	5.56
SULPHUR TRIOXIDE %	(SO3)	3.29
SODIUM OXIDE %	(NA2O)	0.85
POTASSIUM OXIDE %	(K2O)	0.59

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK LR | DS DDH83001

SAMPLE ID 9
SAMPLE PRODUCT ID SP6
SPLIT SAMPLE ID SU1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 01/02/84

PYRITE	%	18.00
SULPHATE	%	2.00
ORGANIC	%	80.00

CONFIDENTIAL ANALYSES
FROM APPENDIX IV,
VOLUME III

DDH83003, WKD83002,
WKD83004

CONFIDENTIAL

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DDH 83003

CONFIDENTIAL

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - G UPPER SAMPLE ID - 6373 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	7.85	11.55	7.85	11.55	92.15	58.96	30.73	30.73
2.60	92.15	58.96	100.00	55.24			12.05	13.52

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - G LOWER SAMPLE ID - 6374 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	17.04	14.52	17.04	14.52	82.96	63.63	29.46	29.46
2.60	82.96	63.63	100.00	55.26			9.72	13.08

GCRI COAL DIVISION HEAD PROJ KPN BLK SS DS DDH83003

SAMPLE ID 10
SPLIT SAMPLE ID HD1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 24/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.38
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00519
		SPECIFIC GRAVITY	1.94
RESIDUAL MOISTURE %	1.62	FSI	__.__
ASH %	55.49	HGI	59.0
VOLATILE MATTER %	7.25	CO2 %	5.32
FIXED CARBON %	35.64		

GROSS CALORIFIC VALUE (MJ/KG) 13.05
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK SS DS DDH83003

SAMPLE ID 10
SPLIT SAMPLE ID SZ1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 18/10/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	88.43	55.30	__._	12.33	1.58	7.34	0.36
0.60	0.15	8.60	51.19	__._	15.06	1.60	6.58	0.39
0.15	0.00	2.97	58.54	__._	11.01	1.43	7.98	0.56

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK SS DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID UL1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 10/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.62
CARBON	%	38.33
HYDROGEN	%	1.43
SULPHUR	%	0.38
NITROGEN	%	0.34
ASH	%	55.49
OXYGEN	%	2.41

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 17/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1200.0
SOFTENING TEMP.(C)	1300.0	SOFTENING TEMP.(C)	1255.0
HEMISPHERICAL TEMP.(C)	1330.0	HEMISPHERICAL TEMP.(C)	1290.0
FLUID TEMP.(C)	1365.0	FLUID TEMP.(C)	1340.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 24/11/83

SILICON DIOXIDE %	(SIO2)	57.07
ALUMINIUM OXIDE %	(AL2O3)	18.23
FERRIC OXIDE %	(FE2O3)	6.06
TITANIUM DIOXIDE %	(TIO2)	0.48
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.47
CALCIUM OXIDE %	(CAO)	2.74
MAGNESIUM OXIDE %	(MGO)	2.72
SULPHUR TRIOXIDE %	(SO3)	1.28
SODIUM OXIDE %	(NA2O)	1.31
POTASSIUM OXIDE %	(K2O)	1.21

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/11/83

PYRITE	%	47.00
SULPHATE	%	3.00
ORGANIC	%	50.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - g lower SAMPLE ID - 10 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 88.43 ASH % - 55.30

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	2.92	2.83	2.92	2.83	97.08	56.22		
1.50	3.36	9.32	6.28	6.30	93.72	57.90		
1.55	2.05	10.48	8.33	7.33	91.67	58.96		
1.60	3.82	20.51	12.15	11.47	87.85	60.64		
1.70	5.32	25.90	17.47	15.87	82.53	62.87		
1.80	9.28	32.34	26.75	21.58	73.25	66.74		
1.90	8.39	38.82	35.14	25.70	64.86	70.35		
2.00	6.68	43.37	41.82	28.52	58.18	73.45		
2.10	3.68	47.44	45.50	30.05	54.50	75.21		
2.60	54.50	75.21	100.00	54.66				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 8.60 ASH % - 51.19

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	11.10	3.09	11.10	3.09	88.90	55.92		
1.50	5.86	8.39	16.96	4.92	83.04	59.27		
1.55	4.24	13.37	21.20	6.61	78.80	61.74		
1.60	3.86	17.04	25.06	8.22	74.94	64.05		
1.70	5.44	22.80	30.50	10.82	69.50	67.28		
1.80	5.20	29.07	35.70	13.48	64.30	70.37		
1.90	5.48	35.20	41.18	16.37	58.82	73.64		
2.00	4.90	41.69	46.08	19.06	53.92	76.55		
2.10	4.68	48.09	50.76	21.74	49.24	79.25		
2.60	49.24	79.25	100.00	50.06				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - g lower SAMPLE ID - 10 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 2.97 ASH % - 58.54

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	40.22	31.09	40.22	31.09	59.78	76.78		
45.00	5.10	41.92	45.32	32.31	54.68	80.03		
60.00	1.28	46.29	46.60	32.69	53.40	80.84		
300.00	53.40	80.84	100.00	58.40				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.58	8.76	7.75
0.60	0.15	1.67	2.40	0.21
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 12/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.58
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.76	FSI	__._
ASH %	9.45	HGI	37.0
VOLATILE MATTER %	5.73	CO2 %	0.29
FIXED CARBON %	84.06		

GROSS CALORIFIC VALUE (MJ/KG) 31.48
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.76
CARBON	%	83.98
HYDROGEN	%	2.50
SULPHUR	%	0.58
NITROGEN	%	0.95
ASH	%	9.45
OXYGEN	%	1.78

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 13/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1220.0	INITIAL TEMP.(C)	1145.0
SOFTENING TEMP.(C)	1305.0	SOFTENING TEMP.(C)	1225.0
HEMISPHERICAL TEMP.(C)	1330.0	HEMISPHERICAL TEMP.(C)	1265.0
FLUID TEMP.(C)	1340.0	FLUID TEMP.(C)	1275.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 27/01/84

SILICON DIOXIDE %	(SIO2)	55.61
ALUMINIUM OXIDE %	(AL2O3)	25.30
FERRIC OXIDE %	(FE2O3)	6.80
TITANIUM DIOXIDE %	(TIO2)	2.22
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.17
CALCIUM OXIDE %	(CAO)	2.08
MAGNESIUM OXIDE %	(MGO)	2.79
SULPHUR TRIOXIDE %	(SO3)	0.61
SODIUM OXIDE %	(NA2O)	0.80
POTASSIUM OXIDE %	(K2O)	1.13

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 14/02/84

PYRITE	%	10.00
SULPHATE	%	2.00
ORGANIC	%	88.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.70	6.02	5.32
0.60	0.15	1.80	0.50	0.04
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 12/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.61
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.73	FSI	__._
ASH %	23.01	HGI	43.0
VOLATILE MATTER %	7.33	CO2 %	0.81
FIXED CARBON %	67.93		

GROSS CALORIFIC VALUE (MJ/KG) 25.15
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.73
CARBON	%	67.98
HYDROGEN	%	1.88
SULPHUR	%	0.61
NITROGEN	%	0.69
ASH	%	23.01
OXYGEN	%	4.10

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 13/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1180.0	INITIAL TEMP.(C)	1155.0
SOFTENING TEMP.(C)	1300.0	SOFTENING TEMP.(C)	1270.0
HEMISPHERICAL TEMP.(C)	1335.0	HEMISPHERICAL TEMP.(C)	1315.0
FLUID TEMP.(C)	1375.0	FLUID TEMP.(C)	1370.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 06/02/84

SILICON DIOXIDE %	(SIO2)	65.07
ALUMINIUM OXIDE %	(AL2O3)	18.95
FERRIC OXIDE %	(FE2O3)	4.48
TITANIUM DIOXIDE %	(TIO2)	1.06
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.92
CALCIUM OXIDE %	(CAO)	2.73
MAGNESIUM OXIDE %	(MGO)	2.94
SULPHUR TRIOXIDE %	(SO3)	0.42
SODIUM OXIDE %	(NA2O)	0.85
POTASSIUM OXIDE %	(K2O)	1.21

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 10
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 15/02/84

PYRITE	%	16.00
SULPHATE	%	2.00
ORGANIC	%	82.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - E UPPER SAMPLE ID - 6375 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	20.22	14.25	20.22	14.25	79.78	75.06	29.46	29.46
2.60	79.78	75.06	100.00	62.76			6.63	11.25

GCRI COAL DIVISION | HEAD | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SPLIT SAMPLE ID HD1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 25/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.62
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00350
		SPECIFIC GRAVITY	2.02
RESIDUAL MOISTURE %	1.38	FSI	__._
ASH %	61.14	HGI	63.0
VOLATILE MATTER %	5.55	CO2 %	3.58
FIXED CARBON %	31.93		

GROSS CALORIFIC VALUE (MJ/KG) 10.44
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | SIZE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SPLIT SAMPLE ID SZ1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 18/10/83

FRACTION SIZE ROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	86.48	64.60	__._	9.00	1.45	5.59	0.57
0.60	0.15	9.06	46.68	__._	17.50	1.43	6.03	0.62
0.15	0.00	4.46	52.31	__._	12.59	1.43	6.66	0.60

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID UL1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 10/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.38
CARBON	%	32.90
HYDROGEN	%	1.32
SULPHUR	%	0.62
NITROGEN	%	0.29
ASH	%	61.14
OXYGEN	%	2.35

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK SS | DS DDH83003

`AMPLE ID 11
,AMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 17/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1195.0
SOFTENING TEMP.(C)	1305.0	SOFTENING TEMP.(C)	1265.0
HEMISPHERICAL TEMP.(C)	1350.0	HEMISPHERICAL TEMP.(C)	1285.0
FLUID TEMP.(C)	1380.0	FLUID TEMP.(C)	1340.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/83

SILICON DIOXIDE %	(SIO2)	61.17
ALUMINIUM OXIDE %	(AL2O3)	19.58
FERRIC OXIDE %	(FE2O3)	4.54
TITANIUM DIOXIDE %	(TIO2)	0.57
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.98
CALCIUM OXIDE %	(CAO)	2.24
MAGNESIUM OXIDE %	(MGO)	1.61
SULPHUR TRIOXIDE %	(SO3)	1.03
SODIUM OXIDE %	(NA2O)	1.51
POTASSIUM OXIDE %	(K2O)	1.36

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/11/83

PYRITE	%	72.00
SULPHATE	%	2.00
ORGANIC	%	26.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - e upper SAMPLE ID - 11 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 86.48 ASH % - 64.60

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	0.82	5.35	0.82	5.35	99.18	64.79		
1.50	3.56	6.26	4.38	6.09	95.62	66.97		
1.55	4.60	10.80	8.98	8.50	91.02	69.81		
1.60	4.34	18.57	13.32	11.78	86.68	72.37		
1.70	6.48	22.35	19.80	15.24	80.20	76.41		
1.80	5.18	28.60	24.98	18.01	75.02	79.72		
1.90	4.66	36.52	29.64	20.92	70.36	82.58		
2.00	4.07	41.92	33.71	23.46	66.29	85.07		
2.10	2.27	47.95	35.98	25.00	64.02	86.39		
2.60	64.02	86.39	100.00	64.30				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.16 RELATIVE WEIGHT % - 9.06 ASH % - 46.68

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	2.73	2.22	2.73	2.22	97.27	46.82		
1.50	12.69	5.84	15.42	5.20	84.58	52.96		
1.55	7.05	11.89	22.47	7.30	77.53	56.70		
1.60	8.14	14.30	30.61	9.16	69.39	61.67		
1.70	8.62	20.84	39.23	11.73	60.77	67.46		
1.80	5.54	26.88	44.77	13.60	55.23	71.53		
1.90	5.58	32.99	50.35	15.75	49.65	75.87		
2.00	4.43	40.75	54.78	17.77	45.22	79.31		
2.10	1.74	46.25	56.52	18.65	43.48	80.63		
2.60	43.48	80.63	100.00	45.60				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - e upper SAMPLE ID - 11 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 4.46 ASH % - 52.31

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	37.35	23.58	37.35	23.58	62.65	69.07		
45.00	6.72	29.74	44.07	24.52	55.93	73.80		
60.00	2.28	36.06	46.35	25.09	53.65	75.40		
90.00	2.59	48.05	48.94	26.30	51.06	76.79		
300.00	51.06	76.79	100.00	52.08				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.57	9.31	8.05
0.60	0.15	1.63	3.03	0.27
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 | DATE ANALYSED 13/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.63
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.78	FSI	__.-
ASH %	9.45	HGI	___.-
VOLATILE MATTER %	5.93	CO2 %	0.59
FIXED CARBON %	83.84		

GROSS CALORIFIC VALUE (MJ/KG) 31.26
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP3 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.78
CARBON	%	84.04
HYDROGEN	%	2.50
SULPHUR	%	0.63
NITROGEN	%	0.82
ASH	%	9.45
OXYGEN	%	1.78

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 11
AMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 14/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1185.0	INITIAL TEMP.(C)	1130.0
SOFTENING TEMP.(C)	1245.0	SOFTENING TEMP.(C)	1190.0
HEMISPHERICAL TEMP.(C)	1270.0	HEMISPHERICAL TEMP.(C)	1220.0
FLUID TEMP.(C)	1330.0	FLUID TEMP.(C)	1280.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 06/02/84

SILICON DIOXIDE %	(SIO2)	46.44
ALUMINIUM OXIDE %	(AL2O3)	22.55
FERRIC OXIDE %	(FE2O3)	10.90
TITANIUM DIOXIDE %	(TIO2)	2.61
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.98
CALCIUM OXIDE %	(CAO)	4.33
MAGNESIUM OXIDE %	(MGO)	3.02
SULPHUR TRIOXIDE %	(SO3)	2.53
SODIUM OXIDE %	(NA2O)	1.71
POTASSIUM OXIDE %	(K2O)	1.12

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 15/02/84

PYRITE	%	13.00
SULPHATE	%	1.00
ORGANIC	%	86.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.80	12.26	10.60
0.60	0.15	1.90	1.63	0.15
0.15	0.00	90.00	2.18	0.10

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 13/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	1.32
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.71	FSI	__._
ASH %	23.24	HGI	___._
VOLATILE MATTER %	8.22	CO2 %	1.08
FIXED CARBON %	66.83		

GROSS CALORIFIC VALUE (MJ/KG) 24.96
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.71
CARBON	%	66.87
HYDROGEN	%	1.79
SULPHUR	%	1.32
NITROGEN	%	0.69
ASH	%	23.24
OXYGEN	%	4.38

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 14/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1185.0	INITIAL TEMP.(C)	1160.0
SOFTENING TEMP.(C)	1265.0	SOFTENING TEMP.(C)	1215.0
HEMISPHERICAL TEMP.(C)	1290.0	HEMISPHERICAL TEMP.(C)	1250.0
FLUID TEMP.(C)	1370.0	FLUID TEMP.(C)	1260.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 13/02/84

SILICON DIOXIDE %	(SIO2)	54.15
ALUMINIUM OXIDE %	(AL2O3)	22.66
FERRIC OXIDE %	(FE2O3)	7.06
TITANIUM DIOXIDE %	(TIO2)	1.23
PHOSPHOROUS PENTOXIDE %	(P2O5)	2.05
CALCIUM OXIDE %	(CAO)	4.24
MAGNESIUM OXIDE %	(MGO)	2.55
SULPHUR TRIOXIDE %	(SO3)	1.29
SODIUM OXIDE %	(NA2O)	1.82
POTASSIUM OXIDE %	(K2O)	1.19

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH83003

SAMPLE ID 11
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 15/02/84

PYRITE	%	7.00
SULPHATE	%	1.00
ORGANIC	%	92.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - E LOWER SAMPLE ID - 6376 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	54.69	14.23	54.69	14.23	45.31	56.03	29.38	29.38
2.60	45.31	56.03	100.00	33.17			13.08	21.99

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - E LOWER SAMPLE ID - 6377 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.00 RELATIVE WEIGHT % - 100.00 ASH % -

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.70	9.03	14.37	9.03	14.37	90.97	71.25	29.35	29.35
2.60	90.97	71.25	100.00	66.11			7.24	9.24

GCRI COAL DIVISION | HEAD | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SPLIT SAMPLE ID HD1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 26/10/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	1.24
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	00559
		SPECIFIC GRAVITY	1.90
RESIDUAL MOISTURE %	1.49	FSI	__.__
ASH %	52.42	HGI	67.0
VOLATILE MATTER %	6.71	CO2 %	4.81
FIXED CARBON %	39.38		

GROSS CALORIFIC VALUE (MJ/KG) 13.98
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | SIZE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SPLIT SAMPLE ID SZ1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 18/10/83

FRACTION SIZE ROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	84.64	53.67	__._	13.32	1.52	6.44	1.34
0.60	0.15	9.89	46.76	__._	16.57	1.44	6.50	1.16
0.15	0.00	5.47	51.46	__._	14.11	1.38	7.11	1.07

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP1
SPLIT SAMPLE ID UL1
DATA TYPE (REAL,BORO,AVER,CALC) REAL
DATE ANALYSED 10/11/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.49
CARBON	%	40.06
HYDROGEN	%	1.42
SULPHUR	%	1.24
NITROGEN	%	0.38
ASH	%	52.42
OXYGEN	%	2.99

GCRI COAL DIVISION | ASH FUSION | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 17/11/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1260.0	INITIAL TEMP.(C)	1205.0
SOFTENING TEMP.(C)	1320.0	SOFTENING TEMP.(C)	1250.0
HEMISPHERICAL TEMP.(C)	1335.0	HEMISPHERICAL TEMP.(C)	1285.0
FLUID TEMP.(C)	1360.0	FLUID TEMP.(C)	1320.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 25/11/83

SILICON DIOXIDE %	(SIO2)	55.30
ALUMINIUM OXIDE %	(AL2O3)	19.49
FERRIC OXIDE %	(FE2O3)	6.11
TITANIUM DIOXIDE %	(TIO2)	0.52
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.55
CALCIUM OXIDE %	(CAO)	3.04
MAGNESIUM OXIDE %	(MGO)	2.57
SULPHUR TRIOXIDE %	(SO3)	2.20
SODIUM OXIDE %	(NA2O)	1.49
POTASSIUM OXIDE %	(K2O)	1.26

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN BLK SS DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 08/11/83

PYRITE	%	80.00
SULPHATE	%	1.00
ORGANIC	%	19.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - e lower SAMPLE ID - 12 WASHABILITY ID - WA2

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 84.64 ASH % - 53.67

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	1.11	5.06	1.11	5.06	98.89	53.41		
1.50	5.57	6.92	6.68	6.61	93.32	56.19		
1.55	5.01	12.43	11.69	9.10	88.31	58.67		
1.60	8.49	16.36	20.18	12.16	79.82	63.17		
1.70	7.93	22.96	28.11	15.20	71.89	67.61		
1.80	5.98	30.48	34.09	17.88	65.91	70.98		
1.90	6.15	36.89	40.24	20.79	59.76	74.49		
2.00	4.67	42.30	44.91	23.03	55.09	77.21		
2.10	2.89	48.03	47.80	24.54	52.20	78.83		
2.60	52.20	78.83	100.00	52.88				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 9.89 ASH % - 46.76

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.45	3.56	2.07	3.56	2.07	96.44	47.27		
1.50	12.29	6.07	15.85	5.17	84.15	53.28		
1.55	6.52	11.18	22.37	6.92	77.63	56.82		
1.60	7.74	16.41	30.11	9.36	69.89	61.29		
1.70	7.71	21.62	37.82	11.86	62.18	66.21		
1.80	5.97	27.84	43.79	14.04	56.21	70.29		
1.90	5.71	33.82	49.50	16.32	50.50	74.41		
2.00	4.44	40.86	53.94	18.34	46.06	77.65		
2.10	2.14	46.01	56.08	19.40	43.92	79.19		
2.60	43.92	79.19	100.00	45.66				

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 15/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNSSDDH83003 SEAM - e lower SAMPLE ID - 12 WASHABILITY ID - WA1

ANALYSIS TYPE - FROTH

FRACTION SIZE(MM) 0.15 X 0.00 RELATIVE WEIGHT % - 5.47 ASH % - 51.46

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
30.00	46.20	27.02	46.20	27.02	53.80	71.33		
45.00	5.26	38.80	51.46	28.22	48.54	74.85		
60.00	1.27	42.83	52.73	28.58	47.27	75.71		
90.00	1.54	49.61	54.27	29.17	45.73	76.59		
300.00	45.73	76.59	100.00	50.86				

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK SS | DS DDH83003

AMPLE ID 12 SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP3 SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.56	11.33	9.59
0.60	0.15	1.62	3.13	0.31
0.15	0.00	___.__	___.__	0.00

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP3 DATE ANALYSED 13/01/84
SPLIT SAMPLE ID CC1 ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.58
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	0.67	FSI	__._
^SH %	8.97	HGI	___._
JLATILE MATTER %	4.89	CO2 %	0.20
FIXED CARBON %	85.47		

GROSS CALORIFIC VALUE (MJ/KG) 31.56
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	0.67
CARBON	%	85.25
HYDROGEN	%	2.27
SULPHUR	%	0.58
NITROGEN	%	0.89
ASH	%	8.97
OXYGEN	%	1.37

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK SS DS DDH83003

AMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 15/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1250.0	INITIAL TEMP.(C)	1195.0
SOFTENING TEMP.(C)	1395.0	SOFTENING TEMP.(C)	1325.0
HEMISPHERICAL TEMP.(C)	1435.0	HEMISPHERICAL TEMP.(C)	1360.0
FLUID TEMP.(C)	1500.0	FLUID TEMP.(C)	1430.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK SS DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 13/02/84

SILICON DIOXIDE %	(SIO2)	50.00
ALUMINIUM OXIDE %	(AL2O3)	26.64
FERRIC OXIDE %	(FE2O3)	3.39
TITANIUM DIOXIDE %	(TIO2)	2.02
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.56
CALCIUM OXIDE %	(CAO)	3.19
MAGNESIUM OXIDE %	(MGO)	1.90
SULPHUR TRIOXIDE %	(SO3)	1.40
SODIUM OXIDE %	(NA2O)	1.75
POTASSIUM OXIDE %	(K2O)	2.06

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION SULPHUR PROJ KPN BLK SS DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP3 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 15/02/84

PYRITE	%	7.00
SULPHATE	%	2.00
ORGANIC	%	91.00

GCRI COAL DIVISION | SAMPLE PRODUCT | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12 | SAMPLE PRODUCT TYPE (CLEAN,RAW) CLEAN
SAMPLE PRODUCT ID SP6 | SAMPLE WEIGHT (KG) __.__

FRACTION SIZE FROM (MM)	FRACTION SIZE TO (MM)	CUTPOINT	YIELD/FRACTION%	YIELD/FRACTION% RELATIVE TO TOTAL SAMPLE
10.00	0.60	1.90	22.72	19.23
0.60	0.15	1.80	1.20	0.12
0.15	0.00	30.00	2.53	0.14

GCRI COAL DIVISION | COALCOMP | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SAMPLE PRODUCT ID SP6 | DATE ANALYSED 13/01/84
SPLIT SAMPLE ID CC1 | ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

SURFACE MOISTURE %	__.__	TOTAL SULPHUR %	0.92
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE	1.11	FSI	__._
ASH %	24.88	HGI	___._
VOLATILE MATTER %	6.95	CO2 %	0.84
FIXED CARBON %	67.06		

GROSS CALORIFIC VALUE (MJ/KG) 24.98
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION | ULTIMATE | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP6 | DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 | DATE ANALYSED 10/02/84

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.11
CARBON	%	67.38
HYDROGEN	%	1.96
SULPHUR	%	0.92
NITROGEN	%	0.60
ASH	%	24.88
OXYGEN	%	3.15

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 15/02/84

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1195.0	INITIAL TEMP.(C)	1170.0
SOFTENING TEMP.(C)	1310.0	SOFTENING TEMP.(C)	1250.0
HEMISPHERICAL TEMP.(C)	1340.0	HEMISPHERICAL TEMP.(C)	1300.0
FLUID TEMP.(C)	1360.0	FLUID TEMP.(C)	1345.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 13/02/84

SILICON DIOXIDE %	(SIO2)	57.54
ALUMINIUM OXIDE %	(AL2O3)	23.38
FERRIC OXIDE %	(FE2O3)	5.54
TITANIUM DIOXIDE %	(TIO2)	1.18
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.25
CALCIUM OXIDE %	(CAO)	3.88
MAGNESIUM OXIDE %	(MGO)	1.89
SULPHUR TRIOXIDE %	(SO3)	2.06
SODIUM OXIDE %	(NA2O)	1.66
POTASSIUM OXIDE %	(K2O)	1.56

90.0 <= TOTAL <= 100.0

GCRI COAL DIVISION | SULPHUR | PROJ KPN | BLK SS | DS DDH83003

SAMPLE ID 12
SAMPLE PRODUCT ID SP6 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SU1 DATE ANALYSED 15/02/84

PYRITE	%	10.00
SULPHATE	%	1.00
ORGANIC	%	89.00

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 16/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRWKD83002 SEAM - SAMPLE ID - 6352 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 91.70 ASH % - 17.20

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.40	0.20	2.90	0.20	2.90	99.80	17.23		
1.50	44.60	4.80	44.80	4.79	55.20	27.27		
1.60	29.60	11.10	74.40	7.30	25.60	45.97		
1.70	10.30	22.70	84.70	9.17	15.30	61.63		
1.80	4.40	33.50	89.10	10.38	10.90	72.98		
1.90	1.60	42.50	90.70	10.94	9.30	78.23		
2.00	1.00	52.30	91.70	11.39	8.30	81.35		
2.10	1.00	62.00	92.70	11.94	7.30	84.00		
2.60	7.30	84.00	100.00	17.20				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 6.00 ASH % - 39.00

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	15.80	2.60	15.80	2.60	84.20	45.83		
1.60	21.70	7.20	37.50	5.26	62.50	59.25		
1.70	13.30	14.40	50.80	7.65	49.20	71.37		
1.80	6.70	23.20	57.50	9.47	42.50	78.96		
1.90	4.20	35.00	61.70	11.20	38.30	83.79		
2.00	2.50	46.90	64.20	12.59	35.80	86.36		
2.10	3.30	58.40	67.50	14.83	32.50	89.20		
2.60	32.50	89.20	100.00	39.00				

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06352 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 04/08/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	4.30	TOTAL SULPHUR %	0.45
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE %	1.70	FSI	__._
ASH %	19.10	HGI	___._
VOLATILE MATTER %	7.70	CO2 %	__.__
FIXED CARBON %	71.50		

GROSS CALORIFIC VALUE (MJ/KG) 26.33
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06352 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 04/08/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	91.70	__.__	__._	__.__	__.__	__.__	__.__
0.60	0.15	6.00	__.__	__._	__.__	__.__	__.__	__.__
0.15	0.00	2.30	__.__	__._	__.__	__.__	__.__	__.__

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06352
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 04/08/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.65
CARBON	%	70.56
HYDROGEN	%	2.32
SULPHUR	%	0.45
NITROGEN	%	0.57
ASH	%	19.10
OXYGEN	%	5.35

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06352
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 04/08/82

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1360.0	INITIAL TEMP.(C)	1305.0
SOFTENING TEMP.(C)	1390.0	SOFTENING TEMP.(C)	1370.0
HEMISPHERICAL TEMP.(C)	1450.0	HEMISPHERICAL TEMP.(C)	1420.0
FLUID TEMP.(C)	1525.0	FLUID TEMP.(C)	1500.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06352
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 04/08/83

SILICON DIOXIDE %	(SIO2)	68.22
ALUMINIUM OXIDE %	(AL2O3)	18.01
FERRIC OXIDE %	(FE2O3)	4.46
TITANIUM DIOXIDE %	(TIO2)	0.72
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.39
CALCIUM OXIDE %	(CAO)	1.31
MAGNESIUM OXIDE %	(MGO)	1.53
SULPHUR TRIOXIDE %	(SO3)	0.55
SODIUM OXIDE %	(NA2O)	1.17
POTASSIUM OXIDE %	(K2O)	1.40

90.0 <= TOTAL <= 100.0

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GULF CANADA RESOURCES INC. - COAL DIVISION

MAR 16/84 WASHABILITY REPORT 1 PAGE -

DATA SOURCE - KPNLRWKD83002 SEAM - SAMPLE ID - 6353 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 90.00 ASH % - 17.19

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	60.00	4.70	60.00	4.70	40.00	35.92		
1.60	17.80	11.90	77.80	6.35	22.20	55.18		
1.70	6.60	22.30	84.40	7.59	15.60	69.09		
1.80	3.00	32.30	87.40	8.44	12.60	77.85		
1.90	1.40	41.10	88.80	8.96	11.20	82.45		
2.00	0.90	49.20	89.70	9.36	10.30	85.35		
2.10	1.30	61.50	91.00	10.11	9.00	88.80		
2.60	9.00	88.80	100.00	17.19				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 6.90 ASH % - 63.18

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	10.10	2.80	10.10	2.80	89.90	69.97		
1.60	9.70	6.50	19.80	4.61	80.20	77.64		
1.70	5.20	12.70	25.00	6.29	75.00	82.15		
1.80	3.10	21.00	28.10	7.92	71.90	84.78		
1.90	1.60	32.30	29.70	9.23	70.30	85.98		
2.00	0.80	44.10	30.50	10.15	69.50	86.46		
2.10	1.00	56.30	31.50	11.61	68.50	86.90		
2.60	68.50	86.90	100.00	63.18				

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06353 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 04/08/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	3.60	TOTAL SULPHUR %	0.41
TOTAL MOISTURE %	--.--	PHOSPHOROUS %	-.---
EQUILIBRIUM MOISTURE %	--.--	CHLORINE (PPM)	------
		SPECIFIC GRAVITY	-.--
RESIDUAL MOISTURE %	1.70	FSI	--.-
ASH %	22.10	HGI	---.-
VOLATILE MATTER %	7.50	CO2 %	--.--
FIXED CARBON %	68.70		

GROSS CALORIFIC VALUE (MJ/KG) 24.92
NET CALORIFIC VALUE (MJ/KG) --.--

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06353 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 04/08/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	90.00	--.--	--.-	--.--	--.--	--.--	--.--
0.60	0.15	6.90	--.--	--.-	--.--	--.--	--.--	--.--
0.15	0.00	3.10	--.--	--.-	--.--	--.--	--.--	--.--

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS WKD83002

SAMPLE ID 06353
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 04/08/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.68
CARBON	%	70.80
HYDROGEN	%	2.21
SULPHUR	%	0.41
NITROGEN	%	0.54
ASH	%	22.10
OXYGEN	%	2.26

GCRI COAL DIVISION | ASH FUSION | PROJ KPN | BLK LR | DS WKDS3002

SAMPLE ID 06353
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 04/08/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1280.0	INITIAL TEMP.(C)	1265.0
SOFTENING TEMP.(C)	1385.0	SOFTENING TEMP.(C)	1370.0
HEMISPHERICAL TEMP.(C)	1420.0	HEMISPHERICAL TEMP.(C)	1390.0
FLUID TEMP.(C)	1460.0	FLUID TEMP.(C)	1440.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION | ASH MINERAL | PROJ KPN | BLK LR | DS WKDS3002

SAMPLE ID 06353
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 04/08/83

SILICON DIOXIDE %	(SIO2)	60.30
ALUMINIUM OXIDE %	(AL2O3)	22.42
FERRIC OXIDE %	(FE2O3)	6.11
TITANIUM DIOXIDE %	(TIO2)	1.08
PHOSPHOROUS PENTOXIDE %	(P2O5)	1.58
CALCIUM OXIDE %	(CAO)	1.78
MAGNESIUM OXIDE %	(MGO)	1.89
SULPHUR TRIOXIDE %	(SO3)	0.30
SODIUM OXIDE %	(NA2O)	1.53
POTASSIUM OXIDE %	(K2O)	1.55

90.0 <= TOTAL <= 100.0

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GULF CANADA RESOURCES INC. - COAL DIVISION

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DATA SOURCE - KPNLRWKD83004 SEAM - SAMPLE ID - 6354 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 89.70 ASH % - 14.63

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	66.10	5.40	66.10	5.40	33.90	32.63		
1.60	20.40	21.30	86.50	9.15	13.50	49.75		
1.70	3.80	27.70	90.30	9.93	9.70	58.39		
1.80	2.60	34.70	92.90	10.62	7.10	67.06		
1.90	1.10	44.00	94.00	11.01	6.00	71.29		
2.00	1.40	51.20	95.40	11.60	4.60	77.40		
2.10	1.20	62.40	96.60	12.23	3.40	82.70		
2.60	3.40	82.70	100.00	14.63				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 6.20 ASH % - 21.44

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	30.10	2.30	30.10	2.30	69.90	29.68		
1.60	28.20	6.30	58.30	4.23	41.70	45.48		
1.70	11.70	15.50	70.00	6.12	30.00	57.18		
1.80	7.80	21.30	77.80	7.64	22.20	69.78		
1.90	4.80	32.90	82.60	9.11	17.40	79.96		
2.00	1.00	44.40	83.60	9.53	16.40	82.12		
2.10	1.90	53.30	85.50	10.50	14.50	85.90		
2.60	14.50	85.90	100.00	21.44				

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06354 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 04/08/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	4.50	TOTAL SULPHUR %	0.48
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE %	1.40	FSI	__._
ASH %	15.70	HGI	___._
VOLATILE MATTER %	6.30	CO2 %	__.__
FIXED CARBON %	76.60		

GROSS CALORIFIC VALUE (MJ/KG) 28.15
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06354 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 04/08/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	89.70	__.__	__._	__.__	__.__	__.__	__.__
0.60	0.15	6.20	__.__	__._	__.__	__.__	__.__	__.__
0.60	0.00	4.10	__.__	__._	__.__	__.__	__.__	__.__

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06354
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 04/08/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.40
CARBON	%	76.54
HYDROGEN	%	2.41
SULPHUR	%	0.48
NITROGEN	%	0.43
ASH	%	15.70
OXYGEN	%	3.04

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06354
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 04/08/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1411.0	INITIAL TEMP.(C)	1366.0
SOFTENING TEMP.(C)	1439.0	SOFTENING TEMP.(C)	1406.0
HEMISPHERICAL TEMP.(C)	1466.0	HEMISPHERICAL TEMP.(C)	1414.0
FLUID TEMP.(C)	1534.0	FLUID TEMP.(C)	1520.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06354
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 04/08/83

SILICON DIOXIDE %	(SIO2)	65.36
ALUMINIUM OXIDE %	(AL2O3)	20.54
FERRIC OXIDE %	(FE2O3)	5.98
TITANIUM DIOXIDE %	(TIO2)	0.94
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.39
CALCIUM OXIDE %	(CAO)	0.74
MAGNESIUM OXIDE %	(MGO)	1.38
SULPHUR TRIOXIDE %	(SO3)	0.06
SODIUM OXIDE %	(NA2O)	1.29
POTASSIUM OXIDE %	(K2O)	1.49

90.0 <= TOTAL <= 100.0

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GULF CANADA RESOURCES INC. - COAL DIVISION

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DATA SOURCE - KPNLRWKD83004 SEAM - SAMPLE ID - 6355 WASHABILITY ID - WA1

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 10.00 X 0.60 RELATIVE WEIGHT % - 91.70 ASH % - 30.12

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	45.50	4.40	45.50	4.40	54.50	51.59		
1.60	17.10	14.50	62.60	7.16	37.40	68.54		
1.70	3.50	24.60	66.10	8.08	33.90	73.08		
1.80	3.00	29.70	69.10	9.02	30.90	77.29		
1.90	2.10	39.70	71.20	9.93	28.80	80.03		
2.00	2.50	48.60	73.70	11.24	26.30	83.02		
2.10	3.00	59.10	76.70	13.11	23.30	86.10		
2.60	23.30	86.10	100.00	30.12				

ANALYSIS TYPE - FLOAT

FRACTION SIZE(MM) 0.60 X 0.15 RELATIVE WEIGHT % - 6.00 ASH % - 25.07

S.G.TME	ELEMENTAL WT%	ELEMENTAL ASH%	CUM. FLOATS WT%	CUM. FLOATS ASH%	CUM. SINKS WT%	CUM. SINKS ASH%	C.V. (MJ|KG)	CUM. C.V.
1.50	18.10	2.40	18.10	2.40	81.90	30.08		
1.60	27.60	5.90	45.70	4.51	54.30	42.38		
1.70	13.80	13.60	59.50	6.62	40.50	52.18		
1.80	9.90	19.80	69.40	8.50	30.60	62.66		
1.90	7.80	29.70	77.20	10.64	22.80	73.93		
2.00	3.00	41.50	80.20	11.80	19.80	78.84		
2.10	2.60	54.00	82.80	13.12	17.20	82.60		
2.60	17.20	82.60	100.00	25.07				

GCRI COAL DIVISION HEAD PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06355 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 04/08/83
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	10.00		
SURFACE MOISTURE %	3.40	TOTAL SULPHUR %	0.39
TOTAL MOISTURE %	__.__	PHOSPHOROUS %	_.___
EQUILIBRIUM MOISTURE %	__.__	CHLORINE (PPM)	_____
		SPECIFIC GRAVITY	_.__
RESIDUAL MOISTURE %	1.50	FSI	__._
ASH %	30.00	HGI	___._
VOLATILE MATTER %	7.40	CO2 %	__.__
FIXED CARBON %	61.10		

GROSS CALORIFIC VALUE (MJ/KG) 22.00
NET CALORIFIC VALUE (MJ/KG) __.__

GCRI COAL DIVISION SIZE PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06355 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID SZ1 DATE ANALYSED 04/08/83

FRACTION SIZE FROM (MM)	TO (MM)	WT%	ASH%	FSI	CAL (MJ/KG)	RM	VM	TS
10.00	0.60	91.70	__.__	__._	__.__	__.__	__.__	__.__
0.60	0.15	6.00	__.__	__._	__.__	__.__	__.__	__.__
0.15	0.00	2.30	__.__	__._	__.__	__.__	__.__	__.__

GCRI COAL DIVISION ULTIMATE PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06355
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID UL1 DATE ANALYSED 04/08/83

ANALYSIS BASIS TYPE (DAF,DB,AD) AD

WATER	%	1.45
CARBON	%	63.30
HYDROGEN	%	2.03
SULPHUR	%	0.39
NITROGEN	%	0.40
ASH	%	30.00
OXYGEN	%	2.43

GCRI COAL DIVISION ASH FUSION PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06355
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AF1 DATE ANALYSED 04/08/83

OXIDIZING ATMOSPHERE		REDUCING ATMOSPHERE	
INITIAL TEMP.(C)	1280.0	INITIAL TEMP.(C)	1257.0
SOFTENING TEMP.(C)	1356.0	SOFTENING TEMP.(C)	1299.0
HEMISPHERICAL TEMP.(C)	1385.0	HEMISPHERICAL TEMP.(C)	1333.0
FLUID TEMP.(C)	1474.0	FLUID TEMP.(C)	1391.0

NORMAL RANGES ALL TEMPS.
1000.0 >= VALUES <= 1500.0
OXIDATION TEMPS >= REDUCTION TEMPS

GCRI COAL DIVISION ASH MINERAL PROJ KPN BLK LR DS WKD83004

SAMPLE ID 06355
SAMPLE PRODUCT ID SP1 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID AM1 DATE ANALYSED 04/08/83

SILICON DIOXIDE %	(SIO2)	63.75
ALUMINIUM OXIDE %	(AL2O3)	19.50
FERRIC OXIDE %	(FE2O3)	7.08
TITANIUM DIOXIDE %	(TIO2)	0.98
PHOSPHOROUS PENTOXIDE %	(P2O5)	0.37
CALCIUM OXIDE %	(CAO)	0.64
MAGNESIUM OXIDE %	(MGO)	2.73
SULPHUR TRIOXIDE %	(SO3)	0.52
SODIUM OXIDE %	(NA2O)	1.09
POTASSIUM OXIDE %	(K2O)	1.93

90.0 <= TOTAL <= 100.0

CONFIDENTIAL COAL QUALITY DATA FROM APPENDIX IV, VOLS I & IV

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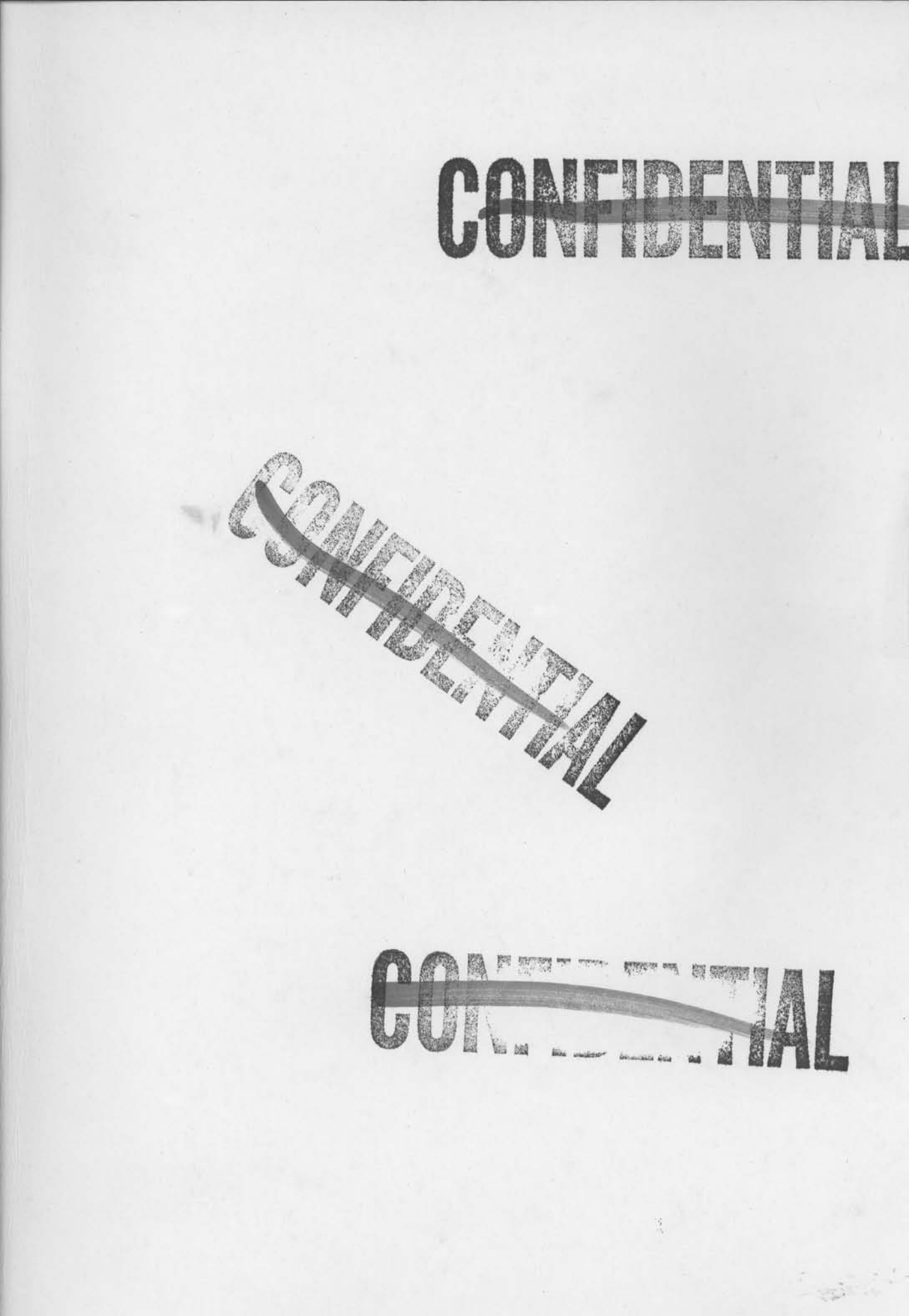
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Table 3.1

INCREMENTAL ADIT SAMPLES
FROTH RECOVERY

Sample No.	Depth (m)	2M Incremental Samples (%)	5M Incremental Samples (%)	5M Roof Samples (%)
4806	2	34.5		
4807	4	54.2		
4808	5		38.0	
4809	5			41.5
4810	6	58.3		
4811	8	56.3		
4812	10	50.4	50.4	
4813	10			54.6
4814	12	59.0		
4815	14	63.2		
4816	15		55.8	
4817	15			48.5
4818	16	54.1		
4819	18	49.7		
4820	20	51.6	51.6	
4821	20			48.5
4822	22	51.6		
4823	24	36.1		
4824	25		26.6	
4825	25			54.9
4826	26	55.6		
4827	28	55.6		
4828	30	44.2	44.2	
4829	30			54.9
4830	32	54.1		
4831	34	43.6		
4832	35		53.6	
4833	35			53.1
4834	36	57.6		
4835	38	39.8		
4836	40	38.1	38.1	
4837	40			58.9
4838	42	47.4		
4839	44	42.2		
4840	45		46.8	
4841	45			50.4
4842	46	55.4		

Table 4.3

PRELIMINARY SUBSAMPLE
WASHABILITY BY SIZE FRACTION
(After Crushing to Pass 30 mm)

30 mm x 20 mm

S.G. FRACTION	WT%	ASH%	WT%	CUMULATIVE ASH%
FLOAT - 1.40	-	-	-	-
1.40 - 1.50	10.10	2.70	10.10	2.70
1.50 - 1.60	83.80	6.40	93.90	6.00
1.60 - 1.70	2.50	24.00	96.40	6.50
1.70 - 1.80	1.10	33.50	97.50	6.30
1.80 - 2.20	1.80	59.20	99.30	7.80
2.20 - SINK	0.70	81.90	100.00	8.30

20 mm x 10 mm

S.G. FRACTION	WT%	ASH%	WT%	CUMULATIVE ASH%
FLOAT - 1.40	0	-	-	-
1.40 - 1.50	22.30	2.60	22.30	2.60
1.50 - 1.60	69.50	6.20	91.80	5.30
1.60 - 1.70	3.70	22.10	95.50	6.00
1.70 - 1.80	0.80	33.50	96.30	6.20
1.80 - 2.20	2.80	60.50	99.10	7.70
2.20 - SINK	0.90	82.00	100.00	8.40

10 mm x 6 mm

S.G. FRACTION	WT%	ASH%	WT%	CUMULATIVE ASH%
FLOAT - 1.40	0	-	-	-
1.40 - 1.50	33.50	2.70	33.50	2.70
1.50 - 1.60	59.60	6.80	93.10	5.30
1.60 - 1.70	2.00	26.00	95.10	5.80
1.70 - 1.80	1.30	34.80	96.40	6.20
1.80 - 2.20	2.70	63.40	99.10	7.70
2.20 - SINK	0.90	83.40	100.00	8.40

6 mm x 1 mm

S.G. FRACTION	WT%	ASH%	WT%	CUMULATIVE ASH%
FLOAT - 1.40	0	-	-	-
1.40 - 1.50	36.80	2.40	36.80	2.40
1.50 - 1.60	53.30	6.30	90.10	4.70
1.60 - 1.70	4.10	17.70	94.20	5.30
1.70 - 1.80	1.60	27.10	95.80	5.60
1.80 - 2.20	2.30	48.00	98.10	6.60
2.20 - SINK	1.90	79.20	100.00	8.00

1mm x 0

S.G. FRACTION	WT%	ASH%	WT%	CUMULATIVE ASH%
FLOAT - 1.40	0	-	-	-
1.40 - 1.50	26.50	2.40	26.50	2.40
1.50 - 1.60	38.50	6.40	65.00	4.80
1.60 - 1.70	10.30	14.80	75.30	6.10
1.70 - 1.80	10.00	18.90	85.30	7.60
1.80 - 2.20	7.60	38.20	92.90	10.10
2.20 - SINK	7.20	72.30	100.00	14.50

Table 4.4

PRELIMINARY SUBSAMPLE
CLEAN COAL ATTRITION

Composite Float 1.60 S.G.

(ADB)

	+ 20 mm	20 x 10 mm	10 x 6 mm	6 x 1 mm	1 x 0 mm
30 x 20 mm	83.7	10.7	1.8	2.8	1.0
20 x 20 mm	-	82.7	8.1	7.0	2.2
10 x 6 mm	-	-	77.8	19.3	2.9
6 x 1 mm	-	-	-	97.7	2.3

TABLE 5.1
MT. KLAPPAN BULK SAMPLE
RAW COAL QUALITY
(a.d.b.)

	50x25 mm	25x12 mm	12x6 mm	6x1 mm	1x0.5 mm	0.5x0.15 mm	0.15x0 mm
PROXIMATE ANALYSIS							
Residual Moisture	1.6	1.5	1.1	2.8	1.5	1.3	1.3
Ash	20.6	20.4	18.1	13.9	19.2	27.9	38.4
Volatiles	6.5	6.7	6.7	6.2	6.6	7.3	8.1
Fixed Carbon	71.3	71.4	74.1	77.1	72.7	63.5	52.2
Total Sulphur	0.4	0.4	0.4	0.5	0.4	0.4	0.4
Combustible Sulphur	0.04	0.0	0.02	0.14	0.07	0.0	0.0
Chlorine	0.01	0.01	0.02	0.01	0.02	0.01	0.04
Carbon Dioxide	0.13	0.11	0.12	0.09	0.1	0.14	0.16
H.G.I.	37	37	37	40	61	--	--
Net C.V.(cal/gm)	6200	6250	6480	6700	6370	5550	4460
Gross C.V.(cal/gm)	6310	6360	6600	6800	6450	5650	4560
ULTIMATE ANALYSIS							
Carbon	70.4	71.4	74.6	76.5	72.4	65.4	53.5
Hydrogen	2.1	2.0	2.3	2.0	1.6	1.9	1.9
Nitrogen	0.4	0.4	0.3	0.4	0.5	0.5	0.4
Oxygen	4.5	3.9	3.2	3.9	4.4	2.6	4.1
ASH FUSION (Deg.C.)							
Oxidizing							
Initial	1255	1250	1260	1280	1315	1260	1290
Softening	1370	1360	1400	1465	1480	1450	1440
Hemispherical	1400	1380	1445	1480	1500	1500	1470
Fluid	1425	1455	1495	1510	1530	1510	1500
Reducing							
Initial	1215	1215	1240	1270	1265	1240	1240
Softening	1340	1325	1350	1380	1370	1360	1360
Hemispherical	1400	1365	1425	1460	1500	1470	1430
Fluid	1415	1425	1465	1510	1530	1510	1480
ASH ANALYSIS							
SiO2	60.2	59.4	59.5	61.7	56.2	61.5	61.8
Al2O3	21.1	23.8	20.8	21.9	25.5	22.9	22.6
Fe2O3	6.9	6.2	7.5	6.2	7.6	5.3	5.1
CaO	1.9	1.6	2.1	1.7	1.9	1.5	1.6
MgO	2.1	2.7	2.4	2.2	3.2	2.1	2.0
TiO2	1.1	0.9	1.1	1.0	0.8	1.1	1.2
Na2O	1.7	1.5	1.7	1.7	1.4	1.5	1.6
K2O	1.4	1.5	1.4	1.4	1.4	1.4	1.4
SO3	1.0	1.2	1.0	0.8	0.9	1.0	1.1
P2O5	1.6	0.7	1.5	1.2	0.9	0.8	0.9

TABLE 5.2
MT. KLAPPAN BULK SAMPLE
5% ASH PRODUCTS
(a.d.b.)

	50x25 mm	25x12 mm	12x6 mm	6x1 mm	1x0 mm
LABORATORY YIELD	53.0	58.1	66.9	58.8	37.5
YIELD FROM TOTAL	7.4	5.5	7.5	19.8	11.9
PROXIMATE ANALYSIS					
Residual Moisture	1.7	1.6	1.9	1.1	1.9
Ash	5.1	5.2	5.0	5.0	5.1
Volatiles	6.1	5.8	5.8	6.2	8.9
Fixed Carbon	87.1	87.4	87.3	87.7	84.1
Total Sulphur	0.5	0.5	0.5	0.5	0.5
Combustible Sulphur	0.22	0.24	0.27	0.21	0.32
Carbon Dioxide	0.05	0.06	0.05	0.03	0.07
H.G.I.	31	31	32	30	40
Net C.V.(cal/gm)	7610	7580	7570	7560	7270
Gross C.V.(cal/gm)	7750	7720	7720	7690	7400
ULTIMATE ANALYSIS					
Carbon	86.1	86.4	86.3	85.9	80.9
Hydrogen	2.7	2.7	2.8	2.6	2.6
Nitrogen	0.9	0.9	0.9	1.0	0.8
Oxygen	3.0	2.7	2.6	3.9	8.2
ASH FUSION (Deg.C.)					
Oxidizing					
Initial	1265	1305	1325	1340	1435
Softening	1400	1450	1475	1495	1500
Hemispherical	1440	1495	1495	1510	1510
Fluid	1540	1540	1540	1540	1540
Reducing					
Initial	1250	1265	1275	1245	1250
Softening	1310	1350	1440	1430	1425
Hemispherical	1430	1450	1490	1485	1480
Fluid	1540	1540	1540	1540	1540
ASH ANALYSIS					
SiO2	41.4	47.0	52.2	56.8	53.6
Al2O3	33.8	30.4	29.1	27.9	28.6
Fe2O3	4.3	4.6	3.9	3.6	5.5
CaO	5.5	4.6	3.5	2.2	2.0
MgO	1.4	1.4	1.4	1.6	2.2
TiO2	1.7	1.6	1.6	1.9	2.2
Na2O	1.8	1.7	1.7	1.7	1.5
K2O	1.4	1.3	1.3	1.4	1.5
SO3	0.7	0.7	0.5	0.7	0.4
P2O5	6.2	5.1	3.8	2.1	1.9

TABLE 5.3
MT. KLAPPAN BULK SAMPLE
10% ASH PRODUCTS
(a.d.b.)

	50x25 mm	25x12 mm	12x6 mm	6x1 mm	1x0 mm
LABORATORY YIELD	80.4	83.8	87.9	92.7	46.8
YIELD FROM TOTAL	11.3	7.9	9.8	31.1	14.9
PROXIMATE ANALYSIS					
Residual Moisture	1.5	1.6	1.1	1.0	2.0
Ash	9.6	9.5	9.8	10.3	9.9
Volatiles	5.5	5.3	5.1	5.7	9.2
Fixed Carbon	83.4	83.6	84.0	83.0	78.9
Total Sulphur	0.5	0.5	0.5	0.5	0.5
Combustible Sulphur	0.34	0.4	0.4	0.4	0.34
Carbon Dioxide	0.06	0.07	0.08	0.03	0.04
H.G.I.	31	33	31	37	49
Net C.V.(cal/gm)	7220	7190	7170	7090	6710
Gross C.V.(cal/gm)	7340	7310	7300	7220	6830
ULTIMATE ANALYSIS					
Carbon	81.5	81.7	82.3	80.5	77.7
Hydrogen	2.4	2.4	2.5	2.6	2.4
Nitrogen	0.8	0.8	0.9	0.8	0.7
Oxygen	3.7	3.5	2.9	4.3	6.8
ASH FUSION (Deg.C.)					
Oxidizing					
Initial	1305	1315	1345	1385	1375
Softening	1415	1420	1475	1535	1480
Hemispherical	1465	1455	1500	1540	1490
Fluid	1515	1515	1540	1540	1540
Reducing					
Initial	1250	1255	1240	1245	1215
Softening	1375	1380	1415	1480	1410
Hemispherical	1450	1450	1495	1540	1460
Fluid	1490	1500	1540	1540	1540
ASH ANALYSIS					
SiO2	52.4	60.0	62.0	61.6	57.1
Al2O3	26.8	23.3	23.2	24.5	26.8
Fe2O3	4.7	4.6	4.3	4.1	5.7
CaO	3.7	2.7	1.9	1.6	1.6
MgO	1.4	1.5	1.6	1.8	2.3
TiO2	1.7	1.5	1.4	1.4	1.6
Na2O	1.5	1.4	1.4	1.5	1.4
K2O	1.5	1.3	1.3	1.4	1.5
SO3	0.4	0.3	0.2	0.3	0.4
P2O5	4.1	2.7	1.9	1.3	0.9

TABLE 5.5

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 50 x 25 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.6	-
Ash	20.6	20.9
Volatile Matter	6.5	6.6
Fixed Carbon	71.3	72.5
Total Sulphur	0.4	0.5
Combustible Sulphur	0.04	-
Chlorine	0.01	-
Carbon Dioxide	0.13	-
HGI	37	-
Net Calorific Value (cal/g)	6190	6300
Gross Calorific Value (cal/g)	6310	6410
Ultimate Analysis		
Carbon	70.4	71.5
Hydrogen	2.1	2.1
Nitrogen	0.4	0.4
Oxygen	4.5	4.6

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1255	1370	1400	1425
Reducing	1215	1340	1400	1415

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
60.2	21.1	6.9	1.9	2.1

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.1	1.7	1.4	1.0	1.6

SiO_2/Al_2O_3 Ratio: 2.85

Silica %: 84.65

Fouling Factor: 0.29

Base/Acid Ratio: 0.17

Dolomite %: 28.49

TABLE 5.6

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 25 x 12 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.5	-
Ash	20.4	20.7
Volatile Matter	6.7	6.8
Fixed Carbon	71.4	72.5
Total Sulphur	0.4	0.4
Combustible Sulphur	0.0	-
Chlorine	0.01	-
Carbon Dioxide	0.11	-
HGI	37	-
Net Calorific Value (cal/g)	6250	6360
Gross Calorific Value (cal/g)	6360	6460
Ultimate Analysis		
Carbon	71.4	72.5
Hydrogen	2.0	2.0
Nitrogen	0.4	0.4
Oxygen	3.9	4.0

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1250	1360	1380	1455
Reducing	1215	1325	1365	1425

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
59.4	23.8	6.2	1.6	2.7

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
0.9	1.5	1.5	1.2	0.7

SiO_2/Al_2O_3 Ratio: 2.50

Base/Acid Ratio: 0.16

Silica %: 85.08

Dolomite %: 31.81

Fouling Factor: 0.24

TABLE 5.7

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 12 x 6 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.1	-
Ash	18.1	18.3
Volatile Matter	6.7	6.8
Fixed Carbon	74.1	74.9
Total Sulphur	0.4	0.4
Combustible Sulphur	0.02	-
Chlorine	0.02	-
Carbon Dioxide	0.12	-
HGI	37	-
Net Calorific Value (cal/g)	6480	6550
Gross Calorific Value (cal/g)	6600	6670
Ultimate Analysis		
Carbon	74.6	75.5
Hydrogen	2.3	2.3
Nitrogen	0.3	0.3
Oxygen	3.2	3.2

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1260	1400	1445	1495
Reducing	1240	1350	1425	1465

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
59.5	20.8	7.5	2.1	2.4

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.1	1.7	1.4	1.0	1.5

SiO_2/Al_2O_3 Ratio: 2.86

Base/Acid Ratio: 0.19

Silica %: 83.21

Dolomite %: 29.75

Fouling Factor: 0.32

TABLE 5.8

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 6 x 1 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	2.8	-
Ash	13.9	14.3
Volatile Matter	6.2	6.4
Fixed Carbon	77.1	79.3
Total Sulphur	0.5	0.5
Combustible Sulphur	0.14	-
Chlorine	0.01	-
Carbon Dioxide	0.09	-
HGI	40	-
Net Calorific Value (cal/g)	6680	6880
Gross Calorific Value (cal/g)	6800	6990
Ultimate Analysis		
Carbon	76.5	78.7
Hydrogen	2.0	2.1
Nitrogen	0.4	0.4
Oxygen	3.9	4.0

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1280	1465	1480	1510
Reducing	1270	1380	1460	1510

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
61.7	21.9	6.2	1.7	2.2

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.0	1.7	1.4	0.8	1.2

SiO_2/Al_2O_3 Ratio: 2.82

Base/Acid Ratio: 0.15

Silica %: 85.99

Dolomite %: 29.80

Fouling Factor: 0.26

TABLE 5.9

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 1 x 0.5 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.5	-
Ash	19.2	19.5
Volatile Matter	6.6	6.7
Fixed Carbon	72.7	73.8
Total Sulphur	0.4	0.4
Combustible Sulphur	0.07	-
Chlorine	0.02	-
Carbon Dioxide	0.10	-
HGI	61	-
Net Calorific Value (cal/g)	6360	6470
Gross Calorific Value (cal/g)	6450	6550
Ultimate Analysis		
Carbon	72.4	73.5
Hydrogen	1.6	1.6
Nitrogen	0.5	0.5
Oxygen	4.4	4.5

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1315	1480	1500	1530
Reducing	1265	1370	1500	1530

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
56.2	25.5	7.6	1.9	3.2

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
0.8	1.4	1.4	0.9	0.9

SiO_2/Al_2O_3 Ratio: 2.20

Base/Acid Ratio: 0.19

Silica %: 81.65

Dolomite %: 32.73

Fouling Factor: 0.27

TABLE 5.10

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 0.5 x .15 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.3	-
Ash	27.9	28.3
Volatile Matter	7.3	7.4
Fixed Carbon	63.5	64.3
Total Sulphur	0.4	0.4
Combustible Sulphur	0.0	-
Chlorine	0.01	-
Carbon Dioxide	0.14	-
HGI	-	-
Net Calorific Value (cal/g)	5540	5620
Gross Calorific Value (cal/g)	5650	5720
Ultimate Analysis		
Carbon	65.4	66.2
Hydrogen	1.9	1.9
Nitrogen	0.5	0.5
Oxygen	2.6	2.7

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1260	1450	1500	1510
Reducing	1240	1360	1470	1510

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
61.5	22.9	5.3	1.5	2.1

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.1	1.5	1.4	1.0	0.8

SiO_2/Al_2O_3 Ratio: 2.69

Base/Acid Ratio: 0.14

Silica %: 87.33

Dolomite %: 30.72

Fouling Factor: 0.21

TABLE 5.11

MT. KLAPPAN BULK SAMPLE
RAW COAL

SIZE: 0.15 x 0 mm

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.3	-
Ash	38.4	38.9
Volatile Matter	8.1	8.2
Fixed Carbon	52.2	52.9
Total Sulphur	0.4	0.4
Combustible Sulphur	0.0	-
Chlorine	0.04	-
Carbon Dioxide	0.16	-
HGI	-	-
Net Calorific Value (cal/g)	4450	4520
Gross Calorific Value (cal/g)	4560	4620
Ultimate Analysis		
Carbon	53.5	54.2
Hydrogen	1.9	1.9
Nitrogen	0.4	0.4
Oxygen	4.1	4.2

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1290	1440	1470	1500
Reducing	1240	1360	1430	1480

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
61.8	22.6	5.1	1.6	2.0

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.2	1.6	1.4	1.1	0.9

SiO_2/Al_2O_3 Ratio: 2.73

Base/Acid Ratio: 0.14

Silica %: 87.80

Dolomite %: 30.26

Fouling Factor: 0.22

TABLE 5.12

MT. KLAPPAN BULK SAMPLE
5% ASH PRODUCT

SIZE: 50 x 25 mm
LABORATORY YIELD: 53.0%
TOTAL YIELD: 7.4%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.7	-
Ash	5.1	5.2
Volatile Matter	6.1	6.2
Fixed Carbon	87.1	88.6
Total Sulphur	0.5	0.5
Combustible Sulphur	0.22	-
Chlorine	0.2	-
Carbon Dioxide	0.05	-
HGI	31	-
Net Calorific Value (cal/g)	7600	7740
Gross Calorific Value (cal/g)	7750	7880
Ultimate Analysis		
Carbon	86.1	87.6
Hydrogen	2.7	2.7
Nitrogen	0.9	0.9
Oxygen	3.0	3.1

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1265	1400	1440	1540+
Reducing	1250	1310	1430	1540+

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
41.4	33.8	4.3	5.5	1.4

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.7	1.8	1.4	0.7	6.2

SiO_2/Al_2O_3 Ratio: 1.22

Base/Acid Ratio: 0.19

Silica %: 78.78

Dolomite %: 47.52

Fouling Factor: 0.34

TABLE 5.13

MT. KLAPPAN BULK SAMPLE
5% ASH PRODUCT

SIZE: 25 x 12 mm
LABORATORY YIELD: 58.1%
TOTAL YIELD: 5.5%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.6	-
Ash	5.2	5.3
Volatile Matter	5.8	5.9
Fixed Carbon	87.4	88.8
Total Sulphur	0.5	0.5
Combustible Sulphur	0.24	-
Chlorine	0.01	-
Carbon Dioxide	0.06	-
HGI	31	-
Net Calorific Value (cal/g)	7670	7700
Gross Calorific Value (cal/g)	7720	7840
Ultimate Analysis		
Carbon	86.4	87.8
Hydrogen	2.7	2.7
Nitrogen	0.9	0.9
Oxygen	2.7	2.8

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1305	1450	1495	1540+
Reducing	1265	1350	1450	1540+

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
47.0	30.4	4.6	4.6	1.4

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.6	1.7	1.3	0.7	5.1

SiO_2/Al_2O_3 Ratio: 1.55

Silica %: 81.57

Fouling Factor: 0.29

Base/Acid Ratio: 0.17

Dolomite %: 44.40

TABLE 5.14

MT. KLAPPAN BULK SAMPLE
5% ASH PRODUCT

SIZE: 12 x 6 mm
LABORATORY YIELD: 66.9%
TOTAL YIELD: 7.5%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.9	-
Ash	5.0	5.1
Volatile Matter	5.8	5.9
Fixed Carbon	87.3	89.0
Total Sulphur	0.5	0.5
Combustible Sulphur	0.27	-
Chlorine	0.01	-
Carbon Dioxide	0.05	-
HGI	32	-
Net Calorific Value (cal/g)	7560	7720
Gross Calorific Value (cal/g)	7720	7870
Ultimate Analysis		
Carbon	86.3	88.0
Hydrogen	2.8	2.9
Nitrogen	0.9	0.9
Oxygen	2.6	2.6

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1325	1475	1495	1540+
Reducing	1275	1440	1490	1540+

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
52.2	29.1	3.9	3.5	1.4

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.6	1.7	1.3	0.5	3.8

SiO_2/Al_2O_3 Ratio: 1.79

Base/Acid Ratio: 0.14

Silica %: 85.54

Dolomite %: 41.84

Fouling Factor: 0.24

TABLE 5.15

MT. KLAPPAN BULK SAMPLE
5% ASH PRODUCT

SIZE: 6 x 1 mm
LABORATORY YIELD: 58.8%
TOTAL YIELD: 19.8%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.1	-
Ash	5.0	5.1
Volatile Matter	6.2	6.3
Fixed Carbon	87.7	88.6
Total Sulphur	0.5	0.5
Combustible Sulphur	0.21	-
Chlorine (severe heavy liquid contamination)	0.8	-
Carbon Dioxide	0.03	-
HGI	30	-
Net Calorific Value (cal/g)	7550	7650
Gross Calorific Value (cal/g)	7690	7780
Ultimate Analysis		
Carbon	85.9	86.9
Hydrogen	2.6	2.6
Nitrogen	1.0	1.0
Oxygen	3.9	3.9

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1340	1495	1510	1540+
Reducing	1245	1430	1485	1540+

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
56.8	27.9	3.6	2.2	1.6

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.9	1.7	1.4	0.7	2.1

SiO_2/Al_2O_3 Ratio: 2.03

Base/Acid Ratio: 0.12

Silica %: 88.51

Dolomite %: 36.32

Fouling Factor: 0.20

TABLE 5.16

MT. KLAPPAN BULK SAMPLE
5% ASH PRODUCT

SIZE: 1 x 0 mm
LABORATORY YIELD: 37.5%
TOTAL YIELD: 11.9%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.9	-
Ash	5.1	5.2
Volatile Matter	8.9	9.1
Fixed Carbon	84.1	85.7
Total Sulphur	0.5	0.5
Combustible Sulphur	0.32	-
Chlorine (severe heavy liquid contamination)	1.03	-
Carbon Dioxide	0.07	-
HGI	40	-
Net Calorific Value (cal/g)	7260	7400
Gross Calorific Value (cal/g)	7400	7540
Ultimate Analysis		
Carbon	80.9	82.5
Hydrogen	2.6	2.7
Nitrogen	0.8	0.8
Oxygen	8.2	8.3

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1435	1500	1510	1540+
Reducing	1250	1425	1480	1540+

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
53.6	28.6	5.5	2.0	2.2

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
2.2	1.5	1.5	0.4	1.9

SiO_2/Al_2O_3 Ratio: 1.87

Base/Acid Ratio: 0.15

Silica %: 84.84

Dolomite %: 32.78

Fouling Factor: 0.23

TABLE 5.17

MT. KLAPPAN BULK SAMPLE
10% ASH PRODUCT

SIZE: 50 x 25 mm
LABORATORY YIELD: 80.4%
TOTAL YIELD: 11.3%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.5	-
Ash	9.6	9.8
Volatile Matter	5.5	5.6
Fixed Carbon	83.4	84.6
Total Sulphur	0.5	0.5
Combustible Sulphur	0.34	-
Chlorine (severe heavy liquid contamination)	1.1	-
Carbon Dioxide	0.06	-
HGI	31	-
Net Calorific Value (cal/g)	7210	7320
Gross Calorific Value (cal/g)	7340	7450
Ultimate Analysis		
Carbon	81.5	82.8
Hydrogen	2.4	2.5
Nitrogen	0.8	0.8
Oxygen	3.7	3.6

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1305	1415	1465	1515
Reducing	1250	1375	1450	1490

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
52.4	26.8	4.7	3.7	1.4

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.7	1.5	1.5	0.4	4.1

SiO_2/Al_2O_3 Ratio: 1.96

Silica %: 84.22

Fouling Factor: 0.24

Base/Acid Ratio: 0.16

Dolomite %: 39.78

TABLE 5.18

MT. KLAPPAN BULK SAMPLE
10% ASH PRODUCT

SIZE: 25 x 12 mm
LABORATORY YIELD: 83.8%
TOTAL YIELD: 7.9%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.6	-
Ash	9.5	9.7
Volatile Matter	5.3	5.4
Fixed Carbon	83.6	84.9
Total Sulphur	0.5	0.5
Combustible Sulphur	0.4	-
Chlorine (heavy liquid contamination)	0.2	-
Carbon Dioxide	0.07	-
HGI	33	-
Net Calorific Value (cal/g)	7180	7300
Gross Calorific Value (cal/g)	7310	7430
Ultimate Analysis		
Carbon	81.7	83.0
Hydrogen	2.4	2.4
Nitrogen	0.8	0.8
Oxygen	3.5	3.6

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1315	1420	1455	1515
Reducing	1255	1380	1450	1500

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
60.0	23.3	4.6	2.7	1.5

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.5	1.4	1.3	0.3	2.7

SiO_2/Al_2O_3 Ratio: 2.58

Silica %: 87.21

Fouling Factor: 0.20

Base/Acid Ratio: 0.14

Dolomite %: 36.52

TABLE 5.19

MT. KLAPPAN BULK SAMPLE
10% ASH PRODUCT

SIZE: 12 x 6 mm
LABORATORY YIELD: 87.9%
TOTAL YIELD: 9.8%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.1	-
Ash	9.8	9.9
Volatile Matter	5.1	5.2
Fixed Carbon	84.0	84.9
Total Sulphur	0.5	0.5
Combustible Sulphur	0.4	-
Chlorine (heavy liquid contamination)	0.2	-
Carbon Dioxide	0.08	-
HGI	31	-
Net Calorific Value (cal/g)	7160	7250
Gross Calorific Value (cal/g)	7300	7380
Ultimate Analysis		
Carbon	82.3	83.2
Hydrogen	2.5	2.5
Nitrogen	0.9	0.9
Oxygen	2.9	3.0

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1345	1475	1500	1540
Reducing	1240	1415	1495	1540

Ash Analysis:-

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
62.0	23.2	4.3	1.9	1.6

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.4	1.4	1.3	0.2	1.9

SiO_2/Al_2O_3 Ratio: 2.67

Base/Acid Ratio: 0.12

Silica %: 88.83

Dolomite %: 33.33

Fouling Factor: 0.17

TABLE 5.20

MT. KLAPPAN BULK SAMPLE
10% ASH PRODUCT

SIZE: 6 x 1 mm
LABORATORY YIELD: 92.7%
TOTAL YIELD: 31.1%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	1.0	-
Ash	10.3	10.4
Volatile Matter	5.7	5.8
Fixed Carbon	83.0	83.8
Total Sulphur	0.5	0.5
Combustible Sulphur	0.4	-
Chlorine (severe heavy liquid contamination)	2.7	-
Carbon Dioxide	0.03	-
HGI	37	-
Net Calorific Value (cal/g)	7080	7160
Gross Calorific Value (cal/g)	7220	7290
Ultimate Analysis		
Carbon	80.5	81.3
Hydrogen	2.6	2.6
Nitrogen	0.8	0.8
Oxygen	4.3	4.4

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1385	1535	1540	1540+
Reducing	1245	1480	1540	1540+

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
61.6	24.5	4.1	1.6	1.8

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.4	1.5	1.4	0.3	1.3

SiO_2/Al_2O_3 Ratio: 2.51

Base/Acid Ratio: 0.12

Silica %: 89.15

Dolomite %: 32.69

Fouling Factor: 0.18

TABLE 5.21

MT. KLAPPAN BULK SAMPLE
10% ASH PRODUCT

SIZE: 1 x 0 mm
LABORATORY YIELD: 46.8%
TOTAL YIELD: 14.9%

	Air Dry	Dry Basis
Proximate Analysis		
Residual Moisture	2.0	-
Ash	9.9	10.1
Volatile Matter	9.2	9.4
Fixed Carbon	78.9	80.5
Total Sulphur	0.5	0.5
Combustible Sulphur	0.34	-
Chlorine (severe heavy liquid contamination)	4.01	-
Carbon Dioxide	0.04	-
HGI	49	-
Net Calorific Value (cal/g)	6690	6840
Gross Calorific Value (cal/g)	6830	6970
Ultimate Analysis		
Carbon	77.7	79.3
Hydrogen	2.4	2.5
Nitrogen	0.7	0.7
Oxygen	6.8	6.9

Ash Fusion:

°C	Initial	Softening	Hemispherical	Fluid
Oxidizing	1375	1480	1490	1540
Reducing	1215	1410	1460	1540

Ash Analysis:

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO
57.1	26.8	5.7	1.6	2.3

TiO_2	Na_2O	K_2O	SO_3	P_2O_5
1.6	1.4	1.5	0.4	0.9

SiO_2/Al_2O_3 Ratio: 2.13

Base/Acid Ratio: 0.15

Silica %: 85.61

Dolomite %: 31.20

Fouling Factor: 0.21

APPENDIX A
WASHABILITY OF BULK SAMPLE

50mm x 25mm

S.G. FRACTION	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
Float-1.375	0.12	2.02	6.14	7492	0.12	6.14
1.375-1.40	0.08	1.79	8.54	7400	0.20	7.10
1.40 -1.425	0.04	1.41	9.43	7374	0.24	7.49
1.425-1.45	0.08	0.79	1.91	8106	0.32	6.09
1.45 -1.475	0.27	1.20	2.65	7998	0.59	4.52
1.475-1.50	13.30	4.21	3.20	7683	13.89	3.26
1.50 -1.55	42.86	4.33	5.97	7406	56.75	5.31
1.55 -1.60	12.67	3.37	13.19	6814	69.42	6.74
1.60 -1.70	8.19	4.08	24.31	5721	77.61	8.60
1.70 -1.80	5.34	2.79	35.93	4824	82.95	10.36
1.80 -1.90	4.07	1.68	45.86	3810	87.02	12.02
1.90 -2.00	1.77	1.74	55.25	2870	88.79	12.88
2.00 -2.10	2.96	1.49	66.07	2175	91.75	14.60
2.10 -2.20	1.15	1.30	72.07	1322	92.90	15.31
2.20 -SINK	7.10	2.64	81.61	457	100.00	20.02

25mm x 12mm

S.G. FRACTION	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
Float-1.375	0.21	3.39	5.69	7491	0.21	5.69
1.375-1.40	0.05	2.95	10.02	7139	0.26	6.52
1.40 -1.425	0.02	2.68	16.16	6622	0.28	7.21
1.425-1.45	0.01	2.12	17.53	N.S.S.	0.29	7.57
1.45 -1.475	0.72	4.75	1.79	7845	1.01	3.45
1.475-1.50	20.52	5.25	2.97	7651	21.53	2.99
1.50 -1.55	37.72	5.02	6.14	7357	59.25	5.00
1.55 -1.60	12.01	4.53	14.33	6628	71.26	6.57
1.60 -1.70	7.06	2.46	24.44	5870	78.32	8.18
1.70 -1.80	4.22	2.46	35.00	4923	82.54	9.55
1.80 -1.90	2.76	2.01	45.23	3893	85.30	10.71
1.90 -2.00	1.86	1.81	56.51	2802	87.16	11.68
2.00 -2.10	2.48	1.59	66.19	1931	89.64	13.19
2.10 -2.20	2.21	1.79	73.61	1173	91.85	14.65
2.20 -SINK	8.15	2.20	81.07	379	100.00	20.06

12mm x 6mm

S.G. FRACTION	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
Float-1.375	0.16	2.68	5.63	7523	0.16	5.63
1.375-1.40	0.02	2.34	10.48	7125	0.18	6.17
1.40 -1.425	0.03	2.39	13.33	6835	0.21	7.19
1.425-1.45	0.04	2.23	8.31	7509	0.25	7.37
1.45 -1.475	1.42	4.02	1.30	7940	1.67	2.21
1.475-1.50	20.07	4.75	2.29	7718	21.74	2.28
1.50 -1.55	42.51	4.45	6.23	7396	64.25	4.89
1.55 -1.60	10.90	3.67	13.79	6732	75.15	6.18
1.60 -1.70	6.49	0.97	23.73	6052	81.64	7.58
1.70 -1.80	3.58	1.07	35.20	4834	85.22	8.74
1.80 -1.90	1.89	1.25	46.44	3908	87.11	9.56
1.90 -2.00	1.69	1.31	57.26	2748	88.80	10.47
2.00 -2.10	2.18	1.66	68.51	1646	90.98	11.86
2.10 -2.20	1.66	1.56	73.23	1305	92.64	12.96
2.20 -SINK	7.36	1.39	82.28	386	100.00	18.06

6mm x 1mm

S.G. FRACTION	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
Float-1.375	0.17	1.23	4.83	7736	0.17	4.83
1.375-1.40	0.03	1.37	9.48	7192	0.20	5.53
1.40 -1.425	0.02	1.34	12.23	6984	0.22	6.14
1.425-1.45	0.02	1.48	12.55	6964	0.24	6.67
1.45 -1.475	0.42	0.85	1.27	8253	0.66	3.23
1.475-1.50	13.84	1.50	1.71	8020	14.50	1.78
1.50 -1.55	50.76	1.29	5.60	7679	65.26	4.75
1.55 -1.60	14.60	1.16	12.93	6994	79.86	6.25
1.60 -1.70	5.36	1.38	21.54	6130	85.22	7.21
1.70 -1.80	2.98	1.63	31.35	5180	88.20	8.02
1.80 -1.90	1.56	1.48	42.33	4296	89.76	8.62
1.90 -2.00	1.08	1.42	50.72	3502	90.84	9.12
2.00 -2.10	1.13	1.57	59.45	2646	91.97	9.74
2.10 -2.20	0.69	1.68	67.01	1881	92.66	10.17
2.20 -SINK	7.34	1.65	82.81	266	100.00	15.50

1mm x 0.5mm

S.G. FRACTION	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
Float-1.375	0.20	1.70	4.63	7723	0.20	4.63
1.375-1.40	0.10	2.26	12.75	N.S.S.	0.30	7.34
1.40 -1.425	0.20	2.10	6.03	N.S.S.	0.50	6.81
1.425-1.45	0.31	1.31	2.35	8073	0.81	5.11
1.45 -1.475	0.82	1.11	1.50	8125	1.63	3.29
1.475-1.50	9.30	0.93	1.72	8062	10.93	1.95
1.50 -1.55	47.50	1.21	5.09	7647	58.43	4.50
1.55 -1.60	9.60	1.61	10.56	7102	68.03	5.36
1.60 -1.70	7.15	2.39	15.58	6532	75.18	6.33
1.70 -1.80	6.13	2.47	22.08	5936	81.31	7.52
1.80 -1.90	3.06	2.59	31.48	5006	84.37	8.39
1.90 -2.00	1.94	2.79	41.88	4061	86.31	9.14
2.00 -2.10	1.23	2.33	51.54	3141	87.54	9.74
2.10 -2.20	1.12	2.34	60.24	2473	88.66	10.37
2.20 -SINK	11.34	1.95	81.18	544	100.00	18.40

0.5mm x 0.15mm

PRODUCT	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
30 SEC.	23.41	1.68	7.90	7494	23.41	7.90
45 SEC.	3.54	1.66	11.63	7153	26.95	8.39
60 SEC.	2.25	1.79	16.13	6741	29.20	8.99
90 SEC.	2.41	1.91	19.73	6406	31.61	9.81
120 SEC.	1.54	1.72	20.36	6279	33.15	10.30
TAILINGS	66.85	2.41	35.15	4740	100.00	26.91

0.15mm x 0

PRODUCT	WT%	RM%	ASH%	CV CAL/GM	CUMULATIVE WT%	CUMULATIVE ASH%
30 SEC.	22.57	1.64	13.57	6951	22.57	13.57
45 SEC.	4.61	1.57	16.43	6699	27.18	14.06
60 SEC.	2.61	1.70	18.49	6493	29.79	14.44
90 SEC.	2.57	1.81	22.99	6082	32.36	15.12
120 SEC.	1.95	1.70	26.93	5698	34.31	15.79
TAILINGS	65.69	1.65	48.30	3510	100.00	37.15

IAD Batch: 97-N263-662-57

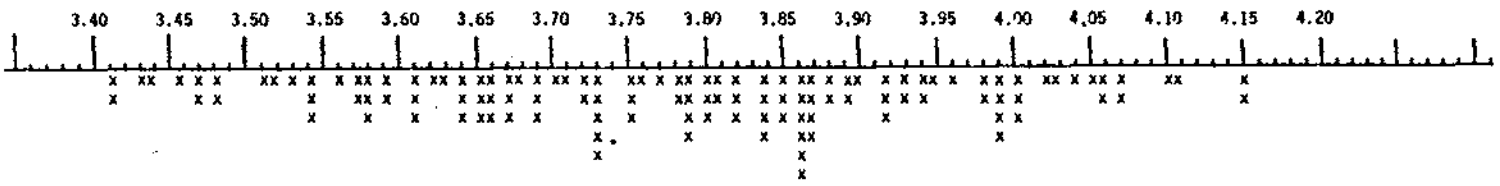
Report of Analysis on Sample: 06757

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.77

Distribution of Vitrinite Reflectance Readings:

%Ro



This sample moderatley oxidized.

Number of Counts (Total= 123)

V-Type Table for Vitrinites (=100%)

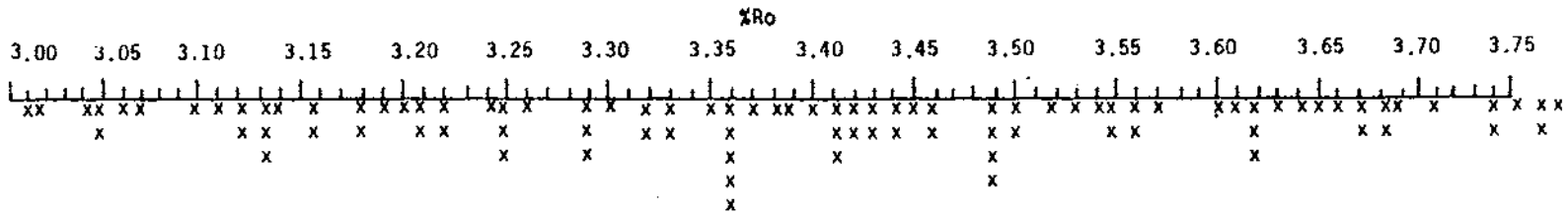
V-34	V- 35	V- 36	V- 37	V-38
7.3	12.2	17.1	16.2	22.0
V-39	V- 40	V- 41	V-	V-
13.0	8.9	3.3		

JAD Batch # 97- N263-662-57
Report of Analysis on Sample: u6758

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.39

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed according to AST™ procedure. Only relatively unoxidized particles were selected and measured, thus biasing the analysis. There were so few relatively unoxidized particles that only 96 counts were available.

Number of Counts (Total= 96)

V-Type Table for Vitrinites (=100%)

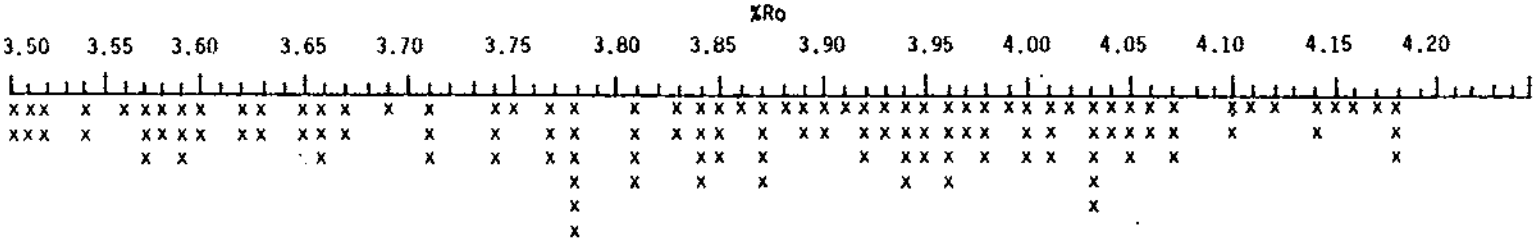
V-30	V-31	V-32	V-33
7.3	13.5	14.6	14.6
V-34	V-35	V-36	V-37
17.7	10.4	14.6	7.3

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06754

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.87

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were selected and measured, thus biasing the analysis.

Number of Counts (Total= 126)

V-Type Table for Vitrinites (=100%)

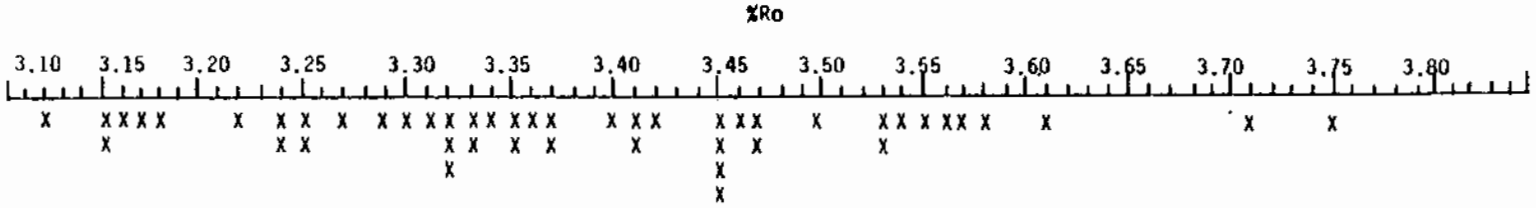
V-35	V-36	V-37	V-38	V-39	V-40	V-41
13.5	11.1	12.7	16.7	19.0	17.5	9.5

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06755

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.38

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were selected and measured; thus biasing the analysis. This sample also contains very little coal so that 100 counts could not be obtained.

Number of Counts (Total= 48)

V-Type Table for Vitrinites (=100%)

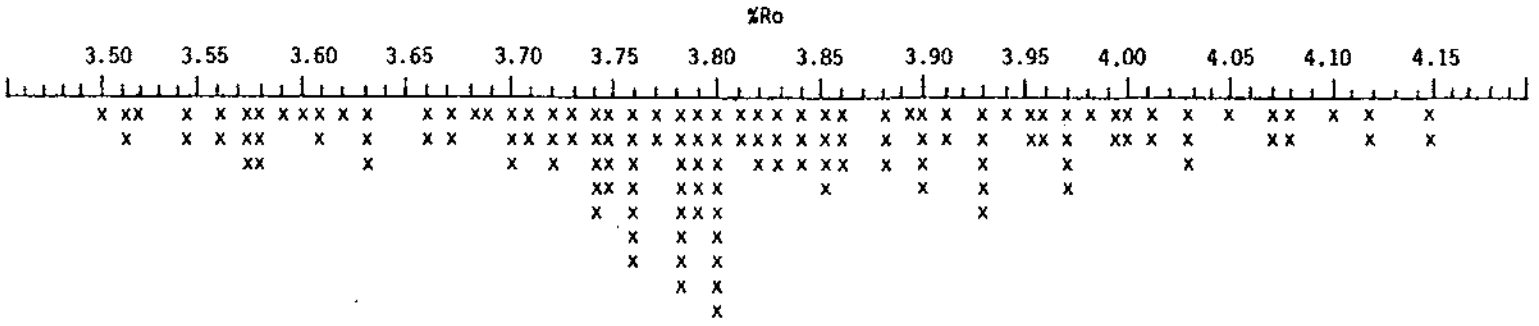
V-31	V-32	V-33	V-34	V-35	V-36	V-37
12.5	14.6	27.1	22.9	16.6	2.1	4.2

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06756

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.81

Distribution of Vitrinite Reflectance Readings:



This sample is moderately oxidized.

Number of Counts (Total= 140)

V-Type Table for Vitrinites (=100%)

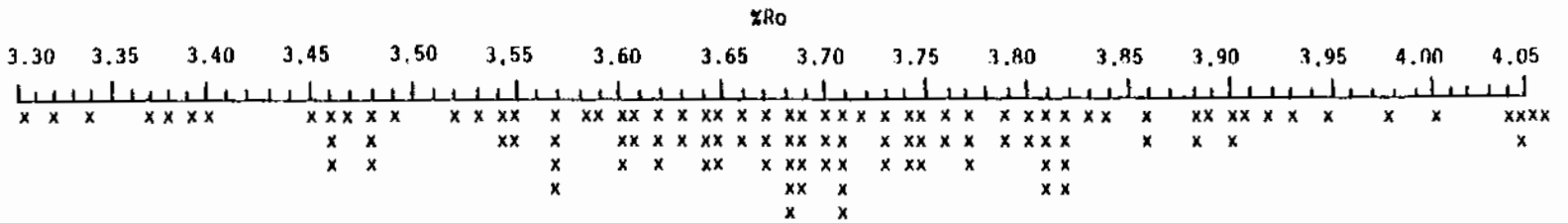
V-35	V-36	V-37	V-38	V-39	V-40	V-41
10.7	9.3	29.3	22.1	16.4	8.6	3.6

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06759

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.69

Distribution of Vitrinite Reflectance Readings:



This sample is heavily oxidized.

Number of Counts (Total= 112)

V-Type Table for Vitrinites (=100%)

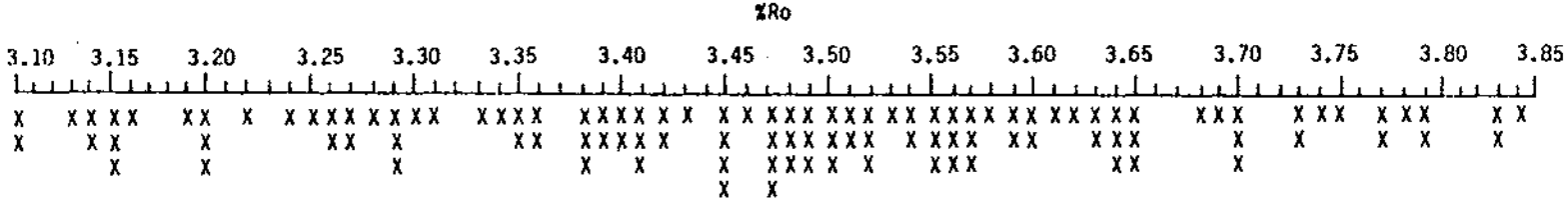
V- 33	V- 34	V-35	V- 36
5.4	8.9	10.7	26.7
V- 37	V-38	V-39	V- 40
22.3	15.2	6.3	4.5

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06768

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.49

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were selected and measured, this biasing the analysis.

Number of Counts (Total= 112)

V-Type Table for Vitrinites (=100%)

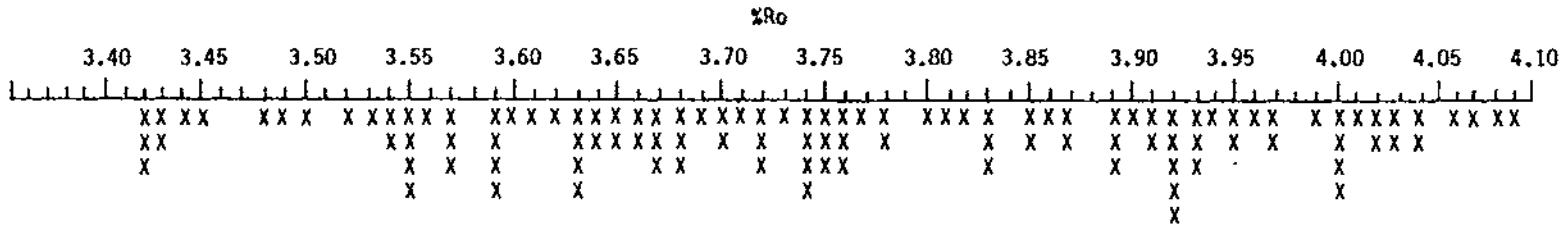
V-31	V-32	V-33	V-34
8.5	12.0	11.0	19.7
V-35	V-36	V-37	V-38
19.7	12.0	10.3	6.8

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06765

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.76

Distribution of Vitrinite Reflectance Readings:



This sample is heavily oxidized.

Number of Counts (Total= 113)

V-Type Table for Vitrinites (=100%)

V- 34	V- 35	V-36	V-37
8.0	15.0	17.7	17.7
V- 38	V- 39	V-40	
12.4	15.9	13.3	

REFLECTANCE ANALYSIS

IAD Batch: 97-N267-662-57

Report of Analysis on Sample: 06766

Mean-Maximum Vitrinite Ro: *

Distribution of Vitrinite Reflectance Readings:

%Ro

*This sample is extremely oxidized. Even by trying to pick out the relatively unoxidized particles the range of values were too great (2.55 - 4.28) and the number of particles too small to get a meaningful mean-maximum reflectance.

Number of

Counts

(Total = _____)

V-Type Table for Vitrinites (=100%)

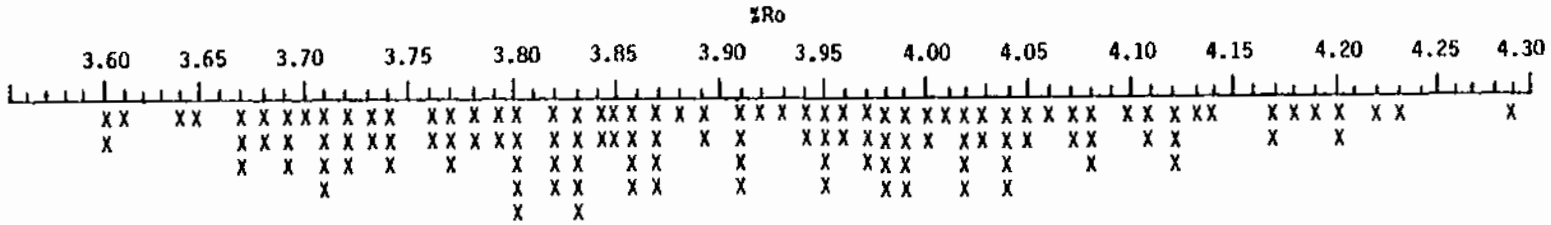
V-____ V-____ V-____ V-____

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06767

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.90

Distribution of Vitrinite Reflectance Readings:



This sample is heavily oxidized.

Number of Counts (Total= 127)

V-Type Table for Vitrinites (=100%)

V-36	V-37	V-38	V- 39
10.2	17.3	22.8	19.7
V-40	V-41	V-42	
16.6	9.5	3.9	

REFLECTANCE ANALYSIS

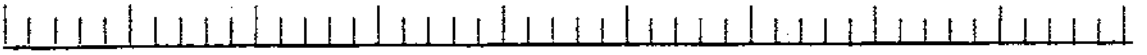
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03577

Mean-Maximum Vitrinite Ro: 2.99*

Distribution of Vitrinite Reflectance Readings:

%Ro



* This number is highly questionable. This sample is extremely oxidized and very few unoxidized particles were present. Only relatively unoxidized particles were measured, but even so, there is an extreme spread of reflectance values (2.42-3.75). Because of the particle selection and because only 78 counts could be obtained, this analysis does not follow ASTM procedures.

Number of
Counts
(Total = 78)

V-Type Table for Vitrinites (=100%)

V-24	V-25	V-26	V-27	V-28	V-29	V-30	V-31
6.4	2.6	9.0	11.5	10.3	11.5	6.4	6.4

V-32	V-33	V-34	V-35	V-36	V-37
9.0	6.4	1.3	3.8	6.4	9.0

REFLECTANCE ANALYSIS

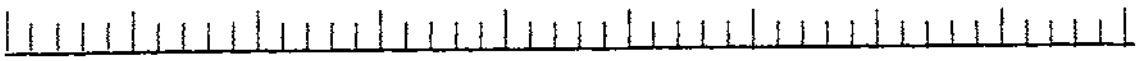
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03578

Mean-Maximum Vitrinite Ro:*

Distribution of Vitrinite Reflectance Readings:

%Ro



*This sample is extremely weathered and contains little to no unoxidized particles. Even by selecting only the least oxidized particles the reflectance measurements had a spread tooextreme (2.20 - 3.99) to allow calculation of a meaningful mean-maximum reflectance.

Number of

Counts

(Total = ____)

V-Type Table for Vitrinites (=100%)

V-____ V-____ V-____ V-____

REFLECTANCE ANALYSIS

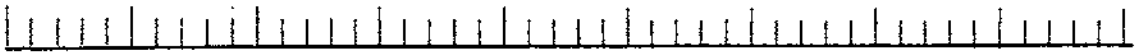
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03579

Mean-Maximum Vitrinite Ro: 3.35

Distribution of Vitrinite Reflectance Readings:

%Ro



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were selected and measured, thus biasing the analysis. The spread of reflectance values make this sample impractial to graph.

Number of

Counts

(Total = 151)

V-Type Table for Vitrinites (=100%)

V- 27	V- 28	V-29	V- 30
2.6	4.0	4.0	10.6
V- 31	V- 32	V-33	V- 34
12.6	13.1	9.3	9.3
V- 35	V- 36	V-37	V- 38
9.3	8.6	9.3	7.3

IAO Batch: 97-N263-662-57

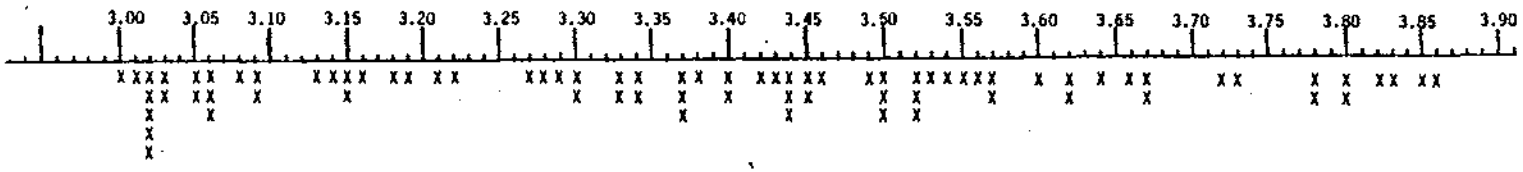
Report of Analysis on Sample: 06762

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.38

Distribution of Vitrinite Reflectance Readings:

%Ro



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were selected and measured, thus biasing the analysis. Also, only 79 relatively unoxidized coal particles could be discovered.

Number of Counts (Total= 79)

V-Type Table for Vitrinites (=100%)

V-30	V-31	V-32	V-33	V-34
21.5	8.9	6.3	12.7	13.9
V-35	V-36	V-37	V-38	V-__
15.2	8.9	5.0	7.6	

REFLECTANCE ANALYSIS

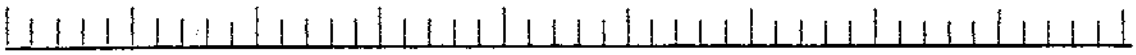
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 06763

Mean-Maximum Vitrinite Ro: *

Distribution of Vitrinite Reflectance Readings:

%Ro



*This sample contained very little coal at all and those particles were highly oxidized. We tried to restrict measurement to relatively unoxidized coal, but even then the reflectances ranged from 1.45 to 4.16 and we could get only 51 counts, too few to calculate a mean-maximum reflectance.

Number of

Counts

(Total = ____)

V-Type Table for Vitrinites (=100%)

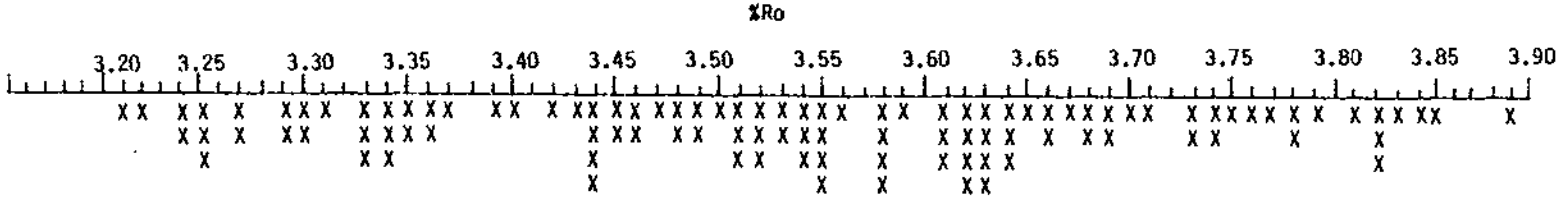
V-____ V-____ V-____ V-____

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06764

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.54

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were measure, thus biasing the analysis.

Number of Counts (Total= 106)

V-Type Table for Vitrinites (=100%)

V- 32	V- 33	V-34	V-35
10.4	14.2	15.0	20.8
V- 36	V-37	V-38	
20.8	11.3	7.5	

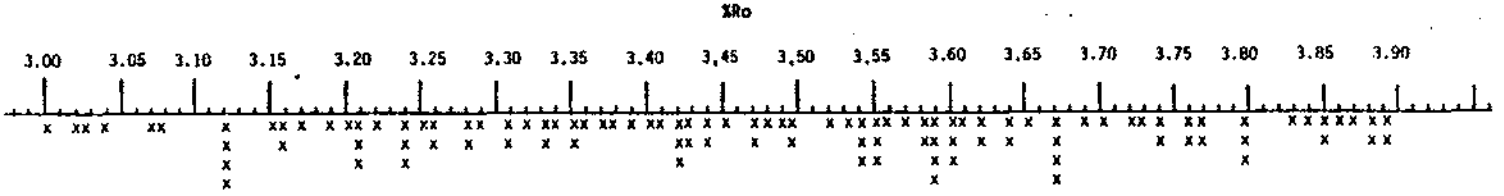
EAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03572

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.48

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed accordinn to ASTM procedure. Only relatively unoxidized particles were selected and measured; thus biasing the analysis.

Number of Counts (Total= 109)

V-Type Table for Vitrinites (=100%)

V- 30	V- 31	V-32	V- 33	V- 34
5.5	8.3	12.8	11.0	12.8

V- 35	V- 36	V-37	V- 38	V-
16.5	12.8	8.3	11.9	

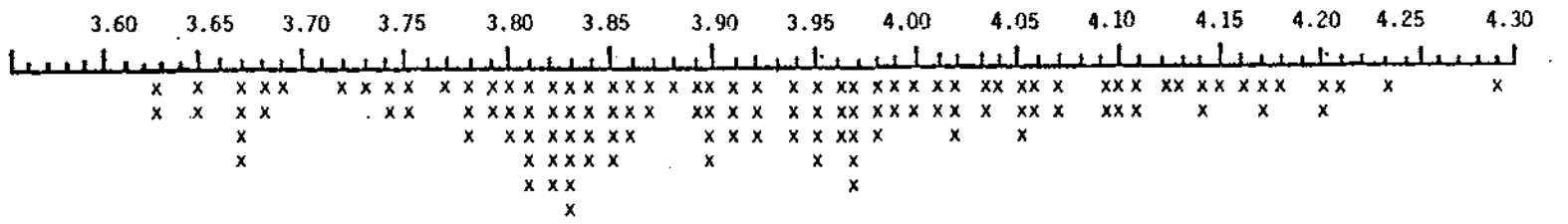
IAD Batch: # 97-M263-662-57

Report of Analysis on Sample: 03573

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro : 3.92

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 125)

V-Type Table for Vitrinites (=100%)

V-36	V-37	V-38	V-39	V-40	V-41	V-42
8.8	9.6	28.0	24.0	15.2	10.4	4.0

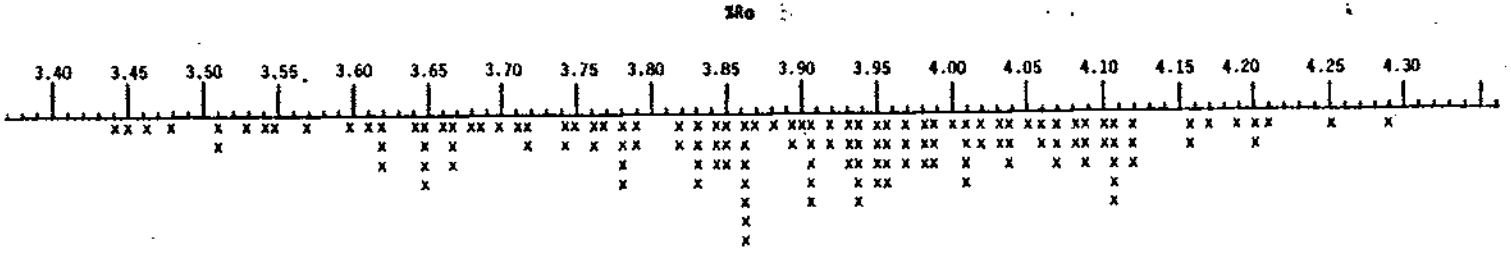
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03574

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.89

Distribution of Vitrinite Reflectance Readings:



THIS SAMPLE IS HEAVILY OXIDIZED.

Number of Counts (Total= 140)

V-Type Table for Vitrinites (=100%)

V-34	V-35	V-36	V-37	V-38
2.9	4.3	11.4	11.4	16.4
V-39	V-40	V-41	V-42	V-
23.6	16.4	10.0	3.6	

IAO Batch: 97-H263-662-57

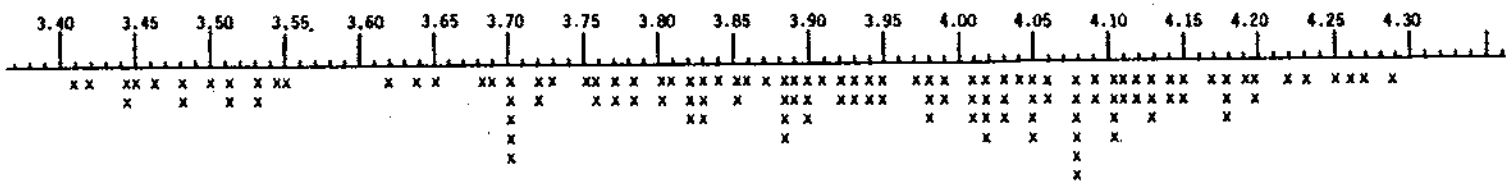
Report of Analysis on Sample: 03575

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.90

Distribution of Vitrinite Reflectance Readings:

%Ro



This sample highly oxidized

Number of Counts (Total= 127)

V-Type Table for Vitrinites (=100%)

V-34	V-35	V-36	V-37	V-38
7.1	5.5	3.9	11.8	15.7
V-39	V-40	V-41	V-42	V-
14.2	19.8	15.7	6.3	

IAO Batch: 97-N263-662-57

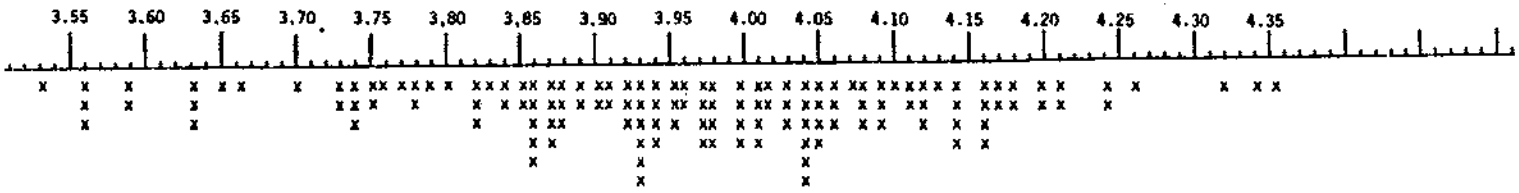
Report of Analysis on Sample: 03576

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.96

Distribution of Vitrinite Reflectance Readings:

%Ro



Number of Counts (Total= 139)

V-Type Table for Vitrinites (=100%)

V-35	V-36	V-37	V-38	V-39
4.3	3.6	9.4	16.6	21.6
V-40	V-41	V-42	V-43	V-
23.6	13.7	5.0	2.2	

REFLECTANCE ANALYSIS

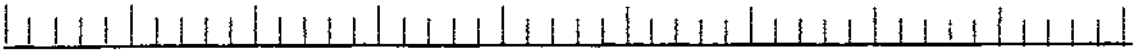
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03562

Mean-Maximum Vitrinite Ro: 2.48

Distribution of Vitrinite Reflectance Readings:

%Ro



The spread on this sample is impractical to graph. The sample is extremely weathered.

Number of
Counts
(Total = 120)

V-Type Table for Vitrinites (=100%)

V- 20	V- 21	V- 22	V- 23	V-24	V- 25
5.8	11.7	10.0	17.6	12.5	13.3

V- 26	V- 27	V- 28	V- 29	V- 30	V- 31	V- 32
5.8	3.3	4.2	5.0	3.3	4.2	3.3

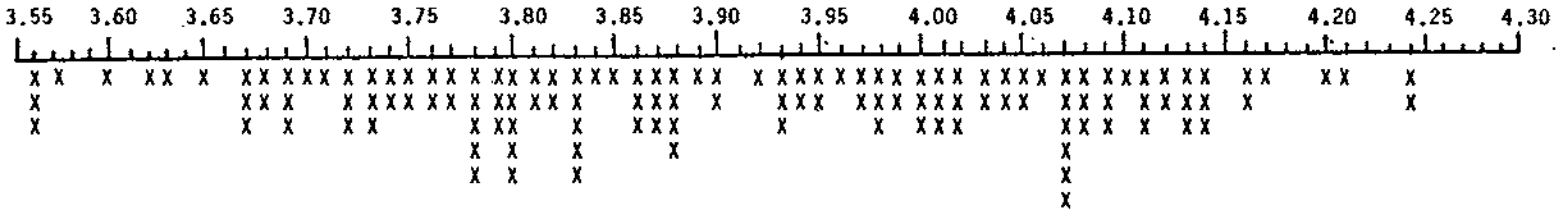
IAD Batch: # 97-N263-662-57

Report of Analysis on Sample: 03567

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro : 3.90

Distribution of Vitrinite Reflectance Readings:



This sample is heavily oxidized.

Number of Counts (Total= 132)

V-Type Table for Vitrinites (=100%)

V-35	V-36	V-37	V-38
3.0	9.1	18.2	20.5
V-39	V-40	V-41	V-42
13.6	21.2	11.4	3.0

IAD Batch: 97-NZ63-662-57

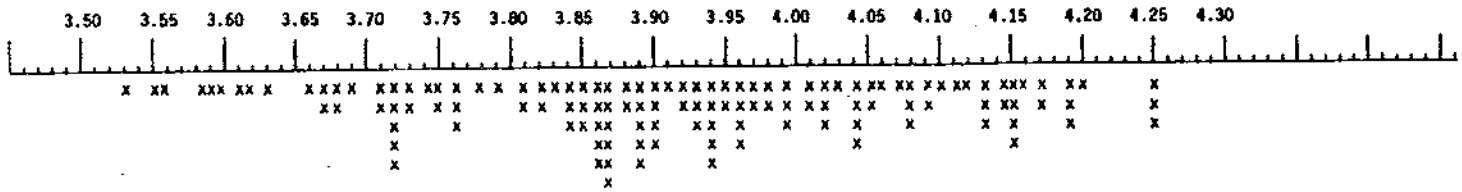
Report of Analysis on Sample: 03565

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.92

Distribution of Vitrinite Reflectance Readings:

%Ro



Number of Counts (Total= 133)

V-Type Table for Vitrinites (=100%)

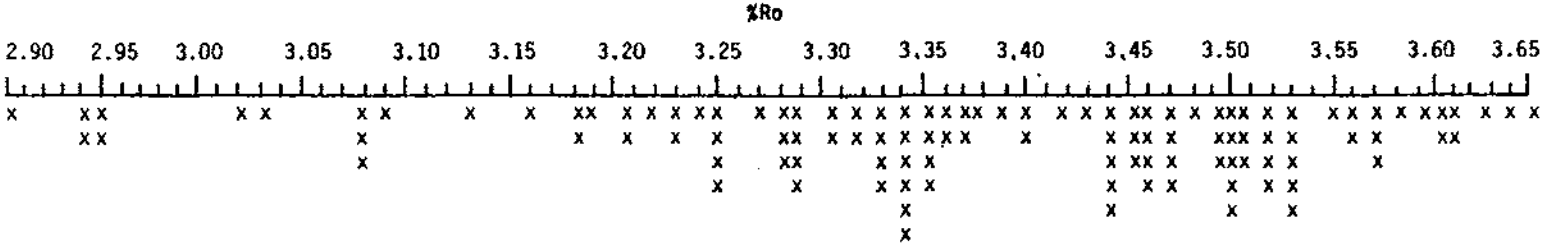
V-35	V-36	V- 37	V-38	V-39
3.8	7.5	12.8	21.8	21.1
V-40	V-41	V- 42	V-	V-
16.5	13.5	3.0		

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 04802

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.38

Distribution of Vitrinite Reflectance Readings:



This sample is highly oxidized.

Number of Counts (Total= 117)

V-Type Table for Vitrinites (=100%)

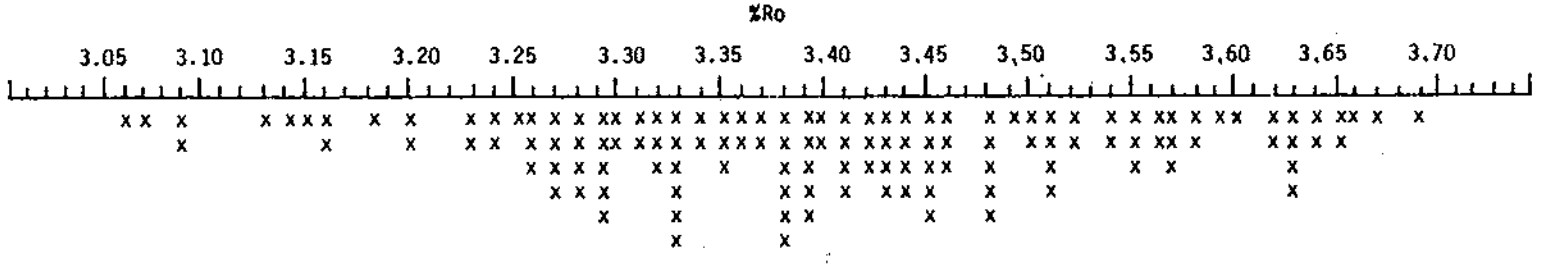
V-29	V-30	V-31	V-32
4.3	5.1	4.3	15.4
V-33	V-34	V-35	V-36
20.5	20.5	21.3	8.6

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 04801

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.40

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 132)

V-Type Table for Vitrinites (=100%)

V-30	V-31	V-32	V-33
3.0	4.6	17.4	25.0

V-34	V-35	V-36
23.5	15.9	10.6

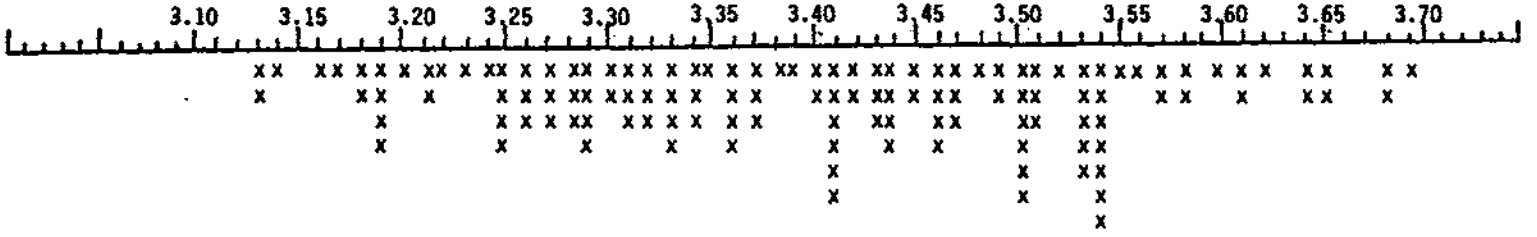
IAD Batch: # 97-N263-662-57

Report of Analysis on Sample: 03561

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro : 3.40

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 127)

This sample moderately oxidized

V-Type Table for Vitrinites (=100%)

V-31	V-32	V-33	V-34	V-35	V-36
8.7	18.1	19.7	22.7	22.1	8.7

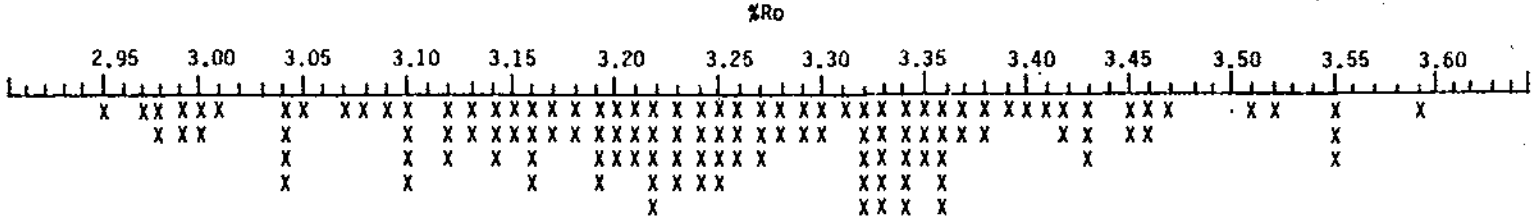
IAD Batch: # 97-N263-662-57

Report of Analysis on Sample: 03564

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.25

Distribution of Vitrinite Reflectance Readings:



This sample is highly oxidized.

Number of Counts (Total= 125)

V-Type Table for Vitrinites (=100%)

V-29	V-30	V-31	V-32
4.8	8.8	20.8	26.4

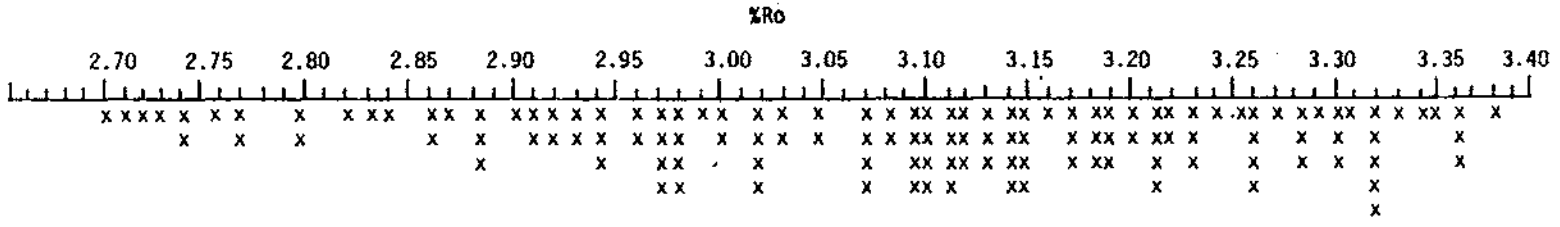
V-33	V-34	V-35
24.8	9.6	4.8

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06309

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.08

Distribution of Vitrinite Reflectance Readings:



Sample is extremely weathered.

Number of Counts (Total= 132)

V-Type Table for Vitrinites (=100%)

V-27	V-28	V-29	V-30
6.8	9.1	15.9	15.2

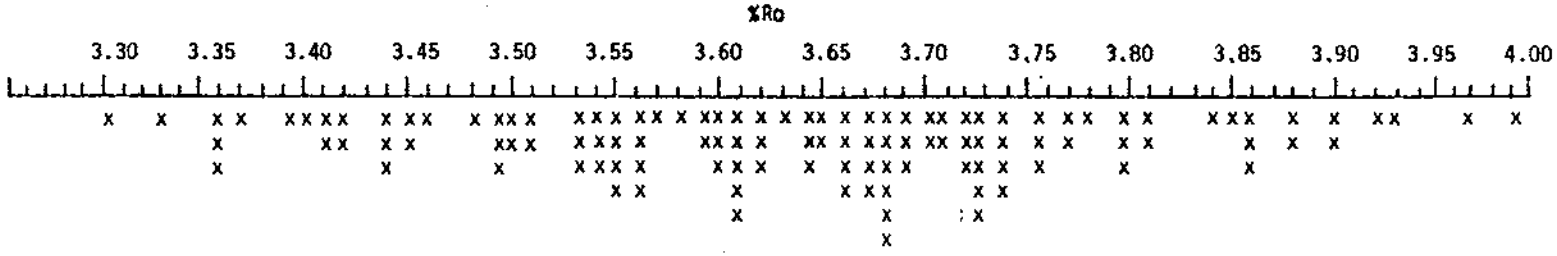
V-31	V-32	V-33
24.2	16.7	12.1

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06310

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.64

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 118)

V-Type Table for Vitrinites (=100%)

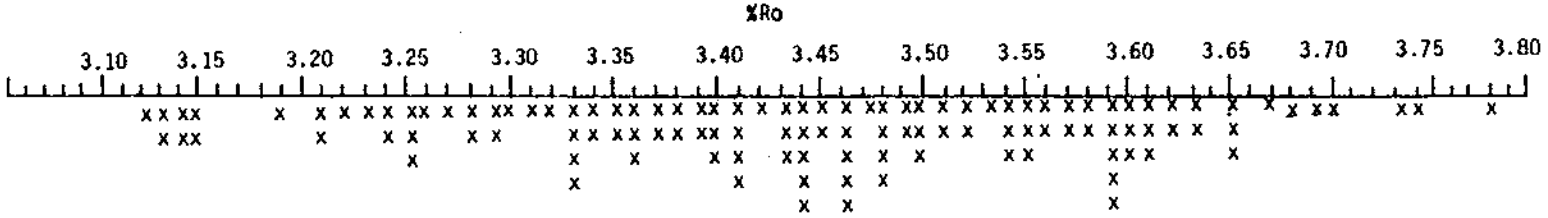
V-33	V-34	V-35	V-36
5.9	12.7	18.6	28.9
V-37	V-38	V-39	
18.6	10.2	5.1	

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06311

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.44

Distribution of Vitrinite Reflectance Readings:



This sample is moderately oxidized

Number of Counts (Total= 118)

V-Type Table for Vitrinites (=100%)

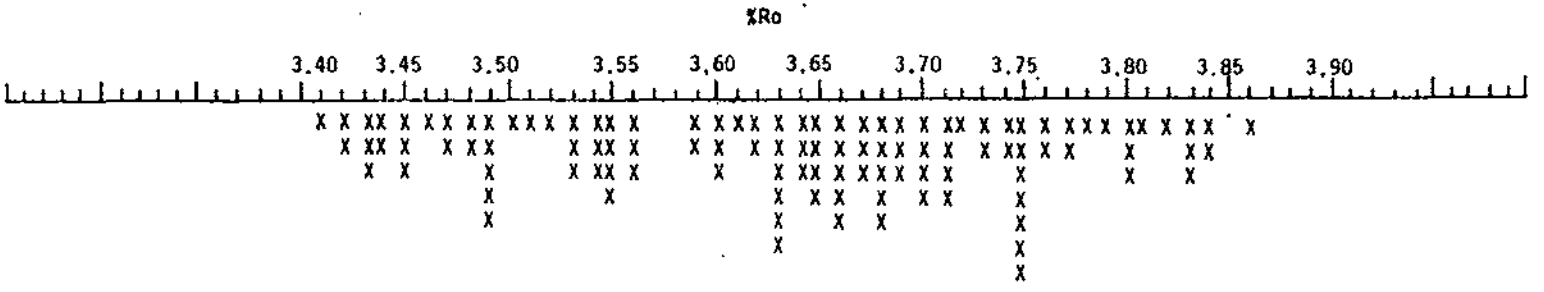
V-31	V-32	V-33	V-34
6.8	12.7	16.9	25.4
V-35	V-36	V-37	
21.2	13.6	3.4	

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06312

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.63

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 111)

V-Type Table for Vitrinites (=100%)

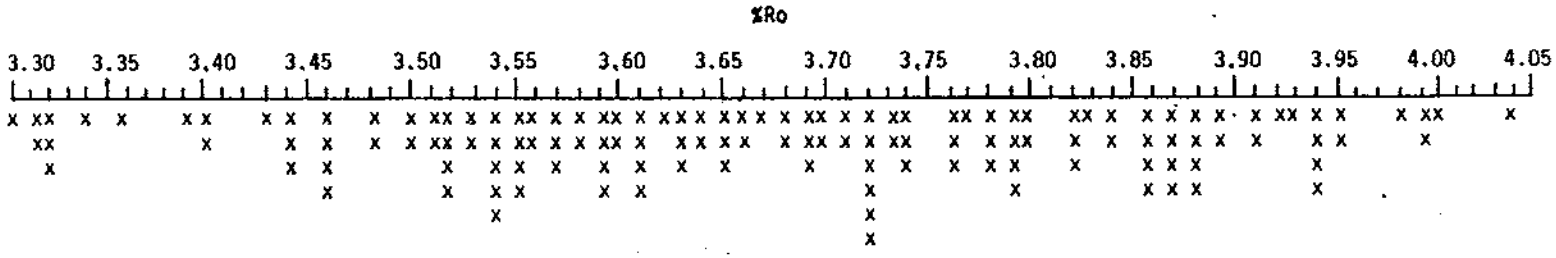
V-34	V-35	V-36	V-37	V-38
18.9	16.2	31.6	23.4	9.9

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06313

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.67

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 139)

V-Type Table for Vitrinites (=100%)

V- 33	V- 34	V-35	V- 36
6.5	8.6	21.6	16.5

V- 37	V-38	V-39	V-40
18.7	17.3	9.4	1.4

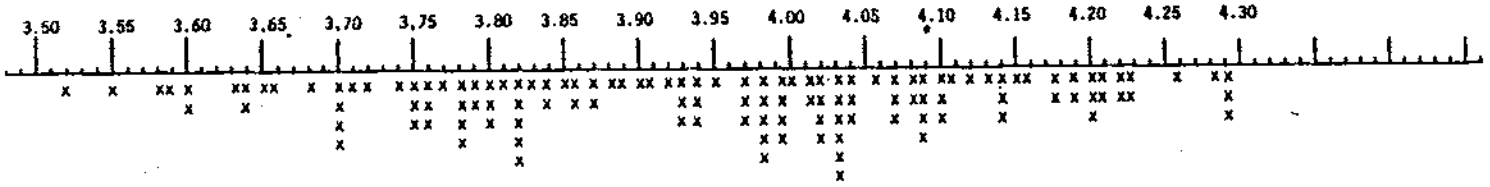
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 06301

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.95

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 130)

V-Type Table for Vitrinites (=100%)

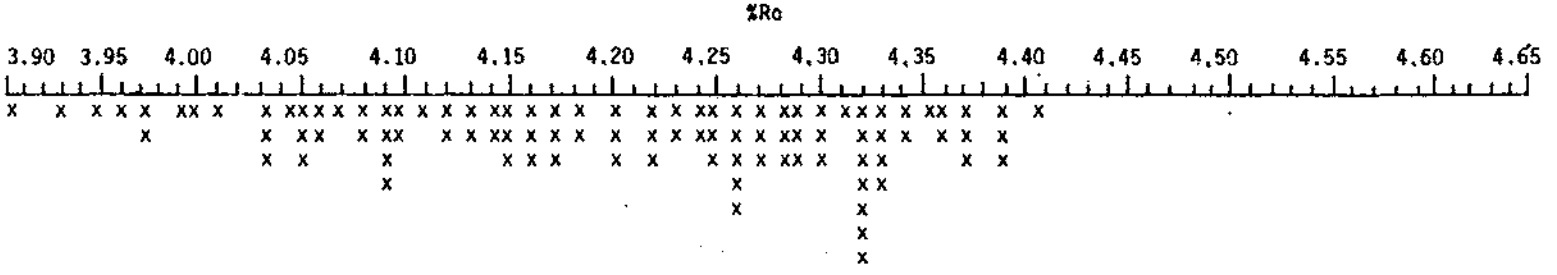
V-35	V- 36	V- 37	V- 38	V-39
3.1	6.2	15.4	14.6	16.9
V-40	V- 41	V- 42	V-	V-
21.5	11.5	10.8		

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06302

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 4.26

Distribution of Vitrinite Reflectance Readings:



Coal is moderately oxidized.

Number of Counts (Total= 125)

V-Type Table for Vitrinites (=100%)

V-39	V-40	V-41	V-42
5.6	14.4	16.0	21.6
V-43	V-44	V-45	V-46
20.8	9.6	8.0	4.0

IAD Batch: 97-N263-662-57

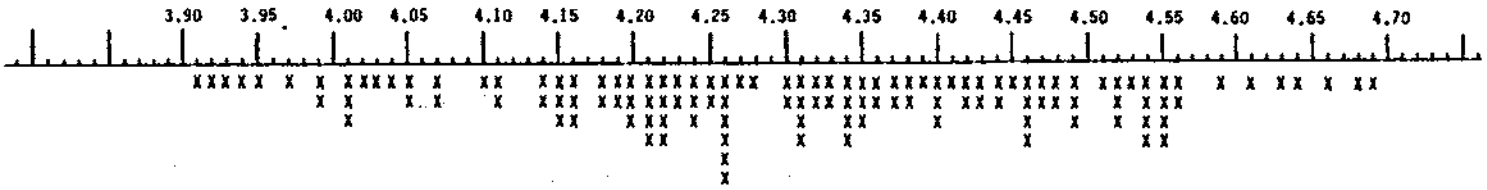
Report of Analysis on Sample: 06303

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 4.31

Distribution of Vitrinite Reflectance Readings:

%Ro



Number of Counts (Total= 127)

V-Type Table for Vitrinites (=100%)

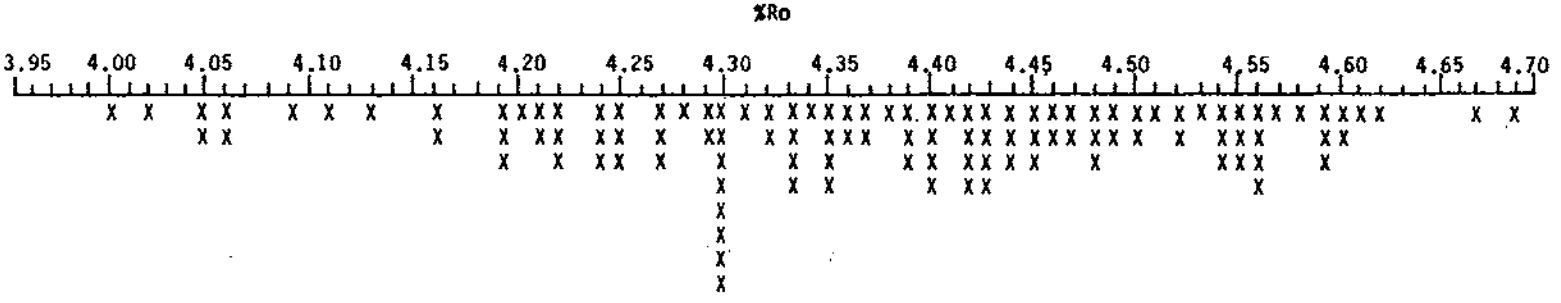
V- 39	V- 40	V- 41	V- 42	V-43
6.3	7.9	11.8	20.5	18.9
V- 44	V- 45	V- 46	V-	V-
17.3	12.6	4.7		

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06304

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 4.37

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 115)

V-Type Table for Vitrinites (=100%)

V-40	V-41	V-42	V-43
6.1	6.1	15.7	24.3

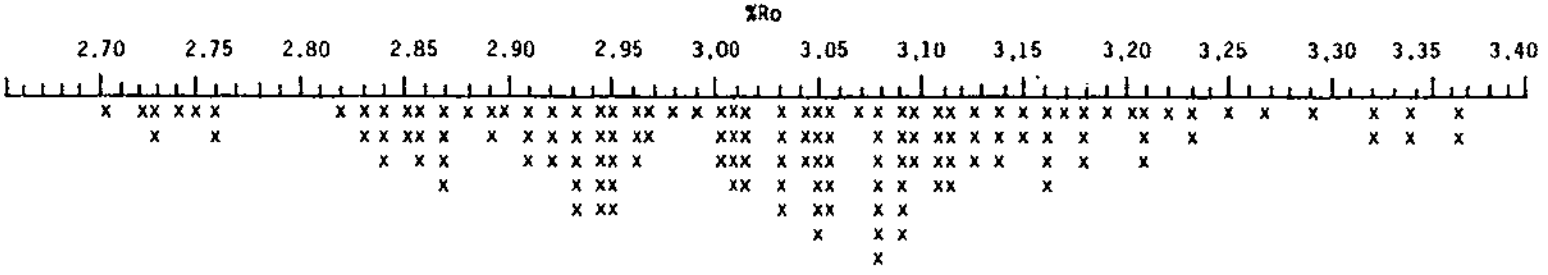
V-44	V-45	V-46
24.3	18.3	5.2

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06305

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.03

Distribution of Vitrinite Reflectance Readings:



Because this sample is extremely oxidized, it could not be analyzed according to ASTM procedures. Only relatively unoxidized particles were selected and measured, thus biasing the analysis.

Number of Counts (Total= 143)

V-Type Table for Vitrinites (=100%)

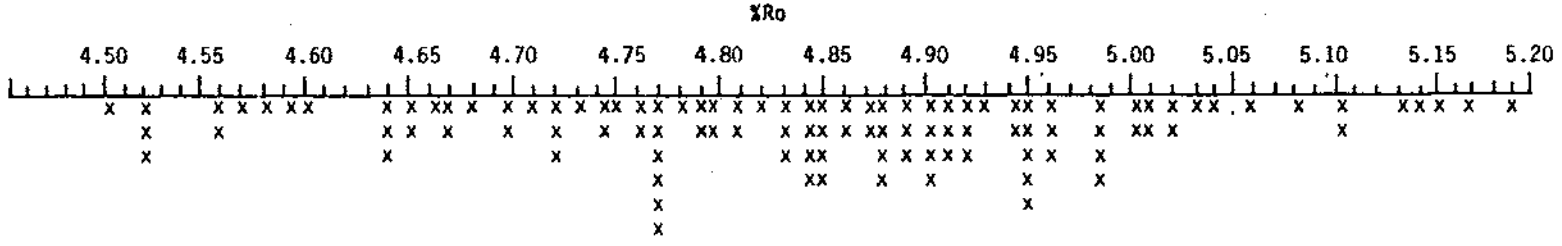
V- 27	V-28	V-29	V- 30
5.6	12.6	20.3	30.7
V-31	V-32	V-33	
19.6	7.0	4.2	

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06307

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 4.84

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 109)

V-Type Table for Vitrinites (=100%)

V-45	V-46	V-47	V-48
8.2	9.2	19.3	24.8
V-49	V-50	V-51	
22.9	9.2	6.4	

IAD Batch: 97-N263-662-57

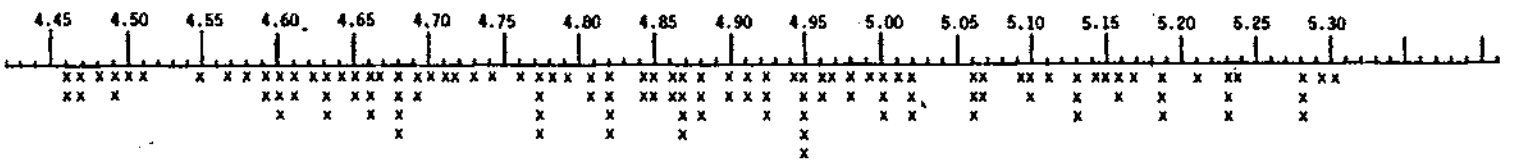
Report of Analysis on Sample: 06308

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 4.87

Distribution of Vitrinite Reflectance Readings:

%Ro



Number of Counts (Total= 123)

V-Type Table for Vitrinites (=100%)

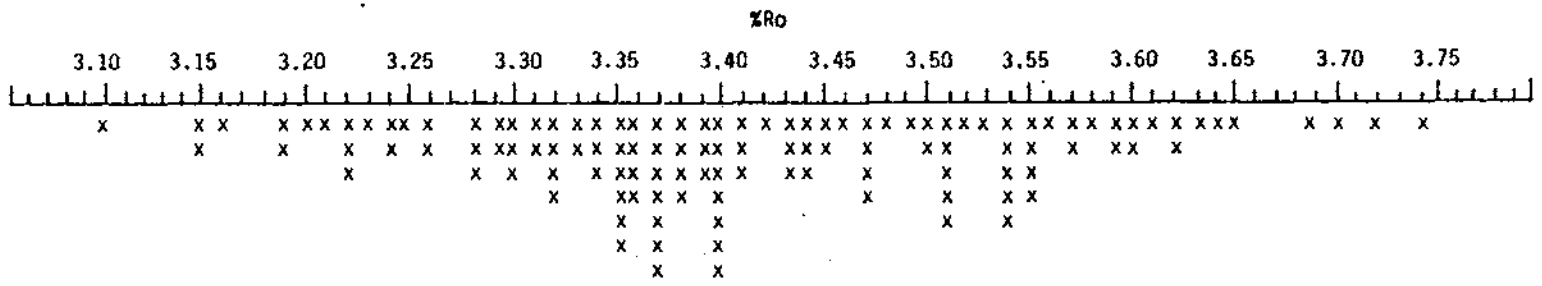
V-44 5.7	V-45 5.7	V-46 17.9	V-47 9.8	V-48 15.4
V-49 15.4	V-50 10.6	V-51 11.4	V-52 7.3	V-53 0.8

IAD Batch # 97-N263-662-57
Report of Analysis on Sample: 06306

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.42

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 122)

V-Type Table for Vitrinites (=100%)

V-31	V-32	V-33	V-34
4.9	13.1	31.1	21.3
V-35	V-36	V-37	
19.7	7.4	2.5	

REFLECTANCE ANALYSIS

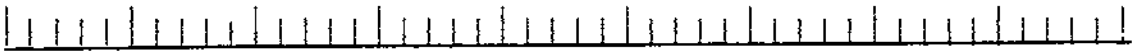
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03551

Mean-Maximum Vitrinite Ro: 2.20

Distribution of Vitrinite Reflectance Readings:

%Ro



The wide spread of reflectance values makes graphing this sample impractical.

Number of

Counts

(Total = 133)

V-Type Table for Vitrinites (=100%)

V- 15	V-16	V-17	V- 18	V- 19	V- 20
0.8	3.0	3.8	5.3	11.3	16.4

V- 21	V- 22	V- 23	V- 24	V- 25	V- 26	V- 27	V- 28	V- 29
15.7	12.0	11.3	8.3	2.3	1.5	1.5	3.0	3.8

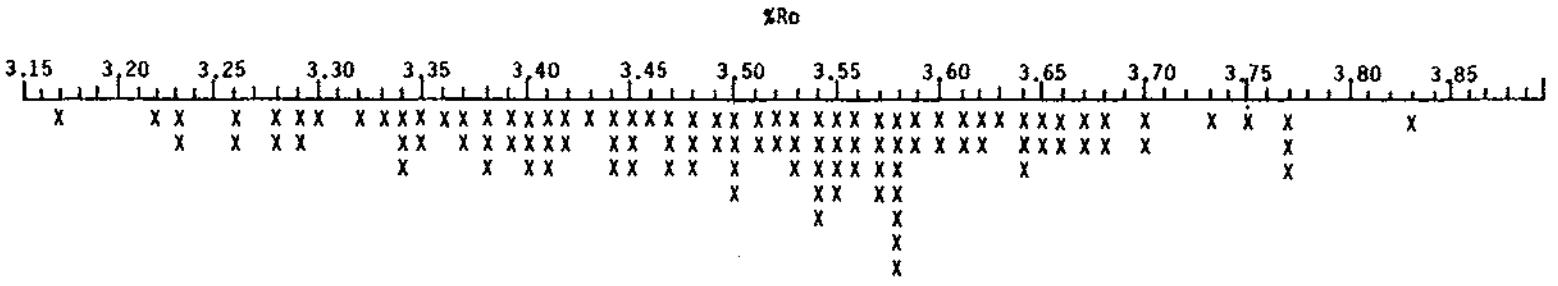
(A) Batch: #97-N263-662-57

Report of Analysis on Sample: 03552

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro- 3.50

Distribution of Vitrinite Reflectance Readings:



Number of Counts (Total= 112)

V-Type Table for Vitrinites (=100%)

V-31	V-32	V-33	V-34
0.9	8.0	14.3	21.4
V-35	V-36	V-37	V-38
32.1	16.1	6.3	0.9

REFLECTANCE ANALYSIS

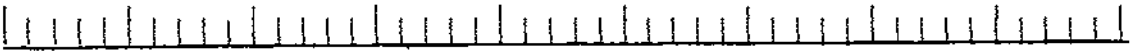
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03553

Mean-Maximum Vitrinite Ro: 3.35

Distribution of Vitrinite Reflectance Readings:

%Ro



The wide spread of reflectance values makes graphing this sample impractical.
This sample has severe oxidation.

Number of
Counts
(Total = 128)

V-Type Table for Vitrinites (±100%)

V- 22	V- 23	V- 24	V- 26	V- 27	V-28			
0.8	1.6	0.8	0.8	3.1	0.8			
V- 29	V- 30	V- 31	V- 32	V- 33	V- 34	V- 35	V- 36	V- 37
3.9	2.3	6.3	9.4	20.2	17.2	18.0	7.8	7.0

REFLECTANCE ANALYSIS

IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03554

Mean-Maximum Vitrinite Ro: 2.20

Distribution of Vitrinite Reflectance Readings:

%Ro

The wide spread of reflectance values makes graphing this sample impractical.
This sample has moderate oxidation.

Number of
Counts
(Total = 130)

V-Type Table for Vitrinites (=100%)

V-15	V-16	V-17	V-18	V-19	V-20
0.8	2.3	6.9	8.5	13.0	13.9
V-21	V-22	V-23	V-24	V-25	V-26
13.9	12.3	10.0	3.9	0.8	2.3
V-27	V-28	V-29	V-30	V-31	V-32
1.5	1.5	1.5	1.5	2.3	3.1

REFLECTANCE ANALYSIS

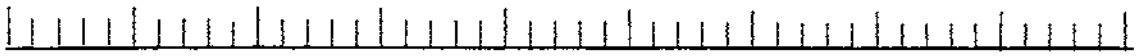
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03555

Mean-Maximum Vitrinite Ro: 2.39

Distribution of Vitrinite Reflectance Readings:

%Ro



The wide spread of reflectance values makes graphing this sample impractical.

Number of

Counts

(Total = 126)

V-Type Table for Vitrinites (±100%)

V- 17	V- 18	V- 19	V- 20	V- 21	V- 22
1.6	2.4	3.2	7.9	9.5	7.9

V- 23	V- 24	V- 25	V- 26	V- 27	V- 28	V- 29
13.5	15.9	12.7	9.5	8.7	3.2	4.0

REFLECTANCE ANALYSIS

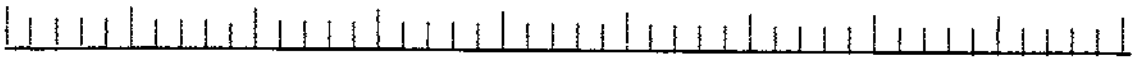
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03556

Mean-Maximum Vitrinite Ro: 2.26

Distribution of Vitrinite Reflectance Readings:

%Ro



This sample is moderately oxidized.

Number of
Counts
(Total = 120)

V-Type Table for Vitrinites (=100%)

V- 17	V- 18	V- 19	V- 20	V- 21	V- 22
3.3	9.2	15.0	9.2	11.7	14.1
V- 23	V- 24	V- 25	V- 26	V- 27	V- 28
5.8	9.2	5.8	5.8	6.7	4.2

REFLECTANCE ANALYSIS

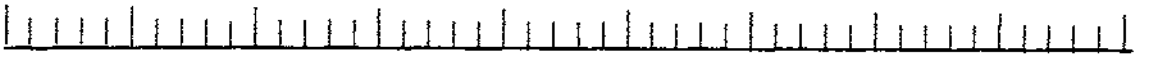
IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03559

Mean-Maximum Vitrinite Ro: 2.59

Distribution of Vitrinite Reflectance Readings:

%Ro



The spread of reflectance values makes graphing impractical. This sample is moderately oxidized.

Number of
Counts
(Total = 136)

V-Type Table for Vitrinites (=100%)

V- 19	V- 20	V- 21	V- 22	V- 23	V- 24
2.9	3.7	8.1	5.9	6.6	8.1

V- 25	V- 26	V- 27	V- 28	V- 29	V- 30	V- 31
9.5	5.9	14.0	14.0	12.5	4.4	4.4

IAD Batch: 97-N263-662-57

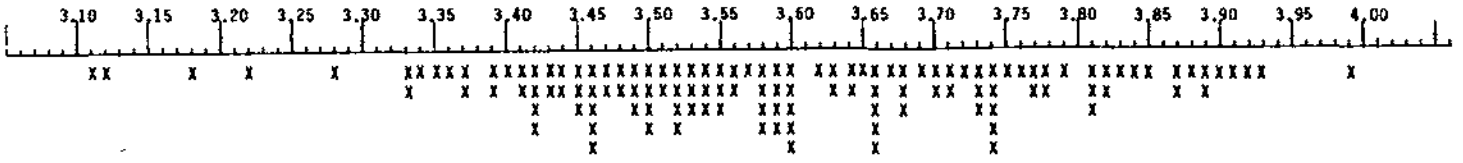
Report of Analysis on Sample: 03560

REFLECTANCE ANALYSIS

Mean-Maximum Vitrinite Ro: 3.58

Distribution of Vitrinite Reflectance Readings:

%Ro



This sample is moderately oxidized.

Number of Counts (Total= 129)

V-Type Table for Vitrinites (=100%)

V- 31	V- 32	V- 33	V- 34	V- 35
2.3	1.5	7.0	20.2	23.2
V- 36	V- 37	V- 38	V- 39	V-
16.3	15.5	10.1	3.9	

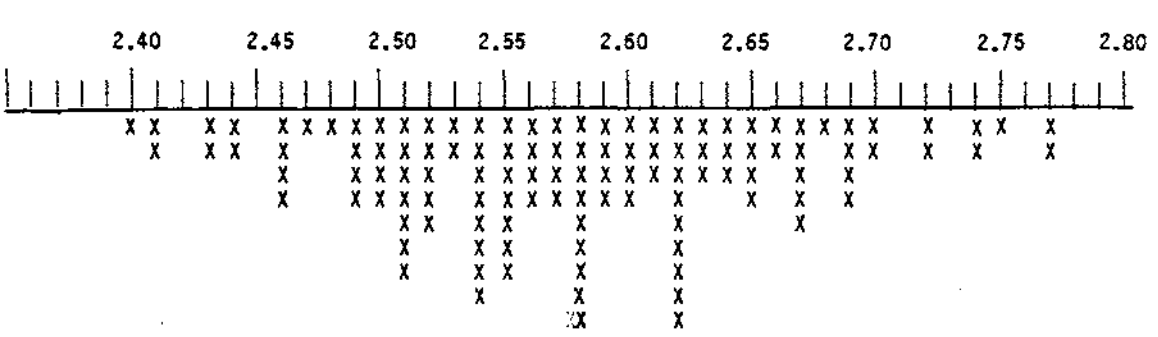
REFLECTANCE ANALYSIS

IAD Batch: 97-N263-662-57

Report of Analysis on Sample: 03563

Mean-Maximum Vitrinite Ro: 2.50

Distribution of Vitrinite Reflectance Readings:



This sample is moderately weathered.

Number of
Counts
(Total = 118)

V-Type Table for Vitrinites (=100%)

V- 24	V- 25	V- 26	V- 27
14.4	45.8	32.2	7.6