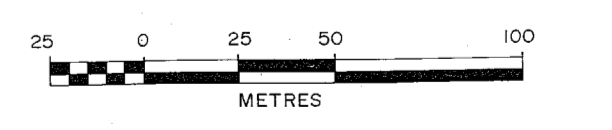
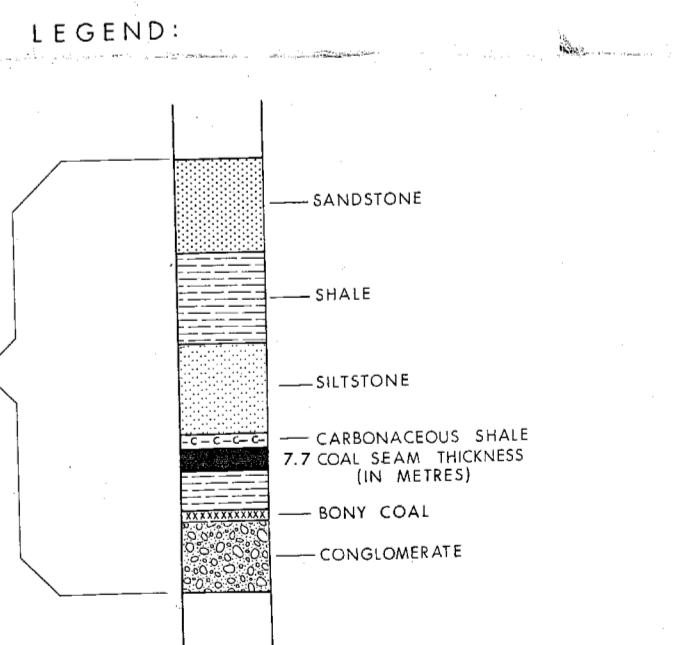
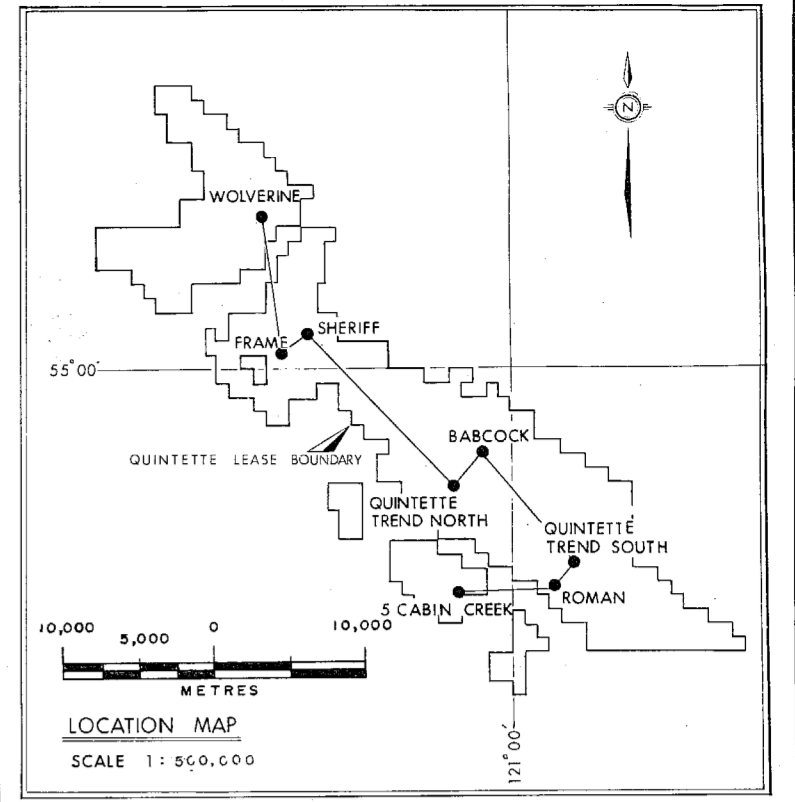
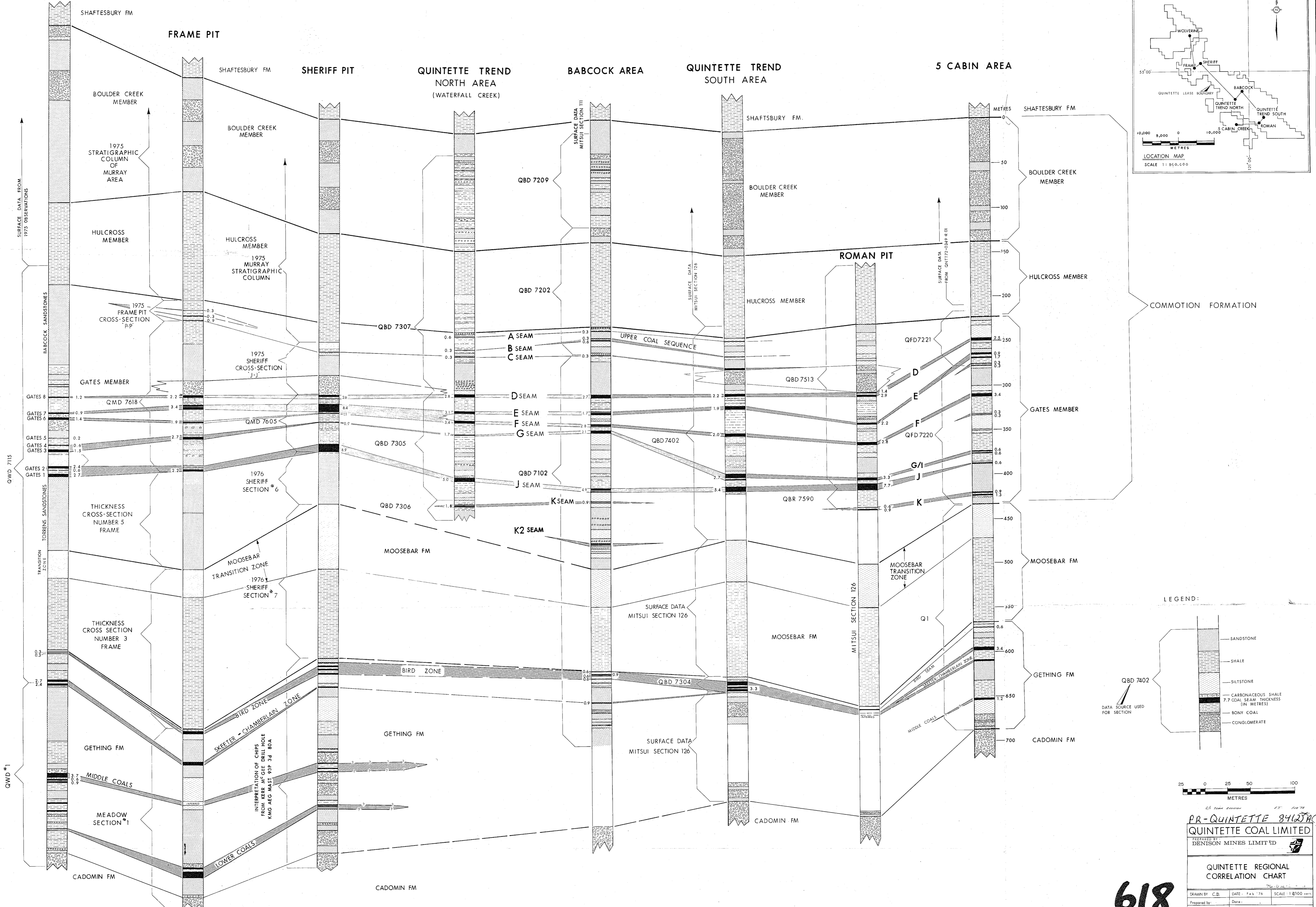


APPENDIX 3

REGIONAL CORRELATION CHART

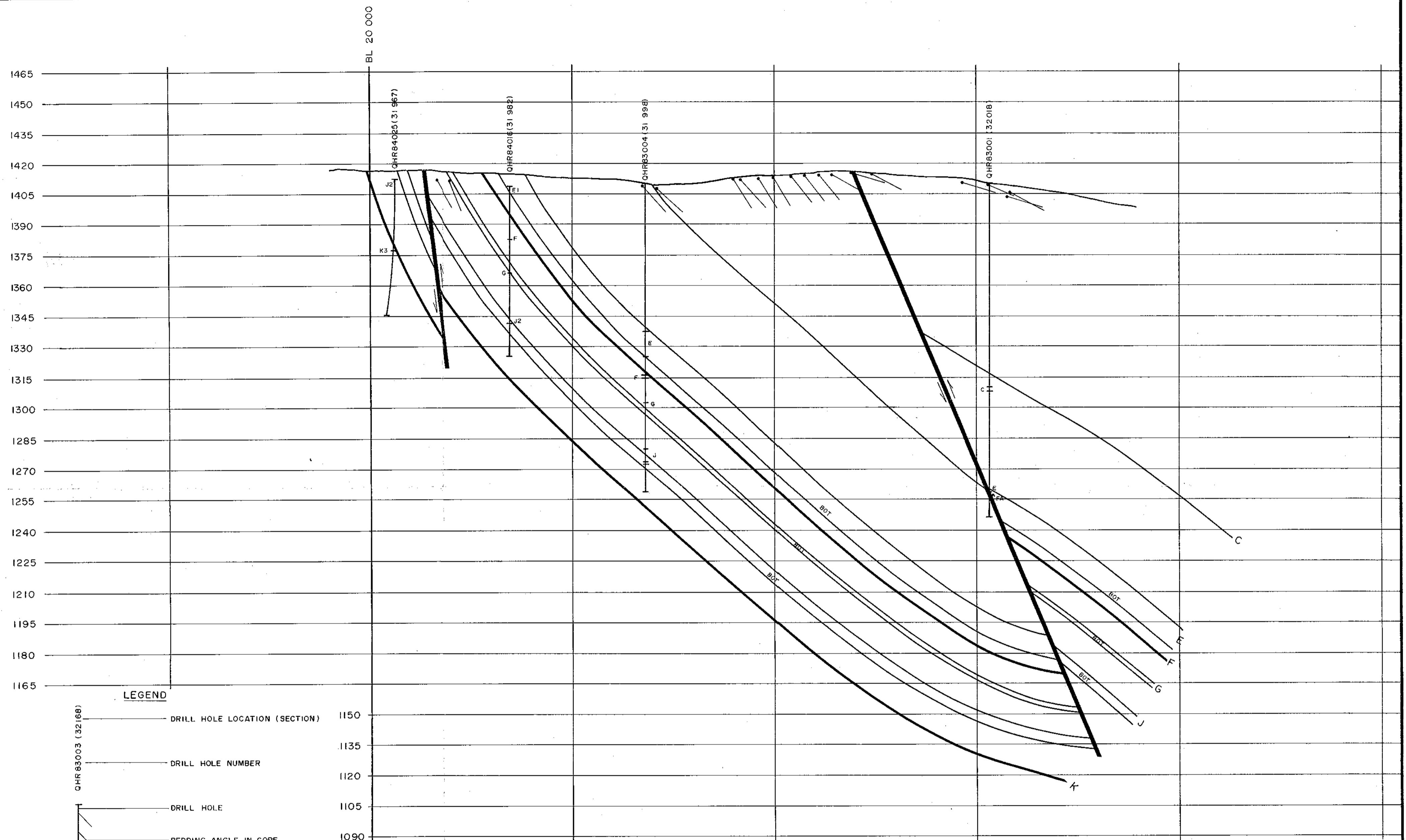
WOLVERINE AREA



PR-QUINETTE 84(2)HC
QUINETTE COAL LIMITED
 PREPARED BY DENISON MINES LIMITED
QUINETTE REGIONAL CORRELATION CHART
 DRAWN BY C.D. DATE Feb 76 SCALE 1:2700
 Prepared by Date
 Approved by C.D. Drawing No. QNNT 76-0647-R04

618

1878



LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- DRILL HOLE
- BEDDING ANGLE IN CORE
- SEAM I.D., TOP OF SEAM, TRUE THICKNESS
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)



618

REV.	D	M	Y	REVISION DESCRIPTION	DRAWN	DESIGN	APPROVED
0	07	03	85	ORIGINAL DRAFT	KJV	DJ	DJ

QUINETTE COAL LIMITED
 Project Manager
DENISON MINES LIMITED
 COAL DIVISION

PR - QUINETTE 84(2) A	
AREA HERMANN NORTH	CAT. CROSS SECTIONS
DRAWING TITLE	
SECTION 32,000	
DRAWING NO.	SCALE
85-601-21-004	1:1250
REV.	O

APPENDIX 4

ROTARY DRILLING SUMMARY SHEETS

QHR84001 to QHR84030
and
QBR84007, 84008, 84010 to QHR84014

HERMANN NORTH

Rotary Drill Hole

Summary Sheets



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84012		- 90°				109.5		5 1/2" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1400.9		6096775.5				618343.6				84 08 03			
GEOPHYSICAL DATA								OVERBURDEN					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200	X				X		X		X	X	X		
1:20	X				X				X				

MINING SECTION												
SEAM	ELEVATION ()	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			*									
F		11.13 - 12.22	54	.64								Repeated G Seam?
Fault	???	13.34										
G1		26.74 - 27.67	54	1.56								
G2P		27.67 - 28.12	54									* BCN'S From
G2		28.19 - 29.40	54									Interpretation
J		50.33 - 57.11	54	3.99								
K2		73.34 - 73.98	54	0.38								
K3		75.44 - 76.74	54	0.76								



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84016		90°		/		83.5		5 1/4" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1408.8		6096881.7				618253.4							
GEOPHYSICAL DATA								OVERBURDEN					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200					X	X						RODS	

General Log Only-All picks from general log. (Gamma-Neutron - No density - Compared with OHD 84002)

MINING SECTION												
SEAM	ELEVATION (')	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
E1		0 - 7.1	56	3.97								Top estimated
E2P		7.10 - 7.85	56	.42								
E2		7.85 - 12.10	56	2.38								
E3P		12.10 - 12.80	56	.39								
E3		12.80 - 16.30	56	1.98								
F		26.40 - 27.60	56	0.67								
G1		43.15 - 44.00	56	0.48								
G2P		44.40 - 44.60	56	0.11	1.79							
G2		44.60 - 46.75	56	1.20								
J2		67.70 - 73.50	55	3.33								

HERMANN GETHING

Rotary Drill Hole

Summary Sheets



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84019		Vertical -90°				42.5 m		Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1564.20		6,094,835.84				619,627.410				84/08/06			
GEO PHYSICAL DATA								OVER BURDEN					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT 4	DEPTH	COMPOSITION
1:200	X				X				X				
1:20	X				X				X				

MINING SECTION												
SEAM	ELEVATION (Top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
GT-I	1547.57	16.63-21.40	13°									Bottom possibly faulted off
Fault		21.48										
GT-IV	1537.16	27.04-28.26										
Parting or fault		28.26-28.42										Repeat of GT-1
GT-II	1535.78	28.42-33.40										Thick fault of dip



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84021	Vertical		36.0	5¼" Rotary	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1587.32	6094758.28		619409.022		84/08/06	

G E O P H Y S I C A L D A T A												O V E R B U R D E N		
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH		COMPOSITION
1:200	X				X				X		X	0		
1:20	X				X				X		X			

M I N I N G S E C T I O N												
SEAM	ELEVATION (Top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
GT1	1568.62	18.70-23.88										
GT2U	1560.32	27.00-27.81										Coal Rocksplitt
GT2M		28.26-29.02										Coal Rock
GT2L		29.35-29.71										Coal



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84022		Vertical				41.0		5 1/2" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1605.49		6094857.69				619373.983				84/08/06			
GEOPHYSICAL DATA								OVERBURDEN					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200	X				X				X				
1:20	X				X				X			0	

MINING SECTION												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
GT1	1580.45	25.04-27.82										Top of seam scoured or faulted off
GT2P		27.83-31.83			Rock							
GT2U	1573.66	31.83-32.64										
Middle Parting		32.64-33.08			Rock							
GT2M		33.08-34.56										
Lower Parting		34.56-34.84			Rock							
GT2L		34.84-35.35										



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84023		90°				43.0 m		5½" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1614.39		6094948.33				619365.605				84/08/06			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT ∠	DEPTH	COMPOSITION
1:20	X				X		X		X			0	

M I N I N G S E C T I O N												
SEAM	ELEVATION (Top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
GT1		18.82-19.55	13	0.73								Possible fault/repeat thickened
Parting		19.55-19.97		0.42								
GT1 Lower		19.97-25.08		5.11								
GT2U	1581.33	33.06-33.30		0.24								
Parting		33.30-33.66		0.36								
GT2 Middle		33.66-34.46		0.80								
Parting		34.46-34.80		0.34								
GT2 Lower		34.80-35.26	(i)	0.46								



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84024	90°		42.0 m	5½" Rotary	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1624.91	6095063.27		619353.938		84/08/06	

G E O P H Y S I C A L D A T A													O V E R B U R D E N		
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT			DEPTH	COMPOSITION
1:200	X				X		X		X					0	

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
												No Coal Indicated

HERMANN SYNCLINE

Rotary Drill Hole

Summary Sheets



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84001	- 90°		50 M	5 1/2" Rotary	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1563.89	6095192.69		617810.741		840726	

G E O P H Y S I C A L D A T A													O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT 4				DEPTH	COMPOSITION
	NO LOGS															

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
		NO COAL										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84002			30.0		

U. T. M. COORDINATES				DATE (from / to)	
COLLAR ELEVATION		NORTH	EAST		DRILLED
1588.98		6094935.29	617941.776		84/07/25

G E O P H Y S I C A L D A T A												O V E R B U R D E N				
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT ↙				DEPTH	COMPOSITION
1:200			X		X				X							
1:20		X			X				X							

M I N I N G S E C T I O N												
SEAM	ELEVATION (TOP)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
K2	1585.60	3.38 - 4.67	20°									
K3	1583.01	5.97 - 7.07										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84003	-90°		30.0	5 1/4" Rotary	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1588.72	6094990.01		617969.582		84/07/25	

G E O P H Y S I C A L D A T A												O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH		COMPOSITION	
1:200		X			X				X						
1:20		X			X				X						

M I N I N G S E C T I O N

SEAM	ELEVATION (top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
K1	1584.90	3.82 - 4.24										
K2	1583.51	5.21 - 6.32										
K3	1580.84	7.88 - 9.12										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER											
QHR 84004	-90°		30.0	5 1/2" Rotary												
U. T. M. COORDINATES					DATE (from / to)											
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED										
1588.68	6095068.44		618039.979		84/07/25											
G E O P H Y S I C A L D A T A										O V E R B U R D E N						
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT ∠				DEPTH	COMPOSITION
1:200			X		X				X							
1:20		X			X				X							

M I N I N G S E C T I O N												
SEAM	ELEVATION (top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
J	1588.68	- 5.86										
K1	1577.87	10.81 - 11.23										
K2	1576.56	12.12 - 13.17										
K3	1573.74	14.94 - 16.11										
K3	1569.43	19.25 - 20.94										



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84005		90°				30.0		5 1/4" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1574.23		6095176.07				618077.797				840724			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
NO LOGS - BLOCKED													

M I N I N G S E C T I O N												
SEAM	ELEVATION (top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
		From Drillers										
		Log										
		Collared in J Seam										
K1	1566.23	8 - 8.5										
K2	1565.23	9 - 11.5										
K3	1561.73	12.5 - 13										



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84006	Vertical		50.0 M	5 1/4" Rotary	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1605.85	6094805.69		618058.733		07-25-84	07-26-84

G E O P H Y S I C A L D A T A												O V E R B U R D E N		
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH		COMPOSITION
1:200			X		X				X					
1:20		X			X				X					

M I N I N G S E C T I O N												
SEAM	ELEVATION (TOP)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP LAB No.	COMMENTS
J	1594.37	11.48 - 17.70	<13°									
K1	1583.11	22.74 - 23.25										
K2	1581.57	24.28 - 25.32										
K3	1577.57	28.28 - 29.54										
Water Level		16.40										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE			COLLAR BEARING			TOTAL DEPTH			CORE SIZE			MAP / SECTION NUMBER			
QHR 84007		Vertical						60.0 M			5 1/4" Rotary						
U. T. M. COORDINATES												DATE (from / to)					
COLLAR ELEVATION				NORTH					EAST					DRILLED		CORE LOGGED	
1597.02				6094993.68					618169.473					07-25-84		07-26-84	
GEO PHYSICAL DATA										OVER BURDEN							
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT 4				DEPTH	COMPOSITION	
1:200			X		X				X								
1:20		X			X				X								

MINING SECTION												
SEAM	ELEVATION (EOP)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			est.									
J	1586.10	10.92 - 16.82	25°	5.35								
K1	1575.47	21.55 - 22.08										
K2	1574.10	22.92 - 24.04	25°	1.02								
K3	1570.27	26.75 - 27.98										
Water Level	41.70 M											



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER											
QHR 84008	Vertical		60 m	5½" Rotary												
U. T. M. COORDINATES					DATE (from / to)											
COLLAR ELEVATION	NORTH		EAST		DRILLED											
1597.71	6095061.91		618200.019		84 07 24											
G EOPHYSICAL DATA					O V E R B U R D E N											
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT				DEPTH	COMPOSITION
1:200			X		X				X							
1:20		X			X				X							

- Hole Blocked @ 16.8 m

M I N I N G S E C T I O N												
SEAM	ELEVATION (top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
G	1594.32	3.39 [?] 4.17										?
J	1581.71	16 - 24)
K1	1572.21	25.50 - 26.60)
K2	1570.91	26.80 - 27.70										) From Driller's
K3	1569.21	28.50 - 29.30										) Logs - Hole
K2	?1567.31	30.40 - 31.70 <small>fault??</small>										) Caved.
K3	?1563.41	34.30 - 35.00)
)
)
)
)
)
)
)
)
)



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84009		Vertical				50.0		5½" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1598.20		6095111.85				618229.204				07-25-84	07-26-84		
GEOPHYSICAL DATA									OVERBURDEN				
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200			X		X				X				
1:20		X			X				X				

MINING SECTION												
SEAM	ELEVATION (top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
J	1593.64	4.56 - 12.16										
K1	1581.02	17.18 - 17.88										
K2	1579.43	18.77 - 19.93										
K3	1575.38	22.82 - 24.06										



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER											
QHR 84010	Vertical		60.0	5 1/4" Rotary												
U. T. M. COORDINATES					DATE (from / to)											
COLLAR ELEVATION	NORTH		EAST		DRILLED / CORE LOGGED											
1609.84	6094930.21		618028.925		07-25-84 / 07-26-84											
G E O P H Y S I C A L D A T A					O V E R B U R D E N											
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT A				DEPTH	COMPOSITION
1:200			X		X				X							
1:20		X			X				X							

M I N I N G S E C T I O N												
SEAM	ELEVATION (Top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
G	1605.82	3.33 - 4.13										
J	1593.24	15.91 - 21.09										
K1	1583.67	25.48 - 26.00										
K2	1582.52	26.63 - 27.65										
K3	1579.55	29.60 - 30.75										Picks from General Log.



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84011		Vertical				67.0 m		5½" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1609.15		6094975.29				618050.352				07-25-84	07-26-84		
G EOPHYSICAL DATA								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT 4	DEPTH	COMPOSITION
1:200			X		X				X				
1:20		X			X				X				

MINING SECTION												
SEAM	ELEVATION (top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
G	1604.77	5.07 - 7.24										
J	1592.20	17.64 - 23.00										
K1	1582.55	27.29 - 27.83										
K2	1581.14	28.70 - 29.74										
K3	1578.00	31.84 - 32.88										
Water Level		38.50										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84026	Vertical		42.5	5 1/2" Rotary	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1597.16	6095121.76		618127.470			

GEOPHYSICAL DATA												OVER BURDEN	
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200	X				X				X			7.2	Gravel & Till
1:20	X				X				X				

MINING SECTION												
SEAM	ELEVATION (Top)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
												Picks from Detail
												Log
G1	1585.91	11.25 - 11.92	< 13°									
G2	1585.04	12.12 - 13.04	< 13°									
J1	1575.04	22.12 - 25.82	35°									
J2	1571.09	26.07 - 28.54	35°									
K1	1562.74	34.42 - 34.86	35°									
K2	1561.35	35.81 - 37.02	35°									
K3	1557.46	39.70 - 40.15	35°									

HERMANN SOUTH

Rotary Drill Hole

Summary Sheets



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
OHR 84017		-90°				128.0 m		5 1/2" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
877.047		6095367.55				624352.731				84-08-05			
G E O P H Y S I C A L D A T A										O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200					X	X						4.5	Gravel
1:20					X	X							

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
D & E												in overburden
			est.									
F1		44.72 - 45.16	40°	0.34								NOTE: All picks
F2P		45.16 - 45.41	40°	0.19								made on detail
F2		45.41 - 50.02	40°	3.53								Gamma Neutron log
												when compared with
G1		71.99 - 74.52	43°	1.85								QHD 84004 Gamma
G2P		74.52 - 75.14	43°	0.45								Density log.
G2		75.14 - 76.68	43°	1.13								
J1	778.56	98.49-104.27	44°	4.16								
J3P		104.27-105.48	44°	0.87								
J3		105.48-107.56	44°	1.50								
K		110.75-111.66	45°	0.64								



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84018		-90°		---		238.3		5 1/2" Rotary		Hermann South			
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
857.664		6095285.33				623971.799				84-11-09			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200		X			X	X			X	X	X	5.80	Mud and Clay
1:20		X			X				X				Very wet

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.									
Marker		19.94-20.87	19°									
C		78.40-79.83										Top of seam possibly faulted off - 77.13
E1		114.50-115.04										*Note: Top of seam picks from 1:200 scale Gamma-neutron -Seam thicknesses from detail density. -Other picks from detail density log.
E2P		115.04-115.29										
E2		115.29-115.64										
E3P		115.64-115.92										
E3		115.92-116.13										**Note: Difference between the 2 logs is a result of a "dirty" depth measuring wheel on logging unit when 2nd log (γ-dens) was run. The deeper (γ-neutron) is more accurate.
F1		142.80-143.78										***Note: Making gas after 120 m. F2-Possibly faulted
F2P		143.78-144.02										
F2		144.02-149.54										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
OHR 84018					

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
857.664	6095285.33		623971.799			

G E O P H Y S I C A L D A T A											O V E R B U R D E N				
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT X			DEPTH	COMPOSITION
1:200		X			X	X			X	X	X				
1:20		X			X				X						

M I N I N G S E C T I O N

SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
G1		187.50-189.61										
G2P		189.61-190.00										
G2		190.00-191.47										
J1		208.60-214.96										
J3P		214.96-215.85										
J3		215.85-217.18										
K		222.80-223.83										High ash lower section 219.76-220.09



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER								
QHR 84027	- 90°	-	32.0 m	5 1/4" Rotary									
U. T. M. COORDINATES					DATE (from / to)								
COLLAR ELEVATION	NORTH		EAST		DRILLED								
860.261 m*	6095326.53 N*		623962.416 E*		CORE LOGGED								
G E O P H Y S I C A L D A T A													
O V E R B U R D E N													
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
												8.5 m	

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No	COMP. LAB No.	COMMENTS
		Drillers Depth**										* Located 2m east
Marker		29.0 - 30.5										of QHR 84030 - not surveyed
												**Not logged due to
												problems with geophysical unit



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHR 84028	-90°	--	198.0	Rotary - 5½	Hermann South

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
879.239	6095484.36		624054.289		84-11-12	

G E O P H Y S I C A L D A T A												O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT 4	DEPTH		COMPOSITION	
1:200		X			X	X			X	X	X	3 m		Clay and Mud Very wet	
1:20		X			X			X							

M I N I N G S E C T I O N												
SEAM	ELEVATION (TOP)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
C1		59.62-61.21										
C2P		61.21-61.60										
C2		61.60-62.31										
E1		93.93-94.69										
E2P		94.69-94.90										
E2		94.90-95.48										
E3P		95.48-95.66										
E3		95.66-95.84										
F1		118.93-119.33										
F2P		119.33-119.76										
F2		119.76-123.46										



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER						
OHR 84028																
U. T. M. COORDINATES										DATE (from / to)						
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED					
879.239		6095484.36				624054.289										
G E O P H Y S I C A L D A T A										O V E R B U R D E N						
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT α				DEPTH	COMPOSITION

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
G1		144.08-146.12										
G2p		146.12-146.80										
G2		146.80-148.18										
J1	752.02	164.22-168.35										
J3P		168.35-170.38										
J3		170.38-171.72										
fault		171.72										
J3P rpt		171.72-171.89										Faulted repeats
J3 rpt		171.89-173.09										Faulted repeats
K		179.44-179.99										



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING				TOTAL DEPTH				CORE SIZE		MAP / SECTION NUMBER	
QHR 84029		-90°		---				54.0 m				Rotary - 5½"		Hermann South	
U. T. M. COORDINATES												DATE (from / to)			
COLLAR ELEVATION				NORTH				EAST				DRILLED	CORE LOGGED		
861.390				6095305.80				623944.898				84-11-14			
G E O P H Y S I C A L D A T A											O V E R B U R D E N				
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH		COMPOSITION	
1:200					X	X					X	8.0 m		Mud and Clay	

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
Marker		21.65-22.50										Used to determine strike and dip
												Picks from 1:200 General log.



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHR 84030		-90°		-- /		36.0 m		Rotary - 5 1/4"		Hermann South			
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
860.261		6095326.53				623960.416				84-11-14			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200					X	X.					X	8.0	Mud and Clay

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
Marker		29.45 - 30.35										Used to determine strike and dip.
												Picks from 1:200 General log.

WATERFALL CREEK

Rotary Drill Hole

Summary Sheets



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING			TOTAL DEPTH			CORE SIZE		MAP / SECTION NUMBER	
QBR 84007		- 90°		---			50.0 m			Rotary - 5 1/4"			
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH					EAST					DRILLED	CORE LOGGED
813.821		6090621.69					621920.0					84-08-09	
GEO PHYSICAL DATA									OVER BURDEN				
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
												7 m	
NO LOGS													

MINING SECTION												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
		NO COAL										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBR 84008		90°				134.0 m		5 1/2" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
811.282		6090501.50				621825.436				84-08-08			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200	X				X		X		X	X	X	4 m	
1:20	X				X				X				

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.	!								
F2 ?		3.30 - 3.64	20°	0.32								} In o/b - not reliable
F3P?		3.64 - 4.10	20°	0.43								
F3 ?		4.10 - 4.51	20°	0.39								
Coal & Rock		19.37 - 21.68	20°	3.48								I Coal Zone
I Upper		21.96 - 22.43	20°	0.44								High Ash ≈ 35%
I Upper		23.17 - 23.97	20°	0.75								
Coal & Rock		24.25 - 25.88	20°	1.53								I Coal Zone
T1		26.22 - 26.98	20°	0.71								
T2P		26.98 - 27.38	20°	0.38								
T2		27.38 - 28.82	20°	1.35								



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBR 84008													
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
G E O P H Y S I C A L D A T A										O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT x	DEPTH	COMPOSITION

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.									
J2		49.14 - 50.88	20°	1.64								
COAL		129.16-130.17	20°	0.95								



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER								
QBR 84010	-90	--	18.0 m	Rotary - 5 1/2"									
U. T. M. COORDINATES					DATE (from / to)								
COLLAR ELEVATION	NORTH		EAST		DRILLED								
802.883 m	6090470.46		621745.846		84-08-10								
G E O P H Y S I C A L D A T A					O V E R B U R D E N								
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
											4	18.0 m	Gravel, clay (mud), broken Rock

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
		NO LOGS OR COAL										
		3 tries - 18 m max. depth										



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QBR 84011	-90°	--	34.5 m	Rotary - 5 1/2"	

U. T. M. COORDINATES				DATE (from / to)	
COLLAR ELEVATION	NORTH			EAST	
806.268	6090560.69			621873.181	
				DRILLED	CORE LOGGED
				84-08-11	

G E O P H Y S I C A L D A T A												O V E R B U R D E N		
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH		COMPOSITION
												34.5 m		
NO LOGS														

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
		34.5 min. ovb										- HOLE SKIDDED



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBR 84012		90°				134.0 m		5 1/4" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
815.978		6090335.65				621695.439				84-08-11			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200					X	X						18	Clay, sand, gravel
1:20					X	X							

* NOTE: SEAM picks from Detail Gamma-Neutron when compared with 84008 and 7309

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.									
E1		37.25 - 37.71	42°	0.34								
E2P		37.71 - 39.26	↓	1.15								
E2		39.26 - 41.05		0.59								
F1		72.55 - 73.60		0.78								
F2P		73.60 - 74.38		0.58								
F2		74.38 - 74.88		0.37								
F3P		74.88 - 76.01		0.84								
F3		76.01 - 77.26		0.93								
F4P		77.26 - 78.20		0.70								
F4		78.20 - 78.95		0.56								
I Upper		100.30-100.77		0.35								} High ash coal seams
T Upper		101.55-102.14		0.44								
I Upper		102.58-103.05		0.35								



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QBR 84012					

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED

GEOPHYSICAL DATA													OVERBURDEN		
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT			DEPTH	COMPOSITION

MINING SECTION												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.									
I1P		103.05-105.58	42°	1.88								
I1		105.58-106.07	↓	0.36	I seam							
I2P		106.07-106.66		0.44								
I2		106.66-108.04		1.03								
J		120.35-121.62		0.94								



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBR 84013		90°		---		79.5 m		5 1/4" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
816.314		6090256.82				621619.975				84-08-12			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200					X	X						7.5	
1:20					X	X							

* NOTE: Seam thicknesses from detail Gamma-Neutron log.

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.									
F1		26.26 - 27.17	30°	0.79								
F2P		27.17 - 28.13	30°	0.83								
F2		28.13 - 28.86	30°	0.63								Very high ash
F3P		28.86 - 29.79	30°	0.81								
F3		29.79 - 30.38	30°	0.51								
F4P		30.38 - 30.80	30°	0.36	1.35							
F4		30.80 - 31.35	30°	0.48								
I Upper		51.43 - 51.65	30°	0.19								
I Upper		52.92 - 53.19	30°	0.23								
I Upper		53.95 - 54.58	30°	0.55								
T1		57.02 - 57.84	30°	0.71	2.26		0.48					
T2		58.39 - 59.62	30°	1.07								
J		72.68 - 74.09	30°	1.22								



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBR 84014		90°		--		158.8 m		5 1/4" Rotary					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
806.969		6090431.32				621743.899				84-08-13			
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200	X				X				X			7 m	
1:20	X				X				X				

Logged through Rods - picks from detail density.

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est.									
D												In O/B?
E1		41.80 - 42.21	30°	0.36								High Ash
E2F		42.21 - 44.14	30°									
E2		44.14 - 46.50	30°	2.04								
F1		77.77 - 78.86	30°	0.94								
F2F		78.86 - 79.47	↓	0.53								
F2		79.47 - 80.66		1.03								
Fault		81.40										
F2 faulted		81.40 - 81.96										
F2 repeat		82.10 - 82.99		0.77								
F3		83.98 - 84.28		0.26								
F4		85.66 - 86.55		0.77								



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBR 84014													
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
G E O P H Y S I C A L : D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			Est									
I Upper		111.46-111.90	30°	0.38								
I Upper		112.68-112.92	↓	0.21								
I Upper		113.62-114.18		0.48								
I1		116.10-116.64		0.48								
I2P		116.64-116.93		0.25								
I2		116.93-118.20		1.10								
J Upper		134.48-135.00		0.45								
J2		142.66-144.68		1.75								

APPENDIX 5

CORE DRILLING SUMMARY SHEETS

QHD84001 to QHD84004

QBD7308 and 7309



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHD 84001	-75.6°	221	215.3	HQ	

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED
1302.92	6097258.41		618097.952			

G E O P H Y S I C A L D A T A												O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT α			DEPTH	COMPOSITION
1:200					X	X								9.72	
1:20					X	X									

NPTE: Seam picks from 1:20 Gamma-Neutron log when compared with logs from QHD 84002

M I N I N G S E C T I O N													
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS	
C		48.24 - 49.58	42	1.00								Not picked from logs -Corrected to markers	
				33°			47.05						
E1		105.68-111.02		4.03	9.0								
E2P		111.02-111.83		0.76									
E2		111.83-114.62		2.21									
E3P		114.62-114.84		0.17									
E3		114.84-117.16		1.83									
				43°			4.64						
F		123.50-124.55		47° 0.72									
				44°			13.05						
G1		142.69		2.01									
G2		145.38											



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHD 84001					

U. T. M. COORDINATES				DATE (from / to)		
COLLAR ELEVATION	NORTH		EAST		DRILLED	CORE LOGGED

G E O P H Y S I C A L D A T A													O V E R B U R D E N			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT				DEPTH	COMPOSITION

M I N I N G S E C T I O N													
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS	
J1		169.35-170.42	45	0.78			16.95						
J2P		170.42-170.68		0.19									
J2		170.68-177.14		5.00									
			53				5.10						
K3		192.26-193.75		0.89									
K4		195.56-195.90		0.19									



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHD 84002		-90°				204.70							
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1390.14		6,097,064.03				618,204.547							
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT ◁	DEPTH	COMPOSITION
1:200	X				X	X			X	X	X	2.06	
1:20	X	X			X				X				

M I N I N G S E C T I O N													
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS	
C1		20.87 - 22.84	43	1.44		80.7			840919	18			
C2P		22.84 - 23.75	44	0.65		96.7							
C2		23.75 - 24.63	45	0.62		54.6							
Coal		52.10 - 52.50	43	0.29		100.0							
E1 Upper		96.34 - 97.50	39	0.91	5.04	50.0			840919	8			
E1 Upper Part		97.50 - 97.73	39	0.18		100.0			840919	9			
E1 Middle		97.73 - 99.83	40	1.62		81.4			840919	10			
E1 Middle Part		99.83 - 100.33	40	0.38		100.0			840919	11			
E1 Lower		100.33-102.86	40	1.95		96.4			840919	12			
E2P		102.86-103.74	43	0.63		100.0			840919	13			
E2		103.74 - 107.72	44	2.85		90.2			840919	14			
E3P		107.72 - 108.26	43	0.36		70.4			840919	15			



DRILL HOLE SUMMARY SHEET

HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHD 84002					

U. T. M. COORDINATES

DATE (from / to)

COLLAR ELEVATION	NORTH	EAST	DRILLED	CORE LOGGED

G E O P H Y S I C A L D A T A

O V E R B U R D E N

SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT 4	DEPTH	COMPOSITION

M I N I N G S E C T I O N

SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
E3		108.26-110.58	48	1.58		42.9			840919	16		
E3	Lower	110.58-112.72	50	1.38		51.7			840919	17		
F		118.28-119.59	47	0.90		50.4			840919	7		
G1		138.90-139.87	46	0.67		87.6			840919	4		
G2P		139.87-140.40	46	0.37		100.0			840919	5		
G3		140.40-141.93	46	1.14		90.2			840919	6		
J1		163.96-164.28	46	0.22		100.0						
J2P		164.28-164.87	46	0.41		100.0						
J2		164.87-171.53	46	4.63		91.7			840919	3		
K2		189.30-189.61	47	0.21		100.0			840919	2		
K3		192.12-193.34	45	0.82		73.0			840919	1		



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHD 84003		-90°				153.29		HQ					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
1388.48		6,096,706.59				618,493.210							
GEOPHYSICAL DATA										OVERBURDEN			
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT °	DEPTH	COMPOSITION
1:200	X				X				X	X	X		
1:20		X			X				X			2.41	

MINING SECTION

SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
E1	Upper	26.66-27.51	41	0.64		49.4			84/09/19	9		
E1	Upper Parting	27.51-27.76	41	0.19		92.0				10		
E1	Main	27.76-31.79	47	2.72		76.6				11		
E2	Parting	31.79-32.80	50	0.64		100				12		
E2	Upper	32.80-33.60	48	0.50		66.3				13		
E2	Main	33.60-35.48	48	1.20		90.4				14		
E3	Parting	35.48-35.92	47	0.29		72.7				15		
E3	Main	35.92-38.22	50	1.47		57.8				16		
E3	Lower	38.22-39.15	46	0.62		100			84/09/19	17		
F		51.18-52.08	40	0.69		100			84/09/19	8		
G1		61.62-62.48	37	0.68		96.3			84/09/19	7		
G2P		62.48-63.04	35	0.44		89.3				18		
G2		63.04-64.12	33	0.91		93.5			84/09/19	6		



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QHD 84004		-77.8°		068.8°		109.62		HQ					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
875.76		6095357.44				624377.182				840802 to 04	840815		
GEO PHYSICAL DATA								OVER BURDEN					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:200	X	X	X		X	X				X	X	8.58	Sand- some o/b was Coal seam - weathered
1:20	X	X			X								no core

MINING SECTION												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
E1		5.38-5.98		0.48		0						No Core in Casing
E2P		5.98-6.42		0.35		0						
E2		6.42-8.57		1.72		0						
F1		31.30-31.65	27	0.32		74.3			84/10/04	7		
F2P		31.65-31.93	27	0.25		100						
F2		31.93-35.27	28	2.92		78.7			84/10/04	8		
F2	Lower	(35.27-36.32)	29	0.92		66.7			84/10/04	9		
G1		55.46-57.36	30	1.63		77.9			84/10/04	4		
G2P		57.36-57.93	29	0.50		100			84/10/04	5		
G2		57.93-58.89	29	0.85		100			84/10/04	6		



HOLE NUMBER	HOLE ANGLE	COLLAR BEARING	TOTAL DEPTH	CORE SIZE	MAP / SECTION NUMBER
QHD 84004					

U. T. M. COORDINATES				DATE (from / to)	
COLLAR ELEVATION	NORTH		EAST		

GEO PHYSICAL DATA											OVERBURDEN					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT				DEPTH	COMPOSITION

MINING SECTION												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL / ROCK	RECOVERY	INTERSEAM THICKNESS	DATE DRILLED	DATE SAMPLED	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
J1	796.60	80.40-85.37	28	4.38		92.0			84/10/04	3		
J3P		84.37-86.58	33	1.00		100						
J3		86.58-87.63	31	0.90		100			84/10/04	2		
K		91.37-92.06	32	0.58		73.9			84/10/04	1		



HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
QBD 7308		90°		-		(826')		HQ					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
886 m*		6090163 N*				622267 E*							
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:20	X		X		X	X			X	X	X		

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG B.C.N	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	Composite Head-Ash	Component Head-Ash	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			<13°									* Measured from 1:5000 Geology Plan
BC		14.2 - 40.2		21.03								Babcock Conglomerate
D2		41.9 - 42.08		0.89								
D3		42.53 - 42.93		0.40								
D4		44.64 - 45.13		0.49								
E2		83.85 - 85.80		1.95				20.32	20.32	1972	7308-D	Seam picks from expanded log
E3		89.84 - 89.64		0.30								Identified as "D" Seam when sampled
F1		110.80 - 112.87		2.07					17.92	1973		Seam picks from expanded log Comp. does not include partings
F2		113.70 - 114.52		0.82				22.53	25.02	1974	7308-F	
F3		114.95 - 115.68		0.73					35.22	1975		
I1		142.82 - 143.97		1.15				30.20	30.20	1976	7308-I	Include parting - seam picks from expanded log
I2		144.37 - 145.65		1.28				30.20	30.20	1976	7308-I	
J2		160.10 - 162.20		2.10				24.72	24.72	1977	7308-J	



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE		COLLAR BEARING		TOTAL DEPTH		CORE SIZE		MAP / SECTION NUMBER			
OBD7309		90°		-		(747') 227.7 m		HQ					
U. T. M. COORDINATES										DATE (from / to)			
COLLAR ELEVATION		NORTH				EAST				DRILLED	CORE LOGGED		
898 m*		6090289 N*				622789. E*							
G E O P H Y S I C A L D A T A								O V E R B U R D E N					
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT	DEPTH	COMPOSITION
1:20	X		X		X	X			X				

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	Composite Head Ash	Component Head Ash	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
			<13°									*Measured from 1:5000 Geology Plan
BC		28.96' - 55.44'										Babcock Conglomerate
D1		55.44 - 55.78		0.34								
D2		56.69 - 57.42		0.73								Note: All picks from General Log - no detail
D3		58.06 - 58.40		0.34								
D4		59.86 - 60.35		0.49								
E1		103.94 - 104.55		0.61								
E2		106.09 - 108.60		2.53				20.29		1978-1980	7309-D	Called "D" Seam when sampled
E3		111.04 - 111.37		0.33								
F1		129.84 - 132.13		2.29				20.35	14.81	1981	7309-F	Composite Excludes parting
F2		132.59 - 133.50		0.91					26.73	1982		
F3		134.42 - 135.27		0.85								



DRILL HOLE SUMMARY SHEET

HOLE NUMBER		HOLE ANGLE			COLLAR BEARING			TOTAL DEPTH			CORE SIZE			MAP / SECTION NUMBER			
QBD7309																	
U. T. M. COORDINATES												DATE (from / to)					
COLLAR ELEVATION		NORTH						EAST				DRILLED		CORE LOGGED			
G E O P H Y S I C A L D A T A										O V E R B U R D E N							
SCALE	DEN	BRD	LSD	HRD	GAM	NEUT	FBE	FBS	CAL	DIR	SLANT A	DEPTH		COMPOSITION			

M I N I N G S E C T I O N												
SEAM	ELEVATION (BASE)	DRILLED INTERVAL	AVG. B.C.N.	TRUE THICKNESS	COAL/ROCK	RECOVERY	INTERSEAM THICKNESS	Composite Head Ash	Component Head Ash	SAMPLE TAG No.	COMP. LAB No.	COMMENTS
I1		167.76 - 168.62		0.84								
I2		170.41 - 171.30		0.89								
J1		180.69 - 181.20		0.51								
J2		185.93 - 187.45		1.52				29.20	29.20	1983	7309-J	

APPENDIX 6

CORE DRILLING DESCRIPTIVE LOGS

QHD84001 to QHD84004

DRILL HOLE

Q H D 8 4 0 0 1

Descriptive Log

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bodding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 1							
	0	9.72	✓					OVERBURDEN: 31 feet			9.45/31				
											m ft				
	9.72			1.91				SILTSTONE: Very fine grain with sandstone bands							Broken, rusted
											11.28/37				
											m ft				
47°	12.24			0.61				SILTSTONE: Minor calcite veins							Broken
								BOX 2							
	12.24	13.71		1.47				SANDSTONE: Very fine grain, mixed siltstone							Rusted fractures
	13.71			0.82				SILTSTONE: Minor very fine grain sandstone							
				0.39											
								SILTSTONE: Fine grain sandstone mixed			14.33/47				
											m ft				
								BOX 3							
48°	16.83			1.91				SILTSTONE: Very fine grain with sandstone							
								laminations							

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	16.83	17.67	0.84			SANDSTONE: Very fine grain, laminated, calcite filled slickenside									
										17.37/57					
										m	+				
							BOX 4								
	17.67	18.48	0.81			SILTSTONE:									Fractured
	18.48		0.04			SANDSTONE: Very fine grain, light brown									
		19.01	0.49			SANDSTONE: Very fine grain, siltstone lamina- tions, calcite vein at bottom.									
	19.01		1.11			SILTSTONE: Very fine grain, sandstone bands									Fractured
							BOX 5								
			0.54			SILTSTONE: Very fine grain sandstone (mixed)									
										20.42/67					
		22.06	1.40			SILTSTONE: As above									

DRILL CORE LOG

HOLE No. QHD 84001

Page No. 2

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	22.06		0.72			SANDSTONE: Fine grain, siltstone bands, minor calcite veins									
						BOX 6									
			0.47			SANDSTONE: Very fine grain, calcite filled fractures									Fractured core
			0.49			ROCK LOSS:									
										23.47/77					
		23.91	0.17			SANDSTONE: Fine grain, calcite filled fractures				m	Et				
	23.91		0.98			SILTSTONE: Minor very fine grain sandstone									Broken core
43			0.28			SILTSTONE: 2 cm calcite vein (top)									
										24.69/81					
			0.54			SILTSTONE: Calcite filled fractures									Broken

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r, q. d. d. o. b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 7							
			1.23					SILTSTONE: As above, badly broken at end							Fractured
										26.21/86'					
			0.35					SILTSTONE: Calcite filled fractures, calcite crystals							Shattered core
			0.55					SILTSTONE: very fine grain with sandstone							Broken core
										27.42/90'					
			0.16					SILTSTONE: Calcite veins		m ft					
								BOX 8							
			1.10					SILTSTONE: Minor calcite veins							Fractured core
22'			0.90					SILTSTONE: Very fine grain, sandstone bands							
										29.57/97'					
24'			0.41					SILTSTONE: Very fine grain, sandstone interbedded							

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 9							
25°			1.29			SILTSTONE:	Minor very fine grain sandstone								
							bands, calcite veins								Fractured core
										31.39/103'					
			1.31			SILTSTONE:	Minor very fine grain sandstone,								
							calcite filled								Rusty fractures
			1.75			SILTSTONE:	Abundant calcite veins								Rusty fractures
										34.44/113'					
			0.83			SILTSTONE:	very fine grain sandstone, abundant								Rusty fractures
							calcite veins								Broken.
								BOX 11							
			1.08			SILTSTONE:	calcite veins, calcite filled								Rusty fractures
										36.27/119'					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
29°			1.05			SILTSTONE: very fine grain sandstone laminations									Badly broken
						calcite veins.									
						BOX 12									
			0.27			SILTSTONE: As above									Broken
										3.49/123'					
40°			0.95			SILTSTONE: Very fine grain sandstone; abundant									Rusted fractures
						calcite.									
										3.40/126'					
			0.83			SILTSTONE: Minor very fine grain sandstone,									Rusty fractures
						calcite filled.									
						BOX 13									
			0.61			SILTSTONE: Very fine grain sandstone; calcite									Ground core
						veins									at end
										40.23/132'					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	40.38		0.28												
		41.21	0.55			SANDSTONE: Fine grain, siltstone bands, calcite filled fractures									
14°	41.21		0.47			SILTSTONE: Calcite veins									Fractured core
										41.45/136 m ft					
			0.49			SILTSTONE: Minor calcite veins									Broken
		42.38	0.21			SILTSTONE: As above									
										42.37/139 m ft					
	42.38	43.48	1.10			SANDSTONE: Fine grain, calcite veins.									Broken core
	43.48		0.43			SILTSTONE: Very fine grain sandstone, abundant calcite veins									Shattered core
										44.20/145 m ft					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r. q. d. d. o. b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.26												
			0.62			SILTSTONE: Abundant calcite veins									Broken
						BOX 15									
50°	46.25		1.46			SILTSTONE: Minor very fine grain sandstone, abundant calcite veins									Badly broken
47°	46.25		0.95			SANDSTONE: Fine grain, abundant calcite veins									
						BOX 16									
			0.17			SANDSTONE: Fine grain, abundant calcite veins									
										47.24/155'					
		48.24	0.87			SANDSTONE: As above									Fractured
	48.24		0.04			COAL: C-1 Sheared									Sheared, pulverized
		48.39	0.11		U	COAL: C-1									
	48.39	48.43	0.04			CLAYSTONE: Carbonaceous									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd	jt.		
	48.43		0.03		C2	COAL: C2									Pulverized	
		48.50	0.04			COAL: C2. mixed with claystone										Pulverized
	48.50		0.08			CLAYSTONE: muddy										
			0.37			CLAYSTONE: muddy. fault gouge										Pulverized
			0.16			CLAYSTONE: With coal. fault gouge										Pulverized
						BOX 17										
			0.22			CLAYSTONE: minor coal fragments. fault gouge										Pulverized
		49.41	0.08			CLAYSTONE: mixed with coal fragments										Pulverized
	49.41	49.45	0.04			COAL: C3. Pyrite										Sheared
	49.45	49.50	0.05			CLAYSTONE: mixed with coal fault gouge										Pulverized
	49.50	49.58	0.08			COAL: C1										Pulverized
	49.58		0.09			CLAYSTONE: minor coal										Pulverized
		49.74	0.07			CLAYSTONE: coally partings										Solid

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
38	49.74	49.82	0.08			SILTSTONE:									Solid
										49.7m/163					
	49.82	49.98	0.16			CLAYSTONE: mixed with siltstone									
	49.98		1.06			SILTSTONE:									Fractured
										50.9/167					
42			0.51			SHALE: minor very fine grain sandstone									Broken core
			1.06			SILTSTONE: As above									
			0.35			SILTSTONE: minor claystone									
		53.03	0.07			SILTSTONE: As above									Badly broken
38	53.03		0.04			CLAYSTONE: carbonaceous with coal strings									Pulverized
	53.20		0.34			SILTSTONE: minor coal strings									
			0.48			SILTSTONE:									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			2.04			SANDSTONE: Very fine grain. minor siltstone laminations					60.05/197 M Et				
			0.94			SANDSTONE: Fine grain. with very fine grain sandstone									
			1.51			SANDSTONE: Very fine grain. with fine grain bands					63.09/207				
37			0.30			SANDSTONE: Very fine grain. with siltstone laminations									
			1.20			SANDSTONE: As above									
			0.11			SANDSTONE: Fine grain. with very fine grain bands									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
											66.14/217				
											m				
42			0.44			SANDSTONE:	As above								
42		67.59	1.02			SANDSTONE:	Fine - 'very fine' grain with siltstone laminations								
	67.59	67.64	0.05			SILTSTONE:									
	67.64		1.10			SANDSTONE:	Fine grain with siltstone interbeds contorted								
34			0.38			SANDSTONE:	Fine grain with siltstone combination								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.15								69.18/227					
						SANDSTONE:	Fine grain with siltstone combination				m	+				
			0.09			SANDSTONE:	Medium grain with fine grain sand laminations									
40			0.45			SANDSTONE:	Fine grain cross bedded, siltstone bands									
			0.45			SANDSTONE:	Very fine grain, siltstone bands contorted									
		70.31	0.05			SANDSTONE:	Fine grain									
	70.31		0.09			SILTSTONE:	Fine grain, very fine grain sandstone bands									
							BOX 25									
			0.14			SILTSTONE:										
		70.60	0.06			SILTSTONE:	Dark brown, contorted									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	70.60		0.57			SANDSTONE: Very fine grain siltstone laminations									
35			0.07			SANDSTONE: Very fine grain									
		72.06	0.82			SANDSTONE: Very fine grain fine siltstone bands									
	72.06		0.13			SILTSTONE: Very fine sandstone laminations									
											72.23/237				
			0.07			SILTSTONE: Very fine sandstone laminations									
		72.68	0.42			SILTSTONE: Fine sandstone bands									
33	72.68		0.41			SANDSTONE: Very fine grain siltstone laminations									
						BOX 26									
		73.40	0.31			SANDSTONE: Very fine grain siltstone laminations, contorted									
	73.40	73.96	0.56			SILTSTONE: Fragmented sandstone bands at bottom									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
40	73.96		0.13			SANDSTONE:	Fine grain								
		74.22	0.13			SANDSTONE:	Fine grain								
	74.22		0.29			SILTSTONE:	Very fine grain sandstone laminations								
		74.57	0.06			SILTSTONE:	With coal lens								
	74.57		0.59			SANDSTONE:	Very fine grain. siltstone bands								
46		75.24	0.08			SANDSTONE:	Fine grain								
										15.28/247					
	75.24	75.33	0.09			SILTSTONE:									
	75.33		0.41			SANDSTONE:	Fine grain. siltstone laminations								
			0.19			SANDSTONE:	Fine grain. cross bedding								
			0.02			SANDSTONE:	Medium grain, very fine grain sandstone interbedded								
		76.31	0.36			SANDSTONE:	Medium grain very fine grain interbedded								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	76.31	76.47	0.16			SILTSTONE: Very fine grain. sandstone laminations									
54	76.47	76.79	0.32			SANDSTONE: Medium - fine grain. siltstone laminations									
	76.79	77.17	0.38			SILTSTONE: Very fine grain. sandstone laminations calcite veins near bottom									
	77.17	77.67	0.50			SANDSTONE: Very fine grain. cross bedded									
	77.67	77.70	0.03			SILTSTONE: Very fine grain sandstone lamination									
48	77.70		0.59			SANDSTONE: Fine grain. siltstone bands									
											78.33/257				
						BOX 28									
			0.36			SANDSTONE: Fine - medium grain									
33			0.47			SANDSTONE: Fine grain. medium grain bands cross bedded									
			0.11			SANDSTONE: Fine grain. very fine grain laminations									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		79.32	0.09												
	79.32	79.63	0.31			SANDSTONE:	Fine grain	medium grain	band at top						
	79.63		0.38			SANDSTONE:	Fine grain.	cross bedded	fine grain						
									bands calcite veins at bottom						
			0.42			SANDSTONE:	Very fine grain.	fine grain	bands						
48			0.52			SANDSTONE:	Fine - very fine grain.	cross-bedded							
									thin calcite veins						
			0.09			SANDSTONE:	Fine grain								
			0.30			ROCK MISSING									
										81.38/267					
			0.33			SANDSTONE:	Fine grain.	siltstone	bands. contorted						
			0.30			SANDSTONE:	Fine - very fine grain.	minor calcite							
									veins.						Fractured

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.14			SANDSTONE:	Very fine grain.	siltstone	band						
							(bottom)								
			0.30			SANDSTONE:	Fine grain.	very fine grain							
							laminations								
			0.07			SANDSTONE:	Fine grain.	siltstone	bands						
32			0.82			SANDSTONE:	Fine - medium grain.	very fine grain							
							laminations.	minor calcite	veining						
		83.59	0.29			SANDSTONE:	Medium grain.	cross bedded							
	83.59	83.65	0.06			SILTSTONE:									
	83.65	83.82	0.17			SANDSTONE:	Fine - very fine grain								
	83.82	83.98	0.16			SILTSTONE:	Calcite vein								
	83.98		0.42			SANDSTONE:	Fine grain.	very fine grain	bands						

83.52/274

BOX 30

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
29		85.09	0.69			SANDSTONE:	Fine to medium grain	very fine grain							
							laminations								
	85.09	85.25	0.16			SILTSTONE:	Very fine grain	sandstone bands							
	85.25		0.64			SANDSTONE:	Fine grain, very fine grain	bands							
			0.16			SANDSTONE:	Fine grain, very fine grain	laminations, thin calcite vein							
			0.40			SANDSTONE:	Medium - fine grain, cross bedded								
										86.56/284					
		86.67	0.22			SANDSTONE:	Fine grain								
	86.67		0.06			SILTSTONE:	Calcite vein								
		86.97	0.24			SILTSTONE									
	86.97	87.53	0.56			SANDSTONE:	Fine grain, very fine grain	laminations, cross bedding							

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	87.53	87.57	0.04												
						SILTSTONE									
	87.57		0.23			SANDSTONE: Fine - very fine grain									Broken
		88.51	0.71			SANDSTONE: Medium grain. cross bedded. large calcite deposits									
	88.51	88.66	0.15			SILTSTONE: Calcite veins									Fractured
	88.66		0.24			SANDSTONE: Medium - fine grain. faulted calcite filled factures									
			0.60			SANDSTONE: Medium - very fine grain. calcite crystals. fractures open or calcite filled									Fractured
						BOX 32									
			0.09			SANDSTONE: Fine grain									
			0.67			SANDSTONE: Fine grain. very fine grain laminations calcite veins									

89961/294

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.26			SANDSTONE:	Fine grain, very fine grain								Broken
			0.14			SANDSTONE:	Very fine grain, large calcite veins								
			0.33			SANDSTONE:	Very fine - fine grain, calcite veins								
			0.30			SANDSTONE:	Calcite vein, brecciated								Broken
			0.09			SANDSTONE:	Very fine - fine grain, calcite vein								
			0.09			SANDSTONE:	Fine grain, calcite filled fractured								Brecciated
46			0.59			SANDSTONE:	Fine grain, very fine grain								Fractured
							laminations								
							BOX 33								
38			0.99			SANDSTONE:	Fine grain, very fine grain bands								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.53													
						SANDSTONE:	Fine grain.	very fine grain.	cross-							
							bedded									
											93.57/307					
			0.21	21		SANDSTONE:	Very fine grain.	fine grain								
							laminations									
			0.29	29		SANDSTONE:	Medium - fine grain.	massive								
42			0.67			SANDSTONE:	Very fine - fine grain.	cross bedded								
							BOX 34									
			0.21			SANDSTONE:	Fine grain.	very fine grain	ba							
							laminations	siltstone band								
			0.53			SANDSTONE:	Fine grain.	light gray.	minor very							
							fine grain	cross bedding								
			0.45			SANDSTONE:	Fine grain.	minor calcite veins								
							siltstone lens									
			0.67			SANDSTONE:	Fine - very fine grain.	siltstone bands								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
34			0.20			SANDSTONE:	Fine grain.	calcite vein	near top						
			0.60			SANDSTONE:	Fine grain.	very fine grain	cross lamination.	minor calcite veingngg					
			0.06			SANDSTONE:	Very fine - fine	grain							
			0.13			SANDSTONE:	Fine grain.	light grey.	very fine grain bands						
			1.89			SANDSTONE:	Fine - very fine	grain.	cross bedded siltstone band in middle						
			0.30			SANDSTONE:	Fine grain.	very fine grain	lamination						
			0.16			SANDSTONE:	Fine grain.	light grey.	calcite veins						

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 36							
23			0.26			SANDSTONE:	Finegrain.	very fine grain	calcite						
							fractures								
			0.88			SANDSTONE:	Fine - very fine grain.	siltstone							
							bands.	calcite filled fractures.							
							3 cm calcite vein (top)								Broken core
			0.56			SANDSTONE:	Very fine grain.	siltstone band							
							contorted	carbonaceous band (mid)							Broken core
			0.07			SANDSTONE:	As above								Pulverized
			0.07			SANDSTONE:	Fine grain								
											102.12/335				
		102.24	0.45			SANDSTONE:	Very fine grain.	siltstone bands.							
							calcite filled fractures								Fractured core
		102.24	0.18			SILTSTONE:	Dark grey.								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 37							
			2.08			SILTSTONE:	As above								
24		104.88	0.38			SILTSTONE:	Dark grey coal partings								
												105.16/345			
	104.88		0.07			CLAYSTONE:									
		105.11	0.16			CLAYSTONE:	Vitrain stringers								
								BOX 38							
	105.11	105.36	0.25			SILTSTONE:	Claystone bands								
	105.36		0.22			CLAYSTONE:									
		105.68	0.10			CLAYSTONE:	Carbonaceous								
	105.68		0.02			COAL:	C3								Pulverized
			0.03			COAL:	C4								

↑
E1 Upper

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.08		E1 Upper QHD 84001-4-E1 Upper	COAL: C3									Pulverized	
			0.06			COAL: C3. carbonaceous										
22			0.09			COAL: C4										
24			0.08			COAL: C3										Pulverized
		106.52	0.48			COAL: Missing										
											106.99/351					
	106.52	106.75	0.23		E1 Middle QHD 84001-5-E1 Middle	CLAYSTONE:									Broken	
	106.75	106.83	0.08			COAL: C3										
	106.83	106.92	0.09			CLAYSTONE: Carbonaceous										
			0.03		E1 Lower	COAL: C3										
			0.03			COAL: C3										
			0.04			COAL: C2										Broken

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.04		<i>E1 Lower</i> <i>QHD 84001-6 - E1 Lower</i>	COAL: C3									Broken	
			0.04			COAL: C2										
			0.03			COAL: C4										
			0.01			CLAYSTONE: Carbonaceous										
			0.09			COAL: C1										
20	107.28		0.05			COAL: C2										Broken
48	107.28		0.08			CLAYSTONE: Carbonaceous										
			0.08			ROCK: Missing										
		107.51	0.07			COAL: C4										
	107.51		0.17			COAL: C3										Broken/sheared
			0.12			COAL: C4										
			0.09			COAL: C3										Broken

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.10		E1 Lower	COAL: Missing										
									BOX 39							
			1.68				COAL: Missing									
		109.71	0.04				COAL: C2									Sheared
	109.71		0.06				CLAYSTONE: Carbonaceous									Broken
			0.13				ROCK: Missing									
48		110.09	0.19				CLAYSTONE: Carbonaceous									
	110.09	110.17	0.08				COAL: C1									Sheared
	110.17	110.19	0.02				CLAYSTONE: Carbonaceous. with vitrain strings									Crushed
	110.19		0.06				COAL: C1									Pulverized
			0.59				COAL: Missing									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.07		E1 Lower	COAL: C4 with claystone laminations								Broken	
32	111.02		0.11			COAL: C1. vitro-clairain									
	110.02		0.13		E2P	CLAYSTONE: With coal stringers									
			0.06			CLAYSTONE: Carbonaceous								slickensided, broken	
19			0.06			ROCK: Missing									
			0.44			CLAYSTONE::								Fractured	
	111.83		0.12			CLAYSTONE: Carbonaceous with coal lenses									
17	111.83		0.02		E2	COAL: C3/C4									
	111.86		0.01		COAL: C2										
	111.86	111.89	0.03		CLAYSTONE: Carbonaceous. vitrain string at bottom										
	111.89		0.03		COAL: C3									Powdered	

110.64/363

DRILL CORE LOG

HOLE No. QHD 84001

PAGE No. 30

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
44					E2 QHD 84001-B-E2											
			0.03			COAL: C1										Pulverized
			0.05			COAL: C2										
			0.03			COAL: C2										Pulverized
			0.03			COAL: C1										Broken
			0.03			COAL: C1										Broken
			0.08			COAL: C1										Pulverized
			0.06			COAL: C1										Pulverized
			0.05			COAL: C3										Pulverized
			0.07			COAL: C1										Pulverized
			0.01			COAL: C2										
			0.03			COAL: C2										Sheared
			0.02			COAL: C2										

DRILL CORE LOG

HOLE No. QHD 84001

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.81		E2	COAL: Missing										
			0.03				COAL: C1									Broken
		113.28	0.03				COAL: C3									
44	113.28	113.31	0.03				CLAYSTONE: Carbonaceous									
		113.31	0.14				COAL: C1									Broken
			0.06				COAL: C3									
			0.06				COAL: C4 boney									
		114.62	1.05				COAL: Missing									
		114.62	0.09				CLAYSTONE/COAL C2 INTERBEDDED, CARBONACEOUS									Broken
		114.84	0.13				CLAYSTONE: Carbonaceous									

E3P
QHD84001-
9-E3P

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					E3 QHD84001-10-E3											
	114.84		0.06			COAL: C1						113.69/373				Broken
			0.06			COAL: C1										Sheared
			0.05			COAL: C2										Pulverized
			0.11			COAL: C1										Sheared
			0.12			COAL: C2										Pulverized
			0.10			COAL: C1										Sheared
			0.03			COAL: C3										Sheared
			0.09			COAL: C1										Sheared
			0.08			COAL: C2										Pulverized
			0.07			COAL: C1										Sheared
38			1.33			COAL MISSING										

DRILL CORE LOG

HOLE No. QHD 84001

PAGE No 33

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					E3											
			0.08			COAL: C3/C2						115.82/380				Pulverized
			0.03			COAL: C2						M fr				Sheared
		117.16	0.11			COAL: C1										
	117.16	117.27	0.11			COAL: C4 carbonaceous										
	117.27	117.30	0.03			COAL: C3										
39	117.30		0.09			COAL: C3/C4. carbonaceous with coal stringers										
	/	117.45	0.06			COAL: C4 vitrain seams										
	117.45	117.64	0.19			CLAYSTONE: Carbonaceous, coal lens										
	117.64	117.67	0.03			COAL: C2										
	117.67	117.74	0.07		CLAYSTONE/C4: Carbonaceous, coal stringers											
	117.74	117.83	0.09		COAL: C3										Sheared	

E3

X

E3 Lower

QHD 84001 - 11 - E3 Lower

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.a.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					E3 Lower ↓											
45	117.83	117.87	0.04			CLAYSTONE:										Sheared
	117.87	117.90	0.03			COAL: C3										
	117.90	18.06	0.16			CLAYSTONE: Carbonaceous. coal stringers										
						BOX 41										
	118.06		0.04			COAL: C4 with vitrain stringers										Broken
		118.17	0.07			COAL: C4										Pulverized
	118.17		0.22			CLAYSTONE: With coally partings										
37		118.43	0.04			CLAYSTONE: Carbonaceous. coal lens										
		118.43	0.06			COAL: C3										Pulverized
	118.49	118.72	0.23			ROCK MISSING										
39	118.72	118.80	0.08		CLAYSTONE: With coal lens											

117.96/387
M ft

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	118.80	120.67	1.87												
						SILTSTONE: Carbonaceous partings with claystone band									
	120.67		0.26			SANDSTONE: Fine grain with very fine grain laminations, some calcite									
						BOX 42									
			0.46			SANDSTONE: As above									
										121.01/897					
										m	fr				
32		121.72	0.33			SANDSTONE: Medium grain & very fine grain to bottom; calcite veins									
	121.72		0.61			SILTSTONE:								Fractured	
		122.53	0.20			ROCK MISSING									
	122.53		0.91			CLAYSTONE: Dark grey									
		123.50	0.06			CLAYSTONE: Carbonaceous with vitrain strings.									
47	123.50		0.40			COAL: C3									Broken

DRILL CORE LOG

HOLE No. QHD 84001

PAGE No. 36

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.a.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.11		F QHD 84001-12-F	COAL: C3										
			0.05			COAL: C3										
									BOX 43							
			0.11			COAL: C3 with claystone band										Shattered
			0.06			COAL: C3 Boney										
			0.05			COAL: C2										Pulverized
		124.50	0.50			COAL MISSING										
	124.42	124.48	0.60			CLAYSTONE: Carbonaceous										
45	124.48		0.40			COAL C3										
		124.55	0.03			COAL: C4										
	124.55		0.20			CLAYSTONE: Carbonaceous with coal strings										
													124.05/407			

Flower
QHD 84001-
13-F Lower

B C N.	UNIT		THICKNESS		SAMPLE NO. ↓ F Lower	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		124.91	0.16			CLAYSTONE:	Very carbonaceous to coaly to C4								Broken
	124.91	126.00	1.09			CLAYSTONE:	With coaly partings								Fractured
	126.00		0.73			SILTSTONE:	With claystone bands								
							BOX 44								
			0.56			SILTSTONE:	With claystone bands								Fractured core
										127.1/47					
			1.50			SILTSTONE:	With very fine grain sandstone								
			0.51			SILTSTONE:	Minor very fine grain sandstone								
							BOX 45								
22			1.00			SILTSTONE:	As above								
										130.14/47					
			1.69			SILTSTONE									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 46							
			1.25			SILTSTONE:	With very fine grain sandstone								
		133.61	0.37			SILTSTONE:	As above								
40	133.61		0.37			SANDSTONE:	Fine grain. dark grey with plant fragments coal lens				133.19/437				
		134.30	0.32			SANDSTONE:	Medium grain. dark grey with coal lens plant fragments								
	134.30		0.24			SILTSTONE:	With carbonaceous claystone bands coal partings								
		134.96	0.42												
						SILTSTONE:	Minor coal lenses								
46	134.96		0.87			SANDSTONE:	Fine grain coal lens								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.10			SANDSTONE: Fine grain with very fine grain lamination									
										136.24/447 m	+				
46			1.28			SANDSTONE: As above									
							BOX 48								
42			1.66			SANDSTONE: As above									
										139.29/457 m	+				
			0.88			SANDSTONE: As above minor cross bedding									
							BOX 49								
39		140.34	0.59			SANDSTONE: Very fine grain siltstone laminations									
36	140.34		0.49			SILTSTONE: Grey, dark brown bands coal partings near center									
										142.34/467					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.51			SILTSTONE:	As above								
							BOX 50								
			0.32			SILTSTONE:	Dark grey coaly partings								
		142.69	0.03			SILTSTONE:									Broken
	142.69		0.23			COAL:	C2								Broken
			0.09			COAL:	C1								Crushed
			0.07			COAL:	C2								Pulverized
		143.43	0.35			COAL MISSING:									
	143.43		0.04			COAL:	C4								BROKEN
			0.08			COAL:	C4. Claystone								Pulverized
		143.62	0.07			ROCK (C4) MISSING:									
	143.62	144.06	0.44			SILTSTONE:									Solid

Q1
 QHD 84001 - 14 - Q1
 Q2P
 QHD 84001 - 15 - Q2P

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					G2 QHD84001-16-G2											
	144.06		0.26			COAL: C1										Broken
			0.06			COAL: C2										
			0.03			COAL: C2										Pulverized
		145.34	0.93			COAL MISSING										
44	145.34	145.46	0.12			CLAYSTONE: Carbonaceous										
	145.46		0.10			COAL MISSING										
		145.58	0.02			COAL: C1										Pulverized
39	145.58		0.12			CLAYSTONE: Carbonaceous with coal strings										
			0.47		CLAYSTONE: Coaly to C4 Vitrain bandsupp to 4mm											
					BOX 51											
46		146.42	0.25		CLAYSTONE: With abundant coaly dartings											

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	146.42		0.04			COAL: C3									Pulverized
		146.50	0.04			COAL: Cl. with pyrite									BROKEN/pulverized
42	146.50		0.51			CLAYSTONE									Solid
			0.07			CLAYSTONE: with coaly partings									Pulverized
		147.16	0.08			CLAYSTONE:									Solid
										147.01/483					
										m	ft				
49	147.16		1.64			SANDSTONE: Fine grain and very fine grain laminations									Fractured core
			0.22			ROCK MISSING									
						BOX 52									
			0.38			SANDSTONE: Fine grain with very fine grain laminations									
										149.65/491					
										m	ft				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		149.84	0.44												
						SANDSTONE: Fine - medium grain with claystone and coal clasts									
46	149.84	149.96	0.12			SILTSTONE:									
	149.96	150.12	0.16			SANDSTONE: Fine - medium grain with calcite filled fracture. siltstone clasts									
	150.12	150.53	0.41			SILTSTONE: With calcite vein at top									
34	150.53		0.49			SANDSTONE: Fine grain very fine grain laminations cross bedding									
32			0.67			SANDSTONE: Very fine grain with siltstone laminations minor coal lens									
						BOX 53									
			0.07			SANDSTONE: As above									
											152.09/499				
											m	fr			
34			0.81			SANDSTONE: As above									

DRILL CORE LOG

HOLE No. QHD 84001

PAGE No. 44

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.70			SANDSTONE: Fine grain laminations								Broken core	
41			1.01			SANDSTONE: Very fine grain to fine grain lamination abundant calcite veins								Broken core	
			0.04			SANDSTONE: Very fine grain									
						BOX 54									
			0.16			SANDSTONE: As above									
										154.53/507					
										M	ft				
			0.94			SANDSTONE: Fine grain with medium grain bands minor cross bedding								Fractured	
		155.86	0.44			SANDSTONE: As above with calcite vein								Broken End	
										156.05/512					
	155.86	156.07	0.21			ROCK MISSING									
	156.07		0.67			SILTSTONE: With very fine grain laminations								Broken core	

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		156.97	0.23												
45	156.97	157.48	0.48			SILTSTONE:	As above								Broken
	157.45	157.91	0.46			SILTSTONE:	Very fine grain sandstone top								
	157.91	158.66	0.75			SANDSTONE:	Very fine grain siltstone lamination								
	158.66		0.01			SILTSTONE:	With very fine grain laminations								
										159.10/522					
										m	+				
			0.80			SILTSTONE:	As above								
		160.74	1.27			SILTSTONE:	As above								
	160.74	161.53	0.79			SANDSTONE:	Very fine grain with minor siltstone lamination								
										162.15/532					

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
46	161.53	162.23	0.70													
						SILTSTONE:	With interbedded very fine grain									
							sandstone									
								BOX 57								
	162.23		2.06			SANDSTONE:	Very fine grain mixed with siltstone									
							bands									
											165.20/542					
											M					
49		164.68	0.39			SANDSTONE:	As above									
	164.68		0.28			SILTSTONE:	With very fine grain sandstone bands									
								BOX 58								
52			0.44			SILTSTONE:	As above									
			1.47			SILTSTONE:	With minor very fine grain sandstone									
							laminations									
48			0.85			SILTSTONE:	With very fine grain sandstone bands									
											168.24/552					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 59							
		168.07	0.35			SILTSTONE									
	168.07	168.41	0.34			CLAYSTONE									
	168.41	168.57	0.16			SILTSTONE								Broken	
48	168.57	168.95	0.38			CLAYSTONE: Light brown siltstone band								Broken	
	168.95	169.23	0.28			SILTSTONE: Lamination									
	169.23	169.27	0.04			CLAYSTONE									
	169.27	169.35	0.08			SILTSTONE: Lamination									
	169.35		0.10			COAL: C1								Broken	
			0.04			COAL: C3								Broken	
			0.07			COAL: C1								Broken. pulverized	
		170.42	0.86			COAL MISSING									

J1
 QHD84001 - 3- J1, J2P, J2

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					J2 QHD 84001 - 3 - J1, J2P, J2											
	170.42		0.15			SILTSTONE										
		170.68	0.11			CLAYSTONE										
	170.68	170.74	0.06			COAL: C1										Pulverized
	170.74	170.75	0.01			CLAYSTONE: Carbonaceous										
	170.75		0.07			COAL: C2										Pulverized
			0.26			COAL: C1										Broken
						BOX 60										
			0.08			COAL: C1										Pulverized
			0.07			COAL: C2										Pulverized
			0.07			COAL: C2										
			0.25			COAL: C3										Pulverized

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.11		J2	COAL: C2	.	.	.	.				Pulverized	
			0.08			COAL: C1	.	.	.	.					Badly broken
			0.06			COAL: C2	.	.	.	.					Pulverized
48			0.24			COAL: C2	.	.	.	.					Broken
			0.13			COAL: C3	.	.	.	.					Pulverized
			0.08			COAL: C2 mixed with claystone	.	.	.	.					Pulverized
			0.14			COAL: C1	.	.	.	.	
											
											
											
											
32			0.01			COAL: C1	.	.	.	.					Broken
			0.09			COAL: C2	.	.	.	.					Broken
			0.16			COAL: C1					Broken
			0.43			COAL: C1					Broken
			0.11		COAL: C2					Broken	

DRILL CORE LOG

HOLE No. QHD 84001

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.19		J2 QHD 84001-3-J1, J2A, J2	COAL: C1									Broken	
			0.30			COAL MISSING:										
									BOX 61							
32			0.12			COAL: C2										Broken
			0.07			COAL: C1										
			0.14			GOAL: C2										Broken
			0.07			COAL: C2										Crushed
			0.18			COAL: C2										
			0.30			COAL MISSING										
												174.34/572				
			0.15			COAL: C2										Fractured
			0.07			COAL: C1										

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.14		J2	COAL: C2									Fractured	
			0.26			COAL: C1										Fractured
			0.30			COAL: C2										Broken
			0.11			COAL: C3										Broken
			0.20			COAL: C1										Sheard
											175.86/577					
			0.26			coal; C1										Sheard
			0.07			COAL: C2										Broken
			0.26			COAL: C1										Fractured
			0.42			COAL MISSING										
								BOX 62								
			0.31			COAL: C1										Broken

DRILL CORE LOG

HOLE No. QHD 84001

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B C N.	UNIT		THICKNESS		SAMPLE NO. ↓ J2	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		177.14	0.03			COALSTONE									
53	177.14		0.19			CLAYSTONE									
		177.43	0.10			CLAYSTONE				177.39/582 M ←					
	177.43	178.13	0.70			SILTSTONE: Minor claystone									
	178.13		0.36			SANDSTONE: Fine grain with very fine grain laminations									
			0.45			ROCK MISSING				178.92/587 M ←					
			0.93			SANDSTONE: As above									
						BOX 63									
			0.75			SANDSTONE: Fine grain with very fine grain laminations									
		180.78	0.16			SANDSTONE: As above minor coal stringers									Broken

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
	180.78	180.83	0.05			CLAYSTONE:	Minor coal stringers									
	180.83		1.00			SANDSTONE:	Very fine grain 'some dark' brown siltstone laminations									
										181.97/597						
		182.07	0.24			SANDSTONE:	very fine grain 'As above laminated			m	fr					
	182.07	182.17	0.10			SILTSTONE:										
48	182.17		0.32			SANDSTONE:	very fine grain with siltstone interbeds									
							BOX 64									
		182.67	0.18			SANDSTONE:	As above									
	182.67	182.98	0.31			SILTSTONE:	With coal stringers									
	182.98	183.58	0.60			SANDSTONE:	Very fine grain with brown lamination									
45	183.58	184.44	0.86			CLAYSTONE:	With coal stringers siltstone bnads									Fractured

DRILL CORE LOG

HOLE No. QHD 84001

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	184.44	184.68	0.24												
						SILTSTONE: With coal strings up to 1 cm									
										185.01/607					
	184.68	185.90	0.22			SANDSTONE: Very fine grain lamination					m	fr			
	185.90		0.08			SILTSTONE: With coaly partings									
			0.14			SILTSTONE: With claystone bands					Broken				
48		185.77	0.65			SILTSTONE: With coal lens									
	185.77	186.19	0.42			CLAYSTONE: With siltstone and coal stringers					B			Broken	
	186.19	187.12	0.93			SILTSTONE: With carbonaceous claystone band at center									
										188.06/617					
	187.12	187.24	0.12			CLAYSTONE: With coal stringers									
	187.24	187.66	0.42			COAL MISSING									

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	188.28	188.01	0.35			SILTSTONE: With plant fragments									
	188.01	188.28	0.27			COAL (HIGH ASH) MISSING									
						BOX 66									
	188.28	188.40	0.12			SILTSTONE: As above									
43	188.40	188.97	0.57			SANDSTONE: Fine grain with siltstone laminations									
55	188.97	189.52	0.55			SILTSTONE: With minor fine grain sandstone bands									
	180.52		0.76			SANDSTONE: Fine grain with siltstone bands lamination minor calcite veins									
			0.14			ROCK MISSING									
		190.54	0.12			SANDSTONE: Medium grain									
	190.54		0.57			SILTSTONE: With very fine grain sandstone at top									

191.10/627
m ft

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 67							
			0.61			SILTSTONE:	With very fine grain sandstone								
							laminations								
		192.02	0.30			SILTSTONE:	With claystone bands								
37	192.02	192.26	0.24			CLAYSTONE:	With coaly partings								
	192.26		0.08			COAL:	C3								Crushed
			0.06			COAL:	C1								Crushed
			0.08			COAL:	C1								Pulverized
		192.67	0.19			COAL:	C1								Crushed
	192.67	192.71	0.04			CLAYSTONE:	Carbonaceous								Broken
	192.71		0.06			COAL:	C2								Broken
		193.13	0.36			COAL:	C1								Pulverized
	193.13		0.04			CLAYSTONE									

K3
QHD 84001 - 1 - K3

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd	jt.		
			0.06		K3 K3 Lower OHD84001-2-K3 Lower	ROCK MISSING										
	193.27		0.04			SILTSTONE										
											193.55/635 m ft					
	193.27		0.12			COAL MISSING										
		193.50	0.11			COAL: C3									Broken	
	193.50	193.59	0.09			COAL: C4										
	193.59	193.63	0.04			CLAYSTONE: Carbonaceous										
	193.63	193.75	0.12			COAL: C4 Boney										
						BOX 68										
57	193.75	193.80	0.05			CLAYSTONE										
	193.80		0.62		SILTSTONE: With claystone bands											
		195.34	0.92		SILTSTONE: With claystone clasts and coal stringers											

B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	195.34		0.12			CLAYSTONE: With coal stringers									
		195.56	0.10			ROCK MISSING									
	195.56		0.14			COAL: C2								Crushed	
			0.15			COAL MISSING									
		195.90	0.05			COAL: C2								Pulverized	
	195.90	195.97	0.07			CLAYSTONE									
	195.97		0.47			SILTSTONE: With minor claystone bands									
										196.60/645					
			0.18			ROCK MISSING									
							BOX 69								
		196.92	0.30			SILTSTONE:									
	196.92		0.02			COAL: C2									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		197.00	0.06												
	197.00		0.16			SANDSTONE: Medium grain with plant fragments									
			0.35			ROCK MISSING									
			2.14			SANDSTONE: Medium grain									Massive
										199.64/655					
								BOX 70		m	ft				
			2.90			SANDSTONE: As above									
								BOX 71							
			0.21			SANDSTONE: As above									Massive
										202.84/665					
										m	ft				
52			2.52			SANDSTONE: Medium grain slight bedding									Fractured near the end

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 72							
			0.11			SANDSTONE:	As above								
			0.15			SANDSTONE:	Medium grain calcite filled fractures minor siltstone laminations								
										206.04/676					
			0.51			ROCK MISSING				m ft					
			0.31			SANDSTONE:	Medium grain bedded								
										206.35/677					
43			1.24			SANDSTONE:	medium grain minor siltstone laminations cross bedding								
			0.89			SANDSTONE:	Medium grain								Massive
								BOX 73							
			0.63			SANDSTONE:	As above								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.08			SANDSTONE: Fine grain with carbonaceous bands									
			0.15			SANDSTONE: Medium grain calcite filled fractures									
										209.40/687					
42	/		1.96			SANDSTONE: Medium grain medium bedding calcitied at bottom									
								BOX 74							
			1.04			SANDSTONE: As above									Fractured
			0.10			ROCK MISSING									
										212.45/697					
49			1.64			SANDSTONE: Medium grain, coarse band at top coarse sitting downward									
								BOX 75							
		215.30	1.21			SANDSTONE: Medium grain with 5 cm coarse grain band									

DRILL HOLE

Q H D 8 4 0 0 2

Descriptive Log

B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
44	2.06		1.16												
			.30												
			.60												
			.92												
			.59												
			.32												
47	7.01		1.06												

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	7.01		.06			SILTSTONE:									Broken
								BOX 3							
		7.15	.08			SILTSTONE:									Fractured
	7.15		.75			SANDSTONE: Fine with very fine grain laminations									Fractured
			.08			ROCK LOSS:									
										9.14/30'					
										m	cr				
38			.32			SANDSTONE: As above									Fractured
50			1.19			SANDSTONE: Fine; laminated with silt bands and clasts									Fractured
								BOX 4							
			1.10			SANDSTONE: As above									Fractured
										11.58/38'					
										m	ff				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.71			SANDSTONE:	As above								Fractured
			.17			SANDSTONE:	Fine with oxidized bands								
			.04			ROCK LOSS:									
											12.50/41'				
											m	ft			
51			.44			SANDSTONE:	As above								
							BOX 5								
		13.30	1.35			SANDSTONE:	Fine with brown silt clasts								
							at bottom.								
51	13.30	13.62	.32			SILTSTONE:	Fault gauge in centre								Oxidized, broken
55	13.62	14.57	.95			SANDSTONE:	Fine laminations with								
							siltstone band at centre								
											15.55/51'				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		17.73	.07			SILTSTONE:									
	17.73		.66			SANDSTONE: fine with silt laminations brown silt and sandstone clasts									
48			1.16			SANDSTONE: fine laminated with large siltstone clast									Fractured, oxidized
						BOX 8									
			.40			SANDSTONE: fine laminated									
										20.73/68'					
43	20.77		.82			SANDSTONE: fine with contorted silt bands.									
	20.77	20.87	.10			CONGLOMERATE: granule									
			.15			COAL LOSS:									
			.08			COAL C2:									Crushed
			.07			COAL C2									Pulverized

C1

DRILL CORE LOG

HOLE No. QHD 84002

PAGE No. 5

E C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. lithology	Grain Size	Fresh Colour	Bodding Charact.	Other Sed. Charact.			bd.	jt.		
			0.15		12 QHD 84002 - 18 - C1	COAL LOSS:										
											21.95/72'					
			0.18				COAL C1									Crushed
			0.34				COAL C2									Crushed
			0.10				COAL C1									Crushed
			0.06				COAL C1									Pulverized
			0.12				COAL C2									Sheared
			0.21				COAL C2									Crushed
							BOX 9									
			0.11				COAL C1: with pyrite									Crushed
			0.26				COAL C1									Sheared
			0.06				COAL C1									Pulverized

DRILL CORE LOG

HOLE No. QHD 84002

PAGE No. 6

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
		22.84	.08		C1											
						COAL LOSS:										
											23.47/77'					
44	22.84		.03		C2P No Sample	ROCK LOSS										
			.06			CLAYSTONE										
			.20			CLAYSTONE: carbonaceous										Sheared
		23.75	.62			CLAYSTONE										
45	23.75		.09			C2 No Sample	C3/C4									Sheared
			.15				C3/C4									
			.10		COAL C2											Pulverized
			.22		COAL LOSS:											
			.18													
						COAL LOSS:										
										24.99/82'						

B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.11		C2 ↓ No Sample	COAL C1									Sheared	
	24.63		.03			COAL C3: Base C seam										
	24.63		.12			CLAYSTONE: Carbonaceous with coal stringers										
		25.02	.27			CLAYSTONE										Sheared at bottom.
	25.02		.54			SILTSTONE: Banded										Fractured
						BOX 10										
			.28			SILTSTONE: As above										
											26.52/87'					
			1.35			SILTSTONE: As above					M	G				
											28.04/92'					
			.79			SILTSTONE: As above										

B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
57			.26			SILTSTONE: As above with coaly partings.									
						BOX 11									
			.49			SILTSTONE									Fractured
										29.56/97'					
										M	ft				
			1.17			SILTSTONE: Light brown clasts near centre; minor coaly partings									
			.92			SILTSTONE: with minor very fine grain Sandstone laminations; pyrite									
						BOX 12									
			.31			SILTSTONE: With minor coaly partings									
50			.66			SILTSTONE: With very fine grain Sandstone bands and brown clasts at top									
										32.61/107'					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			1.73												
						SILTSTONE: As above									
						BOX 13									
41			1.30			SILTSTONE: Light and dark bands and minor bioturbation									
										35.66/1	17'				
										m	ft				
			1.36			SILTSTONE: As above									
						BOX 14									
			1.61			SILTSTONE: As above; bioturbation near bottom.									
										38.71/1	27'				
44		38.34	.55			SILTSTONE: As above; (some bioturbation)									
	38.34		.41			SANDSTONE: Very fine with siltstone bands.									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
45		39.05	.30												
	39.05		1.83			SANDSTONE: As above									
						SILTSTONE: Banded									
			.50												
						SILTSTONE: As above; with minor bioturbation									
		41.96	.58												
						SILTSTONE: As above									
49	41.96		1.99			SANDSTONE: Very fine with thin siltstone bands									
			.06												
						SANDSTONE: As above									
51			2.78			SANDSTONE: Fine with very fine grain bands and minor bioturbation									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.24												
			1.26												
49			1.22												
			.52												
41			1.82												
	52.10		.18												

DRILL CORE LOG

HOLE No. OHD 84002

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
								BOX 20							
			.10					COAL Cl: Minor pyrite							
			.03					PYRITE							
45		52.50	.09					COAL Cl: Minor pyrite							
	52.50		.49					SANDSTONE: Fine to very fine contorted coal lenses							
			.94					SANDSTONE: As above							
59		54.77	.84					SANDSTONE: Fine to very fine grain laminations							Oxidized to bottom
	54.77	54.94	.17					SILTSTONE: Calcite in fractures							
	54.94		.11					SANDSTONE: Fine; laminated							

53.94/177'
n et

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.65			SANDSTONE: Fine with very fine grain laminations									
			.16			SANDSTONE: Medium to fine grain laminations									
						BOX 23									
			1.87			SANDSTONE: As above; calcite near bottom									Oxidized near bottom
			.25			SANDSTONE: Fine with very fine grain laminations and bands									
										63.4/208'					
50			.69			SANDSTONE: As above					m	ft			
						BOX 24									
			1.71			SANDSTONE: Fine to very fine grain bonds; minor coaly lenses									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS		
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.			
			.19														
						SANDSTONE: Very fine; calcite filled fractures; sheared section at bottom										Oxidized, sheared	
			.11			ROCK LOSS											
			.32			SANDSTONE: Fine with medium grain bands											
										66.45/218'							
48			.56			SANDSTONE: As above					M	Et				Fractured	
						BOX 25											
			.32			SANDSTONE: As above										Fractured and oxidized at bottom	
61			2.01			SANDSTONE: As above											
			0.07			ROCK LOSS											
										69.49/228'							

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
49		76.53	.88												
						SANDSTONE: As above; calcite vein at top									
	76.53	76.71	.18			Possible fault gauge									
	76.71		.69			SANDSTONE: Medium with fine grain bands and calcite filled fractures									
						BOX 29									
45			1.23			SANDSTONE: Medium with very fine grain laminations									
											79.5/261'				
											m	67			
			1.56			SANDSTONE: Medium with fine grain bands									
						BOX 30									
47			1.32			SANDSTONE: As above with dark band near centre									
			.51			SANDSTONE: Medium; massive; calcite filled fractures and vugs									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
											82.60/271'				
											m	fr			
		82.61	.59			SANDSTONE:	Medium with fine to very								
							fine grain bands; calcite near top								
		82.61	82.65	.04		SILTSTONE									
48		82.65	.17			SANDSTONE:	Medium laminated								
							BOX 31								
			.57			SANDSTONE:	As above								
			1.15			SANDSTONE:	Medium; minor coaly partings								
							and banding								
			.96			SANDSTONE:	Medium laminated, contoured								
							at top.								
							BOX 32								
49			2.40			SANDSTONE:	As above								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.29			SANDSTONE: Medium with fine grain laminations and some bioturbation									
						BOX 33									
			.09			SANDSTONE: As above									
			.14			ROCK LOSS									
49			1.62			SANDSTONE: very fine; 40% medium grain bands					87.0/292'				
			1.02			SANDSTONE: Very fine with minor fine grain bands									
						BOX 34									
			.17			SANDSTONE: As above; slightly contoured									
											92.04/302				
			.94			SANDSTONE: As above									
			.44			ROCK LOSS									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
		95.60	.10		E1 Upper QHD 84002 - 8 - E1 Upper	CLAYSTONE: Carbonaceous, massive with coal lenses										
39	95.60	95.99	.39			SILTSTONE: with claystone bands and coal stringers										
	95.99	96.08	.09			CLAYSTONE: With plant fragments										
	96.08	96.13	.05			COAL C1										Crushed
	96.13	96.34	.21			CLAYSTONE: Carbonaceous with coal stringers										Broken
	96.34		.03			COAL C3										
			.02			CLAYSTONE: Carbonaceous										
			.02			COAL C1										Broken
			.05			CLAYSTONE: Carbonaceous										Sheared
			.04			COAL C1										Broken
			.04			COAL C3										

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					E1 Upper											
			.05				COAL C2									Sheared
			.08				COAL C1									Pulverized
			.05				COAL C2									Crushed
			.02				CLAYSTONE: Carbonaceous									
			.04				COAL C1									Pulverized
			.09				CLAYSTONE: Carbonaceous with coal stringers									
			.58				COAL LOSS:									
	97.50		.05				COAL C3									Pulverized
	97.50	97.73	.23				CLAYSTONE: Carbonaceous with coal stringers									Sheared

E1 Upper Parting
 QHD8400Z-9-
 E1 Upper Parting

98.15/322'

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.19		↑ E I Middle QHD 84002 - 10 - E I Middle											
						COAL LOSS:										
			.10			COAL C1										Fractured
			.05			COAL C4										Broken
			.07			COAL C2										Broken
			.04			COAL C3										
			.02			COAL C1										Pulverized
			.03			COAL LOSS										
			.07			COAL C1										Broken
		98.37	.07			COAL C1										
	98.37		.05			CLAYSTONE: Carbonaceous										
		98.56	.14			ROCK LOSS										
	98.56		.12			COAL C2										Fractured

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.09		E1 Middle	COAL C1									Fractured and Crushed	
			.11			COAL C1										
			.08			COAL C2										
			.07			COAL C1										
			.12			COAL C2										
			.09			COAL C1										Sheared
											99.66/327'					
			.03			COAL LOSS										
			.05			COAL C1										Pulverized and Muddy
			.06		COAL C1											
			.14		COAL C2: Boney											
			.04		COAL C1											

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.03		E1 Middle	COAL C2									
	99.83		.24			COAL C1									Fractured
	99.83		.06		E1 Middle Parting QHD 84002-11-E1 Mid. Parting	CLAYSTONE: Carbonaceous with coal stringers									
									BOX 37						
			.12			CLAYSTONE: Carbonaceous									
			.17			SILTSTONE:									
	100.33		.15			CLAYSTONE: Carbonaceous with coal stringers									
	100.33		.05		E1 Lower	COAL C2								Broken	
40			.18			COAL C1									
			.09			COAL C2								Fractured	
			.43			COAL C1									
			.22			COAL C3: Boney									

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.19		E1 Lower QHD 84002 - 12 - E1 Lower	COAL C4:	With vitrane stringers								Broken	
			.05			COAL C1										Crushed
			.15			COAL C-2										Broken
			.08			COAL C3										
	101.77		.23			CLAYSTONE:	With carbonaceous claystone bands									
		102.16	.16			CLAYSTONE:	Carbonaceous with coal bands									
	102.16		.12			COAL C1										Crushed
			.09			COAL LOSS:										
			.20			COAL C1										Broken and sheared
			.11			COAL C2										

102.1/335'
m

BOX 38

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.07		E1 Lower	COAL C2									Broken
	102.86		.11			COAL C1									
	102.86		.29		E2 P	SILTSTONE									Broken
			.04			CLAYSTONE									
			.46		QHD 84002 - 13-E2 P	CLAYSTONE: With minor coal stringers					103.94/341'				Fractured
	103.74		.09			CLAYSTONE: With abundant vitrain strings									
	103.74		.10		E2	COAL C2									
	103.92		.08			COAL C1									
	103.92	103.99	.07		CLAYSTONE: Very carbonaceous vitrine stringers										Sheared
	103.99	104.04	.05		COAL MISSING										
45	104.04	104.13	.09		ROCK MISSING										

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					E2 QHD 84002-14-E2											
	104.13		.25			COAL C1										
			.04			CLAYSTONE: Mixed with coal										Broken
			.17			COAL C3: Boney										Broken
			.06			COAL C2										Broken
			.26			COAL C2										Pulverized
			.15			COAL C4										Broken
		105.08	.03			COAL LOSS										
						BOX 39										
	105.08	105.27	.18			CLAYSTONE: Carbonaceous										
	105.27		.07			COAL C2										
			.07			COAL C1										
			.14			COAL C2										Broken

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					E3P QHD84002 - 15' - E3P											
	107.72	107.98	.26													
							CLAYSTONE									Solid
	107.98		.03				COAL C1									Broken
		108.04	.03				COAL MISSING									
	108.04		.09				CLAYSTONE: Carbonaceous									Broken and sheared
		108.26	.13				ROCK MISSING									
	108.26		.05		E3	COAL C1										
			.05			COAL C2										Sheared
			.12			COAL C2										
			.13			COAL C1										Badly sheared
			.12			COAL C2										

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
	108.73	108.80	.07		E3 QHD 84002 - 16 - E3	CLAYSTONE: Carbonaceous										
			.10			COAL C1									Pulverized	
			.06			COAL C1										
			.17			COAL C1									Crushed and sheared	
			.04			COAL C2										
	110.58	1.41				COAL LOSS										
	110.58	110.61	.03			E3 Lower QHD 84002 - 17 - E3 Lower	CLAYSTONE: Carbonaceous									Broken
	110.61		.12				CLAYSTONE: Carbonaceous with coal strings									
		110.89	.16		ROCK MISSING											
	110.89		.03		COAL C2: Vitrain bands										Broken	
			.16		COAL MISSING											

111.25/365'

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	111.08		.23		E3 Lower ↓	CLAYSTONE: Very carbonaceous and coally; very black; grades to claystone below									
						BOX 41									
			.43			CLAYSTONE: Very carbonaceous vitrain bands									
			.03			CLAYSTONE: Carbonaceous vitrain stringers									
			.81			ROCK LOSS									
			.05			CLAYSTONE: With carbonaceous with coal strings									Pulverized
	112.72		.09			CLAYSTONE: Carbonaceous with vitrine stringers									
											113.08/371'				
											m	ft			
	112.72	113.05	.33			CLAYSTONE: Carbonaceous with coal lenses									
50	113.05		.56		SILTSTONE: With coal stringers										
			1.36		SILTSTONE: With minor very fine grain sandstone laminations										

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		115.32	.35												
	115.32		.41			SILTSTONE:	As above								
		116.31	.58			SANDSTONE:	Fine grain; laminated								
	116.31	116.40	.09			SILTSTONE:									
46	116.40	117.38	.98			SANDSTONE:	Medium grain; thin bedding with very fine sandstone band at center, minor calcite								
	117.38		.09			SILTSTONE:									
		118.00	.53			SILTSTONE:	With brown bands thin pyrite band at bottom								

116.43/382'

BOX 43

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/in		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
47	118.00	118.28	.28			CLAYSTONE:	Black, carbonaceous at end								
	118.28		.07			COAL C4:	Boney								Broken
			.17			COAL C3:	With vitrain bands								Broken
			.65			COAL LOSS:									
											119.49/392'				
			.09			COAL C2									
			.16			COAL C4:	With claystone bands								
	119.59		.17			COAL C3:	Boney								
	119.59		1.04			SILTSTONE:	Biotortated								
											121.01/397'				
			.14			SILTSTONE:	Soft brown sand grains								

F
 QHD 84002-7-F
 F

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.67			SANDSTONE:	As above								
							BOX 48								
			1.83			SANDSTONE:	Fine grain with very fine grain laminations								
										134.57/44	1.5'				
			.93			SANDSTONE:	As above								
							BOX 49								
47			1.38			SANDSTONE:	With very fine grain laminations								
			.32			SANDSTONE:	Coal stringers								Broken
			.40			SANDSTONE:	As above								
										137.46/451'					
			.52			SANDSTONE:	Very fine grain with minor laminations								

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					G1 QHD 84002 - 4 - G1											
		137.71	.66													
	137.71		.63				SANDSTONE:	Very fine grain with dark brown bands								
	46	138.90	.56				SILTSTONE:	With coaly plant fragments								
		138.90	.02				COAL C2									Pulverized
			.06				COAL C1									Pulverized
			.07				COAL C2									Sheared
			.08				COAL C2									Pulverized
												140.20/460'				
			.12				COAL C2					m fr				Pulverized
			.04			COAL C3									Broken	
	139.29	139.35	.06			COAL C2:	Boney									

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r. q. d. d. o. b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.09		G2 QHD 84002-6-G2 ↓	COAL C2										
			.05			COAL C1										Pulverized
			.16			COAL C1										Fractured
			.04			COAL C2										
			.22			COAL C1										Fractured
			.11			COAL C1										Sheared pulverized
			.07			COAL C2										Pulverized
	141.50		.12			COAL C-1										Badly sheared
	141.50		.03			CLAYSTONE and COAL: Muddy										Pulverized
			.11			CLAYSTONE: Carbonaceous badly sheared										
	141.69		.05			CLAYSTONE and COAL: Badly sheared										
	141.69		.15			COAL LOSS										

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		141.93	.09												
	141.93	142.20	.27			SANDSTONE: Very fine grain with siltstone laminations									
							BOX 52								
	142.20		.13			SILTSTONE: With plant fragments									
										143.25/470'					
		142.97	.64			SILTSTONE: With plant fragments minor coaly lenses				m	4				
	142.97		1.30			SANDSTONE: Fine grain with very fine grain laminations									Fractured.
		144.51	.24			SANDSTONE: As above									
	144.51	144.57	.06			COAL C1									
	144.57	144.64	.07			CLAYSTONE:									
45	144.64		.31			SANDSTONE: Finegrain laminations									

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	157.57	1.7	.79												
						SANDSTONE: Very fine grain banded; minor fine grain bands									
						BOX 58									
			.36			SANDSTONE: As above									
45			.40			SANDSTONE: Very fine grain with siltstone laminations									
			.76			SANDSTONE: Medium massive to banded									
											160.62/527'				
											m	fr			
	161.03		1.15			SANDSTONE: Very fine grain with fine grain bands									
						BOX 59									
	161.03		.16												
46			1.67			SILTSTONE: With light brown siltstone bands									
											163.68/537'				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r. q. d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
		163.45	.59			SILTSTONE:	As above									
	163.45	163.60	.15			CLAYSTONE:										
	163.60	163.74	.14			SILTSTONE:										
	163.74		.16			CLAYSTONE:										
								BOX 60								
		163.96	.06				CLAYSTONE:	Silty, dark gray silty carbonaceous								
	163.96	164.28	.32			J1 No Sample	CLAYSTONE:	Black very coaly and dull; no bedding								Broken
	164.28		.57				CLAYSTONE:	Black and coaly; interbedded with silty claystone								Sheared at top
46		164.87	.02				CLAYSTONE:	Carbonaceous with calcite filled fracture								
	164.87		.40		J2	COAL C2:	Dull									
			.13			COAL C1:	Dull								Pulverized	

DRILL CORE LOG

HOLE No. QHD 84002

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.07		J2 QHD84002-3-J2	COAL C2									Broken	
			.11			COAL C1										Broken
			.03			COAL LOSS										
											166.42/546'					
											m	ft				
			.13			COAL C2										Broken
			.09			COAL C2										
			.15			COAL C1										
			.23			COAL C2										
			.15			COAL C1										
			.11			COAL C2										
			.15			COAL C1										Broken

DRILL CORE LOG

HOLE No. QHD 84002

PAGE No. 47

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.35		J2	COAL C1										
			.04			COAL C2										
			.21			COAL C1										
			.21			COAL LOSS										Fractured
											168.25/552'					
			.04			COAL C2										
			.08			COAL C1										
			.02			COAL C2										
			.06			COAL C1										
			.08			COAL C2										
			.06			COAL C1										
			.09			COAL C2										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
46			.10		J2 QHD 84002-3-J2	COAL C1										
			.28			COAL C1										
			.09			COAL C3										
			.08			COAL C2										
			.09			COAL C2										Fractured
			.05			COAL C3										
			.23			COAL C1										
			.05			COAL C3										
			.09			COAL C2										
			.11			COAL C1										
			.09			COAL C2										
			.21			COAL C1										

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.08		J2 QHD84002-3-J2 ↓	COAL C2										
			.09			COAL C2										Broken
			.12			COAL C1										
			.03			COAL C2										
			.05			COAL C1										Fractured
			.38			COAL C1										Solid
			.07			COAL C2										Sheared
			.10			COAL C1										
			.06			COAL C2										
		171.53	.15			COAL LOSS										
	171.53	171.60	.07			CLAYSTONE: Carbonaceous with coal stringers										
	171.60		.33			SILTSTONE: With plant fracture and coal stringers										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.11			SILTSTONE: As above					172.82/567' m	ff			
		172.28	.24			SILTSTONE: With minor very fine grain sandstone									
	172.28		1.09			SANDSTONE: Fine grain laminations with medium grain bands; minor plant fragments									
47			1.40			SANDSTONE: Medium grain with fine grain band and minor coal lenses									
			.20			SANDSTONE: As above									
			1.19			SANDSTONE: Fine grain laminations					175.86/577' m	ff			
			1.03			SANDSTONE: Very fine grain minor laminations									
						bioturbation with minor coal lenses									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.29			SANDSTONE: Fine grain; very fine grain laminations									
						BOX 65									
			.40			SANDSTONE: As above									
			.27			SANDSTONE: Fine grain laminations cross bedded									
										178.91/587'					
43			2.10			SANDSTONE: As above					m	ft			
						BOX 66									
			.29			SANDSTONE: As above									
			.16			SANDSTONE: Very fine grain laminations with minor coaly lenses								Broken	
			.48			SANDSTONE: As above									
										181.96/597'					
	181.97		.79			SANDSTONE: As above									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	181.97		.84												
			.94			SILTSTONE: With calcite filled fractures coaly lenses some contoured beds									
						SILTSTONE: With coaly partings and .03 vitrain band at center									
						BOX 67									
		184.23	.48			SILTSTONE: With Claystone bands									Broken
										185.01/607' M ft					
	184.23	184.52	.29			CLAYSTONE: With siltstone bands									Broken
	184.52	184.64	.12			ROCK MISSING									
	184.64	184.69	.05			SILTSTONE:									
	184.69		.08			CLAYSTONE: Carbonaceous vitrain stringer									
			.31			CLAYSTONE: With siltstone bands carbonaceous plant fragments									
		185.74	.66			SILTSTONE: Laminated									

DRILL CORE LOG

HOLE No. QHD 84002

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		185.84	.10												
						CLAYSTONE: Carbonaceous; abundant coaly lenses and stringers									
46	185.84		.61			SILTSTONE: Laminated coaly partings									
						BOX 68									
			.19			SILTSTONE: Laminated									
											187.45/615'				
		188.37	1.73			SILTSTONE: With minor very fine grain laminations					m	tr			
	188.37		.35			CLAYSTONE: Carbonaceous with coal stringers									Fractured
		188.77	.05			CLAYSTONE:									
	188.77	189.21	.44			SILTSTONE: Laminated									
						BOX 69									
	189.21	189.30	.09			CLAYSTONE:									Broken
47	189.30		.14		K2 ↑	COAL C3									Fractured

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.04		K2 QHD84002-2-K2	COAL C1										
			.05			COAL C2										
		189.61	.08			COAL C1										
	189.61	189.65	.04			CLAYSTONE: Carbonaceous										
	189.65	189.92	.27			SILTSTONE: With plant fragments and coal lenses										
											190.50/625'					
	189.92		.09			SANDSTONE: Very fine grain laminations					M	ft				
			.69			SANDSTONE: Medium grain with fine grain laminations and bands										
		191.23	.53			SANDSTONE: Very fine grain mixed with siltstone contored										
	191.23		.53			SILTSTONE: laminated; pyrite lenses at bottom										
			.26		SILTSTONE: With abundant plant fragments											

DRILL CORE LOG

HOLE No. QHD 84002

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		192.12		.10											
	192.12			.08											
				.12											
				.08											
				.06											
				.09											
	192.55			.06											
		192.70		.09											
				.15											
				.19											
		193.16		.12											

K3
 QHD84002-1-K3

SILTSTONE: As above with claystone bands

COAL C2: Mixed with claystone

COAL C2

COAL C1

COAL C2

COAL MISSING

ROCK LOSS

CLAYSTONE: Carbonaceous sheared

COAL C2

COAL C1/C2

COAL C3

Badly sheared

Broken

Broken

Broken

Broken

Broken to powder

Broken

DRILL CORE LOG

HOLE No. QHD 84002

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B C N.	UNIT		THICKNESS		SAMPLE NO. K3 ↓	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		193.34	.18												
	193.34	193.40	.06			CLAYSTONE: Carbonaceous									
										193.54/635'					
40	193.40	194.34	.94			SANDSTONE: Fine to medium grain; cross bedded disseminated pyrite				n	ft				
42	194.34		.40			SILTSTONE: Laminated with plant fragments BOX 71									
		195.20	.46			SILTSTONE: With abundant plant fragments; minor coal partings									
	195.20		.31			CLAYSTONE: With siltstone bands									
		195.56	.05			CLAYSTONE: Carbonaceous									
	195.56		.05			COAL C2									
		195.68	.07			COAL C1									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. a.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	195.68		.04			CLAYSTONE:	Carbonaceous								
		196.15	.43			ROCK LOSS									
										196.29/644'					
	196.15	196.25	.10			CLAYSTONE:	Carbonaceous								
	196.25	196.74	.49			SILTSTONE									
	196.74	197.03	.29			CLAYSTONE:	With siltstone bands								
	197.03		.17			SANDSTONE:	Fine grain; black with coal fragments								
			.74			SANDSTONE:	Medium grain								
							BOX 72								
			1.07			SANDSTONE:	As above								
			.12			ROCK LOSS									
										199.33/654'					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			1.73			SANDSTONE:	As above								
							BOX 73								
			1.45			SANDSTONE:	As above								
			1.45			SANDSTONE:	As above; minor dedding and plant fragments								
			.44			SANDSTONE:	As above with coaly fragments near bottom.								
52	204.70		.50			SANDSTONE:	As above with siltstone band at top								
											204.82/672'				
											m	fr			
							END OF HOLE								

DRILL HOLE

QHD 84003

Descriptive Log

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.39			SANDSTONE: Fine to medium, laminated with dark grey bands.								Fractured	
			0.13			ROCK LOSS:									
										6.40/21'					
			0.63			SANDSTONE: As above									
						BOX 3 ?									
			1.18			SANDSTONE: Fine, laminated.									
										8.23/27'					
		9.46	0.36			SANDSTONE: As above									
	9.46	9.54	0.08			SILTSTONE:									
	9.54		0.97			SANDSTONE: Fine to medium, laminated and cross bedded.									
						BOX 4 ?									
			1.08			SANDSTONE: As above								Fractured/Broken	

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.56			ROCK LOSS:									
										11.28/37'					
			1.24			SANDSTONE: Fine to medium, laminated and banded with some disturbed bedding and oxidation.									Badly broken
			1.02			SANDSTONE: Fine, laminated and banded, oxidized.									Very badly broken
			0.50			ROCK LOSS:									
										15.85/52'					
51			1.11			SANDSTONE: As above									Badly fractured and broken.
			0.95			SANDSTONE: Fine, laminated and cross bedded									Fractured
			0.36			SANDSTONE: Fine, dark grey, laminated with medium grain banded end.									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.32			ROCK LOSS:									
										18.59/61'					
41			1.29			SANDSTONE: Fine with siltstone and medium bands									Fractured
							BOX 7								
			0.10			SANDSTONE: Medium, laminated									
			0.28			ROCK LOSS:									
										20.42/67'					
			1.69			SANDSTONE: Fine with very fine lamination. Some disturbed bedding.									Fractured
41										21.95/72'					
			0.81			SANDSTONE: As above									
							TOP OF BOX 8								
			1.40			SANDSTONE: Fine to very fine, banded and disturbed.									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.22		E1 Upper ↑	ROCK LOSS:									
											24.38/80'				
	24.38		0.94			SANDSTONE: As above with siltstone bands									Badly broken
						TOP OF BOX 9									
	24.38		0.56			SILTSTONE: Dark grey.									
			0.33			ROCK LOSS:									
											26.21/86'				
											m ft				
	26.48		1.21			SILTSTONE: As above with vitrain band near top									
	26.48	26.66	0.18			CLAYSTONE: Dark grey, carbonaceous with minor minor vitran stringer.									Rusty fractured Surfaces.
	26.66		0.02	0:02		COAL C-3									
			0.02	0.02		COAL C-2									
			0.03	0.02		COAL C-4									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.19		E1 Upper QHD 84003-9-E1 Upper	Coal mixed with claystone									Crushed	
			0.04			CLAYSTONE: Carbonaceous, vitrain strings										
						TOP OF BOX 10										
			0.02			CLAYSTONE: Carbonaceous, sheared.										
			0.03			COAL C-2									Pulverized	
			0.43	0.32		COAL LOSS:										
											/91					
		27.51	0.07	0.05		COAL C-4									Broken	
	27.51		0.23	0.17		E1 Upper Part QHD 84003-10-E1 Upper Part	CLAYSTONE: Dark grey									Fractured
		27.76	0.02	0.02			ROCK MISSING									
		27.76	0.04	0.03	COAL C-2											
			0.08	0.06	E1 Main	COAL C-2: Boney										
			0.14	0.11		COAL C-3										

DRILL CORE LOG

HOLE No. QHD 84003

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.13		E1 Main QHD 84003-11-E1 Main	COAL C-2										
			0.15			COAL C-1										
		28.35	0.05			COAL C-2: Boney										
	28.35		0.10			CLAYSTONE: Dark grey										
		28.50	0.05			ROCK LOSS:										
	28.50		0.03			COAL C-3: Boney										
			0.08			COAL C-3										
			0.23			COAL C-2										Pulverized
			0.15			COAL C-1										Broken
			0.03			COAL C-1										Pulverized
			0.15			COAL C-3										
			0.07			COAL C-2: Boney										
			0.13			COAL C-1										
												29.57/97'		-.43		

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.11		E1 Main	COAL: C1										
		29.54	.06			COAL: C4										
40	29.54		.28			CLAYSTONE: Carbonaceous with vitrain strings										Fractured
						TOP OF BOX 11										
		29.90	.08			CLAYSTONE: Dark gray										Sheared
	29.90		.06			COAL: C3 with vitrain bands										
			.10			COAL: C2										Broken
			.05			COAL: C1										Broken
			.51			COAL LOSS										
50			.08			COAL: C3										Broken
			.10			COAL: C2										

31.09/102'
M ft

DRILL CORE LOG :

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.06		E1 Main	COAL: C2									Broken	
	30.95		.09			COAL: C2										
	30.95		0.7			CLAYSTONE: Carbonaceous										
		31.18	0.16			ROCK LOSS										
	31.18		0.07			COAL C2										
			0.05			COAL C1										Crushed
			0.10			COAL C3										Powdered, pulverized
			0.06			COAL AND CLAYSTONE										Pulverized
			0.11			COAL C2										As above
		31.79	0.22			COAL LOSS										
	31.79		0.05			CLAYSTONE										Crushed
			0.21			CLAYSTONE: Dark grey with dark brown bands.										

E1 Main

E2P

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.12		E2P QHD 84003-12-E2P	CLAYSTONE: (Fault gouge)									Badly sheared	
			0.35			SILTSTONE										
			0.22			CLAYSTONE: Carbonaceous										Sheared
		32.80	0.06		E2 Upper QHD 84003-13-E2 Upper	CLAYSTONE: With vitrain stringers									Broken	
	32.80		0.08			COAL C1									Pulverized	
			0.24		E2 MAIN QHD 84003-13-E2 MAIN	CLAYSTONE: Carbonaceous to C4, mixed with coal.									As above	
			0.24			COAL LOSS										
						TOP OF BOX 12										
											33.83/111					
			0.03			COAL LOSS					m ft					
		33.60	0.21			CLAYSTONE: Carbonaceous to C4, with coal stringers.									Broken	
	33.60		0.19			COAL C1										
			0.20			COAL C2										

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.08		E2 Main QHD 84003-14 - E2 Main	COAL C2	.	.	.	.					Broken	
			0.37			COAL C1	.	.	.	.		
			0.01			CLAYSTONE: Carbonaceous	.	.	.	.		
			0.16			COAL C2	.	.	.	.		
			0.07			COAL C1	.	.	.	.		
			0.02			COAL C3	.	.	.	.		
			0.19			COAL C1	.	.	.	.		
			0.11			COAL C2	.	.	.	.		
			0.02			CLAYSTONE: Carbonaceous	.	.	.	.		
			0.04			COAL C1; Boney	.	.	.	.		
			0.06			COAL C1	.	.	.	.		
												
												
			0.18			COAL LOSS	.	.	.	.		
												35.66/1.7				
												m ft				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			0.06		E2 Main	COAL C2										
			0.06			COAL C3: With Fusain band										
	35.48		0.06			COAL C1: Boney										
	35.48		0.09		E3 P QHD84003-15-E3P	CLAYSTONE: Carbonaceous									Broken	
			0.12			ROCK LOSS										
			0.20			CLAYSTONE										Sheared
	35.92		0.03			CLAYSTONE: Carbonaceous with vitrain strings.										
	35.92		0.07			COAL C2										
			0.17		COAL C1											
						TOP OF BOX 13										
			0.10		E3 Main	COAL C1									Broken	
			0.09			COAL C2									Broken	
			0.34			COAL LOSS										

DRILL CORE LOG

HOLE No. QHD 84003

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.03		E3 Main QHD 84003-16 - E3 Main	CLAYSTONE: Carbonaceous with coal stringers.									
											37.19/122				
											m				
			0.03				COAL C3								
			0.02				COAL C2								
			0.09				COAL C1								Sheared
			0.18				COAL C2: With claystone mixed								Pulverized
			0.06				COAL C3								Crushed
			0.16				COAL C2								Broken
			0.12			COAL C3								Broken	
			0.05			COAL C2								Broken	
			0.16			COAL C2								Pulverized	
		38.22	0.63			COAL LOSS									
										38.41/126					

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	38.22		.15		E3 Lower QHD 84003-17 - E3 Lower	CLAYSTONE: Carbonaceous to C4, with abundant vitrain strings									
46			0.05			COAL: C1/2: Vitrain									
			0.08			CLAYSTONE: ^{Very} Very carbonaceous to C4 with coal stringers									
			0.07			COAL C3-C4									
			0.19			SILTSTONE/CLAYSTONE: Carbonaceous with abundant coal stringers and lines (interbanded with coal and siltstone - bands 1 cm.									
	38.92		0.16			CLAYSTONE: Vitrain carbonaceous and coal strings									
	38.92		0.20			COAL MISSING									
		39.15	0.03			COAL C3-C4									
	39.15		0.12			CLAYSTONE: Carbonaceous with abundant coal strings									
47			0.51			CLAYSTONE: Dark grey with minor coal strings and plant fragments									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 14									
			0.25			CLAYSTONE: Dark grey, vitraïne bands at top									
		40.10	0.07			CLAYSTONE: Dark grey with 0.01 vitraïne band								Broken	
	40.10	40.37	0.27			SILTSTONE: Dark grey, minor coal strings									
49	40.37		0.84			SANDSTONE: Very fine with dark grey laminations and minimum coal strings									
			0.13			ROCK LOSS									
										41.45/136'					
			0.42			SANDSTONE: As above with some disturbed bedding									
			0.82			SANDSTONE: Fine to v.p. grained, laminated, minor cross bedding									
						TOP OF BOX 15									
44			1.40			SANDSTONE: As above									
			0.40			SANDSTONE: Medium lamination with siltstone band								Fractured	
										44.5/146'					

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
46			0.97			SANDSTONE: As above									
							TOP OF BOX 16								
41			1.67			SANDSTONE: As above									Fractured
										47.55/156					
			0.35			ROCK LOSS									
			0.65			SANDSTONE: As above									Fractured
43			0.18			SANDSTONE: Fine - medium laminator									Fractured & Broken
							TOP OF BOX 17								
			0.33			ROCK LOSS									
41			1.84			SANDSTONE: As above with minor coal lines									Fractured at top
										47.55/156					
		50.80	0.43			SANDSTONE: As above sandstone with rip up clasts									
	50.80		0.35			CLAYSTONE: Packing laminator									Fractured

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 18									
		51,18	0.03			CLAYSTONE: As above									
	51,18		0.03			COAL C1									
			0.03			CLAYSTONE: Dark grey carbonaceous with C4 bands									
			0.05			COAL C2									
			0.08			COAL C3								Sheared	
			0.03			COAL C1									
			0.02			COAL C2									
			0.09			COAL C3: Boney									
			0.11			COAL C3: With minor claystone laminator									
			0.13			CLAYSTONE: Carbonaceous abundant coal strings									
			0.03			COAL C1: Vitraïne									
			0.06			COAL C1									

F
QDH 84004-B-F

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.10		L ↓	COAL C2: Boney					
			0.04			COAL C1					
		52.08	0.10			C3: Grades to rock below					
40	52.08	52.19	0.11		CLAYSTONE: Vitraïne carbonaceous to abundant strings	.	.	.	.		
	52.19	52.20	0.01		COAL C2	.	.	.	.		
	52.20		0.02		CLAYSTONE: Dark grey	.	.	.	.		
										49.68/163					
		52.44	0.22		CLAYSTONE: Vitraïne carbonaceous to C4 with coal bands	.	.	.	.	m			
	52.44		0.33		SILTSTONE:	.	.	.	.		
			0.10		SILTSTONE: (Possible fault guage)	.	.	.	.				Broken
			0.18		SILTSTONE:	.	.	.	.		
48		53.28	0.23		SILTSTONE: Very fine laminator	.	.	.	.		

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	53.28	53.71	0.43			CLAYSTONE: With some carbonaceous claystone band									
						TOP OF BOX 19									
	53.71	53.81	0.10			SANDSTONE: Fine laminator									
	53.81		0.21			SILTSTONE: Disturbed bedding									
		54.10	0.08			ROCK MISSING:									
	54.10	54.22	0.12			COAL C4									
	54.22	54.40	0.18			CLAYSTONE: Carbonaceous with abundant coal stringers									
	54.40	54.95	0.55			SANDSTONE: Fine banded, slightly disturbed									
	54.95	55.08	0.13			SILTSTONE:									
	55.08	55.16	0.08			CLAYSTONE: With coal stringers									
	55.16		0.13			SANDSTONE: Very fine, disturbed laminator									
											52.73/173				
											m f+				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.14			SANDSTONE: As above									
45			0.56			SANDSTONE: Fine, light grey coally lines banded									
			0.24			SANDSTONE: Fine with very fine laminator								Fractured	
						TOP OF BOX 20									
43		56.97	0.74			SANDSTONE: As above								Fractured at end	
	56.97	57.00	0.03			COAL C1									
	57.00		0.40			SANDSTONE: Fine, very fine laminator									
											54.86/180				
			0.16			SANDSTONE: As above								Broken	
			0.58			SANDSTONE: As above coal lines at bottom									
			0.28			SANDSTONE: As above sheared zone at top								Broken	
			0.45			SANDSTONE: Fine laminator, minor cross bedding									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 21									
40			1.73			SANDSTONE: Fine laminator, minor coally lines									
			.18			SANDSTONE: As above, slightly disturbed									
											57.91/190				
											m ft				
37		61.42	0.64			SANDSTONE: Very fine laminator									
	61.42	61.56	0.14			SILTSTONE: Dark grey									
	61.56	61.62	0.06			CLAYSTONE: Dark grey, minor coally partings									
						TOP OF BOX 22									
	61.62		0.02			C3									
			0.10			COAL C2									
			0.15			COAL C1									
			0.05			CLAYSTONE: Carbonaceous with coal strings									
			0.14			COAL C1: Slightly Boney									
			0.15			COAL C2									

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	j).		
			0.08		G1	COAL C2	.	.	.	.					Broken	
			0.04			COAL C4	.	.	.	.		
			0.04			CLAYSTONE: Carbonaceous	.	.	.	.		
			0.05			COAL LOSS	.	.	.	.		
												
												
												
												
												
		62.48	0.04			G2P QHD 84003-18-G2P	COAL C3	.	.	.	.	
	62.48		0.01		CLAYSTONE: Carbonaceous		.	.	.	.		
			0.07		CLAYSTONE: With siltston bands		.	.	.	.		
37			0.38		SANDSTONE: Very fine laminator		.	.	.	.						Solid
			0.06		ROCK MISSING		.	.	.	.		
												
33		63.04	.04		CLAYSTONE: With coal strings							Broken
												
	63.04		0.02		COAL C3							
			0.11		COAL C1							

59.74/196
m ft

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.08		G2 QHD 84004-6-G2	COAL C1	.	.	.	.				Broken	
			0.12			COAL C@	.	.	.	.	
			0.10			COAL C1	.	.	.	.	
			0.03			COAL C2	.	.	.	.	
			0.20			COAL C1	.	.	.	.	
			0.10			COAL C3: Sheared	.	.	.	.					Sheared
			0.07			COAL MISSING	.	.	.	.	
			0.07			COAL C3: Boney sheared	.	.	.	.					Sheared
33			0.07			CLAYSTONE: Coally parting, dark grey	.	.	.	.	
			0.05			COAL C2: Broken	.	.	.	.					Broken
		64.12	0.06			COAL C4	.	.	.	.	
	64.12		0.15			CLAYSTONE: With minor coal lenses	.	.	.	.	

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OB BOX 23									
	/														
		64.30	0.03			CLAYSTONE: Dark grey									
											61.87/203				
											m fr				
	64.30	64.31	0.01			COAL Cl: Vitrairie									
	64.31		0.02			CLAYSTONE: Carbonaceous with coal string									
			0.16			ROCK MISSING									
38		65.06	0.57			CLAYSTONE: Dark grey with coal strings								Fractured	
	65.06		0.91			SANDSTONE: Fine with siltstone laminator									
			0.79			SANDSTONE: Fine-very fine bands with minor plant fragments									
			0.12			SANDSTONE: Medium, lightly laminated, slightly disturbed									
						TOP OF BOX 24									
			0.17			SANDSTONE: As above									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			0.32			SANDSTONE: Fine with very fine laminator disturbed and some plant fragments									
			0.20			SANDSTONE: Very fine, dark grey laminator									
										64.92/213					
										M ft					
			0.90			SANDSTONE: As above with minor coally lines and plant fragments									
			0.21			SANDSTONE: As above, broken at top								Broken at top	
			0.10			ROCK MISSING									
										66.14/217					
										m ft					
			0.78			SANDSTONE: Very fine with fine laminator, minor cross lamination									
						TOP OF BOX 25									
30			1.01			SANDSTONE: FINE WITH VERY FINE LAMINATOR									
		71.18	0.61			SANDSTONE: Very fine, dark grey with medium grey bands									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC./m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	71.18	71.34	0.16			CLAYSTONE: Dark grey with minor coal strings									
	71.34		1.02			SANDSTONE: Fine - very fine, massive									
											69.19/227				
						TOP OF BOX 26					m	fr			
			0.22			SANDSTONE: As above									
			0.51			SANDSTONE: Fine - medium laminator									
			0.11			SANDSTONE: Very fine, dark grey									
43			0.79			SANDSTONE: Medium with minor very fine bands									
			0.26			ROCK MISSING									
40			0.71			SANDSTONE: Very fine with minor fine laminator									
			0.47			SANDSTONE: As above					72.24/237				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 27									
			0.04			SANDSTONE: As above									
40			0.68			SANDSTONE: Medium with fine laminator layers									
			0.06			SANDSTONE: Very fine laminator with plant fragments									
			1.54			SANDSTONE: Medium - fine laminator									
			0.23			SANDSTONE: Very fine with minor, fine laminator									
											75.29/247				
			0.83			SANDSTONE: Fine - very fine laminator, some m.g. bands									
36	80.27		1.46			SANDSTONE: Very fine with dark grey, and brown siltstone bands									
	80.27	80.49	0.22			SILTSTONE: Dark grey with dark brown bands									
	80.49	80.68	0.20			CLAYSTONE: Dark grey, broken at end									Broken at end

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 29 ?									
	80.69	81.08	0.39		J1	COAL MISSING									
										78.23/257					
										m ft					
37	81.08	81/86	0.78			CLAYSTONE: Dark grey							Broken		
39	81.86		0.04		J2 QHD 84004-5-J2	CLAYSTONE: Carbonaceous to c4, coal fingers									
			0.01			COAL C1: Vitraire									
			0.03			COAL C4									
			0.15			CLAYSTONE: Carbonaceous, coal stringers								Badly broken	
			0.08			COAL C3								Broken	
			0.08			COAL C1								Pulverized	
			0.08			COAL C2								Pulverized	
			.06			COAL C3								Broken	
			.27			COAL MISSING									

DRILL CORE LOG

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					J2						801.16/263					
							CAVED RE-DRILL, MOSTLY CLAYSTONE (0.27)									
			.05				COAL C1									Broken
			.05				COAL C2									Pulverized
			.13				COAL C3									Broken
			.04				CLAYSTONE: Carbonaceous DKGRSH									
			.07				COAL C3									Broken
			.04				COAL C4									
			.22				COAL C3									Broken
			.06				COAL C2									
			.08				COAL C2: Boney									
			.13				TOP OF BOX 30									
							COAL MIXED CLAYSTONE									Crushed
			.05				COAL C2									

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.13		J2	CLAYSTONE: Carbonaceous									Crushed	
			.17			COAL LOSS										
											81.38/267					
											M					
			.07			COAL C2: Boney										Broken
			.17			COAL C1: Boney										
			.06			COAL C3										
			.09			COAL C2: Boney										
			.10			COAL C2										
			.04			COAL C3										
			.06			COAL C2: Vitrain strings										Broken
			.14			COAL C2										
			.10			COAL C1										
			.08			Coal C2										

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B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.08			COAL C1	.	.	.	.	
			.07			COAL C3	.	.	.	.	
			.05			COAL C2	.	.	.	.	
			.41			COAL LOSS	.	.	.	.	
							82.91/272				
			.05			COAL C1	.	.	.	.	m	ff		
			.04			COAL C3	.	.	.	.	
			.03			COAL C3	.	.	.	.				Broken
			.13			COAL C2: Boney	.	.	.	.	
40			.05			COAL C4	.	.	.	.	
			.10			COAL C3	.	.	.	.	
			.03			COAL C2	.	.	.	.	
			.06			COAL C1	.	.	.	.	

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.06		J2 QHD84003-5-J2	COAL C2										
			.01			COAL C1										
			.09			COAL C3										
			.10			COAL C1										
			.05			COAL C2										
			.28			COAL C1										Broken at end
						TOP OF BOX 31										
			.21			COAL C1: Abundant vitrain										
			.04			COAL C2										
			.20			COAL LOSS										
												84.43/277				
												m ft				
			.09			COAL C1										
			.03			COAL C3										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.16		J2 ↓	COAL C1	.	.	.	.		
			.08			COAL C2	.	.	.	.		
			.15			COAL C1	.	.	.	.		
			.03			COAL C2	.	.	.	.		
		87.60	.13			COAL LOSS	.	.	.	.						Broken
38	87.60		.10			CLAYSTONE: Dark grey	.	.	.	.						Sheared
		87.91	.21			CLAYSTONE: Dark grey, plant fragments	.	.	.	.		
	87.91	87.96	.05			COAL C3	.	.	.	.		
	87.96	88.04	.08			CLAYSTONE: Dark grey, coal strings, calcite at top	.	.	.	.		
	88.04	88.06	.02			SILTSTONE: Dark grey	.	.	.	.		
40	88.06	88.85	.79		SILTSTONE: Fine, fine laminations	.	.	.	.			
	88.85		.36		SHITSTONE: Dark grey, dark brown bands broken at top							

DRILL CORE LOG

HOLE No. QHD 84003

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 32									
		89.83	.62			SILTSTONE: Very fine, sandstone bands, minor coal strings									
	89.83	89.84	.01			COAL Cl: Vitrain									
	89.84		.17			SANDSTONE: Very fine banded									
											87.48/287				
			.34			SANDSTONE: As above									
38			1.36			SANDSTONE: Fine, laminated and slightly disturbed									
						TOP OF BOX 33									
			1.42			SANDSTONE: Fine, laminated, dark grey bands colsite fill fractures									
											90.53/297				
		93.33	.20			SANDSTONE: As above									
	93.33	93.41	.08			SILTSTONE: Dark, dark									

DRILL CORE LOG

HOLE No. QHD 84003
PAGE No. 34

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
40	93.41		1.13			SANDSTONE: Fine-very fine, laminations									
						TOP OF BOX 34									
34	96.10		1.56			SANDSTONE: Fine to medium, laminated and cross laminated									
	96.10		.10			SILTSTONE:									
											93.57/307				
		97.38	1.18			SILTSTONE: Very fine, sandstone bands					M ft				
						TOP OF BOX 35									
	97.38		.35			SANDSTONE: Very fine, laminated									
		98.76	1.03			SANDSTONE: Very fine, siltstone bands, coaly lenses									
	98.76	99.08	.32			CLAYSTONE: Carbonaceous, coaly partings									
	99.08	99.30	.22			ROCK LOSS									
											96.62/317				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	99.30	99.49		.19	K2 QHD84003-2-K2	CLAYSTONE:	As above	.	.	.					
	99.49	99.52	.03			COAL MIXED WITH CLAYSTONE	.	.	.	.	
	99.52	99.70	.18			CLAYSTONE:	Dark grey, plant fragments	.	.	.					
	99.70	99.85	.15			SILTSTONE	.	.	.	.	
	99.85	100.02	.17			CLAYSTONE:	Dark grey, minor coal lenses.	.	.	.					
	100.02		.20			SILTSTONE	.	.	.	.	
						TOP OB BOX 36	.	.	.	.	
29			.28			SILTSTONE:	With sandstone laminations, coal strings and plant fragments	.	.	.					
		100.96	.46			SILTSTONE:	Dark grey with dark brown bands	.	.	.					
	100.96		.02			COAL C2	.	.	.	.	
			.03			COAL C1	.	.	.	.	
			.03			COAL C2	.	.	.	.	

B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
				.01	K2 QHD 84003 - 2 - K2	COAL C1										
				.04		COAL C3: With Claystone, laminations										
				.07		COAL LOSS										
		101.34	.18			COAL C1										
	101.34	101.40	.06			CLAYSTONE									Fractured	
	101.40		.09			COAL C1										
			.06			COAL C1									Crushed	
		101.61	.06			COAL LOSS										
	101.61	101.68	.07			CLAYSTONE: Dark grey									Sheared	
	101.68	102.35	.67			SANDSTONE: Very fine, siltstone bands										
											99.67/327					
29	102.35	102.85	.50			SILTSTONE: Minor coal strings										
	102.85		.14			COAL C3: Minor claystone laminations										

DRILL CORE LOG

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B C 11	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
					K3 QHD 84003-1-K3 ↓	TOP OF BOX 37									
			.22			COAL LOSS									
			.17			COAL C1									
	103.38	103.48	.10			CLAYSTONE: Carbonaceous with coal bands									
	103.48		.06			COAL C3									
											100.89/331				
			.11			COAL LOSS					m	ft			
			.04			COAL C3									Broken
			.07			COAL C2									Broken
			.15			COAL C4; Claystone bands									Broken
			.02			CLAYSTONE: Carbonaceous to C4									
		104.08	.15			COAL C1									
	104.08		.07			CLAYSTONE: Dark grey									

DRILL CORE LOG

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B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.35			SILTSTONE									Fractured
			.89			SILTSTONE: Dark grey, dark brown bands, plant fragments and minor coaly lenses									
			.17			SILTSTONE: Dark brown, massive									
			.16			SILTSTONE: Dark grey									
		105.88	.16			CLAYSTONE: Carbonaceous with siltstone bands									
	105.88		.09			COAL C2									
						TOP OF BOX 38									
		106.02	.05			COAL C2									
	106.02	106.15	.13			CLAYSTONE: Carbonaceous, coal strings									
			.10			SILTSTONE: Dark grey									
			.36			SILTSTONE: Dark grey, coal									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		106.67	.06			ROCK MISSING: Claystone carbonaceous									Broken
	106.67	106.84	.17			CLAYSTONE: Carbonaceous, vitrine varis									Broken
	106.84	106.26	.42			CLAYSTONE: Dark brown, abundant plant fragments									Fractured
	106.26	106.41	.15			SANDSTONE: Medium									
	106.41	106.69	.28			CLAYSTONE: Dark grey									
	106.69		.75			SANDSTONE: Medium, massive									
											105.77/347				
						TOP OF BOX 39					m	fr			
			2.87			SANDSTONE: Medium, massive, minor carbonaceous zones									
						TOP OF BOX 40									
			.20			SANDSTONE: As above									
											108.81/357				
											m	fr			

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
				.84		SANDSTONE: As above									
43				1.73		SANDSTONE: Medium, banded, some carbonaceous bands									
						TOP OF BOX 41									
				.47		SANDSTONE: Medium, slightly bedded, calcite fill fracture near top									
											11.86/367				
											m ←				
36				.41		SANDSTONE: As above with a silstone clast near top and carbonaceous bands at bottom									
37				1.87		SANDSTONE: Medium, minor dark bedding									
						TOP OF BOX 42									
				.74		SANDSTONE: Medium, massive									
											114.91/377				
				2.07		SANDSTONE: Medium, minor bedding									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 43									
			.79			SANDSTONE: Medium, banded, dark brown bands at top									
			.18			SANDSTONE: Medium, laminated with dark brown band at top									
											117.96/387				
37			1.85			SANDSTONE: Medium, thin siltstone band near centre									
						TOP OF BOX 44									
			1.21			SANDSTONE: Medium, minor dark grey bedding									
			1.55			SANDSTONE: Medium, massive					121.01/397				
						TOP OF BOX 45									
34			1.50			SANDSTONE: Massive, minor bedding									
											124.05/407				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			1.24			SANDSTONE: As above with dark grey band near top									
						TOP OF BOX 46									
32			.45			SANDSTONE: Medium, light brown laminator calcified at bottom									
			1.46			SANDSTONE: Medium, minor carbonaceous bedding									
											127.10/417				
			.88			SANDSTONE: Medium, massive TOP BOX 47					m	ft			
			2.16			SANDSTONE: As above, minor dark grey bedding									
											130.15/427				
			.67			SANDSTONE: As above TOP OF BOX 48									
			.47			SANDSTONE: Medium, carbonaceous laminations, fine grain band									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
35			1.91			SANDSTONE: Fine to medium grain, laminated, silkstone bands									
											133.20/437				
			.41			SANDSTONE: Fine to medium, laminated									
						TOP OF BOX 49									
			.87			SANDSTONE: As above									
			1.59			SANDSTONE: Fine, laminated with dark siltstone bands									
			.08			SANDSTONE: Very fine with <u>pyrite</u> and Plant fragment lenses									
			.08			SANDSTONE: Fine, laminated iwth dark very fine grain bands									
											136.25/447				
36			.21			SANDSTONE: As above									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 50									
			.91			SANDSTONE: As above									Fractured
			1.88			SANDSTONE: Very fine, dark grey, laminated with fine grain bands									
						TOP OF BOX 51									
			.15			SANDSTONE: As above									
										139.29/	457				
										m	ft				
37			2.63			SANDSTONE: Very fine - fine grain laminations									
						TOP OF BOX 52									
			.34			SANDSTONE: Very fine - massive, dark grey									
										142.34/	467				
										m	ft				
			1.14			SANDSTONE: As above									
			.16			SANDSTONE: Very fine, light grey									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			1.19			SANDSTONE: Very fine, dark grey									
						TOP OF BOX 53									
			.57			SANDSTONE: Fine, laminated, dark, very fine grain bands									
38			2.20			SANDSTONE: As above					145.39/477 m ft				
						TOP OF BOX 54									
			.89			SANDSTONE: As above									
											148.44/487 m ft				
			1.34			SANDSTONE: Fine to medium grain, laminated									
34			.53			SANDSTONE: Fine to medium grain, laminated very fine thin bands									
						TOP OF BOX 55									
			.26			SANDSTONE: As above									
		153.29	.90			SANDSTONE: Medium, dark grey with light grey bands									

DRILL CORE LOG

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DRILL HOLE

Q H D 8 4 0 0 4

Descriptive Log

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
						TOP OF BOX 1									
	0	7.11				OVERBURDEN - No recovery					7.0/20 ¹ m Pr				
	7.11	8.58	1.47			OVERBURDEN - To large sandstone chunks									
	8.58		1.06			SANDSTONE: Medium, minor cross beds with clay clasts, oxidized.								Broken	
						TOP OF BOX 2					9.14/30 ¹ m				
	/		.030			SANDSTONE: As above								Fractured	
37			.39			SANDSTONE: Fine, lamination with oxidized zones									
			.51			SANDSTONE: Medium, oxidized								Fractured	
			1.10			SANDSTONE: Fine, lamination with cross bedding									
			.09			SANDSTONE: Medium									
			.26			SANDSTONE: Fine to very fine, lamination									
						TOP OF BOX 3									
37															

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.21			SANDSTONE: As above									Fractured
		12.73	.23			ROCK MISSING									
										12.19/40'					
	12.73	14.46	1.73			SANDSTONE: Banded with fine grain sandstone bands									Fractured
	14.46		.80			SANDSTONE: Fine, with contorted very fine bands									
						TOP OF BOX 4									
			.22			SANDSTONE: Fine grain laminations with very fine bands.									
			.06			SANDSTONE: Medium									
			.20			SANDSTONE: Fine with very fine lamination and bands									
										15.24/50'					
			.08			SANDSTONE: As above									
			.11			SANDSTONE: Fine grain lamination									

B C N	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			2.01			SANDSTONE: Medium, minor dark laminations and oxidized zones									
						TOP OF BOX 5									
			1.02			SANDSTONE: Medium laminations oxidized zones								Fractured	
											18.29/60				
			.76			SANDSTONE: Medium laminations with calcite filled fractures									
			.35			SANDSTONE: Fine laminations with medium bands minor calcite									
			.70			SANDSTONE: Medium, dark laminations, slight oxidation									
						TOP OF BOX 6									
			.38			SANDSTONE: As above									
			.72			SANDSTONE: Fine laminations									
											21.34/70				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
33			1.69			SANDSTONE: As above with very fine bands									
						TOP OF BOX 7									
			1.21			SANDSTONE: As above									
			.15			ROCK MISSING									
											24.38/80				
			.87			SANDSTONE: As above									
			.72			SANDSTONE: As above					25.30/83				
	/					TOP OF BOX 8									
34			1.75			SANDSTONE: Fine with very fine laminations									
											27.74/91				
			.96			SANDSTONE: As above									
						TOP OF BOX 9									
		29.44	.22			SANDSTONE: Very fine with coal lenses									Broken at bottom

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	29.44		.73			SILTSTONE: Dark grey bands									
28		30.27	.10			SILTSTONE: With carbonaceous bands and minor coaly partings									
	30.27		.11			CLAYSTONE: Carbonaceous with minor coal strings								Broken	
			.42			CLAYSTONE: Dark grey with siltstone bands									
			.05			CLAYSTONE: Carbonaceous with coal stringers									
28			.27			CLAYSTONE: Dark grey with siltstone bands									
		31.30	.18			ROCK MISSING									
											30.78/101				
											m ft				
						MUD: with minor coal pieces (cave) .04									
	31.30		.09			COAL MISSING									
			.04			COAL C1									
			.10		COAL C2										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.05		F1 F2D → QHD84004-7-F1X F2D	COAL C3:	Boney	.	.	.						
			.03			COAL C4:	With claystone laminations	.	.	.						
			.04			COAL C3:	Boney	.	.	.						
	31.65		.09			CLAYSTONE:	Carbonaceous with coal stringers	.	.	.						
27	31.93		.19			CLAYSTONE:	Dark grey with carbonaceous bands	.	.	.						
			.05			COAL C2	.	.	.	.		
			.06			COAL C1:	Abundant Vitraire	.	.	.						
							TOP OF BOX 10	.	.	.						
			.07			COAL C2	.	.	.	.		
			.34			COAL C1	.	.	.	.		
			.01		COAL C4	.	.	.	.			
			.23		COAL C1	.	.	.	.			
			.03		COAL C3	.	.	.	.			

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.22		F2 QHD84004-8-F2	COAL C1: With vitraïne bands									
			.05			COAL C2									
			.14			COAL MISSING									
											32.61/107				
			.21			COAL C1									
			.09			COAL C2: With vitraïne bands									
			.01			CLAYSTONE: Carbonaceous									
			.04			COAL C2									
			.01			CLAYSTONE: Carbonaceous									
			.01			COAL C2									
			.14			COAL C1									
			.03			CLAYSTONE: Carbonaceous									
30			.05			COAL C3									
			.06			COAL C1									
			.03			COAL C2									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.01		F2	CLAYSTONE: Carbonaceous									
			.06			COAL C1									
			.07			COAL C2								Broken	
			.02			COAL C3									
			.01			COAL C4									
			.05			COAL C2									
			.03			COAL C3								Broken	
			.03			COAL C2									
			.04			COAL C3: Boney									
			.06			COAL C4									
			.05			COAL C2									
			.11			COAL C2								Pulverized	
			.09			COAL C1								As above	

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.03		F2 Lower ↓	CLAYSTONE: Carbonaceous with coal partings and plant fragments									
			.02			CLAYSTONE: Dark grey									
			.02			CLAYSTONE: Carbonaceous, coally									
			.03			CLAYSTONE: Dark grey									
			.05			CLAYSTONE: Dark grey-very carbonaceous with coally bands									Broken
		36.32	.35			ROCK MISSING									
	36.32	36.56	.24		SILTSTONE: Banded										
	36.56	36.85	.29		SANDSTONE: Fine laminations										
26	36.85	37.94	1.09		SILTSTONE: Dark grey with dark brown bands									Fractured	
	37.94		.24		SANDSTONE: Fine to very fine laminations										
					TOP OF BOX 12										
			.72		SANDSTONE: As above										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.15			SANDSTONE: Very fine with coally partings									Broken
											38.71/127				
			.31			SANDSTONE: Very fine, contorted bands, calcite at top									
38			.91			SANDSTONE: Fine laminations, distorted in upper section, calcite filled fractures near top									
		40.96	.69			SANDSTONE: Very fine, dark grey with light laminations									
						TOP OF BOX 13									
	40.96		1.23			SILTSTONE: Dark grey with darker bands									
			.17			SILTSTONE: Dark grey									
											41.76/137				
		43.73	1.37			SILTSTONE: As above with minor dark brown lenses									
	43.73		.08			SANDSTONE: Fine laminations with calcite filled fractures									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			1.01								47.85/157				
						SANDSTONE: As above					m				
						BOX 16									
30			2.00			SANDSTONE: As above									
											50.90/167				
		52.06	.87			SANDSTONE: As above									
						BOX 17									
29	52.06		2.13			SILTSTONE: Dark grey with dark brown bands									
											53.94/177				
			.71			SILTSTONE: As above									
						BOX 18									
			.12			SILTSTONE: As above									
		55.31	.29			SILTSTONE: Dark grey with dark claystone bands									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
	55.31		.06		QZ QHD84004-4-GZ	CLAYSTONE: Dark grey										
31		55.46	.09			CLAYSTONE: Carbonaceous with vitraïne strings										
	55.46		.05			COAL C3										
			.14			COAL C2: Fractured										
			.08			COAL C3										
	55.73		.05			CLAYSTONE: Carbonaceous										
			.06			COAL C2										
		55.96	.12			COAL C4: Boney										
			.10			CLAYSTONE: Carbonaceous										
			.07			COAL C3										
			.09			COAL C2										
			.10			COAL C2: With vitraïne bands										
			.18			COAL C1										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.a.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.08		G1	COAL C2: With vitraïne bands	.	.	.	.	
			.05			COAL C3	.	.	.	.	
			.13			COAL C2	.	.	.	.	
			.04			COAL C1	.	.	.	.	
			.03			COAL C2	.	.	.	.	
			.02			CLAYSTONE: Dark grey	.	.	.	.	
			.02			COAL C2	.	.	.	.	
			.07			COAL C1	.	.	.	.	
	57.36		.42			COAL MISSING	.	.	.	.	
							.	.	.	.	56.84/186			
							.	.	.	.	m ft			
29	57.36	57.93	.57			SANDSTONE: Fine, dark grey, minor fault veins	.	.	.	.	
	57.93		.03			COAL C3					
			.11		COAL C2						

G2P
 84004-5'-G2P
 G2

DRILL CORE LOG

HOLE No. QHD 84004

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
					G2 QHD 84004-6-G2 ↓											
			.06			COAL C2										
			.04			COAL C1: Broken										
			.10			COAL C2										
			.02			COAL C1										
			.04			COAL C2: With claystone laminations										
			.18			COAL C2										
			.06			COAL C3										
			.12			COAL C3: Broken										
			.07			COAL C2										
			.04			COAL C2; Sheared										
		58.89	.09			COAL C3: Some claystone bands										Sheared and Broken
28	58.89	59.05	.16			CLAYSTONE: Dark grey with dark brown bands										Broken at top

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r. q. d. d. o. b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
	59.05	59.14	.09			SILTSTONE: Dark grey									
	/														
	59.14	50.52	1.38			SANDSTONE: Fine laminations with distorted dark bands									
										60.05/197					
37			.17			SANDSTONE: Fine laminations				m					
							BOX 20								
			.67			SANDSTONE: As above									
		61.70	.34			SANDSTONE: Fine-very fine lamintions									
			1.15			SILTSTONE: Dark grey with part brown bands									
		63.11	.26			SILTSTONE: Dark grey with carbonaceous bands coal strings and bands									
			.30			SANDSTONE: Fine with very fine laminations and plant fragments on part									
			.11			ROCK MISSING									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd	jt.	
			.09												
			.97												
			.25												
35			1.49												
			.28												
			.10												
			.13												
			1.87												

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
35			.49			SANDSTONE: Very fine laminations, siltstone bands									
						BOX 23									
			.69			SANDSTONE: Fine laminations with cross bands, and minor very fine laminations									
											69.19/227				
											m	fr			
34			.24			SANDSTONE: As above									
			.75			SANDSTONE: Very fine with ^{contacted} entrained siltstone bands									
25			.20			SANDSTONE: Fine laminations									
			.95			SANDSTONE: Fine to very fine laminations									
						BOX 24									
			.07			SANDSTONE: As above									
			.82			SANDSTONE: Very fine with fine siltstone bands									
											72.24/237				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.70			SANDSTONE: Fine, light grey with dark laminations and plant fragments									
						BOX 25									
28			.15			SANDSTONE: Medium laminations with plant fragments and very fine sandstone bands									
			.33			SANDSTONE: Fine laminations with very fine laminations and bands									
			.58			SANDSTONE: Medium, minor, part laminations									
			.25			ROCK MISSING									
											75.29/247				
											m ft				
25			1.26			SANDSTONE: As above									
			.45			SANDSTONE: Fine with dark grey very fine bands									
						BOX 26									
			.05			SANDSTONE: As above									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
		78.47	.81		JZ	SANDSTONE: Very fine, dark grey with light grey laminations									
	78.47		.54			SILTSTONE: Dark grey with dark brown bands									
		79.90	.89			SILTSTONE: As above									
	79.90	80.18	.28			CLAYSTONE: Dark grey									
	80.18		.07			SILTSTONE: Dark grey									
						BOX 27									
32		80.35	.10			SILTSTONE: Dark grey									
	80.40	80.40	.05			SANDSTONE: Slightly carbonaceous									
	80.40		.08			COAL C2									
			.02			CLAYSTONE: Carbonaceous									
			.10			COAL C2									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.03		J1 QHD84004-3-J1	COAL C1										
			.07			COAL C2										
			.12			COAL C1										Broken at end
			.06			COAL C3										
			.03			COAL C1										
			.02			COAL C2										
			.11			COAL C2										
			.07			COAL C3										
			.01		CLAYSTONE: Carbonaceous											
			.10		COAL C2: Broken											
			.10		COAL C1											
			.06		COAL C2											
			.07		COAL C1											

DRILL CORE LOG

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.13		J1 QHD 84004-3-J1	COAL C3:	Broken	.	.	.						
			.14			COAL C2:	Broken	.	.	.						
			.03			COAL C1	.	.	.	.		
			.02			COAL C4	.	.	.	.		
			.20			COAL MISSING	.	.	.	.		
											81.38/267					
			.03			COAL C2	.	.	.	.		
			.05			COAL C2:	Boney	.	.	.						
			.08			COAL C2	.	.	.	.		
			.10			COAL C3:	Broken	.	.	.						
			.18			COAL C2						
			.03			COAL C4						
			.04			CLAYSTONE:	Carbonaceous	.	.	.						

DRILL CORE LOG

HOLE No. QHD 84004
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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.05		J-2	COAL: Mixed with claystone, crushed									
26			.04			COAL C2									
			.03			COAL C4									
			.12			COAL C3: With vitrairie bands, broken									
			.09			COAL C2: Boney									
						BOX 28									
			.14			COAL C3: Boney, minor fusian									Broken
			.12			COAL C2									
			.09			COAL C3									
			.12			COAL C2									
			.15			COAL C2: Boney									Broken
			.10			COAL C3									Broken
			.03			COAL C4									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.03		JZ	COAL C2:	Boney	.	.	.						
			.14			COAL C2:	Broken	.	.	.						
			.07			COAL MISSING	.	.	.	.		
			.04			COAL C2:	.	.	.	.		
			.04			COAL C1	.	.	.	.		
			.07			COAL C2	.	.	.	.		
			.07			COAL C3:	Broken	.	.	.						
			.16			COAL C1	.	.	.	.		
			.10			COAL C2	.	.	.	.		
			.10			COAL C1	.	.	.	.		
			.10			COAL C2	.	.	.	.		
			.09			COAL C3:	With vitraïne bands	.	.	.						

83.21/273

JZ

DRILL CORE LOG

HOLE No. QHD 84004

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.g.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd	jt.		
			.05		J1 QHD84004-3-J1 ↓	COAL C1	.	.	.	.		
			.06			COAL C2	.	.	.	.		
			.21			COAL C1	.	.	.	.		
			.26			COAL C2: Fractured	.	.	.	.		
			.11			COAL C3: Crushed	.	.	.	.		
	85.37		.13			COAL MISSING	.	.	.	.		
	85.37		.03			CLAYSTONE: Carbonaceous	.	.	.	.		
			.03			CLAYSTONE: Dark grey	.	.	.	.		
						BOX 29	.	.	.	.		
			.09			SILTSTONE: Dark grey	.	.	.	.		
35			.44		SANDSTONE: Fine laminations, dark grey	.	.	.	.			
			.09		SILTSTONE: Dark grey with dark grey claystone bands and thin vitriane bands up to 0.3 cm., vitriane carbonaceous in places							

DRILL CORE LOG

HOLE No. QHD 84004

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B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.33		J3 QHD84004-2-J3	ROCK MISSING										
											85.65/281					
			.16				SILTSTONE: As above									
30			.04				CLAYSTONE: Dark grey, vitraïne carbonaceous to coally									
	86.58		.02				COAL C3									
			.13				COAL C1:									
			.08				COAL C2									
			.02				COAL C3									
			.04				COAL C2									
			.05				COAL C3									
			.09				COAL C1: Broken									
			.04				COAL C2									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
			.08		V3	COAL C1										
			.07			COAL C2: With vitraïne strings										
			.05			COAL C2										
			.12			COAL C1										
			.02			COAL C2										
			.14			COAL C1: Fractures										
		87.63	.10			COAL C3: With minor claystone, broken										
	87.63		.17			SANDSTONE: Fine, dark grey coal strings, plant fragments, calcite										
			.08			SANDSTONE: As above, abundant coal										Broken, possible coal loss
											87.48/287					
											m ft					
			.13			SANDSTONE: As above										
			.16			SANDSTONE: As above										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.09			SANDSTONE: Very fine laminations and siltstone									Fractures
						BOX 30									
33			.44			SANDSTONE: As above									
			.06			SANDSTONE: Medium laminations									
		89.28	.52			SANDSTONE: Very fine laminations, minor calcive									
	89.28	89.74	.46			SILTSTONE: Dark grey with dark brown bands									
	89.74		.07			ROCK MISSING									
42			.68			SANDSTONE: Medium laminations with minor, very fine calcite filled fractures, vitrinate bands up to 0.3 cm.									Some structured disturbance
		91.08	.59			SANDSTONE: Very fine lamination with claystone clasts									
											90.53/297				
						BOX 31					m ft				
34	91.08	91.37	.29			SILTSTONE: Dark grey with dark brown band									

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS	
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.		
	91.37		.02		K QHD 84004-1-K ↑ ↓	COAL C1										
			.05			COAL C2: Broken										
			.08			COAL C1										
			.04			COAL C2										
			.09			COAL C1										
			.09			COAL C1: Fractured										
			.18			COAL MISSING										
	92.06		.14			COAL C2: Mixed with some mud										Crushed
			.03			SANDSTONE: Very fine with coal lines										
	92.31		.22			SANDSTONE: (Coal) Fine lamination, calcite filled fractures										
	92.39		.08			CLAYSTONE: Dark grey, coal strings and calcite										Broken at end
	92.62		.23			SILTSTONE: Dark grey										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
27		93.30	.68			SANDSTONE: Fine lamination and cross lamination, abundant calcite									
		93.49	.19			CLAYSTONE: Dark grey band coal stringers, coal fragments, vitrinite, thin bands									Fractured
			.39			SANDSTONE: Fine with very fine laminations, slightly contoured									
28			.04			SANDSTONE: Medium laminations with fine bands BOX 32									
			.23			SANDSTONE: As above									
											93.57/307				
											m ft				
		94.71	.59			SANDSTONE: As above, calcite filled fractures									
	94.71	95.06	.35			SILTSTONE: Dark grey with dark brown bands									
		95.84	.78			SANDSTONE: Medium-fine with dark grey bands									
		96.05	.21		SILTSTONE: Dark grey with minor calcite										

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			.39			SANDSTONE: Fine with very fine contoured laminations									
						BOX 33									
	96.60		.16			SANDSTONE: As above									
			.45			SILTSTONE: Dark grey with silty carbonaceous bands									
											96.62/317				
											m ft				
			.70			SILTSTONE: As above									
			1.31			SILTSTONE: Dark grey with dark brown bands									
						BOX 34									
			.57			SILTSTONE: As above with pyrite bands .3 pyrite zone									
			.12			SILTSTONE: Dark grey with thin sandstone bands									
			.50			ROCK MISSING									
											99.67/327				

B C N.	UNIT		THICKNESS		SAMPLE NO.	LITHOLOGY DESCRIPTION					MARKER rec. r.q.d. d.o.b.	STR.	FRAC/m		FRACTURE TYPE AND CHARACTERISTICS
	From	To	Apparent	True		Strat. Lithology	Grain Size	Fresh Colour	Bedding Charact.	Other Sed. Charact.			bd.	jt.	
			2.09			SILTSTONE: As above with dark brown bands									
						BOX 35									
		103.36	1.02			SILTSTONE: As above									
											102.72/337				
											m	fr			
	103.36		1.74			SANDSTONE: Fine laminations, very fine bands, calcite viens									
						BOX 36									
28			1.00			SANDSTONE: Fine laminations, minor calcite veins									
			.18			SANDSTONE: Fine-medium laminations									
											105.77/347				
			.24			SANDSTONE: As above, broken									
			1.23			SANDSTONE: As above									

APPENDIX 7.1

COAL ANALYSIS - LABORATORY PROCEDURES

CONFIDENTIAL DATA HAS
BEEN REMOVED

COMMERCIAL TESTING & ENGINEERING CO.

1707 FRANKLIN STREET, VANCOUVER, B.C. V5L1P6 • TEL. (604) 255-2688, TELEX 04-508763

DIVISION OF
& E TESTING CORPORATION



STEVE MORRIN
GENERAL MANAGER

Mr. D. Johnson
Long Range Geologist
Quintette Coal Limited
General Delivery
Tumbler Ridge, BC, Canada

April 2, 1985

Dear Mr. Johnson:

The analytical procedures that we use in our laboratory are in accordance with ASTM standards. The basic analytical parameters such as Ash, Sulphur, Volatile, Free Swelling Index, Calorific Value and Moisture are contained in the current volume of ASTM. The manual presently in use is the 1983 edition, Part 26 of ASTM. For your convenience I added a copy of our working booklet procedures for the above items with this letter.

The standard procedures in the manual can be found under the following numbers:

<u>Parameter</u>	<u>ASTM Standard Number</u>
Ash	D 3174
Volatile	D 3175
Sulphur	D 3177
FSI	D 720
Calorific Value	D 2015
Moisture	D 3302 and D 3173

The oxidation tests such as plasticity and dilatation can also be found in standard manuals. The Gieseler Plastometer test is an ASTM standard and can be found under D 2639. The dilatation is called an Audibert-Arnu dilatation and is an International Standards Organization (ISO) derived procedure. I have enclosed a copy of the dilatation procedure. The equipment that we use to perform these tests are manufactures according to the prescribed specifications by Fuel Research and Instrument Company. This company is an affiliate of Commercial Testing & Engineering Co. The machines are integrated with a Barber-Colman 570 Programmer Controller that provides computerized control with an automatic printout.



Charter Member

cont'd

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS,
TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

3

COMMERCIAL TESTING & ENGINEERING CO.

1707 FRANKLIN STREET, VANCOUVER, B.C. V5L1P6 • TEL. (604) 255-2688, TELEX 04-508763

DIVISION OF
C T E & E TESTING CORPORATION

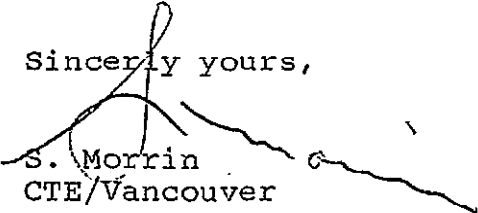


STEVE MORRIN
GENERAL MANAGER

The calorific values are run on a Parr calorimeter Model 1241 with a master controller. The volatile furnace controller and FSI oven are manufactured by Fuel Research & Instrument Company. I have not been able to find the model number for the FSI furnace but I can make a request to Fuel Research for brochures if you require them. The volatile furnace is model number FA120, and is a product of Hoskins. The ashing of coal and burning of the Eschka for sulphur is done in a Lindberg muffle furnace Model 51441 and a Thermolyne automated muffle furnace Model number F-A1730.

I trust this is the information that you requested. Should you require anything further please do not hesitate to let me know.

Sincerely yours,


S. Morrin
CTE/Vancouver



Charter Member

OVER 40 BRANCH LABORATORIES STRATEGICALLY LOCATED IN PRINCIPAL COAL MINING AREAS,
TIDEWATER AND GREAT LAKES PORTS, AND RIVER LOADING FACILITIES

SULPHUR TEST

- 1) Fill crucible 1/3 full (approx. 1 Gram) with Eschka Mixture. Be sure to run one blank with all batches of samples.
- 2) Weigh accurately (to four digits) 1.0000g of sample and transfer into crucible.
- 3) Mix the sample and Eschka mixture thoroughly with a glass rod, Being careful not to spill any of the sample over the edge.
- 4) Cover the mixture with a capping of Eschka mixture, so that there is no coal visible at all. (use seive in Eschka mixture)
- 5) Place in muffle furnace #1, setting the timer for 4 hours and dial reading High (6.2 if using furnace #2). When temperature reaches (500°C) close oven door to 2/3 closed.
- 6) You want the temperature to reach $800^{\circ}\text{C} \pm 25^{\circ}$ in 2 hours and keep that temperature for another 2 hours.
- 7) Remove the sample from furnace, let cool for 10-15 Minutes. Then wash quantitatively using hot Distilled water into 400ml beaker, use about 125ml to 150 ml of water.
- 8) Place on hot plate and heat for 30 minutes just below boiling point. Set the hot plate @ 300°C . (Being careful not to allow sample to bump or spit so the sample is not lost.)
- 9) Filter the sample through a Whatman # 2 filter paper into a 400ml beaker Decant all the liquid and solid into filter , making sure beaker is thoroughly washed. Wash the Eschka mixture 5-7 times until filtrate is to level of about 250ml. Keep filtrate and discard filter paper.
- 10) To the filtrate, add 2-3 drops of methyl orange indicator and about 5-6 mls of the analytical pulp. then add 15 mls of 1:1 HCl to the solution and put on the hot plate for 30 minutes.
- 11) Add 15 mls of 10% BaCl_2 Sol'n to the filtrate and let it cook for least 30 minutes.
- 12) Filter through Whatman #40 ashless filter paper. Wash the beaker carefully in order to get all the precipitate into the filter. Then wash the filter paper 5-7 times being careful not to overflow the filter paper.
- 13) Take the filter paper out and fold it carefully, so not lose any precipitate and place in small crucible. Make sure level of paper is below the edge of the crucible.
- 14) Place in muffle furnace #2 with the door open and turn the furnace on setting of 6.2, so that paper smokes but doesnot catch on fire. Or have the muffle furnace preheated to 400°C and set dial to 5. (Usually keep the temperature below 500°C while smoking.) If paper burst into flame, quickly put a lid over the crucible to affixiate it. After smoking, close the furnace to 1/2" gap and turn dial to high setting. When the temperature reaches 850°C , turn the furnace to about 5.2 setting and hold the temperature for 1/2 hour.

Cont'd Sulphur Test

- 15) After 1/2 hour turn off the furnace, take the sample out, cool for 10-15 minutes and weigh.

Calculation

$$\text{Sulphur \% Dry} = \frac{A - B \times 13.738}{1 - H_f} \quad \text{For 1.0000g Sample}$$

Where:

A = grams of BaSO₄ precipitate

B = grams of blank BaSO₄

Hf = moisture in Analysis sample (60 mesh)

Precision

2 Runs at same Lab

Coal containing less than 2% sulphur	0.05 %
Coal containing 2% sulphur or more	0.10 %

ASH

- 1) Use high form crucible and weigh approx. 1 gram of sample and brush it into the crucible.
- 2) Place in muffle furnace #2 and set dial at 6.2, set timer for 4 Hours and bring the temperature to 750°C in 2 hours. (Furnace door is open until temp. reaches 600°C, then closed half way)
- 3) Hold the temperature of the oven between 700°C to 750°C for a further two hours.
- 4) After 4 hours, remove from the furnace, cool for 10 - 15 minutes and weigh the crucible with ash. Then clean the crucible and weigh empty crucible.

Note - Run all ash determinations in duplicate

Cont'd AshCalculation

$$\text{Ash \% Dry} = \frac{A - B}{C} \times 100$$

1-Hf

Where:

A = Weight of crucible plus Ash

B = Weight of empty crucible

C = Weight of Sample

Hf = Moisture in analysis sample (60 mesh)

BTU'S - CALORIFIC VALUE

- 1) Wash bomb thoroughly to get rid of any acid and also to make a seal. Place crucible with exact 1.0000 g sample into the holder. Make sure ignition wire is touching the sample.
- 2) Pressurize the bomb (with sample inside) to 25 atm. Be careful not to bring up pressure too fast or else the coal in the crucible will be displaced.
- 3) Place pressurized bomb into the bucket. The bucket should have been previously checked for the right amount of volume and temperature of water.
- 4) Place the bucket with bomb into the adiabatic calorimeter. Make sure the machine has previously purged.
- 5) Run for 3 minutes, read the bucket temperature. Make sure calorimeter temperature is within 1/100°C of the bucket temperature before ignition. Run for 8 minutes.
- 6) Read final temperature and remove the bucket from calorimeter.
- 7) Take out bomb and depressurize it. (least give 1 minute for depressurize) Wash the inside with diluted methyl orange solution thoroughly. The solution resulting should turn pink.
- 8) Titrate the solution with the solution of Sodium Carbonate.
- 9) If sample contains high ash (over 25%). Then use 1 g of Benzoic Acid tablet and record the weight on the Btu sheet. And use half gram of sample and run BTU as above.

Cont'd BTU

Calculation

$$\text{BTU/LB Dry(gross)} = \frac{T \times W - E_1 - E_2 - E_3}{1 - H_f}$$

Where:

$$T = (t_f + \text{corr}) - (t_i + \text{corr})$$

t_f = Final temperature reading of the bucket
 t_i = Initial temperature of the bucket
 corr = Thermometer correction for error

W = Water equivalent

E_1 = Correction for heat formation of HNO_3 , 1 ml of Na_2CO_3 = 10 Btu

E_2 = Correction for heat combustion of H_2SO_4 , $23.7 \times \% \text{ S}$ in sample

E_3 = Correction for heat combustion of firing wire used up:
 = (Length of wire(cm) - Wire not burned(cm)) x 4.1

H_f = Moisture in Analysis sample

HYDRATION FACTOR - MOISTURE IN THE ANALYSIS SAMPLE

1. Blow clean with bulb the hydration factor bottle and lid.
2. Weigh the bottle and lid, then add approx. 1 gram directly into bottle being careful not to spill any sample.
3. Place the bottles in hydration factor oven (lid off) for one hour @ temperature of 104-110°C.
4. Remove from oven, put lids on the bottles and place them in dessicator to cool for maximum of 1/2 hour.
5. When cool, weigh back.

Calculation

$$\text{Moisture} = (A - B) / A$$

$$\% \text{ Moisture} = (A - B) / A \times 100$$

$$\text{Hydration Factor} = 1 - (A - B) / A$$

Where: A = grams of sample used

B = grams of sample after drying

VOLATILE

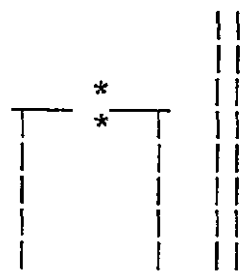
1. Weigh platinum crucible and record weight (adding one gram).
2. Weigh exactly 1.0000 g of sample into crucible.
3. Place in Volatile furnace which is at $950 \pm 20^{\circ}\text{C}$ for 7 minutes.
4. Cool, reweigh.

IF YOU SEE SPARKS (SPARKING COAL)

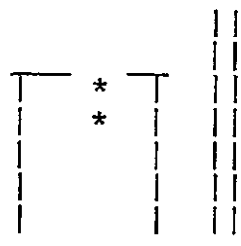
USE MODIFIED PROCEDURE

1. As in 1 & 2 of above.
2. Place the crucible in furnace as follows:

First 3 Minutes



Second 3 Minutes



Last 6 Minutes - Fully immersed

IF STILL SPARKS

USE BLEND METHOD

Use a blend of half gram of sample and half gram of nonsparking coal and run as modified procedure.

Note - When running any volatile method, be sure that the volatile crucible is reshaped using the mold before weighing

VOLATILECalculations

1. For Normal and Modified Procedures

$$\text{As run} \quad C = (A - B) / S$$

$$\text{Dried Volatile} = (C - D) / (1 - D)$$

Where A - Weight of Crucible plus sample (1.0000g sample)
 B - Weight of Crucible plus sample after run.
 D - Moisture loss in analysis sample
 S - Weight of sample (1.0000g)

2. Blend Method

$$\text{As run Blend} \quad C = (A - B) / S$$

$$\text{As run Vol. of Sample} \quad C_1 = (C - E/2) \times 2$$

$$\text{Dried Volatile} = (C_1 - D) / (1 - D)$$

Where E - As run volatile of nonsparking coal used as blend
 (0.5000g coal)

S - 0.5000g sample and 0.5000g nonsparking coal

3. New Method

$$\text{Dried Volatile} \quad C = (A - B) / S$$

Where S = 1.0000g sample - Moisture loss (D).

FREE SWELLING INDEX

1. Weigh approximately 1.0000g (+ 0.0300g) of sample into silica crucible.
2. Tap crucible on hard surface 12 times to pack the coal.
3. Put in FSI furnace for 2-1/2 minutes with lid on.
4. Take out, cool and compare to FSI chart.

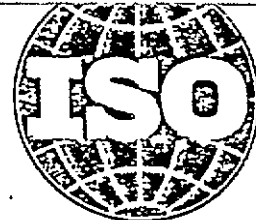
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SUPPLEMENT

1. Shape platinum crucibles before putting them in furnace to clean.
2. Avoid bending the platinum crucible once they are clean. Shaping the crucible suppose to make them close air tight, when you take the volatile out. Therefore moisture can't get in.
3. Make sure you close the main value of the Oxygen tank used for BTU's after you have done the last run. This is done so that we don't lose any Oxygen.
4. When you first come in, you should turn the FSI and Volatile furnaces on so that they will warm up to temperature. It usually takes about 1-1/2 hours.
5. If sulphur is heated too fast or not enough Eschka capping, sulphur will be lost as Sulphur Dioxide gas. There must be sufficient Eschka capping and time for it to absorb the sulphur in compound form.

Procedure For Total Moisture In Coal
=====

1. Weigh the gross sample after 5-6 hours of drying at 40°C, record wt.
2. Put the sample back in the oven for another hour.
3. Re-weigh sample after one hour. If the weight loss between the first and second weighings is 0.1%/hr. or less , proceed to preparation stage(step 5).
4. If the loss between first and second weighings is greater than 0.1%/hr., then put sample back in oven for another hour of drying. Repeat this procedure until weight loss is 0.1%/hr. or less.
5. Increment out a representative sample of the gross sample. This can be accomplished by taking equal scoops of coal from each part of the gross sample.
7. Crush the entire collected sample to -8mesh size.
8. Riffle the crushed sample into two equal portions using the 3/4" divider.
9. Transfer one side to another pan, record the weight of the pan and weight of the pan plus sample. Put the sample into the oven for the second air dry. Set the oven temperature at 40°C.
10. After two hours of drying remove the sample from the oven and weigh. If the loss in weight is 0.1%/hr. or less, then the second air dry is completed. If weight loss is 0.1% or more proceed to step 11.
11. Dry the sample for additional one hour and weigh. Repeat this process until loss in weight is 0.1%/hr. or less.
12. To obtain the -8 mesh residual moisture, place the sample in the oven. Increase the temperature of the oven to 107°C.
13. After 1-1/2 hrs. remove the pan from the oven and let the sample cool for 10-15 minutes.
14. Return the sample back to the oven for a further 1/2hr. Weigh again. If the weight loss is 0.05%/hr or less for the 1/2hr period , the residual moisture is completed. If weight loss is more than 0.05%/hr then repeat drying and weighing procedure until loss is 0.05% or less.



Hard coal — Audibert-Arnu dilatometer test

Houille — Essai au dilatomètre Audibert-Arnu

First edition — 1975-01-15

UDC 662.66 : 536.416

Ref. No. ISO 349-1975 (E)

Descriptors : coal, tests, physical tests, dilatometry, coking.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 27 has reviewed ISO Recommendation R 349 and found it technically suitable for transformation. International Standard ISO 349 therefore replaces ISO Recommendation R 349-1963 to which it is technically identical.

O Recommendation R 349 was approved by the Member Bodies of the following countries :

Austria	India	Romania
Belgium	Italy	Turkey
Canada	Japan	United Kingdom
Czechoslovakia	Mexico	U.S.S.R.
Denmark	New Zealand	Yugoslavia
Germany	Poland	
Greece	Portugal	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

Spain

No Member Body disapproved the transformation of ISO/R 349 into an International Standard.

Hard coal — Audibert-Arnu dilatometer test

0 INTRODUCTION

The Audibert-Arnu test is one of the parameters adopted for the International Classification of Hard Coals by Type of the United Nations Economic Commission for Europe. The object of the test is to determine the coking properties of hard coal or hard coal blends on the laboratory scale.

In principle, the test is not designed, nor can it be used, to indicate the pressures exerted by hard coals on the walls of industrial carbonization ovens.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the swelling properties of hard coal when heated under standard conditions in a dilatometer.

2 PRINCIPLE AND TERMINOLOGY

A pencil made of powdered coal formed under pressure is inserted into a precisely calibrated narrow tube and topped by a calibrated steel rod (piston) which slides in the bore of the tube.

The whole is heated at a constant and definite rate.

By making regular readings of the displacement of the piston as a function of the temperature and expressing the displacements observed as percentages of the original length of the pencil, a curve of the type shown in figure 1 can be plotted.

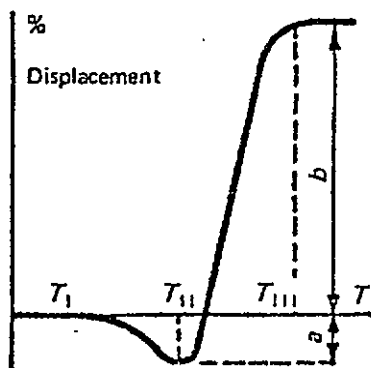


FIGURE 1

The following items are characteristic (see note below) :

~~T_{II}~~ temperature at which the piston has moved down $0,5 \text{ mm}^1$: softening temperature.

~~T_{III}~~ temperature at which the piston reaches its lowest point : temperature of maximum contraction.

~~T_{IV}~~ temperature at which the piston reaches its highest point : temperature of maximum dilatation.

a maximum contraction of length of pencil, per cent.

b maximum dilatation of length of pencil, per cent.

If, after contraction has taken place, the piston does not return to its original level, the dilatation, equal, in absolute value, to the difference between the final level of the piston and the original zero level, is reported as negative.

NOTE — The principal factors capable of distorting the results of this empirical test are the following :

a) Deterioration of the coal, consequent on bad storage or faulty drying;

b) Deviation from the tolerances of

1) the internal dimensions of the dilatometer tube,

2) the clearance between tube and piston,

3) the mass of the piston,

4) the dimensions of the mould;

c) Deviation from the specified mean rate and regularity of heating;

d) Deviation from the specification for the preparation of the sample in respect of maximum particle size, or for the pencil in respect of its length after tamping

3 APPARATUS

3.1 Apparatus for preparing the coal pencil

3.1.1 Mould, polished internally, with accessories; see figures 2 and 2A.

3.1.2 Gauge, see figure 2.

3.1.3 Ram, of which figure 3 shows an example.

3.1.4 Press, of which figure 4 shows an example.

1) Or one division, if the scale is calibrated in percentage of the standard length of pencil.

3.2 Dilatometer and accessories

3.2.1 Dilatometer tubes and pistons, see figure 5.

3 Other apparatus

3.3.1 Electric furnace, of which figure 6 shows an example, consisting of a block of metal resistant to oxidation and of sufficiently high melting point. A suggested material is aluminium bronze. The metal block is pierced by at least two holes of 15 mm diameter by 350 mm deep to take the dilatometer tubes and one hole 320 mm deep to take a temperature-measuring device. The block is heated by a metallic winding, suitably insulated. Control gear permits the use of any selected rate of heating up to 5 °C per minute over a temperature range of 300 to 550 °C.

The furnace shall be constructed so that the temperature conditions are uniform in the dilatometer tubes placed in their normal position in each hole.

To verify this, heat the furnace at a rate of 5 °C per minute. When the temperature reaches about 450 °C, make an exploration of the lower 180 mm of a dilatometer tube placed in the furnace, by comparing the readings on the normal temperature-measuring device and a thermometric probe placed in the tube. The difference between the probe temperatures and the mean temperature shown by the normal temperature-measuring device shall be less than

$$\begin{aligned} &\pm 2 \text{ }^\circ\text{C in the lower 120 mm,} \\ &\pm 5 \text{ }^\circ\text{C from 120 to 180 mm} \end{aligned}$$

This verification is not to be confused with the later calibration of the temperature-measuring device; it is intended to measure only the temperature variation along the tube.

The furnace shall be equipped with an adjustable scale for each hole. The scale shall be preferably engraved on a mirror in front of which the indicator pointer of the piston moves. It shall be at least 180 mm in length and calibrated in millimetres or in percentages of the standard length of the pencil ($60 \pm 0,25$ mm, see 5.1).

If desired, the apparatus can be equipped with an automatic heating regulator and a device for the automatic registration of the curve.

3.3.2 Temperature-measuring device, consisting of a mercury thermometer, a thermocouple or a resistance thermometer, accurate to within 1,0% of the temperature in degrees Celsius and capable of being read, if necessary by estimation, to 1 °C.

3.3.3 Cleaning implements, consisting of the following :

3.3.3.1 Auger, diameter approximately 7,8 mm;

3.3.3.2 Reamer, consisting of a steel bar of semi-circular section of diameter 7,95 mm;

3.3.3.3 Brass wire brush, the diameter of which shall slightly exceed 8 mm.

The total length of each of the cleaning implements shall be 400 mm.

3.4 Calibration of apparatus

Calibrate the apparatus by comparing the temperature in a dilatometer tube in each hole with the temperature indicated by the temperature-measuring device in its normal position. Carry out the calibration at the desired rate of heating by using a thermocouple with wires of diameter approximately 0,6 mm, the thermojunction touching the wall of the tube 30 mm above the bottom. Correct the temperatures read during the test by the differences found during this calibration.

3.5 Inspection

3.5.1 Dilatometer

In order to inspect the wear of the tube and piston after a hundred determinations have been carried out in one tube, compare the results of the next four determinations using that tube with those obtained in a new tube. This comparison will thus be made successively on four coals.

Divide the difference in percentage dilatation between the two tubes by the "relative length" of the dilated pencil obtained with the new tube; the "relative length" is here expressed as the ratio of the length of the dilated pencil to its original length.

Average the figures so obtained from the four coals. If the average is greater than 3,5, irrespective of sign, discard the old tube (see annex). If the tube is still satisfactory, repeat this comparison after every subsequent 25 tests.

3.5.2 Mould

Check the wear of the mould periodically with the gauge, which can also be used to check new moulds.

If, when the gauge is inserted in the larger orifice of the mould,

- 1) two lines can be seen on the gauge, the mould is too small and shall be reamed out;
- 2) one line can be seen, the mould is satisfactory;
- 3) no line can be seen, the mould is worn and shall be replaced.

4 PREPARATION OF SAMPLE

As certain types of hard coal are very susceptible to oxidation, it is necessary to minimize the contact with air after reducing the gross sample.

As a special precaution, therefore, store the test sample after reduction in an oxygen-free nitrogen atmosphere or in freshly boiled water. In the latter case, make a paste of the coal with water and put the paste into a flask which is then filled to the top with freshly boiled water.

Care shall be taken to ensure that the test sample taken is truly representative.

A suitable relationship between the mass of the test sample and the maximum particle size is shown in the following table :

Maximum particle size	Minimum mass of test sample
mm	g
5	1 000
4	500
3	250
2	100
1,5	50

If the coal has been stored under water, filter on a suction filter. Expose the coal on the filter paper at a temperature not exceeding 40 °C until the coal appears to be dry, but in any case for not more than 2 h.

Reduce the maximum particle size to 1,5 mm. Mix and take a part sample of 50 to 100 g. Crush to pass a 0,16 mm mesh sieve. Both crushing operations shall be controlled so as to produce the minimum of fines (see note). Mix again and carry out the determination on an average sample of about 10 g. Moisten this sample with 1 ml of water and mix rapidly. Too intensive mixing is liable to cause difficulty when the pencil is removed from the mould. For the same reason, it is essential that the preparation of the pencil shall be carried out without interruption.

NOTE — Too fine grinding of the coal affects the result of the determination. The sample shall be crushed to obtain the following size analysis :

through 0,2 mm	100 %
through 0,1 mm	85 to 70 %
through 0,06 mm	70 to 55 %

5 PROCEDURE

5.1 Preparation of the coal pencil

Place the mould on its support with the larger orifice upwards and set the funnel on the mould. Place the coal in the funnel and lightly tamp into the mould without moving the funnel, by means of a tamping pin. Place the mould assembly under the ram in order to tamp the sample by dropping the plunger three or four times until the mass of coal ceases to yield. Repeat this three or four times until the mould is filled.

In order to remove the coal pencil from the mould, remove the support and the funnel. Place the ejector guide at the end of the mould corresponding to the smaller diameter of the pencil. Place the guide tube at the other end of the mould and the receptacle in the guide tube. Then insert the ejector piston in the guide and push the coal pencil onto the receptacle by means of the press (see note).

Then adjust the length of the pencil to $60 \pm 0,25$ mm by cutting away as much as necessary of the thick end with a fine blade.

NOTE — Particularly when dealing with coals which are difficult to remove from the mould, it is recommended that the ejector piston be removed from time to time and cleaned, the inner surface of the mould being cleaned at the same time.

5.2 Determination of dilatation

Heat the coal at a rate of 3 °C per minute.

Carefully insert the pencil, thick end first, into the dilatometer tube and push it very gently into position with the piston.

Place the tube and contents in one of the holes of the metal block, when the temperature of the furnace is 330 °C. Place in any hole in the block which is not being used an empty tube complete with its piston. Where, in exceptional cases, T_1 is less than 350 °C, charging of the furnace shall take place when the temperature is 20 °C below T_1 .

After the charged dilatometer tube has been inserted in the furnace, wait for the indicator pointer of the piston to reach a position of equilibrium before adjusting the zero of the scale. This position should be reached after about 5 min.

Immediately the dilatometer is placed in the furnace, the temperature begins to drop, and heating shall be regulated so as to regain the temperature of 330 °C at the end of 7 to 10 min.

After 340 °C has been reached, the rise in temperature shall be very steady, minute by minute, and equal to the rate stated, with a tolerance of ± 3 % of the specified temperature rise in a 5 min period (see note).

During each 5 min period, the operator shall adjust the heating rate to correct any deviation observed in the preceding period, in order to avoid the accumulation of errors.

If the curve is not automatically recorded, note the time, the position of the piston and the temperature at intervals of not greater than 5 °C. In the region of the critical points, sufficient points shall be plotted to determine the exact shape of the curve.

Continue heating for 5 min after the maximum dilatation is attained. Then stop heating and immediately remove the piston, in order to prevent its getting jammed.

Carry out the duplicate determination in a separate run.

NOTE — The tolerance stated (± 3 % of the specified temperature rise in a 5 min period) may not be attainable if the temperature-measuring device in use is such as to require a change of 1 °C to be estimated rather than read directly. In such cases, a tolerance of ± 1 °C per 5 min is recommended.

5.3 Cleaning of the tube and piston

It is essential that the test be carried out with the piston and the dilatometer tube scrupulously clean. The following method of cleaning is recommended :

5.3.1 Tube

Crush the semi-coke and remove as much of it as possible with the auger. Then fill the tube with crude benzene or other appropriate solvent and allow to soak for several hours. Complete the cleaning with the reamer, ensuring that no solid remains at the bottom or on the wall. Immediately before the test, clean finally with the brass wire brush.

5.3.2 Piston

Clean the piston, including the base, with very fine emery paper, taking care not to round the edges, and check that the piston slides freely in the tube.

6 EXPRESSION OF RESULTS

Calculate the observed changes in length as percentages of the initial length of the pencil.

7 PRECISION OF DETERMINATION

	Maximum acceptable difference between results	
	Same laboratory (Repeatability)	Different laboratories (Reproducibility)
Dilatation	$7\left(1 + \frac{b}{100}\right)$ where <i>b</i> is the maximum dilatation per cent	(see 7.2)

7.1 Repeatability

The results of duplicate determinations, carried out at different times in the same laboratory by the same operator with the same apparatus on the same analysis sample, should not differ by more than the above value.

7.2 Reproducibility

No value for reproducibility can be quoted for determinations carried out in different laboratories since insufficient evidence is available on which to base such a value.

8 TEST REPORT

The test report shall include the following particulars :

- whether the sample submitted to the test fulfils the conditions specified in clause 5;
- the rate of heating employed;
- a curve of the percentage changes in length as a function of temperature on a standard relative scale in which 10 °C on the horizontal scale is equal to 5 % on the vertical scale;
- the corrected temperatures T_I , T_{II} and T_{III} rounded off to the nearest 5 °C;
- the percentage contraction (*a*) rounded to the nearest whole number;
- the percentage dilatation (*b*) rounded :
to the nearest whole number for negative dilatation;
to the nearest 5 % for positive dilatation up to 100 %;
to the nearest 10 % for positive dilatation over 100 %.

APPENDIX 7.2

COAL ANALYSIS - ANALYTICAL REPORTS

Petrography Of

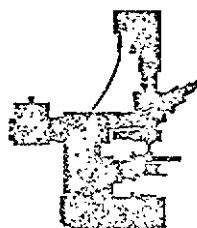
Coal Sample

QHD84004-3-J1

March 1985.

Prepared for

Quintette Coal Limited



David E. Pearson & Associates Ltd.

Consulting Coal Geologists & Petrographers,

804 Leota Place,

Victoria,

British Columbia.

V8Y 1H2



David E. Pearson & Associates Ltd.

Consulting Coal Geologists & Petrographers

804 Leota Place, Victoria, B.C. V8Y 1H2 (604) 658-5963

March 30, 1985.

Mr. David Johnson,
Quintette Coal Limited,
F.O. Box 1500,
Tumbler Ridge,
British Columbia,
V0C 2W0.

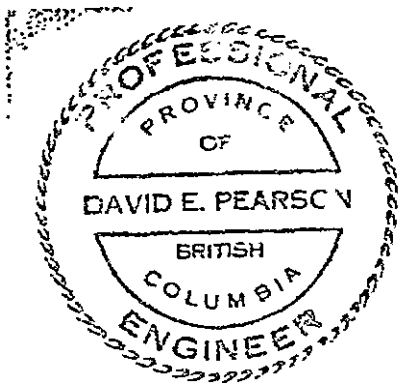
Dear Dave:

RE: Petrography Of
Coal Sample.
QHD84004-3-J1

We are pleased to provide you with our report on the petrography of the above-described sample, following completion of our studies. We trust that you will find this information to be most useful.

Once again, we thank you for the opportunity to be of assistance to you.

Yours truly,
DAVID E. PEARSON & ASSOCIATES LTD.,



David E. Pearson, Ph.D., P.Eng.

INTRODUCTION

One samples of coal was received at the Coal Laboratory on March 15, 1985. The samples were identified as follows:-

QHD-84004-3-J1 1.5 float

SAMPLE PREPARATION

The coal sample was coned and quartered and reduced to provide sufficient material for two pellets. This coal was then placed in 25 mm plastic moulds and mixed with cold-set epoxy resin, to which had been added a portion of hardener. The coal-mixture was gently pressure-compacted to concentrate coal grains and allowed to set. This is the preferred method of sample preparation for all ranks of coal, as it does not affect the reflectance of vitrinites nor the fluorescence of exinites. The pellet was subsequently ground and polished on Beuhler equipment.

The polished sample was then immersed in a bath containing a solution of organic dye and potassium hydroxide. Oxidized coal becomes stained an olive-green, whereas unoxidized coal does not.

PETROGRAPHIC EXAMINATION

The polished sample was examined using a Leitz Orthoplan Compact-model microscope-photometer. The control panel of the microscope and a Swift Automated Point Counter are interfaced to a Hewlett-Packard 85 microcomputer, which both captures and processes the data. An Epson MX-80 printer, a Hewlett-Packard 7225A plotter and a Hewlett-Packard 9816 microcomputer are used for electronic computation, tabulation and draughting of results.

One hundred individual vitrinite 'A' grains were measured on the pellets for reflectance in the rank analysis. Standardization of photometer-readout was performed before and after the analysis. Maximum reflectance values were retained by the computer.

Five hundred grains were counted on the pellets for the maceral analysis, at a traverse interval of 0.5 mm.

In this report, the following approach was used to identify

For each coal, there are 11 sides of data which include the following:-

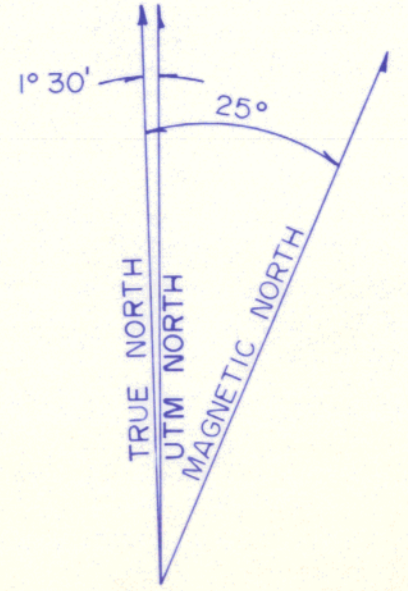
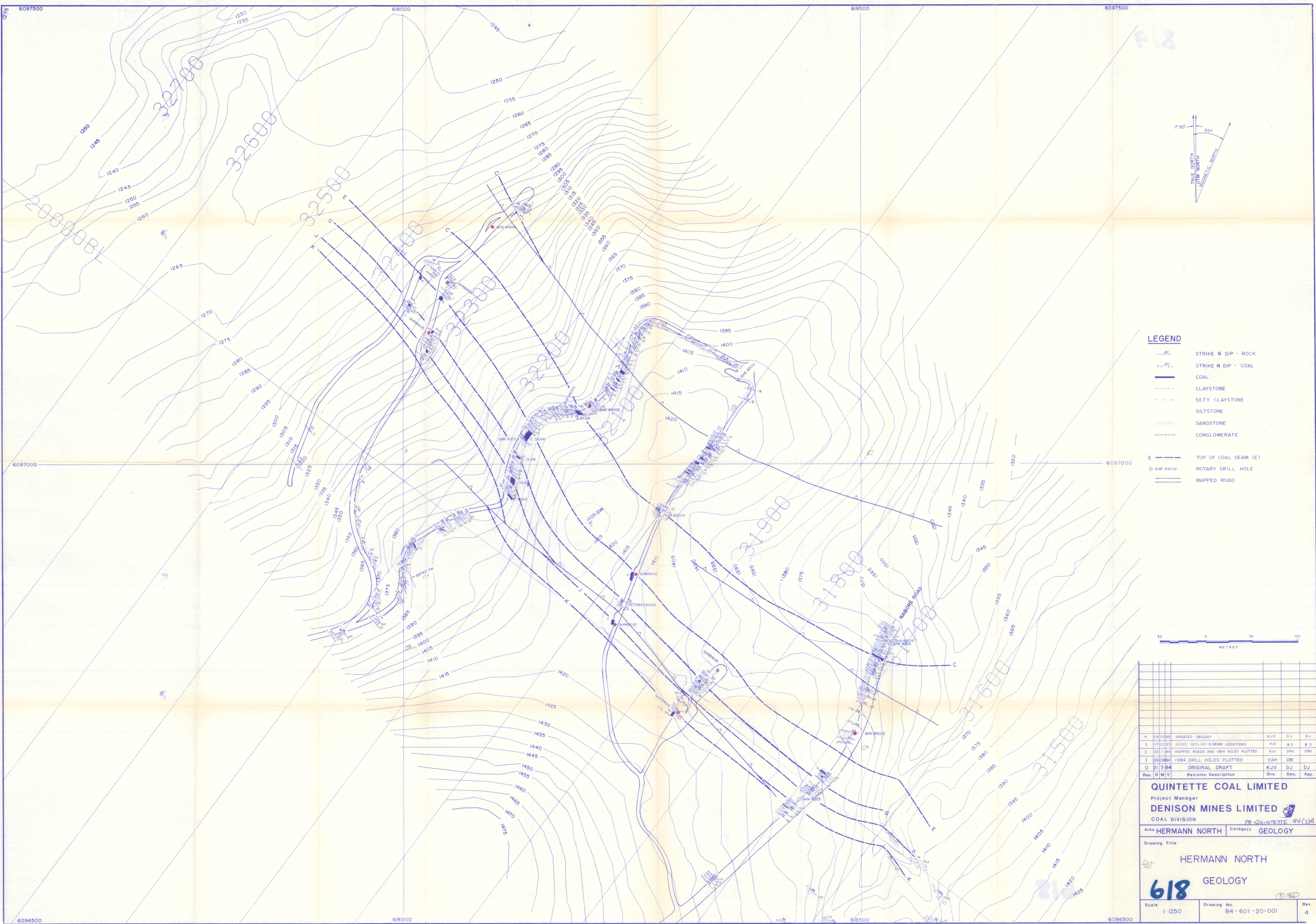
- * Reflectance values
- * Reflectance statistics
- * Vitrinite-type histogram
- * 1000 Maceral counts
- * Maceral statistics
- * Maceral-distribution diagram
- * 1000-point Reflectogram
- * Calculated Strength & Balance Index
- * Calculated Stability Index
- * Predicted coke strength
- * Predicted free swelling index
- * Percentage oxidized coal

DISCUSSION

The coal has appreciable amounts of Inertinite macerals, and vitrinite reflectances of about 1.5%. These two facts alone suggest that the coal would have relatively low swelling values, and coke strengths.

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

00 618



- LEGEND**
- STRIKE & DIP - ROCK
 - STRIKE & DIP - COAL
 - COAL
 - CLAYSTONE
 - SILTY CLAYSTONE
 - SILTSTONE
 - SANDSTONE
 - CONGLOMERATE
 - TOP OF COAL SEAM (E)
 - ROTARY DRILL HOLE
 - MAPPED ROAD



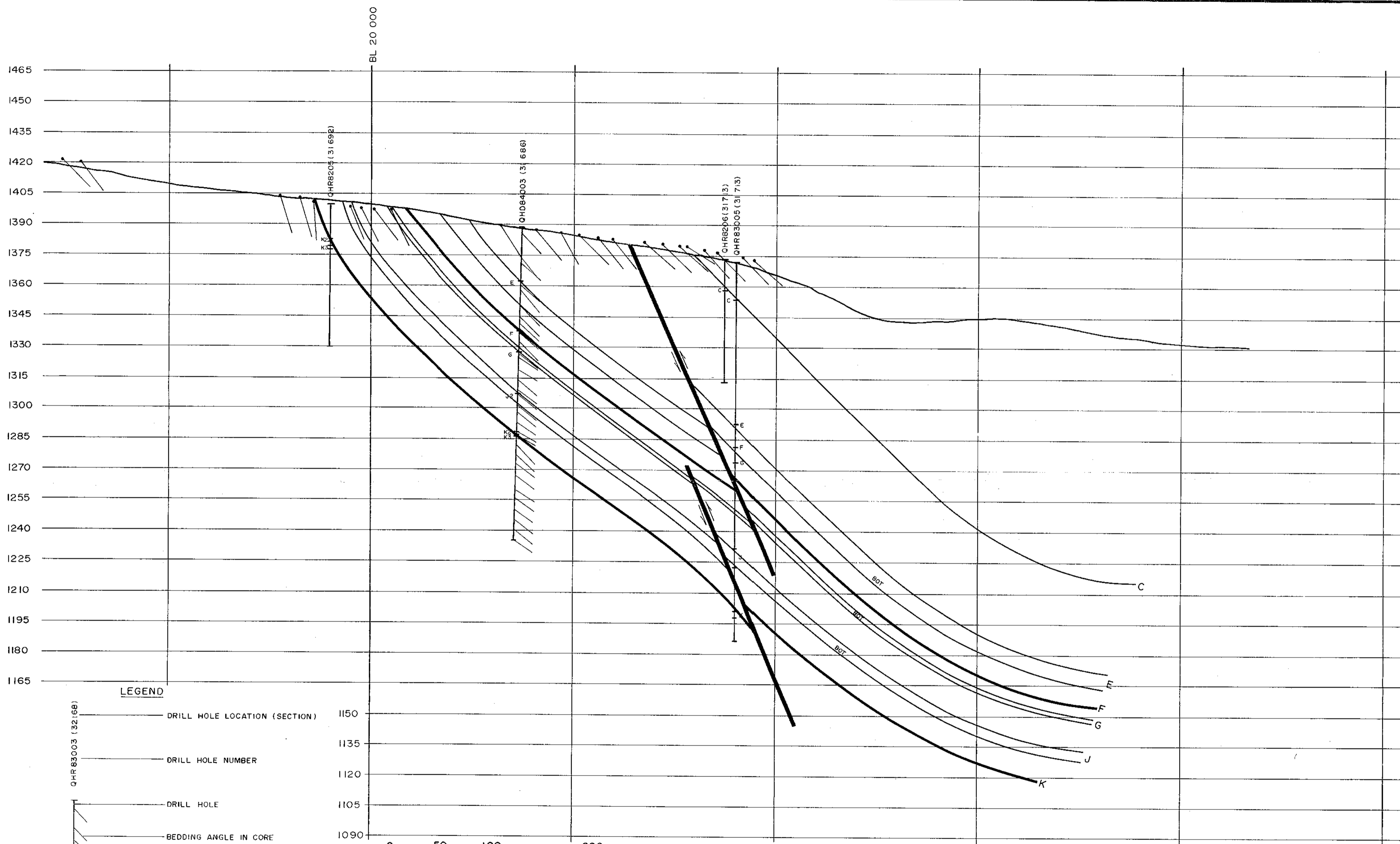
Rev	D	M	Y	Revision Description	Drn.	Des.	App.
4	04	03	85	UPDATED GEOLOGY	KJV	DJ	DJ
3	07	02	85	ADDED GEOLOGY & SEAM LOCATIONS	KJV	B D	B D
2	30	11	84	MAPPED ROADS AND 1984 HOLES PLOTTED	KJV	DMc	DMc
1	28	08	84	1984 DRILL HOLES PLOTTED	EAH	DM	DM
0	21	3	84	ORIGINAL DRAFT	KJV	DJ	DJ

QUINTETTE COAL LIMITED
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DENISON MINES LIMITED
 COAL DIVISION

Area **HERMANN NORTH** Category **GEOLOGY**

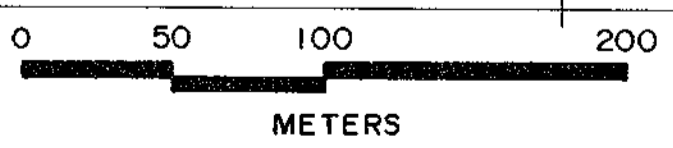
Drawing Title
HERMANN NORTH
618 GEOLOGY

Scale 1:1250 Drawing No. 84-601-20-001 Rev. 4



LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- DRILL HOLE
- BEDDING ANGLE IN CORE
- SEAM I.D., TOP OF SEAM, TRUE THICKNESS
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)



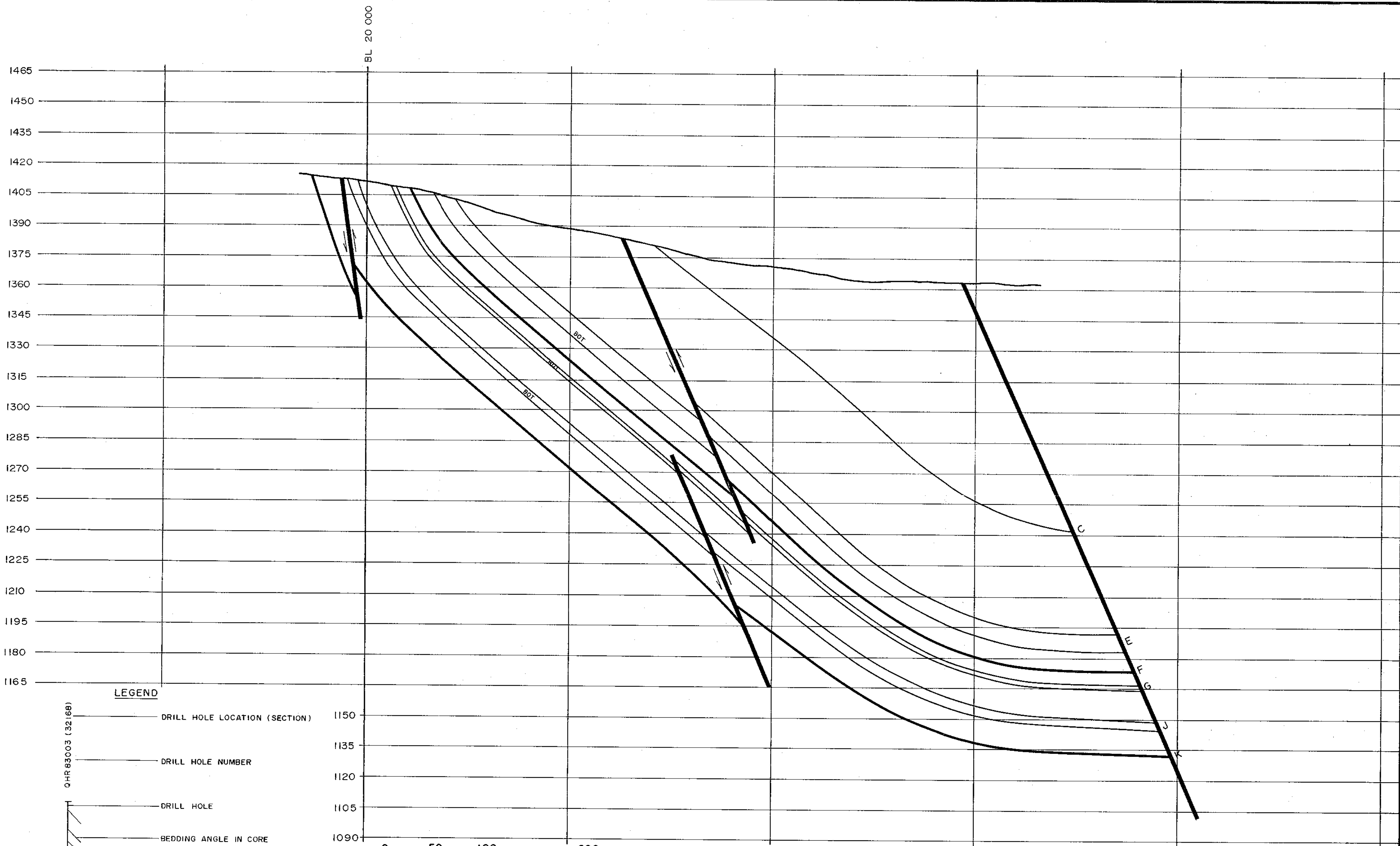
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PR QUINTETTE 84(2) A

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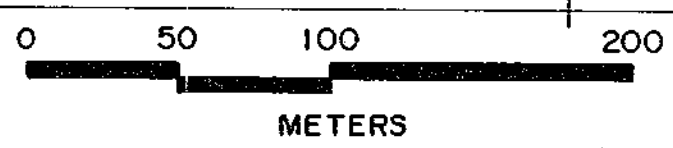
QUINTETTE COAL LIMITED
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DENISON MINES LIMITED
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AREA HERMANN NORTH	CAT. CROSS SECTIONS	
DRAWING TITLE		
SECTION 31,700		
DRAWING NO.	SCALE	REV.
85-601-21-001	1:1250	0



LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- DRILL HOLE
- BEDDING ANGLE IN CORE
- SEAM I.D., TOP OF SEAM, TRUE THICKNESS
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)

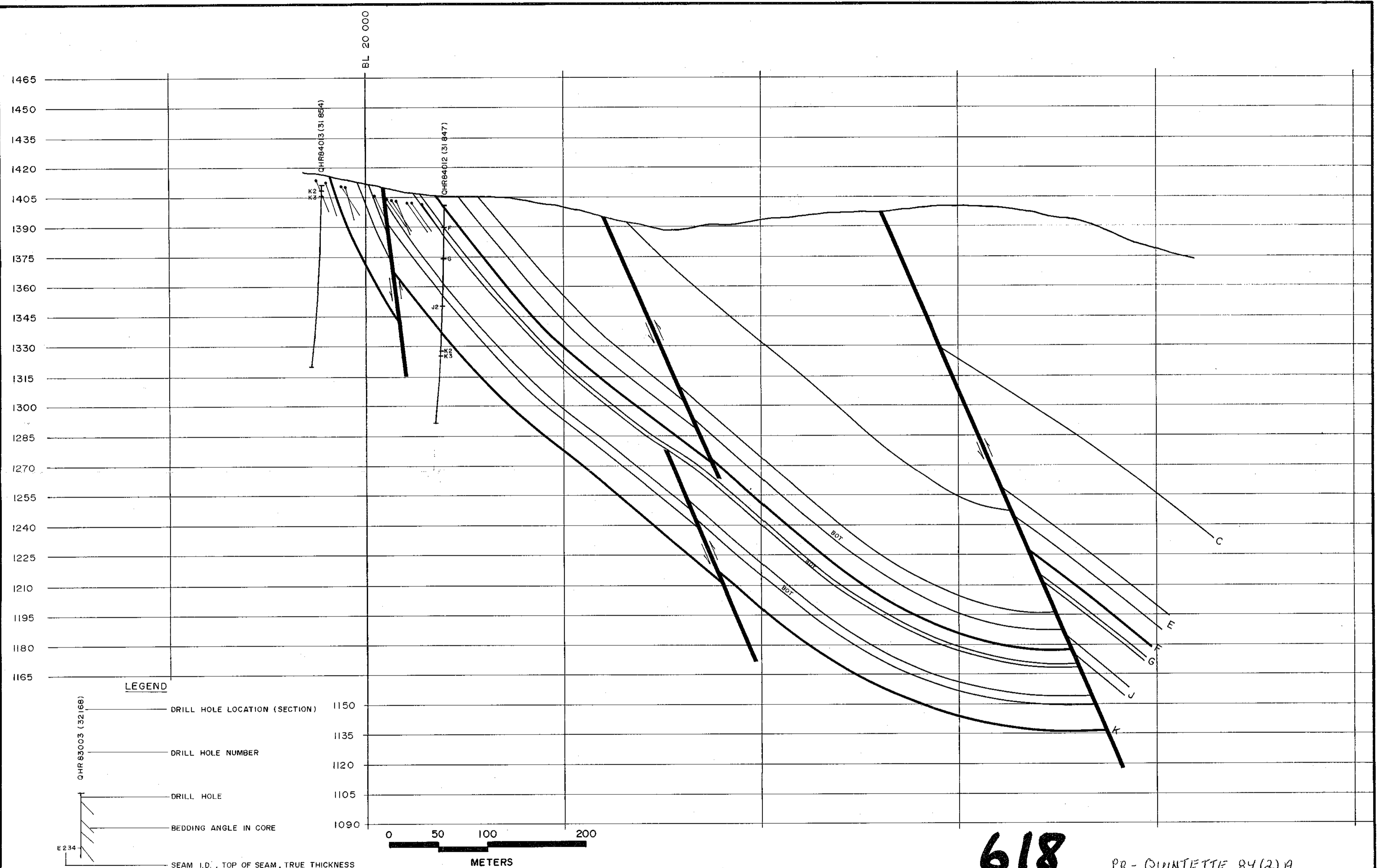


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0				ORIGINAL DRAFT	KJV	DJ	DJ

618

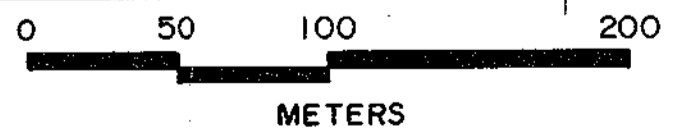
PR-QUINETTE 84(2)A

QUINETTE COAL LIMITED		AREA HERMANN NORTH CAT. CROSS SECTIONS	
Project Manager			
DENISON MINES LIMITED		SECTION 31,800	
COAL DIVISION		DRAWING NO. 85-601-21-002	SCALE 1:1250
			REV. 0



LEGEND

- QHR 83003 (32168) — DRILL HOLE LOCATION (SECTION) 1150
- DRILL HOLE NUMBER 1135
- DRILL HOLE 1120
- BEDDING ANGLE IN CORE 1105
- SEAM I.D., TOP OF SEAM, TRUE THICKNESS 1090
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)

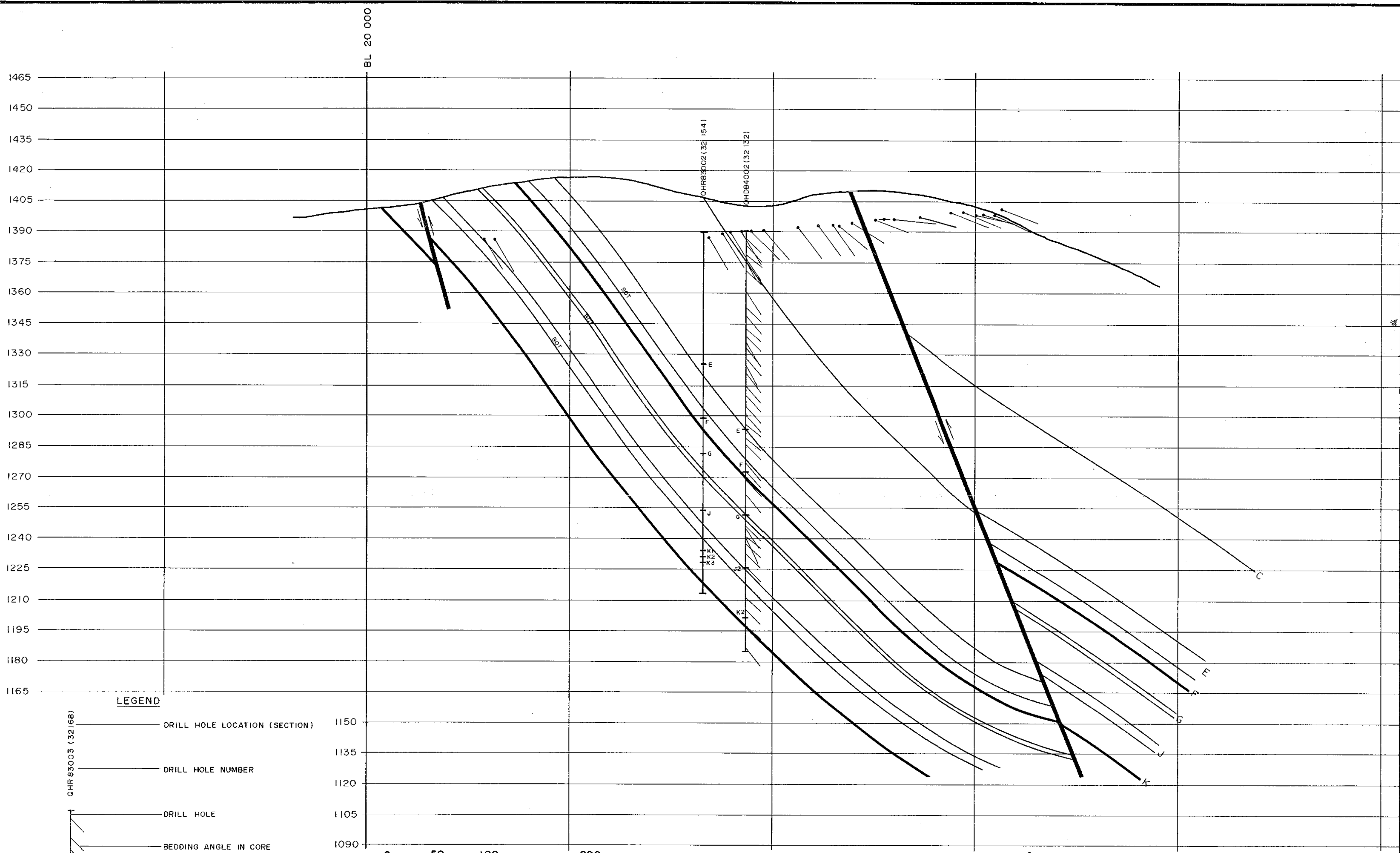


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PR - QUINETTE 84(2)A
 AREA HERMANN NORTH | CAT. CROSS SECTIONS
 DRAWING TITLE
SECTION 31,900
 DRAWING NO. 85-601-21-003 | SCALE 1:1250 | REV. 0



LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- DRILL HOLE
- BEDDING ANGLE IN CORE
- SEAM I.D., TOP OF SEAM, TRUE THICKNESS
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)

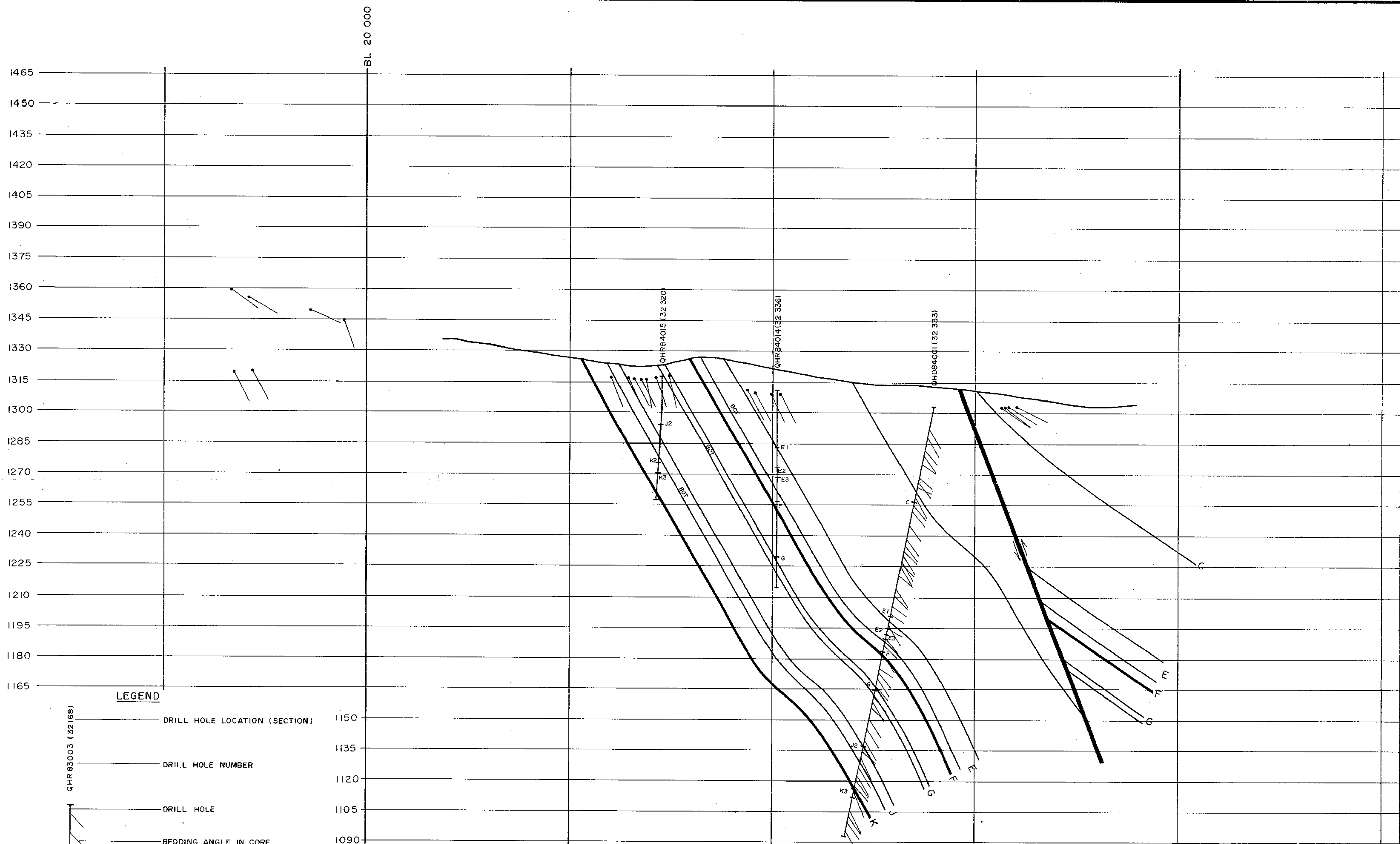


0	080385	ORIGINAL DRAFT	KJV	DJ	DJ		
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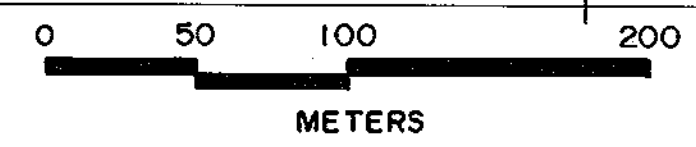
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PR-QUINTETTE 84(2) A
 AREA HERMANN NORTH CAT. CROSS SECTIONS
 DRAWING TITLE
SECTION 32,100
 DRAWING NO. 85-601-21-005 SCALE 1:1250 REV. 0



LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- DRILL HOLE
- BEDDING ANGLE IN CORE
- SEAM I.D., TOP OF SEAM, TRUE THICKNESS
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)

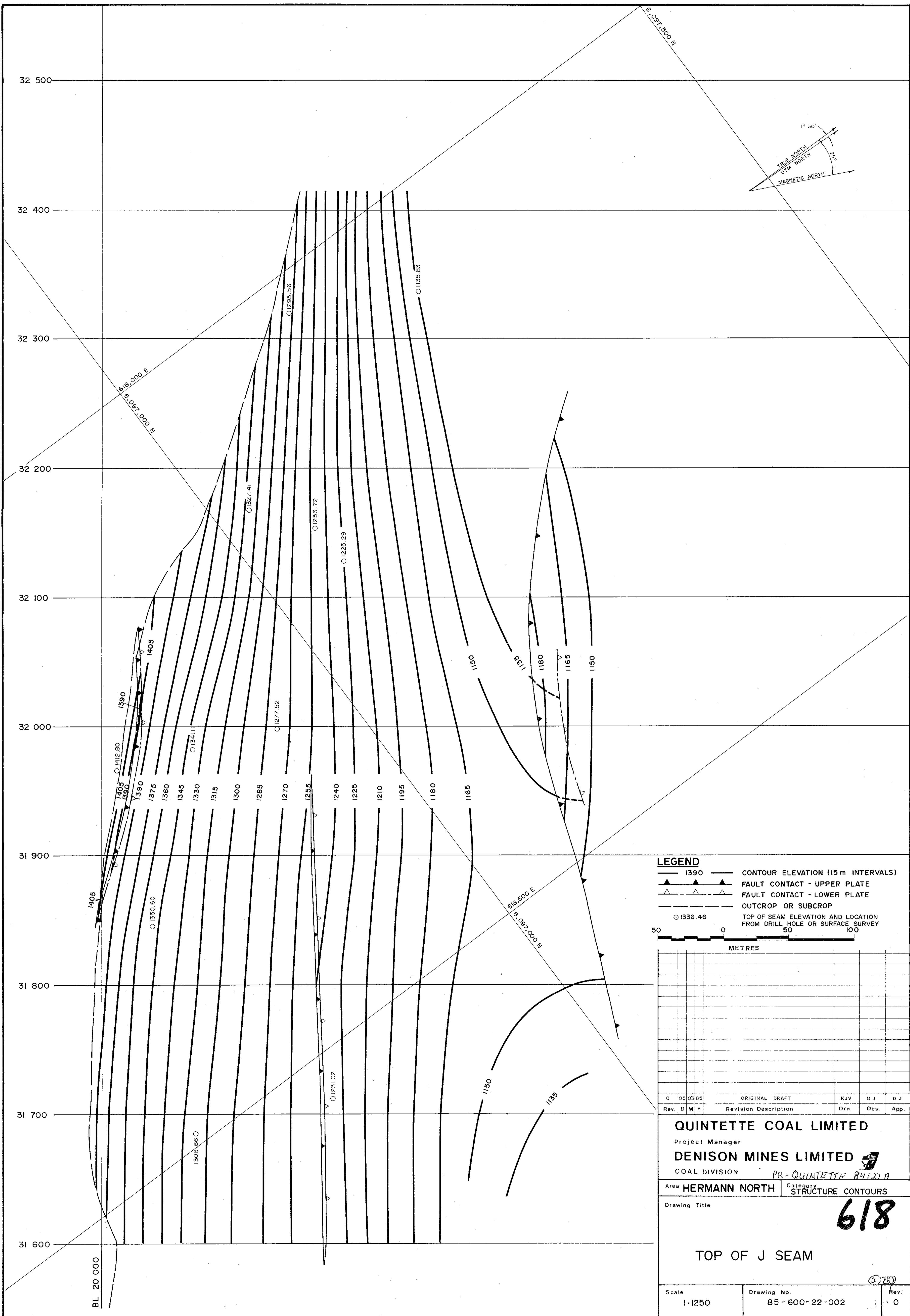


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REV.	D	M	Y	REVISION DESCRIPTION	DRAWN	DESIGN	APPROVED
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PR-QUINTETTE 84(2)A
 AREA HERMANN NORTH | CAT. CROSS SECTIONS
 DRAWING TITLE
SECTION 32,300
 DRAWING NO. 85-601-21-007 | SCALE 1:1250 | REV. O



LEGEND

- 1390 — CONTOUR ELEVATION (15 m INTERVALS)
- ▲ FAULT CONTACT - UPPER PLATE
- △ FAULT CONTACT - LOWER PLATE
- - - - - OUTCROP OR SUBCROP
- 1336.46 TOP OF SEAM ELEVATION AND LOCATION FROM DRILL HOLE OR SURFACE SURVEY

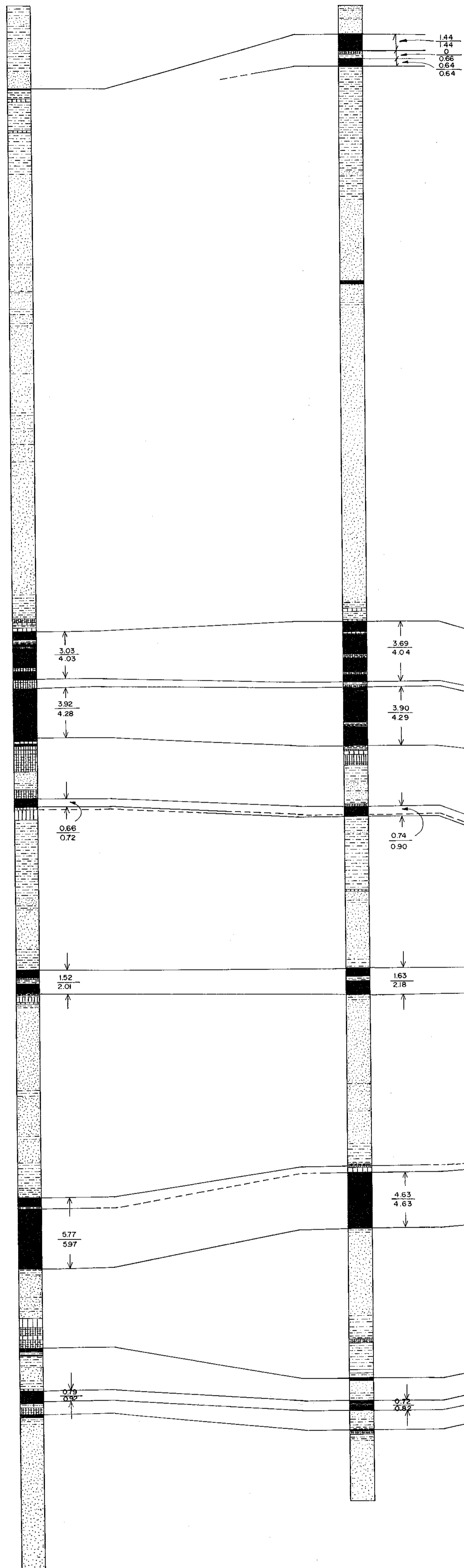
50			0			50			100		
METRES											
0	05	03	85	ORIGINAL DRAFT	KJV	DJ	DJ				
Rev.	D	M	Y	Revision Description	Drn.	Des.	App.				

QUINETTE COAL LIMITED
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 Area **HERMANN NORTH** Category **PR-QUINETTE 84(2) A**
 Drawing Title **STRUCTURE CONTOURS**
618
TOP OF J SEAM

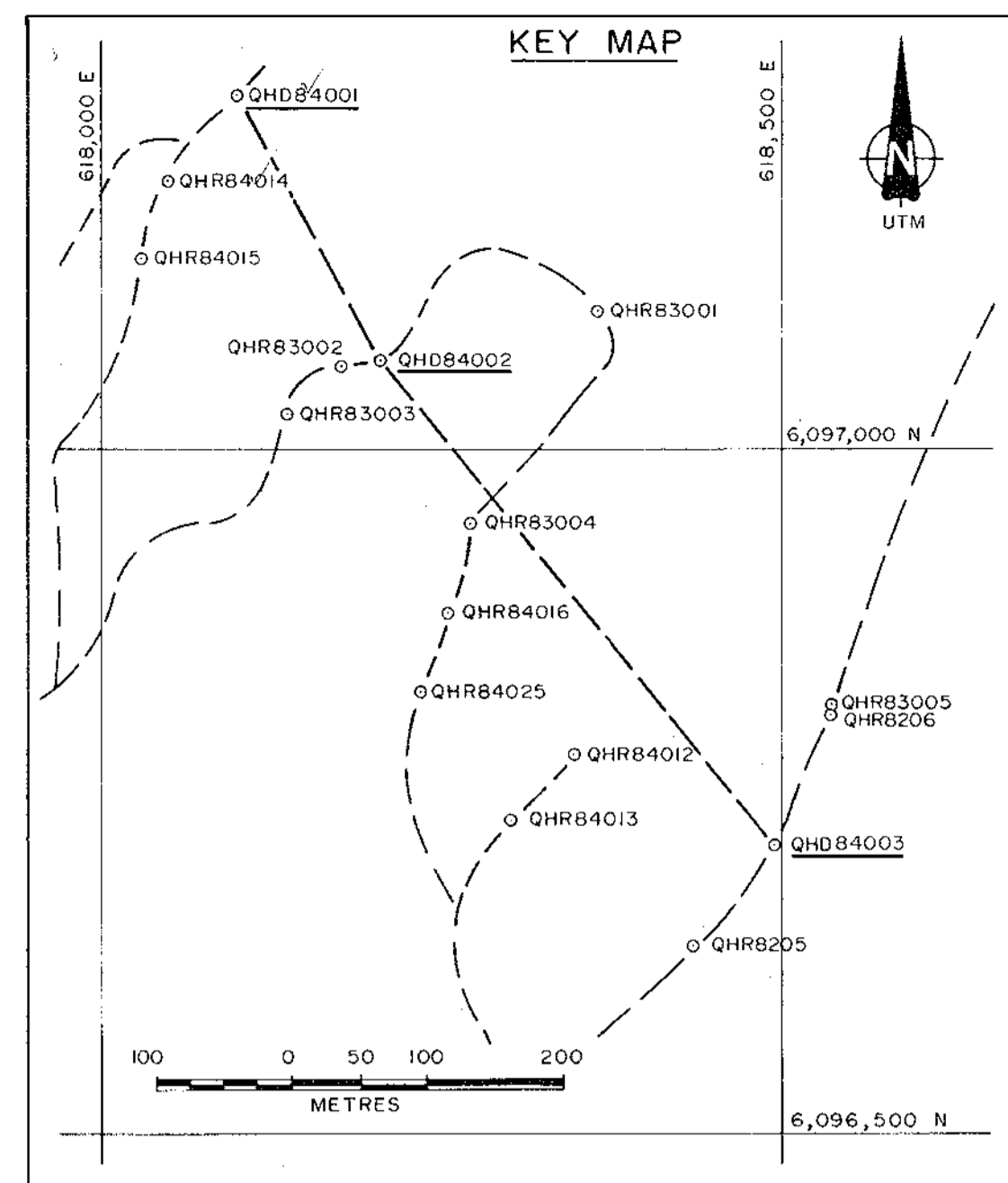
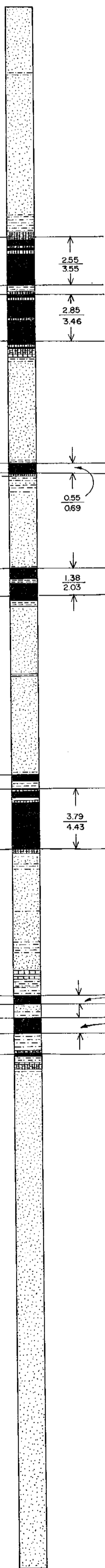
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QHD84001

QHD84002



QHD84003

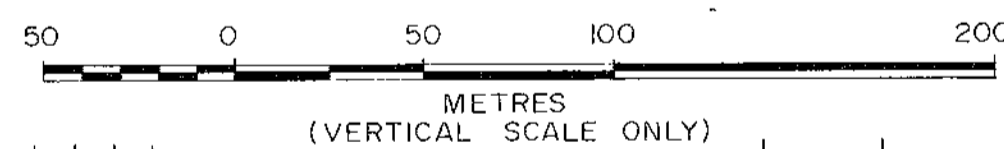


LEGEND

ROCK THICKNESS (m)		COAL THICKNESS (m)	
CONGLOMERATE	0.87	1.07	CB
SANDSTONE	0.49	0.20	CC
SHALE	0.60	1.27	COAL THICKNESS(m)
CD	0.03	1.38	TOTAL BEAM THICKNESS(m)
COALY SHALE	0.28	0.10	COAL
SILTSTONE	0.28		
SANDY SHALE	0.30		
LOSS	0.31		

LITHOLOGIC SYMBOLS

CONGLOMERATE		CGL
COARSE SANDSTONE		CS
MEDIUM SANDSTONE		MS
FINE SANDSTONE		FS
VERY FINE SANDSTONE		VFS
SANDY SHALE		SSH (SILTSTONE)
COARSE SHALE		CRSH (SILTY CLAYSTONE)
SHALE		SH (CLAYSTONE)
DARK GREY SHALE		DKGRSH (CARBONACEOUS > 60% ASH)
DARK SHALE		DKSH (50 - 60 % ASH)
COALY SHALE		CSH (40 - 50 % ASH)
COAL / ROCK		CD (30 - 40 % ASH)
COAL		CC (20 - 30 % ASH)
COAL		CB (10 - 20 % ASH)
COAL		CA (<10 % ASH)



0	11	0485	ORIGINAL DRAFT	EJP	DJ	DJ	
Rev.	D	M	Y	Revision Description	Drn.	Des.	App.

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Project Manager
DENISON MINES LIMITED
 COAL DIVISION PR-QUINTETTE 84(2)A

Area HERMANN NORTH Category CORRELATION

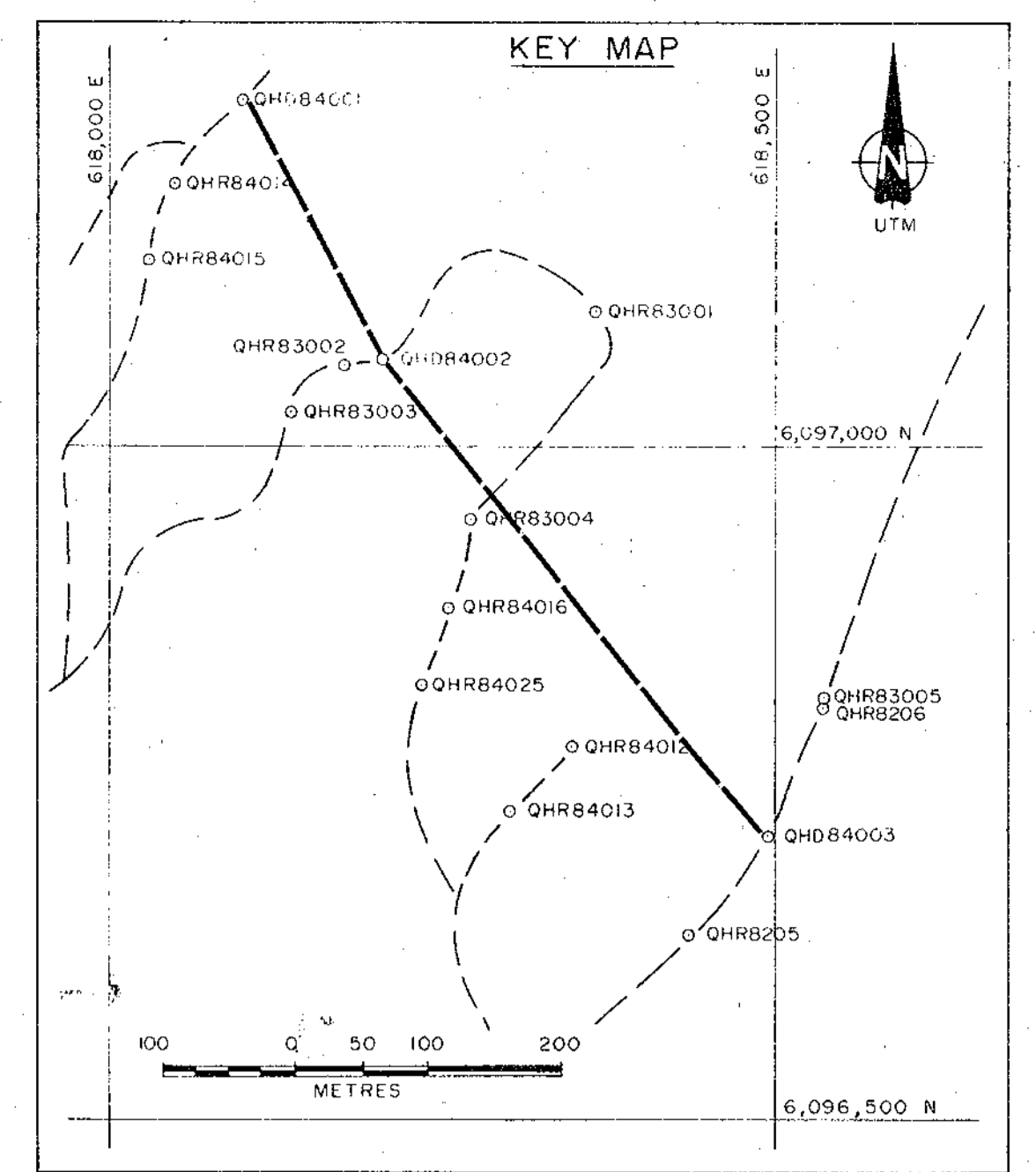
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HERMANN NORTH 618
GENERAL CORRELATION

Scale	Drawing No.	Rev.
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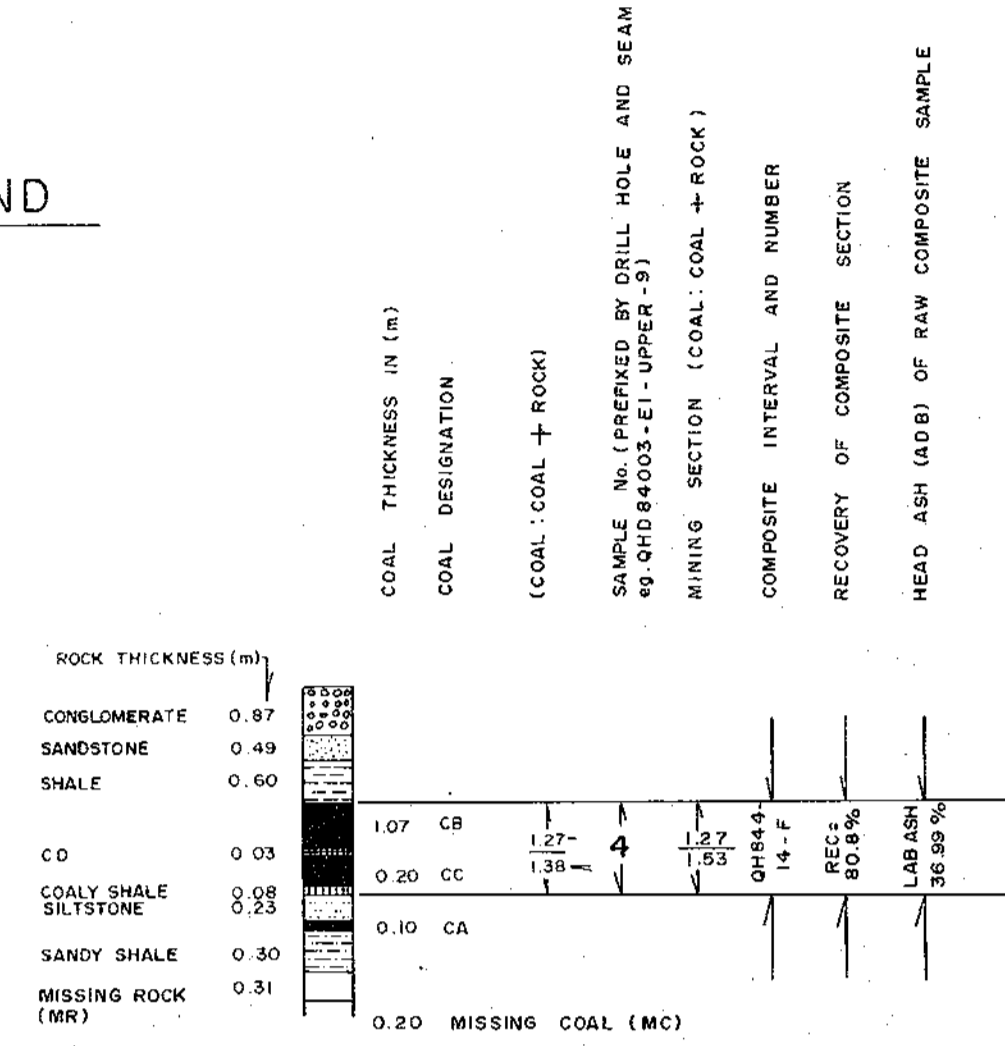
QHD 84001

QHD 84002

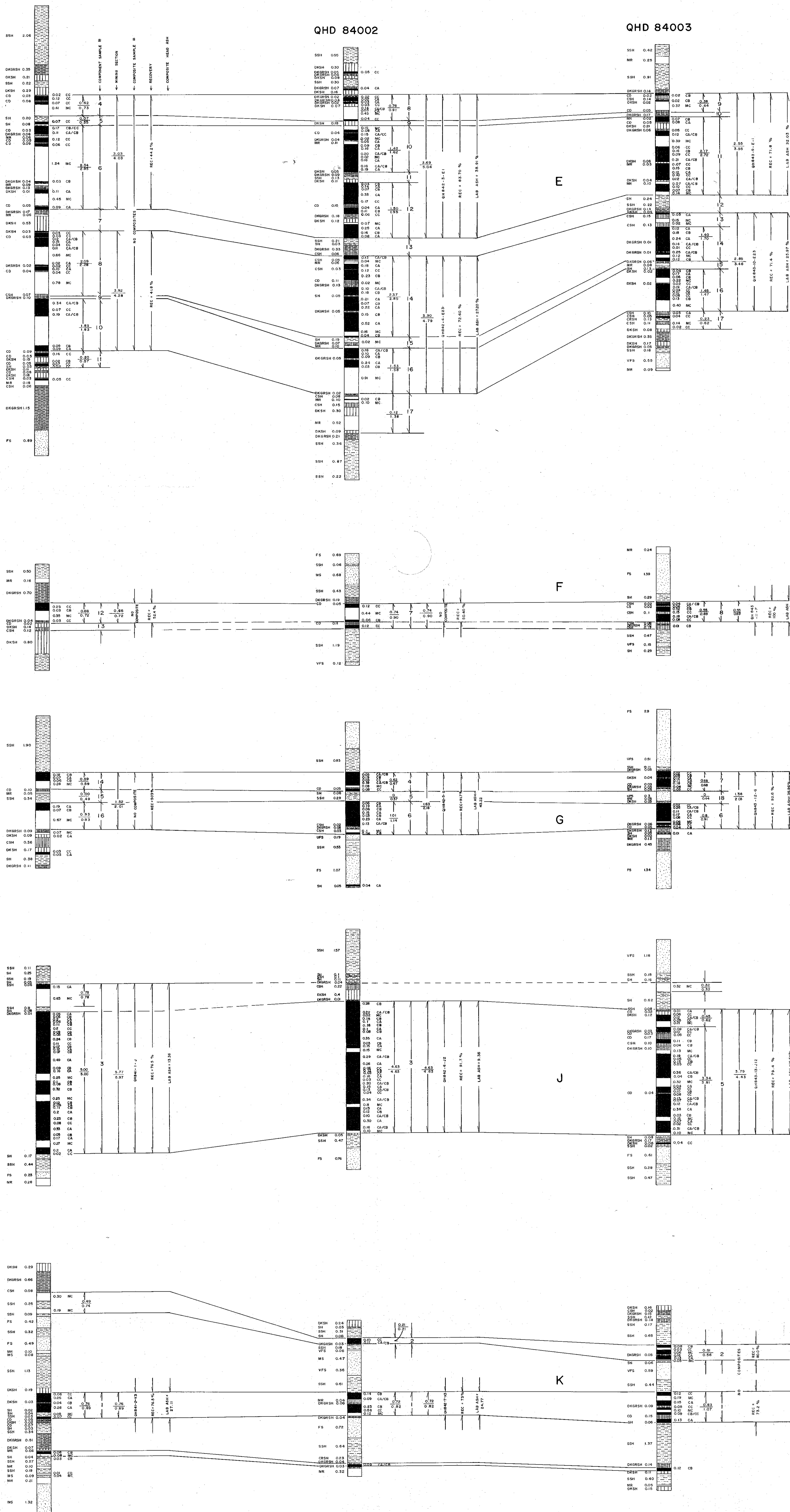
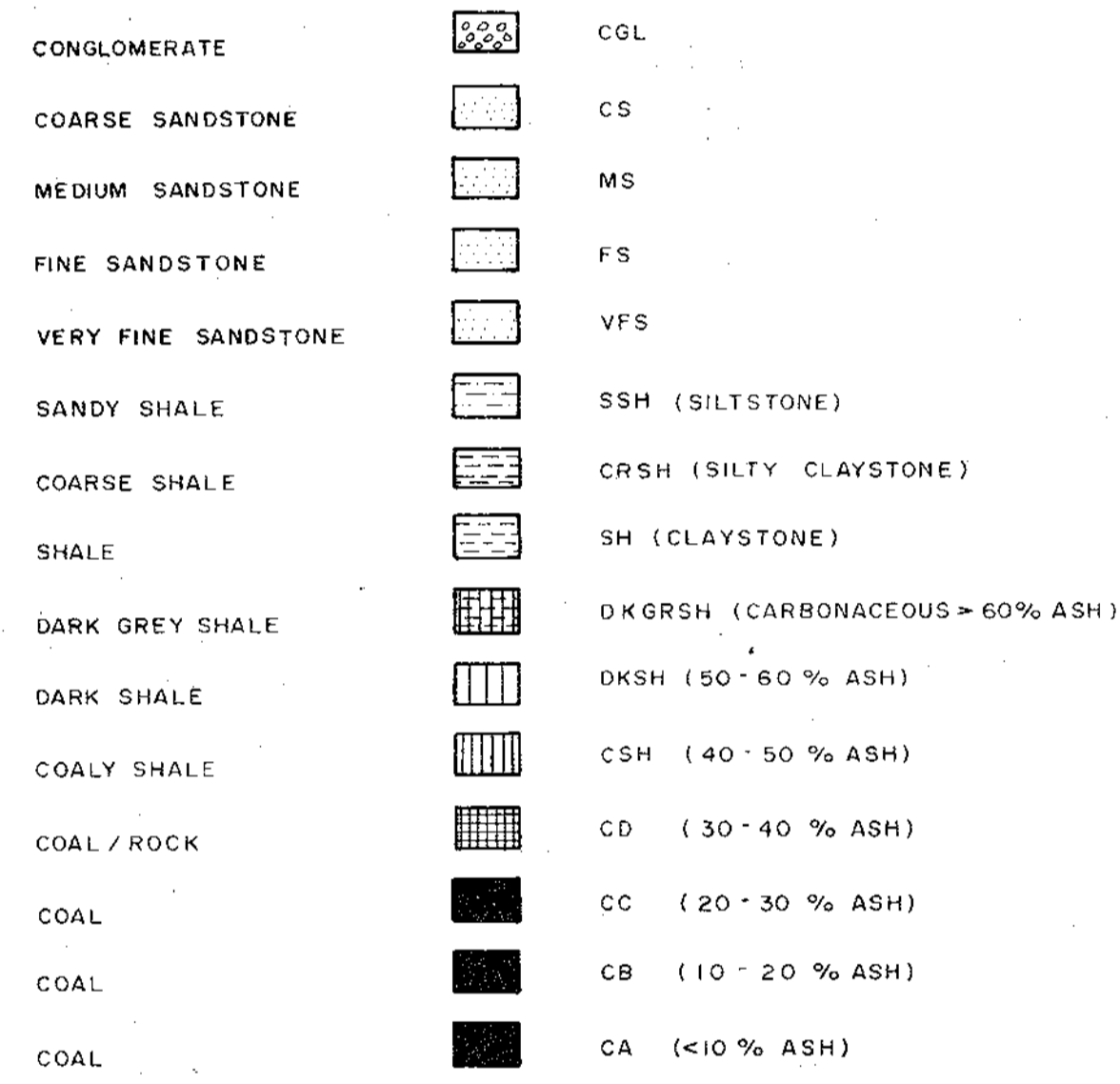
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LEGEND



LITHOLOGIC SYMBOLS



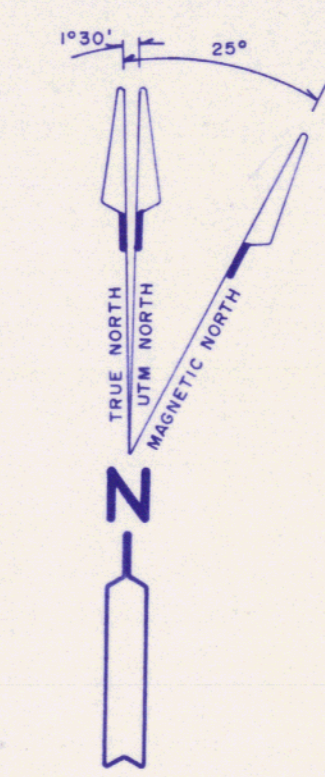
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Rev.	D	M	Y	Revision Description	Drn. Des. App.

QUINTETTE COAL LIMITED
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DENISON MINES LIMITED
 COAL DIVISION PR - QUINTETTE 84 (2) A
 Area HERMANN NORTH Category CORRELATION

Drawing Title
HERMANN NORTH 618
 SEAM CORRELATION

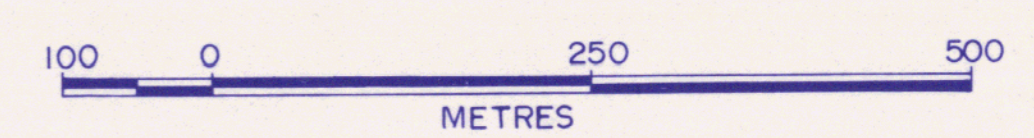
Scale 1:50(VERT) Drawing No. 85-601-26-002 Rev. 0

00189



LEGEND

- ROAD
 - DRILL HOLE
 - STRIKE & DIP
 - THRUST FAULT
 - COAL SEAM OUTCROP (TOP OF SEAM)
 - GEOLOGICAL CONTACT
 - ANTICLINE
 - SYNCLINE
- GEOLOGICAL FORMATIONS:**
- KS SHAFTESBURY
 - KCB BOULDER CREEK
 - KCH HULCROSS
 - KCG GATES
 - KM MOOSEBAR
 - KG GETHING



Rev.	D	M	Y	Revision Description	Drn.	Des.	App.
3	30	11	84	1984 DRILL HOLES & ROAD PLOTTED	KJV	DMc	DMc
2	28	08	84	1984 DRILL HOLES PLOTTED	EAH	DMc	
1	13	03	84	ADD NEW GEOLOGY - TITLE CHANGE	KJV	DJ	DJ
0	22	11	83	FOR APPROVAL	EAH	BE	

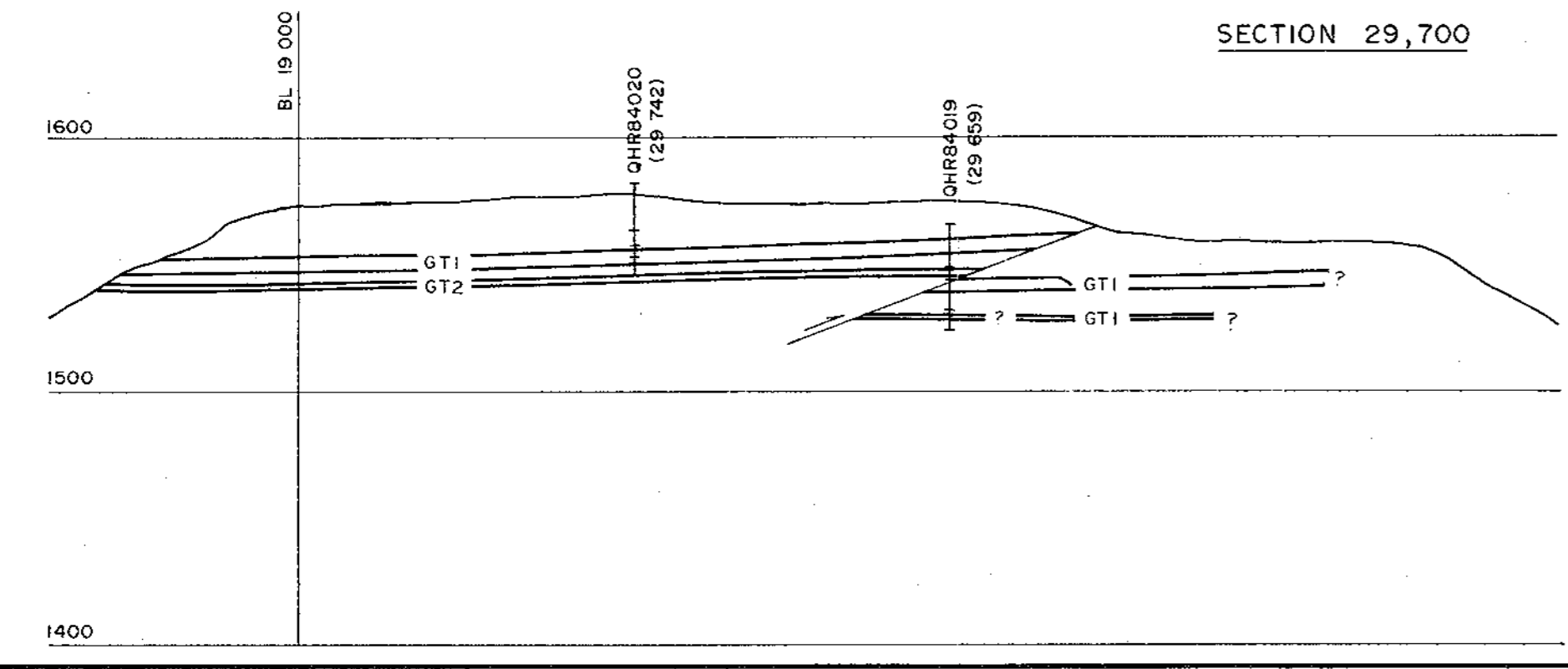
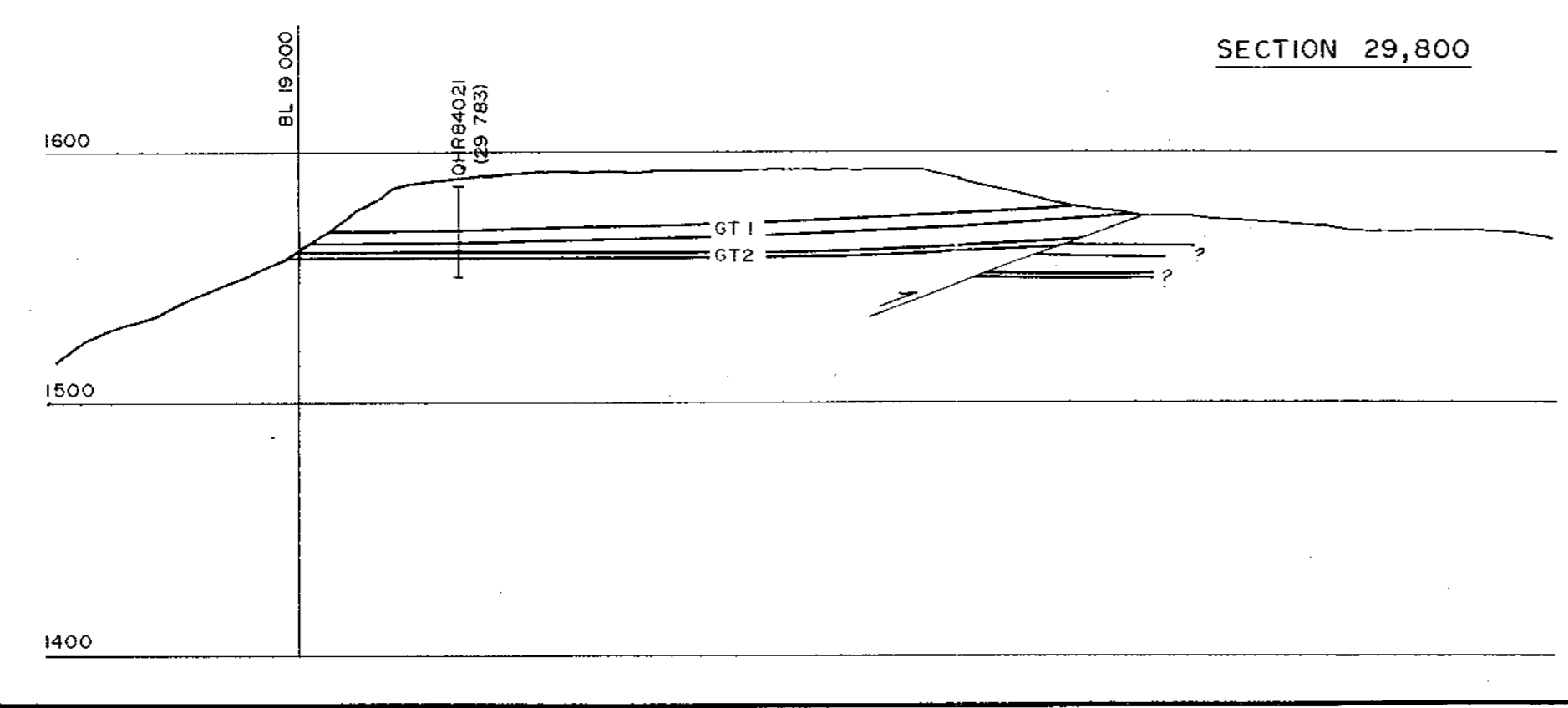
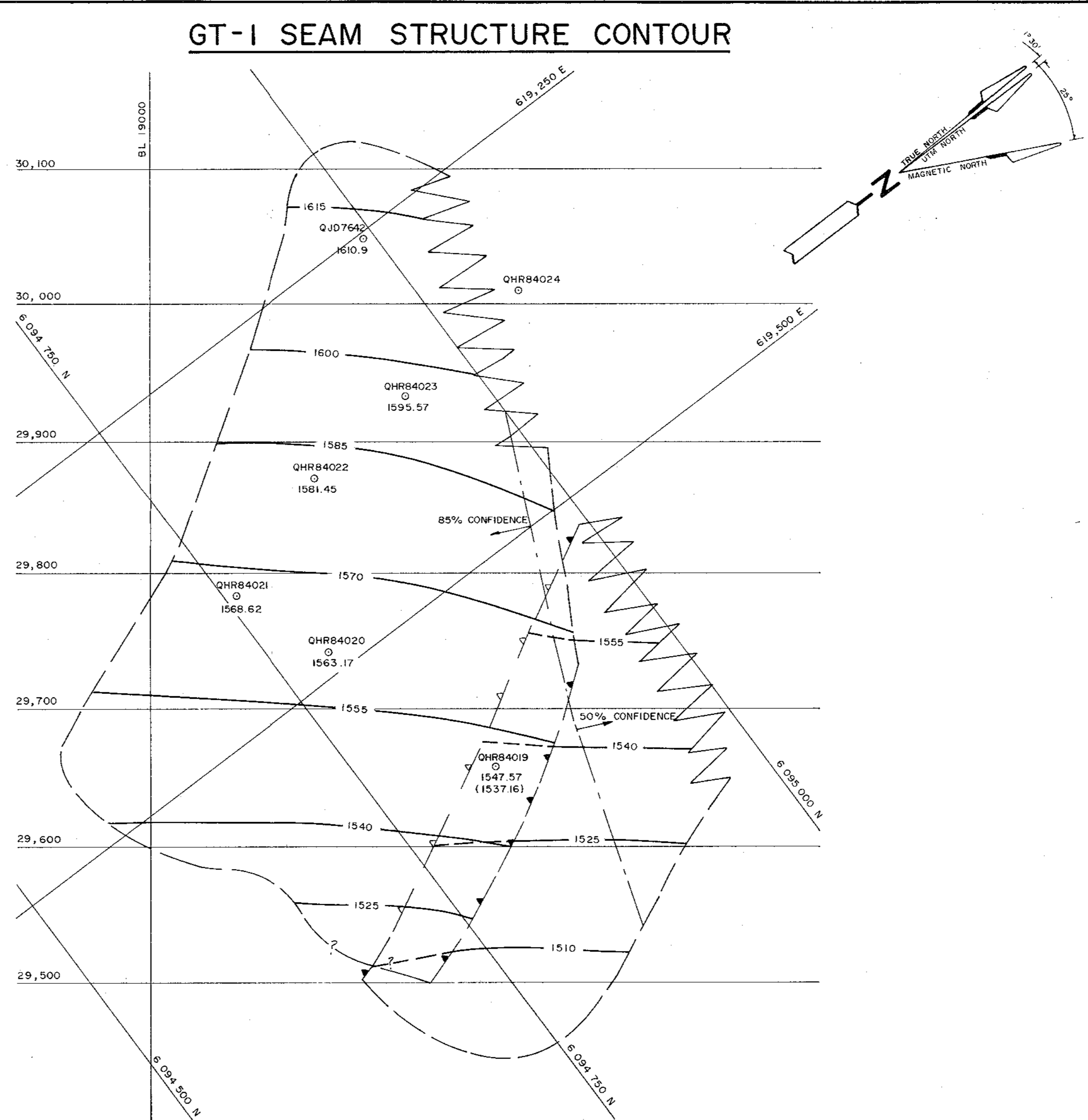
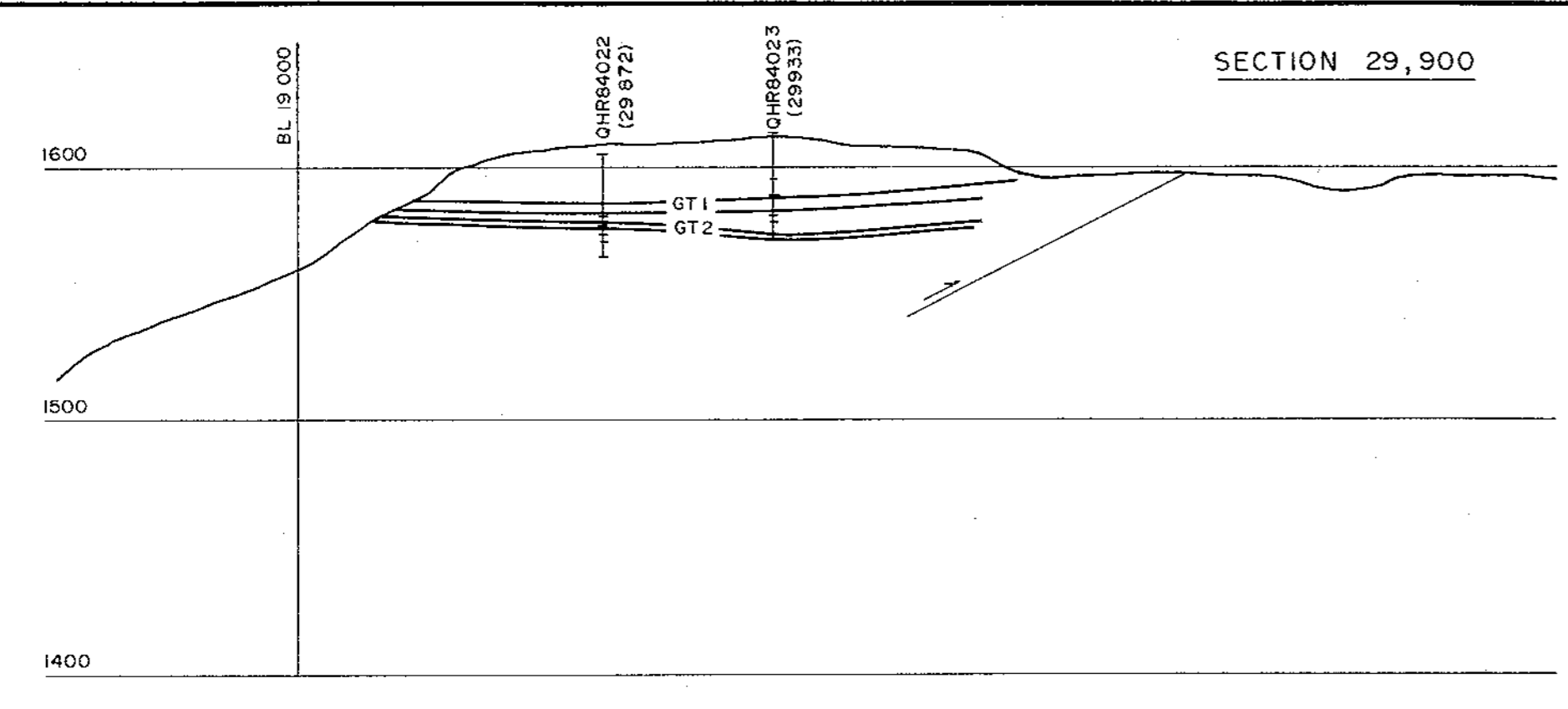
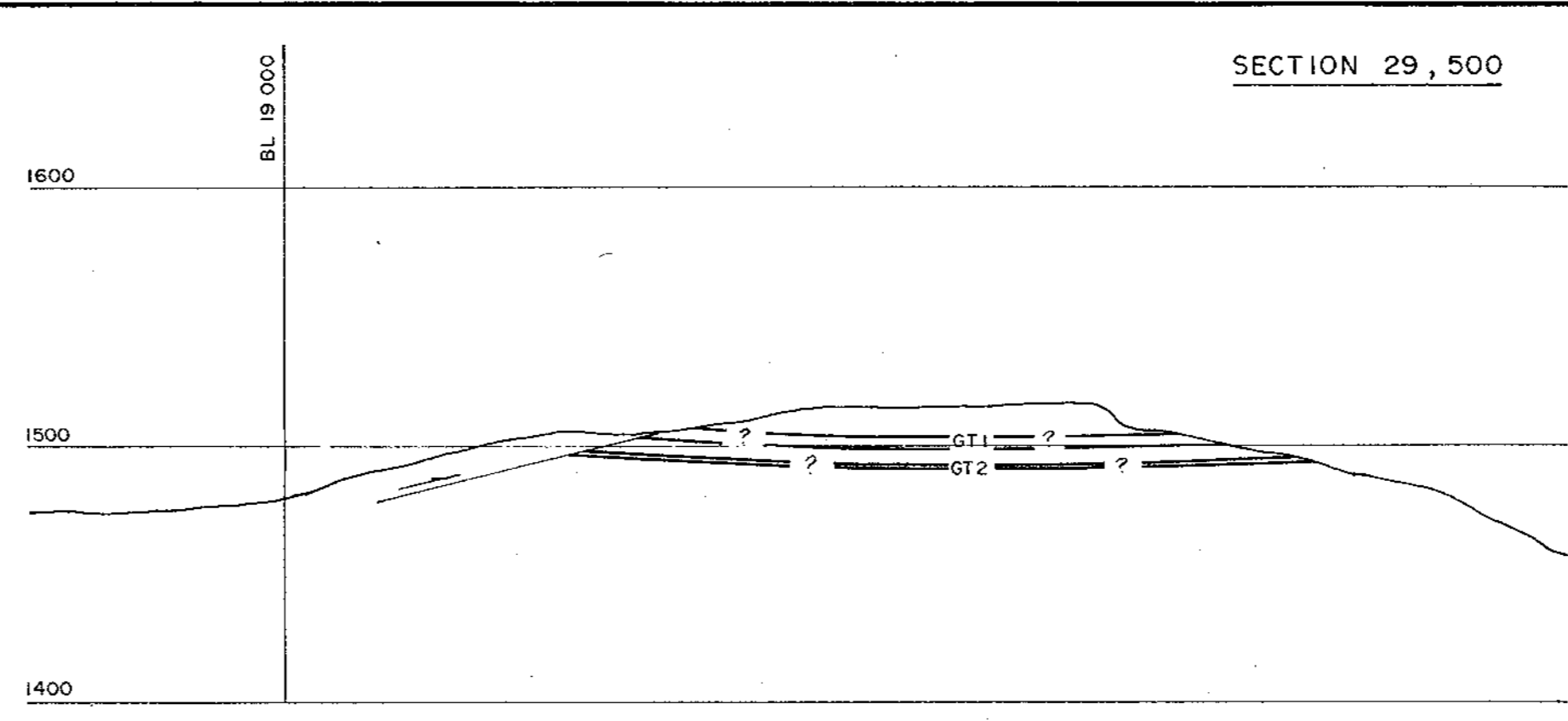
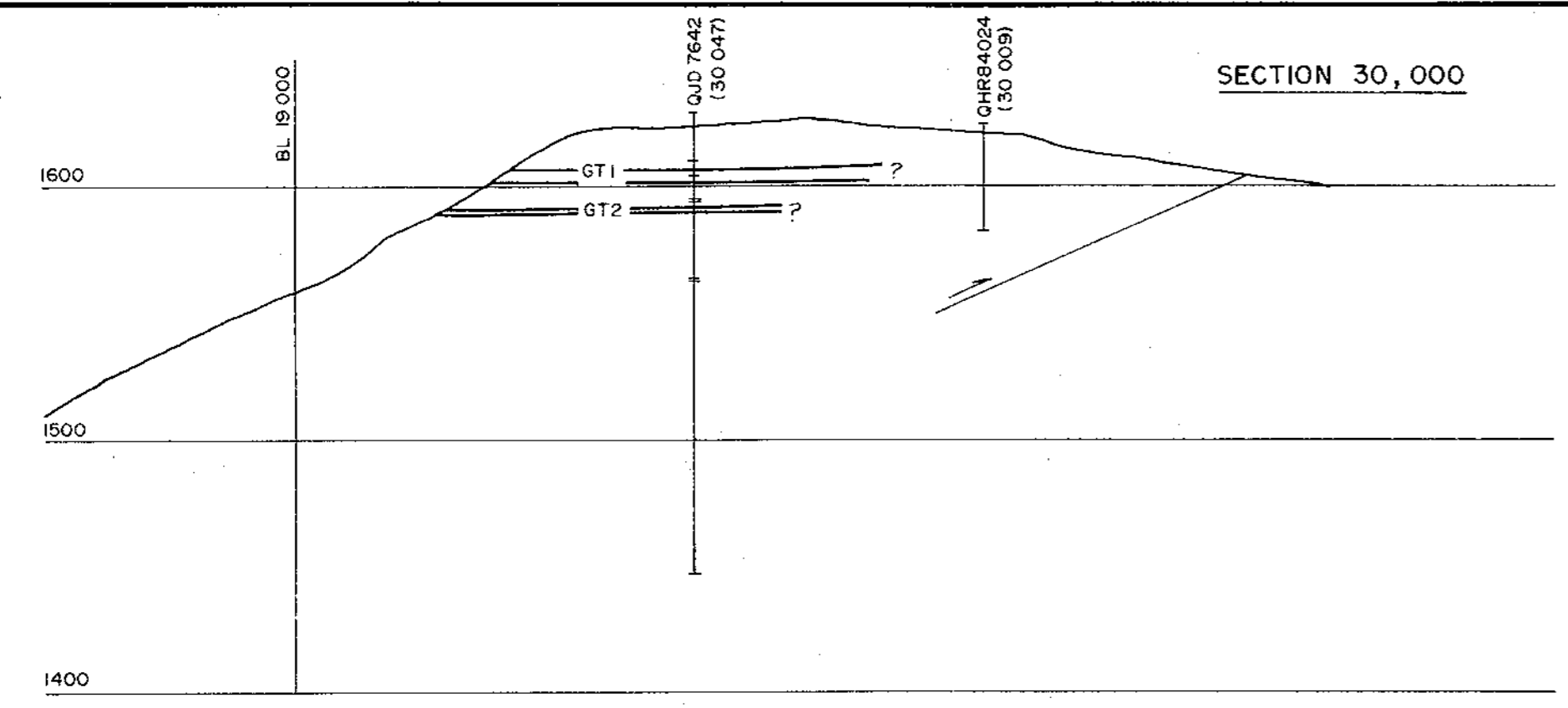
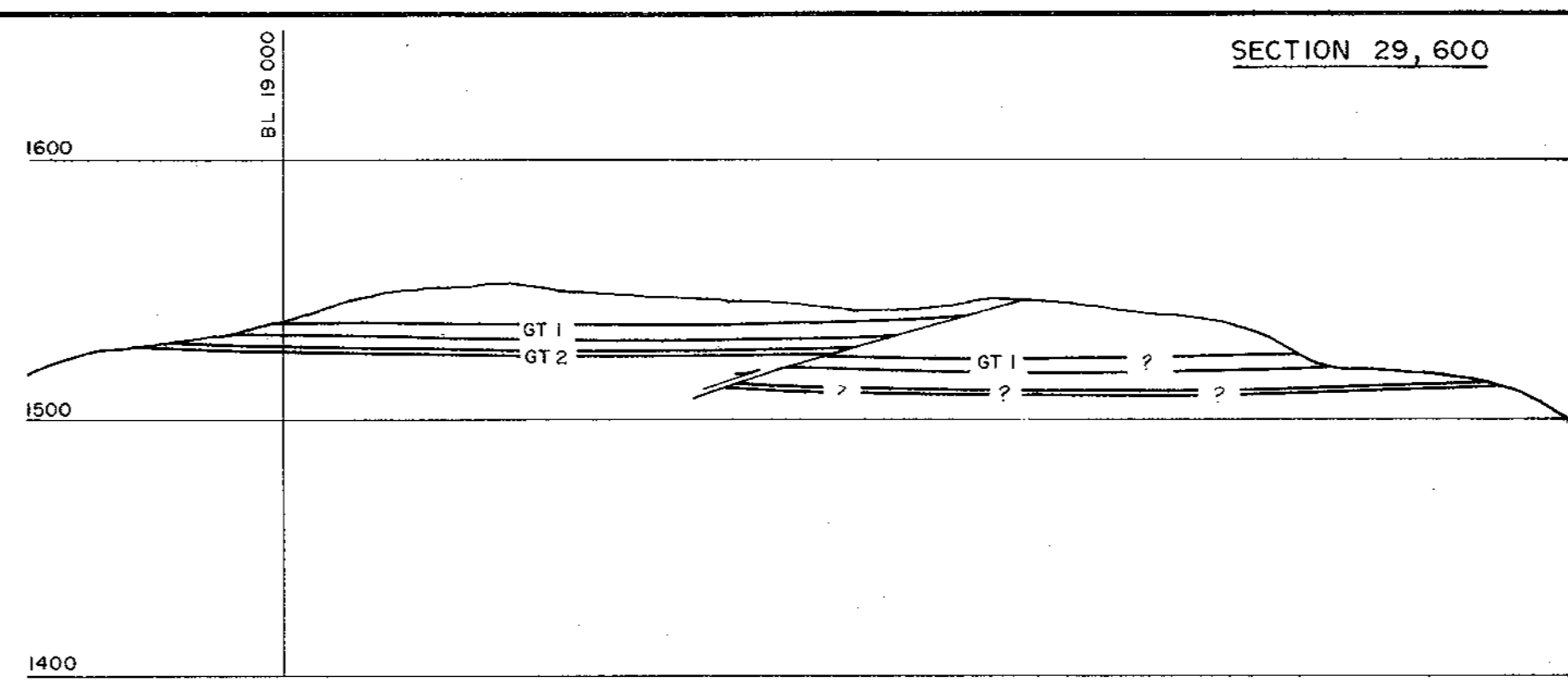
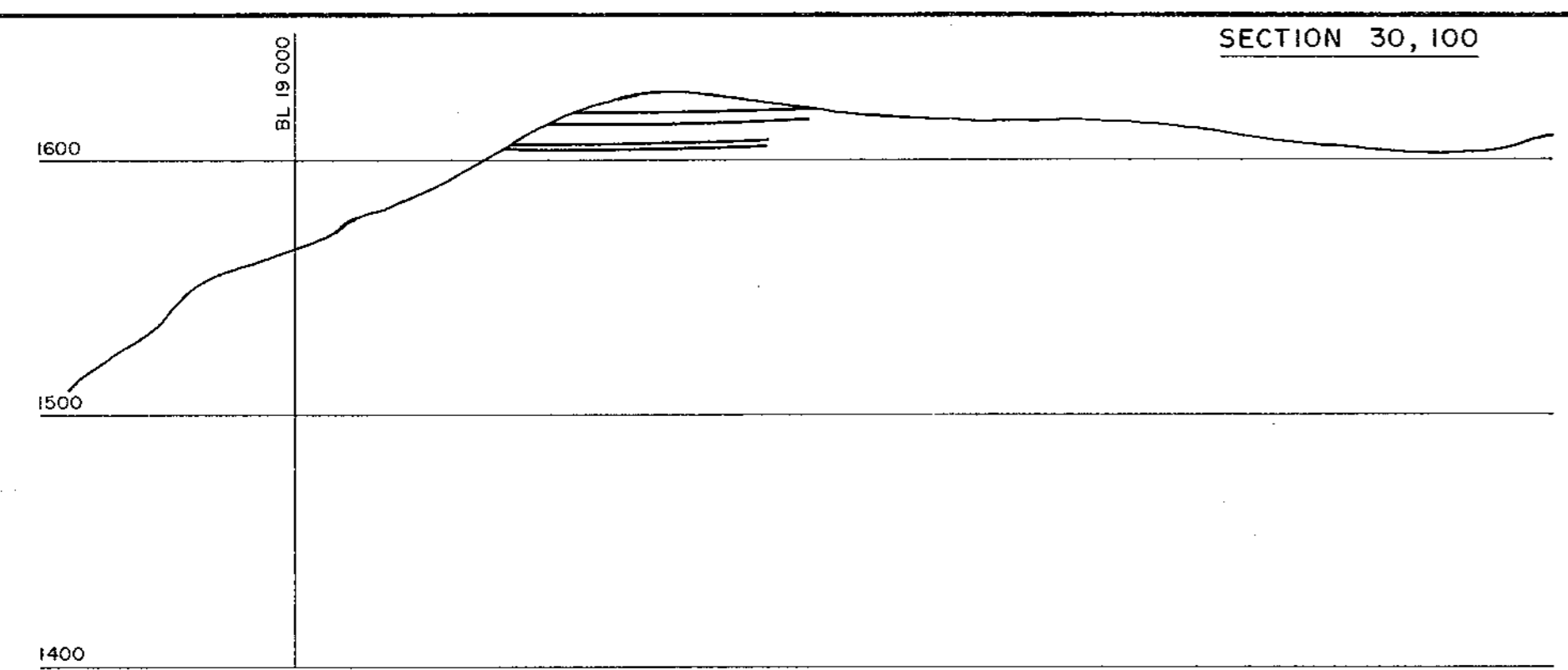
QUINTETTE COAL LIMITED

Project Manager
DENISON MINES LIMITED
 COAL DIVISION
 Area HERMANN Category GEOLOGY

Drawing Title
**HERMANN NORTH
 GEOLOGY**

618

Scale 1 : 5000	Drawing No. 83 - 600 - 20 - 001	Rev. 3
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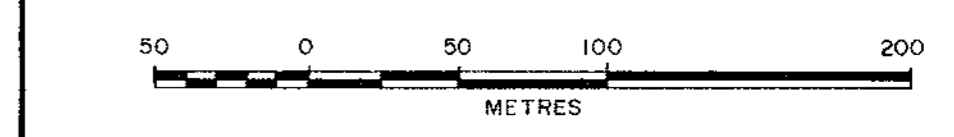


LEGEND

- STRUCTURE CONTOUR:**
- 1615 — CONTOUR (ABOVE - BELOW) ELEVATION (m)
 - SEAM OUTCROP
 - SEAM ASHES OUT
 - FAULT ABOVE
 - FAULT BELOW
 - QHR84020 DRILL HOLE NUMBER
 - 1570.8 ELEV. OF TOP OF SEAM
 - (1560.9) ELEV. OF REPEATED SEAM

SECTIONS:

- REVERSE FAULT
- GT-1 TOP & BOTTOM OF GT-1 SEAM
- DRILL HOLE NUMBER
- SECTION LINE OF DRILL HOLE
- TOP OF DRILL HOLE
- PERPENDICULAR PROJECTION OF DRILL HOLE
- TOP & BOTTOM OF COAL INTERSECTIONS
- BOTTOM OF HOLE

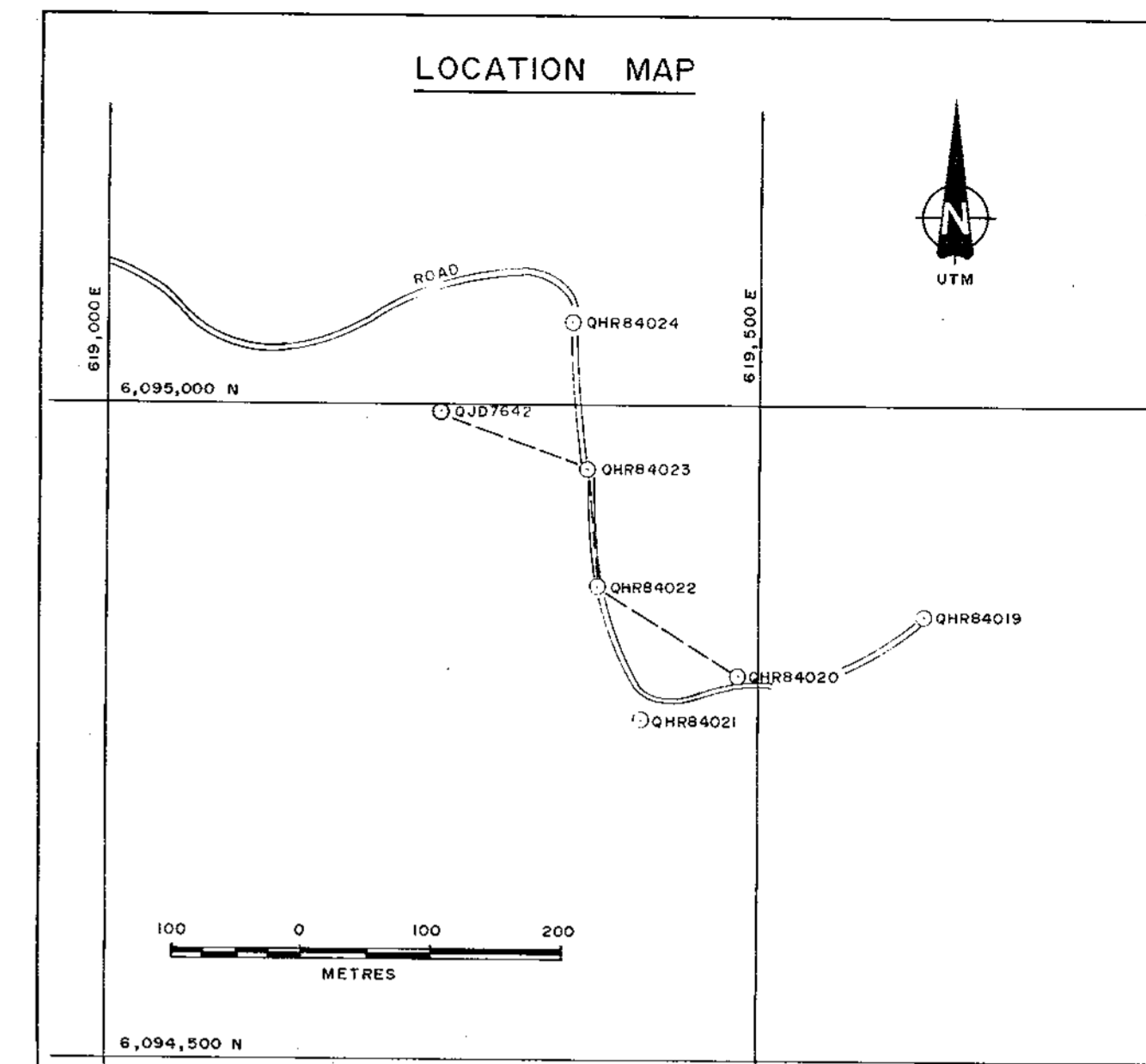
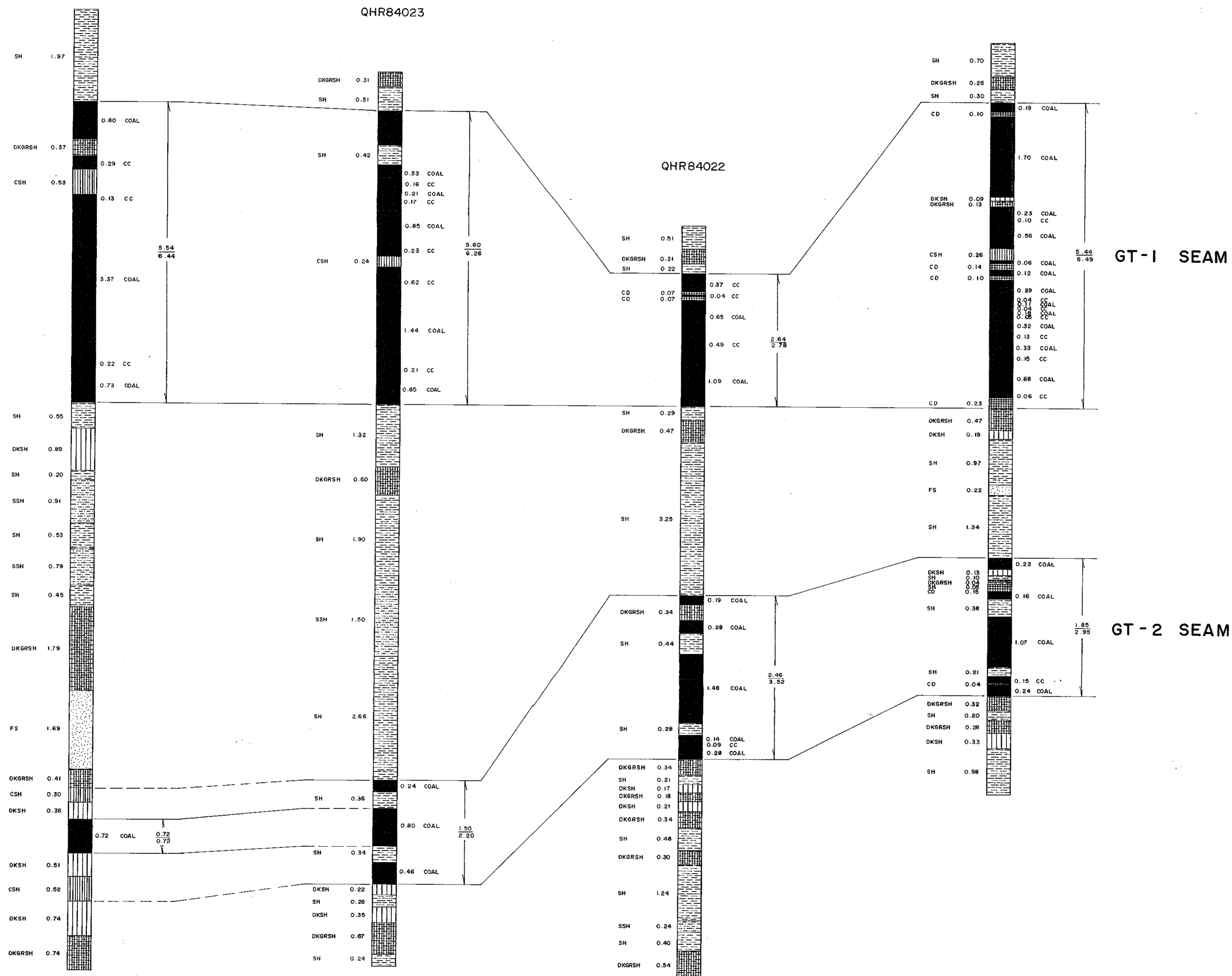


0	01/04/85	ORIGINAL DRAFT	KJV	D Mc	D Mc
Rev.	D M Y	Revision Description	Drn.	Des.	App.

QUINTETTE COAL LIMITED
 Project Manager
DENISON MINES LIMITED
 COAL DIVISION
 Area HERMANN GETHING Category STRUCTURE
 Drawing Title
HERMANN GETHING 618
GT-1 SEAM STRUCTURE CONTOUR AND SECTIONS

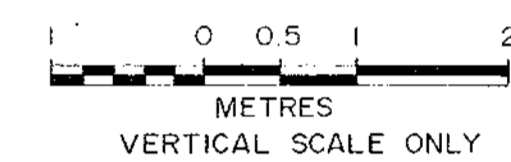
Scale	Drawing No.	Rev.
1 : 2500	85-605-22-001	0

QJD7642



LEGEND

ROCK THICKNESS (m)	COAL THICKNESS (m)	COAL DESIGNATION
CONGLOMERATE 0.87	1.07 CB	COAL THICKNESS(m)
SANDSTONE 0.49	0.20 CC	TOTAL SEAM THICKNESS(m)
SHALE 0.60	0.10 COAL	
CD 0.03		
COALY SHALE 0.08		
SILTSTONE 0.23		
SANDY SHALE 0.30		
LOSS 0.31		
DK GR SHALE 0.61		
DARK SHALE 0.32		



NOTE: ALL LITHOLOGIES INTERPRETED FROM 1:20 SCALE GEOPHYSICAL LOGS (NATURAL GAMMA AND DENSITY).
ALL HOLES ASSUMED TRUE THICKNESS BECAUSE OF LOW DIPS IN THE AREA - <13°

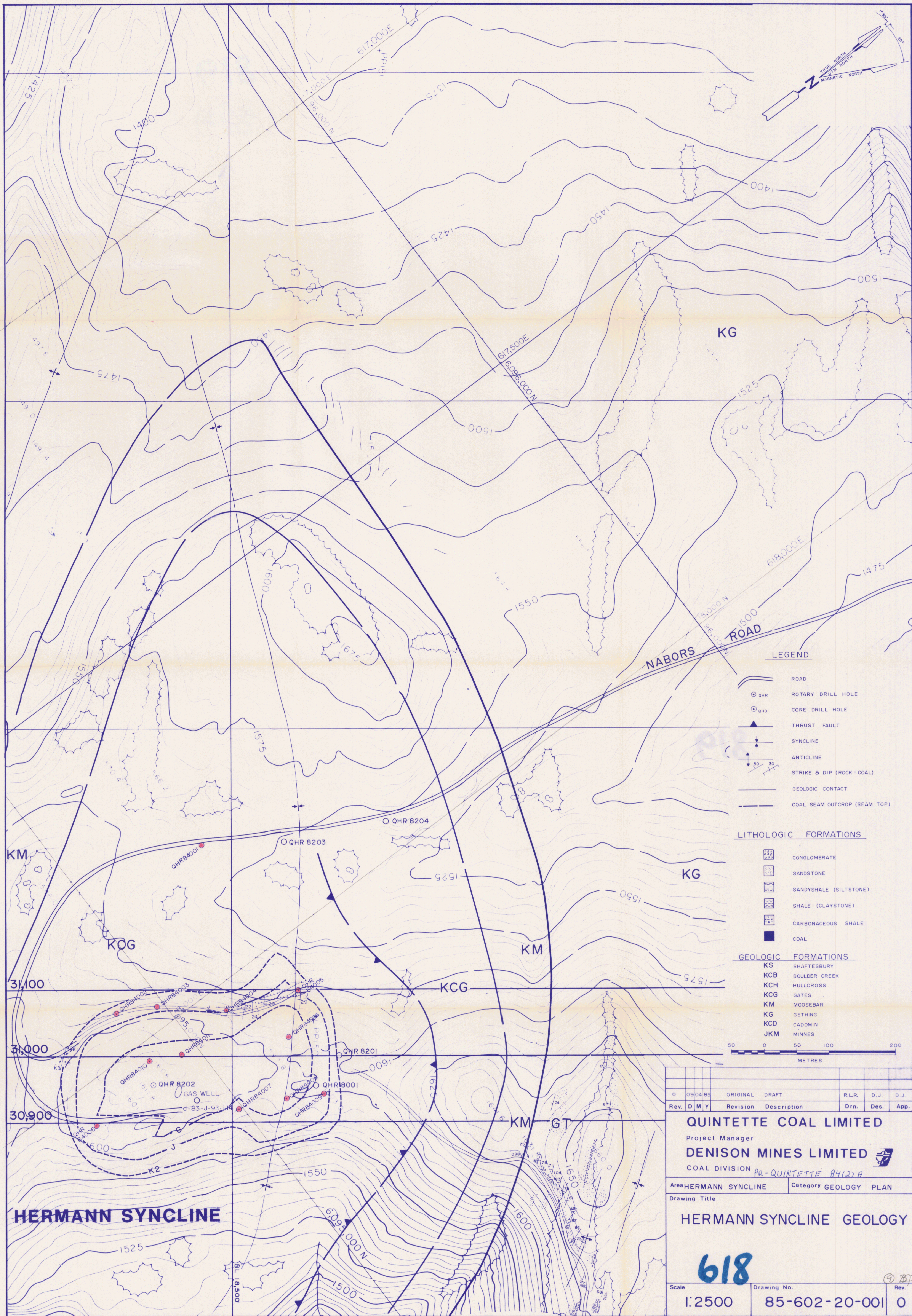
Rev.	D	M	Y	Revision	Description	Drn.	Des.	App.
0	03	01	85	ORIGINAL DRAFT		KJV	D Mc	D Mc

QUINETTE COAL LIMITED
Project Manager
DENISON MINES LIMITED
COAL DIVISION
PR-QUINETTE 84(2)A

Area **HERMANN GETHING** Category **CORRELATION**

Drawing Title
HERMANN GETHING 618
GT-1,GT-2 SEAMS
SEAM CORRELATION

Scale 1:50 (VERT.)	Drawing No. 85-605-26-002	Rev. 0
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- LEGEND**
- ROAD
 - ROTARY DRILL HOLE
 - CORE DRILL HOLE
 - THRUST FAULT
 - SYNCLINE
 - ANTICLINE
 - STRIKE & DIP (ROCK - COAL)
 - GEOLOGIC CONTACT
 - COAL SEAM OUTCROP (SEAM TOP)

- LITHOLOGIC FORMATIONS**
- CONGLOMERATE
 - SANDSTONE
 - SANDY SHALE (SILTSTONE)
 - SHALE (CLAYSTONE)
 - CARBONACEOUS SHALE
 - COAL

- GEOLOGIC FORMATIONS**
- KS SHAFTESBURY
 - KCB BOULDER CREEK
 - KCH HULLCROSS
 - KCG GATES
 - KM MOOSEBAR
 - KG GETHING
 - KCD CADOMIN
 - JKM MINNES



Rev.	D	M	Y	Revision	Description	Drn.	Des.	App.
0	09	04	85	ORIGINAL	DRAFT	R.L.R.	D.J.	D.J.

QUINETTE COAL LIMITED
 Project Manager
DENISON MINES LIMITED
 COAL DIVISION PR-QUINETTE 84(2) A

Area HERMANN SYNCLINE Category GEOLOGY PLAN

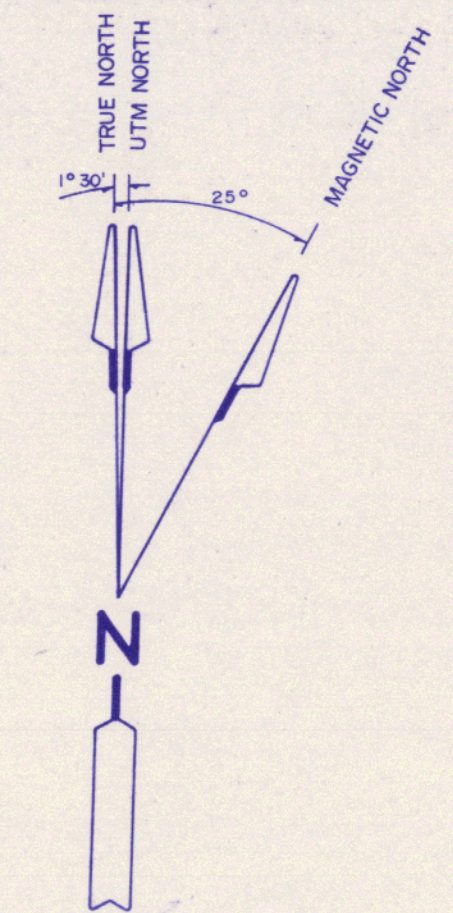
Drawing Title
HERMANN SYNCLINE GEOLOGY

Scale **1:2500** Drawing No. **85-602-20-001** Rev. **0**

618



O.C.L. FILE No.



LEGEND

- ROAD
- QHR 83003 COMPLETED DRILL HOLE
- THRUST FAULT
- SYNCLINE
- ANTICLINE
- GEOLOGIC CONTACT
- COAL SEAM OUTCROP (SEAM TOP)

GEOLOGIC FORMATIONS

- KS SHAFTESBURY
- KCB BOULDER CREEK
- KCH HULCROSS
- KCG GATES
- KM MOOSEBAR
- KG GETHING
- KCD CADOMIN



Rev.	D	M	Y	Revision	Description	Drn.	Des.	App.
2	21	01	85	GEOLOGY & ROAD REVISION ADDED		KJV	DMc	DMc
1	19	10	84	DRILL HOLES AND ROAD ADDED		KJV	DM	
0	07	05	84	ORIGINAL DRAFT		EAH	DJ	

QUINTETTE COAL LIMITED

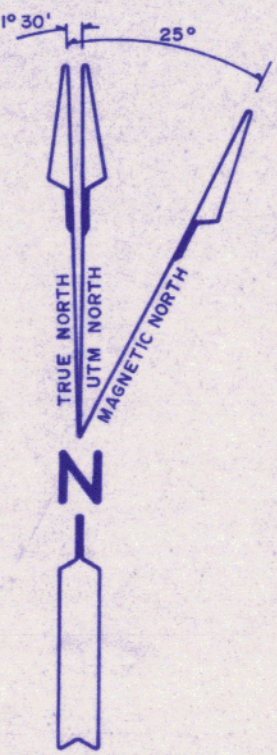
Project Manager
DENISON MINES LIMITED
 COAL DIVISION PR- QUINTETTE 84(2) A

Area HERMANN SYNCLINE Category GEOLOGY
 Drawing Title

HERMANN SYNCLINE /GETHING
 GEOLOGY

Scale	Drawing No.	Rev.
1 : 5000	84 - 602 - 20 - 001	2

618

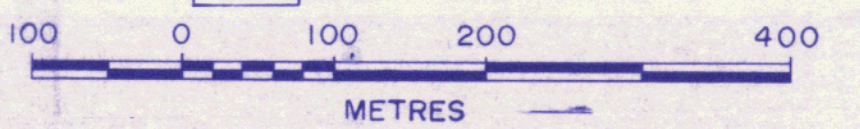


LEGEND

- EXPLORATION ROADS
- COMPLETED DRILL HOLE
- STRIKES & DIPS
- SYNCLINE
- ANTICLINE
- GEOLOGIC CONTACT
- OUTCROP/LITHOLOGY

GEOLOGIC FORMATIONS

- KS** SHAFTESBURY
- KCB** BOULDER CREEK
- KCH** HULCROSS
- KCG** GATES
- KM** MOOSEBAR
- KG** GETHING
- KCD** CADOMIN



Rev.	D	M	Y	Revision	Description	Drn.	Des.	App.
2	20	11	84	EXTENDED ROAD AND ADDED DRILL HOLES	KJV	DM	DM	
1	19	10	84	ADDED DRILL HOLES AND ROAD	K.J.V.	D.M.		
0	24	07	84	COMPOSITE OF U-30, U-31, V-30 & V-31	EAH	DJ		

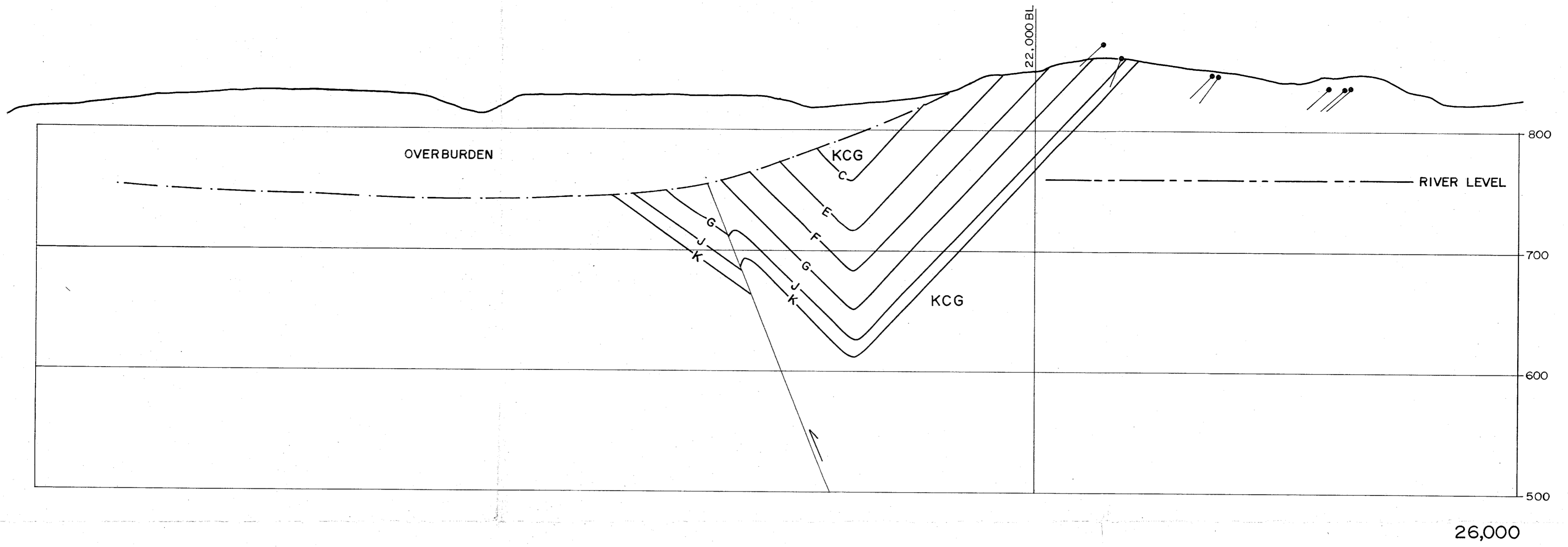
QUINTETTE COAL LIMITED
 Project Manager
DENISON MINES LIMITED
 COAL DIVISION
 PR-QUINTETTE 84(2) A

Area **HERMANN SOUTH** Category **GEOLOGY PLAN**
 Drawing Title
HERMANN SOUTH
GEOLOGY

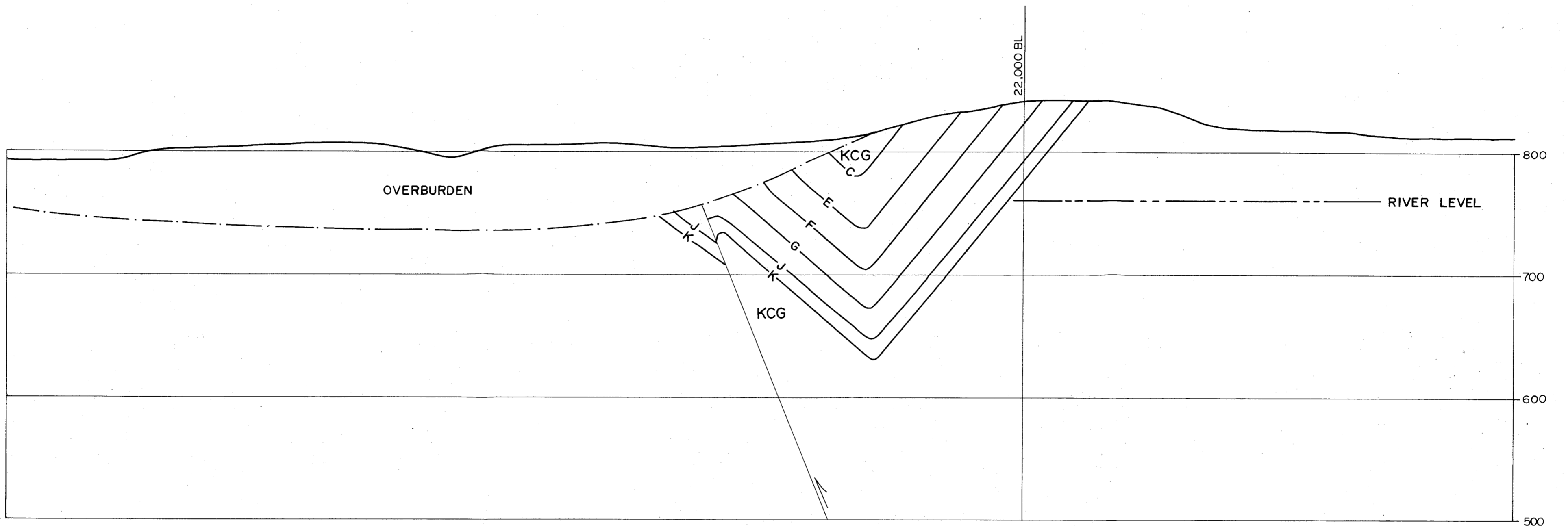
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618

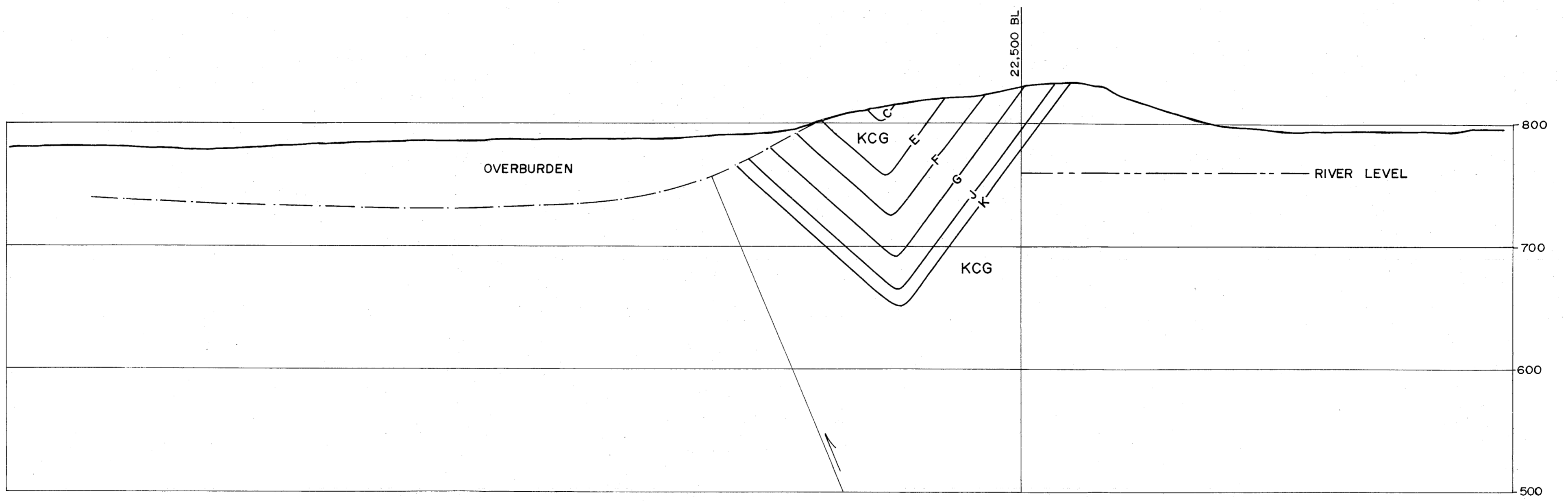
(13) 8D



26,000



25,900



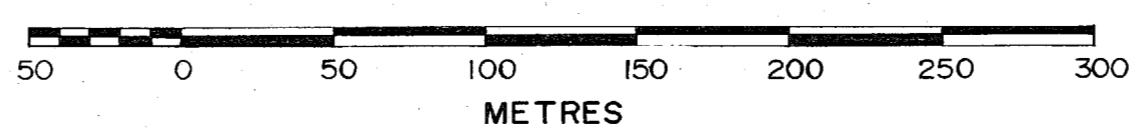
25,800

GEOLOGIC FORMATIONS

- KS SHAFTESBURY
- KCB BOULDER CREEK
- KCH HULLCROSS
- KCG GATES
- KM MOOSEBAR
- KG GETHING
- KCD CADOMIN
- JKM MINNES

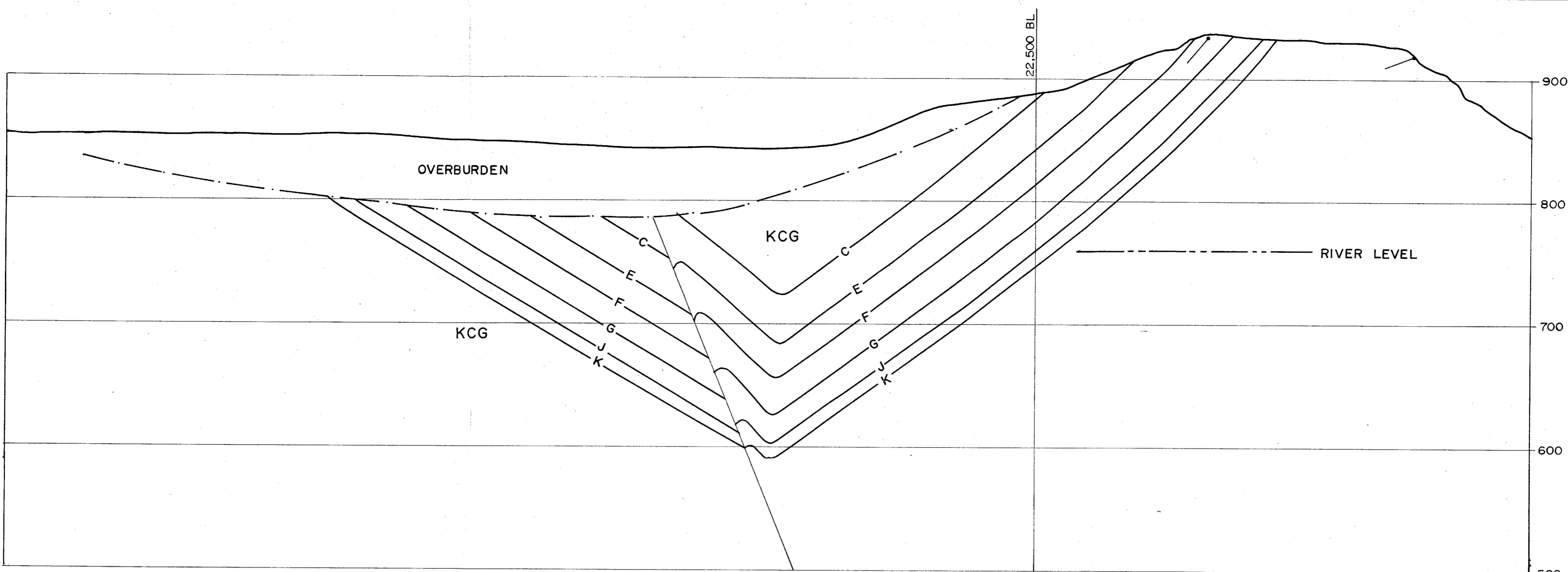
LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- TOP OF DRILL HOLE
- DRILL HOLE
- SEAM DESIGNATOR (TOP OF SEAM)
- BOTTOM OF HOLE
- DIP
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOT BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)
- AXIS OF ANTICLINE
- AXIS OF SYNCLINE
- GEOLOGIC CONTACT
- OVERBURDEN

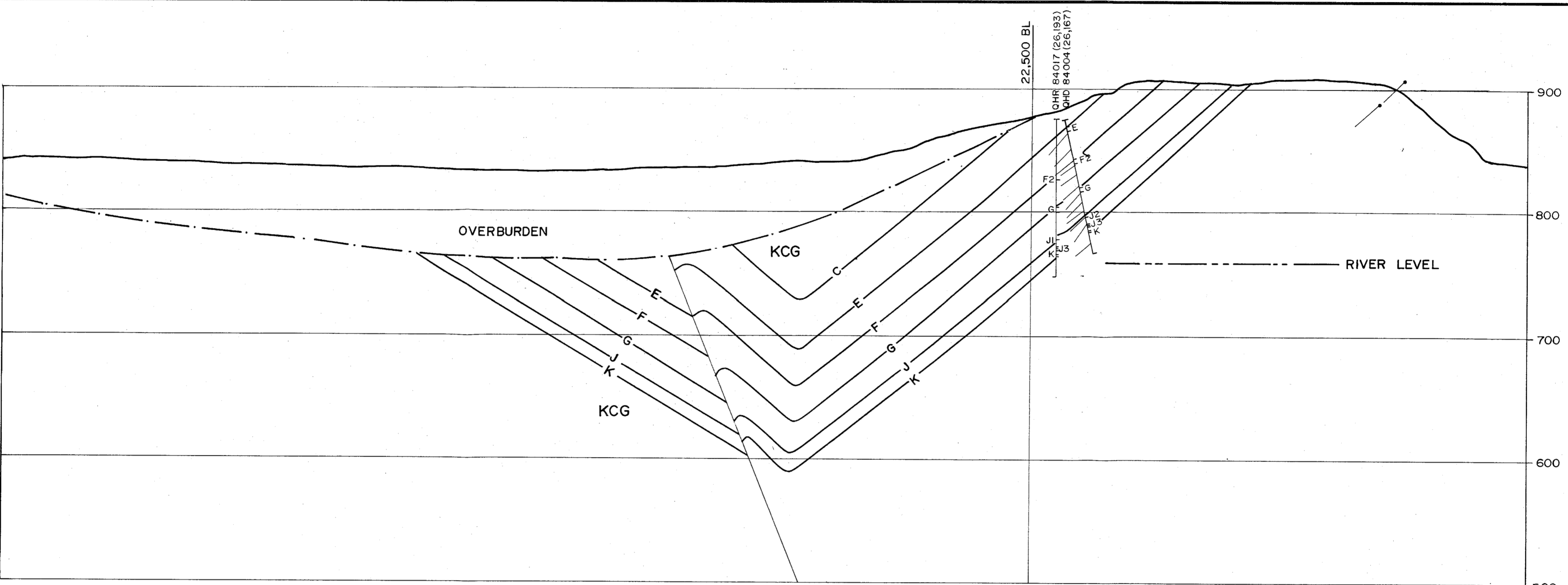


0	8	4	85	ORIGINAL DRAFT	DKM	DJ	DJ
Rev.	D	M	Y	Revision Description	Drn.	Des.	App.
QUINTETTE COAL LIMITED							
Project Manager							
DENISON MINES LIMITED							
COAL DIVISION PR-QUINTETTE 84(2)A							
Area HERMANN SOUTH				Category CROSS SECTIONS			
Drawing Title							
HERMANN SOUTH CROSS SECTIONS							
25,800 25,900 26,000							
Scale		Drawing No.			Rev.		
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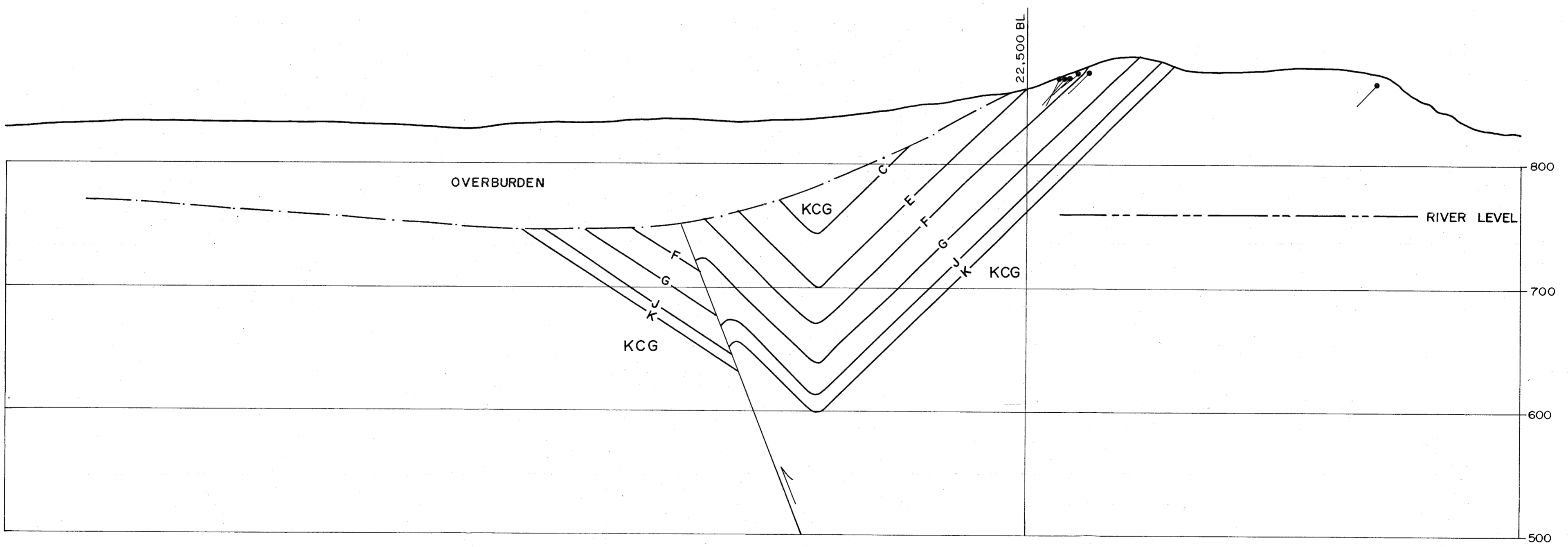
618



26,300



26,200

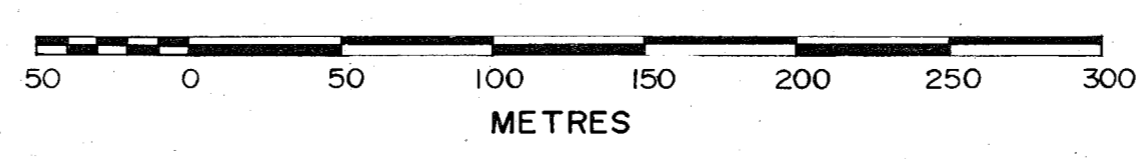


26,100

GEOLOGIC	FORMATIONS
KS	SHAFTESBURY
KCB	BOULDER CREEK
KCH	HULLCROSS
KCG	GATES
KM	MOOSEBAR
KG	GETHING
KCD	CADOMIN
JKM	MINNES

LEGEND

- DRILL HOLE LOCATION (SECTION)
- DRILL HOLE NUMBER
- TOP OF DRILL HOLE
- DRILL HOLE
- SEAM DESIGNATOR (TOP OF SEAM)
- BOTTOM OF HOLE
- DIP
- PROJECTED APPARENT DIP IN SECTION OF OUTCROP
- TOP OF COAL SEAM
- BOT BOTTOM OF COAL SEAM
- FAULT (WITH RELATIVE MOVEMENT)
- AXIS OF ANTICLINE
- AXIS OF SYNCLINE
- GEOLOGIC CONTACT
- OVERBURDEN



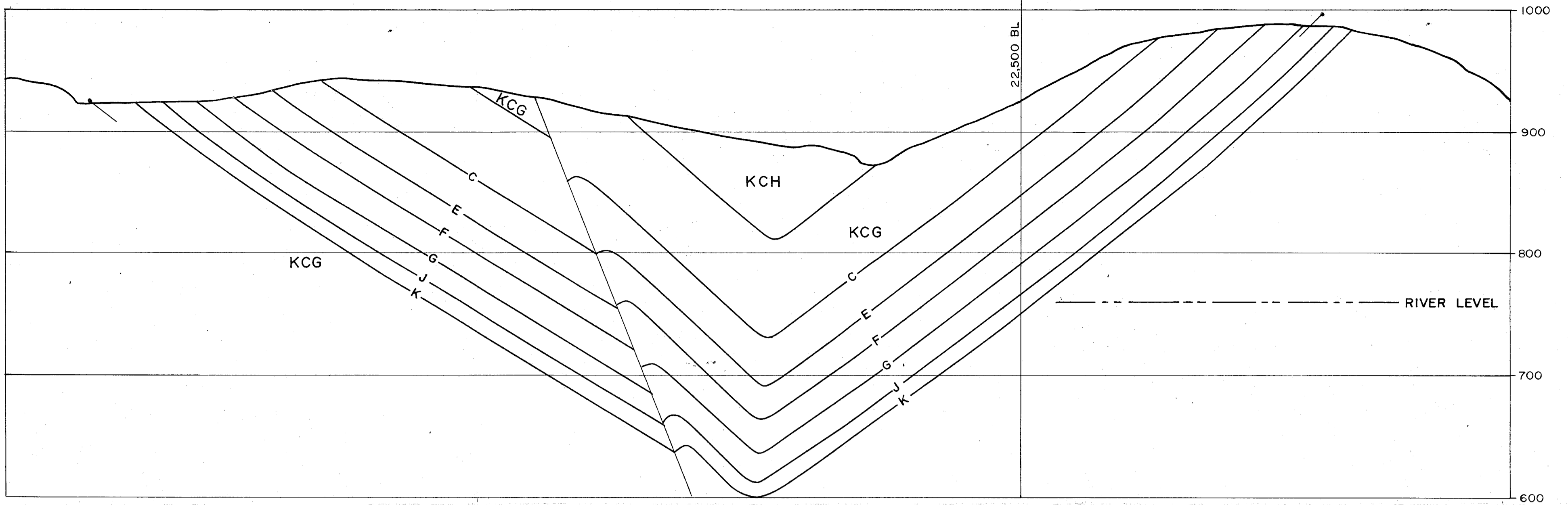
0	8	4	85	ORIGINAL DRAFT	DKM	DJ	DJ
Rev.	D	M	Y	Revision Description	Drn.	Des.	App.

QUINTETTE COAL LIMITED
 Project Manager
DENISON MINES LIMITED
 COAL DIVISION PR-QUINTETTE 84(2)A

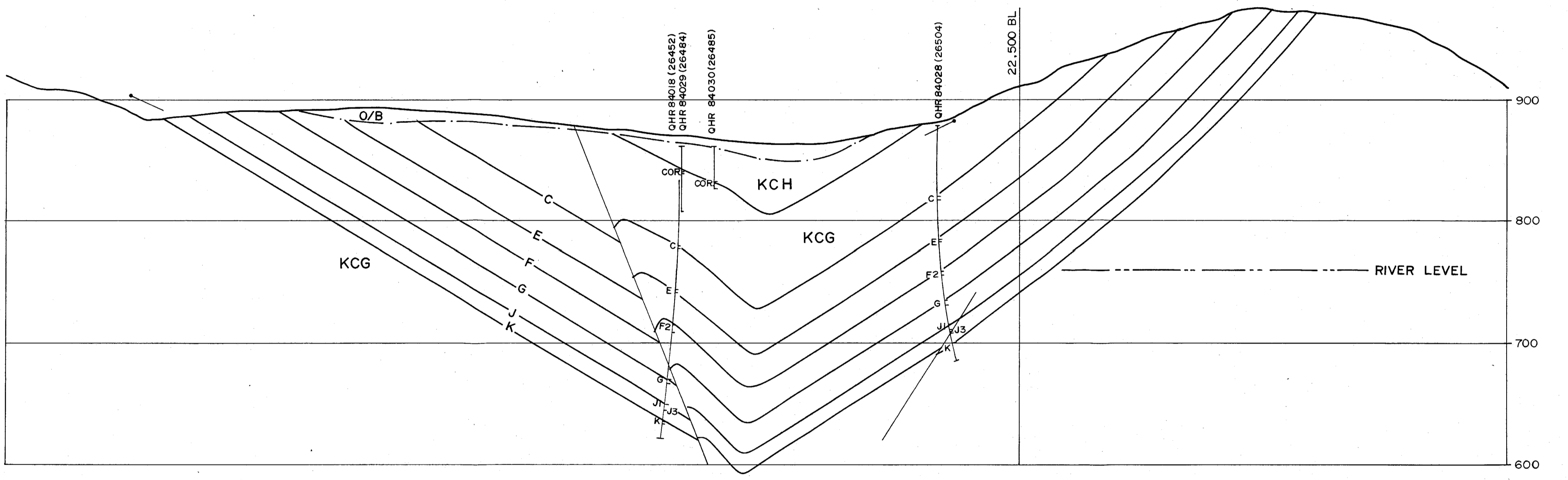
Area HERMANN SOUTH Category CROSS SECTIONS

Drawing Title
**HERMANN SOUTH
 CROSS SECTIONS**
 26,100 26,200 26,300

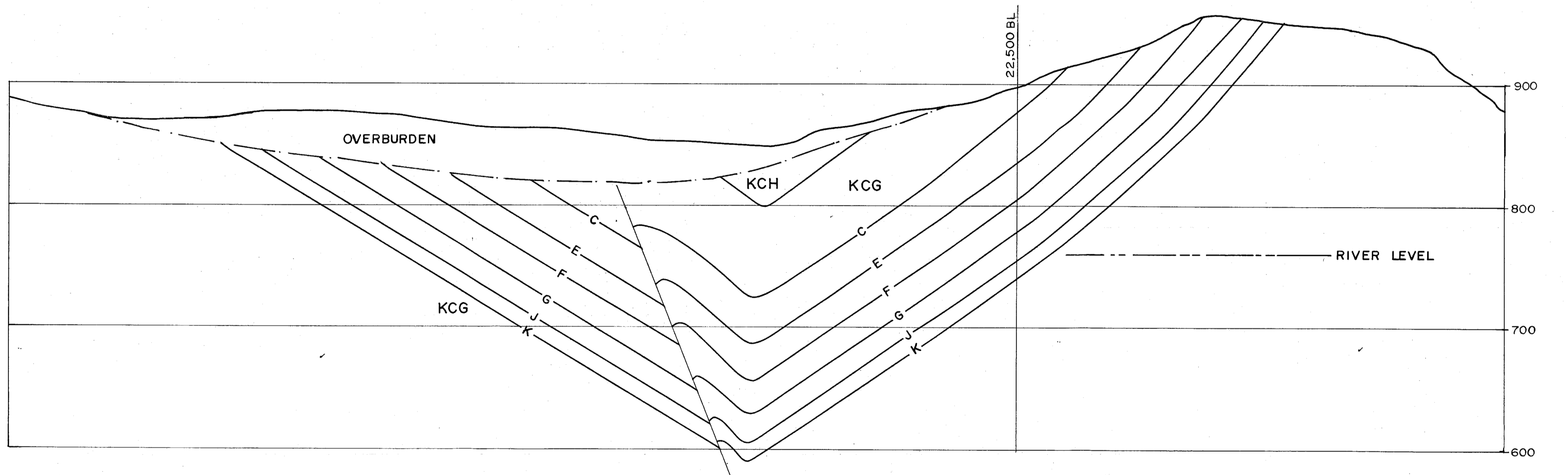
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1:2500	85-604-21-002	0



26,600



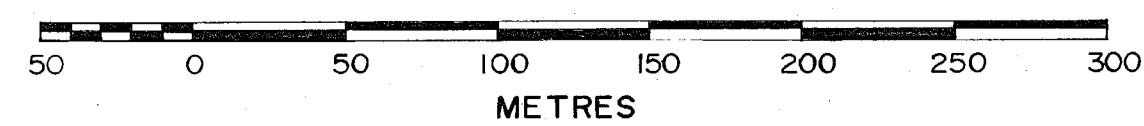
26,500



26,400

GEOLOGIC FORMATIONS	FORMATIONS
KS	SHAFTESBURY
KCB	BOULDER CREEK
KCH	HULLCROSS
KCG	GATES
KM	MOOSEBAR
KG	GETHING
KCD	CADOMIN
JKM	MINNES

- LEGEND**
- DRILL HOLE LOCATION (SECTION)
 - DRILL HOLE NUMBER
 - TOP OF DRILL HOLE
 - DRILL HOLE
 - SEAM DESIGNATOR (TOP OF SEAM)
 - BOTTOM OF HOLE
 - DIP
 - PROJECTED APPARENT DIP IN SECTION OF OUTCROP
 - TOP OF COAL SEAM
 - BOT. BOTTOM OF COAL SEAM
 - FAULT (WITH RELATIVE MOVEMENT)
 - AXIS OF ANTICLINE
 - AXIS OF SYNCLINE
 - GEOLOGIC CONTACT
 - OVERBURDEN

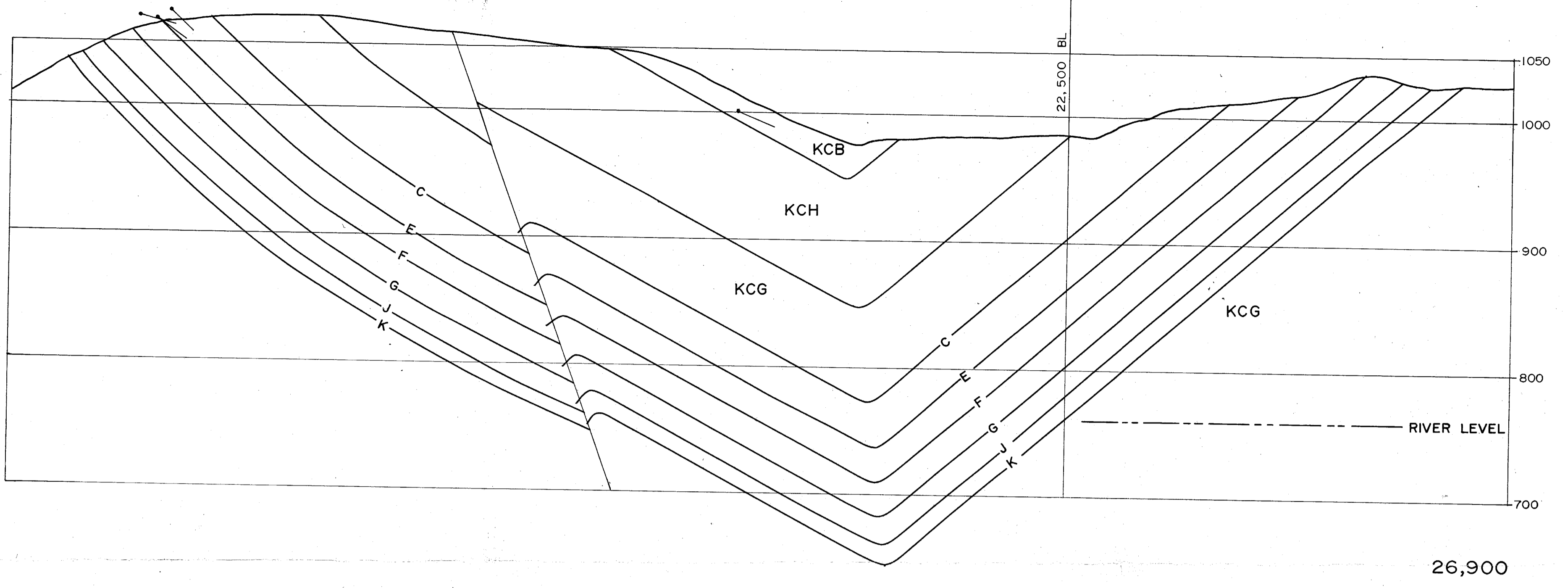


Rev.	D	M	Y	Revision Description	Drn.	Des.	App.
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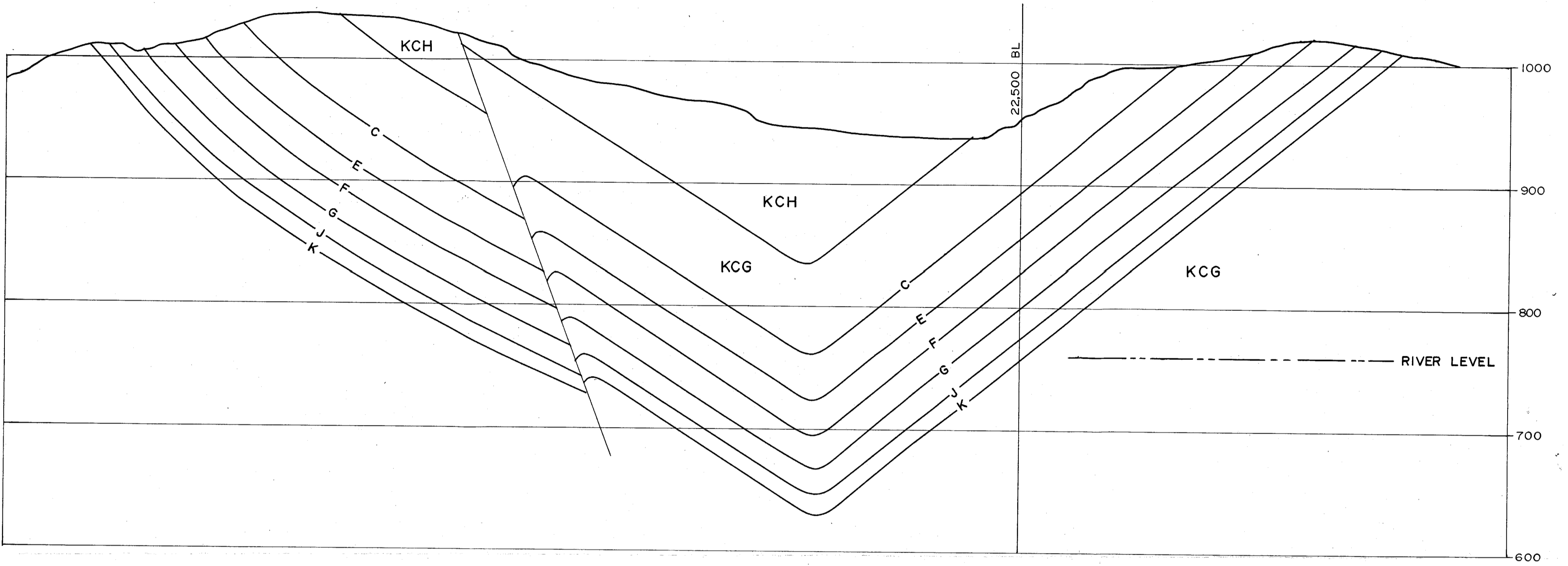
QUINTETTE COAL LIMITED
 Project Manager
DENISON MINES LIMITED
 COAL DIVISION PR-QUINTETTE 84(2)A

Area **HERMANN SOUTH** Category **CROSS SECTIONS**
 Drawing Title
HERMANN SOUTH CROSS SECTIONS
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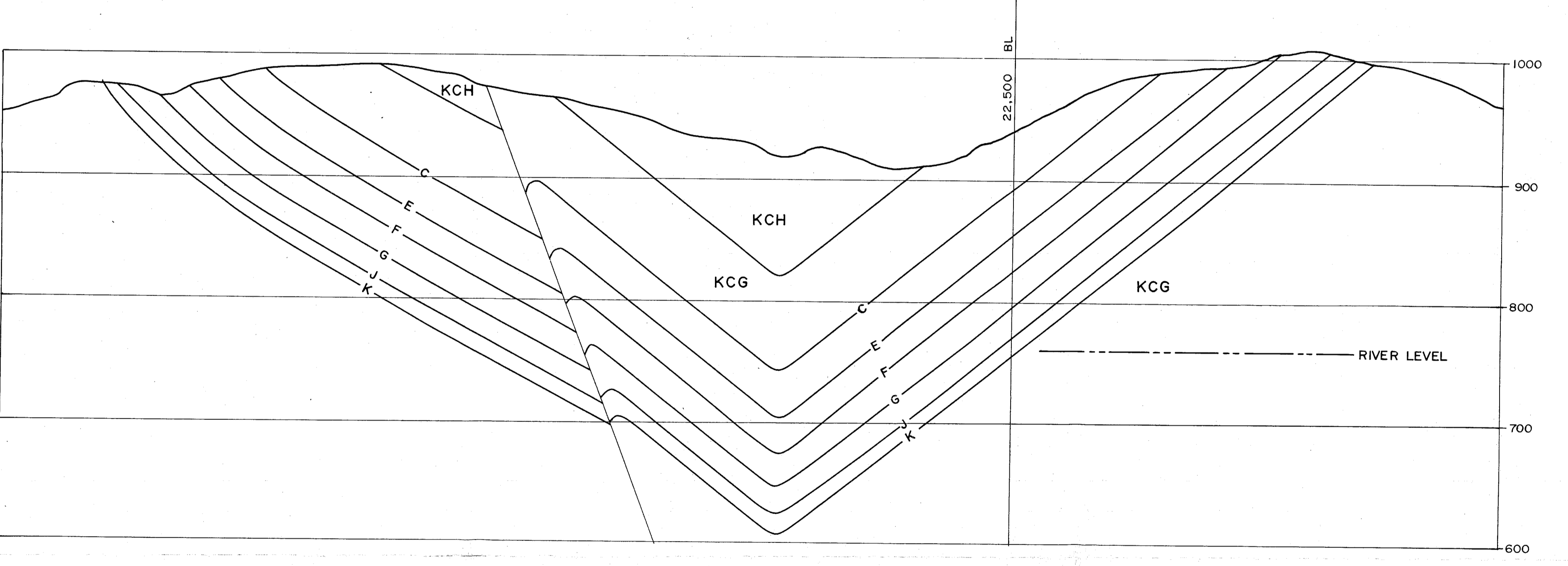
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26,900



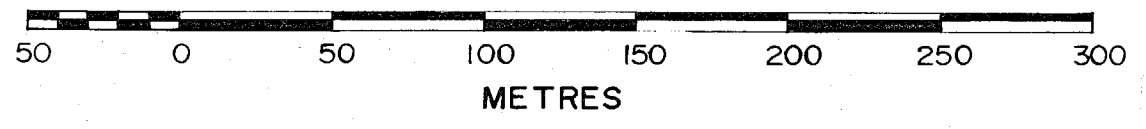
26,800



26,700

GEOLOGIC	FORMATIONS
KS	SHAFESBURY
KCB	BOULDER CREEK
KCH	HULLCROSS
KCG	GATES
KM	MOOSEBAR
KG	GETHING
KCD	CADOMIN
JKM	MINNES

- LEGEND**
- DRILL HOLE LOCATION (SECTION)
 - DRILL HOLE NUMBER
 - TOP OF DRILL HOLE
 - DRILL HOLE
 - SEAM DESIGNATOR (TOP OF SEAM)
 - BOTTOM OF HOLE
 - DIP
 - ↗ PROJECTED APPARENT DIP IN SECTION OF OUTCROP
 - TOP OF COAL SEAM
 - BOTTOM OF COAL SEAM
 - FAULT (WITH RELATIVE MOVEMENT)
 - ↔ AXIS OF ANTICLINE
 - ↔ AXIS OF SYNCLINE
 - GEOLOGIC CONTACT
 - OVERBURDEN



0	8	4	85	ORIGINAL DRAFT	DKM	DJ	DJ
Rev.	D	M	Y	Revision Description	Drn.	Des.	App.

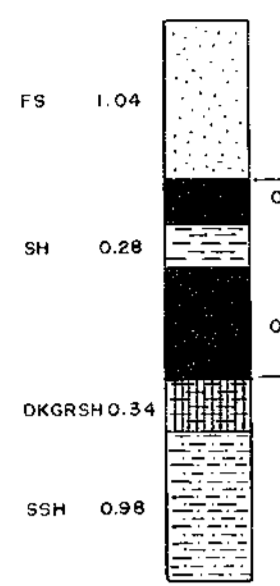
QUINTETTE COAL LIMITED
Project Manager
DENISON MINES LIMITED
COAL DIVISION PR-QUINTETTE 84(2)A

Area **HERMANN SOUTH** Category **CROSS SECTIONS**

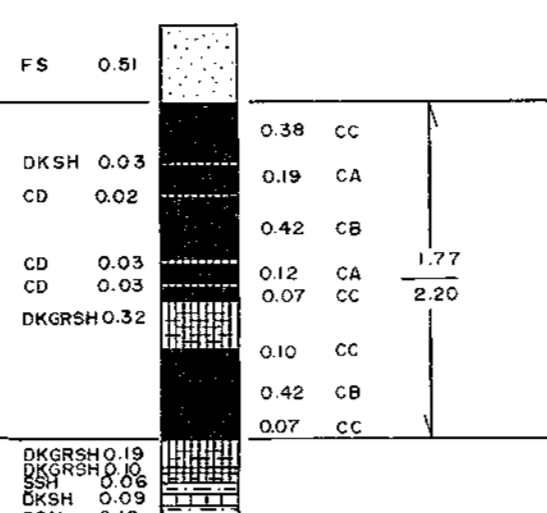
Drawing Title
HERMANN SOUTH CROSS SECTIONS **618**
26,700 26,800 26,900

Scale	Drawing No.	Rev.
1:2500	85-604-21-004	0

QHR 84018

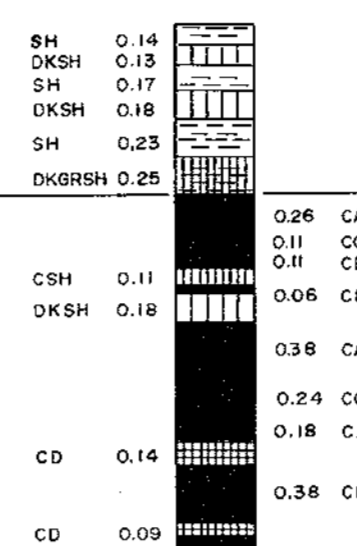
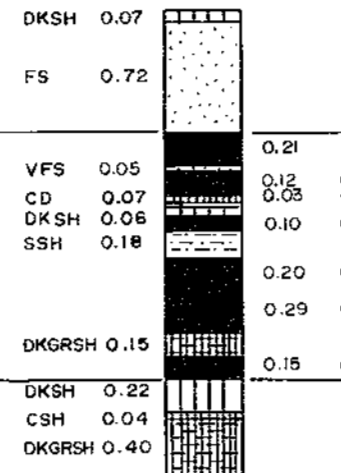
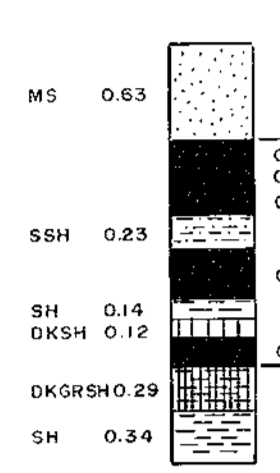


QHR 84028



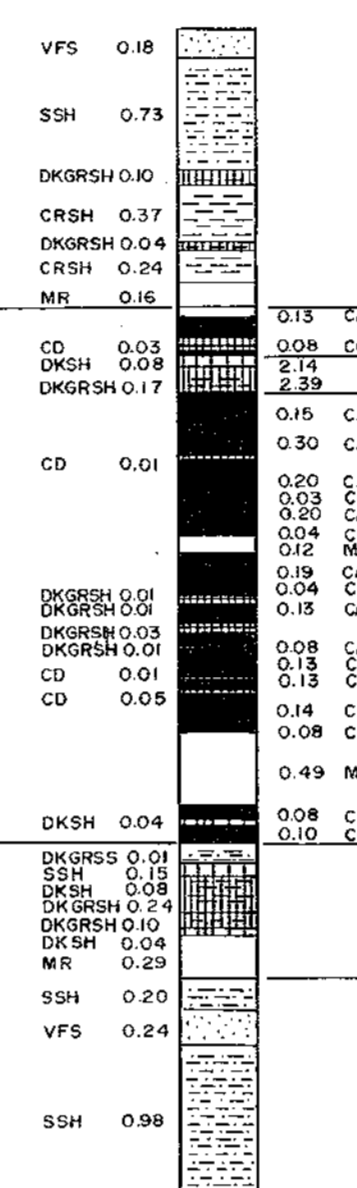
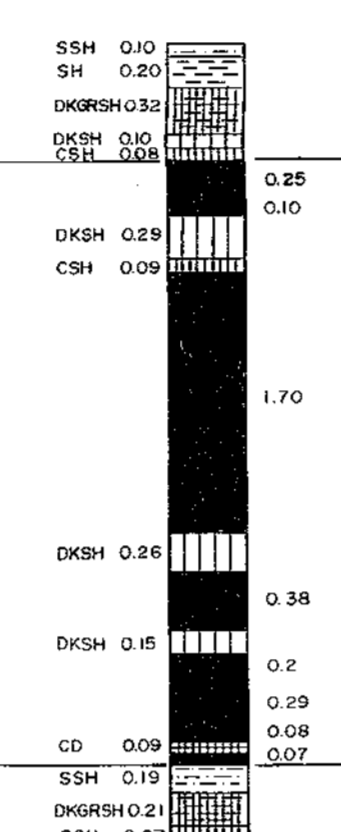
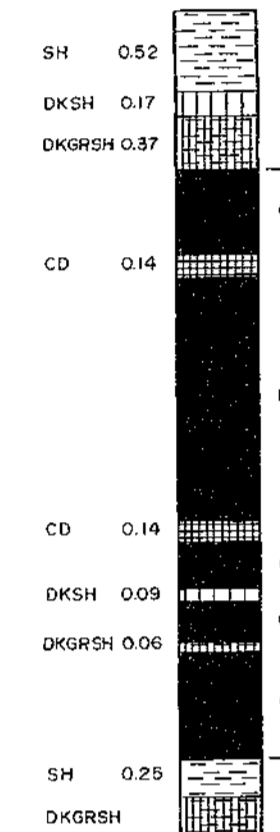
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QHD 84004

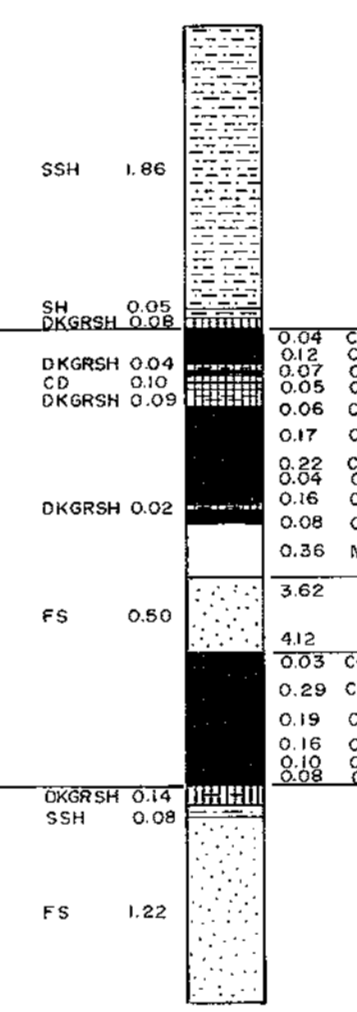
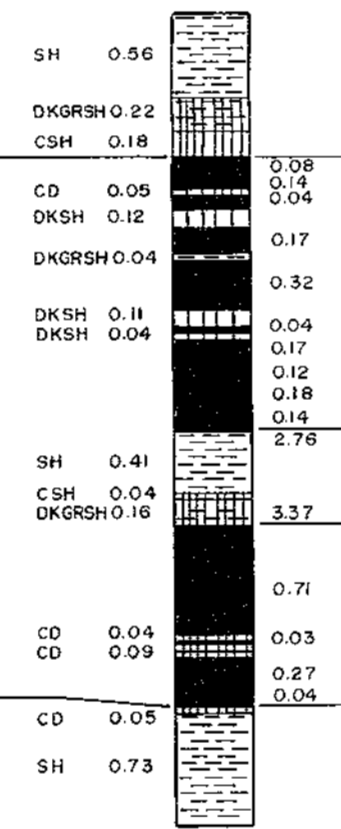
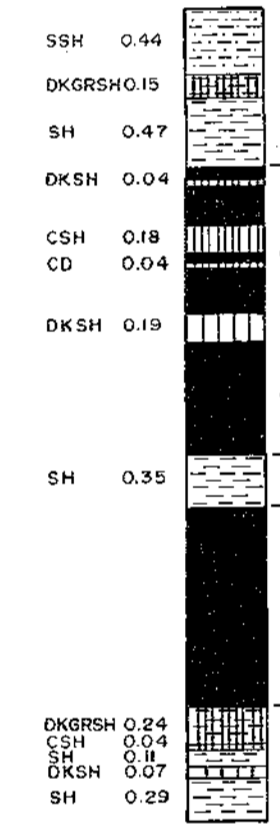


THIS SEAM WAS NOT CORED THIS DENSITY LOG THROUGH THE RODS CORING DID NOT START UNTIL JUST BELOW THE BOTTOM OF THE SEAM. AN ASSUMED DIP OF 37° WAS USED TO CORRECT TO TRUE THICKNESS.

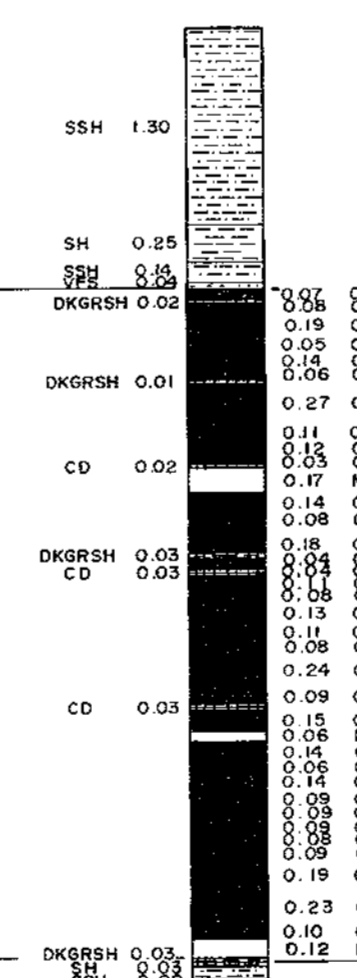
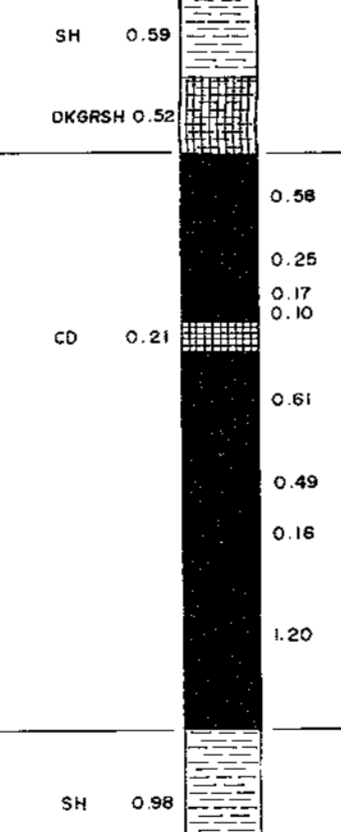
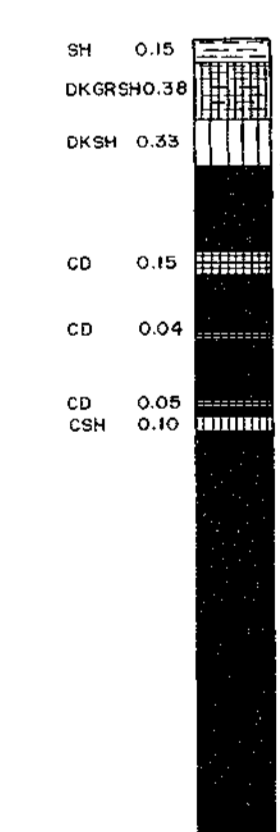
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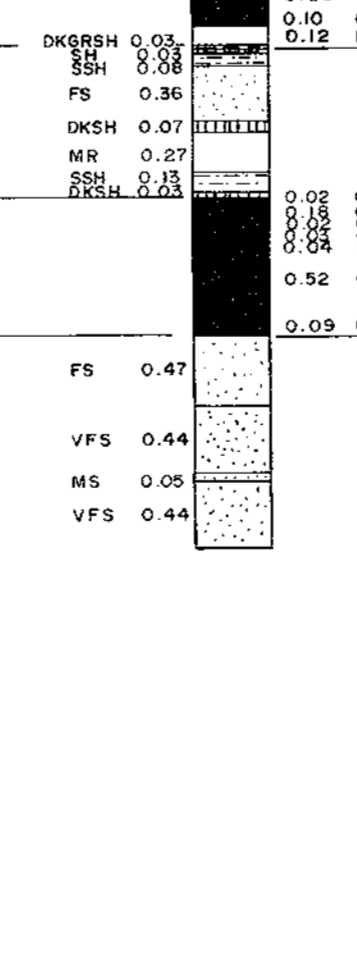
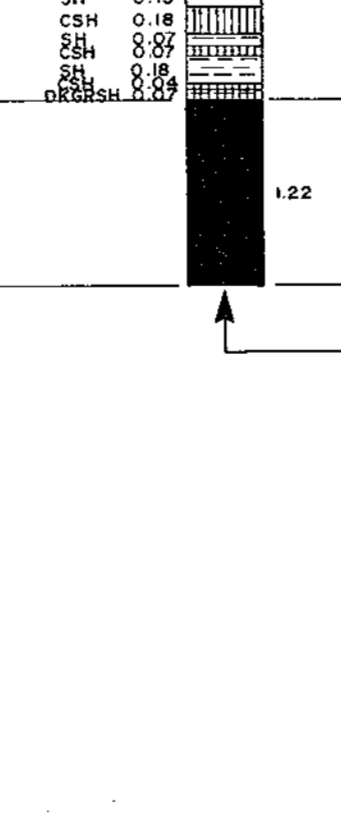
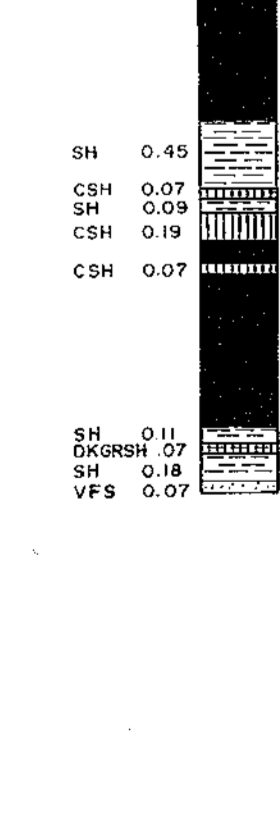
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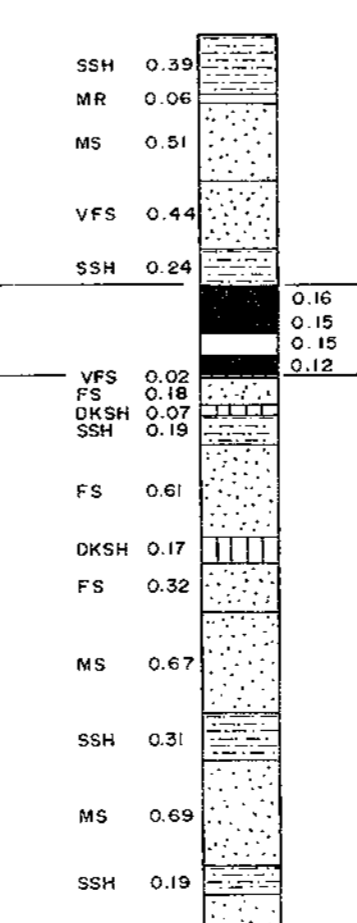
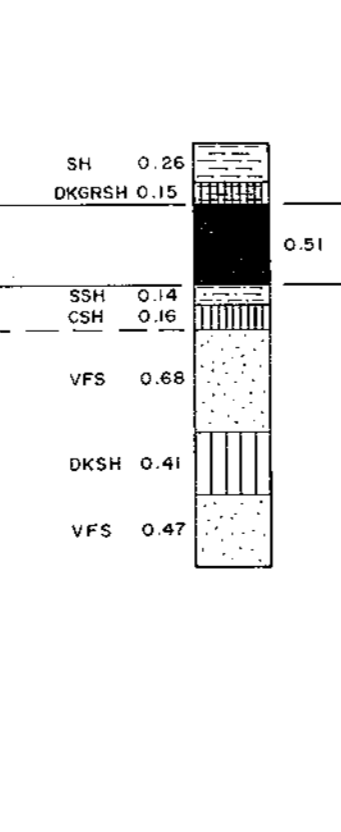
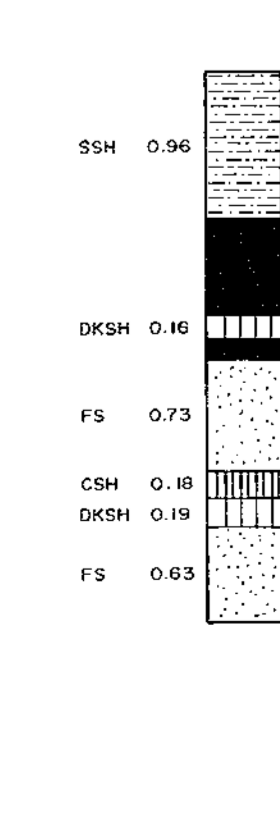
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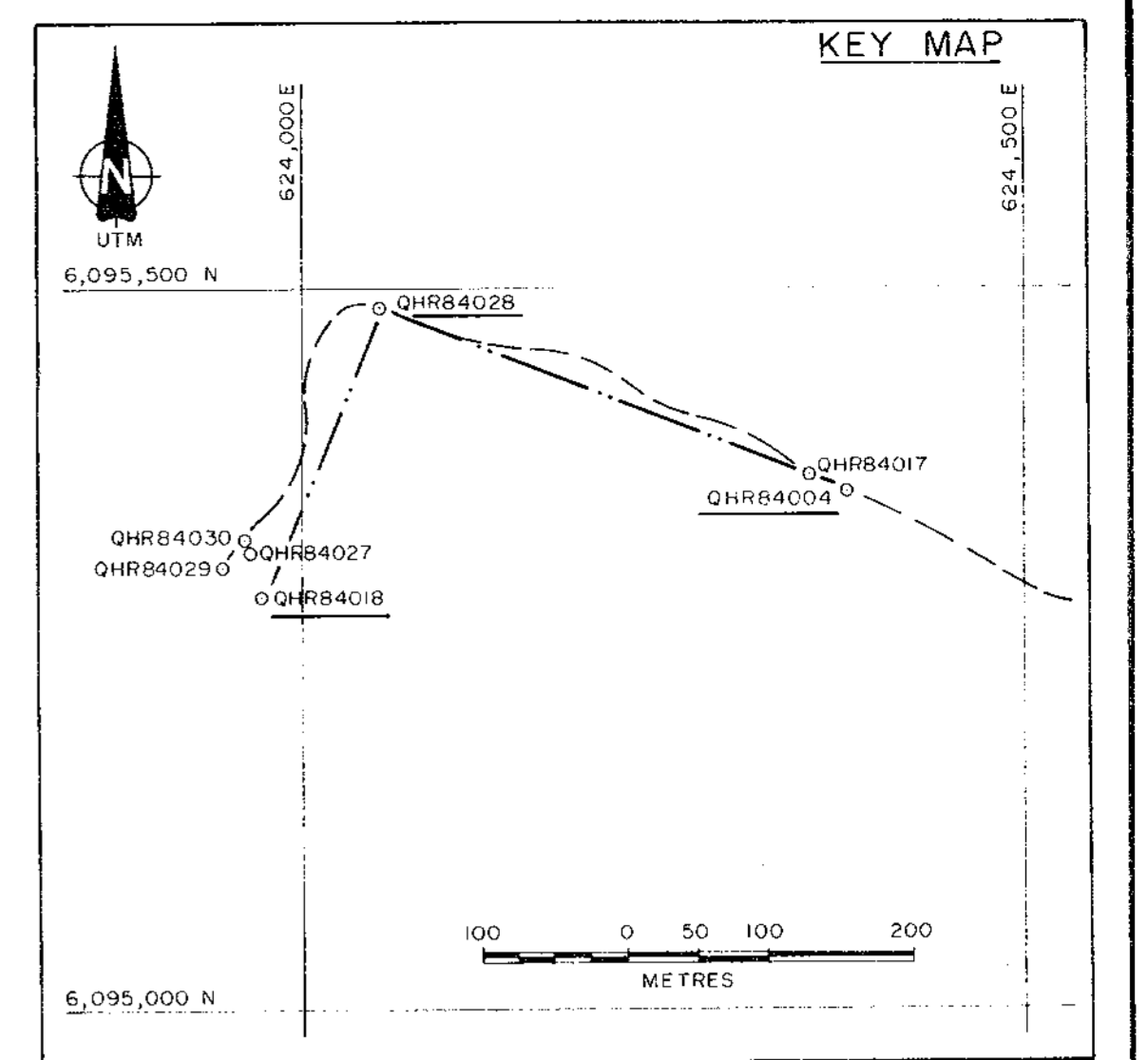
J1



J3



K



LEGEND

Table defining lithological symbols and rock types such as Conglomerate, Sandstone, Shale, and Coal with their respective symbols and ash percentages.

LITHOLOGIC SYMBOLS

Table defining lithological symbols and rock types such as Conglomerate, Sandstone, Shale, and Coal with their respective symbols and ash percentages.

Scale bar showing 0 to 4.0 METRES (VERTICAL SCALE ONLY).

Project information block including: ORIGINAL DRAFT, DENISON MINES LIMITED, COAL DIVISION, HERMANN SOUTH, SEAM CORRELATION, Drawing Title: HERMANN SOUTH 618 SEAM CORRELATION, Scale: 1:50 (VERT), Drawing No: 85-604-26-002, Rev: 0.

BOOK I

00618 PR 84(3)A

Quintette.

618