BUESOLE AND AGE TO THE PROPERTY OF THE PRINCE OF THE PRINC

397

TOTAL DEPTH

2085.6

220.4

CORE & COAL CORE DESCRIPTION

PROJECT EWIN PASS AREA S.E. B.C.

Aug. 21/80 BEGIN END Aug. 26/80

HOLE No. EP 101

4GE...... Of.....17...

HOLE PARTICULARS N 5,539,848.46 LOCATION E 660,809.06 HOLE BEARING (AZY) ELEVATION

HOLE ANGLE (*)* 90

Det Den of Coal Seams COAL CORING PERFORMANCE LOGGING Gamma Ray, Neutron, Den., Cal., LOGS RUN LOGGED BY Davies Expl.Logging Directional Survey OTHER **TESTS**

HQ 0-209. CORE DIAMETER CORE RECOVERED LENGTH CORED CORE RECOVERY %

EXAMINATION	
LOG USED	Gamma, Den.,
No. OF SEAMS SAMPLED	4
EXAMINER (S)	C. Beavan
DATE	Sept./80

ВОХ	BEFTH	D	EPTH			LITHO DESCRIPTION		SEAM	SAMPLE		ANALYTICAL DATA MOIST % ASH % V.M. % F.C. % F.S.I.						
No		FROM	1O	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG.	No.		1ST %	ASH %	V.M. %	F.C. %	F.S.1.	C.V.	REMARKS [†]
\vdash			ļ	<u> </u>			{°}	 	-	6.7.b.	residual	d.b.	d.b.	d.b.			
		0.00	10.24	-91	SST	fine to medium-grained, carbonaceous towards	70°			<u> </u>	ļ						
						bottom, broken	├—				 						
		10.24	FC.40	. 16	Shale	carbonaceous, broken	\vdash		·								
			30.10		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	CONTRACTOR DANIES	1										
	10.4																
\vdash		10.40	10.90	.50	Shale	as above	₩	ļ	<u> </u>		igwdown						
-		10 00	11.54	66	COT	fin be madden amade 3 1 - date 3	70°				-						
Н		10.90	11.34	1.04	221	fine to medium-grained, laminated, shale rip-up clasts towards bottom	70	 -	 		 						
		 -				SHATE TID-UD CLASES COWARDS DOLLOW		 							-		
	12.3																
igsqcup		12.30	12.75	,45	Shale	dark gray											
		12 75	13.01	26	0.0%					——	-				<u> </u>		
1,		12,/3	13.01	.26	221	medium grained, broken		 									
1		13.01	13.43	.42	SST	as above		 						· ·			
ļ	13.2																
┞─┤		13.20	14,65	1.45	Shale	dark gray, carbonaceous in places	-										
\vdash	14.9	 		-			-				-		-				
	19.3	14.90	16.86	. 96	SLTST	laminated, sandy in part, minor calcite-filled	450		 								
						fractures											
	17.1																
$\vdash \vdash$		17.10	17.24	-14	SLTST	as above		ļ	ļi								
1				H			 	-									
		17.24	20.04	2,80	SST	fine to medium grained, laminated and cross-	75°										
						laminated, partly broken, calcite-filled											
		 -		<u> </u>		fractures, coarser towards bottom											
 	20.1	 		-													
\vdash	40.1	20 10	21.50	40	SST	as above but generally medium-grained	70°				 	 			-		
4						as shore pur senerally mentum-statuse	70									-	
		21,50	22,05	.55	SST	as above											
\vdash	22,1	22 10	24.30	200	CCM		1 - 0				_						
 		42.10	24.30	2,20	221	medium to coarse-grained, coal stringers	45°					 					
\vdash	24.5	 									 						
		24.50	25.39	.89	SST	as above	60°										
					-												
				L													

ALL LINEAR UNITS IN METRES

^{# :} MEASURED FROM THE HORIZONTAL PLANE

A ANGLE MEASURED FROM CORE AXIS

^{1 :} R &/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

[•] RQD — ROCK QUALITY DESIGNATION (%)

ROJECT	EWIN PASS	HOLE No.	PAGE2
AREA		CONTINUED EP 101	OF

EDONG SEAM SAMPLE ANALYTICAL DATA HITHO DESCRIPTION DEPTH DEPTH REMARKS* ASH % V.M. % F.C. % F.S.I. d.b. d.b. F.S.I. MOIST % ANGLE DESIG No. AMPLIFIED LINCLUDE COAL RECOVERY FOR EACH SEAM) FROM Ю MAIN c.r.b. residual 25.30 25.63 .33 SST as above 55° 25.63 26.801 17 SST coarse-grained, 0.02 m shale at bottom 26.8 26.80 27.77 .97 SST. some shaley beds with slickensides. some coal stringers, some shale rip-up clasts at hottom 27.7 27.70 28.48 .78 SST some silty beds 28.6 50 28.60 29.43 .83 SST as above, calcite vein 29,43 29,61 ,18 Coal powder and rubble EP-10 5.99 0.68 4.61 29.0565.66 8 Yield 88% 79.9 29.90 29.97 .07 Coal rubble slickensides, broken 29.97 30.18 .21 Coal 30.18 30.40 .22 Coal dull with bright bands but mostly slickensides broken dull and bright but mostly slickensides, stick 30.40 30.64 24 Coal 30.64 30.71 .07 Coal dull, stick, pyrite slickensides, broken 30.81 30.95 .14 Coal dull and bright, broken 31.4 dull with bright bands, broken 31.40 31.64 .24 Coal 31.64 31.75 .11 Coal dull, rubble powder, some rubble, slickensides 31.75 32.04 .29 Coal 32.04 32.11 .07 Coal carbonaceous, stick 32.11 32,49 .38 Coal powder and rubble, slickensides 32 6 rubble, dull and bright 32.70 33.10 .40 Coal dull and bright, slickensides, broken, pyrite 33.10 33,56 .46 Coal dull, slickensides, broken, pyrite

ALL LINEAR UNITS IN METRES

1 := R&/OR 5 -- GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF - FRACTURE FREQUENCY

* ---- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS

OJECT	EWIN PASS	HOLE No.
REA		CONTINUED EP 101

PAGE__3_. OF.__17...

ВОХ	DEPTH	DE	PTH	\Box	[LITHO DESCRIPTION	A DON'T		SAMPLE				YTICAL				
1	AT .	FROM	,	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ARGE	DESIG.	No.		T %	ASH %	V.M. %	f.C. %	F.S.1	C.V.	REMARKS*
№	201	FROM	10	 	MAIN	AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)	(*)	ļ	<u> </u>	a.r.b.	residual	d.b.	d.b.	d.b.	7 (4)-1-	ļ <u></u>	<u> </u>
6	33.8						├	<u> </u>	<u> </u>	<u> </u>				ļ			ļ <u></u>
\vdash		33.80	34.13	33	Coal	dull, slickensides	\vdash	 		 -						-	 -
<u> </u>			 		-	-			\vdash	 					 	 	
		34.13	34.24	.11	Coal	powder .			_	<u> </u>							
Ш		21 21	2/ 5/						EP-10								
-		34.24	34.59	.35	Coal	dull with bright bands, pyrite, stick	├		21	3.46	0.57	2.66	28,92	67.85	8.5		Yteld 81%
\vdash		34.59	34.63	.04	Coal	rubble, slickensides	 `			 			 				
7		54.55				120010; Ottenbuotaco	† - -	 								 	<u> </u>
	Π	34,63	34.94	.31	Cost	slickensides, stick, dull and bright										İ	
Ш		3/ 0/	35.13)	Conl				\perp	<u> </u>						<u> </u>	
 -		34.94	35,13	- 15	COAL	powder and rubble, slickensides	 	\vdash	\dashv	-	}						
Н	35.4	 					 	\vdash	\dashv	ļ			-	 			
		35.40	35.91	.51	Coal	dull and bright, slickensides, broken	t				l		· · · · ·	_		İ	
			L	Ī													
H		35.91	36.26	-35	Shale	carbonaceous and stoney coal, broken	ļ	 		ļ				<u> </u>		 	1
 		36.26	36.45	10	Coal	rubble, dull		├─┤		 	 						
		30.20	20.42		COAL	rabbre, darr	 	 	-+-								
		36.45	36.53	.08	Coal	dull and bright, slickensides, broken	İ										
\square																	
┝╼┤		36.53	36.73	-20	Coal	powder and rubble, slickensides	1	-		<u> </u>	\vdash						
┤┤		36, 73	36.89	16	Cost	rubble, dull		├ ╼╼╾┤		 	 			\vdash			h
			30.03	**		130016. Gall											ļ- -
	36.9	- "															
\vdash		36.90	37.12	22	Coal	dull, slickensides, broken			\bot								
\vdash		37 12	37.25	13	Coal	dull and bright, slickensides, broken		-	\rightarrow		 						
\vdash		37.12	2/542	,,,	COAL	dail and bright, stickensides, broken										-	
		37.25	37.50	.25	Coal	rubble, dull and bright			V								<u> </u>
\longmapsto				<u> </u>					1								
} 		37_50	37,57	-07	Cosl	powder				ļ							
 	37.5	ļ ———			,	Log thickness 8.2		┤									
	77.5					Core thickness 6.77					 						
						Core recovery 83%					1						
 		0= =0	20.01														
┧		37.50	38.84	1.34	Shale_	dark gray, carbonaceous, coal lenses	ļ	┝╌┤		 -	 						
8			 -				 			 	1						-
		38.84	38.93	.09	Shale	-as above	 	\vdash			1						
\Box											11						
$\vdash \vdash \vdash$	39.2	20 20	40.00	,													
$\vdash \vdash$		<u> </u>	40.81	1.01	Shale	some silty beds	_60°	$\vdash \vdash \vdash$		ļ——							
	40.8		 					 		 -	 						
		40.80	41.59	.79	SLTST	light gray, calcite veins and filled fractures				 							
]					<u>†</u>									
$\overline{}$						<u> </u>	Ŀ	ıl		1.	£		L		. ,		; ,

ALL LINEAR UNITS IN METRES

† :=R&/OR S — GOLDER ASSOCIATES HARDNESS CODE =RQD — ROCK QUALITY DESIGNATION (%) A ANGLE MEASURED FROM CORE AXIS

	·		
PROJECT	EWIN PASS	HOLE No.	PAGE
AREA		CONTINUED EP 101	OF

вох	DEFTH	DE	PTH	_	,	LITHO DESCRIPTION			SAMPLE		ANALYTI		TICAL DATA V.M. % F.C. % F.S.I. C.V.				
	AT .			tH				DESIG	No.		T %	ASH %	V.M. %	F.C. %	F.S.i.	C.V.	REMARKS T
No.	1000	FROM		<u> </u>	MAIN		(*)			a.r.b.	residual	d.b.	d.b.	d.b.	14.1.		<u> </u>
8		41.59	42.35	.76	Shale	dark gray	 		·	<u> </u>							
		└			!		ļ	├			 			-			
	42.4	62.60	42 20	90	Chala	darker gray towards bottom	50°	 	-	 	┨				<u> </u>		
		42.40	43.20	.00	DUSTA	darker gray towards potcom	1 70	 	!	 	 		•				
9											<u> </u>						
		43.20	43.98	.78	Shale	as above	<u> </u>	<u> </u>					ļ,	ļ		L	
_		<u> </u>	 	_			-		├ ──-	 	<u> </u>			 	<u> </u>		
	43.9	62 00	15 52	1 63	Chala	as above with some coal lenses near top	75°		├─ ·					 		·-	
	-	43.90	43.33	1.00	SHELE	as above with some coal lenses hear top	 -/-/		 					····			
	45.4								<u> </u>								
		45.40	46.97	1.57	Shale	as above but lighter gray towards bottom	40°										
_		<u> </u>	<u> </u>	1	<u> </u>		 	 	├	-	ļi			<u> </u>	ļ		<u> </u>
	46.9	46 00	47.10	20	Shala	as above	+-	-		 	 		 	 		<u> </u>	
10		40.90	47.10	1 - 24	Spare	45 800VE	 	 	 	 	 						
•		47.10	48.52	1.42	Shale	as above											·
_						· ·	ļ		<u> </u>		<u> </u>						
_	48.5			<u> </u>	-		↓ —	<u> </u>	<u> </u>	<u> </u>	-	-			 _	<u> </u>	
		48.50	50.25	H - 75	Shale	as above, bottom 0.40 m rubble	+-	-	 	 	 	-			 		
	50.0	 			1		 		 	 				 			
	30.0	50.00	50.69	.69	Shale	dark gray	<u> </u>								i		
	50.6		ļ				↓		├ ──	ļ	 			ļ <u></u>	ļ		
11		50.60	50.83	-23	Shale	carbonaceous fracture planes	 -	├	├	 	}	-			}		
		50.83	51.03	.20	Shale	as above, minor calcite veins	 			 	}						
			i — —		I	1	!									•	
		51.03	51.13	.10	Shale	rubble, mixed shale and coal											7
		<u> </u>	ļ <u> </u>	-	<u> </u>	<u> </u>	<u> </u>	┞		├							
_	53.3	52.20	5/ 05	- 75	C1 - 1 -	carbonaceous		 	 	 	 				ļ		
		1.03.30	34.03	1 -/-	Share	caroonaceous	+	[┼─-		+				 		
		54.05	54.24	19	Coal	powder, some shale		l							<u> </u>		
								ļ	Ţ <u> </u>		ļ						
	54.6		<u> </u>	<u> </u>	ļ. <u></u>		↓—	ļ	ļ	 	 				ļ		
	-	54.60	54.90	1 .30	Shale	dark gray	1-		 	 	 				-		-
	-	54,90	55.18	. 28	Coal	mostly powder, slickensides	+	 	├	 	 						
_		7 170	1	1		mooti, power, orientates	1			1	1						
	55.2						Ţ	Ī			I						
		55.20	55.38	1.18	Shale	rubble, carbonaceous along broken surfaces	 		<u> </u>	!	<u> </u>						
	 -	F. C. O.O.	J	} -	C1 . 1	21	 —		 -		ļ				1		
	\vdash	33.38	1-22-7	1-37	a shale	dark gray	+	 	 -	1	1				 		
		55.70	55.78	.08	Shale	rubble, carbonaceous				 	1				l		^- "
		<u> </u>															
	ļ	55.78	56.08	, 3(Coal	mostly rubble and powder, slickensides											
	<u> </u>	Ł	L		{				1	1							

ALL LINEAR UNITS IN METRES

1 :- R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

*RQD — ROCK QUALITY DESIGNATION [%]

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

		_	
DJEÇT	EWIN PASS	Γ	HOLE No
REA		L	CONTINUED

ENO EP 101 PAGE 5...

вох	DEPTH .	DEF	PTH .	-		LITHO DESCRIPTION		CFAL	SAMPLE	ANALYTICAL DATA							
ا	AT TOPOS	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	% residual	ASH %	V.M. % d.b.	F.C. % d.b.	F,S,1.	C.V.	REMARKS'
No	80x	- KOM			777	AMILENTED PROCEDURE COME RECOVER TON ENCEL BERMY	1-1	<u>. </u>	L	0.r.b.	LANIGNOS	0.0.	0.5.	G.B.			
-11	56-1		56.21		2 1												
+	-	<u>>5.10</u>			Cost	as above, pyrite					 			-			
		56.21	57,24	1.03	Shale	dark gray, carbonaceous towards top,											
-						silty towards bottom	55°										
12														-			
		57,24	57.40	.16	Shale	carbonaceous											
_			Ĺ														
+	57-6	57.60	57 03	37	Shale	dark grav. carbonaceous in part.				 -				-		_	
_		37.00	37.33	.,,	SHAVE	slickensided fractures		-						 -			
		57.93	58.09	.16	Shale	carbonaceous and coaly											·-
_		58 09	58 43	34	Shale	dark gray	35♥										 -
						· · · · · · · · · · · · · · · · · · ·						-					
\Box		58.43	58.64	.21	Shale	carbonaceous and coaly											
- -	59.0		-								-			-	_	<u> </u>	<u> </u>
+	39.0	59.00	60.68	1.68	Shale	medium gray, silty in part	55°								-		
\Box					- Tital C	Media Andre Ottoria											
_	60.5																
-+		<u>60.50</u>	6187	1.37	Shale	as above	.50°										
13	-		•	-	-									-			
		61.87	62.25	-3,8	Shale	dark gray											
_																	
\dashv	62.2	62 20	62 31		Shale	as above											
+		92.20	02.31	•••	Share	28 40046	-										
\Box		62.31	62.60	29	Shale	carbonaceous and coal lenses, rubble						[
		(0.00	40.04									{		L			ļ
+		62.60	62.84	.24	Shale	dark gray					}			_			}
-t	62.8				-									-			
\dashv]	62.80	64.43	1.63	Shale	as above, becoming increasingly silty	50°										
	64.3															·	ļ <u> </u>
-+	04.31	64.30	65.75	1 44	SLTST	medium gray, becoming increasingly sandy,	40										
					UNIOI	laminated and cross-laminated, calcite veins.											
						coal-lined fracture surfaces, some with pyrite											
14			<u> </u>	<u> </u>					<u></u>								
**		65.75	65.86	.11	ŞLTST	as above, carbonaceous				-					\vdash		
					1.77.0.0							 j					
4	65.8				ļ <u>.</u>												
\dashv	 }	65.80	67.36	1.56	SST	medium gray, fine-grained, laminated and	30°				 						R3
+						cross-laminated, mud clasts in places, calcite-lined fractures and veins			<u> </u>								
-+				 		calcines ined tracinies and helps				-							·

ALL LINEAR UNITS IN METRES

T :+RB/OR S — GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

1	PROJECT	EWIN PASS	ſ	
	AREA		Ì	_

HOLE No. EP 101

PAGE_6 OF__17

BOX	DEPTH	DE	PTH		<u> </u>	LITHO DESCRIPTION	E SOUNC	SEAM	SAMPLE		ANALYTI			NALYTICAL DATA H WWM. % F.C. % F.S.I. C.V.				
No.	TOPOF BOX	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM	ANGLE	DESIG	No.	MOIS	T %	A5H % d.b.	V.M. % d,b.	f.C. % d.b.	F.S.I.	C.V.	REMARKS T	
Н	_	1 KOW			14/14/14	AMERICAN TO THE PROPERTY OF TH	1 (*)	ļ		3 a.r.b.	restauas	B.B.	0.0.	0.6.	 			
14	67.4	67.60	68.80	1 40	CCT	as above, coaly wisps at top	45°				 -			 		 		
		07.50			331]								<u> </u>				
	68.9															L	·	
\vdash		68.90	70,10	1.20	SLTST	medium gray, shaley towards bottom	50°	\vdash						-	-			
15							+	\vdash		 	-					 		
		70,10	70.51	41	Shale	silty in part												
<u> </u>				<u> </u>			1			ļ	<u> </u>			ļ		ļ <u>.</u>		
\vdash	70.4	70 40	71 92	1 52	Shale	as above	55°	H		 				 	-	 		
		70,40	7 \$ 1 2 2	1	SHATE	l as above	1 33			-·····································	····							
	71.9																	
<u> </u>	\vdash	71.90	73.47	1.57	Shale	as above	45°							├	-			
	73.5	· - · - · · ·					+				 			 		 		
		73.50	74.15	-65	Shale	carbonaceous, coal-lined fractures												
16															-			
1.10	74.1			-			+							 	-	-		
	7411	74.10	74.70	.60	Shale	dark gray	1									<u> </u>		
							$\overline{}$											
┝╼╌	747	7/- 70	76 38	1 68	Shale	calcite veins, minor carbonaceous zone.	∤							<u> </u>	}	<u> </u>		
┝╼╡		74.70	70.30	1.00	Jilaie	silty towards bottom	50°					-				 		
<u> </u>	76.2																	
├─		76.20	7777	1.57	Shale	as above	40°			<u>-</u>	1							
	77.7						+											
		77.70	78.06	.36	Shale	as above											· .	
17					<u></u>		-								 	ļ		
17		78.06	79 21	1 15	ር፣ ምርጥ	some shaley beds, some calcite veins	40°					-			·			
					ULIUI	Some Sharey Dens, Some Cartifle Verits	-90											
	79.2	-30-00	00.45	1 / 5	<u> </u>		1											
		79.20	80.65	4.45	Shale	dark gray, minor silty beds	+				1				-	<u> </u>		
	80.3					<u> </u>	 				\vdash			-	 	 		
		80.80	80.99	.19	Shale	as above	1											
<u> </u>		80 00	02 /0	4.7	SLTST	15-64	500											
		00.33	02.40	1.41	ŞĻISI.	light gray, laminated and cross-laminated, minor sandy beds, some calcite veins	50°				 				 			
							1				† 							
18	00.0																	
	82.3	B2 20	83 22	93	Shale	dark gray, minor silty beds	50°		ļ.——		 							
\vdash		ļ					1.30				 			ļ <u>.</u>	-			
		83.22	83.97	.75	SLTST	laminated and cross-laminated, some	40°											
				-		laminations hent and off-set along calcite												
L						veins		<u> </u>										

ALL LINEAR UNITS IN METRES

t: R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%) A ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	HOLE No. EP 101
AREA		CONTINUED EP 101

ANALYTICAL DATA MEDDING SEAM SAMPLE LITHO DESCRIPTION BOX DEPTH DEPTH ASH % V.M. % F.C. % F.S.I. REMARKS T MOIST % ANGLE DESIG No. AMPLIFIED LINCLUDE COAL RECOVERY FOR EACH SEAM! FROM TO MAIN d.b. | d.b. | d.b. (*) e.r.b. residual 82.3 82.30 83.751.45 Shale | some silty beds 83.80 84.38 58 Shale 84.38 84.84 .46 SLTST light gray, some calcite veins 19 84.84 85.39 .55 SLTST as above 85,30 86,891,59 Shale dark gray, silty towards bottom 86.9 86.90 88.501.60 Shale approximately one-third siltstone 88.4 88.40 88.79 .39 Shale | increasingly silty, carbonaceous wisps 88.79 88.87 .08 Shale as above 88.87 88.91 04 Coal dull and bright, stick 88.91 89.07 .16 Coal mixed coal and bone, rubble 89.1 89.10 89.20 .10 Shale coaly 89.20 89.24 .04 Coal slickensides, rubhle 89.24 89.44 .20 Shale | coaly and bone, stick 3.22 0.57 3.05 26.73 69.698.5 Yield 94% 89.44 89.65 .21 Coal dull and bright, stick 89.65 89.88 .23 Coal dull, stick, some slickensides 89.88 89.99 .11 Coal slickensides, rubble 89.99 90.09 10 Coal dull and bright, stick 90.091 90.451 36 Coat dull with bright bands stick pyrite EPIGH 4.38 0.59 3.53 26.3969.49 8 Yield 88% 90.70 90.84 .14 Coal rubble, slickensides 90.84 90.96 12 Coal dull and bright, stick 90.96 91.13 .17 Coal dull, broken

ALL LINEAR UNITS IN METRES

1 :- RA/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

*RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS

HOLE No. CONTINUED EP 101

PROJECT	EWIN PASS		HOLE No	
AREA			CONTINUED	

BOX	рерти	DE	TH		1	LITHO DESCRIPTION	₽ DORNO	. SEAL	CALLEY	,			YYICAL					1
No.	AT TOP OF BOX	FROM	τĢ	TH:	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	SAMPLI No.	MOIS e.r.b.	residuo		V.M. % d.b.	F.C. % d.b.	F .S. J.	C.V.	REMARKS *	
20		91.13	91.56	43	Coal	dull and bright, broken			<u> </u>]
				L	ļ. —		<u> </u>	ļ	ļ	ļ	↓						 	-
├─┤						Log thickness 1.8 Core thickness 1.57	 	<u> </u>	-	 	┼	 -		-				┪
						Core recovery 87%	<u> </u>	1.	<u> </u>		<u> </u>						<u></u>	1
\square				Γ			Ц_			Į	<u> </u>		[]
-		.91.56	91,58	-02	Shale	carbonaceous	 	-	EP 10	8,75	0.53	5.01	26.62	67.84	8.5		Yield 93%	┨,
		91.58	91.64	.06	Coal	bright, stick			24			310			3.3		11210 778	_
	01 7			<u> </u>			Ţ. <u> </u>		 	1	-	ļ						7
\vdash	91.7	91.70	91.74	.04	Coal	rubble	 		+	+	-	<u> </u>	 					┨
				Ι				<u> </u>	<u> </u>	1.								j
		91.74	92.43	.69	Coal	dull and bright, broken				Ţ]
∐		92 /3	92.40	76	Shale	carbonaceous	┼	}—	├──	┼	 	 		<u> </u>				┨
		76.9.	74.47		Suare	Carbonaceous		1.		<u> </u>	 	 						1
	93.0	00.00	20.11	,,			Д_		I	ļ								7
\vdash		93.00	93.11	417	Shale	slickensides	├ ──	 -	} -	 	╁	ļ	ļ <u>-</u>					4
		93.11	93.15	.04	Shale	rubble	┼	 	 	}	 -		 	<u> </u>	-			-
						<u> </u>											ļ]
21		93.15	93,39	-24	.Coal	duli, broken and rubble, slickensides	-			-	 	 	ļ				 	┥
		93 39	93.49	-10	Coal	bright with dull bands, broken				1	 		-					1
				1	1	<u> </u>]
┝		93.49	93.75	1.26	Coal	bone with bright bands, broken	├	 	1	 	 	 	<u> </u>				 	┨
		93.75	93.94	.19	Coal	powder and rubble, bone and coal	 	 	_	 	 -						 	1
																		1
├─┤	93.9	02.00	94.06	1		, , , , , , , , , , , , , , , , , , , ,	├ ──	├ -	-	┪	\ 	 					 	4
						nowder and rubble, bone and coal	 		 -	 	 							1
		94.06	94.10	.04	Shale	coaly]
H		01.70	94.18	<u> </u>	ļ. <u></u>		<u> </u>	├		 -	 	 -						4
		94, 111	- 32-18	1-08	Coal	bone and bright coal, stick			 	1	 	 -	 				 	1
		94.18	94.32	.14	Shale	coaly, mostly rubble				<u> </u>								1
├─┤	94.2		 	├	 		 -	 	-	 	 	ļ						4
	74.4	94.20	94.43	.23	Shale	carbonaceous and coaly, rubble	┼	 -	├─-	┧──	 - -	 						┨
		<u> </u>	<u>1</u>	1	1													1
}		94.43	94.91	48	Shale	dark gray, carbonaceous in places.	 	—	ļ	├ ──-	↓ .—				<u> </u>			4
				-	1	roaly slickensides		 	 	 	 - -	 	-				-	+
		94.91	95,41	.50	Shale	rubble and powder, mixed coal and shale		L										1
	95.4		 -		ļ		 	ļ										4
\vdash	73.4	95.40	96.42	1.02	Shale	carbonaceous in places	1 -	 -	 	 	 	}			 -		 	1
					- I	THE PARTY OF ALL PARTY OF												1
					1				}									
				_														_

ALL LINEAR UNITS IN METRES

t: *R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE *RQD — ROCK QUALITY DESIGNATION (%) ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	HOLE No.
AREA		CONTINUED EP 101

вох	DEPTH	DÉI	PTH		[LITHO DESCRIPTION	A DODING	SFAM	SAMPLE			ANAL	YTICAL !	DATA			Armanus t
No.	AT TOPOS	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGRE	DESIG	Nø.	MOIS	residual :	ASH %	V.M. %	F.C. %.	F,S.I.	C.V.	REMARKS *
	901	FROM	10		MAU	AMELITED (MOLDOL COAL RECOVERY FOR EACH DEPART	1 (-3			6.r.s.	Lessian of	6.5.	0, D.	q.o.			·
21	96.6	06.60	07.20	70	Shale		+						 				
		30.00	97.30	/4	Suare	as above_ coaly zones	-										
	97.2																
1 22		97.20	97.31	.11	Shale	dark gray	ļ				ļi			ļ			
22	-	97 31	97.39	Ω8	Shale	rubble and carbonaceous and coaly	 				 	<u> </u>		 			
		71,51	1 // . 3/	,,,,	O'MALC.	tabble and chipomaccoun and court	1						1				
\square		97.39	97.81	-42	Shale	carbonaceous											
\vdash		07 01	98,04		Cool	dull and bright, broken		\vdash			 						
 		7/101	70,04	2 .	GOAT_	dull and bright, broken	1	Н									
		98.04	98.24	,20	Shale	carbonaceous											
\Box			ļ														
┝╼┋	98.5	00 50	99.00	50	Chalc	minor coal lenses	+	\vdash	 -	}	-	<u> </u>	 -	- 	ļ		
		70.30	37.00	.30	DUATE	minor coar renses					 - 		 	<u> </u>			
	99.1																
$\vdash \vdash$		99.10	100.66	1.56	Shale	as above	₩				 						
┝	100.6				<u> </u>	<u> </u>	ļ	 					 				
	100.5	100.60	101.62	1.02	Shale	coal-lined fractures towards top	 							_			
23							-	igwdot					├				
		101.62	102.19	.57	Shale	dark gray	+				 	-					
	102.1										<u> </u>						
		102.10	103.73	1.63	Shale	as above											
\longmapsto							↓										
\vdash	103.6	103 60	104 24	6/	Shala	as above, carbonaceous at bottom	-										
			1	ì	ì		1				<u> </u>		i				
		104.24	104.60	.36	Shale	carbonaceous shale and coal mixed in rubble	ļ.,				ļ	<u> </u>					
$\vdash \vdash \vdash$	101		├	} -	 		+			<u> </u>	 -	ļ_—	 		├		
\vdash	104.5	104.50	105.17	.67	Shale	dark gray	┿			-	 		 -		 		-
					<u> </u>												
]]		105,17	105.33	.16	SLTST	light gray, laminated	60°	Ш			<u> </u>						
24		105.00	105.04		ar mar		55°	$\vdash \vdash \vdash$		1							-
\vdash		105.33	103.84	1.21	SLIST	as above, increasingly shaley	1 33.	Н			 -		 		 		
		105.84	106.04	.20	Shale	dark gray											
			L				lacksquare										
	106.1	106 10	107.40	7 30	Ch - 1		60°						ļi				
\vdash	<u> </u>	100.10	1107.40	u Ju	Snare	as above, some silty zones. large calcite-filled fracture in middle	00.	\vdash			-	 					
						Targo Careria IIII III II MIGUIE				<u> </u>	ļ						
		107.40	107,61	.21	Coal_	rubble, slickensides						<u> </u>					-
		107 61	107 33	ļ	0.1	Į ·					 		1		 	<u> </u>	
 	\vdash	170/107	10/.//	1-16	Shale	dark gray, coal lenses with pyrite	1	 					 		 -		
ட	L	L	<u> </u>	i	L	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u>L</u>					<u></u>

FF --- FRACTURE FREQUENCY

ROJECT	EWIN PASS	HOLE No.	Dn 101	PAGE 10
AREA		CONTINUED	EP 101	OF1/

ВОХ	DEFTH	DE	PTH	T		LITHO DESCRIPTION	T DOWN	SFAL	SAMPLE			ANAL	AZITY	DATA			
No.	TOP OF BOX	FROM	70	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MO:3	residual	ASH %	V.M. %	f.C. % d.b.	F.S.1.	C.V.	REMARKS *
·	107.7	7.000	 	+	1017-121-0		1	<u> </u>	1	1 0,1,0.	Seriona)	0.0.	0.0.	0.0.			<u></u>
24		107.70	107.80	16	Coal	rubble _		 									·
			<u></u>	<u> </u>						<u> </u>							
\square		107.80	108.38	1.58	Shale	highly carbonaceous, coal-lined fractures	 	<u> </u>	L								
$\vdash \vdash \vdash$		108.38	109.33	99	Shale	less carbonaceous with scattered coal lenses				 -		 	 				
			L	!	i	1002 SWAYONSOVOUS 4111 SCREENING CONT. 1011010			EP101	7.69	0.55	2.94	23.71	72.80	5		Yield 86%
		109.33	109.40	-0.7	Coal	rubble	lacksquare	6	25		ļ			Ļ.		<u> </u>	
25	109.4		-	1						- -				 			<u></u>
		109.40	109.47	.07	Coal	dull slickensides broken			¥						_		
\vdash					[lacksquare										
┝╌┤		109.47	109.58	1-11	Shale	carbonaceous	├─	 -	10143	9.09	0.49	3.85	25.32	70.34	Я		Yield 67%
		109.58	109.67	.09	Coal	dull and bright, stick	İ		26				23.30	70,34	<u> </u>		TICIU 0/A
				į .	<u> </u>				-								
┝╼┤		109.67	109.79	-12	Coal	slickensides. dull, stick	\vdash		 	 		ļ		 -			
		109.79	109.92	.13	Coal	dull with bright bands, slickensides, broken				-	-						
			<u> </u>	I	İ												
├─┼		109.92	110.26	34	Coal	dull and bright, broken, some slickensides	} -			<u> </u>					_		
		110.26	110.43	.17	Coal	rubble and powder, dull	 			 -							
				\vdash													
╁ ┈╏	110.6		110.62	 _		dull, broken	1			 _	 					-	
		1111,01	114.67	1 - 102	Loal.	ouii broken	 			 - -		L -			-		 -
						Log thickness 1.2											
┥				├		Core thickness 1.12	 			ļ							
				\vdash		Core recovery 93%	┼										- -
		110.62	110.79	17	Shale	dark gray, carbonaceous with coal lenses											
 {		110 70		<u>. </u>			1 (00										
		170.14	111.40	-5.	SLIST	light gray, minor calcite veins	60°			-			-				 -
	111.6	-															
\longrightarrow		111.60	112.32	72	SLTST	as above, shaley in part with coaly lenses	55°			, .							
┝╼╌┤	112.5			\vdash			┼				-						
			112.8	.31	SLTST	as above	30°										R4
]		<u> </u>	700								_		
\vdash		112.81	117.8	ur.og	Shale	some silty beds	60°				-						
26							 										
igsqcut		113.81	114.0	.26	Shale	dark gray											
\vdash	114.0		 	1	├		 -	 									
	1197	114.00	114.79	. 75	Shale	as above	1-			<u> </u>		<u> </u>					
}			 	1	·		<u> </u>										
Щ.		<u> </u>	<u> </u>	1	<u> </u>	<u> </u>	l .						ļ į				

ALL LINEAR UNITS IN METRES

f :=R&/ORS — GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION [%]

FF --- FRACTURE FREQUENCY * --- WASHED TO S.G. 1.5 A ANGLE MEASURED FROM CORE AXIS



DJECT	EWIN PASS	HOLE No.
REA		CONTINUED EF 101

DEFTH No. DEFTH TH MAIN AMPLIFIED[INCLUDE COAL RECOVERY FOR EACH SEAM] MOST Most M	
26 114.9	REMARKS*
114.90 116.151,25 Shale some coal-lined fractures	
116.10 117.32 12.27 Shale dark gray	
116.10 117.32 12.27 Shale dark gray	
117.32 117.51 .19 SST fine-grained, light gray 117.70 118.17 .47 SST some well-laminated and some more massive 45° 118.17 119.291.12 SST as above, some silty beds 50° 119.72	
117.7	
117.70 118.17 .47 SST some well-laminated and some more massive 45°	R4
117.70 118.17 .47 SST some well-laminated and some more massive 45° 118.17 119.291.12 SST as above, some silty beds 50° 119.20 120.701.50 SST as above, some calcite veins and fracture 55° fillings 60° 120.7	+
119.70 120.70 1.50 SST as above, some calcite veins and fracture 55° 120.70 121.42 .72 SST fine-grained 60° 121.42 122.28 .86 SLTST medium gray, sandy in part 122.28 123.781.50 SLTST shaley in part. laminated and cross-laminated 60° 123.7	
119.70 120.70 1.50 SST as above, some calcite veins and fracture 55° 120.70 121.42 .72 SST fine-grained 60° 121.42 122.28 .86 SLTST medium gray, sandy in part 122.28 123.781.50 SLTST shaley in part. laminated and cross-laminated 60° 123.7	
119.20 120.70 1.56 SST as above, some calcite veins and fracture 55° fillings 120.7	
120.7 129.70 121.42 .72 SST fine-grained 60° 121.42 122.28 .86 SLTST medium gray, sandy in part 122.28 123.781.50 SLTST shaley in part, laminated and cross-laminated 60° 123.7 123.70 125.211.51 SLTST as above, both shaley and sandy in part 50° 125.3 125.30 126.6Gi.3G SLTST as above 60° 60° 29	+
120.70 121.42 .72 SST fine-grained 60°	
120.70 121.42 .72 SST fine-grained 60°	
121.42 122.28 .86 SLTST medium gray, sandy in part	+
122.28 123.781.50 SLTST shaley in part. laminated and cross-laminated 60°	
122.28 123.781.50 SLTST shaley in part. laminated and cross-laminated 60°	
123.70 125.211.51 SLTST as above, both shaley and sandy in part 50° 125.30 126.601.30 SLTST as above 60° 29	+
123.70 125.211.51 SLTST as above, both shaley and sandy in part 50° 125.30 126.601.30 SLTST as above 60°	1
123.70 125.211.51 SLTST as above, both shaley and sandy in part 50°	
125.3	+
125.30 126.6d1.30 SLTST as above 60°	
29	
29 126.60 127.00 .40 SST fine-grained, calcite-filled fractures	
126.60 127.00 .40 SST fine-grained, calcite-filled fractures	
	1.
126.80 128.301.50 SST increasingly coarser grained, calcite-filled 60°	
126.80 128.301.50 SST increasingly coarser grained, calcite-filled 60° fractures, shale rip-up clasts in one place	R3
128.30 129.861.56 SST medium grained, calcite-filled fractures.	
128.30 129.861.56 SST medium grained, calcite-filled fractures,	+
	<u> </u>
129.8	
129.80 130.46 .66 SST coarse grained, cross-laminated 60°	+
130.46 131.36 .90 SST as above, coal-lined fractures 55°	R4
	1
131.4	
131.40 132.851.45 SST as above, coal wisps and stringers	+
	1
	T

ALL LINEAR UNITS IN METRES

1:=R&/ORS — GOLDER ASSOCIATES MARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

			_		
SUECT	EWIN PASS			HOLE No	. 101
REA		· 		CONTINUED	101

PAGE 12... OF 17

BOX	DEPTH	DE	PTH	1	T	LITHO DESCRIPTION	A DON'S	CFAN	SAMPLE			ANAL	TICAL	DATA			
- 1	AT TOPOF	FROM	TO	TH:	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS		ASH % d.b.	V.M. % d.b.	f.C. % d.b.	F,S.1.	C.V.	REMARKS*
No.	90×	FROM		-	MASIN	AMPERIED (INCEDE COAL RECOVERT FOR EACH SEAM)	{** _}	}	<u> </u>	a.r.s.	residual	a.b.	O. B.	a.b.	<u> </u>	 	
30	132.7	-				/* *** · ***	<u> </u>	<u> </u>						 	 	-	- -
		132.70	133.62	.92	.sst	as above, some pebble zones	-	 		 -	 			}	-		R4
+		133.62	134.07		Shale	dark gray, some silty beds, some coal	60°		 	 				 		 -	ļ
		133101	134101	- 7.5	- Ond IC	lenses at bottom		1						 			
															İ		
\Box		134.07	134.28	.21	SST	coarse-grained, some coal lenses		<u> </u>	Į					ļ		ļ	<u> </u>
			<u> </u>		<u> </u>	· · · · · · · · · · · · · · · · · · ·		<u> </u>		ļ <u>-</u>	1				-	ļ	ļ
	134.3	10/ 00	134.52	-	200		_	├		 				<u> </u>			<u> </u>
+		134-30	134.34		221	as above, increasingly carbonaceous	 	 	 	 	 			 			
31										t — —	!	$ \dashv$		<u> </u>	_		
		134.52	135.56	1.04	SST	pebble beds with pebbles up to 4 mm.											
						coal stringers and wisps		Ĺ	<u></u>		<u> </u>						
			<u> </u>	 		-	-	 -		-	1			 	-		
\dashv	135.6	125 (2	137.10	, ,	ė com		60°	 -		 	 			_	 		
		133.50	1.3/2.41	بالتستا	35T.	coarse-grained, increasingly carbonaceous with coal stringers and wisps towards bottom	- 00	 	 	 					 		
1	137.2					-	[
		137.20	138.76	1.56	SST	as above, some pebble beds, some finer-	50°	L							ļ		
						grained beds, carbonaceous in part	-	 	<u> </u>						ļ		
32	—- 		-							 -]		
	138.7								 	 -	 -				 		_
~		138.70	139,15	.49	SST	as above, pyrite associated with coal								 -			
										<u> </u>							
-	139.1							<u></u>									
\dashv		139,10	139.63	.53	SST	pebble bed at top ,								ļ	<u> </u>		
-				ļ		medium to coarse grained at bottom	75°	├	-	ļ. <u> </u>					}—		
		130 63	140.50	87	SITST	laminated	55°		-								
	_	207.03	140.20		SELET	TBMITTALLU	-22										
	140.5									<u> </u>					<u> </u>		
		140.50	142.04	1.54	SLTST	as above, some sandy beds	70°										
-				 -			ļ	<u> </u>	-	├ ——	 			<u> </u>		-	
\dashv	142.0	1/0 00	1/0//				/				 				_		
33		142_00	142,62	1 h2	SI.TST	as above	65°	-		 	 -			-	├──-		
-33		142 62	762 14	5 2	CITCT	as above	700		1	 						 -	
			1,011	1.70	0												
		143.15	143.43	.28	Congl.	pebbles to I cm. also medium to coarse-grained											
<u>_</u>	∤		1			sandstone		<u> </u>		<u> </u>					<u> </u>		
	143.6			-			_			 	├ ─						·
		143 60	145 16	1 56	Congl.	as above, some coaly fractures,	├	-	-	 -							R3
1		142.00	1-7-10	1	CONTRACT	some coal stringers and wisps	 		 -		 i			-	 		
						SAME AND ASTRUCTO OUR MICHO		<u> </u>		 	·	i					
	145.1						İ										
Į		145.10	147.00	1 90	Congl.	as above, in places altering conglomerate and sandstone beds, some pebbles up to 3 cm (some	55°										
1			į	ĺ]]	sandstone beds, some pebbles up to 3 cm (some		}									

ALL LINEAR UNITS IN METRES

1 :- R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

-RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	HOLE No.		PAGE
AREA		CONTINUED	EP 101	OF:

вох	OEPTH	DE	PTH	1		LITHO DESCRIPTION	FDDING	SEAM	SAMPLE				YTICAL				********
	AT TOPO	FROM	to	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGRE	DESIG	No.	MOIS	residual		V.M. % d.b.	f.C. % d.b.	F.S.1.	C.V.	REMARKS*
No	101	PROM	,,,	 	MARKET	AMPERICO TRECODE COME RECOVER TOX EACH SEALING	<u> </u>	ļ		0.1.5,) residual	a.b.	д.в.	а.в.			
34		777 00	7/0 10		2 1							<u> </u>			 -	<u> </u>	
┝─┤		14/.00	148-10	4.4	Congl.	conglomerate beds graded - coarse at bottom grading smaller upwards, some coal stringers	70°				-					 -	
<u>- </u>						and lenses in places											
				Ī													
	148.1																
		148,10	150.39	2.29	Congl.	as above but no coal	—	\vdash							ļ	 	
		150 20	150.89	50	CCT CCT		├								 	-	
-		130,139,	120.03	-24	331	coarse-grained, scattered pebbles	 	1						-			
	151.2																
		1520	151.58	.38	SST	as above											
				<u>, </u>		· · · · · · · · · · · · · · · · · · ·		-			<u> </u>				 	<u> </u>	
35) E) E O	150 55	ļ	SS/Cong		-	 			-				 -	 -	 • • • • • • • • • • • • • • • • • • •
\vdash		121.58.	153.15	u.57	SS/Congl	alternating sandstone/conglomerate beds, each averaging 0.2 m	 	 -						-	 		
							<u> </u>										
		153.15	154.01	.86	Shale	dark gray											
				ļ			<u> </u>	\vdash							ļ		
	154.1	167 10	155 06					 							ļ		
\longrightarrow		154.10	133.96	1.80	Shale	as above, minor slickensides	 	\vdash			-				 		
1		155 96	157 13	1 17	Shale	as above, some silty beds, minor coal lenses .	50.9	-							 		
						** ******* ***** ***** ****** ********						<u> </u>					
	157.0		7														
\vdash		157.00	157.76	.76	Shale	as above	ļ	ļ							ļ		
├─		157 26	150 56		SLTST		55°	\vdash			 		ļ <u>.</u>		 -		
-		157.76	134.36	- 80	SLIST	some shale and sand beds.	1 55-	\vdash				-		-	├		
				 			 -			-							
		159.56	160.53	.97	Shale	dark gray, some siltstone beds	55°								<u> </u>		
					-		<u> </u>										
37	160.2						 	}		<u> </u>	ļi				ļ		<u>.</u>
\vdash		150,20	163.18	Z.98	Shale	as above	60°		-		 -				├		
\vdash	163.4				\vdash						 						
		163.40	164-61	21	Shale	as above, becoming increasingly silty											
$\perp \downarrow$																	
38		* 4 4 4 =									ļ						
┝┥		164.61	166,42	1-81	SLST/SH	alternating beds of 0.3 m					 		ļļ		ļ		
$\vdash \vdash$	166.4			 		· · · · · · · · · · · · · · · · · · ·	 	 		 		 			├		
			168-91	2.51	SLST/SH	as above, becoming increasingly shaley towards	50°								<u> </u>		
						'bottom.											
		<u> </u>	ļ <u>-</u>	<u> </u>	 												
39		160 ==		-	 -	<u> </u>	-	<u> </u>			ļ				<u> </u>		-
┝┈┥		<u>168.91</u>	169.17	-26	SLST/SH	as above		 		ļ	 						
	169.5						 				 						
			171.20	. 70	SLTST	medium gray, laminated and cross-laminated	45°	<u> </u>							<u> </u>		R3
ĮΠ		i]		medium gray, laminated and cross-laminated, calcite veins and filled fractures, some fine-grained sandy beds											!

ALL LINEAR UNITS IN METRES

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^{1:} REFOR 5 -- GOLDER ASSOCIATES HARDNESS CODE *RQD -- ROCK QUALITY DESIGNATION (%)

DE ANGLE MEASURED FROM CORE AXIS

_		
PROJECT	EWIN PASS	HOLEN
AREA		CONTINUED

OLE No EP 101 OF....

ВОХ	DEPTH	DE	PTH			LITHO DESCRIPTION		NG SEAM SAM				ANAL	YTICAL	DATA			
	AT		10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS			V.M. %		F.S.I.	C.V.	REMARKS*
No	TOP OF BOX	FROM	10	ļ	MAIN	AMPLIFIED (INCESSE COAL RECOVERT FOR EACH SEAM)	(*)	ļ		a.r.b.	residual	d.b.	d.b.	d.b.			ļ <u>_</u>
39	171.9						⊥ _			1			<u> </u>		<u> </u>		<u> </u>
\vdash		171_90	173.57	1.67	SLTST	as above, increasingly shaley towards bottom	_50°	 	<u> </u>					-		 	
$\vdash \vdash \vdash$	172.5			 			₩-		 	├	-		-	 		 	
\vdash	1/2.5	172 50	172 01		Chala	some silty beds	55°						-	 	 	├	ļ · · · · · · · · ·
		148-34	17.3.371	1 - 31	Suare	Some Stirty beas	1-27	 -	·	}				 		 	ļ
40				Ī				1	1	<u> </u>							
		173.01	173.72	.71	Shale	as above	<u> </u>										
				<u></u> _										<u> </u>			
\vdash		173.72	175,52	1.80	SLTST	laminated and cross-laminated, some shaley	45°	-	<u> </u>	<u> </u>	1			 	!		
├			····	 		beds, some scours (siltstone into shale)	 -	-	├	-	}		-	 	 	-	<u> </u>
┝╼┤	175.6		<u> </u>	1	<u> </u>	· · · · · · · · · · · · · · · · · · ·	∤-	!	 					 	 		···-
	11.74	175.60	177.28	1.68	SLTST	as above, increasingly shaley	55°	1	 					!			
								١.						t			
41				L			Ξ.										
┝		177,28	178,63	1.35	SLST/SH	alternating beds about 0.2 m thick.	6 <u>5°</u>	<u> </u>	ļ			<u> </u> _		ļ	<u> </u>	ļ	ļi
∐				H		calcite veins	ļ	-	 -	 			<u> </u>	ļ	├		·
┤	178.6		 				1	-	 -)				 	 -	
\vdash	1/0.0	178 60	180 65	2 05	CI CT/CH	as above, some sandy beds, (sharp	55°	 	 	 	 		-		 		<u> </u>
ļ -		170.00	130.0.			lower shale to siltstone contacts in places)		 							 		
						,		T	<u> </u>								
		180.65	181.55	90	Shale	dark gray, minor silty beds, calcite-filled fractures	50°										
dash			<u> </u>			calcite-filled fractures	!	Ь—	<u> </u>	<u> </u>					<u> </u>		·
				ļ	·· ····		ļ—	<u> </u>	<u></u>						.		ļ .
42	181.7	101 70	10/ 50	1 2			60°	1		 	 			-			h
┤		181.70	J. X4 . 5 2	7-87	Shale	as above, increasingly silty towards bottom	- 5¥	 	 		! 				 		
\vdash	184.7		 			·	 	-		 					 		
		184.70	186.18	1.48	Shale	as above with silty beds throughout	50°			i							
				1													
43																	
		186.18	187.85	1.67	Shale	dark gray	├ -	ļ			<u> </u>	,					
	107.7			 -		<u> </u>	ļ	-	_		 -			ļ <u>.</u>	⊢		
 	187.7		188.48	70	Chal-	as above		 	 	-	 				 		
		101-411	100.67	1 - "	AURIE	HR ADDVP		i –	<u> </u>			-			 		
		188.48	189.48	1.00	SLTST	some shaley beds, calcite fracture fillings	55°	1	 				-		 		<u> </u>
			į														
 		189.48	190.38	.90	Shale	dark gray, calcite fractures fillings											
			 	1			<u> </u>	<u> </u>	<u> </u>	ļ	 			<u> </u>			
44	190.2	 -	 	├	··· · · · · · · · · · · · · · · · · ·		⊢ −	 	├						-		\vdash
$\vdash \vdash$	190.2	100 20	100.00	7.	Shale	Jack and backer		 	<u> </u>						 -	<u> </u>	··
 		14015 0	1.40.46	1-4/5	Snare	dark gray, broken	 	 	 						 -		
	191.3		†	<u> </u>			_	l —	\vdash						 	·	<u> </u>
		191.30	193.50	2,20	Shale	as above, abundant calcite fracture			 			_					
\Box						fillings and veins					1				l		
 																	
Ł		[Į					}				i					
				_		4					<u>. </u>				4		

FF -- FRACTURE FREQUENCY

ROJECT	EWIN PASS	HOLE No.
AREA		CONTINUED EP 101

вох	DEPTH	DEI	PTH		Ţ	LITHO DESCRIPTION	BEDDING	CEAL	SAMPLE				YTICAL			_	·
No.	AT TOP OF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.		T % residual	ASH %	V.M. % d.b.	F.C. %	F.S.I.	C.V.	REMARKS?
	_	1.00		٠		Part of the Control of the Control	1 1 2	 	 	1 g.r.s.	residuos	9.9.	0.0.	0.0.		 -	 -
-44	193.4	183 60	104 55	7 15	Shale	as above but not as much calcite,	-	-		 							
		133.40	154.2		SIMIE	some silty beds	50°				L						<u> </u>
45					-												
		194.55	196.45	1.90	Shale	as above, but no siltstone. becoming slightly carbonaceous at bottom					}		 	}			
┝─┤	. —		 			Decoming Silgnery Caroonaceous at Borrow				<u> </u>	 	-		 			
\Box	196.6										ļ						
├─┤		196.60	197.54	.94	Shale	as above, slightly carbonaceous throughout	ļ.—			 -	 						
┝┯╍┥		197.54	197.57	03	Coal	hone		-	- 本						<u> </u>		
			l	I	<u> </u>						<u> </u>						
		197.57	197.63	.06	Coa1	bright, broken			<u> </u>	ļ	ļ						
-		197.63	197.66	.03	Coal	bright with dull hands, broken	-		\vdash	 	 	-		 -			 -
					:i	DATE OF THE COURT DATES OF THE COURT OF THE					t —						
		197.66	197.82	.16	Coal	dull and bright, broken				<u> </u>	ļ						
		197.82	197 92	10	Shala	carbonaceous				 		-					}
			12.(12.	•	Onsie												
	198.4								EP101	7.37	0.32	5.46	25.31	68.91	8		Yield: 62%
		198.40	198.51		Shale	carbonaceous	 -		27								}
		198.51	198.56	.05	Coal	rubble and powder	 	 			 			_			
	i		[
		148.70	198.73	.17	Coal	rubble, slickensides	 				ļ		ļ				
		196.73	198.76	.03	Coal	dull and bright, broken		<u> </u>						 			
\dashv		198.76	199.19	.43	Coal	rubble and powder (dull and bright)	ļ.,		¥.	ļ <u> </u>							
46	199 9								不	 	1				 		
		199.90	200.00	.10	Coal	dull with bright hands, broken											
\rightarrow		200 00	200.78		0. 1		-			ļ <u> </u>				-			
_ ţ	201.5		200.70	1.79	COMI	rubble, dull and bright	 '				 -						
			201.65	.15	Coal	rubble, dull and bright											
		201 65	201.78	1.3	0::3	L <u></u> .					ļ						ļ. <u> </u>
		201.63	201.78	1.	toat	dull with bright bands, stick			-		1			 			ļ.
		201.78	202.00	.22	Coal	rubble, dull and bright											···
			ļ <u></u>	ļ	<u> </u>												
		202.00	202_07	-07	Coal	dull, stick					1						
		202.07	202.14	.07	Coal	bright with dull bands, broken				 					\vdash		
ļĪ					_	l <u>-</u>										· ···	
\vdash		202.14	202.44	1.30	COAL	dull with bright bands, broken			-	-				<u> </u>			·
		202.44	202.67	.23	Coal	dull with bright bands, stick	 	 -	 		 				\vdash		·
			<u> </u>	1	[]										

ALL LINEAR UNITS IN METRES

ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 101

PAGE __ 15.

^{1 :+}R&/OR S -- GOLDER ASSOCIATES HARDNESS CODE

[•]RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* --} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	HOLE No
AREA		CONTINUED EP 101

PAGE_16 OF_17

ВОХ	DEPTH	DE	PTH	· · ·	<u> </u>	LITHO DESCRIPTION	A EDOSNG	SEAM	CAL	NA MAC			ANAL	YTICAL :	DATA			
No	TOPOF	FROM	,	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	N	ío.	MO15	residual	ASH % d.b.	V.M. % d.b.	f.C. % d.b.	F,5.t.	C.V.	REMARKS?
1/2	BOX		202.91	26	Coal	rubble, dull and bright	1			П		10000		0.0				<u> </u>
		<u> </u>	[[<u></u>				-								
-		202,91	203.02	.11	Coal	dull, broken		<u> </u>										-
	302.0						 			┪							•	-
		203.00	203.09	.09	Coal	_dull, broken	<u> </u>									_		
		203.09	203.86	.77	Coal	rubble, dull and bright	 			1								
							\Box											
		203.86	204,00	-14	Coal	dull with bright bands, stick	}	 		\vdash				··				-
		204.00	204,25	,25	Coal	rubble, dull and bright												
┝╌┤	204.2			ļ —			-								·			
\Box			204.29	.09	Coal	dull, stick												
		204 20	204.35	06	Cool	dull with hright hands, stick	-		-								-	<u> </u>
		<u> </u>	<u>L</u>	L	i	<u> </u>	<u> </u>											
┝╾┼		204.35	204.44	.09	Coal	rubble, dull and bright	 		_					_				
		204.44	204.60	.16	Coal	bright with dull bands, broken	 			1 -								
		224 (2				<u></u>						ļ						
					Shale	carbonaceous			EP1	01	8.22	0.40	4.54	26.05	69.01	8.5	•	Yield 75%
-		204,63	204,68	.05	Coal	rubble and powder	_		28	8								
		204.68	204.76	.08	Coal	duil with bright hands, stick	├──											
47																		
┞		204.76	204_87	11	Coal	dull with bright hands, stick.	50°		\vdash	Н								-
		204.87	205.21	. 34	Coal	rubble, dull with bright bands												
H	206.0		 -	-	-													
			206.26	.26	Coal	dull and bright, broken												
 - 		206. 26	206.43	17	Coa3	dull with bright bands, broken				H		 		!				
			[<u> </u>										-		
		206.43	206.47	.04	Coal	bright, broken	├			├ ~┥		_						
		206.47	206.94	.47	Coal	rubble and powder, dull and bright	 - -	<u> </u>										
$\vdash \vdash$	207.4			<u> </u>													· · ·	
			207.48	.08	Coal	dull with bright bands, stick	 							-				
\sqcap			<u> </u>			<u>`</u>	ļ			П								
			207.81]	dull and bright, broken	<u> </u>	}		┝┤								
		207.81	208,66	.85	Coal	rubble, dull and bright			\Box						•			
$\vdash \vdash$		208 66	208.84	.10	Cost	powder	 			\vdash					-	-		
						I INCREE												
		<u> </u>	<u>[</u>	<u>L</u>	l			ł T		ΙĬ								

FF -- FRACTURE FREQUENCY

OJECT	EWIN PASS	HOLE No. ER 101
REA		CONTINUED EP 101

ANALYTICAL DATA DESCRIPTION LITHO FEAM SAMPLE BOX DEPTH DEPTH REMARKS * ASH % V.M. % JE.C. % TOPOF FROM MOIST % ANGLE DESIG AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) TO MAIN d.b. d.b. a.r.b. residual d.b. 209 reduced to NO rods 210. 210.60 210.69 .09 Coa1 rubble, dull and bright 210.69 210.97 .28 Coal powder 210.97 211.15 .18 Coal dull with bright bands, broken 211.15 211.22 .07 Cost rubble, dull and bright 211 211.80 211.98 .18 Coal powder 211.98 212.43 .45 Coal rubble, dull and bright 212.43 213.04 61 Coal dull and bright, broken Log thickness Core thickness 10.17 Core recovery __62% 213.30 213.44 .14 Shale | dark gray to black, carbonaceous 214.30 215.661.36 Shale dark gray, becoming silty towards bottom 50° 215# 215.60 215.98 .38 SLTST laminated and cross-laminated, carbonaceous 55 R3 at bottom 216.3 216.30 216.70 .40 Shale | dark gray, some rubble 216.70 217.21 .51 SLTST | laminated and cross-laminated, some shale beds 60 217.21 217.74 .53 Shale | dark gray, minor silty beds 2:7.74 219.221.48 Shale as above, minor calcite veins 219 219 30 219 97 61 Shale as above, carbonaceous at bottom 601 220

ALL LINEAR UNITS IN METRES

† :=R&/OR S — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION (%)

Ends of Drill Hole EP 101

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

263.6

CORE & COAL CORE DESCRIPTION

PROJECT EWIN PASS AREA S.E. BRITISH COLUMBI

BEGIN Aug. 12/80 END Aug. 20/80

HOLE No.

AGE...J.... EP 102 Of 20...

HOLE PARTICULARS

TOTAL DEPTH

5,539, 593.93 N LOCATION 661, 093.58 E HOLE BEARING (AZT) 100m 082 **ELEVATION** 2175.3 HOLE ANGLE (*)*

LOGGING Camma, Neutron, Density Detailed density, calib Davies Exploration Logging Ltd. LOGS RUN LOGGED BY OTHER Directional Survey TESTS

COAL CORING PERFORMANCE CORE DIAMETER CORE RECOVERED LENGTH CORED CORE RECOVERY

EXAMINATION LOG USED Gamma-Density No. OF SEAMS SAMPLED EXAMINER (S) . Beavan DATE Aug./1980

вох	GEPTH AY	D	EPTH	ĺ		LITHO DESCRIPTION	[A	CFALL	SAMPLE	MPLE ANALYTICAL DATA				DEMARKS			
No.	TOP OF			ĭΗ	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG.	No.	MO	15T %	ASH %	V.M. 1/4	F.C. %	F.S.I.	C.V.	REMARKS t
		FROM	← —	<u> </u>		<u> </u>	[(°)		├	4.7.b.	residual	d.b.	d.b.	d.b.			
1		0	0.31	.31	SLTST	light gray. laminated and cross-laminated.	ļ	ļ		<u> </u>				ļ	 -		ļ
		<u> </u>	<u> </u>	 		broken and weathered, calcite fracture			 -	├					ļ		
 +		 	 -	ļ	<u>-</u>	fillings	 	 		-			-	-			1
	3.7	2 70	5.31	1 61	CT TICT	as above, some is orange weathered	85	 	 -	 							1
	3.7	3.73		1.00	20121	. AR Above, Rime is brange weatheren	 ^^										
	5.2																
		5.20	6.51	1.31	SLTST	as above, some shaley beds (0.1 m)				L							
			<u> </u>	_		-	 	├	 	}	ļ						
	6.4		7.14	 	a	<u></u>	 	 	 	 	1						
		5.40	7.14	1-/4	SLTST	as above		 	}	 -	 	 -		-			
2			 	<u> </u>				<u> </u>		——				-			
		7.14	7.95	.81	SLTST	as above											
								1									
	7.9							<u> </u>	[<u> </u>	ļ						
-		7.90	8.45	1.55	SLTST	as above, shale rip-up clasts	-	1			{				, 		
\dashv		8 45	9.36	91	CCT	medium grained, carbonaceous wisps, stringers	∫ —	 -	 	 							
		0.42	7,30	1	<u> </u>	medium grainey. Carbonaceous wisps, scringers	† . · · · ·	<u> </u>			-	—					
	9.4					<u> </u>								į į			Ì
		9.40	11.04	.64	SST	as above, minor calcite veins		<u> </u>	<u> </u>								
			├						-	 	-						
+	Ц.О.	11 0	11.15	1.5		,	-			 							
3	~	11-11	115.17	1.13	SST	as above	 			 		- 1					· · · · · · · · · · · · · · · · · · ·
		11.15	12,55	1.40	SST	as above											-
[
_+	12.5		└				<u> </u>	 -			 						<u> </u>
		12.50	12.55	-05	SST	as above		├—		 	[····	
{		12 55	13.25	70	Shala	dark gray, slightly silty in places		 	 	-							-
			{			i take gray, singarry sinty in praces				-							
		13.25	14.18	.93	SST	medium gray, carbonaceous wisps, stringers			1								R3
			\- <u>-</u>			and zones at bottom, minor calcite yeins		\		1							
	• / ^	<u> </u>	ļ	—			<u> </u>	├ —	<u> </u>	ļ	<u> </u>				<u></u> _		ļ
	14.0	16.00	14.44	1.	000		\vdash	-			}						
+		14.00	14.44	44	221	as above	 	 		 				 -			
		14.44	15.10	.66	Shale	dark gray, sandy towards hottom	1		-	 	1						
								<u>L</u>									
				 -			<u> </u>	ļ	L	<u> </u>	$oxed{oxed}$						
		ì	1	1	l	<u>1</u>		ł	[I	<u></u>			!	L _ 1]

ALL LINEAR UNITS IN METRES

A ANGLE MEASURED FROM CORE AXIS

^{# :} MEASURED FROM THE HORIZONTAL PLANE

^{1 : •} R B/OR S - GOLDER ASSOCIATES HARDNESS CODE

RQD — ROCK QUALITY DESIGNATION (%)

ROJECT	EWIN PASS	HOLE NO EP
AREA		CONTINUED

E No EP 102 PAGE 2 OF 20

BOX	SEPTH	DEI	PTH		LITHO DESCRIPTION				SAMPLE	MALE TO THE PARTY OF THE PARTY		NALYTICAL DATA				REMARKS*	
	AT TOPOS	FROM	10	TH :	MAIN	AMPLIFIED LINCLUDE COAL RECOVERY FOR EACH SEAM	ANGLE	DESIG	No.			A5H % d.b.	V.M. % d.b.	F.C. %.	F,5.1.	C.V.	REMARKS
No	201	FROM		 -	MAIN	AMPERISED (INCLUDE COAL RECOVERS TOX EACH SEAM	(*)		1	a.r.b.	residual	q.b.	Q.B.	0.0.	_		
4		}	ļ <u> —</u>		-		+		—i		<u> </u>		i	} -	 		
-	15.5	15 50	17.08	1 50	COT	medium to coarse grained, coal wisps and	 	Н						├	 -		
		1.7. 30	17.00	1	231	lenses, some pebble bands.	859										
						some finer beds											
							\perp										
	17.1	<u> </u>						\vdash						├ ──	} -		
 i		17.10	18.65	1.55	SST	as above, some lighter coloured bands	75°	\vdash		 -		 -			 -		
\dashv	18.6		— —		 		+				 			 			
	18.17	18.60	18.92	.32	SST	as above	1										
		}	}	1	}												
_		18.92	19.65	.73	SLTST	medium gray. laminated and cross-laminated	85°				<u></u>			L			
<u>-</u> -		<u> </u>	ļ		├ ──		+	\vdash							-		
5		19 65	20 10	5/	SLTST	as above, not laminated at bottom	+				 	} -		 	 		
		1.43.43	<u> </u>	1.79	34131	AS STATES THAT TOUTHER OF PASTON	1	\Box	-						<u> </u>		
	20.1																
		20.10	21.68	1,58	SST	fine-grained, some silty beds, laminated	85										
[01.6				<u> </u>			-						ļ	 		
{	21.6	21 60	21.74	1.0	CCT	as above		1			1			}	 		<u> </u>
		21.00	41.74	269	221	as above	+		├		 i			 -	1		
		21.74	21.98	. 24	SST/	medium-grained sandstone and pebble bands	1							 	_		R3
					Congl.	interbedded	909					İ					
								L						L			
		21.98	22.20	.22	Congl.	graded with bigger peobles (0,01 m) at	┿				Ļ—-i						
-	-	 -	 			bottom up to 0.001 m at top, coaly at top	+							 	ļi		<u> </u>
- 1		22.20	22.98	78	Shale	black, coal lenses	+-	\vdash				-			 -		
					3	odden com temper	1				-		-	 			
	23.2																
		23.20	23.76	.56	Shale	as above	<u> </u>				<u> </u>		<u> </u>	<u> </u>			
_					 			\vdash	ļ . 		 -	-			 		
6		22 76	26 10	0 40	Shelle	as above	+				 		 				
		- 	20.10	X - 4 - 2	OURTE-	AS ABOVE	+	<u> </u>	 -								
	26.2																
		26.20	28.13	1,93	Shale											. ,	
		ļ			 	becoming less carbonaceous							 				
-	ļi	 	 		 -		+-	\vdash	<u> </u>					<u> </u>	 		
-4-1	<u> </u>	28 12	29 30	1 17	Shale	as above	+	├	-		 						
		20.13	2,2,10	***/	Anare"		1				 -				 -		
	29.3		<u></u>				1										
		29.30	31.80	2.50	SLIST												
		 -	 -	—		structures (flame, scour, cross-lamination)	65°				ļ						
	_	21 00	32 42	47	Chel-	doub and a sile	+	├	<u> </u>						\vdash		<u> </u>
-		37.00	34.42	1.02	onate	dark gray, some silty areas	$+\!-\!$		 		├	<u> </u>			-		
		 	<u> </u>	 	 -		+ -	 			 -				 		
		<u> </u>	<u> L. </u>	<u>L.</u>	<u></u>	<u></u>	<u></u>	il	L:		ł	L:	<u>. </u>	i	<u> </u>		

PROJECT	EWIN PASS	HOLE No EP 102
AREA		CONTINUED

EP 102 PAGE 3 OF ... 20

вох	DEPTH	DEF	PTH	1	<u> </u>	LITHO DESCRIPTION	AFDOW(G	SEAM	SAMPL	,			YTICAL				REMARKS?
No.	AT TOPOF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.		residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F,5.1.	C.V.	REMARYS.
-	32.3			 	-				 		1						· · · · · · · · · · · · · · · · · · ·
	32.3	32,30	35.3 <u>3</u>	3.03	Shale					1	Ĺ						
					-	and veins	<u> </u>		ļ								
	35.4						 	 	 	+	+			-			
		35.40	36.56	1.16	Shale	as above											
							Γ		<u></u>	-	ļ. <u></u> ,						
q		36.56	38.36	1.80	Shale	increasing silty beds	75	 	 	┪	1				 		
								1		1	1						
	38.4						<u> </u>	<u> </u>		1	 						
		38.40	40.87	2.47	SLTST	light and medium gray. laminated and cross-laminated	85°		├─	- 	}						
						Zimeria i i and Liosa Indiataled.					1						
10		-, -=								ļ	1						
-		40.87	41.43	-56	SLTST	as above		1		 -					$\vdash \vdash \vdash$		
二	41.5									1						-	
\dashv		41,50	44,53	3.03	Shale	dark gray, some silty beds	80°		<u> </u>	 					<u> </u>		
_	44.5	 -		 			 	 	 	1 -	-						
		44.50	45.22	.72	Shale	as above											
11								<u> </u>		 -							
**		45,22	47.42	2.20	Shale	as above, carbonaceous at bottom	70°	-	 -	 	 						
					Unul	20 20 20 101 121 121 121 121 121 121 121											
	47.5	(2.50	12.00	100					-	-							
		.47.50	47.89	-39	Shale	increasingly carbonaceous.				 	-			<u> </u>			
\Box		47.89	48,15	.26	Coal	dull and bright, stick, slickensides		8	不	1.							
		20 15	48.24	00	Caal	bright, stick					Į;						
-		40.15	40.24	.07	COST	bright, stick		 		+	 						
		48.24	48.52	.28	Coal	dull and bright, stick		1			1						
		40.50	48.82	L.													
		40.34	48.82	الكما	Loal	broken, slickensides, pyrite	-	\vdash	EP-1	d ₂	1		-				·
		48.82	49.10	.28	Coal	dull and bright, stick			31		0.71	4.59	25.67	69.03	8.5		Yield 83%
-	49.1	49.30	49.28	[_ , 	Cors	<u> </u>											
						slickensides, broken		 -	╀┼	1	+ :						·
		49.28	49.32	.04	Shale	gray											·
-		40.22	49.68	30	C1	13.11 1 1.2-1.2 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1	ļ.—	 	· · · ·	 	ļ						
		97.12		100	LOSI	dull and bright, slickensides		 	+	+				-	├	·	 -
12																	
\dashv		49.68	49.94	.26	Coal	bright with dull bands, stick					ļ						
		49.94	50.03	.09	Coal	powder	 		+	+	 				\vdash		
										1							
]	1]	}						

ALL LINEAR UNITS IN METRES

T := R&/OR S --- GOLDER ASSOCIATES HARDNESS CODE

*RQD -- ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS



ROJECT	EWIN PASS	······································	HOLE No.	PAGE 4
AREA			CONTINUED EP 1	02 o f 20

XX	SEPTH	ĐE!	TH	1		LITHO DESCRIPTION	SEDDING	SEAM		MPLE				YTICAL			,	REMARKS*
No.	AT TOPOF	FROM	to	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG		No.		residual		V.M. % d,b.	F.C. %	F.S.1.	C.V.	REMARKS
	50.6			-		1	1	 	1-	7	<u> </u>	-	-				 	
	30.6	50.60	51.38	.78	Coal_	dull with bright bands, stick												
-					ŧ		 	ļ	-	+	├─-	 	ļ. <u>. </u>	-	ļ		ļ	
\dashv			51.44]	bright, stick	\vdash		-	╀	 	<u> </u>					-	
\dashv		51.44	51.98	.54	Coal	dull with bright bands, slickensides, stick				Ţ								
-+		51.98	52.09	.11	Coal	dull and bright, broken			\vdash	╁	 	+	ļ		-	-	 	
_				<u> </u>				1		1		1					1	
-+		52.09	52.65	.56	Coal	powder and rubble, slickensides	 		├	+	-	+	<u> </u>	 		-		-
1	52.9																	
+		52.90	53.16	.26	Coal	dull, stick			┝	+	-	 		<u> </u>	-	-	-	 -
_		53.16	53.61	.45	Coal	dull with bright bands, stick, pyrite		 -	-	1		 				 	<u> </u>	
		F 2 6 7	53.71	10	01			 - -	-	1	<u> </u>	-				<u> </u>		
\exists				ł		bright, stick, slickensides	<u> </u>	 	-	+=	<u> </u>						l	
_		53.71	53.95	,24	Coal	dull and bright, broken, slickensides				Į_		ļ					1	
\dashv		53.95	54.10	. 15	Cost	bright, stick	 	1	\vdash	+	 				-	 	 	
\Box				L	_													
\dashv		54.10	54.30	-20	Coal	powder	 	├	-	-∤-	 	╁		ļ <u></u> -	<u> </u>		-	
コ		54.30	54.55	,25	Coal	dull, stick		ļ		1							1	
\dashv		6/ 65	54.82	27	C1	rubble and powder, slickensides	 —	 	┞	- -	-	 		 -	 	 -	ļ	
\Box	54.9			Ī	l	<u> </u>				<u>†</u>		<u> </u>					 	
\dashv		54.90	55.13	.23	Coal	slickensides, broken			-	P-1	22		· .				ļ	
士		.55.13	_55_53	-40	Coal	duli with bright bands, slickensides, stick		-	E	<u>7 - 1</u> 32	3.96	0.77	4.97	25.72	68.54	8	 	Yie1d 83%
\dashv			56.15	[F	Τ-	ļ			Į				
\dashv		33,33	30.13	.02	COAL_	dull, slickensides, stick		 	-	+-	 		 	 			1	
4		56.15	56.35	.20	Coal	dull with bright bands, stick				1	ļ							
-+		56.35	56.53	,18	Coal	powder, dull and bright			├-	+-	 	-∤		 		├─	 	
7			·							1							<u> </u>	
	56.7	56.53	56.60	.07	Coal	dull with bright bands, broken	 		\vdash	↓ −				 		ļ		
		56.70	57.35	.65	Coal	dull and bright, slickensides, stick				+-	<u> </u>							
\dashv		F7 25	57.63	20	01					+	1	<u> </u>						-
\exists					<u> </u>	powder and rubble, dull and bright, slickenside	<u>s</u>			1-							 -	
\dashv		57.63	58.08	.45	Coal	powder			<u> </u>	ļ							ļ	
	58.8						 		+-	╁╾	 							
- [58.80	59.05	.25	Shale	carbonaceous, some coal lenses		ļ				ļ		ļ		<u> </u>		
-{				 	-			-	\vdash	 	 -	 		ļ <u>-</u>		ļ		<u> </u>
+				† · · · · ·	 		 	1	\vdash	+-	 	+				 	 	

ALL LINEAR UNITS IN METRES

FF -- FRACTURE FREQUENCY

^{1 :-} R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD - ROCK QUALITY DESIGNATION (%)

^{* --} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	
AREA		·-

HOLE NO. EP 102

PAGE _5 OF _________

ВОХ	DEPTH	DE	РТН			LITHO DESCRIPTION	MEDOING	SFAM	SAMPLE				YTICAL				
No	AT TOP OF	FROM	10	ĮΗ	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	T %		V.M. % d.b.	F.C. %	F,S,I.	C.V.	REMARKS *
.40	90x	TROM		L	ATSPALL 4	AMERICE (STEELOOF COAL RECOVERY TOR EXCHIPTION)	1 1 1	1 ,	<u> </u>	0.7.0.	seriano)	8. 0.	0.6.	0.5.	-	} -	· · ·
-		50.05	59.22	17	Cool	dull, broken	├—	 - 		-	 -				 -		
		39.03	39.22	/	GOAT	gdii, broken	 				 	_		├	 	 	_
		59.22	59.82	.60	Coal	dull and bright, stick											
14							ļ	1	-	 			ļ	-		<u> </u>	<u>-</u>
 		59.82	60.10	28	Coal	bright with dull bands, slickensides, stick	<u> </u>				 			-	 -		
		60.10	60,18	.08	Coal	powder		ļ——		ļ. 	 			 -		 	
		60.18	60.30	.12	Coal	dull, stick		-			 				├	<u> </u>	
		60.30	60.56	26	Coal	powder			 -	 	 					-	
	60.7		1		0041	574701									 		
		60.70	60.11	.04	Coal	hright, stick											
-		60 11	60.49	20	Conl	dull with bright bands, slickensides, stick		 —		 	 ;			 			
		30.11	00.49	- 30	COAL	dull with bilght bands, sitekensides, stick				 	 			-	-	 	
		60.49	60,55	.06	Coal	powder											
\vdash								$\vdash \vdash \vdash$		-				<u>_</u>	 	 	
╼╌		60.55	60.76	.21	Coal	bright with dull bands, broken		 		 	├			 -		 	
		50.76	60.94	1.9	Cos1	dull with bright hands, stick	 		_					 	 	 	
						<u> </u>											
	· · ·	60.94	61.48	.54	Coal	powder, dull and bright				 						<u> </u>	<u>-</u> .
	62.5	62.50	62.79	20	Coal	dull. stick			-	 	 -					 	
									-								
_		62.79	62.84	.05	Coal	dull with bright bands, stick											
		(2.0)	62.95		2 1					ļ	 - -				ļ		
		62.84	62.95	- 44	Loal	bright with dull bands, broken	<u> </u>	- 1			1				 	· · · ·	
		62.95	63.09	.14	Coal	dull with bright bands, stick			V	<u> </u>						<u> </u>	
	—							ļ—ļ			L				ļ		
						Log thickness 15.0 Core thickness 12.95		-		-	 						
-		· · · · · ·				Core recovery 86%		1		 							
	63.1	62.10	(2.00		C1 1		<u> </u>	igwdown		<u> </u>	 						
		01.10	1 31.99	.89	Shale	black, carbonaceous with coal lenses	 			 	 				-		
		63.99	64.27	.28	Coal	bright with dull bands, stick					-						
										ļ							<u> </u>
		64.27	64.32	.05	Coal	bone, stick				<u> </u>	-			<u> </u>			
	64.3						-	 		 	├ -	-					
		64.30	65.09	. 79	SLTST	medium gray, laminated but not well	80°			<u> </u>							R3
\square	C = -																
	65.8	65.80	68.30	2 50	इ.उटक	as above but better laminated towards bottom,	700	├ —-		ļ	 				 		
		03.00	00.30	¥., X	orisi	some shale towards middle with some coal lenses		 		 	 			<u> </u>	 		
			T			T-ME VINETA COMMITTO MARKET MACH COME COST TENSOS	—										•
		L	<u> </u>	<u> </u>	· · · · · ·	1 10 10 10 10 10 10 10 10 10 10 10 10 10	l			11	L	ــــــــــــــــــــــــــــــــــــــ	<u> </u>	<u> </u>			<u> </u>

ALL LINEAR UNITS IN METRES

1 PRE/ORS — GOLDER ASSOCIATES HARDNESS CODE

*ROD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

ANGLE MEASURED FROM CORE AXIS



	PROJECT	EWIN PASS	 	
i	AREA		 	

HOLE No. EP 102

PAGE_6... OF___20

ВОХ	DEPTH :	DEI	TH T	T .	, 	LITHO DESCRIPTION	A CONTROL	SEAM	SAMPLE			ANAL	YTECAL	DATA			<u> </u>
No	AT TOP OF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG.	No.	MOIS		ASH %	V.M. %	F.C. % d.b.	F.S.I.	C.V.	REMARKS?
	80x	7 KOM	<u> </u>	 	Minute	ANTENIED (INCLOSE COAL RECOVER TOR EACH SERVI)	1 1 1	}	<u> </u>	0.7.5.	residual	0.0.	О.Б.	3.D.			
16			4.2 1.2	ļ	<u> </u>		<u> </u>				<u> </u>			ļ	}	<u> </u>	
-		68.30	.68.41	لتبإ	SLTST	as above	 -	 			-				 	 _ _	
		68 //1	70.06	3 65	SLTST	as above with increasing shale beds						_		 	 	<u> </u>	
		00.41	70100	1.02	35131	as above with increasing shale yeas		-					-	 	 		· · · -
		70.06	71.46	1.40	Shale	dark gray						_			İ		
	71.9				ļ			igsquare			<u> </u>			<u> </u>	!		ļ
		71.90	72.85	-95	Shale	as above	-	-						 	 		
17			ļ	 	 -		-	 			 	 -	_	├			
. 1./		72 85	74 76	1 91	Shale	as above, carbonaceous with coal stringers	 								 		
		72.07	-14.70		Dunte	and blebs towards bottom	ऻ					_					
	75.0	75.00	35 70	0.70	ļ		L.								L		
		/5.00	11.42	2.42	Shale	dark gray	├				-			 			· -
1R		ļ	 	 -		··· · · · · · · · · · · · · · · · · ·	 	├─						 	[-		
181		77 /2	77 85	4.3	Shala	as above							 -	 			
_		77.62			- AHATE	l as above										·	
	78.0									******							
		78.00	81.02	3.02	Shale	as above											
				<u> </u>				igsquare			<u> </u>			<u> </u>			
-	81.0						 								-		
+	 -i	81.00	B1.71	 - 71	SLTST	medium gray, featureless	 -	 							ļ		R3
19				┼	 			-						 	 		
		81.71	84.08	2.37	SLTST	as above									1		
\Box							Ì										
	84.1				<u> </u>												
\rightarrow		84.10	86.03	1.93	SLTST.	as above but slightly laminated		ļ									
20			¦—.	 	 -	<u> </u>	-			—	}				-		
20		86.03	87 13	1 10	SLTST	increasingly laminated	75°								 		
		00.03	201.11	1	DDIDI	Indicasingly Issiliatos					 				 		
	87.2									-	 				 		
\Box		87.20	90.34	3.14	SLTST	as above but becoming less laminated at											
			<u> </u>	.	 	bottom and more coarse											
-2.		 		 	 -		<u> </u>	ļ—			ļ						
21	90.2	 		├			 	├─ ─┤							ļ		
	20 . Z		93.02	2 22	ger	mostly fine-grained with some medium-grained	80°	H			 			-			<u> </u>
		30.20	22.02	T	301	beds in middle section, shale rip-up clasts,	1 57	 			 		<u> </u>		-	 -	
						and coal lenses and stringers.				-	 				<u> </u>		
						pyrite coating one fracture									I		
				<u> </u>													
\vdash	93.2	00.55		_	<u> </u>	<u> </u>	0.50										
		93.20	94.62	41.42	SST	mostly medium grained, some calcite-filled	85°	 			 				 	· · ·	
					 	fractures	 -	\vdash \dashv		<u> </u>	 -	-	 		 		
- }				 	 -		 	 - 				 	 		\vdash		
1		<u>t</u>	<u>i. —. </u>	1	<u>i</u>	<u>L</u>	1]	i		i i		1		{		i

ALL LINEAR UNITS IN METRES

1 :+R&/ORS — GOLDER ASSOCIATES HARDNESS CODE

•RQD -- ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS



ECT	EWIN PASS	HOLE No. EP 102
EA _		CONTINUED

CC	RE	& CC	AL (CO	RE DE	SCRIPTION	PROJECT EWIN PASS							$\exists F$	HOL		EP 10	2 PAGE 7 OF 20
	_																	
80)	pgp:%	DE	PTH	ТН		LITHO DESCRIPTI			SEAN	SAMPLE	MOIS	T %			DAYA	,	1	REMARKS *
Nio	AT TOP OF BOX	FROM	TO		MAIN	AMPLIFIED (INCLUDE COAL	RECOVERY FOR EACH SEA	M) (10)	DESIG	No.		residual	ai.b.	d,b.		F,S.I.	C.V.	<u> </u>
22				L.,	<u> </u>			<u> </u>	 		<u> </u>					 	 	·
⊢	 - -	94.62	94.90	1 .28	SST	featureless		+	 	ļ	 					 	 	
		94.90	96.22	1.32	Shale	dark gray, some coaly	y fractures										į	
	96.3	 -	 	 							 	 				-	-	
	70.1	96.30	99.10	2.80	Shale	as above												
<u> </u>		1	├ ─	-	1					ļ	 -	 			- -}	├	-	
23		99.10	99.33	23	Shale	as above			<u>t </u>									
	00.	ļ		ļ	 				[—						 	ļ		
	99.4	99.40	101.41	2.01	Shale	as above									士二	<u> </u>		
<u> </u>		1	[Į.	SLTST			0.5	1	ļ								
\vdash	 	101.41	102,43	NI . 02	<u>5L151</u>	medium to light gray. laminated, some calci		85	\vdash	1	 	 			 		 	
						shaley towards hottom			<u> </u>								1	
 —	102.4		├──		 			~	 -		 	 -		_	+		 	
		102.40	102.90	.50	SLTST	as above but no fracti	ires											
⊨	 - -	102.90	103.56	56	Shale	dark gray	···-				 	-				} -	 	
		102.30	103.50	1.00	Dilate	ualk glaj			1						<u> </u>	<u> </u>		
24	_	102.56	104 04		Shale			_			-						1	
		1		i	I	as above			 									
<u> </u>	-	104.04	104-42	38	SLTST	carbonaceous at top.	laminated	<u>85</u>	1		ļ	<u> </u>			_	 -	<u> </u>	
\vdash	 	104.42	105.49	1.07	Shale	dark gray, some silty	heds (0.1 m).		 		 				+-	<u> </u>	 	
						carhonaceous in part												
┝	105.5	 	 	 -		<u> </u>			 -	 		-			 -	 	 -	
		105.50	107.95	2.45	Shale	as above but becoming	darker towards bottom		<u>†</u>									
-	├	107.95	109 61		Shale	hlack	 -	-	-			ļ .				 	 -	
		1		1	[<u>-</u>											
-	 -	108.41	108.44	1.03	Coal	dull	 .	+	 	-	-				 	 	-	
	108.5														<u> </u>			<u> </u>
		108.50	111.54	3.04	Shale													
-			 	 		hottom, carbonaceous	towards top		┝┈╴	-		}	<u> </u>		 	 	 	
	111.6			Ĺ.						ļ					1			
\vdash	 -	1111.60	1112.38	1.78	Shale	as above but not carbo	naceous	-	├ ─			1			+-	\vdash	 - -	
26										1					1			
\vdash		112.38	113.58	1.20	Shale	as above, silty in pla	ces		 		ļ	ļ			-	 	<u> </u>	 -
		113.58	114.79	1.21	SLTST	light to medium gray.	laminated in places	75	上一	<u> </u>								R3
<u> </u>	ļ	 	 	<u> </u>	ļ				ļ. —							 		

ALL LINEAR UNITS IN METRES

T :- R&/OR S -- GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION [%]

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS



PROJECT	EWIN PASS	HOLE No.
AREA		CONTINUED

BOX	DEPTH	DEF	TH	T	[LITHO DESCRIPTION	A DOING	SEAM	CALLE	15		ANA	YTICAL	DATA			
No	AT TOPOF BOX		ŦO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	D€SIG	No.	I MAI	DIST % b. residuo	ASH %	V.M. % d.b.	F.C. % d.b.	F,S,I.	C.V.	REMARKS *
26	114.6								1.					j			
		114.60	116.62	2.02	SLTST		75°	•									
				<u> </u>		some calcite veins and fracture fillings	-	↓. —	├	-	-	-	├	}	<u> </u>		
27	-+			 			-	} 	-	-}	-	1 -	} `	1		} · · · ·	
		116.62	117.65	1.03	SLTST	as above		 		-	+	+	 	-	 		
				Ī	92101						1		l _	İ			
	17.7									-				<u> </u>		<u> </u>	
+		117.70	120.73	3.03	SLTST	as ahove		├	├─	+		 	├	 	├	 -	
	20.7				 		 	├~	 	+	+	}	 	 	-	 	
		120.70	120.85	. 15	SLTST	as shove	·	_				1					
							L		L_								
28		120 05	100 72	2 00	SLTST		80°	₩	├	+	-	-	ļ	├──	<u> </u>	ļ. <u> </u>	
+		120.83	163.13	K-00	SUIST	as above	90	 	 	 	- -	 	 -	 	 	 	-
<u> </u>	23.7							 		1	1-	 - 	 	 		<u> </u>	
		123.70	125.23	1.53	SLTST	as shove	850										
29	\longrightarrow				 		1-	 	-			 	 -		ļ		
}		125.23	126.74	1-51	SLTST	as above	 -	 	ļ	+		 	 			 	
_	26.8							 	 	+	_	 	 -	 			-
		126.80	129.72	2.92	SLTST	as above	85°					<u> </u>	<u> </u>		İ		<u> </u>
20				<u> </u>				└	<u> </u>	_							
30	-	120 72	120 90	1.7	Shale	medium gray	-	\vdash	 	+	+		 	<u> </u>	 	 -	
		127,12	129.09	**/	Juare	medium gray	 	\vdash	1	+	+	 	 	-		-	<u> </u>
	29.8		-										<u> </u>	<u> </u>			
		129.80	131.80	2.00	Shale	as above, slightly silty at top											
\longrightarrow		101 00	133 01		Shale		-		 				 -	ļ <u> </u>		 	
	-	131.80	133.81	F.U.	Share	silty towards top, becoming darker with depth,			 	+		 -	├	 -		 -	
$\Box \dagger$						1081 (4054 1082105 501108		<u> </u>	!	1		 	 	 			-
		133.81	133.93	.12	Shale	highly carbonaceous											
21			<u> </u>					<u> </u>	1	-		-	1	.		<u> </u>	
31		133 03	134.02	00	Cost	dull and bright, stick		-	本	→	-	1	 	-	-		
—f	ı			1	ļ .	aill and dright, silve		linne	EP-	102	 	+	 		├──	 	
\Box		134.02	134.08	.06	Coal	dull, stick		11111	33	3 1	24 0.64	7.61	22.94	68.81	8		Yleld 75%
		107.00	124 65	000				\Box	Į							ļ	
		134.08	134.36	.28	Coal	bright with dull bands, stick	1	 	₩-			 	 -		 	 	ļ
{1}	34.7			<u> </u>	<u> </u>	<u> </u>	 	 	+	+		 	-		 	 	
\Box		134.70	135.00	30	Coal	hright and dull, stick		<u> </u>	1 😺				1				1
		105 00	125 22	1 00		• • • • • • • • • • • • • • • • • • • •		ļ				1			Ī		
\longrightarrow		132.00	135.09	1.09	Coal	dull, stick	<u> </u>	 -	 T	+		ļ	 	ļ	├- —	 -	
 		135.09	135.33	.24	Coal	dull and bright, broken	 	 	 	+	+-	 	 	 	 	<u> </u>	
				<u> </u>		WALL WIT MATERIAL DIVINGER		 	 	+		 -	<u> </u>	ļ	 -		
_		135.33	135.53	.20	Coal	dull, stick											
· }	j			1		· · · · · · · · · · · · · · · · · · ·]			<u> </u>		}		}

ALL LINEAR UNITS IN METRES

1:#R&/ORS - GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5

ANGLE MEASURED FROM CORE AXIS

HOLE No.

EP 102

PROJECT	EWIN PASS	HOLE No. EP 102	PA
AREA		CONTINUED	OF

ВОХ	DEPTH	DE	PTH	Υ	1	LITHO DESCRIPTION	A FOOM	SEAM	Ţ.,	AAD: T				YTICAL					٦
No	AT TOPOF	FROM		TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGRE	DESIG	~	No.	MOIS	residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.f.	C.V.	REMARKS*	
31			135.66	1		dull and bright, broken	[(·)	+	ļ	Т	1 0.1.5.	restouct	0.0.	4.0.	0.0.		 		4
31		133.33	133.00	-	CORT	dull and bright, broken		┼─	┢	+	 	 					 	<u> </u>	+
		135.66	135.97	ند	Coal	slickensides													
		125 07	136.37	- 46	Conl	dull with bright hands, stick	·	\vdash	-		<u> </u>	 -			 	 	 -	 	_
		I	<u> </u>	<u> </u>															
		136.37	136.40	0.03	Shale	carbonaceous	├	 	⊢	+	 	 i		<u> </u>		-		 	_
		136.40	136.45	.03	Coal	bright, stick													_
		1 2 15	1000	<u></u>	Shale		-	 -	-	+	-			}- <u> </u>		 	 	 	_
		135.45	136-47	1 102	Shale	carbonaceous		<u> </u>								_			_
	136.5									\Box						ļ			_
-		136.50	136.70	26	Shale	as above	 -	 	\vdash	+	 	╁──			-	 		 	_
		136.70	137.01	<u>_3</u>	Coal	dull with bright bands, stick									ļ				
-		137 01	137 32		Coal	bright with dull bands, stick	-	├	-		 			 -	 	 			_
		1	1	l	ĺ				• • •	P-10									_
		137.32	137.42	<u>, 10</u>	Coal	black, heavy	-	 	_3	34	1.3	0.63	6.50	21.85	71.07	3.5	ļ	Yield 7	2%
		f						 				-							_
-		137.42	137.59	1.17	O.Coal	dull with bright bands, stick	<u> </u>	 		 				<u> </u>	_				_
		137.59	137.90	.31	O.Coal	dull, stick		 						<u> </u>			-		_
\dashv		•	Ī	1	"									\sqsubseteq					_
\dashv		137.90	130.27	1.57	O.Coal	dull with bright bands, stick	 	┼		+	 	 -		 -		 		 	_
32	1 39 D																	<u> </u>	_
-		139,00	139.49	49	O.Coal	dull, stick		-	-	-	<u> </u>								
		139.49	139.66	.17	O.Coal	bright, rubble				1									
-		130 66	1/0 80	h 17	O.Coai	dull, broken	 -	├─		┼-	 							<u> </u>	_
\equiv		237.00	140.00	1,19	O,COA1	duri, broken													_
	140.7							 	_	\vdash									_
		1140-70	140-84	1-1	O_CosI	dull, hroken	 		\vdash	\vdash				 		1		 	_
		140.87	141.10	27	O.Coal	dull with bright bands, stick													_
		141 10	141.17	.07	Shale	carbonaceous	-	 	\vdash	\vdash		 	-					 	_
			}	1				1											_
		141.17	141.22	.05	Coal	bright with dull bands, stick	 	-			 	 				-		 	_
		141.22	141.67	.45	Coal	dull with bright bands, stick													_
		141.67	142.21	5/	Coal	dull and bright, stick		<u> </u>				<u> </u>		<u> </u>				<u> </u>	_
	142.0		}				\vdash	<u> </u>	-			 					-	 	-
\neg		142.00	142.21	,21	Coal	dull with bright bands, stick	<u> </u>	Γ											_
		 		-	 		 - -	\vdash	-	ł	-			 			-		
		<u> </u>	[<u> </u>	1		1	L	i		<u> </u>			<u> </u>		ł	<u> </u>	i	

ALC LINEAR UNITS IN METRES

1 := RB/OR S - GOLDER ASSOCIATES HARDNESS CODE

*RQD — ROCK QUALITY DESIGNATION (%)

FF ---- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 102

FILE No. BA -212 A

PROJECT	EWIN PASS	HOLE No.	ED 102
AREA		CONTINUED	EP 102

No. 3	AT 70P OF 303	FROM	eth To	TH	ļ	LITHO DESCRIPTION	PEDDING	1			MOIST	· •/- I	454 */	ALYTICAL DATA V. V.M. % F.C. % F.S.I. C.V.				
					MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	ANGLE DESIG		». }		residual	d.b.	d.b.	d.b.	F.S.I.	C.V.	REMARKS *
32	-			╫	-		1		1 [0							
		142.21	142.40	.19	Oolitic	black, heavy, some bright bands				1								
					Coa1					\Box								
		140.40	142.87] , ,	-		ļ							•.			-	<u>-</u>
		142.4U	145-81	-4/	Coar.	dull and bright, stick	 	 	-	-+								
		142,87	143.14	.27	Coal	dull with bright bands, stick												
				1				-		-}								
33		143.14	143.66	.52	Coal	dull with bright bands, stick		 	1					_				
				Ι	I					\sqsupset								
-	\longrightarrow	143.66	143.72	-06	Shale	<u> </u>		<u> </u>		-								
- -{-	-	1/3 72	144.05	33	Coal	dull with bright bands, stick	-			-] 			
		17.7.7.2	144.00		- UVAL	THE STATE OF THE S				╛		•						
_ [1-	44.0			-	ļ		_	ļ		\dashv								-
		144.00	144.14	1.14	Shale	carbonaceous		 		-					-			
		144.14	144.31	.17	Coal	dull and bright, stick	<u> </u>		¥									
Щ.			ļ	I						1					ļ			
\dashv	\rightarrow			 		Log thickness 10.2 Core thickness 8.24		-								-		
-				<u> </u>		Core recovery 812		-		+							•	
						_				コ								
-		144.31	145.07	.76	Shale	dark gray to black, carbonaceous	 	-	_									
11	45.1		 	 -	 		·	 		\dashv								
		145.10	145.20	-10	Shale	as above												
				ļ- <u>-</u> -	ļ			├		4								
+	$\overline{}$	345,20	147.15	95	SLTST	medium gray, laminated, some shale heds (0.1 m thick), some calcite-filled fractures	90°	 										
			<u> </u>	1		(U.I m Inick), some calcite=filled fractures												
34	47.2			↓	<u> </u>					-								<u>.</u>
- 1		147.20	147.71	.51	Shale	dark gray, carbonaceous, minor calcite veins	 	├		╼╢						_	_	
						77				╛								
1	47.8		1/5	<u> </u>						\dashv								
-+		147.80	148.99	#.19	Shale	as above	 	 -		-{						-	-	
$\overline{}$		148.99	149.06	.07	Coal	bright with dull hands, stick		108	个	\dashv								
				l	1			pper	EΡ	-1	02							
 }-	}	149.06	149.07	101	Shale		-		_35		2.12	0.45	10.18	21.08	68.29	3.5		Yield 52%
1	- i	149.07	149.16	.09	Cost	powder	 	 		1	—i					├─┤		
	+	-	l –	Į	1													
\dashv	-	149.16	149.47	1.31	Coal	dull with bright bands, stick		<u> </u>	1	\dashv								
 		1AQ A7	149.55	00	Shala		┼─-	}	$\vdash \vdash$	+								
		i	!	I	1		<u> </u>		EP-	14	2							
		149.55	149.64	.09	Coal	dull and bright, stick			36	⇉	1.23	0.42	6.15	20.81	72.62	2.5		Yield 67%
i_			<u> </u>		<u> </u>		<u> </u>]		-								

ALL LINEAR UNITS IN METRES

TIRE/ORS - GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION [%]

FF -- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS



PROJECT	ENTR FROM .	HOLE No.
AREA		CONTINUED EP 102

вох	DEPTH	DE	TH	<u> </u>	LITHO DESCRIPTION		Anonyo	SEAM	S.A.	LADI C			ANAL	YTICAL !	DATA			
No	TOPOF	FROM	10	7H	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	IMOLE	DESIG	,	Vo.	MOIS		ASH %	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS*
	201					AMERICAN TIMESONE COME RECOVERY TOK EACH SEAM!	<u> </u>	 	ļ		a.f.b.	residual	a.p.	a, p.	6.5.			
34		149,64	149.65	.01	Shale		↓		▙	Щ								
	-	160 65	149.68		Ca-3	dull with bright bands, stick	\vdash	$\left\{ -\right\}$		\vdash	 				 	—		
+		149.63	144-00	.03	Coar	GUIT WITH BEIGHT DANGS, STICK	 	 			 	·			 			
\exists		149.68	149.74	.06	Shale	carbonaceous		1							1			
\Box					[iii													
		149.74	149.96	.22	Coal	dull with bright bands, stick	↓		Ш	Ш					<u> </u>			
\dashv		149 06	1/0 97	101	Shale	<u></u>	├		⊢	-	 		<u> </u>		 -			
•—		147.70	140.01		Juare		 	 -	-		-				 			
		149.97	150.16	.19	Coal	dull with bright bands, broken			$\overline{}$		Ī						_	
				<u> </u>	ļ	Log thickness 1.2		Ľ	<u> </u>						<u> </u>			
			<u> </u>	 	<u> </u>	Core thickness 1.17	┝		Ŀ						ļ			
					 	Core recovery 100%	 	 	├─	_				<u></u>	 			
	150.3			 	·		 	1							 		-	
\Box		150.30	151.15	.85	Shale	black, carbonaceous												
_	i								Щ.									<u> </u>
, -		151.15	151.52	.37	Shale	as above	 _	1			_				<u> </u>			
35		151 52	152 05	1 52	Shale	as above	 -	 -	ļ		<u> </u>	 			 			
7		171.32	133.03	درميا	PHETE	as above	 	-				-		-	 			
	153,2				-		i –		\vdash		<u> </u>				 			
- 1		153.20	153.72	.52	Shale	not carbonaceous	ļ											
					ļ		ļ		.						<u> </u>			
+	153.6	153.60	154 40	00	Chala		├─-	├ —	⊢									_
		יספיבכנו	134.40	100	Snare	concentration of calcite veins at bottom	 		⊢						 -			
	154.5						 	1								_		
		154.50	155.70	1.20	Shale	black, carbonaceous at bottom												L
-				<u> </u>														
36		155 70	167 11	,	(1) - 1 -		├ ──	<u> </u>	<u> </u>									_
-+		133.70	13/.11	7.41	Shale	as above, again carbonaceous especially at	 	- -								$\overline{}$		
_					<u> </u>	BOLCOM	 -	-	┝╌-			 			 			
	157.3								-									
\dashv		157.30	157.87	.57	Shale	as above												
\dashv		127 07	157 00				<u> </u>	1										
+	 i	15/.8/	157.93	00	Coat	dull and bright, broken	├	10A Jopei			102							
		157 93	158 00	07	Shale	carbonaceous	 	uppei		7	0.87	0.65	7 73	20. 74	70 88			Yield 50%
	_ [1		LATIONAL EUR	-				0,0,	0.05	7.15	20,74	70.00	7.1		TICAG JVA
\dashv		158.00	158.08	.08	Coal	bright with dull bands, stick												
-		150.00	150 10		<u> </u>		1				ļ							
\dashv		128.08	158.10	,02	Shale	carbonaceous	-	 	لاسإ	k	ļ	\vdash				$\vdash \vdash \vdash$		
		158 10	158.19	00	Coal	dull with bright bands, stick	 	 	7		 	\vdash			 -			
	[1		dutt with bright bands, Stick	 	 	[\vdash			ļ. —.—	$\vdash \vdash \vdash$		
		158.19	158.31	.12	Coal	dull and bright, dull is black colitic	1				<u> </u>							
						looking, but is not heavy	I —				E							

ALL LINEAR UNITS IN METRES

^{1 :=} RB/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD - ROCK QUALITY DESIGNATION (%)

FF ---- FRACTURE FREQUENCY

^{* ---} WASHED TO S.G. 1.5

OJECT	ewin pass	HOLE No.	
REA		CONTINUED	EP 102

PAGE_12... OF...20

ВОХ	DEPTH					LITHO DESCRIPTION			SAMPL	-			YTICAL				
· l	AT TOPOS	FROM	10	τн	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	I WOU	SY %	ASH 1/4	V.M. %	F.C. % d.b.	F.S.I.	C.V.	REMARKS*
No.	BOX			1		· · · · · · · · · · · · · · · · · · ·	1 3-1	 	 	0.1.0.	residual	9.5.	0.6.	d.b.	-		
36		<u> 158.31</u>	158.34	.03	Shale	carbonaceous			\vdash	- -	1			-	ļ. <u> </u>		
\dashv		158.34	158.36	.02	Coal	bright, broken	 	-	EP-	102		-				_	 -
\Box	-			[}				38	4.6	0.54	8.68	22.15	68.63	7		Yield 56%
		158.36	158.49		Mixed			1		 					<u> </u>		-
					Coal+Sh	<u> </u>	 			<u> </u>	-			-	<u> </u>		
		158.49	158.59	,10	Coal	dull and bright		† -		 	 						
			_	<u> </u>													
		158.59	158.63	-04	Shale	carbonaceous	<u> </u>	 	├		-				<u> </u>		
_		158.63	158.77	.14	Coal	dull and bright, stick	 		\vdash	 	1						
										1							
		158.77	158.90	-13	Shale	carbonaceous		<u> </u>	 	<u> </u>							
_		158 00	159.04	1.6	Coal	dull with bright bands	├		\vdash	+	-			-			
	-			} "			\vdash	 	\vdash				-		_		
\sqsupset		159.04	159.15	.11	Coal	oolitic coal (black) with bright bands, heavy											
	— <u>-</u> .i	150 16	150.16		61 1	<u> </u>		—-		 							ļ <u> </u>
+		139.13	159.16	.01	Shale	carbonaceous	├	-	┝┼	} -	 			 			-
		159.16	159.23	.07	Coal	oolitic coal (black) with bright bands, heavy	 			 	†						<u> </u>
\dashv																	
\rightarrow		159.23	159.60	-37	Coal.	powder and rubble, dull and bright, some	├	-	 		} -			<u> </u>			ļ
-						slickensides	_	\vdash		+	+ -	-		 	-		
						Log thickness 2.3				<u> </u>				<u> </u>			-
						Core thickness 1.73				1	ļ						
						Core recovery 75%) —		<u> </u>	 	 -		<u> </u>	 	_		ļ <u></u> .
37					<u></u>					 					├──		-
		159.60	159.71	.11	Shale	carbonaceous				<u> </u>				†			
]							
-		159.71	159.77	.06	Coal	dull and bright				↓	-			├			
\rightarrow		159 77	159.78	01	Shala			 	 -	 	+			-			
\Box					DICALE					1							
_		159.78	159_82	.04	Coal	fluh				ΙΞ.							
		350 01	161 07) 15	Shale	block many tan and modified asset baseds to	 	<u> </u>		 -] -			<u> </u>			
\dashv		173.07	101.9/	F.13	onate	black near top and medium gray towards bottom.		-		 -	1			-	-		
	1																
		161.97	162.77	.80	SLTST	medium gray. featureless											
	162 /		<u></u>	 -		•	├		├─-	+	+		<u> </u>		<u> </u>		
-+	163.4	163 40	164 50	1.0	SITET	hecoming laminated towards bottom,	80*			 -	+				-		
		* * * * * * * * * * * * * * * * * * *		L	31.131	some shaley beds	NI.	 		 	 						
				Γ								1					
38		164 60	165 50		l ar mar						-						
\dashv		104.58	103.56	,98	SLTST	as above, some calcite veins	 		 -	├ ───							
				L				<u>L.</u> :		<u> </u>	1				L		

ALL LINEAR UNITS IN METRES

1 :- RA/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

•RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* ---- WASHED TO S.G. 1.5

ANGLE MEASURED FROM CORE AXIS



PROJECT	ewin pass	
AREA		

HOLE No. EP 102

PAGE 13 OF 20

BOX	DEPTH	DE	PTH .			LITHO DESCRIPTION	MEDONIG	SEAM	SAMPLE				YTICAL				REMARKS?
No	AT TOP OF BOX	FROM	10	TH.	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	T % residual	A5H % d.b.	V.M. % d.b.	f.C. % d.b.			KEWWER?,
₩				ļ			1 (*)	<u> </u>	1 1	a.r.b.	restavai	0.6.	0.5.	0.9.			·
38		165.56	166.47	-91	Shale	dark gray	├ ─	\vdash									
┞─┤	166.4			1			 	\vdash						-			
	100.4	166.40	168.90	2.50	Shale	as above											
39																	
igspace		168.90	169.08	.18	Shale	as above	L										
\longrightarrow		140.00					 -		 					-]		
\vdash		169.0X	109-63		SETST	medium gray, calcite-filled fractures	<u> </u>							 	-		
	169.5																
		169.50	171.94	2.44	SLTST	as above	90°										
\Box				$oxed{oxed}$										<u></u>			
		171.94	172.49	.55	Shale	dark gray		 									
-		172 40	172 60	20	SLTST	medium gray, shale rip-up clasts	80°	 									
	 j	172.45	172.03	- 44	BLIST	medium gray, share rip-up crasts	BU										
	172.5																
\sqcup		172.50	173.00	.50	SLTST	shaley towards bottom, calcite-filled fractures	*							!	ļ!		
1							ļ							 			
40		172 00	176 51	1 51	Shale	medium gray	1								-		
\vdash				1		megium gray	 -							 			
		174.51	174.66	.15	SLTST	featureless	İ										
\Box						BASAL SANDSTONE											
		174.66	175.49	.83	SST	fine to medium grained, some shale rip-up	<u> </u>								ļ		R3
	175					clasts ,	-										
-	175.6	175 60	177.56	96	CCT	medium to coarse grained at top and fine to	75°	Н						<u> </u>		-	R4 .
H		17.7.110	177.30	1.70		medium grained towards bottom, carbonaceous	13										RG .
						wisps and stringers towards bottom, salt and											,
1						pepper	<u> </u>										
41		177 66	178.70	# 17	COT	an about annual contract to	├							 -			
-		177.38	1/8.70	1 - 14	551	as above except carbonaceous at top	 	\vdash			-						
 	178.6						 	†	-								
			181.60	3.00	SST	some slight lamination, a few carbonaceous											
						spots, some shale clasts towards bottom,											
 				ļ -		calcite veins and fracture fillings throughout	<u> </u>	$\vdash \vdash$									
42	181.7				··		├	1					-		1		
\vdash			184.75	8.05	SST	as above with the odd shale clast throughout.	 -								\vdash		
						some broken core near too										· ·	
						`											-
	184.7		<u> </u>				<u> </u>				1						
1	<u> </u>	184.70	185.86	1.16	SST	salt and pepper		\vdash		. <u> </u>							
43		185.86	187.64	78	ŠST	as above	+	 - 							$\vdash \vdash \vdash$		
\vdash	<u> </u>		127.04	1			 	\vdash			 -						
											j						
]]														
		<u> </u>	<u></u>		-	* := * :	l	1 1			<u> </u>						

FF --- FRACTURE FREQUENCY

PROJECT	EWIN PASS		1	H
AREA		- · · · · · · · · · · · · · · · · · · ·	П	co

HOLE No.	EP	102
CONTINUED		

PAGE . 14.

вох	DEPTH	DE	тн	1		LITHO DESCRIPTION	A DOING	SFAM	SAMPLE				YTICAL				20112
No	AT TOP OF BOX	FROM	TO	₹TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	AMGLE (*)	DESIG.	No.	MOIS	residual	ASH %	V.M. % d.b.	F.C. %.	F.S.I.	C.V.	REMARKS"
		7.000		 	1117114	Printellines (Interest Correct Port Circle Servin)	[[·]	 ,		0.1.0.	Texibodi	0.5	0.6.	9.9.			
43	187.7	197 70	188.78	91 06	CCT	as above		1]			 -	 -		-
 		177.70	100.70	<u> </u>	991	as above	 										· · · · · · · · · · · · · · · · · · ·
		188.78	189.34	.56	SST	carbonaceous, dark gray with coal lenses			,,,					Ĺ			<u> </u>
				$ldsymbol{oxed}$	<u> </u>												
		189.34	190.22	.88	SLTST	shaley towards top with a sharp upper contact	80°							<u> </u>			
				1		with sandstone, laminated and rippled	<u> </u>					-					
44				 	 			\vdash									
		190.22	190.72	.50	Shale	black, slightly silty towards base											
]			ļ										
	90.8			_				ļ									ļ
╼╌┼		190.80	192.46	1.66		alternating sequence with beds averaging 0.2 m	85	 						ļ			
				{	Shale		-								-		
1		192.46	193.24	. 75	SST	coarse-grained salt and pepper		\vdash			 						
		;		ì											·		
\Box		193.24	193.92	.68	SLTST/	alternating sequence with beds averaging 0.2 m											
┝			<u> </u>	}	Shale	black shale	1							ļ	ļ		ļ <u>.</u>
.	93.8			-				-									
-+	23.0		19/ 30	50	SI TST/	as above					 -						
		193.00	194.93	1	Shale	as above	_										-
45	1											_					<u> </u>
		194.39	195.41	1.02	SST	coarse-grained salt and pepper, shale rip-up											
				-		clasts at base, in part broken and calcite-		<u> </u>									
\rightarrow			 -	} —	-	filled, fractures throughout	-										·
_		105 41	106 90	15 45	SLTST/	alternating sequence with beds averaging 0.4 m	050								 		
1		193.41	190.03	71.40	Shale	afternating sequence with beds averaging 0.4 m	1 0.7										
	96.9			 													
		196.90	198.74	1.84	Shale	dark gray to black, some silty and sandy beds											4
-+			<u> </u>	ļ		averaging 0.05 m		L									
 				} -	-	<u> </u>	 -										
46		100 74	100 01		er mem/	alternating sequence with beds averaging 0,3 m											
		170 <u>. 14</u>	177.11	4	Shale		†	 			 				1		 ~~~~~
	199.9																<u> </u>
		199,90	200.85	بو ا	SLTST/	as above	85°										
$\vdash \vdash$				<u> </u>	Shale												ļ
┝╼─┼		200 25	203.01	12 7	CCT	accuration and solution will and solution will accurate	ļ—				\vdash			 -	 		
 		200.03	203,01	<u>14.18</u>	331	coarse-grained salt and pepper, minor coal lenses, minor calcite-filled fractures	 	} -	——						 		-
			 	 	<u> </u>	remotes minor correctitied tructures	!	1			 				╁╌╌┤		 -
47				1	<u> </u>						1						· ·-
	203.0																
├ —-}-		203.00	206.05	<u>5β.0:</u>	SST	as above but bedded	70°										
 	206.0		 	₩	 		<u> </u>	\Box							└ ┈─┤		
	<u> 200.U</u>		207.29	21 21	SST	as above but massive at bottom	 		-		-						
1		200.00	207.23	<u> </u>	331.	as above our massive at porrow	 										
		ł	L	1	1.	<u></u>	<u> </u>	1									L

ALL LINEAR UNITS IN METRES

1 := R&/OR S — GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF -- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

PROJ	ECT	EWIN		 		
ARE	A					

HOLE No.	EP	102
CONTINUED		

PAGE 15 OF 20

вох	DEPTH	DE	PTH	1	<u> </u>	LITHO DESCRIPTION	A PODING	SEAM	CAMPLE				YTICAL				
1	AT TOPGF	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		DESIG	No.	MOIS			V.M. %		F.S.1.	C.V.	REMARKS*
No	30)	PROM	10	ļ	MAIN	AMPLIFIED (INCLODE COAL RECOVER FOR EACH SEAM)	{*)	 	<u>l </u>	a.r.b.	residual	d.b.	d.b.	d.b.			
48		ļ	ļ <u>.</u>	! —			├	-			<u> </u>			ļ	<u> </u>		
		207.29	208.79	μ_{-50}	SLTST/	alternating beds are irregular with flame	<u> </u>				ļ			 	 		<u> </u>
-			 	 	Shale	structures, etc. at tops and bottoms of heds	 -	 			 			 	 	<u> </u>	
-		208 70	209.09	30	cer	light gray, medium gray, slightly laminated	80°				 			ļ			R3
- i		200.73	203.03	1.5	331	and cross-laminated, calcite-filled fractures	1-00-				 						
\neg			1	 		GIIG CAVOS AGMINACEMENTAL AND AND AND AND AND AND AND AND AND AND	1										
. 1	209.1																
		209.10	210.66	1.56	SST	as above, some shale rip-up clasts, some dark beds with associated coaly lenses	<u> </u>							<u> </u>			
		<u> </u>	 	↓		beds with associated coaly lenses	₩.	Ь—	ļ,		 _			 _			
\rightarrow		710 (211 60	ļ	or mom (<u> </u>		 			 	_		
╼┥		210.66	2)1.58	<u> </u>		alternating sequence with beds averaging 0.2 m	+	[-				 	! 		
49		 		├	Shale		 -	┝		-		-			 		
7/		211.68	212.09	.41	SLTST/	as above with sandy bed at top	 	\vdash			<u> </u>				<u> </u>		
					Shale										Ĺ		
	212.1																
		212.10	215.08	2.98	SST	grading upwards sequences of coarse-grained.	<u> </u>	—			!	<u> </u>					R3
		<u> </u>	<u> </u>	┞		massive to medium-grained, massive to fine-		_			├			<u> </u>			
\vdash			-	-		grained, laminated, some shale rip-up	85°	├─-	<u> </u>		 			-			
				-		clasts in coarse sequences	 	 		-	 				-		"
\dashv	215 2						 	 			 -			-	-		·· ·-
$\neg \dagger$		215.20	216.10	.90	SST	as above with a 0.3 m sequence of shale	1			_	<u> </u>			t			
1						rip-up calets											
			<u>. </u>														
50			ļ	ļ	<u> </u>		├ ─-	ļ	<u> </u>								ļ
		216.10	216,64	1.54	SST	as above		-	<u> </u>		 -		ļ	 _	ļ		
		216 61	217 20	1	0: 1. (-				ļ <u> </u>	ļ			-		
-		210.59	41/243	1.63	Shale/	beds vary from 0.05 to 0.5 m. rip-up clasts	┼	 				_ 					
			 		231	minor coal associated with sandstone	 				_						-
															<u>.</u>		
	218.2						Ι										
_		218.20	219,43	1.23	SH/SST	increasingly sandy towards bottom	↓			_	<u> </u>				<u></u>		
		210-15	000 00	ļ- <u>-</u> ,			├	<u> </u>			ļ <u>-</u>				-		<u> </u>
-		219.43	220,30	18/	SST	alternating massive, coarse-grained to					 -				[
 }		 	 	-	 	laminated fine-grained	85°		 	 -	 						
51		 	 	\vdash			 				 		 		 		
		220.30	221,20	.90	SST	coarse-grained, shale rip-up clasts	1				1				†···		
							L										
	221.3	L															
 ∔		221.30	222,34	1.04	SST	as above with coal lenses					<u></u>						ļ <u>.</u>
\vdash		├ ——	<u> </u>	├ —		<u></u>	\leftarrow	ļ			 		<u> </u>	<u> </u>	├		
	222.5	222 50	226 65) te	SLTST		1	 	-		}		<u> </u>		-		
1		144.3U	1444-03	تلبغ	PLIST	medium to dark gray, laminated and cross- laminated, minor shale beds	 	 			 				 		
\dashv			 	 	<u> </u>	laminaceg, minor snate begs	 	 	 		 				-		
											 				 -		·
1]] _								-	-				
		1 _	1	1	1	<u></u>	<u>. </u>	<u> </u>		[ــــــــــــــــــــــــــــــــــــــ	نــــ بــــــا	L	<u> </u>		

ALL LINEAR UNITS IN METRES

t::R8/ORS — GOLDER ASSOCIATES HARDNESS CODE =RQD — ROCK QUALITY DESIGNATION (%)

FF - FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS



PROJECT	EWIN PASS	HOLE No.		PAGE.
AREA		CONTINUED	EP 102	QF

ВОХ	DEPTH	DEI	PTH			LITHO DESCRIPTION	BECORNO	SEAM	SAMP	F .		ANAL	YTICAL	DATA			REMARKS?
No	AT TOPEF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE (*)	DESIG	No.	MOIS	T %	ASH %	V.M. % d.b.	F.C. %	F,5.1.	C.V.	REMARKS'
	_	1 KOM		 	1417-14	This is a first out to the first of the firs	1 117	╂╌┈╌	 	1 0.1.0,	PERCO	4.0.	3.5.	0.6.		 	
51	224.3	227 20	224 /6	1.	SLTST		₩	-	 	 	 	 -	1	-	├		
		224.30	224.40	1 - 10	20121	as above	 	 	 	+	 	<u> </u>	 	 		 	
52								1							<u> </u>		
		224.48	227.37	2.89	SLTST	as shove but not well laminated	850				I						
			ļ	├			——	 _	 -	 	 -	 	 _	 _		 	
	227.4	207 40	222 22		SLTST		 	 	-	+			 	1	 		
-		227.40	278.41	11.50	SETST	as shove	+	1	 	+	 	 -	 	 	 		
53							1			1.				<u> </u>			
		228 90	231.85	2.95	SLTST	as above				1							
	220 (-			}	} ——] -		<u> </u>		↓	ļ		 	ļ
	230.4	230 40	221 75	15 25	Shale	dark gray to black towards bottom.	-	┼	├	 	-	-	-	-	-	-	
-		230.40	231.73	14. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	Share	minor silty beds	1	\vdash		†	-		 	 	-	 	
																	·
54				ļ			<u> </u>	I		1						L	
		231.75	232.09	34ــــــــــــــــــــــــــــــــــــ	Shale	carbonaceous	₩	├			 -	<u> </u>	 	 		 	<u> </u>
	233.5		 	├			+	 -		-	╄		 	├	-	 -	
_	433.4	233.50	233.74	24	Cost	broken and rubble, bright and dull	 	q	不	 	<u> </u>	 -	 	 	!	 -	
						moven white them the transfer arm that		7					<u> </u>	<u> </u>			<u> </u>
\Box		233.74	233.85	-13	Shale	carbonaceous				1							
-		222 25	200 20	 _ _			-	 -	EP-	102	↓		↓	ļ		-	
-+		233.85	233.93	80.	Coal	powder	 -	 - -	39		0.53	0.06	20. 20	69 74	c c	-	Yield 49%
-+		233 93	233.97	104	Cost	dull	 	├	1 .	 	10.33	7,74	20.79	00.74	13,3	 	ileid 43%
]]	1								j		İ .			<u> </u>
		233.97	234.03	.06	Shale	carbonaceous											
-				 			<u> </u>	<u> </u>	 -	↓	ļ		 		├ —		
╌┥		234.03	234.22	19	Coal	dull with bright hands, broken and rubble	-	├	1	 	} -		├──-		}− −	}	
		234.22	234.34	.12	Coal	dull, stick	1	 		†	1			 	1	<u> </u>	
\Box			<u></u>	L										İ		Ì	
4		234.34	234.76	42	Coal	dull and bright, stick		<u> </u>						<u> </u>			
		22/ 74	235.16	100	01	1 11 min 1 miles 3 . 1 . 1 . 1 . 1 . 1 . 1 . 1 . 1 . 1 .	-	 	 	↓	 		 	├ ──	<u> </u>	 -	
		234./9	1 1 1 1 1 1 1 1	1 - 40	Voat	dull with bright bands, stick, minor pyrite		\vdash	} 	+			 		├	 -	
_		235.16	235.27	1.11	Coal	dull and bright, stick	1		+	1	 	 	 		 	 	
				I									I			<u> </u>	
		235.27	235.37	10	Coal	powder		<u> </u>									
	235.6		 	}—			 			↓					├		
Ť	233.0	235 60	235.73	1 7 2	Cosl	dull with bright bands, stick	↓ —	-	 	 	-			 	├		
		237.00	233.73	1 - 1 - 3	Loar	GUIT WITH Bright BANGS, STICK	+		 	-	 -		 	-	 	 -	
		235.73	235.79	.06	Shale	<u> </u>	1	1		†		 	† 		 	 -	
]		ł		}	<u> </u>										L		
		235.79	236.01	.22	Coal	slickensides, broken	ļ	ļ <u> </u>		I	ļ						
		224 01	226 62	40	C- (2	3.11 - 3.45 1	∤	 	[—}	 -	 	<u> </u>	 				
-		<u> 230.Ul</u>	236.63	1.02	COAL	dull with bright bands, stick	-	ļ		 					 -	-	
		<u> </u>	<u></u>	<u>. </u>	<u> </u>	<u> </u>							<u></u>		<u> </u>	<u> </u>	<u> </u>

ALL LINEAR UNITS IN METRES

T :+R&/OR 5 -- GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION [%]

FF --- FRACTURE FREQUENCY

* -- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS

		- · · · · - · · · · · · · · · · · ·	
PROJECT	EWIN PASS		
AREA			CONTI

OLE No. EP 102 PAGE. 17 OF ... 20

ВОХ	DEPTH:	DE	PTH	Т	Γ	LITHO DESCRIPTION	MEDDING	SEAM	SALLP	1 F				TICAL I				REMARKS*
No.	AT TOPOF	FROM	то	TH.	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	MEDDING ANGLE	DESIG	No	·	MOIST	*/e residual	ASH % d.b.	V.M. % d,b.	F.C. % d.b.	F.S.i.	C.V.	KEMAKKS.
54			236.72	.09	Coal	bright with dull bands, broken												
						Diright with upil beauty bishon				丰								
		236.72	23675	.03	Shale		}	}		+	\dashv		-					
		236,75	236.86	.11	Coal	dull, stick												
		224 94	237,03	17	Cosl	dull with bright bands, stick	<u> </u>	<u> </u>		+					<u> </u>			
				<u> </u>		GUIT WITH DITERT BANGS, STICK				1-								<u> </u>
\vdash		237.03	237.04	.01	Shale.			_		\perp								
		237.04	237.16	.12	Coal	dull with bright bands, stick												<u> </u>
5 5		227.16	237.29		03			-	-	- -								
		_	I	1		dull. stick		-	-	+					-			
		237,29	237.40	,11	Shale	carbonaceous												
-		237.40	237.66	- 26	Coal	dull and bright, broken				+					ļ			ļ
				į														
┡╼┪		237.88	237.67	1.01	Shale			-		+								
		237.67	237.85	.18	Coal	dull with bright bands, stick				丰								
\vdash		237.85	237.86	-01	Shale		-			+	-				<u> </u>	_		
										丰								
┞╼┪		237.86	238.46	-60	Coal	dull and bright, stick		 -		┿								 -
		238.46	238.49	.03	Shale	carbonaceous												
		238 49	239.05	56	Coal	dull with bright bands, stick		-		102		0 (2	8.09	21 05	60 50			Yield 72%
						dali with bright bands, acted				<u>*</u> L	2,12	0.47	0.09	21.03	03.23	9.3		
┝╼┧		239.05	239.06	.01	Shale					4								
		239,06	239,32	,26	Coal	dull with bright bands, stick				1.					_			<u></u> _
	239.6								-	Ţ								
		239.60	239.74	14	Coal	colitic looking coal with bright hands, stick		-			- 1							
								-	\Box									
			240.30			dull and bright, stick		-	\vdash	+								···
		240.30	240.45	.15	Coal	slickensides, stick												
├╌┤		240.45	240.91	.46	Coal	dull with bright bands, broken		1	\vdash	+								
						The state of the s				\perp	\Box							
$\vdash \vdash$	240.8	240 90	241.00	20	Coal	alickensides, broken	 -			+								
																	·	
┝╌┤		241.00	241.53	-53	Coal	dull with bright bands, broken, slickensides			\Box	\perp								
56										1								
$\vdash \vdash$		241.53	242.63	1,10	Coal	broken, rubble, powder, dull with bright bands			H	\perp								
<u></u> _i			<u> </u>	<u> </u>	<u> </u>	<u> </u>				1		l						

ALL LINEAR UNITS IN METRES

t :=R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%)

SSOCIATES HARDNESS CODE ANGLE MEASURED FROM CORE AXIS

ROJECT	EWIN PASS	HOLE No.	PA O
AREA		CONTINUED EP 102	Ū

KOX	DEPTH	DE	PTH	1		LITHO DESCRIPTION	▲	SEAM	SAM	e, el		- **	ANAL	TICAL	DATA			REMARKS T
	47 1			TH:		AMPLIFIED [INCLUDE COAL RECOVERY FOR EACH SEAM		DESIG	N	ia,	MOIS	residuoi	ASH %	V.M. %	d.b.	F.S.I.	C.V.	,
Vo.	torar bor	FROM	TO		MAIN	AMPLIFIED (INCLUDE COAL RECOVERT TOR EACH SEAM	1 (*)	}	ļ	 	0.1.0.	10210001	0.00					
6				L	Ì		↓		-	 -					\vdash		_	· · · · · · · · · · · · · · · · · · ·
2	242.6						╅╾		•	 	 -						-	
4		242.60	242.64	.04	Shale	carbonaceous	+	┼~~~	-	┯┪								
+		212 11	010 71	10	10-1	dull and bright, broken	 -	 	-									
-+-		242.04	242.74	1.10	y Coai	dull and bright, broken	1											
+		242 76	242.86	1 12	Coal	rubble, dull and bright						<u> </u>			<u> </u>	<u> </u>		ļ
7					}				₩	 		├						}
1		242.86	242.89	_03	Shale		₩	├	├ -	1-1		 -						
_)	Į	i		+-	 	{ − ,	١,	-	} -	 					
-}		242.89	242.95	1.06	Coal	rubble, dull and bright	+	├-	╀-,	*-1		+	\vdash					
┵			}	╆┈~~	 	Log thickness 9.6	1	\vdash	Ì									
╅			-	 	$\overline{}$	Core thickness 9.08						1					.	
_					1	Core recovery 95%		└	↓			↓	ļ	}		 -	-	
\exists					ļ		+	+	-			}	 		 			
		242.95	243.17	,22	Shale	dark gray	╅──	1	┼~				 	 	 	 		
-	4400		 -	┼╼∽	 			 	 			1	<u> </u>					
-+	242.9	262 00	245 11	2 21	Shale	as above		<u> </u>						Ì				
-+		292.30	1492.4		Duale							ļ						
7	245.7							Ļ	ļ.,				-		 			
		245.70	246.0	1.3	Shale	as above	_	 	╂	_	}		├		 	├		
4				╁╼-	-		+-		+		 -		 	! 	 		-	
57		016.00	1 2/6 3/	} -	Shale	a combana a compa	+	1	 			 						
-+		246.02	246.2	7	Snare	carbonaceous		1	1									
-+		246.20	246.26	.00	6 Coal	dull, broken		108		Ĺ.,				<u> </u>	 	ļ. —	 _	
\neg			1		T			Lowe			102	<u> </u>	 	 :	<u> </u>	}	. 	Yield 55%
		246.26	246.3	2 .00	6 Shale	carbonaceous			+ 4	1	1.2	5 0.41	14.14	20.2	264./3	 ./-2		Hield 334
-		ļ <u>.</u>	}	ļ.,	 			+	1 44	24		 	 -	+	+	 	 	
-+		246.32	246.7	عجباد	21_Coal	dull, stick		 	† –	1	_	1		1				
╌┼		246 74	2/6 7	1-0	3 Shale		\top			Γ						1		
		T		(1			1	7	Ι.	ļ <u> </u>	<u> </u>			├	 -	 	
		246.77	247.3	5 .5	8 Coal	dull, stick		 -	\		├ -	 		 -	}	 	 	
			 	1			+	 -	+	ــــــــــــــــــــــــــــــــــــ	100	 - ~	+	+	 -	 	\ 	
\dashv		247.35	247.8	<u>0 •4</u>	5 Coal	dull with bright bands, stick	-+	+		42 .	0.6	2 0.43	1 12.26	20.4	467.87	7	1	Yield 47%
		1017 00	248.0	+	1 2 - 1	dull and bright, stick	+	+	+	4	1	7 3.3.						
		1247.80	4~**	4-7	a, lina L	data due pragues deser						Ţ		ļ	ļ			
_		248.04	248.0	6 .0	2 Shale			1	L		<u></u>		 _	 	\ 		 	
		7		T	T			1-	+	+-					-		 	
_		248.06	248.1	<u> </u>	9 Coal	.bright with dull bands, stick		+	+	┼~	+		+	 	+-	+	 -	
		270 15	2/0 2	-	4 Shale		+-	+	+	┪~~	 		1	†	1	1	1	
		1240.13	1240.2	1·	- Sitate	 			1-	1	1	 		1			I	
_	-	248.20	248.4	2 . 1	3 Coal	bright, stick			1_	¥.	1						1	ļ
		1		1			- -				-			-		 		
						Log thickness 2.2	_		+		+		+	4	-	\leftarrow	}	
		Į –	1		1	Core thickness 2.22	1	1			1		1		Į.	1	1	1

ALL LINEAR UNITS IN METRES

ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 102

FILE No. BA - 232 A

^{1 :-} R&/OR S -- GOLDER ASSOCIATES HARDNESS CODE

[•]RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* ---} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	HOLE
AREA		CONTIN

LE No EP 102 PAGE 19 OF 20

BOX	DEPTH	DÉ	PTH	1		LITHO DESCRIPTION		AFDONG	SFAM	AM SAMPL		ANALYTICAL DATA					
No.	AT TOPOP	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS a.r.b.	T % residual	ASH %	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS T
57		248.42	248.85	43	Shale	dark gray, carbonaceous at top											
\longrightarrow	010 7		-	ļ			├ ─	↓ _			İ	<u> </u>					
	248.7		250.20	7 57	erer/eu	alternating sequence with heds averaging 0.1 m	├ ──	 		 -				 			
		240.70	230,20	1	OLO L/ OR	arcernaring sequence with beds aversging it i m	\vdash	1			<u> </u>	 	*			<u> </u>	
58					1												
		250.20	251,88	1.68	SLST/SH	as above	ļ										
	251.8		 	├	-		 	 -					ļ				
	ארכז	251 80	25/, 59	h 70	er er /eu		 			 			 				
		2.11.10.7	12.3		31	as above, some calcite veins, some straight contacts, some with very disturbed contacts											
						(sedimentary)				<u> </u>							
50				├	 		┞	<u> </u>		.				<u> </u>			
59		254 59	254 05	37	Shale	dark gray	 	 	-	 	···			-			
		234,38	2,74,72	1.3	Sugre	Mark Etay	1			t							· <u>-</u> ···
	254.8			<u> </u>			L.		<u> </u>			,					
\rightarrow		254.80	257,31	2.51	Shale	as above, a few silty beds, calcite-filled	90*										
-			├	├	-	fractures	<u> </u>	 	 								
	257.2		 	 		7 7 7 6	-	-	EP-1(2							
		257.20	257.62	.42	Shale	dark grav	† 	 	43	1	· · · · · ·						
			Ī	[I				Ĭ		0.39	7.40	19.62	72.09	3.5		Yield 86%
↓		257.62	258.13	-51	Coal	dull with bright bands, stick	<u> </u>	10A									
-		0.50 .0		<u> </u>			 	ove				4 07	10.00	70.00	-		W4 - 7 3 018
-+		228 T3	258.14	-01	Shale		 		44	0.30	.0.3/	0.8/	18.96	/3.84	2		Yield 81%
		258.14	258.75	.61	Coal	dull with bright bands, stick	t			 	1						
[-	log thickness 1-1	<u> </u>			ļ							
			-	├	-	Core thickness 1.13	├	<u> </u>		-	-						
60					† 	Core recovery 100%	\vdash										
		258.75	258.96	.21	Shale	dark gray, carbonaceous	1			İ	Ì						
_		l	į	j	I												
		258.96	259.03	1.0/	Coal	powder	ļ	ļ	 	_							
—-{		259.03	259 11	08	Shale	carbonaceous	 	 	 	 	 						
		227,02	1	1,00	Juane	Calbonaceoda			 								
\Box		259.11	259.18	.07	Coal	powder											
		250 10	1000	 			<u> </u>							-			
{		259.18	259.54	4-45	Shale	dark gray, carbonaceous	┼──		 	-							
		259 64	259.73	l no	Coal	nowder	 		 	 		<u> </u>				· -	
			į	ļ						1	 				-		
		259,73	260.45	.72	Shale	dark gray											
	260.4	ļ	-	-	 		-			1							
			262 82	6 // 2	Shale	medium to dark gray, minor silty beds, some	85°			 	 		$\vdash \vdash \vdash$				
			202.02	1.42	DURTE	calcite veins and fracture fillings	83			 	 						
<u> </u>		1		1	_	TALLET FEITHS AND FRACTURE ITTITIONS	1	1	<u> </u>	1							
		1	<u>L</u>	11	1	<u> </u>	L	1	Į	1	1	1	1 J			١.	i

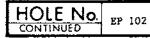
ALL LINEAR UNITS IN METRES

1 := R&/OR S -- GOLDER ASSOCIATES HARDNESS CODE

*RQD -- ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5



OJECT	ewin pass	HOLE NO EP 102
REA		CONTINUED

NO.A	DEPTK	DE	PTH		LITHO DESCRIPTION		LI A		SAMPLE			ANALYTICAL DATA					
No.	AT TOPO	DEF FROM	10	тн	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	SAMPLE Na.	MOIS e.r.b.	residual	ASH %	V.M. % d.b.	F.C. % d.b.	F,5,1.	C.V.	REMARKS *
61				_		<u> </u>	 		<u> </u>	<u> </u>			<u> </u>		$\overline{}$	 	
~ +		262.82	263.42	.60	Shale	as above	╁──	┝┈		 -					 		
_		-02.02	203.42		DHATE	as above	 	 		 -		· · · · - ·	-		· · · · · ·	-	
- 1	263.6			-							 		 -		 		
-1							†	 			-				 		
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1						End of Hole EP 102		İ						1	T	1	
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ALL LINEAR UNITS IN METRES

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS



PAGE 20

Of.....20...

132.6

CORE & COAL CORE DESCRIPTION

PROJECT EWIN PASS AREA S.E. B.C.

BEGIN Aug. 9, 1980 DATE END Aug. 12, 1980

HOLE No. EP 103 of II

HOLE PARTICULARS N 5,539,998.11 LOCATION E 661,164.81 ELEVATION HOLE BEARING (AZ*) 2249.0 HOLE ANGLE (*)* TOTAL DEPTH

LOGGING Gamma, Den., Neutron, Cal, Detailed Den. of coal seams LOGS RUN LOGGED 8Y Davies Exploration OTHER Logging Ltd. TEST\$ Directional Survey

COA	AL CORING PERF	ORMANCE
CC	DRE DIAMETER	HQ
	CORE RECOVERED	
[ĕ]	LENGTH CORED	
ř	CORE RECOVERY	%

EXAMINATION	
LOG USED	Gamma Density
No. OF SEAMS SAMPLED	4
EXAMINER (S)	C. Beavan
DATE	Aug., 1980

ВОХ	BE77K	DEPTH DEPTH				LITHO DESCRIPTION		SEAM	SAMPLE		ANALYTICAL I			DATA			
Na	70° CE	FROM	το	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	A 140.0	DESIG.	No.		IST %	ASH %	V.M. %	F.C. %	F.S.I.	C.V.	REMARKS *
\square	-	FROM	10	ļ	MAIN	AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)	(6)	 	 	6.7.b.	residual	đ.b.	d.b.	d.b.			
\perp				<u> </u>				ļ		<u> </u>	↓			—	ļ		
			0.80	.80	Shale	Gray, broken and weathered	<u> </u>	↓	<u> </u>		ļ	<u> </u>					<u> </u>
\vdash		1		├			 -	 -	 	├	 	ļ		├──		 	· -
Н	3.7	2 70	2 02	22	Shale	as above		+-	 	├ ─	+			<u> </u>	 	-	
				1-23	DURTE.	AS ADOVE	+	 	†						 -		
		3.93	4.78	.85	SLTST	gray, laminated and cross-laminated.	30°				1						<u> </u>
						some carbonaceous wisps, broken and weathered		Ī									<u> </u>
			_	.		orange			<u> </u>	↓	↓			L			
			 -					↓		ļ	-			<u> </u>			-
\vdash	4.6	4 40	5 02	1 22	SLTST	as above	╅─	+	-	<u> </u>	+	<u> </u>			 	· -	
		4.60	3.73	123	3L131	as above	 	 	 	 	 						
		5.93	6.54	.61	Shale	dark gray, some silty beds, weathered	50°		 			-					
									İ _								
2				<u> </u>			ļ										
		6.54	7,06	.52	Shale	as above		-		 	 						
\vdash		7.06	3 20	2/	Shale			 	 	 	 			}			
-		7-116	7.30	- 24	Shale	dark gray to black, carbonaceous	 	\vdash	 	 							
	7.3						·		<u> </u>	 							-
		7,30	7.67	.37	Coal	dull and bright, broken, slickensides		6	7	74.5	0.75	5.90	25.68	67.67	3.5	-	Yield 89%
$\vdash \vdash$					· · · · · ·		↓	<u> </u>	₩.	<u>i </u>	ļ					-	
	—	7.67	7.69	.02	Shale	yellow, earthy looking	+	! 	FD 1	2.2	-			 	<u> </u>	<u>-</u>	
		7.69	7.89	. 20	Coal	dull and bright, rubble, some red weathering	┪—	 	EP- 1	1) 3 -	1.13	5 65	27 90	65 32	0.5		Yield 68%
		111	- 1102	V = -		on some cleat surfaces, slickensides	+	1	1	V '	1 1 1 1 1	2.02	27.70	77.72			12010 00%
							1										
-		7.89	8.32	.43	Coal	earthy-looking and slickensided rubble mixed	<u> </u>										
							┵	ļ			ļ						ļ
		8.32	8.42	-10	Coal	powder			<u> </u>		-						
				_		Log thickness 1.5	+	 -	 	 	 						
						Core thickness 1.12	†	 	† ····-	 	†						
						Core recovery 75%		1									† ·
-		! !	L				I		[
$\vdash \vdash$	8.2	0.00	0-50		CT TOT		- COB	├	 	<u> </u>	ļ						
$\vdash \vdash \vdash$		8.20	9,02	.82	SLTST	medium gray, laminated and cross-laminated	60°	├	ļ	-				<u> </u>			<u> </u>
Н		9.02	9.51	.40	Shale	dark gray, weathered orange along joints	 	 	 	├ ~──	 					-	
				4.9.9	OUBLE	MAIN KLAY WESCHETER OF SINE STORY JOINES	1-	 -	 	 	 				-		
				\Box					1								
		ļ		 _													
		i	<u> </u>		<u> </u>	5 : MEACURED FROM THE MODITORIES READS	<u> </u>	<u> </u>									

ALL LINEAR UNITS IN METRES

FF --- FRACTURE FREQUENCY

ANGLE MEASURED FROM CORE AXIS

HOLE No.

EP 103

FILE No. BA-211A REVISED Nov. 1978

^{# :} MEASURED FROM THE HORIZONTAL PLANE

^{* : •} R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

[•] ROD - ROCK QUALITY DESIGNATION (%)

PROJECT	EWIN PASS	_
AREA	S.E. B.C.	_

HOLE No.		
CONTINUED	EP 103	

PAGE 2 OF 11

BOX	DEPTH	DEF	7TH	Ţ		LITHO DESCRIPTION	AFDOWNG	SEAM				ANALYTICAL DATA ASH VAV.M. % F.C. % F.S.I. C.V.					REMARKS *
	ΑT	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	_ WO!2	residual	ASH %	V.M. % d.b.	F.C. % d.b.	F.5.I.	C.V.	REMARK?
No		FROM		-	mous	AMELISTED (INCODE COAL RECOVER) TOR EACH VEHILL	1 (*)	 	<u></u>	G.7.B.	terration	g.b.	0.0.	0.0.			
12	9.7	0.70	10.51	-	Shale		├—		 		-				ļ		 -
3		9.70	10.59	.84	Shale	carbonaceous with minor coal lenses	_							 -			
		10.54	11.79	1.25	Shale	as above											
					<u>.</u>		ļ		ļ	<u> </u>	<u>}</u>	ļ <u></u>			<u> </u>		
\vdash	11-7			<u> </u>			 		 		<u></u>			 			_
-		11.70	13.41	11.71	Shale	not carbonaceous	┼──										
	13.7												_				
\square		13.70	14.91	1.21	SLIST	medium gray, some fine-grained sandy beds	60°	 	ļ	 -					ļ		R3
H						<u> </u>	┼			 	ļ—				 		
1		TA 01	15 20	38	SLTST	as above	50°										
			}	1	;] -											
\vdash		15.29	16.89	1.60	Shale	gray, minor silty beds with no distinct tops	 -		ļ		ļ.—				ļ		
\vdash	16-9					and bottoms	 						_				<u>-</u>
	10-7	16 90	19.34	2 44	Shale	as above											
5			10.00				250			<u> </u>							
\vdash		19.34	19.98	1.64	Shale	as above	65°	<u> </u>	 								
	19.9	-		<u> </u>		·····	1.50	2									
		19.90	22.85	2.95	Shale	as above but with both silty and sandy beds	800	6 P4	ttom			·					
	22.2	_		├			1										
\vdash	23.2	23.20	23.74	.54	Shale	as above	 										
		23120	23.14		D. III	, , , , , , , , , , , , , , , , , , , ,	1						•	<u></u>			
6																	
\vdash		23.74	25.22	1.48	Shale	as above, increasingly sandy	1										
		25.22	26.28	1.06	SST	fine to medium grained, some shale incor-	 				}						
						porated as discontinuous beds											
 	06.3			<u> </u>													
\vdash	26.2	26 20	27.93	72	507	as above, increasingly medium grained	+			 -	 				 		R3
		20.20	21.55	7	331	towards bottom	<u> </u>				 						
		_	- 11														
7																	
\vdash		27.93	29.33	1.40	SST	medium grained, well bedded	55°				 -				 		<u> </u>
\vdash	29.2			1—		 	 			 	 				-	-	
		29.20	32.00	2.80	SST	as above											
آپا]					·											
8.	32.3	22 20	22 25	0.5	Conel.		┿-		<u> </u>		_			ļ <u> </u>	ļ <u>. </u>	- <u></u>	- -
		34.34	34.55	- 05		carbonaceous wisps	 	 -	 		 				 -		
		32,35	32.69	.34	SST	coarse grained, scattered shale rip-up	†								†		······
			}	Į		clasts massive			L								
\vdash				┼	 		 			}					ļ		
		<u> </u>	<u> </u>	<u>1</u>	<u> </u>		<u> </u>	<u> </u>	<u></u>	1	Į į				1		

ALL LINEAR UNITS IN METRES

1:R&/ORS — GOLDER ASSOCIATES HARDNESS CODE *RQD — ROCK QUALITY DESIGNATION (%)

FF ---- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	· · · · · · · · · · · · · · · · · · ·
	S.E. B.C.	

HOLE NO EP 103

PAGE. 3

No. No. FROM TO MAIN AMPLIFED (INCLUDE COAL RECOVER FOR FACH SEAM) Most Main Most Main Most Main Most Main	ВОХ		DE	PTH	1	Τ	LITHO DESCRIPTION	L		I	 		ANAI	YTICAL	DATA			
32.69 35.672.73 SST medium prined, munity well bodded and some some beds with shall bedded and some beds with shall be fire policity. Some consideration some beds with shall be fire policity. Some consideration some beds with shall be fire policity. Some consideration some beds with shall be fire policity. Some consideration some beds with shall be fire policity. Some consideration some beds with shall be fire policity. Some consideration some beds with shall be some consideration some beds with shall be some consideration some beds. O.0 to 0.05 m thick, carbonaceous laminations scattered throughout carbonaceous laminations scattered throughout carbonaceous laminations scattered throughout carbonaceous laminations scattered throughout carbonaceous stages. 37.79 36.42 37.10 27 SST sa shows, porosity visible carbonaceous stages. 37.79 36.47 68 Shale dark gray 38.40 40.75 215 Shale dark gray 40.53 41.52 77 Shale as above carbonaceous rome in bottom half laminated. All shall be	No	TOPOF	FROM	10	- TH	MAIN		ANGLE	DESIG	SAMPLE No			ASH %	V.M. %				REMARKS*
32.69 35.47.75 SST medium-grained, marily useful horizon and consideration of the state	-	воя	-	-	+	1417414	AMERICA TWOCODE COME RECOVERT FOR FACH SEAM	{**}	<u> </u>		a.r.b.	residuol	d.b.			F.S.I.	C.V.	<u> </u>
Imminated, some beds with short coally wisps			32.69	35.4	20 7	3 557		ļ	 	<u> </u>					Ĺ			
Consistent at Early Consistent Consistent at Early Consist				1	1	1 331	laminated some hads with a land	<u> </u>	 	 	 			!	 			
Consistent at Early Consistent Consistent at Early Consist	\Box	-		ļ`			some beds with shale rip-up clasts. some		╁┈	-	┝╌╶┼				<u> </u>	├	┼	
35.4 35.40 36.421.02 SST	-		├ ─-	!	 _	 	! congiomerate beds 0.01 to 0.05 m thick							<u> </u>	 	 	 	
35.40 36.42	∐		 	[-	carbonaceous laminations scattered throughout	ļ								 	†	
9 36.42 17.19 77 SST as above, porosity visible 37.19 37.79 .60 Congl. pebble size graded within beds, some 37.79 38.47 .68 Shale dark gray 38.4 a. 38.40 a. 7.52 35 Shale as above, carbonaceous zones in bottom half 10 40.75 41.52 .77 Shale as above 41.5 41.50 43.02 b.52 Shale as above 43.02 44.54 b.52 SLIST light to medium gray, laminated and croas— 44.5 44.50 45.01 b.51 SLIST as above. 44.5 44.50 45.01 b.51 SLIST as above. 55° 46.01 47.60 b.59 Shale medium dray, very minor coal and/or calcium each of the calcium to dark gray, very minor coal and/or calcium each of the calcium to dark gray, very minor coal and/or calcium each of the calcium to dark gray, very minor coal and/or calcium to dark gray towards bottom, slity towards rop but no. definite beds 47.5 47.50 49.30 b.80 Shale dark gray towards bottom, slity towards rop but no. definite beds 50.60 53.68 308 SLIST light gray, laminated and very cross-laminated 60° 83		35.4	 		╫	 -		 		<u></u>	├							
9			35.40	36.42	21.02	SST.	coarse-grained minor conglements bed-	 	 	 -					 		<u> </u>	
9	<u> </u>		 	ļ			carbonaceous laminations scattered throughout	 			 			-	 		 -	
36.42 37.19 37.78 68 share graded within beds, some 37.19 37.79 36.47 68 Shale dark gray 38.41 38.40 40.75 2.35 Shale as above 40.75 41.52 .77 Shale as above 41.51 41.50 43.02 1.52 Shale as above 43.02 44.54 1.52 SITST light to medium gray, laminated and cross— 11 45.01 46.01 1.00 SITST as above 45.01 47.50 45.01 .51 SITST as above 47.55 47.50 49.30 1.80 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 1.80 Shale dark gray towards bottom, silty towards rop but no definite beds 49.30 50.59 1.29 Shale silty beds 50.60 50.60 53.68 088 SITST light gray, laminated and very gross-laminated 60° 37.30 50.60 53.68 088 SITST light gray, laminated and very gross-laminated 60° 38.30 50.60 50.60 53.68 088 SITST light gray, laminated and very gross-laminated 60° 38.30 50.60 50.60 53.68 088 SITST light gray, laminated and very gross-laminated 60° 38.30 50.60 50.60 53.68 088 SITST light gray, laminated and very gross-laminated 60°	0		 	}	1	 									-		 	
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37.79 38.47 .68 Shale dark gray			_		T -		#8. Above, porosity visible	┿			<u> </u>	i						
37.79 38.47 68 Shale dark gray		<u> </u>	37.19	37.79	.60	Congl.	pebble size graded within heds some	 										
37.79 38.47 .68 Shale dark gray 38.4	<u> </u>		 				carbonaceous wisps	 	╁─┤					 _		-		
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38.40 40.75 2.35 Shale as above carbonaceous zones in bottom half 10 40.75 41.52 .77 Shale as above 41.50 43.02 L52 Shale as above 43.02 44.54 L52 SLTST light to medium gray, laminated and cross— 1 laminated, minor shale beds 44.50 45.01 .51 SLTST as above 11 45.01 46.01 1.00 SLTST as above 46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 L80 Shale dark gray towards hottom, slity towards rop but no definite beds 2 49.30 50.59 L29 Shale silty beds 50.6 50.60 53.68 308 SLTST light gray, laminated and very cross—laminated 60° 83			37.73	30.4/	08	Shale	dark gray											
10		38.4	├ ──					 	\square									
10	\Box	-	38,40	40.75	2.35	Shale	as shove corporaceous serve in the trace	 					<u></u> ļ					
40.75 41.52 .77 Shale as above 41.50 43.02 L52 Shale as above 43.02 44.54 L52 SLTST light to medium gray, laminated and cross— 60° laminated, minor shale beds 44.5 44.50 45.01 .51 SLTST as above 11 45.01 46.01 .00 SLTST as above 46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 L80 Shale dark gray towards bottom, silty towards top but no definite beds 12 49.30 50.59 L29 Shale silty beds 50.6 50.60 53.68 308 SLTST light gray, laminated and very cross—laminated 60° 83	10							<u> </u>		 	 +-							
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43.02 44.54 L52 SLTST light to medium gray, laminated and cross— 60° 44.5 44.50 45.01 51 SLTST as above 55° 46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 49.30 50.59 L29 Shale dark gray towards bottom, silty towards top but no definite beds 60° 50.60 53.68 308 SLTST light gray, laminated and very cross—laminated 60° R3	- 4	1.5	-	···	ļ													
43.02 44.54 L52 SLTST light to medium gray, laminated and cross— 60° 44.5 44.50 45.01 51 SLTST as above 55° 46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 49.30 50.59 L29 Shale dark gray towards bottom, silty towards top but no definite beds 60° 50.60 53.68 308 SLTST light gray, laminated and very cross—laminated 60° R3	\Box		41.50	43.02	1.52	Shale	as above						↓					
1aminated, minor shale beda 144.5 44.50 45.01 .51 SLTST as above 55° 11 45.01 46.01 .00 SLTST as above 55° 11 46.01 47.60 .59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 .80 Shale dark gray towards bottom, silty towards top but no definite beds 49.30 50.59 .29 Shale silty beds 60° 30.6 53.68 308 SLTST light gray, laminated and very cross-laminated 60° 83					li					- ─┤	· ····			∤				·
1			43.02	44.54	1_52	SLIST	light to medium gray, laminated and cross-	60.9	1		+		+					
44.50 45.01 51 SLTST as above 45.01 46.01 1.00 SLTST as above 55.° 46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 L80 Shale dark gray towards bottom, silty towards top but no definite beds 2 49.30 50.59 L29 Shale silty beds 50.6 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	 ⊦	-					laminated, minor shale beds											
44.50 45.01 51 SLTST as above 45.01 46.01 1.00 SLTST as above 55.° 46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 L80 Shale dark gray towards bottom, silty towards top but no definite beds 2 49.30 50.59 L29 Shale silty beds 50.6 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	4	4.5			1													
11			44.50	45.01	.51	SLTST	as ahove	<u> </u>	-			\rightarrow						
45.01 46.01 1.00 SLTST as above 55° 46.01 47.60 1.59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 1.80 Shale dark gray towards bottom, silty towards top but no definite beds 2 49.30 50.59 1.29 Shale silty beds 60° 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom.	—[-	\Box						 	\rightarrow									
46.01 47.60 L59 Shale medium to dark gray, very minor coal and/or calcite along slickensided fractures 47.5 47.50 49.30 L80 Shale dark gray towards bottom, silty towards top but no definite beds 12 49.30 50.59 L29 Shale silty beds 60° 50.60 53.68 308 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	ш.								-+		- -				-+			 -
calcite along slickensided fractures 47.5 47.50 49.30 i.80 Shale dark gray towards bottom, silty towards top but no definite beds 2 49.30 50.59 L29 Shale silty beds 60° 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	 -	\rightarrow	45.01	46.01	T 001	SLTST	as above	55°			- +	-	$\overline{}$		-+			
calcite along slickensided fractures 47.5 47.50 49.30 i.80 Shale dark gray towards bottom, silty towards top but no definite beds 2 49.30 50.59 L29 Shale silty beds 60° 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	_		46.01	47.60	1 50	Shala	m-1: 11	\Box										
47.50 49.30 80 Shale dark gray towards bottom, silty towards rop but no definite beds 49.30 50.59 L29 Shale silty beds 50.60 50.60 53.68 308 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom			70.0	7/100	7,7	Suare	calcite along slickopsided from the		 ↓			\longrightarrow						
47.50 49.30 i.80 Shale dark gray towards bottom, silty towards top but no definite beds 49.30 50.59 L29 Shale silty beds 50.6 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	- ↓				\Box									 -∤				
but no definite beds 49.30 50.59 L29 Shale silty beds 50.60 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° a little coarser grained towards bottom	- 4	7.5								- 	 -	— <u>-</u> -	\longrightarrow	+	\longrightarrow			
Duft no definite beds		 	47.50	49.30	1-80	Shale	dark gray towards bottom, silty towards top							+	·	 +		···
49.30 50.59 L29 Shale silty beds 60° 50.6		$\overline{}$			\rightarrow	·	but no definite beds											
50.6 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° R3	12				-		· · · · · · · · · · · · · · · · · · ·]										
50.6 50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° R3			49.30	50.59	L 29	Shale	silty beds	609			 ∤-			,				
50.60 53.68 3.08 SLTST light gray, laminated and very cross-laminated 60° R3		 						<u> 100</u>	 -									
a little coarser grained towards bottom	. <u>5</u> 1		50.60	<u> </u>		 ↓		_	- -			\rightarrow		}				
2 little coarser grained towards bottom	-		20.50	68. دد	4.08	SLTST	light gray, laminated and very cross-laminated	60°						- -	 †	·		57
minor coal lense near bottom						i	<u>A little coarser grained towards bottom</u>	[\Box				t	1	 -	-	_~ <u></u>
ALL UNFAR SINITS IN METERS			<u></u>		1		minor coal lense near bottom	ļ	1			Τ				-		

ALL LINEAR UNITS IN METRES

^{1:=}R&/OR S — GOLDER ASSOCIATES HARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%)

DE ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	H	ŀ
AREA	S.E. B.C.	ı	-

HOLE No. EP 103 CONTINUED

BOX	DEPTH	DEI	TH			LITHO DESCRIPTION	MEDDING	SFAM	SAMPLE				YTICAL I				REMARKS!
No	AT TOP OF BOX	FROM	10	TH .	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG:	No.	MOIS	T % residual	ASH %	V.M. % d.b.	f.C. % d.b.	F,\$,1.	C.V.	*EMARY3
- +		1		-			<u> </u>				100001	-142		4.4			
131	53.6	53 60	56.11	2 51	CI TRT	as above with coal wisps in a few places	65°	\vdash		 -	 						
_						· · · · · · · · · · · · · · · · · · ·											
\Box		56.11	56.63	.52	SST	medium-grained, mostly massive but some	65°										R3
						cross-bedding, coal wisps throughout	}				 		<u> </u>				
	56.7	F4 70	58.01		COT	as above, but no cross-bedding	 				-						71
\dashv		20.74	38.01	1 - 31	221	as above, our no cross-bedding											
14																	••
-		58.01	59.86	1.85	SST	as above, becoming coarser grained towards	ļ										
\rightarrow	\dashv			<u> </u>		bottom					 		-				
- 	59.7		 														
\Box		59.70	61.01	1.31	SST	as above, but coarse grained											
\dashv																	
#	61-0	(1.00	62,14	17	COT	as above, but both coarse and medium-grained	60°									-	
\dashv	1	61.00	62,14	1.14	221	beds (mostly coarse)	90_				 					-	
\Box						MAN ABOUT MAN MAN A											
15																	
 ⊦		62.14	62.80	.66	SST	as above	 -		—								
-1,	52.8			-			-				 						
<u> </u>	VZ-W .	62.80	65.32	2.52	SST	as above except hedded with graded bedding											
		65.32	65.72	.40	Shale	medium gray	.								-		
-+		65 72	65.84	12	SLTST	light gray, laminated and cross-laminated	65°	-									R3
7		03172	03.04		0.0101	LIGHT ALVY LONGINGER GIVE THE LINE OF THE					 						
	65.8																
-		65.80	66.31	.51	SLTST	as above	 -				ļ{				_		<i>r</i>
16							├—-	-									
***		66 31	67.81	1.50	SLTST	as above	65°							·			
\sqsupset]													_	
\rightarrow	-	67.81	68.86	1.05	Shale	dark gray, some silty beds	ļ				 						
+	68.9		 -	-			1				 						
	20.7	68.90	70.25	1.35	Shale	as above, very minor coal lenses towards	<u> </u>										
\Box						bottom											
-	70.4				<u> </u>		<u> </u>			_ :							
	10.4	70 40	70.65	25	Shale	as above	 				 						
\dashv		70.40	1 ,0.03	1.23	SHELLE	4 dhase	 	H		-	├		 				<u>-</u>
		70.65	70.69	04	Coal	dull, stick, pyrite on coal/shale contact	50°	8			1						
— ↓				[lpper									
+		70.69	70.70	.01	Shale	<u> </u>	-				ļļ				L		
-		70.70	70.74	0/-	Coal	dull, stick	 		-	 	 						
		70.10			- VUAL		 										
-		·	ī				 	1			 		r				

ALL LINEAR UNITS IN METRES

1 :+R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION [%]

FF --- FRACTURE FREQUENCY

ANGLE MEASURED FROM CORE AXIS

PROJECT EWIN PASS
AREA S.E. B.C.

HOLE No EP 103

PAGE 5

XX	DEPTH	DE	PTH			EITHO DESCRIPTION	BEDDRIK	SEAM	SAM	PLE	****		ANAL	YTICAL I	DATA	1		REMARKS*
No.	AT TOPOS BOX	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No	٥.	MOIS'	residual	ASH %	V.M. % d,b.	F.C. % d.b.	F.S.I.	C.V.	NEWWAY'S.
16		70.74	. 70.75	0.1	Shala		ĺ			一							·	
									EP-	-10								
{		70.75	70.80	.05	Coal	bright, stick		├—	58	-	3.58	0.47	4.85	26.54	68.10	<u> </u>	 	Yield 70%
17							<u>L.</u>	<u>† — </u>		⇉	<u> </u>							<u> </u>
_		70.80	70.90	.10	Coal	bright, stick				\dashv								
-		70.90	71.30	.40	Coal	dull with bright bands, stick			\vdash	\dashv					 -	 -	<u> </u>	<u> </u>
\rightrightarrows						<u> </u>												
		71.30	71.40	,10	Coal	powder	 	 		\dashv						-		ļ
コ		71.40	71.49	.09	Shale					⇉								
-		71 60	23 50	10	Shale	1	 	-		╣						<u> </u>		
				<u> </u>		powder	<u> </u>											
		71.59	71.97	.38	Shale	dull, pyrite, stick	ļ	<u> </u>	7	\Box	41 —							
_	71.9									1						 		
_]	71,90	72,12	.22	Shale	dull, pyrite, slickensides, stick				\Box								
-+		72.12	72.18	. იგ	Shale	dull and bright, stick			+							-		
耳			L	L						\exists								
-		72.18	72.19	-01	Shale		├	 	\vdash	\dashv								-
		72.19	72.21	.02	Coal	bright, stick												1
-		72 21	72 22		Shale	carbonaceous	-	ļ		4						_		
_						caroonaceous	 			-	· · · · ·	-						<u> </u>
		72.22	72.52	.30	Coal	bright with dull bands, stick												
╍┼		72.52	72,91	. 39	Coal	dull and bright, stick	-	\vdash	-	-								
1							!			コ								
\dashv		72.91	72.96	_05	Coal	powder	├	 -				-						
	\Rightarrow	72.96	73.07	.11	Coal	bright with dull bands, stick												
{		73 07	73.12	-05	Conl	dull. stick	<u> </u>	<u> </u>	-1						-	"-		
		73.07	73.12	-05	Coar	GULL. SEICK	<u> </u>	-	\vdash	┪						-	-	
\dashv		73.12	73,40	.28	Coal	dull and bright, stick			\Box	\dashv								
_		73,40	73.57	-17	Coal	powder	 	\vdash	\dashv	+			~					-
Ţ							1			寸							· · · · · · · · · · · · · · · · · · ·	
		_73.57	73.58	-01	Shale	rubble	├											-
#		73.58	73.70	.12	Coal	rubble, dull				_								
	73.8						ļ		1									
╛	, 2.0	73.80	73,87	.07	Coal	dull with bright bands, stick	 		EP-1			0.63	4,29	26.60	68,48	8		Yield 83%
\dashv		L ')		i i					_								
ļ		/3.87	/3.88	.01	Shale	pyrite along shale/coal contact	l			ł		!]	ł			{		

ALL LINEAR UNITS IN METRES

A ANGLE MEASURED FROM CORE AXIS

^{1 :-}RE/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

[•]RGD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* ----} WASHED TO S.G. 1.5

PROJECT	EWIN PASS		
AREA	S.E. B.C.	_	

HOLE No.	PP IOS
CONTINUED	

PAGE 6

BOX	OEFTH	DE	TH.	_		LITHO DESCRIPTION		SEAM	C 4 4 4				ANALY	TICAL I	DATA _			
No	AT TOPOF BOX	FROM		TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	N	0.	MOIS	residual	ASH %	V.M. % d.b.	F.C. %	F.S.1.	C.V.	REMARKS?
┝┷┽	90×		75.04	<u> </u>					_	_	0.7.0.	10001	0.0.		0.0.			
-17		73,88	75.04	1-16	Coal	dull with bright bands, stick	-	t					+					
		75.04	75.23	.19	Coal	powder												
18				-			<u> </u>	\vdash	-	H			-					
	75.3																-	
		75.30	75.74	_44	Coal	dull with bright bands, minor pyrite, broken				Н								
		75.74	75.90	.16	Coal	powder												
	76.0			<u> </u>					\Box	Н								
-	76,2	76.20	76.86	.66	Coal	dull with bright hands, slickensides, broken			\vdash	Н				-	 -			 -
		[ł	1														
\vdash		76,86	76,99	1.13	Çoa1	powder		-		$\vdash \vdash$						ļ		
		76.99	77.19	20	Coal	dull broken												
																		
<u> </u>	77.1		77,44	34	Coal	broken, dull and bright		┨										
		<u>-</u>				DIVERT GUIT AND STIER					-							
		77.44	77.50	.06	Shale	- broken				П			[·				
├─ ├		77.50	77.55	-05	Coal	rubble		}		\vdash	-	 						
	78_0	70.00	78.33					 -		-								
				}		dull, elickensides, rubble		 		Н								<u> </u>
\square	$\overline{}$	78,33	78.36	.03	Shale					П								
\vdash		78 36	78.63	27	Coal	rubble, dull, slickensides		\vdash	\dashv	\vdash								ļ
]]														
\vdash		78.63	79.40	.77	Coal	powder					_							·
;	80.2	-		<u> </u>				1	-+	Н								
		80.20	80,42	.22	Coa1	rubble, slickensides				\Box								
 				-	<u> </u>	Log thickness 9.6		\vdash		-								
						Core thickness 8.21		<u> </u>		-								
$\vdash \vdash$						Core recovery 86%				\Box								
}		80.42	80.85	.43	Shale	dark, silty towards bottom		\vdash		-		\vdash						
19		BU OF	Q 1 12	30	Chair	as above		-								 		
		00.63	01.57	1.48	Snate	· as above		 		\dashv						-		
		81.13	81.60	.47	SLTST													R3
┝╌┼		 		-		calcite veins				_[
					<u> </u>			 	_									
\square																		
LL										1								

ALL LINEAR UNITS IN METRES

^{1:98#/}ORS — GOLDER ASSOCIATES HARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%)

ANGLE MEASURED FROM CORE AXIS

ROJECT	EWIN PASS	HOLE No.	
AREA	S.E. B.C.	CONTINUED	P 103

BOX	DEPTH	DEI	TH			LITHO DESCRIPTION	MODING	SEAN	SAMPL	E	 -		YTICAL			,	REMARKS?
No.	AT TOPOF	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	D€51G	No.	_ mo.	57 % - Iresidual		V.M. % d.b.	f.C. % d.b.	F.S.I.	C.V.	KEWNEY?
	90x		··	-	1	This extend the control of the contr	1 117		 	1	- Isticon:	0.0.	0.0,	1 4.0.		 	
19	81,4						 		 -	 			 	 -		1	
+		81.40	84.15	7.75	SLTST	well laminated and cross-laminated .	55°	 -		1	 		├──	 -	 -	 	
-1			<u>!</u> !		 	some calcite veins throughout, one 3 cm wide calcite vein with siltstone inclusions	 	 	 	1	+	 	 .	 	•	1	
_				_		at bottom	 	 -		1	1		<u> </u>	1	1	1	·
T								Ī		1			1				
]	84.1									1							
_		84.10	84,67	.51	SLTST	_gs_above	↓	 _	<u> </u>	↓	<u> </u>		<u> </u>	ļ	ļ		
					ļ			├	├─-	↓			├	ļ	Ь—	 	
20		0/ 67	07.00	2 (1	SLTST		700	├─	├	+	-		 -	}			
┥		84.6/	87.28	2.67	SLTST	as above, broken in places, slickensided fractures and several calcite vein zones	100	 	├──	+	+		 	 	 		
		 -		 - -	 	TREFUTES and several rairire vein zones	 	 -	1	 	+		 	 	 	 	
_	87.2]	——————————————————————————————————————		L.						Ε.			<u>-</u>
	1	87.20	88.70	1,50	SLTST	as above but little calcite veining.	55°										
					ļ	minor carbonaceous wisps near bottom	<u> </u>	ļ									
3,			ļ		<u> </u>	· · · · · · · · · · · · · · · · · · ·	↓ —	—	}	1	-		1		-		
21		88 70	90 21	1 41	SLTST	as above but minor carbonaceous wisps	65°	\vdash	ļ	1	1		 	1	 -	 	
+		00.70	70,31	1.01	30191	scattered throughout	1 60	\vdash	 	+	 		 	 		 	
┪			 -	├─		scattered throughout	\vdash	-	1		+			 		1	
1	90.2						 		<u> </u>	†	1		<u> </u>	 			
		90.20	90.45	. 25	SLTST	as above	L				1						
耳								<u> </u>		1							
		90.45	93,07	2,62	Shale	medium gray, minor irregular silty zones.	 	<u> </u>		↓	 		<u> </u>				
-				<u> </u>		calcite vein zones throughout	 	<u> </u>	-	↓	 		<u> </u>				
22		02 07	-02 66		Shale		 	-	├	+	┿						
+		93.07	44-22	48	Shale	as_above	 		\vdash	 	 		├──	 -	 	} -	
\neg	93.3			\vdash		4111	t		 	1	+					 	·
\Box	****	93.30	96.38	3.08	Shale	dark gray, calcite veins throughout.	_	1		1	+			 	<u> </u>	† 	
]					minor carbonaceous wisps in middle											
						some silt towards bottom	l			<u> </u>			ļ <u> </u>	<u> </u>			
-	,, ., 		<u> </u>	<u> </u>	ļ		 	<u> </u>	 	↓			Ļ			1	
	96.3	06 20	06 07		Shale		├-	 	├	+	ļ			-	 		
		90.30	90.94	-64	Suare	not as dark as above, very minor calcite veins, minor silty zones	 	 		+	+		├	i e	1	1	
				<u> </u>		veins, without sittly zones	 	\vdash	 -	†			-	<u> </u>		1	
23						· · · · · · · · · · · · · · · · · · ·	 	 		+	 			 		1	
		96.94	98.74	1.80	Shale	as above	<u> </u>										
[]		[<u> </u>													
\dashv		98.74	99,09	<u>,35</u>	Coal	powder	↓	8	-	-			 -	ļ			
-+	<u> </u>	<u> </u>	<u> </u>	<u> </u>	ļ		 	owe	EP-1	42	——						
-	99.4	00 (0	99.50			3-1-1-A3 3-1111-3	 	 -	60		0.44	5 20	26 35	K7 02	R	 	Yield 84%
\dashv		44.40	44.50	10	COAL.	bright and dull, stick	+	 	60	1 6.33	0.44	3.20	20.33	07.73	 	 	11610 044
		99,50	99_85	. 35	Coal	slickensides, broken	 	 	\vdash	 	+		 	<u> </u>	i	 	
		l	i	I	1	•	† · · · ·		† †	1	 		 	t —	 		
\Box		99.85	99.99	.14	Coal	rubble, slickensides		l		<u> </u>						<u> </u>	
			<u> </u>		ļ												
- 1	į	1	1	I	i .	· 		I	1	1			1		j	} · · · - · -	

ALL LINEAR UNITS IN METRES

FF --- FRACTURE FREQUENCY



t :=R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

[•]RQD — ROCK QUALITY DESIGNATION (%)

^{* --} WASHED TO S.G. 1.5

PROJECT	EWIN PASS		HOL
AREA	S.E. B.C.	_	CONTIN

HOLE No.

PAGE 8

3OX	DEPTH	DEI	TH.			LITHO DESCRIPTION	MOONG	SEAM	SAW	Pi f				TICAL				REMARKS?
No	TOPOF BOX	FROM	TQ.	[TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		DESIG	No	•. · ·	MOIS	residual	ASH 1/2 d.b.	V.M. % d.b.	F.C. % d.b.	F.S.i.	C.V.	REMARKS
23			100.34	.35		dull with bright bands, slickensides, broken	1	1	-	Ħ	mp.4)\$		- 1111		V			 -
										⇉								
	—	100.34	100.44	.10	Coal_	_dull. stick	┼—	1							-			 -
		100.44	100.68	.24	Coal	rubble, slickensides				士					<u> </u>			
-	100.9					<u> </u>	-	ļ		\dashv					-			
二		100.90	101.04	.14	Coa1	rubble, slickensides	† <u></u>		H	-+								
-		101 06	101,18	1/	01		<u> </u>			\dashv								
		101.04	TATFIG	. 14	COBI	dull with bright bands, stick	 -	 -	┝╅	\dashv								
J		101.18	101.52	. 34	Coal	rubble, slickensides, dull				\Box								
24		101 52	101.60		Coal	dull stick										<u>-</u>		}
\exists		1															-	
+		101.60	101.72	.12	Coal	powder	 		-+	-					ļ <u>.</u>			
		101.72	101.90	18	Coal	rubble, dull												
-	102.4					 	_		\vdash									
_	UZ,G		102-45	.05	Coal	dull, broken	 	 		-+					 -			
-		102.65	102.62		Cost	duli, stick				7								
		102.45	104.64		Coai	duli, Stick	 		+	\dashv								
\dashv		102.62	103.35	.73	Coal	dull, broken												
	104.5						 - -		\dashv	-					<u> </u>			
耳			104.52	.02	Shale					⇉								
-		104.52	105.43	91	Coal	dull with bright bands, pyrite along a few	 		_	-								
		104.52	103.4.		0001	slickensides, stick	<u> </u>		1	-+								
\dashv	-	105.43	105 66	22	Cool	broken, slickensides		-	4	Ţ					_			
		l i				proken, strckensides	1	╂╾┄╌┨		\dashv	~							
-		105.66	105.98	32	Coa1	dull and bright, stick			Π.									
		105.98	106.09	11	Coa1	dull with bright bands, stick	1		-	\dashv								
_[<u> </u>			- "						
+	106.8		107.43	63	Coal	dull with bright bands, stick, some	1	 	-	-								
ユ					9081	slickensides					_							-
+		107.43	107.60	11	Coal	bright, stick			T	_[
					-	•	-	┞╌╾╣		\dashv			 ∤					
4		107.60	107.77	.17	Coal	rubble, slickensides			1									
寸		107.77	107.87	.10	Coal	bright and dull, stick	┼		\dashv	+		 		 -	<u> </u>			
4									EP-	_								
-+		107-87	108.09	22	Coal	dull with bright bands, stick		.]	61	4	4.73	0.34	5.29	2 <u>5.54</u>	68,83	8		Y1eld 78%
ヿ							 	 	-	+								

ALL LINEAR UNITS IN METRES

t:R&/ORS — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION (%)

A ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN	PASS	 	
AREA	S.E.	B.C.		

HOLE No.	EP 10:	3
CONTINUED		

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вох	DEPTH	DEF	TH	T		LITHO DESCRIPTION	A. (2)	SEAM	I CAL	ABI E			ANALY	TICAL	DATA			
No	AT TOPOF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG		4o.	MOIS	residual	ASH %	V.M. % d.b.	F.C. % d.b.	F,\$.I.	C.V.	REMARKS*
+	BOX	1 1011		 -		The transfer of the transfer o	ļ. '-'	 	<u> </u>			regionor	0.0.	4.4.	J. U.U.	-		
25		108.09	108.22	. 13	Coal	powder	-	 	6	-10	<u> </u>				 	-		
				<u> </u>		Power			Ľ	\Box								
		108.22	108.27	.05	Coal	dull, stick		 	-	_		<u> </u>		··- <u>-</u> -	<u> </u>	-	 	
	108.5			-	-	<u> </u>	 	 	┼─					—— 	 	├	 	 -
		108.50	108.60	.10	Coal	broken, dull and bright												_
-		108,60	100 20		Cool	dull and bright, stick	-	-		┤┤					 -	-	 	
		100.00	109.39	./9	COAL	dull and bright, stick	_		╀	-				-		 	 	
$=$ \downarrow		109.39	109.57	18	Coal	rubble, dull				\Box								
-		109.57	100 68	7.3	Coal	powder			⊢	H		1			-	-	 	· -· · · · · · · · · · · · · · · · · ·
			!	ł	ì	•									İ			
_		109.68	109.97	.29	Coal	dull and bright, minor pyrite, stick	_	<u> </u>		\Box								
- 1	10.2				 				┢┈	 		\vdash			 		·	
丁		110.20	110.34	.14	Coal	dull with bright bands, broken				\square						<u> </u>		
		110.34	110 (-	<u> </u>	-					ļ <u>.</u>	 -		
_†	- 1				}	bright, stick		 	-	H		!			 	_		
7		110.43	110.47	.04	Shale													
\dashv		110.47	310 54	-	Cont	rubble, bright			-	Н	-				-	-		
				L				<u>t — </u>								l		
		110_54	110.60	.06	Coal	bright, stick			<u> </u>	\Box						<u> </u>		
-+		110.60	110.75	.15	Coal	dull with bright bands, stick		 	┢╌	H					 	_		
				}	1				L									
-		110.75	110.90	.15	Coa1	powder												
-+		110,90	111.10	.20	Coal	dull with bright bands, broken	_	 	-	+-			-			 		
\Box																		
	11.6	111.60	111 7/	1,	01	_duli and bright_stick		-	⊢	\vdash		 			 -	 -		<u></u>
	1			Ţ					-									
		111.74	111.88	.14	Coal	dull, stick												
+		111,88	112.22	1.74	Coal	rubble, slickensides		-	٠.			 			-	-		
\dashv		222,50			0011													<u> </u>
\dashv						Log thickness 13.4										Ţ		
				┰		Core thickness 9.63 Core recovery 74%	-	 	1							 		
_						1		1										
	112.2	112 20	112 80		Shale	black, carbonaceous		ļ	ļ		ļ							
		112.20		3 . OU	DOZIE	Drack, carponaceous	 	 	1				-		├	 		
\Box	112.8			[<u> </u>									
		112.80	112.81	1.01	Coal	shaley (bone)		<u> </u>	-			 -			ļ	 -		
+				 	 			 	1									
1		L	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u>i </u>	i		<u> </u>	<u></u>			<u>. </u>	l	<u> </u>	l

ALL LINEAR UNITS IN METRES

t :=R&/OR S — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION (%)

FF -- FRACTURE FREQUENCY

NESS CODE ANGLE MEASURED FROM CORE AXIS

OJECT	EWIN PASS	 HOLE No.	
REA	S.E. B.C.	 CONTINUED	EP 103

БОХ	DEFTH	DEI	PTH			LITHO DESCRIPTION	REDORNO	SEAM	SAMP	Ę				YTICAL				REMARKS"	1
No	AT TOPOF SOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	O£\$≩G	No.	L	MOIS!	% residua!	ASH %	V.M. %.	f.C. % d.b.	F.S.I.	C.V.	NEMORKS.	ı
25		t	112.88	.07	Coal	bright with dull bands, stick			个	l									1
			110.00							7									7
			112.90		Ι	carbonaceous				\pm								<u> </u>	1
		112.90	112.95	-05	Coal	hright, stick			 EP-1	2									4
H		112.95	112.98	.03	Shale	carbonaceous			62		1.11	0.14	6.48	26.37	67.0	8.5		Yield 63%	-
26			Γ			<u> </u>			-	4									7
H		1112.98	112.99	101	Coal	bright, slickensides, broken			+	+		-			1			 	1
		112.99	113.06	07	Shale.	highly carbonaceous			\perp	7									7
		113.06	113.19	.13	Coal	dull with bright bands, stick, slickensides	 -		+	+									1
\Box			l							Ŧ									7
-		<u> </u>	l		Shale				+	1									1
		113.20	113.40	20	Coal	dull and bright, stick, slickensides													7
		113.40	113.54	.14	Coal	powder			\downarrow	_									1
										1									4
						Log thickness 0.9 Core thickness 0.74				1									1
						Core recovery 82%				-									7
		113.54	113.62	.08	Shale	black, carbonaceous				1									1
			<u> </u>		SLTST												<u> </u>	72	7
		113.02	114.62	1.00	SLIST	medium gray, some shale beds, better laminated towards bottom	50°	-		1								R3	1
	114.6				-			_		-									7
		114.60	115.39	.79	SLTST	as above but well laminated and cross-				-								-	1
 -						laminated towards top	<u> </u>			-					· ·				7
		115.39	116.46	1.07	Shale	black, carbonaceous in middle				1									1
			i	1	SLTST		-			7									7
		:10.40	11/10/		PLIST	irregular laminations and beds, some calcite veins towards top	60°			士									1
\vdash		117 07	117 21	2/	Shale	13 1.				+									4
		117.07	117.31	.24	Scare	black				-†									1
27		117 21	117.60	20						Ŧ									7
		i .	111497	1	Shale	as above				+								<u> </u>	1
	117.6		120 66	3 04	Shale	as above with a silty zone towards top				7								ļ	7
			120.00	5.00	onate	0.3 m thick	<u> </u>			+								 	I
	120.7		123 61	0.1	0					4			-						1
		120.70	121.51	81	Shale	carbonaceous at bottom	 			-†-									1
		121.51	121.56	-05	Coal	broken, dull and bright				1									1
		<u>L_</u>	<u> </u>	1		<u> </u>							l					i	1

ALL LINEAR UNITS IN METRES



^{1 :-} R&/OR S -- GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* ---} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	 	HOLE No.	
AREA	S.E. B.C.		CONTINUED	EP 103

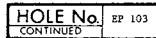
ВОХ	DEFTH	DEF	?TH		LITHO DESCRIPTION		MEDDING	SEAM	SALAPI F	L		ANAL	YTICAL	DATA			REMARKS*
No.	AT TOPOF SON	FROM	τo	τH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG No.		WOIS		ASH %	V.M. %	F.C. % d.b.	F.S.I.	C.V.	
		TROM		-	11.511	Aut 5: 100 farecond done recovered for Each definit	(*)	<u> </u>		3 8,r.s.	residual	Q.D.	0.5.	0.6.			
28	121.6	121 60	122 21	1 61	Shale	black, carbonaceous in middle	 -				-			 	 		
\vdash		121,60	123.21	1.01	Share	black, carbonaceous in middle		\vdash			 			1			
	123.1									l.				Ì			
\prod		123.10	125.68	2.58	Shale	as above but not carbonaceous	ļ										
20	-					· · · · · · · · · · · · · · · · · · ·	ļ				-			╄			
29		125.68	126.16	.48	Shale	as above	 			· · · · · · · · · · · · · · · · · · ·				 			
		1,00,00	1-0.10		Unuic									 			
	126.3																
		126.30	127.20	-90	Shale	as ahove											
		127 20	129 25	2 05	Shale	medium gray, calcite-filled fractures								-			
		127.20	129.23	2.05	Dilare	medium gray, carcite triffed fractures				-	 			-	 		
		129.25	129.52	.27	Shale	as above, silty in part					<u> </u>				<u> </u>		
]																	
-	129.5	100 50	100 00		Shale			 			 			<u> </u>			
-		129-50	129.48	-48	Shale	as above, a 1 cm thick calcite yein, faint bedding planes	55°							 	-		
						raim: bedding pranes	33	1	-		}				-		
30																-	
		129.98	132.63	2.65	Shale	increasingly silty with some beds (0.2 m											
				\vdash		thick) well laminated and cross-laminated	60°				ļ						
-	132.6	_		H		End of EP 103					 			-			
							-				1 1						
]																	
						, , ,					ļ	- "					
				\vdash							ļ		-				
											 				-		
											 	-					
[
	 -														}		
+											├						
						· 14					1						· · · · · · · ·
-		-		$\vdash\vdash$	<u> </u>			<u> </u>									
-				\vdash			-			<u> </u>	├						
						· · · · · · · · · · · · · · · · · · ·					 						
\Box										· - · · ·	 				 		
	↓																
∤	 -						↓	-1			 						
				\vdash		<u> </u>] 						
			-	\vdash							 			-	-		-
											 		 	 			
											 				 		
					L:		1			L	1 1			<u> </u>			

ALL LINEAR UNITS IN METRES

1 :+R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

*RQD --- ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY



PROJECT	EWIN	PASS	12	BEG
AREA			ð	EN

_		_	. 1				
July	30,	1980		HOLE	NIA	EР	10
Arto.	Ω.	1980		HOLE	INO.		

PARTICUL	

	N 5,540,247.	.15	
LOCATION	E 660,912.5		
ELEVATION	2214.2	HOLE BEARING (AZ")	(true)
TOTAL DEPTH	252.1	HOLE ANGLE (*)*	60°

LOGGING	Natural gamma density
LOGS RUN	heutron, caliper, de- tailed density
LOGGED BY	Davies Exploration of Coal Seams Logging Lt.
OTHER TESTS	Directional Survey

00/	LL CORING PERFO	RMANCE
cc	ORE DIAMETER	HQ
	CORE RECOVERED	
OTA!	LENGTH CORED	
Ĕ.	CORE RECOVERY	%

EXAMINATION	
LOG USED	Gamma-Densit
No. OF SEAMS SAMPLED	4
EXAMINER (8)	C. Beaven
DATE	Aug. 1980

вох	SEPTH AT	D	EPTH			LITHO DESCRIPTION		SEAM	SAMPLE			ANAL	YTICAL	DATA			
No		FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		DESIG.	No.	, m.v	residuel	ASH % d.b.	V.M. % d.b.	E.C. % d.b.	F.S.).	C.V.	REMARKS ¹
,	3.0		 	 		Casing 10'	1		1	-11.15		0.01	0.0.				
-	3.0		<u> </u>	t	 	casing to	 	 -									
		3.0	3.23	.23	SST	light gray, coarse-grained, rubble											
							┼	-			<u> </u>						
		3.23	3.9/	-/4	Shale	dark gray, carbonaceous, mostly rubble	 -	├ —		 -	 	-					-
	4.9																
		4 00	5.90	1.00	C1 - 1 -	A 0.2	1				ļ <u>.</u>						
		4,90	3.90	1.00	Share	top 0.2 m rubbley, coaly lenses	+	}			-		1	- -			
	6.1						1								. "		
				<u> </u>	<u> </u>		1										
		6.10	6.46	36	Shale	as above, broken		}									
	6.4						1										
		6.40	7.59	L 19	Shale	as above. less carbonaceous	——										
	7.8		 		<u>. </u>		 -	 	-	-	 						
		7.80	8.51	.71	Shale	as above, more carbonaceous towards bottom											
			<u> </u>			<u> </u>	 										
7		8.51	9.40	.89	Shale	as above	┼	-		 -		-					
			1														
	9.3	9.30	9.92	-62	Shale	as above											
		9.92	11.47	1, 55	Shale	as above with silty patches	╁╼╌	<u> </u>									_
	11.4	11 (0	10.00				0	<u> </u>	ļ								
		11-40	12.69	1-29	Shale	as above	75°					├					
3					<u> </u>												
-		12.69	12.96	-27	Shale	as above	_										
	12.8	 	 -	H			-	\vdash			 -	 					
		12.80	13.74	.94	Shale	as above										- !	
			ļ														
_		13.74	14.30	-56	SST	light gray, medium grained, sharp upper	} —-										R3-R4
						Concart, minor existing warms									- {		
	14.3		\	1													
—		14.30.	15.89	1.59	SST	as above, beds of finer sandstone that are laminated and cross-laminated & carbonaceous	70°					<u> </u>					
					-	Tawthaten and pross-raminated & carbonaceous	1 -				 						
							1 1										

ALL LINEAR UNITS IN METRES

: MEASURED FROM THE HORIZONTAL PLANE

T : R B/OR S - GOLDER ASSOCIATES HARDNESS CODE

*RQD -- ROCK QUALITY DESIGNATION (%)

HOLE No.

A ANGLE MEASURED FROM CORE AXIS

EP 104

FIRE No. BA - 211A REVISED Nov. 1978

PROJECT	EWIN PASS			ΙН
f — — —				
AREA				<u> </u>

OLE No EP 104 OF 19

ВОХ	DEFTH	DEI	PTH	1		LITHO DESCRIPTION	A PEDONIC	SEAL	SAMPLE			ANAL	YTICAL	DATA			
li	AT TOPOF	FROM	το	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	TANGE	DESIG	No.	MO15			V.M. %		F.S.1.	C.V.	REMARKST
No	801	PAUM	10	<u> </u>	MAIN	AMPLITIED (INCLUDE COAL RECOVERT FOR EACH SEAM)	1.1	 	<u>ļ.,</u>	0.7.6.	residual	á.b.	d.b.	d.b.	11000		
┷	15.8			-				<u></u>	<u> </u>	<u> </u>				<u> </u>	L		
┝		15.80	16.66	86	SST	medium grained, top 0.15 rubhley, minor calcite veins	_60°	↓						<u> </u>	 -	ļ	<u> </u>
┡			ļ	├		calcite veins	-	├ —	}	}	}			 		<u> </u>	 -
├ ╌╾╅				 			ļ	├	 -	 				 -	-		
├ ,─┤				├─ ┈	- -		 			 	 			-	 -	-	
i " 		16.66	17.37	7 1	CCT	as above with coal wisps and lenses	+	 	 	 	1		-	-	 	 -	
		10.00			1 231	as above with that wishs and lenses	 	 			-			 -	<u> </u>		
	17.4	17.40	19.05	1.65	SST	as above with coal wishe and lenges chale	80°	 			 		-	 			· · · · · · · · · · · · · · · · · · ·
						as above with coal wisps and lenses, shale beds 0.10 m thick, shale rip up clasts in									_		
						places	I						_		Į		
\sqcup			ļ	 	ļ j		<u> </u>							<u> </u>	l		
├∤	18.9		 _	<u> </u>		<u> </u>	↓		<u> </u>	<u> </u>	 _			<u> </u>			
├┈┼		18.90	20.14	1.24	SST	as above with coal and shale	70°	 	ļ	<u> </u>				<u> </u>	ļ <u> </u>		<u> </u>
		20.17	.20.37		CT TOOM		0-0	├		 	 				-		
┝┅╼╁		ZU. 14	-44.37	43	SLIST	medium gray, laminated	85°			! 	 	-			 	 -	
	20.4			1			†	 		 	 				 		
		20,40	20.82	.42	Shale	dark gray, medium grained sandstone lenses	90°				<u> </u>			 - -	 		
						containing shale rip up clasts	12				1				!		
							1							<u> </u>	<u> </u>		
5							L										
 		20.82	21_96	1 14	SST	light gray, massive, medium grained	Ĺ										P3-P/
\mapsto	21.9			ļ			↓	L			1				L		
┤	41.9	27.00	23.35		COM		↓			 					ļ		
-		21.90	<u></u>	11-43	221	as above	 -			├ ─┈──	[]						
	23.5			 		<u></u>	1	 		├	}				 -		
\vdash		23.50	24.95	1 45	997	as above with beds of fine grained sandstone	 			 	{				_		
П		23.30		****	0.71	laminated towards bottom, minor calcite veins	75°			 	-				 -		
						The Court of the C	1				<u> </u>			ı			
	25.0										1				<u> </u>		
\sqcup		25.00	25,22	.22	SST	as above but not laminated	Τ										
		<u> </u>	L -														
6				.	 	· · · · · · · · · · · · · · · · · · ·	<u> </u>										
		25.22	26.77	1.55	SST	as above but increasingly laminated	70°			ļ. <u>. </u>					ļ		<u> </u>
				\vdash		towards hottom	 -	 -	<u> </u>	 	 				ļ		<u> </u>
 	26.5	— 					+		 -	-	├	-					
\vdash	 ,	26.50	27,70	1,20	Cer .	as above with some coaly wisps and lenses	+				├┈╼╸ ┤		 		 		······································
			~ (1 / 5	<u> </u>	164	and some shale clasts	 -			 			 		 -		
	_					HAM GUILE SHATE LIASES	1	 		 	 		 		i i		
		27.70	28.08	.38	SLST/SH	interhedded	t	 		<u> </u>					 	·	
						1	1		-	 	-						
	28.0			L					i								
┝╌┷		28.00	28.97	.97	SLST/SH		70°										
				⊢ —		are shale rip up clasts					I1						
┪	<u> </u>		<u>-</u>	├	!		L				1				ļ		
4		20.07	20.77	- , -	000		1	ļ									
┝╌┥		28.97	29.46	49	SST	light gray, fine-grained, laminated and	80°				ļ				 _		
l i					L i	cross-laminated in places	[((ļ	, ,	1					

ALL LINEAR UNITS IN METRES

TIRA/ORS — GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION (%)

FF -- FRACTURE FREQUENCY



VECT	EWIN PASS	HOLE No.	n 101
REA		CONTINUED	P 104

ВОХ	DEPTH	DE	PTH	I^{-}		LITHO DESCRIPTION		SFALL	SAMPLE				YTICAL				REMARKS?
No.	AT TOPOF BOX	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	residual	ASH %	V.M. % d.b.	F.C. %	F,S.I.	C.V.	REWARK?.
		29.60		4.7		as above, shale rip up clasts in places	70°	<u> </u>	1	<u> </u>	742,000		4.5.			 	
٠	23.0	23.00	31,07		001	as above, share the up clases in praces	1.0	 	 					ļ			
	31,1																
		31.10	32.80	.70	SST	as above, last 0.60 m broken and is weathered.	-	-		-			1	}	-		
				-		crange along broken surfaces (joints?)									 -		
	32,6																
├	—	32,60	33.12	.52	SST	as above	 		ļ	 -	 -		ļ	 -	ļ		
8							-	-						 			
		33.12	34.06	.94	SST	as above, medium grained in places	80°										
	34.1						 	 -	ļ	 -	{		-	<u> </u>			
	39.1	34.10	35.63	1.53	SST	as above, medium grained beds, not laminated				-	-			 			
	35.7	25 70	37.26				208										72.7/
		35_/11	37.76	1.55	\$\$1	as above, minor calcite veins, orange	80°										R3-R4
	37.2		37.44			as above		<u> </u>									
		37.20	37.44	- 24	SST	as above	 		-		<u> </u>				-		
9							L										
		37,44	37,62	.18	SST	as above		<u> </u>			} -i					-	
		37.62	37.82	. 20	Coal	dull, broken		 		<u> </u>					-		
		.37.82	38_08	.26	Shale	carbonaceous											-
		38.08	38.14	.06	Coal	stony, rubble				·············			-			-	
		<u> </u>															· · · · · ·
		38.14	38.39	.25	Shale	carbonaceous, bands of coal and stony coal, rubble and coal in small pieces								<u> </u>			
						rubble and coal in small preces	 		-								
		38,39	38.44	.05	Shale	dark gray											
	38.7		 _				 	\vdash			-						
	70.1	38.70	39.19	1.49	Shale	carbonaceous, slickensides polished with coal		\vdash				-					· · · · · · · · · · · · · · · · · · ·
	40.2	40.20	61 70	1 50	Chalc	not carbonaceous					<u> </u>						
		41,20	414/0	4.24	Snate	not carbonaceous					 				├ -		 -
	41.8																
		41.80	42.06	.26	Shale	becoming silty					ļ <u> </u>						
10		-				 		\vdash	<u> </u>	<u> </u>	 				 	_	
		42.06	43.39	1.33	Shale	coal lenses											
	40.0	ļ															
	43.3	43 30	44 80	1 50	Shale	silty in places					 		<u> </u>				······
		7-2-20	77.00	×4	SHATE	STITE IN PLACES	 				}				} 		
	<u></u>	1		L .		<u> </u>		<u> </u>	نــــا		<u> </u>		<u></u>		<u></u> i		

ALL LINEAR UNITS IN METRES

1 :- RB/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

HOLE	No.	EP	10
CONTINU	ED		

ROJECT	EWIN PASS	THO	DLE No.	
AREA		CON	NTINUED	EP 104

PAGE 4.... OF. 19

No. 7	AT -		PTH			LITHO DESCRIPTION											
140		FROM	TO	TH :	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	SAMPLE No.	MOIS		ASH %	V.M. %	F.C. %	F.S.L	C.V.	REMARKS *
	90x	PROM		-	MAIN	AMPLITED (MICEODE COME RECOVERT TOK EACH SEAM)	(*)	ļ	<u> </u>	0.7.b.	residual	d.b.	d.b.	d.b.			
							 							├	1	}- <u>-</u>	
44	4-8	11.00				as above, no coal or silt	-						 	├	 	 	
_	_	44.80	46,05	4.23	Shale	as above, no coal or sit	 						 	 			·
11																	_
		46.05	46.38	_33	Shale	as above								ļ			
	6.3		ļ	├				-	-				 		 	 	
191	0.21	46,30	46.86	.56	Shale	as above							 	 			
					_								i				
	\rightarrow	46.86	47.51	.65	Coal	dull and bright, stony towards top											
+		72.51	47.06		61									-	-		
		4/.51	47-85	تتا	Shale	dark gray, carbonaceous							 		-		
4	7.9														-		··-
		47.90	49.24	1.34	Shale	as above											
-		60.07	50.01		Shale	as above, increasingly carbonaceous					 	<u> </u>		1			
+	\rightarrow	49.24	20.01	.//	Snare	as above, increasingly caroonaceous					-		 	 	├──-		
12 4	9.4												 	 			
		49.40	50.83	1.43	Shale	as above											
\dashv													<u> </u>				
\dashv	 -	50.83	50.98	إلما	Shale	coaly, pyrite on fractures											
51	0.9			\vdash		<u> </u>	-						 -	 	 		•
		50,90	51.14	.24	Shale	coaly							 -		 -		-
	I													<u> </u>			·
-		51.14	52.43	1.29	Shale	silty beds, calcite veins	70°							ļ <u>-</u>			R3
	2.4			\vdash										├			
- -		52.40	53.52	1.12	Shale	some minor silty beds, slightly carbonaceous	70°				 		-				_
						towards bottom										-	
						<u></u>											
13	-	52 52	52 70	24	Chala	slightly silty	 -										
-	-	22,32	٠,٠٥٠	1.20	Share	stigacty stity					-			-			** -
		53.78	53.94	.16	Coal	broken and rubbley, pyrite along some surfaces	İ										, .
												1					
	3.9	60 50	<u> </u>	<u></u>				└							ļ		
+	$\overline{}$	5.5.90	34.34	109	Coal	slickensided, broken	 	┝─┤		<u> </u>	 -			 			
		54.34	54.76	.42	Shale	dark gray, some silty beds		 					 				
\perp																	
\	5.5																
-		.55.50	56.23	1-13	Shale	as above	 	 					} -	<u> </u>			
	+	56.23	56.69	.46	Shale	carbonaceous and coal bands, broken and rubble		 				 	 	-	 		· · ·
													 				
5	6.7										L						
+	∤-	56,70	57,65	.95	Shale	dark gray									$oxed{\Box}$		
				<u>. </u>			\$;

ALL LINEAR UNITS IN METRES

1 :+R&/ORS — GOLDER ASSOCIATES HARDNESS CODE

•ROD --- ROCK QUALITY DESIGNATION [%]

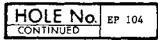
FF - FRACTURE FREQUENCY

PROJECT	EWIN PASS	HOLE No. 27 104
AREA		 CONTINUED BP 104

ВОХ	DEPTH	DE	PTH	1		LITHO DESCRIPTION			SAMPLE			ANAL	YTICAL	DATA			
1	AT TOPOF BOS	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS			V.M. %		F.\$.1.	C.V.	REMARKS*
N 0		FROM	<u> </u>	├ ─	WELLA	AMERICAN TOR EACH SEAM!	(*)	ļ	<u> </u>	0.1.b.	residual	d.b.	d.b.	ď.b.			
13	56.7	57.65	67.75	10	Ch a T a			-									ļ <u> — </u>
		37.63	3/-/3	1-10	Shale	carbonaceous and coal bands		├	 		 -			 -			
14							 	 	1						<u> </u>		
		57.75	57.79	.04	Shale	as above				1							
		67.70			Shale			-	ļ	<u> </u>							
		37.79	28.32	1 .30	Shale	dark gray											
- †	58.2		 	 				 	 					 -			
\Box		58.20	59.80	1.60	Shale	minor silty beds, minor coal lense towards			Ĺ								
						hase											
	59.7		 	-	<u> </u>				ļi	 	 	~- 		-			<u> </u>
1	27.7	59.70	60.55	85	Shale	some silty heds, carbonaceous towards bottom	-		 -	 	 			[
			ì	i		, , , , , , , , , , , , , , , , , , ,			İ	<u> </u>							_
		60.55	60.67	.12	Shale	carbonaceous, broken											
		60 67	60 07	20	Coal	dull banded, broken and rubbley at base		<u> </u>		ļ	 						<u> </u>
		VV.07	VV-7/	1.3	oudi	AGTT NURGENT BEOMEN SHIP LINDSTEA SE DESE		\vdash			 - 		<u> </u>	-			
		60.97	61.04	.07	Shale	dark gray					 						
	61.6							<u> </u>									
		61.60	61_93	-33	Shale	as above					┞╼╌┤						
15																 -	
		61.93	63.13	1.20	Shale	carbonaceous beds and coal lenses			Ĺ								
								<u> </u>									
- [63.1	62 10	64.46	, 26	Ct - 1 -				 -								
		0.2.10	04.40	1110	Share.	as above					 						
	64.6																-
		64.60	66.16	1.50	Shale	as above, silty beds, minor calcite veins at											
			 			bottom					 						ļ
16	56.1		 -							 -	┞╼╌╼┨						
		66.10	67.56	1.46	Shale	minor silty beds							_		-		
- }	67.7	67 70	60 20	1 60	Shale	no Abovo		<u> </u>									
+	-	9/./0	07.30	1100	onaie	as above									-		
	59.2									-	 -				\vdash		
_[69.20	70.32	1.12	Shale	darker gray, coal lenses											
12			 		ļ												
		70.32	70.44	12	Shale	dark gray					 				 -		
二		, , , , , , ,			Juare		 	 			├ ╍──┤				\vdash	-	
	70.7																
		70.70	71.98	1.28	Shale	carbonaceous in places											
				}	Shale	<u> </u>					$ldsymbol{\sqcup}$						
		11.30	72.20	1.50	SHATE	carbonaceous, broken			····			—.—┤		.—-	├		
			<u>i . </u>	نـــا	L	<u></u>			[]		j	1			j }		

ALL LINEAR UNITS IN METRES

t := RB/OR 5 - GOLDER ASSOCIATES HARDNESS CODE = RQD -- ROCK QUALITY DESIGNATION (%)



PROJECT	EWIN PASS	1	HOLE No.	EP 104
AREA] [CONTINUED	DI 104

BOX	DEPTH	DE	PTH	Τ.	<u> </u>	LITHO DESCRIPTION		Ī	SAMPLE	;		ANAL	TICAL	DATA			
No.	AT TOPOF BOX	FROM	70	1H	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	7 %	ASH % d.b.	V.M. % d.b.	C C 01	F,\$.i.	C.V.	REMARKS *
┷		·		┾┈	7415114	AND COLOR OF RECOVERS TO SEASON	1 177	 	 	B.F.B.	residuos	e.b.	€. B.	d.b.			
1/	72.2	72 20	73 75	1 55	Shale	silty beds	85°			<u> </u>			 -				
\Box		72.20	73.73		State	STITY DEGS	67_		<u> </u>	 	ļ					 	
	73.8												,				
\vdash		73.80	74.13	.33	Shale	as above		\vdash		ļ	<u> </u>						 .
$\vdash \vdash$		74.13	74.37	.24	Coal	dull and bright, some carbonaceous shale								_			
\sqcup		74.37	74.55	.18	Shale	dark gray, carbonaceous											
		74 55	74,68	13	Coal	slickensided	-			 				-			
		_1.4.2.2	1 .74,00		COAL	- STICKENSIGEG						- 1					-
18																	
+		74.68	74.85	1-17	COE1	broken		\vdash			<u> </u>		·- <u></u>				
		74.85	75.05	.20	Shale	dark gray				<u> </u>							
		75.05	75.36	-31	Coal	dull and hright, broken.				<u> </u>							
	75.3			<u> </u>						 							
		75.30	75.70	40	Shale	carbonaceous and coaly, broken											
			Į	}	} :												
		75.70	75.95	25	Coal	dull and bright, stick											
		75.95	76.19	, 24	Shale	coaly and carbonaceous											
\Box																	
\rightarrow		76.19	76.50	-31	.Coal	broken											
		76,50	76.64	- 14	Shale	coaly and carbonaceous						+					
\rightarrow		76.64	76,77	.13	Coal	broken											-
\dashv		76.77	77.01	.24	Shale	coaly and carbonaceous		\vdash									
			1,,,,,,		UNGIL	don't die derpondedoor											
	76.8																
+		76.80	77.96	1.16	Shale	dark gray, silty beds	85°	$\vdash \vdash \mid$		 				<u> </u>			
	78.3					784											
		78.30	78.76	.46	Shale	as above											
19				<u> </u>													
		78.76	79.89	1.13	Shale	dark gray		-				-					
	79.9	70.00	01 05		0) 1												
	 -	79.90	<u>81.35</u>	1.45	Shale	dark gray, silty beds		$\vdash \vdash \vdash$		 -							
	81.4	, <u> </u>															
\sqcup		81.40	82.45	[L05	Shale	as above											
├─┤		92 /5	92 07	40	SLTST		008										
		92,43	02.94	.49	20121	medium gray, some shaley beds, laminated and cross-laminated	80*										
<u></u>		L	<u>L</u>	<u> </u>	L	CLODE TOMINGLES					<u> </u>	ļ				ĺ	

ALL LINEAR UNITS IN METRES

1:R&/ORS — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION [%]

FF - FRACTURE FREQUENCY

SSOCIATES HARDNESS CODE ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	HOLE No.	
AREA		CONTINUED	EP 10

юX	DE PTH	DEF	TH		_	LITHO DESCRIPTION	MEDONIC	SEAM	SAMPL			ANAL	YTICAL	DATA			REMARKS 1
No	AT TOPOS BOX	FROM	70	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG		MOL	residual		V.M. % d.b.	f.C. % d.b.	F.S.1.	C.V.	REMARKS'
	82.9	TROM		 			1	 -	<u> </u>	1	10010001	0.5		V.D.		 	
20 P	82.9	82 90	84 41	1.51	SLTST	silty throughout, some laminated with coal,	85°	\vdash	 	+ -	1		 - -	 	 -	 	
			04141			some coal lenses					ļ						
				_			-								· · ·		
 	84.4	87 70	85 84	1 44	SLTST	silty throughout	┼ —			 - -	 	 	 -		├	 -	
+		54,40	02.04	7.77	1 52151	Sizey Entroguous	1		-	 			 -			i	
_ [2	86.0																
+		86.00	B7.22	1.22	SLTST	as above, coaly laminations towards top	80°	 -		+			 -	 	-	-	
1				╁	 		 	 -	-	 	 -	 	 -	 	 		
_		87.22	87.58	.36	SLTST	silty throughout							1				
1							-	 		+	 		ļ 	ļ	 		
}3	87.5	87.50	88 03	1 43	SLTST_	fine to medium grained sandstone beds	85°	├─-	}	 			├──-	 -	 - -	-	R3
				_		throughout granted sandstone bega				<u> </u>					<u> </u>		
							1			ļ	—					<u> </u>	
╅		88,93	89_03	-10	SLTST	rubbley, coaly		 	 	+			{		 		
1	89.0			1	<u> </u>					1			 		 	 	
\Box		89_00	90.58	1.58	Shale	dark gray, silty beds	85°										
+,	90.5				-		├	 -	├		 	ļ <u>.</u>	 -		 	ļ . 	
†՝	30.3	90.50	91.28	.78	Shale	as above, some silty beds have shale rip-up	 	├	├	+	1		 		 		
						clasts				1							
2		01 20	03.06	<u> </u>	Shale	-1-1	├	ļ <u> —</u>	<u> </u>		 -				 		
┰		91.20	91.80	.50	<u>puare</u>	shaley throughout	+	 		 -	 				├		
	92.0				· · ·			\vdash		1 _					 - _		
4		92.00	93,26	1.26	Shale	some silty beds	80°			1					ļ. <u> </u>		
┰		93 26	93.29	0.3	Coal	rubble	├	 	 	 -	+		 				<u> </u>
\top		7 .7.1.6. V	74.22	1.0	- COAL	Labore	1	_	 	†	† 		-		 		
Ţ	93.6								EP-10	24							
		93.60	93.68	08	Coal_	rubble	 	├	11	2.71	0.73	7.51	25.62	66.14	7.5		Yteld 867
+		93.68	93.84	.16	Coal	dull and bright - broken	 	├─-		 -	1		-		 - -		
\Box					· · · · · ·												
-}		93.84	94.04	-20	Coal	duli - broken and rubble		 	X -	<u> </u>	1		ļ				
-+		94.04	94.28	.24	Coal.	dull and bright - stick	{ -∵—	├─┈	1-1	+			 -		├		
										1	 		1				
+		94.28	94.51	, 23	Coal	dull - stick			 		ļ		ļ				
╁	95.1		-	\vdash	1	<u> </u>		 	}	+	+			-	 		
		95.10	95,24	_14	Coal	rubble	 	 	1 1 -	+	 	 		 	 -		
耳				Γ				ļ.,,,									
		95.24	95.64	440	Coal	dull with bright hands, stick	_	<u> </u>	\vdash	 _			 		↓		ļ. -
-		95-64	96.38	.74	Coal	dull - slickensides, stick	┼	-	$\vdash\vdash$	+	+		-		 		 -
- 1																r	

ALL LINEAR UNITS IN METRES

_ Y

1 :- R&/ORS — GOLDER ASSOCIATES HARDNESS CODE - RQD — ROCK QUALITY DESIGNATION (%) A ANGLE MEASURED FROM CORE AXIS

·····	<u>. </u>		. 8
PROJECT	EWIN PASS	HOLE No.	PAGE
AREA		CONTINUED EP 104	OF17
			•

80)	DEPTH	DEF	PTH		[LITHO DESCRIPTION	HOONG	SEAM	SA	APLE			ANAL	YTICAL I	DATA			REMARKS *	1
No	10P0F	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	١,	io.	******	76 residual	ASH %	V.M. %	f.C. % d.b.	F.S.I.	C.V.		l
—	802			-			, ,	1	1		Q.II.G.	145/4BOL	-	4.5.	- C.U.				4
23	ļ							[_	<u> </u>								ļ		1
⊢	<u> </u>	96.38	96.46	08	Coal	dull and bright - stick		-	⊢	Н					}				1
 	96,6			-	 			 	ļ.—					<u> </u>					ł
⊢	90.0	96 60	96.79	10	Cool	dull - stick		 	H	Н						-			1
\vdash		90.00	30.73	112	COAL	dull - stick		\vdash	-	Н								 	1
\vdash		96.79	96.87	08	Coal	bright - stick			-	\vdash					<u></u>				1
			!	I					_	П									1
		96.87	97.16	.29	Coal	dull with bright bands - stick													1
]
┗		97,16	97,50	.34	Coal	dull - stick]
├								ļ		10					<u> </u>				┨.
 		97.50	97.8I	-31	Coal	slickensides, broken			1	2	7.17	0.78	2.58	26.71	69-93	8		Yield 43%	┨`
├	98.1			-						Н									ł
一	20.1	G8 10	98.32	22	Coal	rubble, slickensides		 	-	Н				-			 -	 	ŧ
		70.10	70.74	***	VVal	Tubble, Sitthensides				H		—	-				-	 	1
		98 32	98 46	1.6	Coal	dull - broken		 	-						-				1
				L.:															1
		98.46	98.75	.29	Çoal	dull and bright - broken													1
																			1
		98.75	98.91	.16	Coal	dull - stick		<u> </u>											1
				-		_ 		ļ <u> </u>	L.,										1
	99.7	00 70	00 00	,,						-									1
├		99.70	-99.80	-10	Coal	dull - stick		[-									 	ł
\vdash	_	09.80	99.18	1.9	Coal	dull and bright - stick		\vdash											1
		77.00	29.10	***	.va.	dull and bright " Stick		· —	\vdash	<u> </u>	 -								ł
\vdash					-	Log thickness 5.2			┝╌	-				-				ļ	1
								 	┢										1
						Core thickness 4.60 Core recovery 89%						-		- 1					1
																			1
 		99.18	99.98	.70	Shale	dark gray, carbonaceous in part						l						ł	1
				ļ		<u>.</u>			٠,	[1
		99.98	100.11	.13	Coal	bright - stick		<u> </u>	ĹŢ	`									Į
 	-	100 11	100 12	0.7	Shale	carbonaceous				104 3		2 (2		25 15				771 7 7 4 4 4 7	ł,
<u> </u>		100.11	100.12		Share	carbonaceous		1	┝╼╄	•	3.09	0.69	4.41	25.45	62.94	8.5		Yield 61%	ľ
\vdash		100.12	100.19	.07	Coal	dull - stick		-	┝╼┤	_								 	1
		200112	100,12	•••	0042	4411 30108		<u> </u>	}¥	_								 	1
						Log thickness 0.6			┢						•	-			1
匚			·			Core thickness 0.21							· ~					j	1
<u> </u>						Core recovery 35%			L.]
			<u> </u>	ليا		<u> </u>													
—	ļ	 	<u> </u>	1.26	Shale	dark gray, carbonaceous, slickensides & broken		ļ	L.										ł
\vdash	101 0			 	 	<u></u>		ļ	_										Į
<u> </u>	101.2	101 20	101 12	1 2	05 2			 -						⊢…		<u> </u>	·····	<u> </u>	į
 		101.20	101.43	1-23	Shale	as above		<u> </u>	<u> </u>	_			——-i			\vdash			1
			<u> </u>		<u>-</u>	· _ · · · · · · · · · · · · · · · · · ·									-				l
\vdash					<u></u>		_			-		-							ł
ــــــــــــــــــــــــــــــــــــــ			L	<u> </u>	<u> </u>	<u> </u>		i:	_			L		<u></u> l				i	1

ALL LINEAR UNITS IN METRES

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

TINE OF S - GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD — ROCK QUALITY DESIGNATION (%)

^{* --} WASHED TO S.G. 1.5

OJECT EUIN	PASS	HOLE NO EP 1	<u> </u>
REA		CONTINUED	٠-

BOX	PEPTH	DEF	TH.			LITHO DESCRIPTION	A DOWN	CEAN	SAMPLE				YTICAL				***************************************
No.	AT TOPOF	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	- MOIS	residual	ASH %	V.M. % d.b.	F.C. %	F.S.I.	C.V.	REMARKS T
1401	801	FROM			70000	AND ELLED FIRELODE CONE RECOVER TOR CACH GENING	(*)	1	1	9.7.0.	restanar	9.6.	9.9.	g.e.		}	<u> </u>
24		101 /2	101 05	5 3	Chala	as above	-	├	 	 	 		- -	1		}	
-+		101.43	101.93	. 54	Snaie	as above	 	 	-	-	†		1]	
\dashv		101.95	102.06	.11	Coal	stony											
-							<u> </u>		└		-			!		 	
		102.06	102.19	13	Shale	dark gray, carbonaceous	 -		 	 	1		 -	-	 	1	
一		102.19	102.33	-14	Coal	stony					 		 -	 	_		
\Box	``					· · · · · · · · · · · · · · · · · · ·											
		102.33	102.46	.13	Coal	dull - broken				 			 _	 	<u> </u>	 	
\dashv		102.46	102.61	15	Conl	stony	_	-	 	 	 -			 -			
\Box		102.40	102.01		COAT						 -	-					
\Box		102.61	102.69	08	Coal	dull and bright - stick											
\rightarrow	\rightarrow	202 60	100 04	1.6	Shale	dark gray, carbonaceous	 			ļ <u>.</u>	 		 	 	├		
-+		102.09	102.04	• 1 -2	Share	uark gray, caroonaceous			 	1	 			 	├	 	
	102.7																
 -		102.70	102.86	.16	Shale	rubble					ļ:						
		102 96	102.95		0-1	rubble	 	 -	ļ	-	 	ļ			-	ļ	
\rightarrow		102.00	102.93		COBL	ruonte				 				 -	├	 	
		102.95	103.12	.17	Coal	dull - stick					†						
\dashv																	
\rightarrow		103.12	103.24	,12	Coal	dull and bright - stick				-	 				<u> </u>		
	- 1	103.24	103 61	37	Shale	dark gray, carbonaceous at top, silty beds	70°	-		 	 						
						towards bottom	- ' -								-		
 ₽	104.2							<u> </u>		ļ. —]		:				
_		104.20	104,44	.22	Shale	as above	[-	 		-				 		<u> </u>
<u> </u>		104.44	104.60	1.16	Shale	carbonaceous throughout	 			1	 -						
\Box																	
\dashv		104.60	104.91	بلقم	Shale	silty heds				<u> </u>	-						
25 1	105.8			-			 			 	 					-	
			107.20	1.40	Shale	dark gray											
二																	
	07.3																
\rightarrow		167.30	107.70	1.40	Shale	carbonaceous, some silty beds towards bottom	-			 	 				├		
_		107.70	107.87	.17	SLTST	medium gray	 		 	<u> </u>	1						 -
二																İ	
ئإــــ	108.9										Ţ <u></u>						
		108,90	110.10	1.20	SLTST	laminated and cross-laminated, minor calcite	70°	- -			-		<u> </u>	ļ	 		R3
_	-						 			├──	+			-	├		
\Box							t	 	 	1	1				 		
]			i					[

ALL LINEAR UNITS IN METRES

1 :=R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS
AREA	

HOLE No EP 104

PAGE 19 ...

вох	DEPTH	DEI	PTH	1	<u> </u>	LITHO DESCRIPTION	AEDDING	SFAL	SAMPLE			ANAL	YTICAL	DATA			REMARKS *
No	AT TOPOF	FROM	τo	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	7 %]residual	ASH %	V.M. %	F.C. %	F.S.1.	C.V.	REMARKS.
	90×		1 1	╁	1		i i	ļ. —	<u>. </u>	9.7.0.	I 441 GOCI	4.0.		0.0.	 -		
26		310.10	110.35	25	SLTST	as above	 	-					-	 	 	 	
	110.3	Ī				20 23070	ļ										
		130.30	111.74	1.44	SLTST	As ahove	75°										
\vdash	111.9			<u> </u>	SLTST						-			-	-		<u> </u>
<u> </u>		 	1113.36	4.46	SLIST	as above, some shaley beds	 				1			1	1		
	1134																
\dashv		113.40	114.35	-95	SLTST	as above		<u></u> .					_	<u> </u>	 -	 -	
27		 	- -	 	 		 				 			 - -	 	1	
		145.35	114.94	.59	Shale	dark gray, carbonaceous at bottom											
ļ	114.9			ļ	-		<u> </u>			<u> </u>							
\dashv	114.9		115.63	7.73	Shale	as above	 							-	 		
				L.	<u>. </u>												
[115.63	116.43	.80	SLTST	medium gray, minor shaley beds	70°										R3
┯┪	116.4				<u> </u>		 							 			
		116.40	117.95	1.55	SLTST	as above	70°					-		 	 		<u>. </u>
_]																	
	117.9	117.00	110 22	 	GI TOOT	as above, minor calcite veins											
		117.90	118.33	44.3	prior	as above, minor carcite veins	 			 -	-	-			├		
28																	
		118.33	119.21	88	SLIST	as above, very well defined cross-laminations	90°				 		_	<u> </u>			
1		119.21	119.37	.16	Shale	dark gray, minor silty beds					 			├	├──		
					<u> </u>												
	119.5																
		119.50	120-68	1118	Shale	as above, calcite veins, broken with calcite and slickensides on many surfaces	-				 				-		<u> </u>
				_		AND SITURED AND OIL HOLLY SULFACES		\vdash			 				_		
	120 /			ļ													
~-		120,40	120.70	30	Shale	as above	 -	\vdash		-	 						
	121.0			<u> </u>			 				 						
		121.00	122.60	1.60	Shale	as above, one calcite vein up to 0.02m thick	90°										
20	122.5			-	 						<u> </u>						
- 29	164.3		124.04	1.54	Shale	fewer silty beds, no calcite veins	 	├			├						
														L	<u>L. </u>		
	124.1	10/ 10	105	1							<u> </u>						
┥		124.10	125.70	FL - 60	Shale	increasingly silty		<u> </u>						-			
	125.6		<u> </u>				 									!	
\Box		125.60	126.56	.96	Shale	as above											
20		 -		₩.	<u> </u>		ļ				\Box						
30		126.56	127.08	52	Shale	as above	70°			· · · · · ·					}	_	
		1	121.100	9	Altaic	es evote	1.4					—-i			 		
<u> </u>		<u> </u>	L	Щ.	<u>. </u>	<u> </u>	<u> </u>			L	<u> </u>	i		<u> </u>			

ALL LINEAR UNITS IN METRES

1 :+R&/OR S — GOLDER ASSOCIATES HARDNESS CODE

*ROD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

DJECT EWIN PASS REA HOLE No. CONTINUED EP 104			
T	DJECT	EWIN PASS	HOLE No.
	REA		CONTINUED EP 104

PAGE 11 OF 19

BOX	DEFTH	DE	PTH	Т		LITHO DESCRIPTION	A DON'T	SEAN		اء رو		***		YTICAL				
No.	AT TOPO	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		DESIG	N		MOIS	7 %		V.M. % d.b.	f.C. % d.b.	F.S.I.	C.V.	REMARKS*
		· KOM		 		AMIETIES (ITECOSE CONE RECOVER FOR EACH SENSI)	1	 	 	+	a.r.b.	1631GROI	4,0.	0.5.	0.0.			
30	127,1	127 10	130 04	0 94	Shale	as above but increasingly only shale towards	\vdash		-	-		}		 	 	-		
			130.04		7.1010	bottom				ゴ		-						
			 -				-	 -	 	{					_	-		
┝	130.1	130 10	130 87	7.77	Shala	dark gray to black, carbonaceous towards	 	-	╂	+								-
						bottom with coaly flecks and stringers												
31		-		₩.	 		1	-		4		ļi						
31	130.8	-	 					 	╁	\dashv				 				
		130.80	130.92	.12	Shale	as above												
-			131.09	 -		dull - rubble	-	-	Her:	DE-	16 00	0.72	1. 51.	24 55	60 10	8.5		N1 - 1 3 928
		}	Į.		ł	duil - rubble	 	 		-	10.00	.0.72	4.54	20,33	00.19	0,0		Yield 87%
		131.09	131.42	.33	Coal	dull with bright bands - broken stick					·							
		131.42	121 92	1 / 3	Canl	dull - stick	 -	├ -	EP-	104		0.71	/ 10	06 00	CO 72	8		Yield 68%
		F		l	ļ				1	+	4.47	U. /)	4.20	20.29	08.72	. 0		11ela 68%
		181.83	132.08	.25	Coal	dull and bright - rubble				\Box								
		132 08	132.20	12	Coal	dull - broken	├─	 	1	}		-		-				
				I		VOIT DISKEN				\dashv					_			
		132.20	132.41	.21	Coal	powder			$\Box \psi$									
- 1				├		Log thickness 2.2	├ -		 	\dashv				-			-	
						Core thickness 1.49			† —		,		•	i			_	
				.		Core recovery 68%		\Box	Į	\rightrightarrows								
-	133.2		-	┼	 	<u></u>	 		┼					1		-		 -
		133.20	133.44	24	Shale	dark gray			 	一								
			l .		ì				_	_								
		133.44	133.58	14	Shale	carbonaceous and coaly lenses	 	}	┢	╼╅				 				
		133.58	133.93	35	Shale	minor coaly lenses		Ι.		寸								
				<u> </u>				<u> </u>	┖	\dashv								
		133.93	133.96	.03	Coal	bright	┼──	 - -	-			 -						
		133.96	135.02	.06	Shale	dark gray, becoming silty towards middle and				\exists								
				├		shaley again at bottom	 	<u> </u>	Ļ	1								
 		135.02	135.34	1 32	Shale	almost stony coal	 		-	\dashv	 -			 				
				<u> </u>	1				1	1					-			·
		135.34	135.48	1.14	Coal	bright and dull, some stony lenses	-			1								
	—. <u>-</u> -	135.48	135.69	. 17	Shale	very carbonaceous	+	-	1	-+				 				
		I		<u> </u>						J								<u> </u>
32	136.2		126 26	1	0 1		<u> </u>			耳								
		1.35.20	135,36	4.46	Shale	as above	\vdash			\dashv								
		136.36	136.66	30	Shale	not carbonaceous												
[]		[~]				}			-		1				}

ALL LINEAR UNITS IN METRES

TIPRA/ORS - GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION [%]

FF --- FRACTURE FREQUENCY

* -- WASHED TO S.G. 1.5

A ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 104

FILE No BA - 212 A REVISED Now 1978

ROJECT	EWIN PASS	HOLE No.
AREA		CONTINUED RP 104

XX	DEPTH	DE!	PTH	Ι.	1	LITHO DESCRIPTION	NOON		SAMPLE				YTICAL			,	REMARKS T
No.	TOP OF	FROM	10	TH.	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		DESIG	No.	MOIS	residuol	ASH %	V.M. % d.b.	F.C. %	F,\$.1.	C.V.	REMARKS'
	_	*******		 		,	1	<u> </u>			***************************************					 	<u> </u>
32	136.2	126 66	126 07	21	Shale	very carbonaceous		-									
+		130.00	130.37	.31	Juste	very carbonaceous					1					 	
\dashv		136.97	137.15	.18	Coal	dull - stick								1		-	
				Į.			L	İ						L			
		137.15	137.42	.27	Shale	carbonaceous		ļ									
_			100 44	<u> </u>				<u> </u>						[ļ
+		13/.42	137.66	.24	Coal	powder and rubble, rubble is stony coal				ļ							
+		127 66	120 10	1.7	Shale			 						 		 	
1		13/.00	130-10	-49	SUSTE.	very carbonaceous		 							<u>-</u>		
	138.7				 												
		138.70	138.97	.27	Shale	as above											1
\Box				I	ł												
1		138.97	139.37	.40	Coal	stony, some bright bands											
\dashv							ऻ—	ļ									
╌┼		139.37	139.52	115	Shale	carbonaceous	-	1						[
-+		139.52	139.68	. 16	Coal	stony, rubble and powder	+	1						\vdash			
╅			107100	1	-	denty; report une ponder	 							H			
-1	140.2				Ì		 	\vdash						\vdash			
7		140.20	140.46	.26	Shale	carbonaceous											
\Box																	
_		140.46	141.30	.84	SLTST	medium gray, calcite veins throughout, lawinated and cross-laminated	L.,										i
				<u> </u>		laminated and cross-laminated	80°				<u> </u>						R3
3	_	777 30	770 00	7 0/	Shale		000	ļ									
- -{-		141.30	144.30	1.00	Shale	silty beds	80°										<u> </u>
+	142.3				<u> </u>		-	-									
7	-744.4	142 30	145 07	2 77	Shale	as above, carbonaceous and coal beds up to	, 	\vdash			1						[
-+		A 721.20	143107	•	Direct	0.01 m	1	1									-
																	1
_]:	145.4																
4		145.40	145.82	.42	Shale	as above											
+				ļ				\sqcup									
14	-			[\vdash		<u> </u>							
+		145.82	147.4h	V.14	Shale	carbonaceous at top and silty towards bottom	 	1		<u> </u>	- 1						
+		147 96	149 20	32	SLTST	medium gray, laminated, minor shaley beds	80°				-						
\dashv		147.50	140162	•	32131	medium gray: Taminated: minor snagey beds	<u>0</u> -	\vdash		<u> </u>	 						
	148.4						1	\sqcap			i I						
		148,40	150.27	1.87	SLTST	some fine to medium gray sandstone beds and	85°										
4				ــــــ		some shaley beds, minor calcite veins.											
5			<u> </u>	ļ	 	increasingly shaley towards bottom		\Box									
		150 27	150 22	0.5	Shale	deute annual	ļ	┞									ļ
, , ,		150,27	130.32	1.02	Share	dark gray	 						<u> </u>				
-					Cool	stony - pyrite		6	<u></u>		 					 	
-		150 22	1150 27														
,,,		150.32	150.34	1-92	COAL	Scony - byrite	 		EP-10	<u>. </u>] 						
) 			150.34			bright banded = stick	-		EP-10	4- 6.25	0.56	7.51	25.09	66.84	8		Yield 822

ALL LINEAR UNITS IN METRES

1 :+ R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

■RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5

ANGLE MEASURED FROM CORE AXIS

ROJECT	EWIN PASS	HOLE No	EP 104	PAGE 13
AREA		CONTINUED		of19

вох	DEPTH	DÉ	PTH	1		LITHO DESCRIPTION	#FDDBNC	SEAM	CA14	PI F			ANAL	YTICAL	DATA				
No.	AT :	FROM	TO	{™	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANG(I	DESIG.	N	ο.	MOIS	residual	ASH %	V.M. % d.b.	F.C. %	F.S.I.	C.V.	REMAR	X2 :
\longrightarrow	80x					<u> </u>	1 (-)	┦	╙┯		8.r.o.	terraner	0.0,	4.0.	6.6.		 	· · · · · ·	
35		150.40	150.60	1 120	Coal	dull - stick	-		-	-			 -		 			 -	
		150.60	150.70	1 . 10	Coal	dull - rubble	 	1 - 1				 				 -		 	
				Ι	1														
		150,70	150.83	1.13	Coal	dull and bright - stick, pyrite	 					ļ			├	-	ļ <u>.</u>	 	
─ -f		150.83	150.97	1.14	Cost	dull - stick	 		EP- 17		5 70	0.55	5.95	25.58	67 97	8-	├──	Yield	88%
				[33.2			Ī		/ 1	0,00	3.55	43.30			1	11010	00%
↓		150.97	151.05	108	Coal	dull - rubble													
		151 05	151.08	0.2	Conl	bright - stick	ļ <u> </u>		\dashv	-					 	 	 	 	
-		121.03	121.00		Coar	Dright - Stick	 		+			 - -			[_	 	 	
		151.08	151.13	.09	Coal	dull - broken											-		
				ļ <u>.</u>		<u> </u>		-							<u> </u>				
一十	-	151.13	151.22	1 -01	Coal	dull and bright - broken	-	 	<u>. ¥</u>		ļ				 	├──	-	ļ	
				İ		Log thickness 0.9 m		┌─┤	_	一					 			 -	
_						Core thickness 0.9 m				耳								<u> </u>	
			·	├	 	Core recovery 100%	 	1		-		<u> </u>				.		<u> </u>	
+		151.22	151.37	15	Shale	dark gray	 -	├ ──-		—∤		 -		-	 				
				1														<u> </u>	
	151.5		1							\Box									
		151.50	1.52.88	1.38	Shale	silty at top, carbonaceous and slickensided				-				-	 	 	ļ 	-	
				-	 	in middle	 	 		一						 			
	153.0													•			_	_	
		153.00	154,56	1.56	Shale	some silty beds		 											
36	154.5	 -		-	-		 	-		-						 		<u> </u>	
	****	154.50	154.87	-37	Shale	as above	1	1		_						_			
\dashv									_										
		154.87	157.60	2.73	SLTST		75°											R3	
		-		 	 	laminated and cross-laminated, calcite veins and calcite-coated fractures	85°	┝──┤		┪		-	-			_		<u> </u>	
	157.5						<u> </u>			_									
↓		157.50	158.49	.99	SLTST	as above	80°												
37					 		├	├ ──┤		{			-					 	
-3/1		158.49	160.56	2.07	SLTST	as above	70°	├──┼		-	ļ	-				-	-	 	
=																			
-	160.6																		_
+		160.60	162.96	0.36	SST	medium gray, fine to medium grained. Laminated and cross-laminated, mud rip-up	85°		_	-						├──		R3	
						clasts in places	83	┝┈┤		+						 		 -	
38		140.55	170.5			<u> </u>			_										
	•••	162.96	163.71	<u>75</u>	SST	a C.1 m shale bed	75°			_									
	163.7	 		 	<u> </u>		 	┞╼╅		_		 		<u> </u>					
			166.74	3.04	SST	minor silty and shale beds, mud rip-up	80°	┝╼┥		-	<u> </u>	 	·				 -		
]	clasts in places				1									

ALL LINEAR UNITS IN METRES

¹ PRB/OR 5 — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION (%)

A ANGLE MEASURED FROM CORE AXIS

ROJECT	EWIN PASS	٦	HOLE No.	۱,
AREA		1	CONTINUED EP 104	ľ

MEDOING SEAM SAMPLE ANALYTICAL DATA DESCRIPTION BOX DEFTH DEPTH REMARKS * MOIST % ASH % V.M. % F.C. % ANGLE DESIG F.S.1. AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) FROM TO MAIN o.r.b. residual 166.70 167.12 .42 SST fine grained 39 167.12 169.612.49 SST shale beds up to 0.3 m 75° 169.61 169.77 .16 SST medium grained 169_80| 171_52| 72 SST medium to coarse grained, coaly stringers, a few scattered pebbles towards bottom 171.52 172.891.37 Conel. pebbles up to 2 cm some shale pebbles but mostly siltstone(bluish) R4 some coal stringers minor sandstone bed 172.8 172.80 173.34 .54 Congl. as above 173.34 175.572.23 SLTST medium to dark gray. laminated and cross-85° R3 laminated, minor shaley beds and sandy beds 175.57 175.80 .23 SST medium to coarse grained, a few pebbles 175.80 175.85 .05 SST as above 175.90 178.042.14 SST as above, minor coal stringers towards bottom 178.04 178.88 84 Shale dark gray 178.9 178,90 180,160,26 Shale | as shove, calcite veins at hottom 180 16 181 991 83 Shale as above, minor calcite veins throughout, 182 182.00 184.512.51 Shale as above 184 51 184.84 .33 Shale as above 185 185,00 187,762,76 Shale silty beds, coaly fractures, coal lenses 40° 187.76 188.21 .45 SLTST medium gray. laminated and cross-laminated

ALL LINEAR UNITS IN METRES

PROJ

^{1 :=} RA/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

[•]RQD - ROCK QUALITY DESIGNATION (%)

PROJECT	EWIN_PASS	HOLE No.	ψp
AREA		CONTINUED	EP

ВОХ	DEPTH	DE	PTH	_	Ţ	LITHO DESCRIPTION	A DONNO	SEAM	SAMPLE				YTICAL !				REMARKS *
1 1	AT TOPOF BOS		10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	OESIG	No.	W// 13		ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.i.	C.V.	KEWWEK?.
No.	901	FROM	10	 -	THE PARTY	AMERICAN INCOME CONT. RECOVER TON THEIR SEAMY	[1*]	 	<u> </u>	6,r.B.	residua	Ø. D.	G.B.	a.b.		ļ	
43		100 01	100 05	1,	C1 - 1 -		-	├─┈	[- -	<u> </u>						
┝		188.21	188.33	1.14	Shale	dark gray	├ -	├	 	 	-		-				
	188.0			-	 		!	 		 	1						
			188.53	.53	Shale	as above											
								<u> </u>		<u> </u>	ļ <u>.</u>						
44				-	-		70°	-						ļ			
		188.53	1141-19	2.63	Shale	minor silty beds	70	-									
	191.1			t —			†			 				<u> </u>			
		191.10	192.88	. 78	Shale	as above	80°										
1		ļ		<u> </u>				<u> </u>		ļ	.						
45		102 00	306 31	1 22	Chala	no silty beds				<u> </u>							
}		1192.00	194.11	,42	puare	no silty peds	 	-		 -			├				
	194.1																
		194.10	197.00	2.90	Shale	as above											
\longmapsto			1		-												
┝╼┤	197,2	197.20	197.30	-10	Shale	as above]			 							
46			 	-							H						· · · · · · · · · · · · · · · · · · ·
		197.30	200.37	3.07	Shale	some silty beds towards bottom											
\square				\Box													
-	200.2	200 20	201 54	2 2 4	ŞLTST	_some shaley beds	80			 							
\vdash		200.20	201.54	1.34	i SPISI	some sharey beds	100				 		-				
47																	
		201.54	203.26	1,72	Shale	dark gray					l						
<u> </u>				<u> </u>													
$\vdash \vdash$	203.3	000 00	005				0.00	<u> </u>		ļ	<u> </u>		_				
┝╌╢		203.30	205.95	2.65	Shale	some silty beds, very minor calcite veins	.85°		 -		-				_		
48				_		· · · · · · · · · · · · · · · · · · ·	1	_		 	 -						
	_	205.95	206.21	. 26	Shale	as above											
\square				Γ													
$\vdash \vdash \vdash$	206.3	001 50	B00 65	<u> </u>	AT TOT		1	 	ļ	 		<u> </u>	 -				
$\vdash \vdash \vdash$		205.30	209.32	3.02	SLIST	laminated and cross-laminated, increasingly shaley towards bottom	85°	 		 -	 	-	 				" -
		<u> </u>	t		 	Sharey Lowards DOLLOR	 	 		ļ - -					 		 -
	209.4																
Щ		209.40	210.34	.94	Shale	dark gray											
<u> </u>		-	-	 —	ļ	<u> </u>	├ ─	<u> </u>		 							
49		210 24	212 20	0.05	Ch all	'some silty beds	75°		-	\vdash					 -	 -	
\Box	F		14.14	77	anaie,	NOME RISLY DEUS	1/3	 		 	····				 		
	212.4																
Ш		212.40	214.68	2.28	Shale	as above	80°										
		 -	 	ļ				<u> </u>		<u> </u>							
50		21/ 62	215 20	7.	Shale		700		<u> </u>	-]		<u> </u>		
┝┈┤		1514-08	1213.39	 • 4. 4	Snate	as above	70°	 			}	├	├		 	— —	
ш		<u> </u>	<u> L</u>	<u>i —</u>	<u> </u>	<u> </u>	<u> </u>	L		<u> </u>	į .	<u></u>	<u> </u>				

ALL LINEAR UNITS IN METRES

:+R&/OR \$ - GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

OJECT	EWIN PASS	HOLE No EP 104	
REA		CONTINUED	

BOX	DEFTH	DEI	PTH			LITHO DESCRIPTION	BEDOWN	SEAN	A SA	AMPLE				YTICAL				REMARKS!
No.	TOPOF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		DESIG	1	No.		T %	ASH %	V.M. % d.b.	F.C. %	F,\$.t.	C.V.	NEMAKAS.
	215.5		1	 	 	<u></u>	1	 	†		1						-	 -
		215.50	217.75	2.25	Shale	as above, shalier towards bottom			L									
-		ł	217.93	1	İ	dull with bright bands, stick	 	8	1	不一	 	 		 -	 			
$\equiv 1$			I	I	·	dall with origin bands, seres	 -	٠-	+	+		 		 -	 			
_		217.93	218.17	-24	Coal	bright with dull bands, rubble			Ι	1								
-		218.17	218.35	.18	Coal	dull and bright, stick		├		2 <u>-10</u> 18		0.70	3 52	25.80	60 98	8 5		Yield 89%
			1	İ						Ť		10.70			7.30			11510 072
		218.35	218.44	109	Coal	dull, stick		 -	ļ	╅	 	 		 	 			}
	218.5		L						Ľ	+				<u> </u>			L	
51		218.50	218.99	49	Coal	dull and bright, rubble	<u> </u>	<u> </u>	╀	*-					<u> </u>			
7		218.99	219.37	.38	Coal	dull and bright, rubble	1-	 	╁	1				 	 	-		
_}			i	<u> </u>	I	<u> </u>												
-		219.37	219.58	1 - 21	Coal	dull with bright bands, stick		 	╁	┼—	├			 -				
		219.58	219.72	.14	Coal	bright and dull, rubble			I									
-		210 72	219.97	25	Cool	bright and dull, rubble and powder	<u> </u>	 -	↓ _	┿				ļ				ļ <u> </u>
		217.72	219.97		COAT	bright and dair, rhobie and powder			L	- 	<u> </u>				 	_		
	220.1	22010	220.22		Coal	powder	Ι		Γ									
_		220.10	220.22		0021	powder		├	╁	i -					 			
		220.22	220.32	.10	Coal	dull with bright bands, broken								_				
\dashv		220.32	220,40	.08	Coal	bright, pyrite, stick	-	<u> </u>	⊢	+	 -	-			 			
			,	Γ	1		_		✝	\dagger								
		220.40	220.56	.16	Coal	dull, stick		_	ļ.,	4-								
士	-	220.56	220,63	.07	Shale	carbonaceous	 		╁	+	 	 		 -				
}		220 (2	220 00						L	Ţ								
+		220.63	220.83	20	Coal_	dull with bright bands, stick	-	-	╀		 -	1				 		
\Box		220.83	221.42	.59	Coal	dull, powder, some rubble			L				•	-		-		
\dashv	221.6	221 60	222.08	48	Coal	dull, stick	-	<u> </u>	⊢	+-		ļ						
			Į .	1	Ţ				\vdash				_		_			
-+		222.08	222.28	.20	Coal	dull with bright bands, stick		Ļ	Į	Ţ.								
_		222.28	222.40	.12	Coal	powder, pyrite		-	╁	+-	 	 		<u> </u>				1
\dashv					I					1								
+		222,40	222.63	23	Coal	dull with bright bands, pyrite, stick	 -	[—	╀	+	 	 -						ļ
耳		222.63	222.73	-10	Coal	rubble, pyrite, slickensides			L	\pm								
			223.04	l	ł .	<u></u>	L	ļ	F									
<u></u>				L		dull, stick, pyrite	 	 -	\vdash	+-		╂╼╌╌┥						<u> </u>
		223.84	223.13	.09	Coal	dull with bright bands, stick				上								
			<u> </u>	L_	<u> </u>		}	ł	[[]		1				!		

ALL LINEAR UNITS IN METRES

FF - FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

^{1 :4}R&/ORS — GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD - ROCK QUALITY DESIGNATION (%)

^{* --} WASHED TO S.G. 1.5

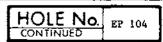
PROJECT	EWIN PASS	Г
AREA		

HOLE No. EP 104

PAGE. 17.

KOX	DEPTH	DFI	PTH			LITHO DESCRIPTION	BEDOWN	SEAM		7,5			ANAL	LYTICAL DATA V.M. % F.C. % F.S.I. C.V.			REMARKS!	
- }	AT TOPOF	FROM	TO	тн	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	N	۵.	MOIS	residual	ASH %	V.M. % d.b.	f.C. % d.b.	F.S.I.	C.V.	KEWAKES.
1404	90>	FROM	<u> </u>	 -	MUSIK	AMPETIES (MECONE COME RECOVER FOR THE SEAM)	117	 	╀╌┑		0.7.0.	Periduot	Q.D.	2.9.	G.D.			
51		000 10	223.35	- 00					╁	-+		<u> </u>			 - -			-
\rightarrow		223.13	223.33		COAL.	dull, pyrite, stick		1	EP-	-10	4-			-	 			
		223.35	223.43	.08	Coal	dull with bright bands, stick		1	19			0.76	4.75	25.59	68.90	8.5		Yield 70%
							ļ—	 		_		<u> </u>			ļ			
52		223 63	223.55	12	Conl	powder		 -	┥┤	┪					-			
		<u> </u>	243.00	• • •	COAT	DOWGE!	<u> </u>	<u> </u>										·
2	23.7									\Box								
\dashv		223.70	223.78	.08	Shale	carbonaceous	<u> </u>	-	┦	-					<u> </u>	-		
+		222 78	223.96	10	Cool	dull_stick	 	 	\vdash	+						-		
]					t —								-		
		223.96	224.08	.12	Coa1	dull, rubble	_	<u> </u>	Ш	_								
┿		22/ 00	224.36	- 30	Const	dull. stick		-	\vdash	-					-			
\dashv]		Į					 	Н	-1								
\Box		224.36	224.53	.17	Coal	dull and bright, stick				\rightrightarrows								
\dashv		20/ 50	00/ 33					ļ	├	_					-			ļ
\dashv		224.55	224.77	-24	Coal	dull, stick		-	Н	-								
		224.77	224.99	.22	Coal	dull, rubble			Н	寸						-		
_	- 1			j						4								
+		224.99	225.07	.08	Shale	carbonaceous, rubble	<u> </u>	 					-					
-		225.07	225.29	.22	Shale	unbroken		\vdash	\vdash	-				-	-			
						PHYSYNCH					-							
2	25.2							L										
+	\dashv	225.20	225.36	.16	Shale	as above		∤ . —	├ ─									
-	-	225.36	225.46	. 10	Coal	dull and bright, stick				\dashv							-	
\perp	1					- '				\rightrightarrows								
{-		225.46	225.79	.33	Coa1	dull, stick)		$\vdash \downarrow$					<u> </u>			
\dashv		225.79	226.21	42	Shale	dark gray, carbonaceous, coal lenses,		├	\vdash	\dashv								 -
		203117	220.21	172	Date	mostly broken		 	Н	\dashv								· · · · · · · · · · · · · · · · · · ·
Ļ										\Box								
-		226_21	226.27	.06	.Coal	powder		├	Н	\rightarrow								<u> </u>
\dashv		226.27	226.42	.15	Coal	dull and bright, broken	_	\vdash	\vdash	\dashv			-	-				
	_			L							_							
-	Ì	226.42	226,79	.37	Coal	rubble and powder, dull		ļ		4					`-			
+	26.8			 - 		Log thickness 9.6		-		\dashv		<u> </u>		- <u>-</u>				
	20.0					Core thickness 7.61		 	1	 						-		
\Box						Core recovery 80%]								
-		00/ 65						L		\Box								
\dashv		226.80	227.07	.27	Shale_	carbonaceous		 	├								_ -	·
士		227.07	227.49	.42	SLTST	light and dark gray beds, calcite-filled	65°	 	 	\dashv								
				1 1		fractures	 ""	<u>† </u>	 - 	-								

ALL LINEAR UNITS IN METRES



^{1 :=} R&/OR S - GOLDER ASSOCIATES HARDNESS CODE

⁻RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* ---} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	HOLE No. EP 104
AREA		CONTINUED

вох	DEPTH	DE	PTH	1		LITHO DESCRIPTION	MEDDING	SFAM	SAMPLE				YTICAL				REMARKS T
No.	TOPOS BOZ	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR FACH SEAM)	ANGLE	DESIG	No.	MOIS	T % Intsiduol :		V.M. % d.b.	F.C. % d.b.	F,\$.1.	C.V.	KEWAKKS.
-	BOX	1 10111					1	1	i ·	1	residuoi :	0.0.	0.0.	0.0.			<u> </u>
53		227 /0	220 06		SLTST	as above	 -	[-			├						
1		221.=47.	220.00		31.131	AS AROVE											
	228.3																
		228,30	231.31	<u> 3.01</u>	Shale		75°	 -	<u> </u>	 	∤			├			
	231.6			 		towards bottom	\vdash	 		 -	├		···-	 			
	231.0	231.60	232.12	. 52	Shale	as above, calcite-filled fractures.		İ			1.						<u>-</u>
						slickensides, broken											
54				_			-		-	 -	}			-			
-		232.12	232.62	.50	Shale	broken	 	 	 	•				 			
\Box																	
4		232.62	232.93	.31	Shale	bone coal -stoney coal (heavy), broken											
+		232 03	233 00	16	Shale	bone - stoney, rubble and powder	\vdash	├		-	-						
	1			ļ i	•												· · · · · ·
\Box		233.09	233,17	.08	Shale	bone - stoney, stick											
		222 17	222 27	10	Shale		├	<u> </u>		<u> </u>	-						
_		4 <u>33.17</u>	233.21	.10	Suare	carbonaceous	├				-						
	233.5																
		233.50	235.46	1 96	Shale		ļ										
-				-		lenses	 -	ļ	 -	<u> </u>	 					-	
-		235.46	236.32	.86	SLTST	medium and dark gray, laminated and cross-	800	 									
\Box						laminated											
				ļ. <u>. </u>		<u> </u>	<u> </u>	<u> </u>									
55	236.1	226 70	220.06	26	SLTST		80°	 		ļ. <u></u>							D2
		2.10 - 111	219.95	1.Zb	SLTST	as above, some minor calcite veins	80				 						R3
\Box	239.9	_								ļ							
		239.90	240.89	.99	SLTST		70°	ļ	<u> </u>		<u> </u>						
56		— ——		 		minor calcite yeins	\vdash	-			 ;				H		
		240.89	241.09	20	Shale	rubble slickensides		†		<u> </u>	<u> </u>						
_																	
		241.09	241.78	.69	SLTST	medium and dark gray, laminated and cross- laminated, some calcite veins, shaley	60°				<u> </u>						
_				 	 	towards bottom				 -	 						
	242.9																
4		242.90	245.28	2.38	SLTST		55°										
57				-		middle	-				 -		<u> </u>				
74		245 28	245 04	66	SLTST	minor shaley heds	 	 		}	 	:					
\Box		<u> </u>				MINISTER MENTE									 		
_	246.0		010 ==	1				ļ			<u> </u>						
		245.00	248.97	2.97	Shale	some silty beds, some slickensides,	60°	<u> </u>	 -	ļ <u></u>	 	ļ	<u> </u>		<u> </u>		
			_	\vdash		some calcite veins	 	-			 		<u> </u>		<u> </u>		
\neg						· · · · · · · · · · · · · · · · · · ·	1										
_			<u> </u>	<u>. </u>	<u> </u>	<u> </u>	<u>. </u>	<u>. </u>	<u>. </u>	<u>. </u>	<u> </u>	·	<u> </u>		ł		

ALL LINEAR UNITS IN METRES

TIPRA/ORS - GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF ---- FRACTURE FREQUENCY



PROJECT	EWIN PASS	HOLE NO EP 104	PAGE 19
AREA		CONTINUED	OF19

BOX PREPRINT DEPTH				l		LITHO DESCRIPTION		G SEAM	SAMPI F	## ANALYTICAL DATA MOIST %							
u.	AT TOPO' BOX	FROM	TO	7H	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	74	ASH 1/4	V.M. 🏸	F.C. %	F.S.t.	C.V.	REMARKS!
-	ЮX	TROM			77074114	AMERICA (MECODE COAL RECOVERY TOR EACH STAM)	1 (*)	ļ.,		0.7.8.	residual	4.5.	G, D.	Ø.b.			
zļ				-	L		ļ	ļ;									<u> </u>
-4	249.0	2/0.00	240 50		01 1		}			-				 	 		
╌┼		249.00	249.38	-28	Share	mostly shale	 -				-			} ──	 		
8														 	-		 · · · · · · · · · · · · · · · · · · ·
"		249.58	252,08	2.50	Shale	dark gray, a few coaly horizons including	 							 -			
						dark gray, a few coaly horizons including lenses and stringers, minor silty beds	1							 -			
4						minor silty beds	75°										
4		-					1										
╌╁,	52.1			├		D-1 -C PD 10/					-			<u> </u>	 		
+	24.					End of EP 104	-			 -		<u></u>		-			
+		-					-				-						
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ALL LINEAR UNITS IN METRES

t :+R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

HOLE No.

FILE No. BA - 232 A

PROJECT EWIN PASS
AREA S.E. B.C.

8EGIN July 19,1980 END July 29,1980

HOLE No. EP-105

rage 1 ... of ...19...

HOLE PARTICULARS

LOCATION N 5,540,589.03
E 661,179.99

ELEVATION 2388.7 HOLE BEARING (AZ*) 6 240 m S 830 E

TOTAL DEPTH 246.0 HOLE ANGLE (*)* 65°

LOGGING

LOGS RUN Nat.Gam,Den,Neut,Cal,
Det.Den.of Coal Seams

LOGGED BY Davies Exp.Logging

OTHER Directional Survey
TESTS

ÇO/	AL CORING PERI	ORMANCE
CC	DRE DIAMETER	нQ
	LORE RECOVERED	
OTAL	LENGTH CORED	
Ť	CORE RECOVERY	*/•

EXAMINATION	
LOG USED	
No. OF SEAMS SAMPLED	
EXAMINER (S)	,
DATE	

вох	AT	D	EPTH			LITHO DESCRIPTION	LA	SEAM	SAMPLE			ANAL	YTICAL	DATA			
Na	70° 0'	FROM	TO	ŤΗ	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	AHOLE	DESIG.	No.	MO	157 %		V.M. %	EC. %	F.S.1,	C.V.	REMARKS 1
			. 	├			(*)	<u> </u>	 	G.2.b.	residual	d.b.	d.b.	d.b.	-		
1	6.I	6.10	7-15	1.05	Shale		.	<u> </u>	Į	<u> </u>							R3
		<u> </u>		 -		fractures, slickensides	!		ļ		ļ				<u> </u>		L
+		├	-	├ —	 -	7.2	ļ	!	-	┞——	1				<u> </u>		<u> </u>
-		 	├──	 —		at 7.2 crumbled zone with slickensides	 	[╁──┤						
寸		7 15	7.68	52	SST	light to medium gray, fine grained	60°	 	 -	 -	{ 						R4
\dashv			7.00	1.22	331	TIRME to medium gray. Time granted	100	 	├	 	 						K4
	7.9		1			<u> </u>	 	1		<u> </u>	+ 1	-					- -
		7.90	8.43	.53	SST	finely laminated and cross-hedded, hurrowed.		1				T I					
		<u> </u>				coaly wisps containing pyrite.			1								·
\Box				Γ		coaly wisps containing pyrite, calcite-filled fractures											
→		<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>			Γ						
-		8.43	8.83	,40	SLTST	medium gray, some coaly material	70°	<u> </u>	<u> </u>	<u> </u>	I						R3
			├──	├					-								
\dashv	8.8	0 00	0.70	30	Shale		70°		1		ļ						
	-	8.80	7 7.17	1.59	Share	dark gray, silty towards top	70.		-	-				· · · · ·			
	9 I	<u> </u>					┨	 	├		├ ──┤	~					
1	7.1	9.10	10.50	1.40	Shale	minor coaly wisps, minor thin calcite-filled	 	 	 		╂╌╸┈┈┤				-		_
Ţ						fractures	<u>. </u>		 		 	-	-				
			Ĺ				1		<u> </u>		<u> </u>	}					<u></u>
		10.50	10.70	. 20	Shale	as above			Ī	Ĺ		i					
_				L					L.,								
-+	11.0					· <u>·</u>			<u> </u>	.							
\rightarrow		11.00	11.90	يوب إ	Shale	as above	70°			ļ	1						
\dashv		11 90	12 39	- 10	Shale	broken zone with coaly stringers and	{ -		 	├	 				├ ─┤		
\dashv		11.50	12.05	117	Silate	slickensides	 	\vdash	 	 -	-						
_			 	<u> </u>	———	VIZERENSITES			 		 	 			-		
\neg		12.09	12.37	.28	Coal	dull with bright bands, slickensides,	t	_	 	 	 						<u></u>
丁				1 -		minor pyrite, broken stick	— —				 		1				
1										1	† †						
_	12.5							,							_		
		12.50	12.53	.03	Shaley												
_			<u> </u>	.	Coal				<u> </u>			<u>-</u> . [
]			[L		<u> </u>	I					
-		12.53	13.53	1.00	Shale	dark gray, minor calcite veinlets.	65°		L		Ll						
+				 i		a broken slickensided zone with coal and			ļ			↓					
+			 	1		pyrite on slickensides	-			<u> </u>	 				}		
\dashv		13.53	13.63	-10	Coaly	pyritic	- -		<u> </u>	├──	∤		}				
_				·	Shale	PJIICIC	 	-							∤	<u>.</u>	
寸				!	VIIGIE		 				 						··
\dashv	-			-	 		┝┤				 	∤					
						THEATURED COON THE HORIZONIAL BLANE	<u> </u>	Ļ.,,	L	<u> </u>	<u> </u>						

ALL LINEAR UNITS IN METRES

ANGLE MEASURED FROM CORE AXIS

HOLE No.

^{# :} MEASURED FROM THE HORIZONTAL PLANE

TITER BYOR 5 - GOLDER ASSOCIATES HARDNESS CODE

[■]RQD --- ROCK QUALITY DESIGNATION (%)

OJECT	EWIN PASS	HOLE No.
REA		CONTINUED

No EP-105 PAGE 2... OF ... 19

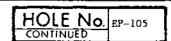
No. T	AT TOPOF BOX	DEF		ITH :	ľ	LITHO DESCRIPTION											
10	BOX	FROM	100	ויח י	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	M SAMPLI		MOIST %		V.M. %	F.C. %	£51	C.V.	REMARKS *
10			Ю	;			(*)			0.7.6.	residual	ei.b.	d.b.	d.b.	7.3.1.	C. V.	
1,		13.63	14.19	.56	SLIST	medium gray, shaley, laminated	.70°										R3
1				<u> </u>			↓				\perp						
	4.3				 i		<u>. </u>				lI						<u> </u>
		14.30	15.31	1.01	SLTST	some coaly zones, calcite-filled fractures,	50°			Ļ——·	{		<u> </u>		ļ		
-∤-				-	ļ <u>.</u>	becoming shaley towards the base and	 				ļļ						
 -						less laminated	 -		-	-	 -						<u> </u>
\rightarrow				<u> </u>			 	\vdash		 -	 						
+		15 21	15 54	25	SLTST		63°				├						
+	_	1.2.4.24		-23	SPTST	increasingly shaley	- p. z.		-	 	}		-	<u> </u>	_		-
1:	5.5									 -	 						 _
1		15.50	16.92	1.42	SLTST	calcite-filled veinlets at 15.81	60°			 	1						
\neg		-					T **			<u> </u>	1 1					 -	
工		16.92	17.11	.19	Shale	medium gray, minor carbonaceous material	1 —				1						•
\perp											T					_	
17	7.1																
		17.10	18.65	1.55	Shale												
	‡					smooth slickensides starting at 17.80											
-				\sqcup		<u> </u>	ļ				1						
[15	8.6												<u> </u>	<u> </u>			
+		18.60	19.50	.90	Shale	slickensides 18.6 - 18.8	ļi			ļ	1						
+	\rightarrow	— - -			<u> </u>	calcite veinlets 18.8 - 19.5					<u> </u>						· · · · · · · · · · · · · · · · · · ·
+		10 50	20.17		7t 1						1						
+	+	19.50	20,14	.04	Share	increasingly silty towards base	70°				} 						
+,,	0.4		·								1						
1	V-4	20. 40	22 07		Shale	silty at top to 20.8	 								-		D2
		- 211-81 7	73.117	Z- n /	Soare	broken carbonaceous zone 22.1 - 22.3	_				├─ -{			— ·			R3
十						hecoming increasingly silty at 22.7						 +					·· · · · · · · · · · · · · · · · · · ·
12	3.5					HELOMING THEFEASINGTY STILY ME 12.1								~			"''
		23.50	24.43	.93	SLTST	light and medium gray, cross-bedded.											
						calcite healed fracture plus calcite yeinlets					1						
\perp						at 23.9. burrows		7									
							I_"										
4		24.43	26,44	2.01	SLTST	shaley in places, carbonaceous zone at 25.43	50°					_ `					
-				⊢		smooth slickensides at 25.43	ļ	\Box			\Box						
_ 2f	5.5						 				├						
+-		26.50	28.74	2.24	SLTST	minor calcite veinlets, slickensides at 28.5	85°	1									
+				\vdash		minor coaly lenses	 				├						
+		20 7/	20 (2		SLTST	-3-14-6171-1-6	1700				├				<u> </u>		
-+-		28-79	24.h1	- 69	SLIST	calcite-filled fractures	70°				}		∤		\vdash		
121	9.6				 	<u> </u>	├				├ -						
+		29.60	32.65	3.05	SLTST	.calcite-healed zones from 30.3 - 30.5 and	}-				├	 -∔					
		1				37.75- 31.95	 				 	-					
\top		 - 				1 contact between a siltier and shaller zone	 				 				┝╼┈┥		
	_				· · · · · · · · · · · · · · · · · · ·	has rip-up clasts and flame structures					 				 		
31	2.6	i				. MAN TAY OR CLOSES BUILD LIGHT SCINCINIES	1	 }			 						
⊥ ′		32.60	32,90	_ 30	SLTST	calcite-healed zone at 32.7 - 32.9.	70°		_		 						
					[cross-bedded	1.53				 	1					
T							1							-			

ALL LINEAR UNITS IN METRES

1 := R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY



PROJECT	EWIN PASS	7	HOLE No.
AREA		7	CONTINUED BP-105

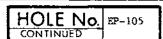
	 ↓ Ŀ	10LI	E No	BP-10	PAGE 3 of 19
	عــا لــــ	ONTIN	UED		
NAL	YTICAL	DATA			<u> </u>
н % .ь.	YTICAL V.M. % d.b.	f.C. % d.b.	F,S.1.	C.V.	REMARKS'
				ļ .	R3
					X
-			-	[
					[
				i	R3
	-		_	<u> </u>	
					
					_
_				-	
				 	├───

вох	DEPTH	DEI	PTH	1		LITHO DESCRIPTION	A CONTROL	CEAU	SAMPLE				ANALYTICAL DATA				
1	AT.	FROM		TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGCE	DESIG	No.	MOIS			V.M. %		F.S.1.	C.V.	REMARKS 1
No	BOX.	PKOM	10	<u> </u>	MAIN	AMPLIFIED [INCCODE COAL RECOVERT FOR EACH SEAM)	10	ļ	<u> </u>	0.1.6.	residual	4.6.	d.b.	d.b.	ļ		
7_				<u> </u>			↓		<u> </u>					 		<u> </u>	
Ш		32.90	. 35.04	2.14	SLTST	shaley zone with coaly lenses and smooth	ļ	<u> </u>	ļ		-			 -	 		
				 		slickensides 33.3 - 33.6. calcite vein zone 34.1 - 34.3	60°				1			-	 		
H			-	-	 	carette veru zone 34.1 - 34.3	100						·	 	 	<u> </u>	<u> </u>
∐ i		35.04	35.58	- 54	Shale	calcite veins at top, silty zones	 	·		-	1						R3
		33.04	33.30	1	Dilaze		†							1	i		
	35.7						1										
		35.70	37.34	1.64	Shale	as above, calcite-healed zone at 36.4 - 36.5	80°										
\Box			<u> </u>	ļ			-	ļ	<u> </u>		ļ			ļ			
8					<u> </u>		1]			ļ
H		37_34	37.54	-20	Shale	as above	 		<u> </u>		 		 	 	 		
┝─┥		27 54	20 70	1 15	SLTST	lishs arou with area daylon bala	80*										
\vdash		37.34	30.70	1.40	SHIDI	light gray with some darker beds,	100	\vdash						 	 		
	38.7					- military continues and the resistance of the second of t	†	\vdash							_		
		38.70	41.70	3.00	SLTST	as above, healed calcite zone 41.5 - 41.7	65°										R3
						burrows, cross-bedded											
اــا	-		<u> </u>				<u> </u>							<u> </u>			
9				1			<u> </u>							<u> </u>	<u> </u>		
	41.8		11.00	<u> </u>									ļ <u>.</u>		ļ		
		41.80	44.90	9.10	SLTST		65°	\vdash						 -			
			·	├──		a 1 mm coal lense, healed calcite zone 43.2 - 43.3 underlain by 0.1 coaly shale zone	┼	\vdash			1				 		
H	44.8				-	45.2 - 45.5 undertain by 0.1 coaty shale zone	 	Н									
	44.0	44 80	46 15	1 35	SLTST	as above, coaly flecks towards bottom	60°				 						
		44.00	70.12		MILL	AS ANOVE, COSTY TECLES INVALUE DOLLOW	1.00				 						
10							i				1						
		46.15	47.88	1.73	SLTST	as above, minor shaley zones	50°										
							<u> </u>		<u> </u>								
-	47.9					<u> </u>	├										<u> </u>
 		47.90	49.07	1.17	Shale		 	-									ļ— —
						pyrite, minor slickensides (not swooth)		├							╂──┯		
\vdash		49.07	50.57	1.50	SLTST	medium gray, becoming increasingly light,	700				 				-		
		- 11 11	1		32.21	coaly shale zone at 49.7 - 49.8 with	† · · · · ·										
						slickensides	1							· · · · · ·			
\Box														L			
		50.57	50.71	.14	SLTST	as above											
ļ	50.			₩			_			<u> </u>	1						
 	50.9	50.00		h- 76	0.00		(- 0			<u> </u>	_				}		
-		20.90	53.66	<u>k./</u> 6	SST	becoming lighter and coarser with depth,	65°					-			1		R3
	 -	 	 	 		calcite-filled fractures offset bedding, sharp contact at 53.4 between dark and light	1				1				 	 	
<u> </u>			<u> </u>	† · · · ·		siltstone, fine to medium grained	 				+						
	53.9		<u> </u>		1	STILSTARE, TIME TO REGIME ALTHUR	 	\vdash					-		\vdash		
		53.90	55.33	1.43	SLTST	shaley zone from 54.1 - 54.4 with slickensides	55°				 				 		
						shaley towards bottom	1										
	ļ	ļ	_	├	ļ		ļ										
		1	İ	ł]												
_			 			*				ı			<u> </u>				

ALL LINEAR UNITS IN METRES

1 :- R&/OR 5 -- GOLDER ASSOCIATES HARDNESS CODE *RQD -- ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY



PROJECT	EWIN PASS	7 []
AREA		71-

OLE No EP-105 PAGE 4 OF 19

oxi≀	DEFTH	DEP	TH	[LITHO DESCRIPTION	MEDDING	SEAN	. SAM	ուե				YTICAL		,		REMARKS*
	AT TOPOF BOX	MORE	10	1H	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No	. L	MOIS			V.M. %		F.S.1.	C.V.	KEWWXK2.
_	80#	FROM		├	ment	AMPERIED (INCLUDE COAL RECOVERY TOR EACH SEAM)	{*}	├	<u> </u>	+	0.7.6.	loubiess	d.b.	d.b.	đ.b.			
2				<u> </u>				-	├						ļ	ļ		
+		55.33	57.04	1.71	SLTST	as above with shaley zones, at base a 1 cm		-	₩						 	├ ─-		
+=	7.0			├	 	wide calcite healed fracture	 	├	╁	+	···			├ ──	$\vdash -$	 		
- +2	7.0	57.00	57 59	58	Shale	dark gray		1	\vdash					 	 	 		
\dashv		71.00		1-25		data ktoy		 	 	+					† • • • • • • • • • • • • • • • • • • •	 	·	1.
Ī		57.58	57.60	.02	Coal	shalev coal - crumbled		Ride:	1 1		3.38	0.85	3.38	29.13	66.64	9		Yield 82%
1				L	<u>L</u>													
		57.60	57.74	14	Coal	dull - broken, sheared	ļ	<u> </u>	EP-	105	-			[ļ
}-		57 71	£7.07	 		1 21	-	 _	╀					<u> </u>	 	├ ─		
+		5/./4	57.87	1 - 4 -	Coal	dull - stick, sheared	├		! *	(-+				} _	- -	 		
+		57.87	58.06	19	Coal	dull with bright bands, stick, sheared, pyrite	 		1-	+				 				
1				1						1				 		 		
		58.06	58.50	.44	Coal	dull - stick, sheared, pyrite		Ĺ		1						İ		<u> </u>
<u> </u>					<u> </u>				\vdash									
-}	_	58.50	58.65	.15	Coal	stoney coal - broken, some pulverized	├	_	 _					<u>} </u>	<u> </u>			
+		50 45	58.83	10	Conl	3.17	 	-	EP-	105-	-	0.86	4.50	28.38	66.17	<u> </u>		Yield 89%
╅		20.03	20.03	1	CORI	dull with bright bands - pyrite, some sheared, stick	 	-	-4	+	3.37	0,00	4.35	20.30	00.17	0.5		TIEIG 072
- †-	\dashv			_	-	SULCK		 	┥	+				 		 -		
\neg		58.83	59.03	.20	Coal	dull with bright bands - broken, sheared,			† 	\dashv				-				ļ
						pyrite												
-		59.03	59.10	.07	Coal	shaley coal		ļ	<u>\</u>	<u> </u>				<u> </u>]
+		 -					ļ <u>. </u>	-	├ -	-				<u> </u>		-		
╁	 ∤			-		Log thickness 1.7 Core thickness 1.52	 	 	╁-	\dashv		1						1
						Core recovery 892		 					-			 		1
5	9.1					Thre Ternvery 1132		\vdash		\dashv								
\perp		59.10	59.41	.31	Shale	dark gray												
1									1	\dashv								
+		59.41	59.46	,05	SLTST	light gray, shaley in places	.	<u> </u>	ļ	-+-								
3	-			├				-	-					 				<u> </u>
-	-	59.46	61.43	1 97	SLTST	sandy in places, especially towards middle,	70°	-	╁	\dashv								
		37,70	V1172		D4101	minor calcite veinlets				-		-						· · · · ·
\Box	\Box																	
1		61.43	61.48	.05	Coal	shaley		4								ĺ		Į
-	∤								\sqcup	_								
+	2.2	61.48	61.54	1.05	Coal	dull and bright - broken		├—	 	-								ļ
- 18	14-4-	62 20	62,35	-, -	Conl	stoney - minor bright bands, pyrite smears,	 	 	╀	-						<u> </u>		[
\top		114.44			-VUGI	(heavy)		\vdash	┨╌╂	-				 		-		 -
					-	· ·		 	1-1	\dashv						<u> </u>		†
		62.35	62.52	.17	Coal	dull & bright - pyrite specks, stick	60°			十	1.53	0.92	10.88	25.46	67.24	6		Yield 26%
				<u> </u>					EP-	105-								
+	∤	62.52	62.62	1.10	Coal	stoney - bright lenses, stick			3									ļ <u> </u>
+		62 62	62.60		CL - 1 -	2-11-11	ļ <u> </u>	├ ─	 ,	_[_				ļ —				
+		04.62	02.09	-0/	Snare	dark gray, pyrite specks	-	├	╁━╁	\dashv		- 		 		 		
_		\vdash	 -	-	<u> </u>	<u> </u>	 	 	1 1	+		 		 				
- [L i		<u> </u>			i	l .	l 🌡	<u> </u>				i		[<u> </u>

ALL LINEAR UNITS IN METRES

 $t \Rightarrow R \delta / OR \delta \longrightarrow GOLDER$ ASSOCIATES HARDNESS CODE

[•]RQD — ROCK QUALITY DESIGNATION (%)

FF - FRACTURE FREQUENCY

ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	HOLE No
AREA		CONTINUED EP-105

				τ.	,	LITHO DESCRIPTION	Ā	1	_		τ -		≜ M ≜I	YTICAL	DATA			
XO	47 .	└─ ─	PTH	TH.			MEDDING ANGLE				MOIS	1 %	ASH %	V.M. %	F.C. %	F.S.1.	<i>c</i> ::	ŘEMARKS*
No.	TOP OF BOX	FROM	ŢĢ		MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	(*)	DESIG	<u>L.</u>	40.	a.r.b.	residual	đ.b.	d,b.	d.b.	F.5.1.	C.V.	
13		62.69	62.71	.02	Coal	duli												
_		62 71	(2.05	-,,	SLTST		 	ļ	-	-	 			-	├──	<u> </u>		<u> </u>
-		62.71	02.03	-14	SPIDI	medium gray, cut by fractures coated with coal and pyrite specks	 	 			 			 	 	-		
						and pyrate apecas	 	 						<u> </u>	 			 .
		62.85	63.13	.33	Coal	dull with bright bands - pyrite, stick				\Box								
	63.1	 	 	 	 		 	 -	⊢	┝	 	 -		 	├	 		
	Val.	63.10	63.31	-21	Coal	dull and bright - sheared, pyrite, stick				 		<u> </u>						
				I				I										
_		63.31	63.71	•40	Coal	dull - sheared, pyrite, stick	 	 	! —	H	├		<u> </u>	 		 -		
		63.71	63.76	.05	Shale	dark gray								\vdash	 			
		l	1		Ţ													
\dashv		63.76	63.79	.03	Coal	bright	ļ	 -	 		 	<u> </u>		 -	⊢—			
_		63.79	63.83	.04	Coal	stonev					 			! 	 - 			
		I	1	1.	T			\vdash										
14		63.83	64.21	.38	Coal	dull with bright bands - sheared	-	1	┞	 -	 		 -	 	 			
	-	64.21	64.60	.39	Coal	dull - sheared, pyrite specks, stick	-	-	\vdash			 -		-	 			
						<u> </u>												
		64.60	65.20	.60	Coal	dull - sheared, broken stick				H	 	ļ—		<u> </u>	├	 		
一	66.1	 -		 		······································	 	 	\vdash	Н	 			 	 			
		66.10	66.27	.17	Coal	dull - sheared, broken, pyrite												
		46 27	66.45	10	02				-		 	<u> </u>		 				
-		90.41	00.43	1.10	Loai	dull with bright bands - sheared, broken stick		 	EP-	-10	5-	· · · · · ·		 		1		
		66.45	66.59	.14	Coal	dull and bright - broken stick				4	0.64	0.84	4.13	26.23	68.80	8		Yield 81%
-		66 50	66.71	12	Conl	dull - pulverized		<u> </u>										<u> </u>
		00.55	00.71	-12	COAL	ddii - palverized	!		\vdash	Н	 				 	-		
	67,0													Ĺ				
⇥		67.00	67.08	.08	Coa1	dull - pulverized		├	<u> </u>	 	 			<u> </u>		igwdown		
		67.08	67.22	.14	Coal	dull - broken stick	ļ · · · ·		-	-				 	_			
		67.22	67.44	.22	Coal	dull with bright bands ~ stick, sheared	—	├ —	H	-								
		67.44	67.54	.10	Coal	dull - pulverized	 	-	\vdash	╁┤								
	40.																	
	68.6	68 60	68.80	20	Coal	dull with bright bands			<u> </u>					ļ		<u> </u>		
-		00.00	00.00	1.20	COAL	darr with orrkut bands	<u> </u>	 	\vdash	\vdash	 	$\vdash \dashv$			_	 		
		68.80	68.87	.07	Shale	coaly					<u> </u>							
\dashv	69.2	 	-	-			ļ	\Box										
\dashv	09.2	69.20	69.22	.02	Shale	coaly	 	-	\vdash	-	 			 	 	├		
					Vidie		-	 	-	H	<u> </u>			1		† · · · · ·	-	
					-		Γ.											-

ALL LINEAR UNITS IN METRES

TINRA/OR S - GOLDER ASSOCIATES HARDNESS CODE

•RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

* Washed to S.G. I.5



PROJECT	
AREA	

HOLE No.

PAGE 6

BOX	DEPTH	DEP	TH		İ	LITHO DESCRIPTION	MIDOING	SEAM	SAMPLE			ANAL	TICAL	DATA			REMARKS *
	TOP OF	FROM	ΤŌ	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MO:	T %	ASH % d.b.	V.M. % d.b.	f.C. % d.b.	F.S.1.	C.v.	NEMARAJ.
14	- FO.		69 46	2/	Shale		<u> </u>		i								
] . [
\dashv	I	69.46	69.55	.09	Coal	dull		ļ					<u> </u>		<u> </u>		
\dashv	 	60 55	60 56	01	Shale	coaly					1						·
士		Į		{		,											
\dashv		69.56	69.78	.22	Coal	dull - sheared, broken stick											
	- i	69.78	69.84	.06	Coal	dull - pulverized	 							-			
二											1						
 -		69.84	69.96	.12	Coal	dull - sheared, broken stick	<u> </u>	<u> </u>	-								
		69.96	70.05	.09	Coal	dull - with bright bands - broken stick	 	-							_		
コ		· ;		Ī													
-+		70.05	70.23	.18	Coal	dull - sheared, pyrite, broken stick	 -	-			 						
+	 -	70.23	70.36	.13	Coal	dull with bright bands, stick	 	 		<u> </u>	 						
+						Log thickness 9.4 Core thickness 5.77		-			ļ <u> </u>				_		
-			•			Core recovery 61%	 	_									
\Box	\Box																
\rightarrow		70.36	70.52	.16	SLTST	light gray, burrowed	<u> </u>				-						
- 	0.7						-									_	
\Box		70,70	71.13	.43	SLTST	laminated	55°										R3
15							-	-							-		
**		71.13	71.57	.44	SLTST	as above, coaly lenses	50°				 				 - -		
\dashv																	
\rightarrow		71.57	71.91	.34	Shale	dark gray, coaly lenses	<u> </u>								-		
	12.2			\vdash		· · · · · · · · · · · · · · · · · · ·					 				-		<u>-</u>
	-	72.20	74.31	2,11	Shale	as above, silty intervals,	50°										
\dashv						minor calcite-filled fractures	ļ										
+		74.31	74.48	.17	Coal	shaley, slickensides	 				 -				 		
\Box																	
		74.48	74.71	.23	Shale	coal stringers											
	75.3					<u> </u>		 			 	•		··	 -		
二		75.30	76.33	1.03	Silty-	dark gray with light gray silty zones											
					shale	throughout, minor calcite-filled fractures					<u> </u>				1		
16			· · ·			·		-		-					-		<u></u>
-0		76.33	76.63	.30	Silty-	as above	70°										-
_	Ţ				shale												
+		76 63	76 87	2/	Coal	some thin shaley bands, dull banded,	-								 		
			19.97	1 ***	COAL	broken, slickensided	ļ				1						<u> </u>
				}]						<u> </u>				-		

PROJECT	EWIN PASS	HOLE No EP-105
AREA		CONTINUED

PAGE 7-

DEPTH	DEP	TH .			LITHO DESCRIPTION	MEDONIG	SEAM	SAMPLE			ANAL	TICAL	DATA		,	REMARKS!
TOPOF	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANOLE	DESIG	No.			ASH %	V.M. %. d.b.	F.C. %	F.S.I.	C.V.	"EMONY"
BOX }			20			1	_									
1																
	77.16	78.42	1,26	SLTST	alternating light and medium gray, some								<u> </u>			
					turbulent laminations, calcite-filled fractures			 	-				 	 		
78.3							_		 				$\vdash \vdash$			
	78,30	78,96	,66	Shale	dark gray, breaks into small rectangles											R2
							<u> </u>	 	ļ <u>-</u>	<u> </u>				 -		<u> </u>
	78 <u>96</u>	79.03	-07	Coal	pulverized			 	 						 	
	79,03	80.51	1.48	SLTST	light gray, contorted bedding,	50°										R3
				·	minor calcite-filled fractures		_			├ ──			<u> </u>	ļ	ļ	
\rightarrow							 	 	 				 - -		 	
	80.51	81.54	1.03	SLIST	as above	50°										
									ļ	ļ. <u>. </u>					ļ. <u>-</u>	
31.3/	81 37	83.94	2.57	SLTST	calcite veins almost perpendicular laminations	 	}	 	1	 			 	<u> </u>		-
					throughout											
	-03: 07	- 		61 - 1		7/10	<u> </u>		<u> </u>				ļ. 		<u> </u>	
 	83.94	84.42	,48	Share	dark gray	60								 -		ļ
84.4			H						 				 			
	84.40	84,69	.29	Shale	as above											
-+						-		-	 							
	84.69	85.51	.82	Shale	as above		- -		 	 				 		}
	85.51	87.38	1.87	SLTST		60°			<u> </u>							ļ
			H		minor calcite veinlets	-				 	<u> </u>		 			
87.5																
— ·	87.50	89,29	1,79	SLTST		20°	<u> </u>		ļ						ļ	ļ
			$\vdash\vdash$		calcite veinlets and fracture infilling.				 	 	-					
	-				Bedding aimost parallel core axis					 						
										ļ						
	89,29	89.63	,34	SLTST	as above	 	<u> </u>	ļ <u>.</u>	 	 			 -	ļ	 	ļ
	89.63	90.53	.90	Shale	dark grav. minor silty bands	20°			 	 			 	 	 	
																
90.5	00.55		-	5) 1	<u> </u>	ļ	<u> </u>			 					<u> </u>	ļ
-	90.50	_90.83	-33	Shale	as above	-	-		 				 	 	-	1
	90.83	92.68	1.85	SLTST		30°				1						R3
			}		shaller towards base	├	-		 	-			<u> </u>	-		
92.7					-	 -	 	 	<u> </u>	 			 	 	-	
	92.70	93.45	.75	SLTST	as above, numerous calcite veins (.3 mm wide)					<u> </u>					L	
	78.3 78.3 84.4	76.87 76.87 77.16 78.3 78.30 78.96 79.03 80.51 81.37 81.37 83.94 84.4 84.40 84.69 85.51 87.50 89.29 89.63 90.5 90.83	76.87 77.16 78.42 77.16 78.42 78.3 78.30 78.96 79.03 80.51 80.51 81.54 81.37 83.94 83.94 84.42 84.40 84.69 84.69 85.51 85.51 87.38 87.5 87.50 89.29 89.29 89.63 90.5 90.50 90.83 90.83 92.68	76.87 77.16 .29 77.16 78.421.26 78.3 78.30 78.96 .66 78.96 79.03 .07 79.03 80.511.48 80.51 81.541.03 81.37 83.94 84.42 .48 84.40 84.69 .29 84.69 85.51 .82 85.51 87.381.87 87.5 87.50 89.291.79 89.29 89.63 .34 89.63 90.53 .90 90.5 90.83 33 90.83 92.681.85	76.87 77.16 .29 Shale 77.16 78.421.26 SLTST 78.3	76.87 77.16 .29 Shale dark gray, coaly lenses 77.16 78.421.26 SLTST alternating light and medium gray, some turbulent laminations, calcite-filled fractures 78.3 78.30 78.96 .66 Shale dark gray, breaks into small rectangles 78.96 79.03 .07 Coal pulverized 79.03 80.511.48 SLTST light gray, contorted bedding, minor calcite-filled fractures 80.51 81.541.03 SLTST as above 81.37 83.94 84.42 .48 Shale dark gray 84.4 84.40 84.69 .29 Shale as above 84.4 84.40 84.69 .29 Shale as above 85.51 87.381.87 SLTST light gray, disturbed laminations, minor calcite veinlets 87.5 87.50 89.291.79 SLTST minor shale interbeds, concentrations of calcite veinlets and fracture infilling, hedding almost parallel core axis 89.29 89.63 .34 SLTST as above 89.63 90.53 .90 Shale dark gray, minor silty bands 90.8 90.80 90.83 .33 Shale as above 89.69 90.83 92.688.85 SLTST light gray, carbonaceous spots, 0.10 zone of calcite veins and fractures fillings at 90.4, shaler towards base	To MAIN AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) To To To To To To To T	To MAIN AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) Coal	FROM TO	TROM TO MAIN AMPLISIED (INCLUDE COAL RECOVERY FOR EACH SEAM) No. Co.	TROM TO	TROM TO	### FROM TO MAIN AMPLIFIED INCILUDE COAL RECOVERY FOR EACH SEAM) 100 000	### ROM 10 MAIN AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) No. 2.1.5 material d.b. 4.5 d.b. 4.5 76.87 77.16 78.423 26 SLTST alternating light and medium gray, some curbulent laminations, calciterfilled fractures 77.16 78.423 26 SLTST alternating light and medium gray, some curbulent laminations, calciterfilled fractures 78.30 78.96 66 Shale dark gray, breaks into small rectangles 78.96 79.03 07 Coal pulverized 79.03 80.513 48 SLTST light gray, contorted bedding, minor calcite-filled fractures 80.51 81.54 0.0 SLTST as above 80.51 81.54 0.0 SLTST as above 83.94 84.42 48 Shale dark gray 84.4 84.69 29 Shale as above 84.6 85.51 87.38 87 SLTST light gray, disturbed laminations, minor calcite veinlets 87.5 87.50 89.29 79 SLTST minor calcite veinlets and fracture infilling 88.92 89.63 34 SLTST as above 89.51 89.29 89.63 34 SLTST as above 89.51 89.29 89.63 34 SLTST as above 89.51 89.29 89.63 34 SLTST as above 89.51 89.29 89.63 35 SLTST light gray, carbonaceous spots, 0.10 zone of 90.51 90.50 90.83 33 Shale sa above 89.61 90.52 90.83 92.68 85 SLTST light gray, carbonaceous spots, 0.10 zone of 90.81 90.82 92.68 85 SLTST light gray, carbonaceous spots, 0.10 zone of 90.81 90.82 92.68 85 SLTST light gray, carbonaceous spots, 0.10 zone of 90.82 90.83 92.68 85 SLTST light gray, carbonaceous spots, 0.10 zone of 90.83 92.68 85 SLTST light gray, carbonaceous spots, 0.10 zone of 90.84 90.85 90	FROM TO	FROM TO

ALL LINEAR UNITS IN METRES

1 =R&/ORS - GOLDER ASSOCIATES HARDNESS CODE

*RQD - ROCK QUALITY DESIGNATION (%)

FF ---- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

HOLE No. EP-105 CONTINUED

PROJECT	EWIN PASS_	HOLE No.		_
AREA		CONTINUED	EP-105	

BOX	CEPTH	DF	TH		•	LITHO DESCRIPTION	Man Can Can	CEAL	SAMPLE	L		ANAL	YTICAL	DATA			
	AT .	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM		DESIG	No.	I WOIS	T %		V.M. %		F.S.1.	C.V.	REMARKS?
No.	TOP OF	FROM	Ю	ļ	MAIN	AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM	(*)	<u> </u>	<u> </u>	0.r.b.	residual	d.b.	d.b.	₫.b.	. (10,).		
20					<u></u>		 _ _		ļ <u></u>	ļ	<u> </u>		ļ <u></u>			<u> </u>	
		93.45	95.64	2.19	SLTST	as above, very few calcite veins,	85°	├—		-	 		 	 -		├	
+		<u> </u>				some contorted laminations	+			 -	 			 		 	
\dashv		95.64	94.80	.16	Shale	dark gray, some silty bands	1	 	<u> </u>	 	1		<u> </u>				
ユ						and distributed			i		1 -			1			
	95.7									<u> </u>							
-		95.70	97.72	2.02	Shale	as above, minor calcite veins	₩90°	 		 	ļ		ļ	 -			
21		-		┝╌			+	 		 	 		├	 	<u> </u>		
7		97.72	98.73	1.01	Shale	as above	1				 						
										1.			İ		_		
	98.8	<u></u>		<u> </u>			1			<u> </u>				L		ļ	
{		98.80	98.93	_13	Coa1	dull - broken stick	· 	<u> </u>	个 EP-10	<u> </u>	 			<u> </u>			
- {		09 02	99.03	10	Cool	dull with bright bands - stick	+		5 - 10.		0.44	2 64	25 22	71 30			Yield 60%
				. !		_				<u> </u>	V-74	4,74	1	1			TAETU OUA
		99.03	99.36	.33	Coal	dull with bright bands - stick, sheared			¥								
+		76 26	99.44	70	Cool	bright - stick	+		1	}						-	<u> </u>
		99.30	99.44	100	COAL	bright - stick	 		-	-				-			
\dashv		99.44	99.56	.12	Coal	dull - stick, sheared	+			1					_		
										<u> </u>	1			<u> </u>			
-+		99.56	99.80	.24	Coal	dull with bright hands - sheared, stick	ļ			I							
-+	-	00 90	100.05	25	Cool	3.11 - 435-1	+]			ļ			
╌		97.00	100.03	.23	COAL	dull - sheared, stick	-			}	1			 			
		100.05	100.11	.06	Coal	bright - sheared, stick, pyrite					1						<u> </u>
		i			_				EP-10:								
\dashv		100.11	100.38	.27	Coal	dull with bright bands - stick, pyrite	+		6	3.09	0.36	4.63	25.83	68.18	8		Yield 87%
		100 38	100.52	T A	Coal	dull - sheared, pyrite, broken stick			 	 				-			
7			100.32	•••	VOUL	udii sheated, pyrite, bloken stick	 			 	 						·
	100.6								1	İ							
4		100.60	100.85	_25	Coal	dull and bright - very broken, pyrite	Ļ		\vdash	[
-+		100.85	100.97	12	Coal	dull and bright - powdery	-			 	├						
-+		100.05	100.37	- 4.5	UUAI.	dult and bright - bowdery				 							
		100.97	101.08	.11	Coal	dull and bright - broken, pyrite	<u> </u>			 	\vdash	-					
4			_														
	101.8		101.92							 -	 -i						
+		TOTABO	101.92	112	COAL	bright with dull bands - sheared, stick	 -		<u> </u>	 	 						
						Log thickness 3,3	1			 - -	 						
1						Core thickness 2.32	i			1							
-+				<u> </u>		Core recovery 70%	ļ				1						
-		101 92	103 16	1 2/	Shale	dark gray, coaly lenses, silty towards base	50°		<u></u>	 	1		ļ	<u> </u>			
		/ 2	203.10	m £ 4	OHETE	warm gray, coary tempes, sifty towards base	1 20	-			 					-	
							1	-	· ·	†	1 1			-			
ī		1		}	I	·	1			1	1				!		

ALL LINEAR UNITS IN METRES

t := R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE == RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

* Washed to S.G. 1.5

ANGLE MEASURED FROM CORE AXIS

HOLE No.

PAGE ... B

OJECT	EWIN PASS	HOLE No EP-105	P.
AREA		CONTINUED	٥

BOX	DEFTH	DF	PTH			LITHO DESCRIPTION	A CODE	SEAM	SAMPLE				YTICAL				`
No	AT TOPOF	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS			V.M. %	F.C. % d.b.	F.S.I.	C.V.	REMARKS *
	201	IKOM		 	IRMUN .	AMPERIED STATES OF COAL RECOVERY FOR CACH SEAM)	(*)			a.r.b.	residual	d.b.	đ.b.	Ø.D.			
22		102 16	107, 45	32 60	SLTST_	light and medium gray, some shaley zones	45°		<u> </u>								R3
\rightarrow		1103.10	104.03	1.49	SL151	especially towards base, a 0.30 zone of	45	\vdash		 	├ ──			 			K3
-		 		╁	 	calcite veins at 104.3	1							 	 		
-					-	Calcice verils at 104.5	!						 -	 	 		-
	104.8			 							\vdash						
		104,80	105.20	.40	SLTST	as above, calcite veins throughout, up to	55°				1						
[<u> </u>		2 mm thick, small fault contact at siltstone/											
_				↓	<u> </u>	shale contact with a 4 cm displacement along		<u> </u>									
-			 	├		a reverse type fault					-			ļ	<u> </u>		
		105 20	105 73	53	Shale	dark gray, silty patches								 	-		
		105.20	103.73	7	SHATE	dark gray, sirey pacenes					}				-		
-		105.73	105.89	. 16	Coal	dull - broken, sheared					 						
			L	<u>l</u>							1						
		105,89	106.01	.12	Stoney	slickensides, pyrite on slickensides											
				<u> </u>	Coal												
\dashv		106.01	104 00	0.1	C1 - 1 -		!				!						
		100.01	100.02	1 .01	Shale	dark gray, 1 cm thick coaly horizons (some with slickensides) throughout											
		 		}		with slickensides) throughout	ļ	-			-						
_	108.1	-		 		······································	-									-	<u>.</u>
\dashv	100.	108.10	108.97	.87	Shale	as above, breaks into small rectangles	50°										
									-								·
23																	
_		108.97	109.43	46	Shale	as above, 0.16 stoney coal horizon at 108.97											
		ļ		<u> </u>													
	109.7			1 0	01 1						ļ						
		103.10	111.24	1.84	Shale	as above, calcite veins and healed fractures											
_	111.9	 									\vdash \dashv						
			113 95	2.05	Silty	banded zone at 112.09 with a 1 cm calcite	25°				 				}		R3
					Shale	vein at base, vein separates zones of	65°								1		N.F
						different dip. thin coaly zones throughout.	<u> </u>										
\rightarrow		<u> </u>				different dip, thin coaly zones throughout, silty at top and shaller towards bottom	90°										
_		 			├ -	<u></u>					\vdash						
24		112 65		1	 		 			·	 				.		
∔		113.92	114.14	£ - 19	Shale	dark gray		\vdash									
-	114.9	 	 -			· · · · · · · · · · · · · · · · · · ·	 -						-				i
-	114.4	114.90	118 03	3.13	Shale	calcite veins scattered throughout,	-		-						 		
		1		T***	PARTE	minor silty zones	60°			<u> </u>							
											1		···				
\Box	118.0					•											
		118.00	119.08	1.08	Shale	as above											
 _	· · · · · · · ·		 	 -	ļ												
25		1120 00	110	-	 		<u> </u>	\sqcup	·	<u> </u>	 				├ —		
		1113.08	1119.44	H - 36	Shale	as above	1				 			<u> </u>	ļ		
		 		 	 									-			
\neg			 	t^-							├				 		
1		<u>i</u> _	<u> </u>	<u> </u>	<u>. </u>	<u> </u>	1	l I]				J,		

ALL LINEAR UNITS IN METRES

†::R&/ORS — GOLDER ASSOCIATES HARDNESS CODE *RQD — ROCK QUALITY DESIGNATION (%)

FF - FRACTURE FREQUENCY

GOLDER ASSOCIATES HARDNESS CODE ANGLE MEASURED FROM CORE AXIS



OJECT	EWIN PASS	1	HOLE No
AREA		П	CONTINUED

3OX	DEPTH	DEF	TH.	Ţ		LITHO DESCRIPTION	MOORAG	SFAM	SAMPLE				YTICAL I				*5
1	AT TOPQ*	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	INNOCE	DESIG.	No.	MOIS	T %	ASH %	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS*
-	BOX	FROM		<u> </u>	MAIN	AMERICAN CONTRACTOR CACTO SEAMS	(*)	<u> </u>		4.6.6.	residuol	e.b.	0.0.	d.b.			
25	119.2						 			ļ							
-+		110 20	121 37	0 17	Sholo	as above. 1 cm pyrite bed at 119.26.	1-										-
一		117.20	464		SHATE	silty zones.	85°	_									
						coaly zones, usually with slickensides											
\Box											ļ						
<u> </u>	122.2	100 00	100 (1	Ļ.,	<u> </u>	· · · · · · · · · · · · · · · · · · ·	 		-								
\dashv	_	122.20	122.61	-41	Shale	as above	!				 						
一.	124.7					Seam 6 - Coal missing entirely from core.	 				f						
		124.70	124.85	15	Shale	as_above	1										<u> </u>
_[125.6			ldash							[]						
	ļ	125.60	126.73	1.13	Silty		60°									~ <u>-</u>	
				-	Shale	coaly slickensides at top & towards base	40°				 						
26	1			\vdash		<u></u>	1				├ ╍╍╌┤			 		<u> </u>	
士		126.73	127.10	. 37	Silty	as above			 ,								R3
\Box					Shale												
]					
	1271	102.10	100 /0								 						
}-		12/.10	129,48	2.38		as above, becoming increasingly silty, no coal, minor calcite veins	50°										
	-		-		Snare	no coat, minor calcite veins	1				╂┄╌—─┤						
-+		129.48	130.21	.73	SLTST	light gray, cross laminated	55°			-	 		-				R3
						calcite veins (minor)	1										
	130.1										ļ						
		130,10	131.05	.95	SLTST	as above	55°				├ ──}						
 [[]			 				 						
27	- 	131.05	131.56	.51	Silty	medium gray, becoming shaller with depth	ļ				1				-	••	-
					Shale		1										
		٠								<u> </u>							_
\rightarrow	Į	131.56	131.61	.05	Coal	bright banded - stick			EP-10	•							
\dashv		131.61	131.64	.03	Coal	dull - stick	ļ			2.38	0.31	5.63	24.31	69.79.	.8		Yield 84%
\dashv	- i	131.64	131.79 132.02	113	Coal	dull with bright bands - stick dull - slickensided, broken, pyrite	-		- T-		}						
 }-		132 02	132.02	07	Coal	duli - stickensided, broken, pyrite] -		EP-10	<u></u>	├ ───┪						 -
_		132.09	132.21	12	Coal	dull and bright - stick	-		8		0.31	6 65	24 81	68 23	8		Yield 87%
		132.21	132,42	.21	Coal	dull with bright bands - broken, pyrite	1		1	_0.0.	7.2	0,03	E-1.V.	VV - 4-4	· ·		TIETA OTA
	}	132.42	132.52	.10	Coal	dull with bright bands - very broken										-	
		132.52	132.72	.20	Coal	pulverized	ļ				I						
\dashv			ļ <u>. </u>		<u> </u>		-				igspace						
+			-	 	 	Log thickness 1.2	 										
- +						Core thickness 1.16 Core recovery 97%											·
						TATE LEGOVELY 4/A	\vdash				 						
		132.72	132.89	.17	Shale	dark gray	1				1 1						
- 1				1			1				1 -				-		
- 4																	

ALL LINEAR UNITS IN METRES

t :+RB/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

^{*}ROD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

PROJECT	EWIN PASS	HOLE No.	,
AREA		CONTINUED	EP-105

PAGE 11 OF 19

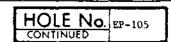
OX or or or or or or or or or or or or or	132.60 135.29 .6 135.60 7 138.70	135.48	3.05	Shale Shale Shale Shale	as above, silty zones, coaly stringers and lenses as above as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones Light and medium gray, cross-laminated	55°	DESIG	No.	MOIS1	% residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.1.	C.V.	REMARKS?
132	132.60 135.29 .6 135.60 7 138.70	135.29 135.48 138.65	3.05	Shale Shale Shale	as above, silty zones, coaly stringers and lenses as above as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones	55°			B.T. 8.		6.8.	C.D.	9.9.			
135.	132.60 135.29 .6 135.60 .7 138.70	135.48 138.65	3.05	Shale Shale	as above as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones	40°										
135.	135.29 .6 135.60 .7 138.70	135.48 138.65	3.05	Shale Shale	as above as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones	40°										
135.	.6 135.60 .7 138.70	138.65	3,05	Shale	as above as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones											
135.	.6 135.60 .7 138.70	138.65	3,05	Shale	as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones											
135.	.6 135.60 .7 138.70	138.65	3,05	Shale	as above, coaly lenses towards top, siltier towards base, calcite veins, slickensides in coaly zones											
138.	7 138.70 139.82	139.82			siltier towards base, calcite veins, slickensides in coaly zones											
138.	7 138.70 139.82	139.82			siltier towards base, calcite veins, slickensides in coaly zones											
29	.7 138.70 139.82	139.82			siltier towards base, calcite veins, slickensides in coaly zones											
29	138.70		1.12	SLTST	calcite veins, slickensides in coaly zones						-		ļ			\
29	138.70		1.12	SLTST												4
29	138.70		1.12	SLTST	light and madium gray cross-laminated					i !						
29	138.70		1.12	SLTST	light and medium gray cross-laminated	-		1								
	139.82					_55°									-	
		141.97	1 1													
141		141.97				L										
141	7		2.15	SLTST	as above, minor calcite veins				. —							R3
1141	- 11	<u> </u>														 •
į.		143 94	2 16	SLTST	as above, shaley zones	30°	-									
	1141.70	142,00	K - 10	SPISI	more calcite (one up to 1 cm wide) yeins	30		- 1								
\dashv					towards base	1										
1	1				TOTAL III MASS										-	
10	<u> </u>															í
—	143.86	144,75	.89	SLTST	as above, with shaley zones and calcite veins											
	_		\square				∤	∔	}							
145,	11.75 10	110 (0	2 00			20°		—∤								
+-	1145.10	148.40	3.34	SLISI	as above (possible fault considering bedding angle)	20										
+-	+		Н		bedding angle)		- +							_	-	
31					··	1										-
148.																
	148.10	151,22	3.12	SLTST	as above. 0.20 calcite healed zone at top	35°										
 -		<u> </u>			<u> </u>	ļļ	 									
151		150 /5		07.000		7.8	∔		<u> </u>							
 	1121.20	132.43	1.27	SLTST	as above	35°	 -{									 -
32					<u> </u>	 	 	──┤		- ~		<u> </u>	 			 -
	152.45	152.70	.25	SLTST	as above					┝──┪			-			_ -
	l			_												
	152.70	153.23	.53	SST	light gray, fine to medium gray,											R4
+	1			<u> </u>	very faint bedding	45°								L		-
	150 00	15/ 21		0:14		 				├ ─						
	1153,23	124,71	.98	Silty	dark gray, slickensides towards top (one is	-								<u> </u>	-	
+	+	 -	$\vdash \dashv$	Snaie	S-shaped), rip-up clasts at sandstone contact											
	154.21	154.51	.30	SLTST	medium gray, laminated	30°						<u> </u>			· 	
	1		<u> </u>			† <u></u>		 -	-		· · · · -	- i		 		
154						1 7										
	154.20	155.07	.87	SST	medium gray, becoming coarser grained towards	50	1									R3
					bottom, slickensides and calcite veins											

ALL LINEAR UNITS IN METRES

TINES/ORS - GOLDER ASSOCIATES HARDNESS CODE

*ROD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY



OJECT	EWIN PASS	HOLE No.	EP-105	PAGE.
REA		CONTINUED	103	OF

SEAM SAMPLE ANALYTICAL DATA LITHO DESCRIPTION DEPTH ASH %4V.M. % F.C. % F.S.I. d.b. F.S.I. REMARKS * AT TOP OF BOX MOIST % ANGLE DESIG No. FROM TO MAIN AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) Noi o.r.b. residual {*} 155,07 [56,46] Silty dark gray, some slickensides towards top. Shale minor calcite veins 33 156,46 157,35 .89 Shale as above 157.30 159.231.93 SLTST light gray, grading downwards to medium gray. **P3** increasing carbonaceous laminations downwards along some of which there are slickensided. minor calcite veins 159.0 159.00 160.401.40 SLTST 300 as above but no carbonaceous laminations. ¥3. more shalev zones 160.40 160.56 .16 SLTST as above 160.60 163.522.92 SLTST as above, calcite healed zone at top 2 cm wide. 25° at 161 a .20 m zone of calcite veins with displacement along them 163.40 164.24 84 SLTST as above 164.24 164.54 .30 SST medium gray, medium grained 35 164.54 166.201.66 SST as above, scattered calcite veins, rip-up clasts at 166.0 166.4 166.40 169.062.66 SST as above, coarser zones at 166.9 and 168.5, rip-up clasts at 168.7 and 168.4, porous zone at 167.4 (dissolved calcite veins? 169.06 169.15 09 SST as above 169.15 169.66 .51 Shale dark gray

ALL LINEAR UNITS IN METRES

f:=R&/ORS — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY



OJECT	EWIN PASS	HOLE No.
REA		CONTINUED EP-105

ВОХ	SEPTIN	DEF	TH.	1	· · · · · · · · · · · · · · · · · · ·	LITHO DESCRIPTION	A. O.	SEAN	SAMPLE	Į.			YTICAL				
No	TOPOF	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	T %	ASH %	V.M. % d,b.	F.C. %	F.S.I.	C.V.	REMARKS*
	101	TAOM	10	-	I FI COLL	MARKET IED (INCODE COME RECOVER TOK ENCI. DEAM)	(*)	}	<u> </u>	a.r.b.	mendual	0.0.	G,B.	6.b.	-		
36		260.66	170 //	L 00	0001				 	<u> </u>	ļ			<u> </u>	!		
		169.66	172.48	K-80	Congl.	light gray, coarse grained sandstone, pebbles concentrated in zones, some pyritized	50°	┼	 	├──-	 			-			R3-R4
-				 	Long	pebbles, coaly stringers and lenses	┼	 	 	ļ	-			 			<u> </u>
\neg						Peoples, coary stringers and renses	_	1		1	 1			1	_		
	172.5						<u> </u>		 	<u> </u>							
		172,50	173.04	.54	SST/	as above, becoming finer grained and laminated											
_				ļ	Cong1	towards bottom	└	 	<u> </u>	1							
				 		·	 		 -	<u> </u>				 _			
37		172.06	173.86	02	COT		55*	 	╄		 			-			- 22
\dashv		173.04	173.60	1 .04	551	medium gray with dark gray towards bottom. fine grained, coaly laminations towards bottom		 	 	 -	 		<u> </u>	 			R3
1						Time grained, coary taminations towards corrow	 	 	 	 	1			 		· -	·
		173.86	175.77	1.91	SST/	medium gray, medium to coarse grained,	45°		1		†" —			-			
\Box					Congl.	pebble zones with pebbles up to 3 cm but								L		·- <u>-</u>	R3-R4
						averaging 0.5 - 1.0 cm.	.										
				-	<u> </u>	coaly streaks, lenses, patches; towards bottom	ـــــ	ļ	 						igsqcurie		
-				 		a coaly slickenside abuts 2 different bedding	40°, i	h-	-		}						
						angle orientations. 0.29 m broken core at bottom	40.1	γ—	 	-				 -	-		
-1						БОССОШ	┼	-	 	 	 						
	175.6						 	\vdash	 	 							}
		175.60	177.18	1.58	SST	medium gray, medium grained, laminated.	100	†	† —							-	R3
						small faults showing offsets throughout			1								
						faults have coaly surfaces		<u> </u>									
				إـــــــا				L	ļ		<u> </u>				igsquare		
38		177.18	177.07	· .			-	├	<u> </u>	ļ <u> </u>							 -
- -{		177.18	1//.8/	69	SST	as above, core broken at top	├	├	-								
-		177.87	178.81	94	SST/	medium gray, medium to coarse grained,			 		╁╌╌┤				 		R3
_		******	270,01	<u> </u>	Congl.		 	-	 -		┼┼						-
\Box								1	 								
	178.6														\Box		
		178.60	181.11	2.51		as above, coal stringers, lenses, pods	10*		I		<u> </u>						
		_ _		L	Congl.	throughout, coaly slickensides throughout	 _	 	<u> </u>	<u> </u>							
-	181.0		——	 -i					<u> </u>						! !		
┪	TOTTO	181.00	181.13	.13	Congl.	pebbles more concentrated than in previous	 	├	} -		 						R3-R4
				 	331.621	zones	├ ─┈─	├	 -	 - -	 						
_							t	 	 	 	 				H		
39							 		-		 				1		
\Box		181.13	181.47	.34	Congl.	as above, coaly stringers, lenses, pods									<u> </u>		
_\						throughout, porosity along washed-out lenses											
\dashv			101 00			•											
		181.47	181.82	.35	SST	light gray, coarse-grained	ļ —	 -	 		<u> </u>				↓		<u> </u>
\dashv		181.82	183 07	25	SST	light gray, fine grained, laminated,	75°	-		<u> </u>	ļ <u> </u>						R3
		.01.62	103.07	2.4.	331	minor calcite vines, two grain sizes separated	13	 	-	-	- -				 		
一				†		along a coaly horizon	 	 	 	 	 				┼──┤		
						The state of the s	i —	 	 						┞─ ╸╌╴┋		
]			 	1	†				- 1		; 1		
_			PE (b) 48		—— —і	4:00.00	<u> </u>	Ĺ	-	L			1		ì i	}	

ALL LINEAR UNITS IN METRES

1 :- R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE *RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

ANGLE MEASURED FROM CORE AXIS

HOLE No. EP-105

PROJECT	EWIN PASS	HOLE No. FR. 105
AREA		CONTINUED EP-105

PAGE. 14 OF. 19

BOX	DEPTH	DEF	HT	1		LITHO DESCRIPTION	BEDOING	SEAM	SAMPLE			ANALYTICAL DATA ASH V.M. % F.C. % F.S.I. C.V.		25014445			
No.	AT TOPOF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	AMGLE	DESIG	No.	MOIS	T %	ASH %	V.M. % d.b.	F.C. % d.b.	F.S.1.	C.V.	REMARKS *
		110111		-	******	THE PROPERTY OF THE PROPERTY O	 -	 	<u> </u>	0.1.0	Legidaci	9.0.	4.5.	4.6.			
\rightarrow	184.1	186 30	185.46	1 36	997	as above, well laminated, becoming finer	70°							-			
\rightarrow		104.10	103.40	2.30	331	with depth, minor calcite veins	170	 -			!					·-	
						TALL GENERAL BILLY CALLES VEHICLE											
40																	
\rightarrow		185.46	187.23	1.77	SLTST		70°			<u> </u>							R3
 				-		laminations, minor calcite veins,	<u></u>					<u> </u>			 		
	- 1			<u> </u>		minor sandy zones, also well laminated					 						
\dashv	187.4			\vdash											-		
\dashv		187.40	189.36	1.96	SLTST	as above.	70°										_
\Box						bedding angle changes from top to bottom	1										
							0°										
\rightarrow	—↓						25°										
							.25		 -		 				 -		
一十	189.3										 						
\dashv		189.30	189.53	.50	SLTST	as above	٥°			-							
\Box							1										
							40°										
	l																
41		100 50	100 0/		00-												
-+		189.53	190.25	/.	SLTST	as above, concentration of calcite veins and					 		·- <u>-</u>				
-			-			coaly laminations and slickensides gives it					-						·
\dashv																	
\Box		190.26	191.29	1.03	SST/	light gray, medium grained, pebbles in	70°										R3
\rightarrow					Congl.	zones, one with an eroded surface below it,											
				\square		broken core for last 0.2 m	<u> </u>								<u> </u>		
	191.1						_										<u></u> -
\dashv	131.11	101 10	193.74	2 64	COT	medium gray, well laminated.	30°	too			1						-
-	1	121.10	133.74	2.09	.55)	a coaly slickenside between the two bedding	-30	LOD.)						
				 		attitudes	90°				1					—·	 -
\Box						minor coal stringers, lenses and pods becoming											
						coarser grained towards hottom											
42								<u> </u>									
421		192 7/	194.40	-	ecm/		 	<u> </u>		-			<u> </u>				P2 7/
\dashv		133.74	724-40	-09	Congl.	medium gray, coarse grained, pebbly zones	 	<u> </u>	\vdash		 	—					R3-R4
					- 1811A1 -		ļ			 -	 		 		ļ I		
	194.1								_						, "	-	
	\Box	194.10	196.96	2.86	SST/	as above, some coaly stringers and lenses	80°										
				-	Congl.	throughout											
	 _			\vdash			ļ		-						}		· · · · · · · · · · · · · · · · · · ·
	197.2	107.20	198.10	-	nom/		}										
\dashv		121.47	140-11	90	Congl.	as above, porous where coal has been washed out	 -				 				 		
\dashv					AAHRT .	Porogo where coat has been washed out	 - -				 						
+				 			1				1		 		1		·
	1			_		.	1						, ,				

ALL LINEAR UNITS IN METRES

TINRA/ORS — GOLDER ASSOCIATES HARDNESS CODE

*ROD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

ROJECT	EWIN PASS	HOLE No.	
AREA		CONTINUED	EP-

вохі	овети	DE	PTH	1	<u> </u>	LITHO DESCRIPTION	L.A.	CEAL	SAMPLE	£			ANALYTICAL DATA				REMARKS'
		FROM	fΟ	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	TANGLE	DESIG	No.	MO:3	T %		V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS'
No	Box	FROM	1 10	 -	WATIN	AMPLITED (HACEOUR COME RECOVERT TOK EACH SENAR)	[(*)	} -]	a.r.s.	residual .	d.b.	4.D.	d.b.	_		
43		100 10	200.34	ļ. , ,	ACT		80°	├─		├			 				72.76
		198.10	200.34	2.24	551	medium gray, coarse grained, coaly laminations and lenses towards bottom	80	 	 -	┼──	 		 -	 			R3-R4
						Taminations and lenses towards portion		1			 						
	200,2																
		200.20	200.45	.25	SST	as above, linear porosity, sharp lower contact		<u> </u>			<u> </u>		 	<u> </u>			
-				<u> </u>				 	-	 -	 		 	 	} 		
- 1		200.45	202.32	1.87	Shale	dark gray, some silty interheds,	80°	 	 	 			-	1	├		<u></u>
			 			Minor calcife veins	\vdash	1		 			 	!	<u> </u>		
44																	
		202.32	203.49	1.17	Shale	as above, no siltstone interbeds			<u> </u>								
	202 2						ļ.—		<u> </u>	├		<u> </u>		 -	├	<u> </u>	
	203.3	203 30	206.40	3 10	SLTST	medium gray, laminated and cross-laminated.	90°	 		 	 -		 		 		R3
\dashv		e Cara di U.	EUGAN	1	30131	some shaley zones	70	f		†	†		<u> </u>		_		
45				$oxed{\Box}$				ļ									
	206.3				<u> </u>		├	-	 				 	<u> </u>			
∔		206 30	209-51	3.21	SLTST	as above, some calcite veins, less shaley	├	 -	 	-	-		 	<u> </u>	<u> </u>		•
	209.4		 				 	ݫ	-	 	 				} 		
	<u> </u>	209.40	209.48	1.08	SLTST	as above	80°			†	-			 	-		
										1							
46																	
		209.48	211.49	5.01	SLTST	as above	90°	<u> </u>	ļ	↓	1				<u> </u>		•
	212.4		} 	1						-			-				
	414.4	212 40	214 80	2 40	SLTST	as above, some shaley zones	90°			 	 				 		
1		214,70	214,00	1.70	20101	as above, some sharey cones	-	-	 	┼─	<u> </u>		 -		 		
47					<u> </u>					T							
		214.80	215.52	.72	SLTST	as above, becoming increasingly shaley		L									
			 _				<u> </u>	<u> </u>	1	1			<u> </u>				
	215.5	015 50	212.57	<u> </u>	SLTST		-00	-	-	 	1		-		 		
-		215.50	218.56	3 114	SLTST	as above, shaley in the middle and at the bottom, calcite veins	90°	\vdash	 	 			-				
						MY E LVIUS LEI V. AND			 								_
	218.5									1.							
		218.50	219.03	.53	Silty	as above, but overall finer grained and					<u> </u>					_	
			 		Shale	more shaley	! —	 			<u> </u>		.		-		_
48		 	 	\vdash			 - -	\vdash		 	 -				 		
70		219.03	220.86	83	Shale	as above	ļ ·	 	 	 	 		 		├		
		l	į				 	1	1	 	<u> </u>		<u> </u>				
\Box		220.86	221.44	,58	Shale	as above. coal splits, slickensides											
	_	ł	1	ļ	1												
		221.44	221.55	$\frac{1.11}{1}$	Coal	dull and bright, slickensided upper contact,		8	├	}	_				<u> </u>		<u> </u>
		 -	 -	 		stick		-	┝╌┞	 	 	 	 	ļ	 		
			 	†	!			-	\vdash	 -	 		 		 	-	
\dashv			 				 	\vdash		 	\vdash				 		
		<u> </u>	<u>i. </u>	1	1	<u> </u>	<u> </u>	Į		<u> </u>	<u> </u>	<u> </u>	<u> </u>		Ì.		

ALL LINEAR UNITS IN METRES

f:=R&/ORS — GOLDER ASSOCIATES HARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%)

FF -- FRACTURE FREQUENCY



ROJECT	EWIN PASS	HOLE No. EP-105	PAGE 16
AREA		CONTINUED	or19

юx	DEPTH	DEI	PTH			LITHO DESCRIPTION	BEDDING	SEAM	SAM	G F			ANAL	YTICAL	DATA			
No.	AT TOPOF BOX	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	N		MO15	residual		V.M. % d.b.	F.C. % d.b.	F,S,1.	C.V.	REMARKS
		* KONI	,,,	-	1911-411-4	HARLETTE (ALCOVE COME RECOVERY ON ENGINEERING	1 101	ļ	<u> </u>			1011Gñat	e.b.	a.b.	а.в.		·	
48	221.6	221 60	222.15	- 5 5	Casi	dull with bright bands, slickensides, broken	···		EP-			0.89	4 2%	24 71	70 06	8		Yield 83%
+		221.00	242.13	ررر	CORT	durr with oright bands, slickensides, broken	┝		٦ ا		22.93	0.69	4.34	24./1	70.00	٠.		Ileid 03%
		222.15	222.31	.16	Coal	dull handed - stick												<u> </u>
\dashv									$\Box 1$	\Box								
+		222.31	222.44	1.13	Coal	dull - broken to powdery	 -		-	\rightarrow					-	_		
		222.44	222.53	.09	Coal	dull - stick				-								
				I	i							- "						
\dashv		222.53	222.66	.13	Coal	bright with dull bands - stick				4								ļ <u> </u>
\dashv		222.66	222.75	.09	Coal	dull and bright - stick			-	- {				 -				
\Box					ł					_ †								
_		222.75	222.99	.24	Coa1	dull - stick, some slickensides				\Box								
+		222 99	223.11	12	Cosi	dull and bright - broken												
			223.21		UVAI	dary due of the process	ļ	1		+								
_;	223.1																	
-		223.10	223.26	_16	Coal	dull - stick	<u> </u>	<u> </u>		1								-
9										- 								-
		223.26	223.34	.08	Coal	bright - stick										-		
		-				<u> </u>				\Box								
+		223.34	223.53	19	Coal	bright -slickensided, broken				H			-					
1		223.53	223.55	02	Cost	hright - stick				+			-					-
4																		ļ
		22 <u>3.5</u> 5	223.79	.24	Çoal	dull - stick												
+		223.79	223.96	.17	Coal	dull with bright bands - stick				\vdash								
工										\vdash								-
4		223,96	224.05	.09	Cos1	dull - broken and pulverized				\Box								
		22/ 05	224.13		C=-7	dull - stick, pyrite	<u> </u>						-			 		
1			1							\vdash		 						
1		224.13	224.61	.48	Coa1	dull with bright bands - broken and pulverized,												_
-+						some pieces have I mm shale bands			-	Н								
1	224.6			\vdash					-	\rightarrow								<u> </u>
ľ		224.60	224.66	.06	Coal	dull with bright bands, stick	— i			\vdash		 						
-	. 1		ļ	[
+		224.00	224.95	. 29	Coal	dull and bright - slickensided, stick				$\vdash \downarrow$								
1		224.95	225.24	.29	Coal	dull and bright -slickensided, stick, pyrite				H								
$\exists \Gamma$						blebs												
+		225 27	226 21	- <u></u>	G.													
-+		223.24	220.31	10/	Shale	dark gray, slickensided				$\vdash \vdash$								
		226.31	226.39	.08	Coal	duli - stick			\vdash	+						 -		
Ţ														<u> </u>				
- 1			}	}														

ALL LINEAR UNITS IN METRES

FF --- FRACTURE FREQUENCY

T := R\$/OR 5 -- GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD -- ROCK QUALITY DESIGNATION (%)

A ANGLE MEASURED FROM CORE AXIS

^{*} Washed to S.G. 1.5

PROJECT	EWIN PASS	HOLE No EP-105
AREA		CONTINUED

вох	DEPTH	DE	PTH]	LITHO DESCRIPTION	MOON	SEAW	KAL	LAPS F			ANAL	TICAL I	DATA			REMARI	
No	AT TOPOF BOS	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	N	łφ.	MOIS o.r.b.	T % residual	ASH % d.b.	V.M. % d.b.	f.C. % d.b.	F,S.1.	C.V.	*EMAR	12,
49	401		226.44	.05	Coal	dull - broken and pulverized	1	 	EP	-10									
												0.73	4.38	24.87	69.5	8.5		Yield	77%
┝╍╼┥		226.44	226.60	.16	Shale	dark gray, coaly hands		 	╀	-									
		226.60	226.74	.14	Coa1	duIl - stick				1_									
		226 74	226.83	-00	Cool	bright - slickensides, stick		 -	ļ.,	-		<u> </u>							
		228.74	220.83	.02	COAL	oright - sitekensides, stick			1.										
	226.2	206.00	201					-		Ţ-,									
		i i	226.34	1 :]	dull with bright bands - stick	 	 		+-				-				 -	
		226.34	226,57	,23	Coal	dull and bright - broken, pyrite													
		226.57	226.92	.35	Coal	bright with dull bands - stick, pyrite	┼	\vdash	\vdash	╀┈									—
		1																	=
\vdash			227,16		i	dull - stick, pyrite		1		\vdash									
		227.16	227.39	.23	Coal	dull with bright bands - stick, pyrite													
		227.39	227.48	.09	Coal	bright with dull bands - stick, pyrite	 -	\vdash	 	╂╌						-,		 -	
			22777			DITENT WITH VOIL DENIES SCIENCE BYTTLE													
┝╼╌╢	227.4		227.44	-04	Coal	powder	_	}	┢	╁╌									
							<u>.</u>												
		227.44	227.69	-25	Coal	dull - stick	-	├	-	╁┥		-							
		227.69	227.76	.07	Coal	dull and bright - stick													
50							<u> </u>	ļ		\Box									
-		227.76	227.97	.21	Coal	bright - stick	├	 		╁┪									
-								ļ										- 7	
-		227.97	228.13	.16	Coal	dull - stick, pyrite	 	├		}- -						-			
\Box		228.13	228_16	.03	Shale	dark gray, broken													
		228 16	228.47	31	Cost	dull and bright - stick		\vdash	┼	╁╌						\longrightarrow		<u> </u>	
						<u> </u>													
\dashv		228.47	228.82	35	Coal	dull with bright bands - broken	<u> </u>	-	╀	\vdash									
		228.82	229.04	22	Coal	hright - braken, pyrite													
┝╌┤		229.04	229.27	.23	Coal	powder	-	 	1	 									
		}																	
┝╼┩		229.27	229.67	.40	Coal	dull and bright - broken			 										
	229.8						 	\vdash	 	+									
 -]		229.80	229.94	.14	Coal	dull - broken	ļ			\Box									
		229.94	230.00	.06	Coal	bright - stick	 -	} - -	\vdash	}-		\vdash				 			
		<u> </u>	<u> </u>	<u> </u>	<u> </u>							L i							

ALL LINEAR UNITS IN METRES

t: R&/ORS — GOLDER ASSOCIATES HARDNESS CODE +RQD — ROCK QUALITY DESIGNATION (%)

•RQD — ROCK QUALITY DESIGNATION [%] * Washed to S.G. 1.5

FF —— FRACTURE FREQUENCY



JECT	EWIN PASS	HOLE No. EP-105	PAGI
REA		CONTINUED	OF.

BOX	DEFTH	DE	PTH	1		LITHO DESCRIPTION	A.	SEAM		e			ANAL	TICAL	DATA			
No.	TOPOF		,	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No	D.	MOIST			V.M. %		F.S.1.	C.V.	REMARKS T
	ě	1 20171		1 2/		((*)	 		_	a.r.b. n	midual	d.b.	đ.b.	d.b.			
50		230.00	230.06	1.00	Coal	powder	├			-					 	<u> </u>		
\vdash		230.06	230,10	.04	Coal	stoney coal	ļ.——					+			 	 		
]														
		230.10	230,17	-07	Coal	dull - broken			П.	_								
\vdash		230 17	230.28	<u> </u>	Shale	dark gray	<u> </u>		+	\dashv						├		
			1	1	OHLLE	data gray			\dashv	-					 	-		
		230,28	230.45	.17	Coal	dull - broken				\sqsupset								
Ш		222 / 5							-			-						
Н		230.45	230.75	1.30	Coal	dull and bright - broken	 -		+	- {								<u> </u>
		230.75	230.89	.14	Coal	dull with bright bands - broken			4	1				-	-			
┝╌┤			 -	-		Log thickness 9.2				-}								
						Core thickness 9.0												
										⇉							_	
┞╌╣		230.89	232.16	1,27	Shale			<u> </u>		4								
	-		ļ <u>.</u>			lenses, silty towards bottom		 -∤		\dashv			<u>-</u>					
51			<u> </u>							┪			——— <u></u>					_
		232.16	232,96	.80	Sha1e	as above, slickensides				\Box								
	232.9				==		<u> </u>											
	232.9	232.90	233.79	-89	SLTST	light gray, laminated and cross-laminated,	80*			− ∱		-	 					R3 -
						some turbulent lamination at bottom	- 00			7	{ -	1		 1				
		_		Ĺ,						コ								
		233.79	233,95	-16	Shale	dark gray										_		
1		233.95	234.13	. 18	Coal	bright, 0.01 carbonaceous shale at top		-		┉┪				- i				
				i :			_			1								
		234.13	236.11	1.98	Shale	dark gray, carbonaceous throughout,				\exists								
			L			0.01 pyrite band at 235.4				∤	\longrightarrow	\rightarrow						
	235.9		-						-	┪	-+				- -			_
		235.90	236.16	.26	Shale	as above, increasing coal lenses and hands				1		. 1						
		_		ļ		towards bottom - 0.1 m coal at bottom,				_								
		-		-	-	slickensides				- {						-		
	236.8						 - 	-		+	+	+						
1		236.80	238,17	1.37	SLTST	light gray, becoming increasingly laminated	90°										-	R3
┝╼╾┥				 —-i		and less shaley towards bottom, minor												
				!		'calcite veins	-			\dashv								<u> </u>
		238.17	239.19	1.02	Shale	dark gray to black, very carbonaceous,			_		-	$\overline{}$	·}			$\vdash \vdash \vdash$		
\Box						coal bands up to 0,1 m												
$\vdash \vdash$	239.3		ļ	-	 -					\Box								
		239.30	240.62	1.32	SLTST	laminated and cross-laminated, in places fine	80°			-								R3
			- 37,72	1-1-4	92197	grained sandstone, in places shaley, worm		1	—	\dashv		- 						
			<u> </u>		L	Surrows	Ll			_1		[i}		_

ALL LINEAR UNITS IN METRES

t :=R\$/OR S — GOLDER ASSOCIATES HARDNESS CODE =RQD — ROCK QUALITY DESIGNATION (%)

A ANGLE MEASURED FROM CORE AXIS

OJECT	EWIN PASS	HOLE No.
REA		CONTINUED EP-10

вох	DEPTH	ĐĐ	PTH	1		LITHO DESCRIPTION	A COOM	CEAL	SALLE: F			ANAL	YTICAL	ANALYTICAL DATA		2544245	
No	AT TOPOF BOS	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG.	SAMPLE No.	MOIS	residual	ASH %	V.M. % d.b.	F.C. %	F.S.I.	C.V.	REMARKS*
	901	FROM	10	 	INCH 4	ARTELITED (NACEOUS COAL RECOVERS TOR EACH SERIES)	1	┝╼┩	<u></u>	9.7.5.	100001	Q.D.	0.0.	0.0.			
53		212 52	2/1	<u> </u>		<u></u>	0.50										
Н		240.52	241.59	97	SLTST	as above, no worm burrows, mostly silty with some fine-grained sandstone	_85°	 		 	\vdash						
\vdash		1		 		mostly silty with some fine-grained sandstone	 	 			\vdash				-		
		241.59	242.41	.82	Shale	dark gray, sharp upper contact, silty patches					 		, ,,				
			İ														
	342 ع																
Щ		242.30	244.13	1.83	Shale		I	<u> </u>									į .
${oldsymbol{\sqcup}}$		 -	-	!	 _	towards hottom, more slickensides towards	↓	 }			 						<u> </u>
		-	 	\vdash		bottom, rubbly zone for 0.4 m above marker block, some slickensides pyritized	├ ──-										· · · · · · · · · · · · · · · · · · ·
		 	├──			block, some slickensides pyricized	\vdash	 								-	
\vdash	244.I	 	 		 		ļ ·						-				···
		244.10	244.78	.68	Shale	as above but less carbonaceous and more silty,						-					
						top 0.1 m rubhly											
54		ļ	265 55		-		ļ	 							 _		
 -i		244.78	245.68	1.90	Shale	as above, still increasingly silty	 -	├ ─┤			 						
\vdash		2/6 (0	216 06	 	OT BOO	11.24	90°			ļ	 	—					
-		243.58	245.05		SLIST	light gray, unconformable contact	90	-									R3
	246.0			 		•	 										i
	- 1010	<u> </u>		1			-										···
							i										
		<u> </u>	<u> </u>	ļ		END OF HOLE EP 105											
		<u> </u>	<u> </u>	<u> </u>				\sqcup									
\vdash		 	 		-		 									_	
	-	 -	 -	ļ	 -	·	 			ļ- 							
\vdash		_	-	1			├─-	┝╼╾┥								-	1
		·		 			 										_
							<u> </u>										
			 	ļ			ļ	L									
		ļ <u>.</u>	 	1			} -	├									
\vdash	·	 	 	 	 	<u> </u>		┝─┤									
			├				!	 							 -		
		 					t —	 									
							1								 	-	
														_	1		
				<u> </u>													
		ļ		-			1	 _							$ldsymbol{ldsymbol{\sqcup}}$		
$\vdash\vdash$		 	 	 	 	<u> </u>	├				ļ				├ ─-		<u> </u>
		+	 	 	 			$\vdash \vdash \vdash$							 		
		!	 	1	 		 	┝╌┤			 	-			├		<u> </u>
\vdash				1			 								 		
		İ	İ				!			-					 		
				\Box													
1		}		}	}		Ι	1		T]				[]		-
_		<u> </u>			<u> </u>	<u> </u>	1.	└ ↓		t	: <u>l</u>				<u> </u>	1	

ALL LINEAR UNITS IN METRES

1:08&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

•RQD - ROCK QUALITY DESIGNATION (%)

FF -- FRACTURE FREQUENCY

PROJECT	EW±.	₽ASS	
AREA	S.E.	B.C.	

2	BEGIN	Sept.	17/80
Ś	ĒNĎ	Sept.	28/80

HOLE No.	EP 106
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HOL			

WOLE I WAS INCOME.			
	พ 5,540,97	2.65	
LOCATION	E 661,25	3.17	
ELEVATION	2388.1	HOLE BEARING (AZ")	
TOTAL DEPTH	254.5	HOLE ANGLE (*)*	90°

LOGGING	
LOGS RUN	Gam, Den, Neutron, Cal, Det d Den, of Coal Se
LOGGED BY	Davies Expl.Logging
OTHER TESTS	Directional Survey

COAL CORING PERFORMANCE							
çc	ORE DIAMETER	NO after					
TOTAL	CORE RECOVERED	75.14	[
	LENGTH CORED						
	CORE RECOVERY	%	Ĺ				

EXAMINATION	
LOG USED	Gamma- Density
No. OF SEAMS SAMPLED	6
EXAMINER (S)	C. Beavan
DATE	Sept. 1980

вох	BEPTH AT	П	EPTH	1		LITHO DESCRIPTION		MODENS SEAM SAMPLE									
No	TOP OF	FROM	OT	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESKG.	No.		57 %	ASH %	V.M. %	F.C. %	F.S.1,	C.V.	REMARKS *
	BOX.						(0)	-	 	a.r.b.	residual	d.b.	d.b.	d.b.	ļ	<u> </u>	
1	6.1	6.1	6.31	0.21	Shale	dark grey, broken			<u> </u>						<u> </u>		
	6.7	<u></u>	1	L			↓		<u> </u>								
		6.7	7.38	[0.68]		as above, but carbonaceous at base		<u> </u>	-	<u> </u>	[~~~			
	7.6		1 A 5			1	├	├	! 	 				-			
		7.6	8.58	0.96		broken and parts are highly slickensided, 0.lm coal zone in middle	├	}	 								
	8.8	 	 	<u> </u>		Cost zone in middle	 	 		 							
~~ }	0.0	8.8	9.70	0.90	Sltst	dark grey, shaly interbeds towards top	-50°		 	┢							
-	9.7		7.10		DIESE	dark grey, stary interpeds countries cop	1		i -								
- 		9.7	10.85	1.19		laminated, cross-laminated and cross-bedded,	30° 5	₹	1	-							
- 1		'''	10.05	1		numerous calcite veins and fracture fillings	70°		1								
Ť										<u> </u>							
		10.85	11.46	0.61		as above but increasingly sandy	35						j				
	11.3						L.,	}									
		11.3	12.82	1.52	SS	fine to medium grained, light grey, numerous	20	ļ	L	<u> </u>							R3
			<u> </u>			calcite veins and fracture fillings, orange	ļ	<u> </u>	ļ								
	10.0					weathered in places	 		-	<u> </u>	 			·			
	12.8	10.0	11.20	1 2			<u></u>	 		ļ							· · · · · · · · · · · · · · · · · · ·
		12.8	14.30	1.50		shaly in part, parts are highly orange weather numerous calcite veins & fracture fillings	30	{	-	├	}		-		-	<u> </u>	
	14.3	-	 			numerous carcize verns & fracture fillings		 	 	 	 		•				
	14.3	14.30	14.52	0.22		medium grained, numerous calcite veins and				-	-				-		
				·		fracture fillings	f		 	 							
3																	
		14.52	15.72	1.20	Shale	medium grey, sandy towards top, numerous calci-	e										
\Box						veins and fracture fillings towards top, orange			<u> </u>								
i			<u> </u>			weathered in part	<u> </u>	Ĺ		<u> </u>			-				
→	15.8		1 25 00				ļ		ļ	 _							
_		15.80	15.90	10.10		as above	!	 _	-	-	<u> </u>		}				1
\dashv		15 00	16.77	A 0		carbonaceous, entirely slickensided	├	 	├─	 -	!						
		13.50	70.11	0.0.		carbonaceous, entirely afficensided	 	├		 	 						
		16.77	16.97	0.20	Coal	powder, some shale mixed in slickensided	 	├	 	 	 						
_			2002.	1		, , , , , , , , , , , , , , , , , , ,		 	 	 	1		+				
		16.97	17.68	0.7	Shale	dark grey, silty towards bottom, calcite veins	50°	1	 	 	<u> </u>						
\neg						towards bottom			1		1						
	17.40					· · · · · · · · · · · · · · · · · · ·		<u></u>	1	<u> </u>							İ
		17.40	18.34	0.94	Sltst	shaly at top, sandy towards bottom calcite vei	18 DC	<u> </u>									R3
4																	
			18.89	0.5	SS	fine grained	500		İ								R3
-	1 <u>8.90</u>	10.00	20 50	ļ			ļ			<u> </u>	<u> </u>				ļļ		
		10.90	20.52	11.0		partly carbonaceous, numerous calcite veins and	50°-	-		<u> </u>							
			 	├		fracture fillings, dramatic change in lamina- tion angle across one 0.01 m calcite vein	00-		\vdash	-					\vdash	<u> </u>	
1				<u> </u>	L	tion angle across one old m calcife velu	10	1	<u> </u>	<u> </u>	<u> </u>		ll				Į

ALL LINEAR UNITS IN METRES

: MEASURED FROM THE HORIZONTAL PLANE

ANGLE MEASURED FROM CORE AXIS

1 : • R &/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

• ROD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

HOLE No. EP 106

PROJECT	EWIN PASS	HOLE No. EP 106	PAGE2
AREA		CONTINUED EP 106	OF 14

BOX		DE	PTH	T		LITHO DESCRIPTION	A DOM	SEAL	SAMPLE	Ī			NALYTICAL DATA		<u> </u>		
No.	TOPOF	FROM	TO	{TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS	residual	ASH %	V.M. %	F.C. %	F.S.1.	C.V.	REMARKS*
	20.4			├─-	1	The test (Artest a sort Records For Extending	1 (*)	∤	 -	0.7.0.	residual	-	_			<u> </u>	<u> </u>
H	-0.4	20,40	21.83	1.4	<u> </u>	as above	100	├		 -					├─		
一	21.9				·	40 40072	1.0	├─		 	 				├-		
		21.9	22.50	0.60		_as above	1	 		\vdash	<u> </u>			}			
5		1		F	1												·
<u> </u>	22.5	22,50	23,48	p.28	<u> </u>	fewer calcite veins	00								L		
<u></u>	23.5	22.5	24.88	7 20	<u> </u>		<u> </u>	↓	ļ	<u> </u>					ļ		
\vdash	25.0	23.2	24.00	1.30		as above, but partly silty	₩-	├							<u> </u>		
		25.0	26.72	1.72		again numerous calcite veins, orange weatheri	<u> </u>	┼┈	 	 	-		 -	 -	} 		 -
						on fractures	You	 		 					 -		
6	26.5			Ĺ.,,							<u> </u>				_		
Ш	20.0		27.94	1.44		as above	I										
-	28.0		29.57	1 1 57		as above	 00 	<u> </u>	<u> </u>	 	.				<u> </u>		
	29.6		27.37	1.07		as above	10	- -	 -		ļi				 -		
	-217		30.92	1.32		as above	0	-	 	 				 -	<u> </u>		
7								_	 		1						
╙		30.92	31.06	D.14		as above									_		
	31.1	21 1	32.67				<u> </u>	<u> </u>	<u> </u>	ļ							
\vdash	32.6		32.07	1.37		as above		ļ	<u> </u>					<u></u>	<u> </u>		
Н	32.0	32.6	33.26	0.66	 	as above			 		-						
						40 4000	\vdash	 	 		├──				-		 -
		33.26	34.11	D.85	Shale	sharp but irregular contact with calcite vein	\$	 			 				 		
						along it, broken with orange weathering, slic									<u> </u>		
	34.1		ļ	-	<u> </u>	ensides, dark grey	0-50	<u> </u>									
\vdash	34.1	36 1	35.12	02		slickensided zone in middle, some calcite vei	<u> </u>	<u> </u>		ļ						_	
		J4 - 1	32.12	1.02		towards bottom	-	ļ		-							_
8				<u> </u>		COWALGS BOCCOSI		 		 	-		-		 		
		35.12	35.84	0.72		silty in middle	30°					1			-		
	35.6		ļ	ļ]									
\dashv	36.8	35.6	36.64	1.04		coaly zones, broken, some slickensides					-						
\vdash	30.0	36.8	38.51	7.71		as above, orange weathered fractures	├	<u> </u>			}						
	38.6		 			as movie, orange reachered tractures			 -								
		38.6	39.44	D.84	Sitet	dark grey at top to light grey towards bottom	40°										
						laminated and cross laminated											<u></u>
9	——	20 //	10.00	0.00													
 	40,2	39.44	40.26	0.82		as above, orange weathering along breaks	50°]						
H	70.2	40.2	41.70	50	Shale	dark grey, some silty beds near top	500	<u> </u>	ļ-—i			<u> </u>					
	41.8			[dark grey, some sirry beds hear cop	30	 	-		 				[-	
		41.8	42.51	0.71		as above					}				 -		 -
\vdash \dashv	42.4		10.11										- 				
\vdash \dashv		42.4	42.49	p.09	I	carbonaceous, rubble											 -
\vdash		42 40	42.53	0/2	Cost	bright with dull bands, stick											
┝╌┤		74,43	44.15	7.04	COAT	ortkur miru dali banda, Stick	lacksquare	Rigitar	ēρ [†] ιος	6 52	0.01		<u> </u>	/ 1 · 6 ·	[]		200
		42.53	43.12	3.59		highly slickensided, stick but crumbly	 		¥5 *43*	4.34	0.84	5.85	2/.51	54.80	8		Yield 88%
1					ا ــــــــــــــــــــــــــــــــــــ	manay officers and fine of the country		[1	71					L		_

ALL LINEAR UNITS IN METRES



^{1 :-} RA/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

[•]RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* ----} WASHED TO S.G. 1.5

PROJECT	EWIN	PASS	I	HOLE No.	EP 106	PAGE3
AREA				CONTINUED	1.100	OF14

вох	DE PTH	DE!	PTH	Т	<u> </u>	LITHO DESCRIPTION	MOON	SEAM	, Isa	MP F			ANAL	YTICAL	ATA				1
No	AT TOPEF	FROM	TO	†H	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG		Mr.L.C No.	MOIS		ASH %	V.M. %	F.C. %	F.S.I.	C.V.	REMARKS?	1
	43.3	r KQM	1 10	╄	MAIN	AMPLITED (INCLUDE COAL RECOVERT FOR EACH SCAM)	(*)	<u> </u>	부	_	0.r.b.	residua!	├ ─-	├					1
	43.3	43.3	43.89	0.5	<u></u>	highly slickensided, dull and bright, stick	├ —	 		-	!	 	──	 -	├ ─~	<u> </u>		}	-}
\vdash		77.7	43.03	0.5		but crumbly	+	}	╁╌	 	 		 	-	 	 	 	 	-
10						ode cromba)	 	 	1	-	<u> </u>	1	<u> </u>	1	 				1
		43.89	44.05	0.16		dull, stick	1		L]
\leftarrow		11 25					ļ.,		$oxed{oxed}$	Ц.	L]
 		44.05	44.14	0.05		powder	+	├─	•	104	2.00	10.65	E 02	76 02	<u> </u>	- OL		<u> </u>	┦.
	\dashv	44.14	44.34	0.20		dull with bright bands, broken	+	\vdash	 7	-	2.09	0.63	13.02	26.83	00.70	81/2		Yield 74%	┪ ゙
	44.5					dda waen bright bondor bloken	1-	 	•	\vdash	 	}		 	 	-	·	 	1
\Box		44.5	44.59	0.09		dull with bright bands, broken	1		<u> </u>	Ì					1			<u> </u>	1
┵		777 - 20	<u> </u>	2 2		7	<u> </u>	<u> </u>	<u> </u>]
∤ 		44.59	44.79	0.20	Shale	carbonaceous, very broken, pyrite	1	 	⊢		-	 -	<u> </u>	 -	├──		<u> </u>		ļ
 		44.79	44.85	$\frac{1}{10.06}$	Coal	slickensided, rubble	╫	 	Ή	<u> </u>	} -			}	} -	<u> </u>			┨
/	4.8	77772	144.02			STICKERSTATE TANDIE	1-	+ -	+-		├	 	 	 	 			 	1
		44.8	44.93	0.13		slickensided, stick Log thickness: 2.4; Core	2	† <u>-</u>	Γ			1	İ	ļ <u> </u>				 	7
						thickness: 2.15; Core recovery: 90%													1
┝─┼					<u> </u>		↓—	ļ	ļ		ļ <u>.</u> .	ļ		ļ]
		44.93	46.08	1.15	Shale	dark grey, carbonaceous at top, orange	↓—	├	ـ			 		 -	ļ	<u> </u>		<u> </u>	4
! — 	6.3				 	weathering along breaks	 	├─-	⊢		├──		! 	<u> </u>	-	 		 	4
r f		46.3	47.88	1.58	!	silty in middle	500	 	╀		 							 	1
	7.9				. — 1		+-~-	_	✝	_	 	 	 	<u> </u>	-				1
├		47.9	48.05	0.15		as above	L												1
11		10 05	10.00	ļ. <u></u>					L				L]
┍╼╌┼		48.05	49.26	1.21	Sltet	medium grey, carbonaceous at bottom, calcite	 -	 	Į		<u> </u>	<u> </u>	 	<u> </u>			<u> </u>	ļ	1
	9.4			 		veins	+~-	-	₽		 -	 	 	 		 -		-	4
	7.9	49.4	50.66	1.26		as above but dark grey		 -	-		 	1	\vdash	-				 	1
			i				1—	 -	1	_	 	├ ~──	 	-		1			1
		50.66	50.96	0.30	Shale	dark grey													1
	0.9	F0 0		ļ			 	ــــــ	<u> </u>				L	ļ	ļ. <u>. </u>				_]
 -	2.1	50.9	52.03	11.13		broken, carbonaceous in places	-	-	╀		 -	├─	 -	ļi				-	4
ıΤĬ	 -	52.1	52.43	0.33	 -	as above	┼─	├─-	╁		 	! -	 -	 				 	4
12							 -	 	 		 	1	-	}				 	1
\Box		52.43	52.57	0.14		as above	T -		1		1		Ī			†		· · · · · · · · · · · · · · · · · · ·	1
												1							1
┵		52.57	52.97	0.40	Coal	bone, heavy	Ļ	4	ļ	Ī	 	!]
 		52.97	53.92	h 75		slickensided, stick	├	 		<u>. </u>	├	ļ				 			4
	3.9	32.77	33.72	7.,5	 	Billicensided, Stick	+-	 		17	T 05	0.60	7 27	24,27	67 71	71.		Yield 60%	┥,
		53.9	54.15	b. 25		dull_stick_	+	├─-	•	J/	1.93	0.09	1.27	24.21	0/-//	} /*•	···	11614 60%	1
\Box				L.	[.]				Γ,	1	 	 	 	!	-				1
\longrightarrow		54.15	54.24	<u>þ.09</u>	<u> </u>	powder and rubble, minor shale	L					Ī. —	ļ					1	1
\mapsto		54.07	55.59	1-25	 -	2.17	\Box												1
┝╼╌╁	5.5	34.24	22.29	<u>4.55</u>	├ ──	dull, stick and broken, some slickensided	+	ļ.	⊢ -	<u> </u>		ļ.,	 			└ ─┤		ļ	1
		55.5	56.40	5.90		dull, slickensided, stick, minor pyrite	┼-	 -	\vdash		[ļ <u>.</u>	4
-																			
1 T]	T			+-	 	\vdash	 	├ ┈─	╆┈──	 			\vdash \dashv			1

ALL LINEAR UNITS IN METRES

HOLE No.	EP	106
CONTINUED		

^{1 :#}R&/OR 5 -- GOLDER ASSOCIATES HARDNESS CODE

[•]RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* --} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	HOLE No	PAGE 4
AREA		CONTINUED EP 106	or14

вох	DEPTH	DF	PTH	T	1	LITHO DESCRIPTION	BEDDING	. crau		1 to 6			ANAL	TICAL	DATA		_	1
1	AT TOP OF BOX	FROM	TO	TH.	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JANGLE	DESIG	N	lo.	MOIS		ASH %	V.M. %	7.C. %	F.S.1.	C.V.	*EMARKS
No	BOX.			 			(*)		Ļ		a.r.b.	residua!					-10	<u> </u>
		56.40	56.64	0.2	Shale	carbonaceous			<u> </u>						<u> </u>	ļ		
╼╼┼		F. ()	56.75	ļ.,	01	2 7 7	-								 -	}	<u> </u>	<u> </u>
13		<u>.≥0.04</u>	1.20. / 2	V-4.	UDAT.	dull, stick		 	┨						 		 	
		56.75	56.95	0.20	J	dull, stick		<u> </u>		П							l	
5	7.0			[_														
-		37.0	57.06	0.0	} -	dull, stick		 	╌	 						ļ <u> </u>	<u> </u>	
-+		57.06	57.11	0.0	Shale	<u> </u>		 	┥	┝┤					-	-		
			T					<u> </u>							 			
_		57.11	58.49	1.3	Coal	dull with bright bands, stick, minor pyrite												
	8.5	50.5	FA 60	ļ	<u> </u>		<u> </u>		ļļ	Н					ļ)	<u> </u>	<u> </u>
-+		28.2	58.98	0.40		broken and rubble, dull with bright bands		├] - 	Н					├	 	}	 -
ΞÌ		58.98	59.14	0.14		dull, stick			1	\vdash					 -			
_				1														
- -	9.7	59.14	59.44	0.30		powder and rubble	<u> </u>	<u> </u>		Ш					-			
一广	77.7	59.7	61.40	1.70	 -	dull with bright bands, stick		 	50 1	.a.					 	 -		
			Γ			and when bright buildy street			96	-	3.75	0.69	3.96	26.64	68 71	834		Yield 78%
\Box		61.40	61.53	0.1		powder		İ			J 7 7 1 3		3.70	2010		-92		
4 6	1.3	63.20	(1.06	h =	<u></u>				Ц									
-+	_	01.30	61.86	U- 5t	1	slickensided, broken and rubble	├	- -	╀─┤						<u> </u>	<u> </u>		
_		61.86	62.59	0.73		powder and rubble			\vdash							-		
. 6	2.8		T											_				†
-+		62.8	63.60	D.80	.	slickensided, stick, dull, pyrite			П									
+		63.60	63.88	n 25		powder			├ ╼-∤						ļ	.		<u> </u>
- 6	4.0	03.00	05.00	<u>~:-</u> `	1	powder		 	╁╌┼									
		64.0	65.39	1.39		dull with bright bands, broken, slickensides	L	<u> </u>										-
	5.8	(F 0	(6.70	<u> </u>	 -													
- 		65.8	66.40	U. 00	1	dull with bright bands, stick and broken	<u> </u>	 	┦╌┤									ļ
+		66.40	66.53	b.1 3	Shale	carbonaceous	- -	 	┝╼┥	-								
3			I	Τ.				<u> </u>	\dagger			_				 		
		66.53	66.64	<u>p.11</u>		as above			\square									
\dashv	-	66.64	66.88	h 2/	Cont	powder	<u> </u>	<u> </u>	\square	_	-							<u> </u>
1		00.04	00.00	J.2-	0043	powder		╂	╀╌╏							 		
		66.88	66.93	0.05	Shale	· · · · · · · · · · · · · · · · · · ·		<u> </u>	1	\Box								
\rightarrow		26 82	(3.60													1		
— <u> </u>	7 7	67.70	67.50 68.52	0.5	Coal	powder	<u> </u>	 	\sqcup									
 	191	87.73	190.34	U.04	Coar	slickensided, broken and rubble Log thickness 15,1	-	-	J							[
						Core thickness 15.1	 		-	\vdash						-		1
6	8.6					Core recovery 98%										t		<u> </u>
		58.6	69.69	μ.09	Shale	dark grey to black, carbonaceous with coal												<u> </u>
-			 	-	} i	stringers	<u> </u>		-	_								
-+		69.69	70.35	h 64	Coal	powder		\vdash	 -							1		<u> </u>
		07.07	1,0133	r	1 COAT	bowast		Ĺ I	L							1		<u> </u>

ALL LINEAR UNITS IN METRES



^{1 :=} R&/OR S — GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* ---} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	HOLE No.	PAGE
AREA		CONTINUED EP 106	or14.

вох	of Fife	DEI	TH		y	LITHO DESCRIPTION DESCRIPTION DESCRIPTION DEDORG SEAM SAMPLE MOIST % ANALYTICAL DATA ANALYTICAL DATA ANALYTICAL DATA C.V.											
	AT TOP OF	FROM	10	TH.	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MOIS		ASH %	V.M. %	F.C. %	ESI	C.V.	REMARKS *
No.	902	PROM	<u> </u>		MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	1.3			0.1.6.	residue:						<u> </u>
	70.4	70.1	4		À. 1		م	ļ									
+		70.4	71.14	U. /4	Shale	dark grey to black, carbonaceous, minor silty	0.3										
16						beds	 -	-			 			 	<u> </u>		<u> </u>
⁴⁴-		71.14	71.59	0.43	•	as above									ļ·		
	71.6			[···-	
\Box		71.6	72,24	0.64	4	as above											-
	72.2						٥										
		72,2	73.12	[0.92]	}	as above	65						_				
—- 7	73.1	73 7	74.45	7 24	[as above, coal-lined fractures, minor calcite	-550								<u> </u>		
_	-	/ 3.1	74,43	1.5.	·	veins		-	 -	 	 			} 		<u> </u>	
-17	74.5			1		VC2113	<u> </u>	 -	-					<u> </u>		-	
\Box		74.5	75.14	0.64		as above								\vdash			
17						ANN AN IN THE WAY											
				<u> </u>	L	CORE CHANGES TO NQ											
\rightarrow		75 17	76.16	1 0		as above, top 0.4 m silty	400	 									· · · <u>-</u> · · · · ·
	76.8	13.14	10.10	1.04	 	as above, top o.4 in stirty	70	\vdash			 		··· —-·				
'	0.0	76.8	79 07	2 27	S1tst/	shale has a few minor carbonaceous zones,		 							 		ļ
\dashv		7 7 1 2	1,2101	****	Shale	siltatone laminated	500							\vdash	1		
7	9.2						70_								 -		
\perp		79.2	80.04	0.84	Shale	black at top to grey at bottom, minor calcite											
				<u> </u>		veins											
18		00.04	82.15		ļ	······································	1.0	\vdash									
- 	2.4	00.04	84-15	Z		some silty beds	400	├ ─┤							ļ <u> </u>		<u> </u>
_ ^	****	82.4	82.76	0.36		as above	_				 -	——			 		
			_		·- ·							-			-		
		82.76	84.47	1.71	Sitst	light to medium grey, lamianted and cross laminated, minor calcite veins and calcite											
\dashv				<u> </u>	<u> </u>		55°										
-			 		<u> </u>	filled fractures		<u> </u> _			-						
19	-	84 47	85.41	n 0/		no above minus about to to (0.05 m)		\vdash			 -				<u> </u>		
	5.6	04.47	07.41	7.74	-	as above, minor shaly beds (0.05 m)	60°	 	<u></u>								R3
_ [-1V	85.6	88.60	3.00		as above, shale/siltstone contacts very	650			 -	┟╌╾╼╸┧				\vdash		
						irregular	.02				1				 		
8	8.8										[·——i		•			
		88.8	89.11	0.31	Shale	dark grey, calcite filled fracture											
20		80 11	90.12	h - A1		minor odley bolo	0										
─-{-		07.11	90.12	μ.υΙ	 	minor silty beds, no calcite veins (driller's note on marker block: "hole is 5	500	┞┈┤		 _	┝						
-+	-			 	 - 	ft. deeper is now")			_								ļ
<u>_</u> _b	1.4			 	 	THE ACCRET TO HOM!	-								├		
\Box		91.4	92.32	0.92		as above	45°				1				-		
_₽	2.9	200	01 00														
,, 		92.9	94.93	2.03	 	as above, no siltstone											
21		96 91	95.65	77	 	an above]			LI]				
- b	6.0	24.23	22.03	p. / 4	 	as above					<u> </u>						
	J. V	96.6	97.86	1.86	 · · 	as above but minor silty beds again	500	 			├						
		,		r - 50		to doore not minor stity beds again	JU		j	L	l i	ł	İ				

ALL LINEAR UNITS IN METRES

TINRA/ORS -- GOLDER ASSOCIATES HARDNESS CODE

[•]RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

PROJECT	EWIN PASS	HOLE No.	PAGE 6
AREA		CONTINUED EP 106	OF14

ANALYTICAL DATA DESCRIPTION BEODHIG SEAM SAMPLE DEPTH DEPTH LITHO REMARKS * AT TOPOS BOX ASH % V.M. % F.C. % MOIST % ANGLE DESIGN F.5.1. FROM TO MIAM AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) (*) o.r.b. residual 97.8 97.8 99.02 1.2 as above but increasingly silty 99.4 99.4 99.71 0.3 as above 99,71 102,422.7 as above 102.4 104.06 1.66 Sitst shale - alternating beds 0.3 m thick worm burrows 104.06105.46 1.40 as above, minor calcite veins 105.46107.48 2.02 Shale minor siltatone beds, broken at the bottom with calcite along fracture planes 107 107.6 108.31 0.7 no siltatone 108.31109.24 0.93 Sltst lamiated and cross laminated, minor calcite veins and fracture fillings 109.24110.36 1.12 Shale dark grey grading to black at bottom, very minor silty beds, minor calcite veins 1110. 110.3 112.00 1.70 as above 112.4 112.49 0.09 Coal powder, bright and dull EP 106 112.49112.59 0.10 bone?, broken 6.31 0.55 8.67 23.7267.06 8 Yield_90% 112.59112.93 0.3 bright with dull bands, stick 112.93113.25 0.3 bright with dull bands, stick, pyrite 113.25113.63 0.3 dull and bright, stick, pyrite 113.63113.94 0.3 dull with bright bands, stick, pyrite 113.94<u>114.09</u> (0.13 dull and bright, stick, pyrite 114.6 114.97 0.3 bright with dull bands, stick, pyrite 114.97115.05 0.0 dull, stick, pyrite 115.05 15.31 0.2 dull with bright bands, stick, pyrite 115.31115.35 0.04 bright, stick, pyrite 115.35115.36 0.01 Shale 2,39 0.64 3.89 25.2970.22 8 Yield 86% 115.36115.52 0.16 Coal bright with dull bands, stick, pyrite

ALL LINEAR UNITS IN METRES

* --- FRACTURE FREQUENCY

* --- WASHED TO S.G. 1.5



^{1 :=} R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

^{*}ROD - ROCK QUALITY DESIGNATION [%]

			ż
ROJECT	EWIN PASS	HOLE No. EP 106	PAGE
AREA		CONTINUED	OF14

ВОХ	DEPTH:	DE	TH.	T	Ϊ	LITHO DESCRIPTION	A.	SEAM		Di E			ANAL	IADITY	DATA			
	AT TOP OF BOX	50011		TH.	46 A 15 1		AMOLE	DESIG	No.	0.	MO15		ASH %	V.M. %	F.C. %	F.S.I	C.V.	REMARKS*
Ź			Ю		MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	(*)	إتتا		لِـــ	0.1.b.	residual						<u> </u>
		115.52	115.53	0.0	Shale	pyrite	1		}	_		! i						
		115.53	115 70	20.2	Cool	July and butche and be assured	 										·	
		172.23	115.7	30.2	OCAL	dull and bright, stick, pyrite	+	 	-	Н						├──		
		115.79	115.80	0.01	Shale	pyrite	1	\vdash	\neg									
							1											
		115.80	116.02	0.22	Coa1	dull with bright bands, stick, pyrite	Ţ					<u> </u>						<u></u>
\longrightarrow		216 00	777 60	<u>.</u>	Shale			 		\vdash		 				<u> </u>		
\longrightarrow		116.UZ	110.03	W.U.	Suare	pyrite	 	 		Н		 						
1		116.03	116.13	0.10	Coal	dull and bright, stick, pyrite	 			\vdash					 	 		
				Ι	· · · · · ·													
					Shale	pyrite	<u> </u>	\Box							ļ <u> </u>	Ļ <u> </u>		
┝		116.14	116.20	10.0	Coal	dull and bright, stick, pyrite	-	\vdash	_			- i				├		
\vdash				 	 	Log thickness 4.1	┫──	\vdash		-					 	 		
	16.4			1	ļ	Core recovery 80%	1									 		
		116.4	116.66	0.26	Shale													
				<u> </u>	ļ <u>.</u> .		ļ			_					<u> </u>			
┝		116.66	116.78	D.12	Coal	bright stick	 			_		├			ļ.—	 		ļ _ ·
\dashv		116.78	116.87	b. 09	Shale	carbonaceous	╫			-					 	 		
				1	T		\vdash					1				1		
		116.87	116.93	$p, o\epsilon$	Coal	bright with dull bands, stick	Ĭ											
		716 02	114 05	200	Shale		├ ──		<u>-</u>	-		{	<u> </u>		<u> </u>	-		
┝╼╅		2 20.93	110.93	p.02	Share	carbonaceous	+			_		 				 		
		116.95	116.98	0.03	Coal	bright, stick			_									
┝─┤			117.50	b.52	Shale	carbonaceous	 	.		_					<u> </u>	ļ		
	117.6	117.6	117 77	h 17	 	as above	+	 		_					-			
26			Ţ		1	65 45046	 	 	_	_					 	├		
		117.77	118.81	1.04		as above	1									Í		
	19.1																	
-		119.1	119.72	D.62		as above	↓—			_						├──		
 		119.72	119.87	b. 15	Coal	dull with bright bands, stick	+-								 	 	<u> </u>	
\Box		``				adia with bilght bands, brien	┼──	 	_					-		 		
		119.87	119.89	0.02	Shale	carbonaceous						j						
\longmapsto		<u> </u>		<u> </u>			<u> </u>					ļ				Ľ—		
┝┤		119.89	120.03	10.1 4	Coal	dull with bright bands, stick	} -		_	-	-				<u> </u>	 -		
┝┈┪		120.03	120.28	10.25	Shale	black, carbonaceous	 	- {	_	_			-		 	├ ~─		
	120.6	1	120.20	7.2	A DIMITE	Olack: Calvonaceous	\vdash					 				 		
\square		120.6	120.73	b.13		as above												
 			100	ļ												Ϊ		
┝┈┤		120.73	122.37	1.64	Sitst	light grey, laminated and contorted lamina-	55	├ ─┤			<u> </u>					 		
H		 		┼-	 -	tions and cross laminated	 - 	 			· · · · · · · · · · · · · · · · · · ·		·	 -		\vdash		
		122.37	122,50	n . 1	Shale	medium grey	 -	[<u> </u>		
		/		7	1 211416	mediton Pres										<u> </u>		L

ALL LINEAR UNITS IN METRES

1:+R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE

*ROD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY



PROJECT	EWIN PASS	HOLE No.	PAGE 8
AREA		CONTINUED EP 106	OF14.

f BOX	DEPTH	DEP	PTH	Γ_		LITHO DESCRIPTION	A.O.		SAMPLE			ANAL	YTICAL	DATA			
No	TOPE	FROM	TO	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No.	MUIS		ASH %	V.M. %	F.C. 1/4	F.S.I.	C.V.	REMARKS?
—→	B03						(*)	}	<u> </u>	0.6.6.	residual		<u> </u>	 			
27		122.50	122.68	0.18		dark grey, carbonaceous	↓	! —	ļ	<u> </u>	ļ	·	<u></u>	ļ			
$\vdash \vdash$		122.68	122.76	0.08	Coal	dull with bright bands, stick	\leftarrow	 	[—	 			ļ	{			
\Box	Ť			1	5541	date with pright outday, beick			 					 	 -		
		122.76	122.86	0.10		bone?								Ī			
\longrightarrow											Ī						
\vdash	23.7	122.86	123.54	0.68	Shale	black, highly carbonaceous	ļ	—-		ļ—. —	ļ		 	 	ļ.——		
	23.7	123.7	124.39	0.69		as above			 -		 						
									1	<u> </u>	†—-		- -	 -			
		124.39	124.51	0.12	Coal	dull, stick											
┝╾┥		10/ 61	126 62		Shale		}	}	<u> </u>		1		ļ		ļ		
┢╾┼	-	124.51	124.62	V- 4 1	Suare	carbonaceous	 			 -	 			├─			
		124 62	125.14	0.52	Coal	bright with dull band, stick	 	1	-					 			
	- 1												Ĺ				
├ ─-ॄ		125.14	125,20	0.06	Shale	carbonaceous		ļ			ļ						
┝─┤	∤	125.20	125 22	h 12	Conl	rubble		 	 	 -		 	 	 		 -	<u> </u>
7	25.2	AA-EV	123.32	V. 12	COST	100012	 	[-		 			 	 			
		25.2	125.34	0.14	Shale	highly carbonaceous	1		 	<u> </u>	 		<u> </u>				
┝╼┥				ļ <u>.</u> .							į						
 		125.40	125.50	h. 10	Shale	carbonaceous	-	←			ļ.—.		.	ļ.—	Ļ <u>-</u>		
 - 		125.50	125.78	0.28	Coal	bright with dull bands, stick	 	┼		├ ─┈			-				·
							1	1-		 	1		 	!			
		125.78	126.04	0.26		dull with bright bands, stick											
$\vdash \dashv$			104 00	<u>L</u> .	-			ļ	<u> </u>	ļ	ļ						
 	26.7	125.04	126.38	U.39	Shale	black				 -	├		} 		-		
<u> </u>		26.7	127.14	0.44		dark grey, carbonaceous coated fractures.	\vdash	┼──	 -	 	 	_ 		-		-	
						very minor silty laminations	50°			İ					<u> </u>		
28			100 01				<u> </u>	<u> </u>	<u> </u>								
┝┈┼	29.8	127.14	129,24	<u>k. 10</u>		as above but no silt	├	 		ļ				<u> </u>			
┝╼╌╇	2710	129.8	131.77	97		as above but silty beds present again, minor	800	 		 	<u> </u>						-
						calcite veins and fracture fillings	100				1						
29													<u> </u>				
\vdash		131.77	132.06	p. 29	 -	as above		ļ			ļ						
\dashv	—	32.06	132.78	1.72	Sltst	medium grev, some shalv beds, minor calcite	 			 -	 						
		72.75		1.12	2200	veins and fracture fillings	!			 				 	 		· · · · · · · · · · · · · · · · · · ·
]	32.8												L				
┝╼┽		132.8	133.83	.03		increasingly shaly, minor carbonaceous zone		Į			4						R3
┝╌╁	33.8					towards bottom	┝	 		-	-				-		
	الكياسات	33.8	135.08	.28		increasing shaly	450	 -		 	 						
				Γ-				 	<u> </u>	<u> </u>	 				 		
\prod]	35.08	135.86	0.78	Shale	dark grey							L				
-	35.9	25.0	102 11		 			L	<u> </u>								
1	- 1	135.9	136.11	y.21		as above	-	ł		i			. '	[}	ŀ	

ALL LINEAR UNITS IN METRES

¹ INRA/OR S - GOLDER ASSOCIATES HARDNESS CODE

^{*}RQD - ROCK QUALITY DESIGNATION (%)

ROJECT	EWIN PASS	HOLE No. EP 106	PAGE. 9
AREA		CONTINUED	OF <u>1</u> 4

802	DEPTH	DE	PTH	Ţ		LITHO DESCRIPTION	L.A.	SEAN	SAMP	L			ANA	YTICAL	DATA				1
1	AT_	FROM	TO	₹TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	i No	[MOIST		ASH %	V.M. %	F.C. %	F.S.I	C.V.	REMARKS*	1
No	803	FROM	10	 -	MAIN	AMPLIFIED (INCLUDE COAL RECOVERT FOR EACH SEAM)	1.1	╄-	ļ	<u> </u>	a,r.b. r	residual		 	ļ	110.11			Į
30		134 11	127.7	1, - 2.	<u> </u>		┡	┞	—	+	-+								1
 -		130.11	137.48	11.3		as above	-	 -	 	+	-+			├──-	 			ļ -	4
	 -	137.48	137.58	0.10	1 Coal	powder	 	1-	E P 10					 		-			┨
 	·	237.140	1 - 37 - 3	1	0022	powder	 	1.0-	5/	**	0.00	0.58	7.41	25.52	66.79	84		Yield 58%	┪*
	_	137.58	137.70	0.13	1	slickensided, dull, broken	†	 	 *	+	1	0020			1			11010 300	1
	138.0			$\overline{1}$	1			1	5 2v	•	1.78	0.57	6.69	23.49	69.2	735		Yield 86%	† *
		138.0	138.6	10.6		slickensided, dull with bright bands, stick				\Box			Į. <u></u>]
 	<u> </u>		}	↓—	├	Log thickness: 1.3; Core thickness: 0.83;	<u> </u>	ļ	1_1	1-]
 	 -			├ ─	 	core recovery: 64%	ļ		↓¥	-	,			 		<u> </u>			4
⊢-	_	128 61	129 7	40 1/	Shale	dark grey, slightly carbonaceous	 	┾	-	+-	1				 -				┨
-	138.9	130.01	130.7	10	SHATE	dark grey, slightly carbonaceous		├-	1	+	 			 				<u>-</u>	-
_	1	138.9	139.0	an . 11		as above, wery broken	-	1	EP 10	<u>. </u>	- 1			 -		-			1
		Γ -		Ţ			† — <u> </u>	1	53		4.52	0.51	6 41	23.91	69 05	7.5		Yield 44%	┪*
		139.03	139.5	0.50	Coal	slickensided, dull, broken			J									11111	1
Щ.			-	<u> </u>						\Box						Ĺ]
		139.59	140.96	$\{1.3\}$	Shale	dark, carbonaceous	Ь—	ļ	ــــــ	-									1
31		210 06	141.52	10 50	<u> </u>		ļ <u> </u>] -	}	+				 	<u> </u>				4
<u> </u>		140.96	141.5	4U. D	}	as above	├	}—	ļ	+				-	<u> </u>				4
⊣		141.52	142 25	10.75	S1tst/	alternating sequence with beds averaging 0.3m	7.50	┼	1	+	$\overline{}$		<u></u>	├┈		-			1
 		-71.0-	-72.+		shale		433	 	 	+			·	 		-			1
\sqsubseteq	142.6							1	+	+				 -					1
		142.6	143.14	0.54		as above	I	<u> </u>		_				İ					1
<u> </u>			<u> </u>		<u> </u>				<u> </u>]
⊢	— —	143, 14	144.84	1.20	Shale	dark grey to black at hottom, calcite filled		 	ļ	┵]
			├	 -		fractures, carbonaceous at bottom	ŧ —	╄	↓ _	+				ļ				. <u> </u>	-
├		166 86	144.89	ah as	Cool	dull with bright bands, pyrite, minor carbon-	}	7	-	-} -	—}			├	<u> </u>				1
<u> </u>		144.04	194.0	10.0	COAT	aceous shale	+	├	60,40	*	2.00	0 49	11 27	22.54	65 63	7		Yield 96%	٠,
<u> </u>	145.0		\vdash	<u> </u>	<u> </u>	aceous share	 	 	*	+	,,,,,	0.40	1,1,07	24.24	02.01	├		11e1d 90%	┥
		145.0	145.34	0.34	Çoal	dull with bright bands, slickensides, broken	Ì		ep 10	<u>. </u>									1
32		145.34	145.8	0.5	Coal	dull with bright bands, stick			55	7	0.00	0.49	5.43	23.56	70.52	8		Yield 86%] *
				╄		Log thickness 1.0		$ldsymbol{ldsymbol{ldsymbol{eta}}}$	<u> </u>]
⊢			├	-	-	Core thickness 0.93	<u> </u>	 -	+		↓			<u> </u>]
ļ		1/5 R9	1/8 01	12 12	Shale	Core recovery 93% black, carbonaceous, a few silty beds	600	┾┷	 	+				 		┞──┤			ļ
<u> </u>	148.7	143.00	140.0	***	JHAZE	black, caroonaceods, a few sifty beds	100	┿	1	╼┾╌				 -					┨
	72.	148.7	150.2	1.50		as above	}	 	┼─	+	- 			 		-			1
33				\Box]		 	一	 		-+			 		1		 _	1
			151.23	1.03		dark grey			1	\top				!		1		·	1
<u> </u>	151.1		 _	 						1.		_							1
		151-1	152.59	1.45		as above	ļ		<u> </u>]
⊢	-	157 55	154.21	1 60	ļ	-454 4-1-	-0	ļ	₽		-+			Ļ					1
\vdash	154.2	132.33	1.74.2	12.00		silty beds	550	₩	1							├			4
\vdash		154.2	154.30	h. 10	 	carbonaceous	-	 	-							├			1
								 	+	+	-+			-		 -		<u> </u>	1
34		154.30	157.10	2.80		silty beds	50°	1	 		- -					 		<u> </u>	1
	157.2				T			1	1	1	- 1			 		1			1
<u> </u>		<u> </u>		٠		<u></u>	<u> </u>	1	1					1	L	<u> </u>			1

ALL LINEAR UNITS IN METRES

A ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 106

^{1 :=} R&/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

^{*}RGD - ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

^{* --} WASHED TO S.G. 1.5

PROJECT	EWIN PASS		PAGE 10
AREA		CONTINUED	OF14

No. 157.2 IS8.761.56 very little silt very little silt sile lisa. See see see see see see see see see see	BOX	DEPTH	DEF	TH.			LITHO DESCRIPTION	a consum	SEAM	SAMPLE	L			YTICAL				
157.72 158.76 160. N 1.5	·	AT			TH	AA AINI		ANGLE	DESIG	No.			ASH %	V.M. %	F.C. %	F.S. (.	C.V.	REMARKS?
15	740	PO2_			3 54			141			a.r.b.	residual				* 10.11		
158.75 160.3 152.16 1.86 thrressingly sliry, calcife veins and fracture			13/.2	130.70	1.30		very little sit	-			<u> </u>	 -			<u> </u>	1	<u> </u>	
160.1 162.16 162.470.33	35		750 76	160 00	7 5		no shows wines as led to seed as	 	-		-	 	<u> </u>	 -	 	├	 -	
160.3 162.16 182.470.31 as above	٠		128.7h	150.30	1.56	··· ·-·	as above, minor calcife veins	 		-	·					 		
16			160.3	162.16	1.86		increasingly eitry polette veins and fractur	<u> </u>							· · · · ·	1		
163.3 165.6 3.06 as above, bottom half broken up along calcite 166.4 167.38 19.8 as above but less broken 17 167.38 168.24 18.5 169.350.8 less filty, carbonaceous in part, calcite veits 168.5 169.350.8 less filty, carbonaceous in part, calcite veits 169.4 171.942.54 greating to black and carbonaceous towards 169.4 171.942.54 greating to black and carbonaceous towards 169.4 171.942.55 greating to black and carbonaceous towards 171.94 172.160.22 black, carbonaceous, broken 172.5 173.5 175.172.61 as above but only broken in a couple of place 173.6 174.6 18.13 as above 176.88 178.62.74 light grey, becoming silty towards bottom 181.6 181.22 181.610.33 as above 181.6 181.6 184.462.86 as above but silty towards top 181.6 184.6 185.550.99 black, carbonaceous in middle, minor calcite 187.7 189.52 187.551.96 as above but increasingly carbonaceous 187.7 189.52 187.551.96 as above but increasingly carbonaceous 187.7 189.72 189.521.81 very little carbonaceous material 187.7 189.72 189.521.81 very little carbonaceous material 189.52 190.05.05.5 Sitat light grey, bedded, laminated and cross- 189.88 199.8 193.772.97 sandy at top, some 0.1m shale beds, some 45° calcite veits carbonaceous calcite veits calcite vei							fillings				İ					L .		·
163.3 165.6 3.00 as above, bottom half broken up along calcite	36														<u> </u>	<u> </u>		
163.3 166.6 5.00 as above, bottom half broken up along calcite fractures and slickensides			162.15	162.47	0.31		as above	-		ļ.—.	<u> </u>	<u> </u>			ļ	ļ		
165.4 167.38 .98 .98 .89	. 4	163.3	163.3	166.6	3.00		as shove bottom half broken up slong calcite	 			 -	ļ <u> </u>				 		
166.4 167.38 168.240.86 less silty earbonaceous in part, calcite veins			20203	100.0	7.00			H			 	 			 -	 		
166.4 167.380.98 as above but less broken		66.4			 	-	rideres dia officiality				<u> </u>				 	 - -		
167.28 168.240.86			166.4	167.38	D.98		as above but less broken											
168.5 169.350.85	37																	
168.5 169.350.85 black at top and dark grey towards bottom,	 ļ,		167.38	168,24	D.86		less silty, carbonaceous in part, calcite vei	ıs			<u> </u>	ļ		<u></u>	<u> </u>	ļ <u>.</u>	<u> </u>	
169.4 171.942.54 grading to black and carbonaceous towards	- 1		149 5	160 25	n 05		black at han and down among baseman better				 	 			 	 		<u></u>
169.4 171.942.54 grading to black and carbonaceous towards	-	—- 	100.3	102.33	V.03		tiny calcite yeins and stringers	 	$\vdash \vdash$		 	ļ.—.—			 	 -		
169.4 171.942.54 grading to black and carbonaceous towards	1	169.4					want carded route and beringers				†							
Bottom B	_	1	169.4	171.94	2.54		grading to black and carbonaceous towards					1				t		
171.94 172.160.22 black, carbonaceous, broken 172.5 172.5 175.172.67 as above but only broken in a couple of places 175.5 175.5 176.881.38 as above 39 176.88 178.621.74 light grey, becoming silty towards bottom 55° 178.6 181.222.62 as above but less silty 40 181.22 181.610.39 as above 181.6 184.6 184.462.86 as above but silty towards top 184.6 185.590.99 black, carbonaceous in middle, minor calcite veins 41 185.59 187.551.96 as above but increasingly carbonaceous 187.7 189.521.8Z very little carbonaceous material 189.52 190.050.53 Sltst light grey, bedded, laminated and cross-laminated 42 190.8 190.750.7C as above 190.8 190.8 193.772.97 sandy at top, some 0.lm shale beds, some 45° 190.8 190.8 193.772.97 sandy at top, some 0.lm shale beds, some 45° 187.7 calcite veins								<u> </u>			<u> </u>	_			İ			
172.5 175.1 175.2 175.1 175.2 175.2 175.2 176.881.38 18 sabove 176.881.38 1881.62 181.62 181.62 184.66 1	38				L													
172.5 175.172.67	-		171.94	172.16	D.22		black, carbonaceous, broken				ļ. <u>. </u>	 			ļ. <u>. </u>			
175.5 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.88 176.68 176.			170 5	175 17	h 47			<u> </u>	\longmapsto	⊢—	}	-		 _	├──	}		
175.5 176.881.38 as above		175 5	1600	1/3.1/	2.0/		as above but only broken in a couple of place	F	\vdash		├	1		-		 		
178.68 178.62 178.6 181.22 62		1/3.3	175.5	176.88	1.38		as above	-				}			 	 		
178.6	39						· · · · · · · · · · · · · · · · · · ·				†							
178.6 181.222.62 as above but less silty 50° 181.6 181.61 0.39 as above 55° 181.6 184.62.86 as above but silty towards top 55° 184.6 185.59 0.99 black, carbonaceous in middle, minor calcite veins 587.7 187.7 189.521.82 very little carbonaceous material 589.52 190.050.53 Sitst light grey, bedded, laminated and cross-1 laminated 50° 190.8 193.772.97 sandy at top, some 0.1m shale beds, some 45° 181.2 181.610.39 as above 55° 182.2 190.05 190.750.70 as above 50° 183.3 190.8 193.772.97 sandy at top, some 0.1m shale beds, some 45° 184.6 184.6 185.59 187.551.96 as above 50° 185.5 187.5 196.8 193.772.97 sandy at top, some 0.1m shale beds, some 45° 186.5 181.222.62 as above 50° 187.5 187.5 196.8 193.772.97 sandy at top, some 0.1m shale beds, some 45° 187.6 181.6 10.39 as above 50° 188.6 181.222.62 as above 50° 188.6 181.222.62 as above 50° 188.6 181.222.62 as above 50° 188.6 181.22 181.610.39 as above 50° 188.6 184.6 184.462.86 as above 50° 188.6 184.			176.88	178.62	1.74		light grey, becoming silty towards bottom	35°			i —					1		
40		178.6														Ī		
181.6 1.0.39 as above	- 1		178.6	181.22	2.62		as above but less silty	500								<u> </u>		
181.6	40		101 22	101 (1	20			-	\vdash		-	├		-		├ ──		
181.6 184.462.86 as above but silty towards top 555			101-22	101.01	V . 23		as above	—-		<u> </u>		 			1	1		
184.6			181.6	184.46	2.86		as above but silty towards top	550		-	 	 	-			 	 -	
184.6 185.590.99 black, carbonaceous in middle, minor calcite veins		184.6					<u> </u>	† <u></u>		<u> </u>	†——	1				 		
41			184.6	185,59	0.99		black, carbonaceous in middle, minor calcite											
185.59 187.551.96 as above but increasingly carbonaceous					<u> </u>		veins											
187.7 189.521.82 very little carbonaceous material	41		10Ë E0	107 F	1 02		an about Vita de Constant											
187.7 189.521.82 very little carbonaceous material	- ,	187 7	103.39	101.33	1.70		as above out increasingly carbonaceous		$\vdash \vdash$	<u> </u>	ļ <u> </u>	 						
189.52 190.050.53 Sitst light grey, bedded, laminated and cross- 190.05 190.750.70 200.05 190.750.70 200.05 190.750.70 200.05 190.8 200.05 190.750.70 200.05 190.8 200.05 190.750.70 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05 190.772.97 200.05 190.8 200.05	 	10.1/	187.7	189.52	1.82		very little carbonaceous material	-	$\vdash \vdash \vdash$	-	├	-						
						_	Interest Chipolinecode material	<u> </u>	 	-	 	 -				 		
			189.52	190.05	0.53	Sltst	light grey, bedded, laminated and cross-		├ -			†·-				 		
190.05 190.75 0.70 as above 190.8 190.8 193.772.97 sandy at top, some 0.1m shale beds, some 45 calcite veins								600				1				†		-
190.8 193.772.97 sandy at top, some 0.1m shale beds, some 45 calcite veins	42																	
190.8 193.772.97 sandy at top, some 0.1m shale beds, some 45 calcite veins	-		190.05	190.75	p.70	L	as above					ļ <u> </u>						
calcite veins	 F	190.8	700 R	102 77	h 07			ميرا			ļ <u> </u>					 _		
			190.5	173.1/	4.7/			40				 				 -	ļ	
	١,	197 0		 -	 		caterre verus	 			 	 				 -		
- "	لسلا	2,3.3				لـــــا		<u> </u>				<u> </u>	L					

ALL LINEAR UNITS IN METRES

1:-R4/OR 5 — GOLDER ASSOCIATES HARDNESS CODE •RQD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 106

PROJECT	EWIN PASS	HOLE NO EP 106	PAGE. 11
AREA		CONTINUED	or14

BOX	41430	DE	PTH	Ι.		LITHO DESCRIPTION	MEDORIC	SEAL	SAME	16		ANA	YTICAL	DATA			
	AT TOP CP	FROM	Ιτο	†H	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	No		OIST %	ASH %	V.M. %	f.C. %	F.S.ł.	C.V.	REMARKS T
140	101			 		<u> </u>	(*)	-	!		.b. residua	' 	ļ	}	1.5	ļ	·
- +		193.9	194.20	10.30	}	as above	├	₩	 	-		-	1	-	<u> </u>	-	
43		104 20	197.01	2 8	├	as above	650	-	-	+			├		├	{	
	96.9	134.40	137.00	2.0.		28 800Ve	103	┼	 			-	[∤ —	 	 	<u> </u>
		196.9	198.52	1.62		increasingly sandy with irregular shale/silt-	500	$\overline{}$	_	_		1		1		 	
						Stone contacts		1	İ				} .	1		1	
44			ļ. <u></u>	↓	ļ <u> </u>		L,	1		J							
-	99.9	198.52	199.92	1.40	Shale	medium grey, some silty, sandy beds 0.1m thic	k 60`	}	ļ	+	_		↓	Ļ .		 -	ļ. <u> </u>
		100 0	202.95	3 00	 	little silt	600	╂	├─			+	 	-	-	 	
2	03.0	172-7	20212	•••]	160_	 	-		→	†	1	 	_	 	
		203.0	204.27	1.27		dark prev. no silt		1	1							1	
45														I		[<u> </u>	
		204.27	206.09	1.82		medium grey, some silty beds	550	┡-	└	-↓				<u> </u>	ļ <u>.</u>		
— <u>P</u>	06.0	206.0	208.95	9 05	 		600	}	} —	┵	}	 	ļ		<u> </u>	 	
		200.0	470.7.	7. 7.	 -	dark grey, minor silty heds, some calcite veins and fracture fillings	160°-	-	 	+		+	 	 		 	
. 2	09.1			<u> </u>		702.00 0.00 2.000 2.11111120	 -	_	\vdash	+-		 	ļ ·	 	 	İ	
		209.1	210.15	1.05		as above but no silty material				1_							
46			_	↓	<u> </u>	<u> </u>			<u> </u>	<u> </u>		J	<u> </u>			l	
+		210_15	212.16	₽-01	 	slightly silty towards bottom, numerous calci	<u> </u>	├	↓	<u> </u>	_}	1	1	 -		 	
-	12,1			1	 -	veins and fracture fillings towards top	₩	┼	 			+	-	 -	 -		
T	•	212.1	215.20	B. 10		dark grey, uniform, very minor calcite veins	╂──	┼─	 	+	+	+		 -	┼──	 	
2	15.2							 	!		$\neg \vdash \neg$	1	1	•			
		215.2	215.88	0.68		as above							L	L		1.	
17				L _			ļ	<u> </u>	<u> </u>			1 -					
$\neg +$		215.88	218.24	2.36	<u> </u>	as above but slightly silty and carbonaceous	├—	↓	├ —	-			ļ <u>.</u>	_	<u> </u>	ļ	
-	18.2	-	<u> </u>	╁──		towards hottom	 -	 -	 -	╃~~		+	 	 	-	 	
T.		218.2	219.56	1.36	 	very carbonaceous with one 0.1 m slickensided	 -	 -	┼	+		+	├	 	 	 	
						coal band near top	1-	†—	t		1	1	_	 	 	 	
-				ļ	<u> </u>		<u> </u>									Ī	
-+	-	219.56	219.60	p.04	Coal	powder		8]				
- }-		210 60	219.70	h-10		dull with bright bands	 	—	╁╌	+		 -		ļ <u>.</u>			<u> </u>
<u>b</u> :	20.4	-	217.70	0.10		duli with bright bands	 	├	╂╌┼╴	+		-	-	<u> </u>	 	 -	
		220.4	220.58	0.18		dull and bright, broken, slickensides	╁──	 	1	+	-	 	 			 	
ightharpoonup							- -	 	1	1		1)		 		
-	-	220.58	220.59	0.01	Shale	carbonaceous, broken		Į									
╾┼		20 50	220.74	,	0 -1		<u> </u>	<u> </u>	$igcup_{}$			ļ					
\rightarrow		20.35	220.14	y, 13	1081	dull and bright, broken, slickensides	 	╄	} 			+	├ ──	ļ	 	<u> </u>	
_		20.74	220.78	0.04	Shale	carbonaceous	 	 	€ P H			+	1		 		
				Ĭ_		TO TO THE COURT OF	. 	 	5/2		2 0.49	4 57	24 33	70 61	8	 	Yield 43%
1		220.78	220.88	0.10	Coal	slickensides, broken					- V-4:	1/	474.03		-		416
\rightarrow		100 00	400 55		L	<u></u>											
+		20.88	220,93	0. 05	Shale	slickensides, heavy, broken	ļ	 _		1		1.					
		20.93	221,01	08	Coal	slickensides, broken	-	<u> </u>	$\vdash \vdash$			ļ	ļ——				
_				7.00	JUAI.	sitekensides, broken	 -	 -	├ ├	+	-+	 	ļi		.		
			<u> </u>	<u> </u>	<u></u>	<u></u>	L.	<u> </u>				1_	1		l	1	

ALL LINEAR UNITS IN METRES

A ANGLE MEASURED FROM CORE AXIS

HOLE No. EP 106

FILE No.8A - 212 A REVISED Nov 1978

^{1 :+} RB/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

[•]RQD — ROCK QUALITY DESIGNATION (%)

FF ---- FRACTURE FREQUENCY

^{* ----} WASHED TO S.G. 1.5

PROJECT	EWIN PASS	HOLE NO EP 106	PAGE 12
AREA		CONTINUED	OF

вох	DEPTH	DE	PTH .	_		LITHO DESCRIPTION		SEAM		LLDI E			ANAL	YTICAL	DATA			
1	AT TOPOF	FROM	10	TH	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JANGLE	DESIG	1	mple No.	MOIS		ASH %	V.M. %	F.C. %	F.S.1.	C.V.	REMARKS
No	BOX			 			(*)	1	<u> </u>	Ţ .	a.r.b.	residual			-	-		
	221.1		221.11	<u>10.18</u>	Shale	slickensides, broken, heavy	\vdash	 	┞	╂╼╍	 				 	ļ		
H	<u> </u>	221.1	221.58	0.4	Coal	dull with bright bands, broken and stick	1	 	-	ķnu	-					 		
					1													
\vdash		221.58	221.80	10,23	Shale	slickensides, heavy, broken	}	 	┡	╁	 -		 		}	├		
		221.80	222.14	0.34	Coal	dull, slickensides, broken	╁	 - -	✝	†			 -		1			
48	222.8				ļ					I								
\vdash		222.8	222.91	<u>D. 1</u>	\	powder	╂──	├ ─	 	├ ─		 -		ļ	 	 -		
		222.91	223.37	0.46		dull with bright bands, stick, some slicken-		1		十		<u> </u>	<u> </u>		<u> </u>			
						sides		Ţ		I								
		223.37	223 42	h 0	Shale	carbonaceous, slickensides	\vdash	 	-	+-	├		<u> </u>	_	-	-		
	224.1		}	Ĭ	1			<u> </u>				t	i .					
]		224.3	224.40	C.10	Coal	slickensides, rubble	[1_	\vdash	<u> </u>								
-		224.40	224.43	0.01	Shale	slickensides	╫	 	╀	+	 				 	 -		
			L	<u>L</u>		DATER-INFALS.	<u> </u>	1_	İ.	1_	i					<u> </u>		
		224.43	225.25	b.82	Coal	dull with bright bands, stick, slickensides	↓	Γ_	L	Ţ_								
-	 -		<u> </u>	├	 	at bottom	 	├	-	1	├	 -	[ļ .		
		225.25	225.58	b.3		rubble and powder, slickensides	 		T	1		<u> </u>						
	225.1	l	ļ		<u> </u>					Ţ_		L						
		225.1	225.37	0.27	1	slickensides, stick	\vdash	+	╁╴	+-	-	-	-		-	├		
		225.37	226.05	0.68		dull with bright bands, stick	<u> </u>											
		224 OF	226 31	h 00	<u> </u>										<u> </u>	I		
	227.4	226.05	220,11	<u> </u>	1	rubble, slickensdies	 	┼	⊢	╃~	 -	 	├	 		 -		
		227.4	229.02	62	2	dull, stick, some slickensides				+-	<u> </u>							
	228.9	228.9	220 07	h 1/	 		1	ļ—	įρ	166]		***************************************
-		220.9	229.04	V. 14	\	powder	 	┼-	2	7	2.80	0.59	4.32	24.15	7/Q.90	8_		Yield 78%
		229.04	229.64	0.60		dull, stick, some slickensides												
		229.64	220 12	1-78	<u> </u>	Juli useb bushe bush and b		<u> </u>	ļ.,	_	<u> </u>				<u> </u>			
49		223.04	230.12	D.40	1	dull with bright bands, stick	+	1	╀	╁			 	 				
		230.12	230.42	0.30		dull, slickensides, rubble, some powder	 			+-								
	230.4		222 44				1			T	-							
	-	230.42	230.55	0.29	\	dull, broken, some slickensides	+	\vdash	╀	╁╌	 	\vdash	 	<u> </u>	 	├		
		230,66	230.76	b. 10	Shale	carbonaceous										 		
			i		Ì													
		230,76	230.83	0.07	Coal	rubble, slickensides	+	├ ─	 -	+-	 -	 		 	<u> </u>			
		230.83	230.88	0.05	Shale	carbonaceous	\pm	1	\vdash	 -	1	<u> </u>	 	 		 		
	<u> </u>	<u>il</u>	i	ł	1		\blacksquare	-	Г	Ţ								
-	231.4	230,88	231.09	0.21	Coal	dull, rubble	\leftarrow	} —	} -	}-	 	{	}			ļ		
<u> </u>		231.4	233.00	.60	1	dull with bright bands, stick	+	 	╁╌	┼-	 			 		-		
			1	r. v.	1	with bitter bands, seick			_	1	<u>. </u>	<u>. </u>	<u>L</u>	<u> </u>	<u> </u>	Ь.	<u></u>	

ALL LINEAR UNITS IN METRES

HOLE No. EP 106 CONTINUED

^{1 :+}R&/OR 5 — GOLDER ASSOCIATES HARDNESS CODE ■RQD — ROCK QUALITY DESIGNATION (%)

A ANGLE MEASURED FROM CORE AXIS

PROJECT	EWIN PASS	HOLE No. EP 10)6
AREA		CONTINUED	

ВОХ	DEPTH.	DE	PTH	Ţ		LITHO DESCRIPTION		SEAM		, m e								
} }	AT TOPO	FROM	το	īΗ	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	ANGLE	DESIG	N	lo.			ASH %	V.M. %	F.C. %	F.S.1.	C.V.	REMARKS T
No	80x			<u> </u>			[17]	ļ		_	0.1.5-	residual						
\sqcup			233.37			dull, stick	<u> </u>	ļ	\sqcup			ļ			ļ	<u></u>		
\sqcup		233.37	233.53	0.10	<u> </u>	powder and rubble, slickensides	<u> </u>	ļ	┰			<u> </u>				ļ		
		በላብ <i>ተ</i> ነሳ	1 222 87	A A	1 00-1-		<u> </u>	ļ,	\vdash						ļ	 		
} ∤		233, 33	233.34	0.0.	Shale		<u> </u>	 	┥	_				<u> </u>		1		
		222 54	233.69	in T	Coal	powder and rubble, slickensides	 	-		\dashv					<u> </u>	 		
┝┈┼	233.0	233,34	233.03	V	COAL	powder and rubble, stickensides	\vdash		┝╾╀			 			├ -	 	 	
 		233.0	233.66	0.66	Coal	dull with bright bands, slickensides, stick	 -	├ ──	├		 -				├	}		
	234.9	233.0	200.00	1	CUAL	data water barbins beneat, beneated, beneated,	 		┝╌╂						 	├		
1		234.5	234.6	0.10	Coal	broken, Blickensides		 		-					 	 		
			†		1		\vdash	t	┱	_				···		 		
		234.6	235.45	0.88	Coal	dull with bright bands, stick										 		
									Н	\neg			_		-			
		235.45	235.84	0.39	Coal	dull with bright bands, broken and rubble		i						1		_		
	236-0	236.00	236.03	0.03	Coal	dull and bright, broken												
	:		L		<u> </u>	Log thickness 16.8	<u> </u>								I	[<u>_</u>
\sqcup			<u></u>	L		Core thickness 12,93		<u> </u>										
-			<u> </u>	—	<u> </u>	Core recovery 77%	ļ		ļ						<u> </u>	L		
\longrightarrow			<u> </u>	0.53	Shale	black, carbonaceous, carbonaceous fracture		<u> </u>	! —				ļ. <u> </u>	<u> </u>				
			├	ì—	_	planes, minor silty bands	45°		! —			<u> </u>						
504		200 200	004 0				<u> </u>		ļ					!	ļ	<u> </u>		
		236.03	236.83	0.80		as above	<u> </u>	 	├—			ļi		├	<u> </u>	-		
- 1	237.6	227 6	220 2	1 6	Sltst		500	 	├—	\rightarrow		 		├──	<u> </u>	<u> </u>		
-		<u> </u>	239.2	3.0	SIESE	medium grey, laminated and cross laminated, some carbonaceous shale beds 0.2 m thick	500	 	├—			 		 	 			R3
 	239.1				 	Some Carbonaceous Share beds 0.2 m thick	 	 -		{		 		 -	├	 		
┝╼╬		239.1	241.37	2.2	Shale	black, carbonaceous throughout, minor silt-	500					 		 	<u> </u>			
<u> </u>		<u> </u>	241.31		Dilate	stone towards top	100	 	\vdash	\dashv				 	 	 		
١	242.d					Scotte Cowalds COD	\vdash	[·—	- 1		 				 		
	-	242.0	242.99	0.99	Sitst	shale at top, carbonaceous in spots, laminate	H _	<u> </u>	┢	-					 			
		, <u>, , , , , , , , , , , , , , , , , , </u>				cross-laminated and cross bedded	7—		\vdash	_					 		-	
51								 	_	一		·		ļ				•
			243.44	0.45	Shale	black, highly carbonaceous towards bottom										1		
	<u> 243.8</u>											L						
		243.8	245.14	1.34		highly carbonaceous towards top				Ī								
	245.4		ļ	└					Ĺ	[
		245.4	247.8	2.40		increasingly silty towards bottom, black at	600	igsquare		_								
				L	ļ	top to medium grey at bottom, minor calcite	<u> </u>									<u> </u>		
			<u> </u>	Ļ—		veins	└		_	ļ								
		2/7 0	2/0 5		72		0	<u> </u>	_	}				<u> </u>		↓		
├─┤.	248.0	44/. B	Z48.51	<u>V-7</u> 2	Sltst	light grey, laminated, minor shale at bottom	55	 -	<u> </u>	-		 		 		-		
 		249 6	248.53	0 6	<u> </u>	as above, flame structures			-					<u> </u>	 	- −		
-+		440.7	240.33	V . D.	 	as above. Flame structures	 			\dashv				-		 		
┝┈┤		24B 62	249 54	0 0	shale	dark grey at top to black at bottom, minor	 	\vdash			-			-		} -		
-			647.39	0.77	Sitare	siltstone towards top	450		_	\dashv	:	 		ļ		[··········
			_	1-	1 —		 ~~ —	\vdash	\vdash	\dashv	-	 				 		
\Box		249.54	249.74	0.20	Coal	dull and bright, stick		\vdash	\vdash	-					-			
				,	300	MALL BING PITERLY BUICK	_	 	-	+						 		
		249.74	249.94	0.20	Shale	highly carbonaceous	-) — !						 		 		.
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ALL LINEAR UNITS IN METRES

1:088/ORS — GOLDER ASSOCIATES HARDNESS CODE 08QD — ROCK QUALITY DESIGNATION (%)

FF --- FRACTURE FREQUENCY

A ANGLE MEASURED FROM CORE AXIS

HOLE No.

EP 106

PROJECT	EWIN PASS	HOLE No.
AREA		CONTINUED

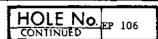
E No. EP106 PAGE 14 OF ...14

[PAJ	DEPTH	DEF	714			LITHO DESCRIPTION	1 🔺		1			ANALYTICA		V.M. % F.C. % F.S.E. C.V.			1
	41	DEF		TH			ANGLE	SEAM	SAMPLE	MOIS	t %	ASH %	V.M. %	F.C. %			REWARKS *
No	AT TOPO BOX	FROM	70	[]	MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	(*1	P2310	No.		residual				F.5.1.	C.V.	
-		249.94	250.08	n. 14	Coal	dull and bright, stick	1		î .	i i							
 		247.74	230104	V	VOU.1	dall and blight, stick			· -····		 						
-	-	250.08	250.23	0.1	Shale	highly carbonaceous	 	-	 -	! 					<u> </u>		
				-			 										
-		250.23	251.82	0.59		black, carbonaceous	+	 						 			
	251.9	230023				DIECK, CUIDOMACCOUD	 -		 		<u> </u>				· ·		
- 	+21.2	251.5	251 85	0 3		as above	+-								_		
						AG ADOVE				;				-			
┪		251.85	252.32	0.47		highly carbonaceous	1									-	
							 		Ì	-				-			
		252.32	252.74	0.42		black, carbonaceous, slickensides at bottom								İ''' —			
						with pyrite	1		1								
	252.9			i —			1		<u>; </u>								
		252.9	253.82	0.92		black, minor silty beds	45									·	
\Box				ļ				i		L					ì		
\Box		253.82	254.27	0.43	Sltst	dark grey, lamiated and cross laminated	<u> </u>	L			1						
-1		1 1		1	i .		I	l .									
		254.27	254,59	0.32	Shale	black, a 0.05 m coal band	<u> </u>		·								
	254.5		_	<u> </u>			<u> </u>	<u> </u>		<u> </u>							·
		<u> </u>				<u> </u>	L		L	<u> </u>							
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ALL LINEAR UNITS IN METRES

1:R&/ORS — GOLDER ASSOCIATES HARDNESS CODE =RQD — ROCK QUALIT DESIGNATION (%)

FF -- FRACTURE FREQUENCY



PROJECT	FAMAL	1900	
AREA	-1 F	Beilest	C. War

TE	BEGIN	Sept-12, 1910
ă	END	Sept 25.195.

HOLE No. 17 104

PAGE ... 1....

HOLE PARTICULARS

LOCATION	N 5,540	772-65
LOCATION	1. 661,	253.17
ELEVATION	2388 1	HOLE BEARING (AZT)
TOTAL DEPTH	2545	HOLE ANGLE (*)*

LOGS RUN	Comma Density, Herten,
LOGGED BY	Lines 12/ cratica lucioni
OTHER TESTS	Cirectional svery

co	AL CORING PERI	FORMANCE
CC	ORE DIAMETER	NO -15 75-18
	CORE RECOVERED	50
OTA A	LENGTH CORED	
-	CORE RECOVERY	*/•

EXAMINATION	
LOG USED	Genna - Darito
No. OF SEAMS SAMPLED	. /
EXAMINER (S)	C. Bearan
DATE	Sept. 1910

MMARY GEOTECH ARD-FRAC. RQD	NO.	MOIST % ar.b. residue	ASH %	V.M.% F.	C.% F.S.I.	C.V
ESS FREG.		ar.b. residu	ol .			-
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ALL LINEAR UNITS IN METRES

: MEASURED FROM THE HORIZONTAL PLANE

* : * # A/OR 5 - GOLDER ASSOCIATES HARDNESS CODE

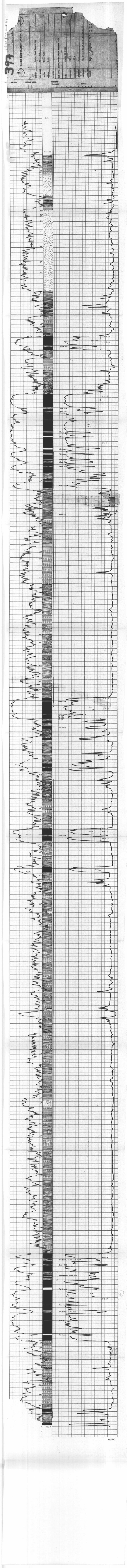
. ROD - ROCK QUALITY DESIGNATION (%)

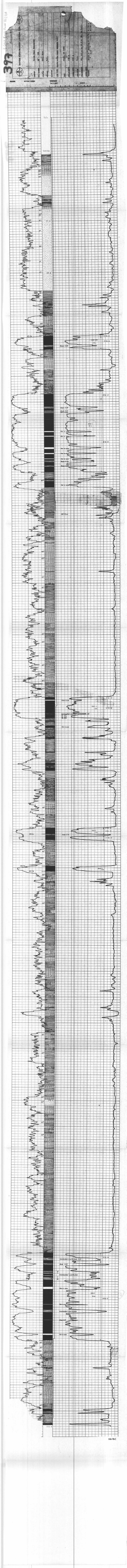
FF --- FRACTURE FREQUENCY

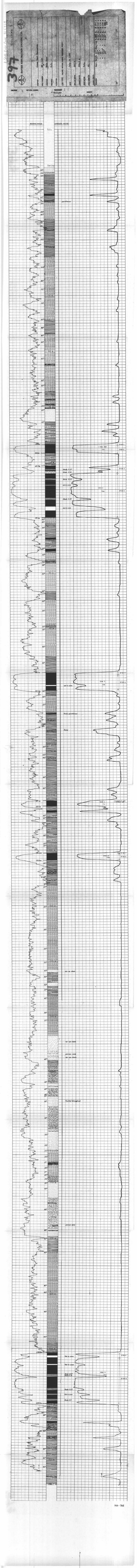
A ANGLE MEASURED FROM CORE AXIS

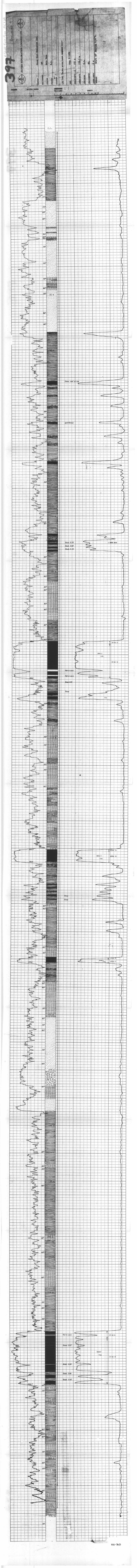
HOLE No.





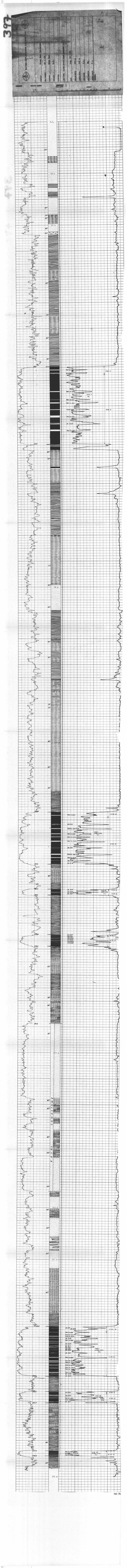


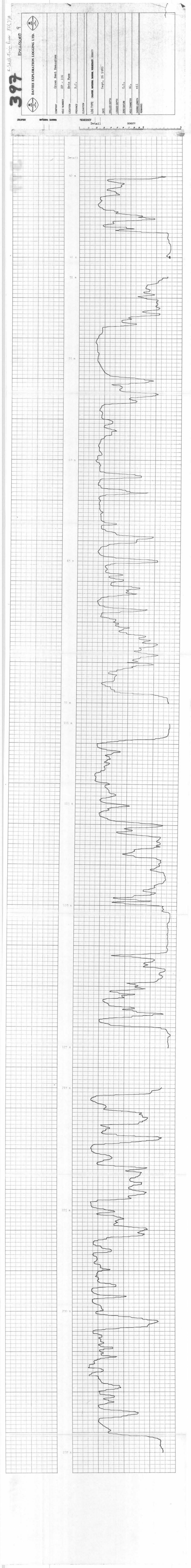


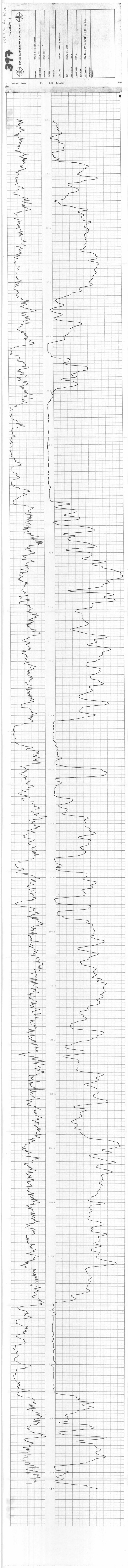


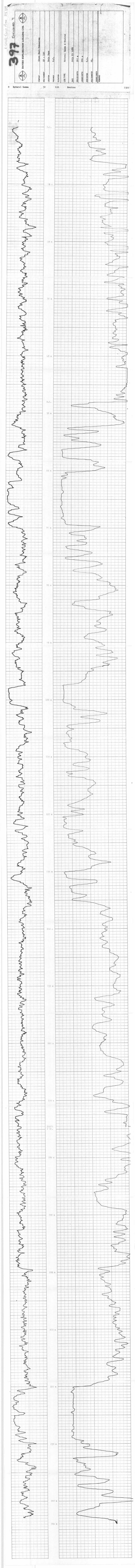
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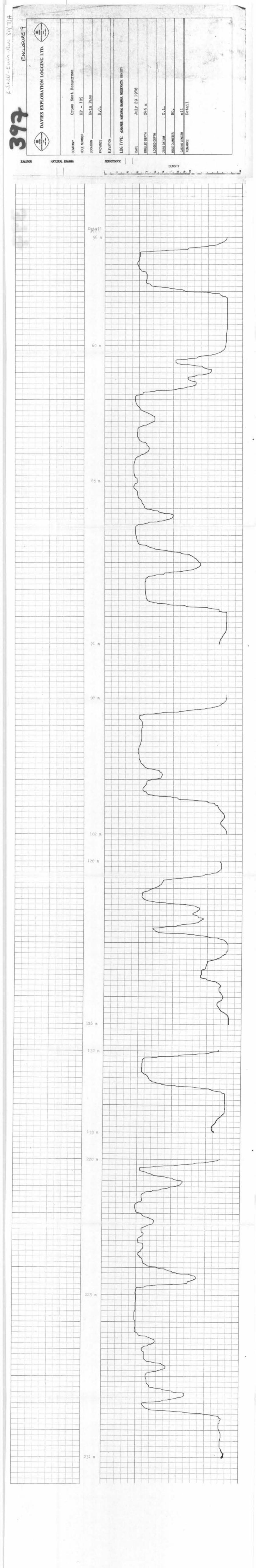
HA-76

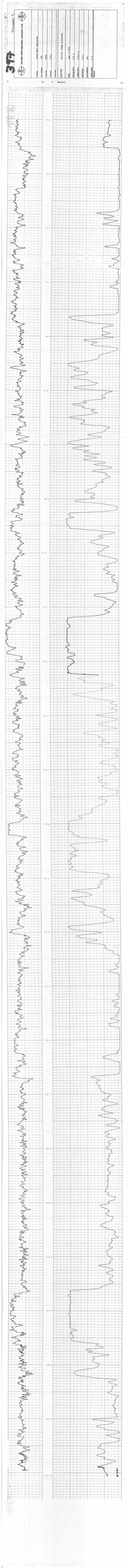


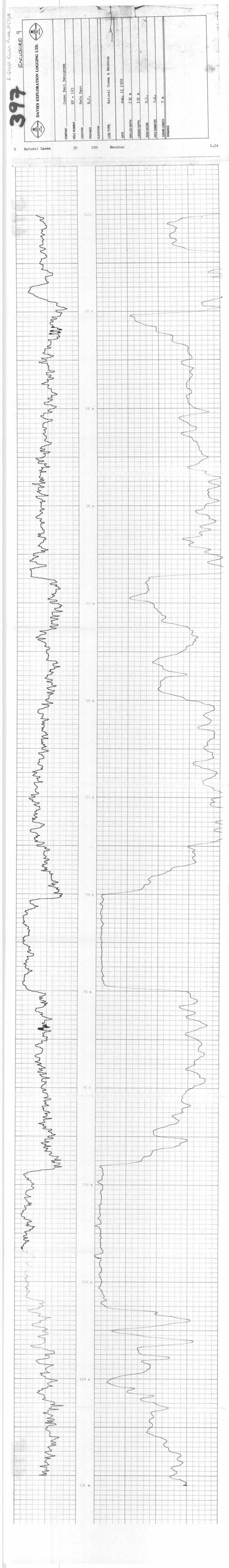


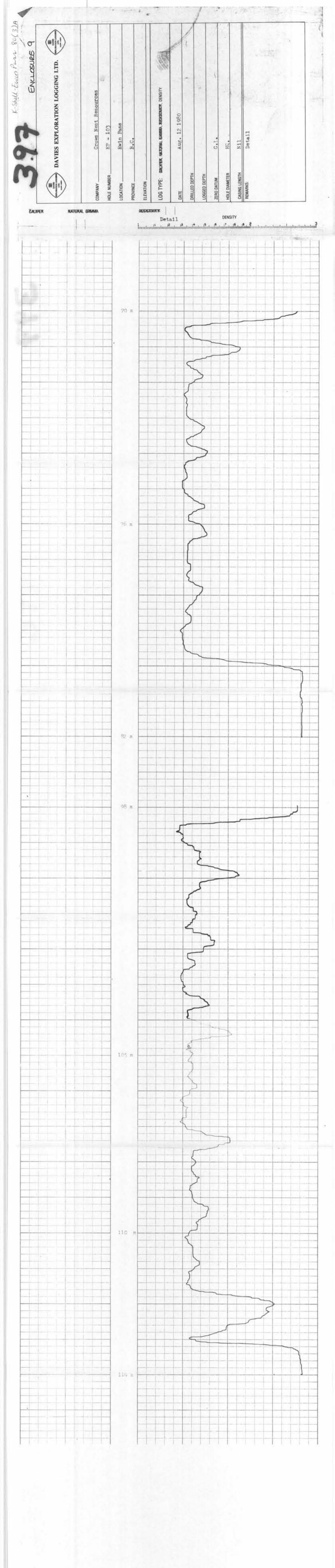




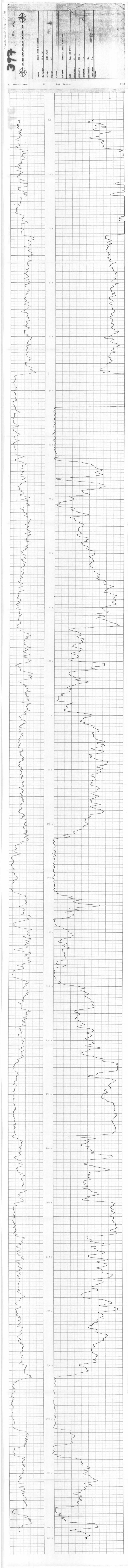


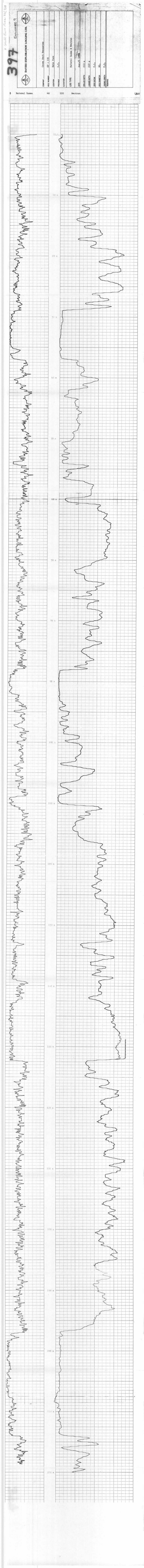






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"Ewin Pass Coul Property" COAL ANALYSIS DATA

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CONTINUAL

GEOLOGICAL BRANCH ASSESSMENT REPORT

00 397

MOVABLE-WALL COME OVER TESTS AND RELATED ANALYSES OF TWO COAL BLEND SAMPLES FROM EWIN PASS SUBHITTED BY CHOWS NEST RESOURCES LIMITED

Project 03-3-1/11-5

by

J.G. Jorgensen*, T.A. Lloyd*, and W. Gardiner*

INTRODUCTION

This investigation deals with the carbonization and related analyses of cleaned coal blend samples composed of Seam 4. Seam 8 and Seam 9 from Ewin Pass. Duplicate coking tests were conducted on a clean coal blend composed of 66.7% of Seam 8 and 33.3% of Seam 4. This sample was received on May 7, 1980. Duplicate coking tests were also conducted on a clean coal blend composed of 57.1% of Seam 8, 28.6% of Seam 4 and 14.3% of Seam 9.

The project was initiated by R. Crisafio, Senior Metallurgist, Crows Nest Resources Limited, Fernie, British Columbia in a letter dated November 15, 1979, which is reproduced in Appendix 1.

The cleaned bulk sample was carbonized in the 12-inch width movable-wall coke oven located at the CANMET Bells Corners Complex near Ottawa. Representative samples were taken and analysed for chemical analysis, thermal rheological and petrographical properties. The results of the testing and analyses are listed in Tables 1 to 6.

^{*}Heads, Coal Petrography, Coal Treatment, and Carbonization Operations Sections, respectively, Coal Resource and Processing Laboratory, Energy Research Laboratories, CANMET, Department of Energy, Mines and Resources, Ottawa, Canada.

TABLE 1 Chemical Analyses of Component Coals

Identification			
Laboratory Number	3178-80		
Description	Clean Coal		
•	Blend		
	66.7% Seam 8		
Classification	33.3% Seam 4		
Rank (ASTM)	mvb		
International System	533		
Specific Volatile Index	177		
Carbon (dmmfb)%	89.0		
Proximate Analysis (db)			
Ash%	7.0		
Volatile Matter%	28.3	•	
Fixed Carbon%	64.7		
Gross Calorific Value (db)			
Btu per pound	14270		
•			
<u> Ultimate Analysis (db)</u>		•	
Carbon	82.1		•
Hydrogen%	5.0		
Sulphur	0.43		
Nitrogen	1.5		
Ash%	7.0		
Oxygen (by difference)%	4.0		
Ash Analysis (db)		·	
\$i0 ₂ %	52.1		
A1203	29.9		
Fe203	7.8		
Ti02 %	1.7		
P205	1.2		
CaO X	1.9		
MgO\$	0.9		
S03 %	1.1		
Na ₂ 0	0.3		
K ₂ D	0.9		

TABLE 2 Physical Tests and Fusibility of Ash of Component Coals

dentification				
Laboratory Number Description		3178-80 Clean Coal Blend	3212-80	3665-80
		Tests 776 & 778	Test 777	Test 790
	Seam #8	66.7%	57.1%	57.1%
oal Pulverizatio	n Seam #4	33.3%	28.6%	28.6%
	- Seam #9		14.3%	14.3%
Sieve Analysis				
Passing	Retained On			
1	1/4 in. 💃	0.1	0.1	0.0
1/4 in.	6 mesh 🔏	14.8	14.3	11.8
6 mesh	12 mesh 😮	20.8	20.8	19.5
12 mesh	20 mesh 🛚 🐒	19.9	20.9	21.0
20 mesh	***************************************	44.4	43.9	47.7
Total Passing	6 mesh #	85.1	85.6	88.2
rindability				
narogrove index	• • • • • • • • • • • • • • • • • • • •			
usibility of Ash				
Initial Deferma	tion Temp ^O F Spherical ^O F Hemispherical OF	2580		
inicial beforma	Cobamics 1 Of	2680	:	
Softening Temp.	Nomical OF	2700+		
MELLEPTING LPRID.	HEIRISDIET LAL T	2700+		

TABLE 3 Thermal Rheological Properties of Component Coals

Identification			
Laboratory Number Description	3178-80 Tests 776 and 778	3212-80 Test 777	3665-80 Test 790
	66.7% Seam 8 33.3% Seam 4	57.1% Seam 8 28.6% Seam 4 14.3% Seam 5	57.1% Seam 8 28.6% Seam 4 14.3% Seam 9
Linear Expansion			
Bd. 52 lb/ft ³ at 2% moisture%			
Gieseler Plasticity			
Start °C Fusion Temp. °C Max. Fluid Temp. °C Final Fluid Temp. °C Solidification Temp. °C Melting Range °C	426	433	429
Fusion Temp	438	447	445
Max. Fluid TempOC	460	464	460
Final Fluid Temp°C	484	479	477
Solidification Temp°C	487	483	481
Melting Range	58	46	68
Max. Fluiditydd/m	161.5	24.5	24
Torqueg.in.	40	40	40
Dilatation			
Ti - Softening Town	397	402	399
Ti - Softening Temp°C Tii - Max. Contraction Temp C	442	448	447
Tiii - Max. Dilatation Temp C	470	474	470
Contraction%	27	25	26
Dilatation%	48	-4	-9
Free Swelling Index			
F.S.I	8	8	8

TABLE 4 Petrographic Analysis of Component Coals

Laboratory Number	3178-80	
Description	Blend of	
	66.7% Seam 8	
	33.3% Seam 4	
Distribution of Vitrinite Types		
V-6%		
٧-7,		
V-8%		
V-9 %	0.7	
V-10	43.3	
V-11%	26.7	
V-12%	1.4	
V-13%		
V-14%		
V-15%		
V-16		
V-17%		
V-18		
Reactive Components		
Total Vitrinite	72.2	
Reactive Semi-fusinite (1/3)%	4.8	
Exinite	1.5	
	78.5	
Total%	70.5	
Inert Components		
Inert Semi-fusinite (2/3)%	9.6	
Micripite	1.8	
Fusinite	6.2	
Mineral Matter	3.9	
Total	21.5	
Petrographic Indices		
Mean Reflectance%	1.08	
Balance Index	0.79	
Strength Index	4.08	
Stability Index	56.0	

			The state of the s	
Test Identification Number. Data of Test. Laboratory Number.	776 13 May/80	778 21 Hay/80	777 15 May/80	790 9 July/80
Description Blend of Seam #8 Seam #4 CARBONIZATION DATA Seam #9	66.7% 33.3%	66.7% 33.3%	57.1% 28.6% 14.3%	57.1% 28.6% 14.3%
Net Weight of Charge (wet)	556.0 2.5	551.5 2.7	567.0 2.6	555.2 3.0
Oven Bulk Density (db)lb/ft3	49.4	48.9	50.3	49.0
CARBONIZATION RESULTS				
Gross Coking Time	9:05 N.A. 75.6 1.93 0.903	9:10 1.22 75.6 1.93 0.908	8:55 2.02 76.7 1.90 0.924	9:05 1.16 75.8 1.87 0.924
Screen Analysis of Coke (cumulative percentage retained on)				
3 inch sieve	4.1 41.2 73.8 93.8 95.8 96.9	5.3 40.1 74.1 94.0 95.9 97.0	4.1 40.0 70.0 93.3 95.7 96.7	4.4 36.0 71.0 93.5 96.0 96.7
Percentage -1/2 inch (breeze)	3.1	3.0	3.3	3.3
Tumbler Test (ASTM)				
Stability Factor	49.5 65.7	51.1 65.5	48.6 66.5	50.5 67.4
Japanese Drum Test (JIS) (cumulative percentage retained on)	* **	* **	* **	* **
50 nm sieve	9.8 1.6 5.3 68.4 2.8 81.4	8.5 1.2 85.1 68.0 93.0 81.5	7.6 1.0 82.9 63.5 93.1 81.1	* ** 9.2 0.8 83.1 63.1 93.2 80.7
*	30 revs **150	revs		

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TABLE 6
Analyses of Coke Oven Charges and Resultant Cokes

Identification Test Number	776	778	777	790	
Date Charged	13/5/80	21/5/80	14/5/80	5/7/80	
Description					
Blend of Seam #8	66.7	66.7	57.1	57.1	
Seam #4 Seam #9	33.3	33.3	28.6	28.6	
38am #9			14.3	14.3	
	•				
Coke Oven Charge					
Laboratory Number	3178-80	3178-80	3212-80	3665-80	
Proximate Analysis (db)					
Ash%	7.0	7.0	7.0	7.4	
Volatile Matter%	28.3	28.3	27.0	27.3	
Fixed Carbon%	64.7	64.7	66.0	65.3	
Sulphur (db)	0.43	0.43	0.33	0.35	
Resultant Coke					
Laboratory Number	3230-80	355780	3231-80	3815-80	
Proximate Analysis (db)					
Ash%	9.0	9.0	9.3	9.6	
Volatile Matter%	1.2	1.7	1.3	1.1	
Fixed Carbon%	89.8	89.3	89.4	89.3	
Sulphur (db)	0.32	0.28	0.31	0.29	

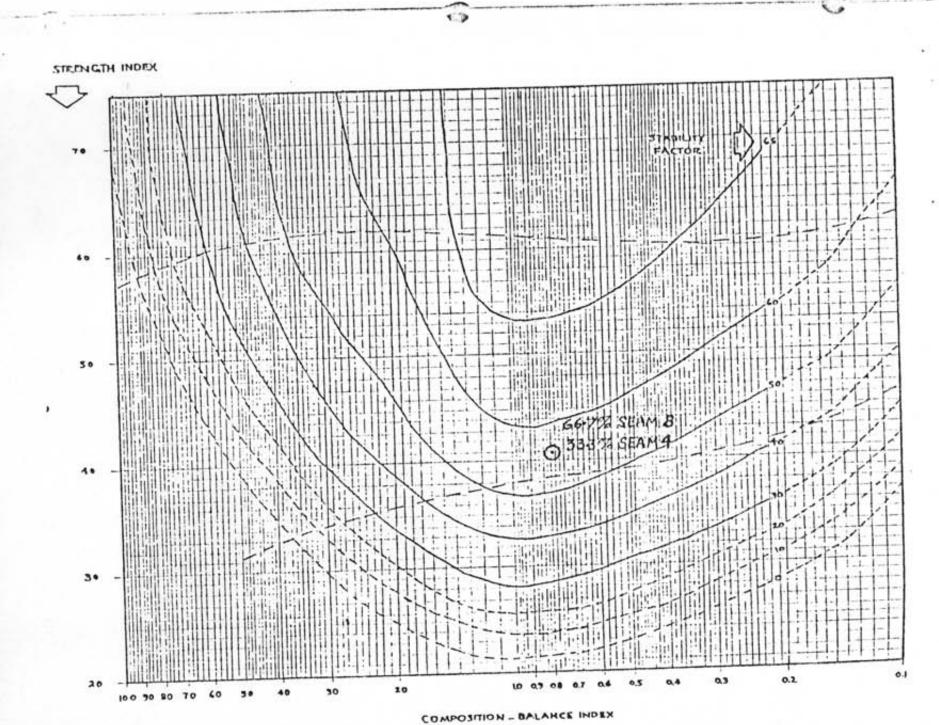


Figure 1. Predicted Stability, Factor from Petrographic Data of a Clean Coal Blend

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November 15, 1979

Dr. W.R. Leeder Western Research Lab C/O Alberta Research Council Bldg. Highway 10 Fast Clover Bar Edmonton, Alberta

Dear Dr. Leeder:

Relative to our phone conversation 15 November, 1979, you will receive from Birtley Coal Testing the following samples from "Ewin Pass" in the Upper Elk Coal Fields.

Adit 1, Adit 2, Adit 3 - 4 drums from each

I would request a complete set of tests to be conducted such as proximate, ultimate, ash analysis, B.T.U., rheology, carbonization drum tests, sole heated oven, hardgrove and such other data, as screen analysis, as may be derived during the testing procedures

I would also request a confidentiality period of two years because of possible marketing implications.

The need for this information is not pressing, so that you can schedule the tests at your earliest convenience.

Yours truly,

R. Crisafio Metallurgist

PC: J. Jorgensen - Head Petrographer E.M.R. Ottawa J.J. Crabb D. Riva

MOVABLE-WALL COKE OVEN TESTS AND RELATED ANALYSES OF THREE COAL SAMPLES FROM SEAMS 4, 8 AND 9 FROM EWIN PASS SUBMITTED BY CROWS NEST RESOURCES LIMITED

Project 03-3-1/11-5 (Job No. 3238R)

bу

J.G. Jorgensen*, T.A. Lloyd* and W. Gardiner*

INTRODUCTION

This investigation deals with the carbonization and related analyses of cleaned coal samples from Seam 8 (Adit No. 1), Seam 4 (Adit No. 2) and Seam 9 (Adit No. 3), taken from Ewin Pass in the Upper Elk Coal Fields. The project was initiated by R. Crisafio, Metallurgist, Crows Nest Resources Ltd., Fernie, British Columbia in letters dated July 26 and November 15, 1979, which are reproduced in Appendix 1.

The cleaned bulk samples were carbonized in the 12-inch width movable-wall coke oven located at the CANMET Bells Corners Complex near Ottawa. Representative samples of the coals were taken and analysed for chemical, physical thermal rheological and petrographical properties. The results of the testing and analyses are listed in Tables 1 to 6.

^{*}Heads, Coal Petrology Section, Coal Treatment and Rheology Section, and Carbonization Operations Section, respectively, Coal Resource and Processing Laboratory, Energy Research Laboratories, CANMET, Department of Energy, Mines and Resources, Ottawa, Canada.

Identification				
Laboratory Number	2131-80	2132-80	2133-80	
Description	Adit #1	Adit #2	Adit #3	
	Seam 8	Seam 4	Seam 9	
Classification				
Rank (ASTM)	mvb	mvb	mvb	
International System	534	533	431	
Specific Volatile Index	169	177	262	
Carbon (dmmfb)%	89.0	88.7	89.9	
Proximate Analysis (db)				
Ash%	6.3	8.2	8.4	
Volatile Matter	28.0	28.3	22.9	
Fixed Carbon%	65.7	63.5	68.7	
Gross Calorific Value (db)				
Btu per pound	14155	14065	14415	
Ultimate Analysis (db)			-	
Carbon%	82.8	80.7	81.5	
Hydrogen%	5.1	5.0	4.6	
Sulphur	0.42	0.32	0.41	
Nitrogen%	1.4	1.3	1.1	
Ash	6.3	8.2	8.4	
Oxygen (by difference)%	4.0	4.5	4.0	
Ash Analysis (db)				
\$102%	56.6	51.0	58.2	
A1203%	26.3	31.7	30.0	
Fe ₂ 0 ₃ %	9.1	6.9	4.0	
Ti02	1.4	1.6	1.7	
P ₂ 0 ₅	0.7	1.3	0.9	
CaO%	1.3	2.1	1.3	
MgO	0.8	0.5	0.3	
sō3%	1.1	0.8	0.4	
Na ₂ 0%	0.1	0.7	0.1	
κ ₂ δ#	1.3	0.2	0.6	

, ,

Identification			,		
Laboratory Number Description		2131-80 AdIt #1 Seam 8	2132-80 Adit #2 Seam 4	2133-80 Adit #3 Seam 9	
Coal Pulverization	3_			•	,
Sieve Analysis					
Fassing	Retained On				
1/4 in. 1/8 in. 1/16 in. 1/32 in.	1/4 in. % 1/8 in. % 1/15 in. % 1/32 in. %	0.1 14.0 20.8 21.3 43.8	0.3 10.7 17.7 20.3 51.0	0.0 9.8 15.9 18.6 55.7	
Total Passing	1/8 in. 3	85.9	89.0	90.2	
Grindability					
Hardgrove Index		83	73	88	
Fusibility of Ash					
Initial Deformat Softening Temp. Softening Temp. Fluid Temp	Hemispherical E	2400 2700+ 2700+ 2700+	2700+ 2700+ 2700+ 2700+	27 00+ 27 00+ 2700+ 2700+	

TABLE 3 Thermal Rheological Properties of Component Coals

entification			
Laboratory Number	2130-80	2132-80	2133-80
Description	Adit #1 Seam 8	Adit #2 Seam 4	Adit #3 Seam 9
	Seam o		ે દ્વા ક
near Expansion			
Bd. 52 lb/ft ³ at 2% moisture%	-4.6	-9.7	-15.7
eseler Plasticity			
Start	425	426	447
Fusion Temp	437	439	-
Max. Fluid TempC	461 484	458 483	465 479
Final Fluid Temp	487	487	479
Solidification (emp	59	57	32
Max. Fluiditydd/m	203	147.4	2.7
Torqueg.in.	40	40	40
latation			
-	20.5	402	411
Tii - SOTTENING TEMP	395 437	448	474
Ti - Softening Temp OC Tii - Max. Contraction Temp. oC Tiii - Max. Dilatation Temp. C	470	470	-
Contraction%	28	23	24
Dilatation%	78	33	Nil
ee Swelling Index			
F.S.I	8 <u>1</u>	8 <u>1</u>	5 1 ⁄2

Laboratory Number Description	2131-80 Adit #1 Seam 8	2132-80 Adit #2 Seam 4	2133-80 Adit #3 Seam 9
Distribution of Vitrinite Types			•
V-6.	3.0 24.3 48.7	7.2 51.8 i3.0	1.0 6.7 13.4 23.0 3.8
Reactive Components			
Total Vitrinite	76.0 4.4 0.8	72.0 4.6 2.4	47.9 17.7* 0.2
Total ₹	81.2	79.0	65.8
Inert Components			
Inert Semi-fusinite (2/3)% Micrinite% Fusinite% Mineral Matter	8.8 2.2 , 4.3 3.5	9.2 1.8 5.4 4.6	17.8** 4.7 7.0 4.7
Total	18.8	21.0	34.2
Petrographic Indices			
Mean Reflectance% Balance Index Strength Index	1.11 0.69 4.23	1.05 0.73 3. ይ ታ	1.29 2.37 5.28

Test Identification Number	753	754	755	
Data of Test	21 Jan/80	24 Jan/80	29 Jan/80	
Laboratory Number	21 31-80	2132-80	2133-80	
Description	100%	100%	100%	
begar (parameter)	Adit #1	Adit #2	Adit #3	
	Seam #8	Seam #4	Seam #9	
CARBONIZATION DATA				
Net Weight of Charge (wet)1b	540.2	547.2	539.7	
Moisture in Charge	3.1	2.8	3,2	
ASTM Bulk Density (wet)	-	-	-	
Oven Bulk Density (db)	49.3	50.0	49.1	
oven bank bension (abjunituality)				
CARBONIZATION RESULTS				
Gross Coking Timehr:mig	9:10	9:10	9:15	
Maximum Wall Pressure	1.24	0.81	0.23	
Coke Yield Actual	75.4	75.6	78.0	
Mean Coke sizein	1.99	2.03	1.88	
Apparent Specific Gravity	0.844	0.881	0.835	
Screen Analysis of Coke (cumulative percentage retained on)				
3 inch sieve	4.6	8.9	4.4	
2 inch sieve	47.5	47.0	40.0	
1 1/2 inch sieve	76.3	75.9	72.6	
1 inch sieve	94.6	92.0	91.0	
3/4 inch sieve	96.0	94.6	93.0	
1/2 inch sieve	97.0	96.0	93.9	
Percentage -1/2 inch (breeze)	3.0	4.0	6.1	
	3.0	410	V-12	
Tumbler Test (ASTM)				
Stability Factor	53.0	32.1	46.0	
Hardness Factor	63.4	62.7	61.4	
			•	
Japanese <u>Drum Test (JIS)</u> (cumulative percentage retained on)	rk je k	於	* **	
50 mm steve	17.9 2.4	15.5 -	17.0 2.8	
25 mm sieve	88.1 71.1	74.4 49.1	82.5 63.0	
15 mm sieve	93.6 81.3	88.5 72.4	91.5 77.9	
,	\$20 mars - 54150			
•	*30 revs **150 revs			

TABLE 6
Analyses of Coke Oven Charges and Resultant Cokes

Identification				
Test Number	753	754	755	
Date Charged	23/1/80	24/1/80	29/1/80	
Description	Adit #1 Seam 8	Adit #2 Seam 4	Adit #3 Seam 9	
Coke Oven Charge				
Laboratory Number	2131-80	2132-80	2133-80	
Proximate Analysis (db)				
Ash	6.3	8.2	8.4	
Volatile Matter	28.0	28.3	22.9	
Fixed Carbon	65.7	63.5	68.7	
Sulphur (db)	0.42	0.32	0.41	
Resultant Coke		711 110 10 111		
Laboratory Number	2235-80	2236-80	2494-80	
Proximate Analysis (db)				
Asin	8.6	10.2	10.8	
Volatile Matter%	1.5	1.6	1.0	
Fixed Carbon%	89.9	88.2	88.2	
Sulphur (db)%	0.35	0.29	0.35	
Surphur (ub)				

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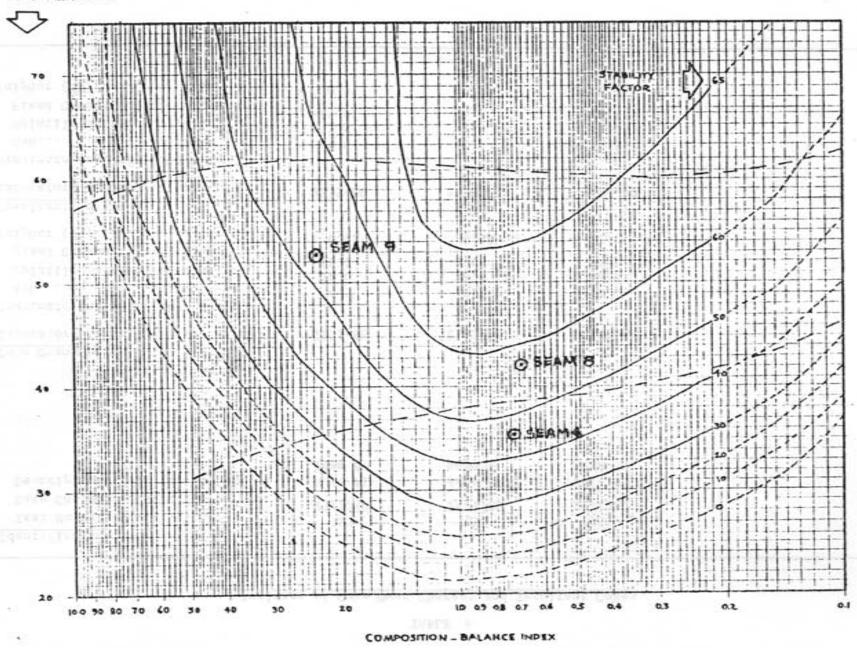
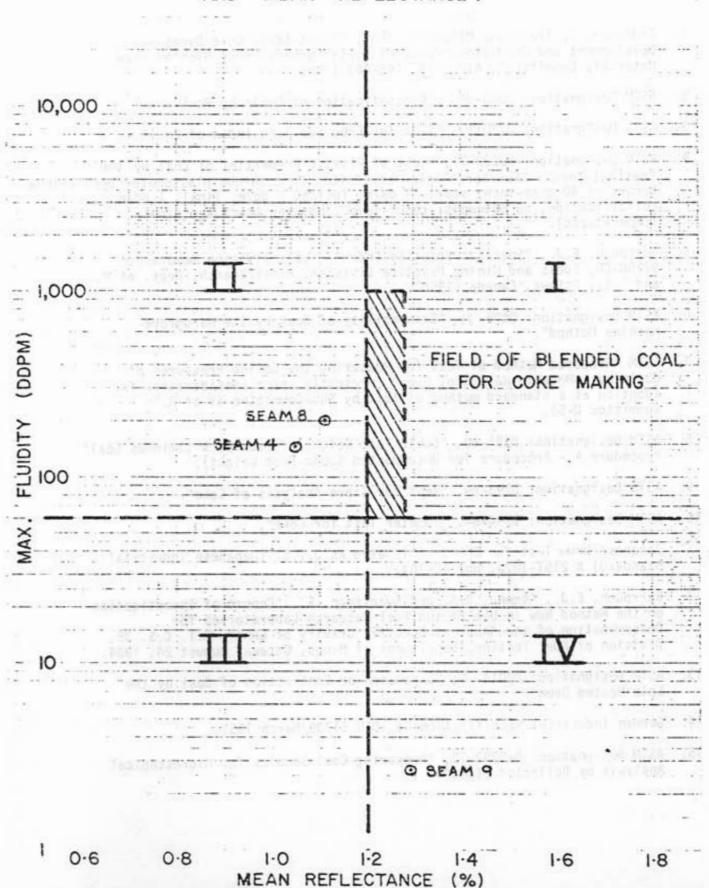


Figure 1. Plot of predicted stability indices from petrographic data for component coals.



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APPENDIX 1

Letters dated July 26 and November 15, 1979 from R. Crisafio, Metallurgist, Crows Nest Resources Limited, Fernie, British Columbia.



P.C. Box 2699 Sin. M. Calgary, Alberta T2P 2M7. Talex 038-24792

GEOLOGICAL BRANCH ASSESSIMENT DEPORT

Mr. J. Botham Energy Mines & Resources C.A.N.M.E.T. 555 Booth St. Ottawa, Ontario KIA 0E4

397

Dear Jack,

This is to confirm a telephone conversation with J. Jorgensen requesting coal quality, Petrographic and coke tests on samples from Line Creek Ridge and Ewin Pass.

I would request the work be conducted in Ottawa, simply to establish continuity with our previous testing over the years.

The samples would be washed and we would forward two drums (180 kg) clean coal from each seam. Anticipated are samples from:

- 1) Adit 18 #8 seam Upper Line Creek Ridge #8 seam - Lower Line Creek Ridge
- 2) Adit 4 #9 seam Line Creek Ridge
- 3) 4 Adit Samples (not yet numbered) Ewin Pass
- 4) We will also require a test on a composite #8 seam sample.

Could you please outline anticipated costs as based on your cost recovery program and also what scheduling you would anticipate. Priorities would be #8 seam, #9 seam, Ewin Pass.

Sincerely.

R. CRISAFIO Metallurgist

P. S. Please direct reply to Fernie as shown on the card.

RC/mi c.c. D. A. Riva





November 15, 1979

Dr. W.R. Leeder Western Research Lab C/O Alberta Research Council Bldg. Highway 10 East Clover Bar Edmonton, Alberta

Dear Dr. Leeder:

Relative to our phone conversation 15 November, 1979, you will receive from Eirtley Coal Testing the following samples from "Ewin Pass" in the Upper Elk Coal Fields.

Adit 1, Adit 2, Adit 3 - 4 drums from each

I would request a complete set of tests to be conducted such as proximate. ultimate, ash analysis, B.T.U., rheology, carbonization drum tests, sole heated oven, hardgrove and such other data, as screen analysis, as may be derived during the testing procedures

I would also request a confidentiality period of two years because of possible marketing implications.

The need for this information is not pressing, so that you can schedule the tests at your earliest convenience.

Yours truly,

R. Crisafio Metallurgist

PC: J. Jorgensen - Head Petrographer
E.M.R. Ottawa
J.J. Crabb
D. Riva

CONFIDENTIAL

HOLE NO. EPT-0 DATE: August 15/80 ANALYST Bernie AREA: EWIN PASS CALC. AIR DRY Kcal/ INTERVAL % LAB. SAMPLE F.C. F.S.I. SULFURIYIELD ka MOISTURE BASIS (METRES) L055 ASH V.M. 80. NO. SEAM FRACTION AD3 2 1.91-5/6: 21.54 RAW 6.35 30-163 ARB D3 23,60 1.5 FLOAT 86A 6.81 27.84 62.07 0 56 7.03 28.78 64.19 FLOAT SCA 03 ADB FLOAT DB A03 Middle 9 2 150.48 -7.57 29.25 86-164 ----ARB 159.39 03 31.65 A03 1 5 FLOAT 7.01 29.53 59.33 93 7.3130.80 61.89 FLOAT A0398 ____ FLOAT 03 A93 Louiser 9 351.59 -6.62 26.00 80-165 APB 356.68 D3 1.27.84 1.5 FLOAT 8.70 30.36 56.65 4.29 D3 ' 9.09 31.72 .59..19FLOAT A09----AD3 FLOAT ख्यानुस्य ह्याः स्थ D3

AREA:	EWIN	PASS		HOLE NO.	EPT-0	_ DATE: _	<u>August</u>	15/80	ANAI	_TZY_	Bernie			-
LAB, NO.	SAMPLE NO.	SEAM	INTERVAL (METRES)	FRACTION	AIR DRY LOSS	% MOISTURE	X ASH	% V.M.	, F.C.	F.S.1.	SULFUR	% YICLD	Kcal/ kg	CALC.
80-163	1	2	1.91-5/6:	RAW		6.35	21.54	4		0				AD8
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							23.60			ļ				D3
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						Lamaria Late	31.65				<u> </u>			D3
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						re commensus	27.84				į	1.,		D5
				1.5 FLOAT		4.29	1	30.36	56.65	0		, 26_		A08
			<u> </u>]	31.72	59.19	.0				D3
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				FLOAT		4						ļ		ADS
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HOLE NO. EDT-1 DATE: August 15/80 ANALYST Bernie AREA: EWIN PASS LAB. CALC. SAMPLE INTERVAL AIR DRY % Kcal/ F.C. [F.S.I.] SULFUR TIELD no. (METRES) FRACTION LOSS MOISTURE ASH V.M. kα BASIS NO. SEAM A03 8 RAN 80-166 1 29.35 -2.25 11.47 44.46 ARB 80 11_73 1.5 FLOAT ADB 4.04 28.57 64.79 67_ 2-60. DB 4.15 29.33 66.52 : . . . FLOAT ADB D3FLOAT AUS. चन्द्रकार्यसम्बद्धाः जन्म 98 ACB RAW 80-167 2.31 10.85 2 150.44-159.79 ARB 93 Lucia di Bartini _ FLOAT AD3 ___2_47_ 4 77 28 84 63 92 DΒ 65.54 4.89 29.57 FLOAT AD3 विस्तरम् वर्षसञ्जला GĐ. FLOAT A93 03 A98 Above 4 <u>.13_75</u> 80-168 3 212,80 ~ ___2__13__ ARB223.93 11. 15 July 1 DB. 14.05 1.5 FLOAT 2.22 3.47 29.21 65.10 71 08 ' 3.55 29.87 66.58 FLOAT ADS 08 ADS FLOAT enter de la companya 09

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HOLE NO. EPT-2 DATE: August 15/80 AMALYST Bernie AREA: EWIN PASS SAMPLE AIR DRY % LAB. INTERVAL % CALC. Kcal/ F.C. F.S.I. SULFUR YIELD NÜ. SEAM (METRES) 1.088 MUISTURE NO. FRACTION ASH V.M. BASIS ADB 2.82 10.50 80-169 20.00ł. RAN 0 31.31 ARS DB. 10.80 1.5FLOAT 3.59 3.44 28.72 AC3 64.25 68 DB 3.57 29.79 66.64 FLOAT ACB. D3FLOAT ADS DB. ACB. 80-176 203.20-RAW 3.33 15.37 2 225.80 15.90 DB5 FLOAT 3.71 3.55 29.16 63.58 £3 3.69 | 30.28 | 66.03 FLOAT A06 98 FLOAT ADD 08 RAW A03 AR3 03 FLOAT <u>ক্ষেত্রী</u> 53 FLOAT 80A Tagas nyasana I 50 FLOAT A03 33.00 DB

AREA: EWIN PASS HOLE NO. EPT-3 DATE: August 15/80 ANALYST Bernie LAB. SAMPLE INTERVAL AIR DRY % CALC. % Kcal/ F.C. F.S.I. SULFUR YICLD NO. SEAM (METRES) FRACTION MOISTURE NO. LOSS ASH V.M. BASIS ADB 80 - 1711 40.79 -RAW 4 5.76 10.86 0 46.94 ARB 03 11.52 1.5 FLOAT 4.14 29.27 4.07 62.52 0 ADB. 64 DB 4.25 30.53 65.22 FLOAT ADS D3 FLOAT E5A ₽B ----RAW 4.89 19.53 30 - 1721 54.00 -______ ARB 77.43 أأختف نبغرا والمجاثا 20.53 1.5 FLOAT A03 7.44 30.18 <u> 5.21</u> 57.17 er Transfer DB 7.85 31.84 60.31 FLOAT AD8 98 FLOAT 808 DЗ AR9 03 FLOAT ABS E3 FLOAT 93 TERE----FLOAT Topics of State States **** हरा*सा* अस्तर क DB

HOLE NO. EPT _4 DATE: August 15/80 AREA: EWIN PASS ANALYST Bernie LAB. SAMPLE AIR DRY INTERVAL % Kca1/ CALC. tio. LOSS F.C. F.S.I. SULFUR YIELD NO. SEAM (METRES) FRACTION MOISTURE V.M. ASH DASIS kα AD3 RAW 80-173 Ί 22.02 -1.65 .78..57 43.06 ARB D3 79.98 FLOAT NØ FLOAT AD3 03 FLOAT ADB FLOAT AP8 DB AEB RAW DĐ FLOAT SGAD3FLOAT AD3 93 FLOAT ADB $\mathcal{C}\mathcal{B}$ ADS ARB DBFLOAT 93 . FLOAT SCA DB FLOAT ADB DB

ANALYST Bernie HOLE NO. EPT-5 DATE: Aug 15/80 AREA: FWIN PASS AIR DRY CALC. % % LAB. SAMPLE INTERVAL % % Kcal/ F.C. F.S.I SULFUR YIELD (METRES) 1,088 MOISTURE BASIS SEAM FRACTION ASH V.M. NO. NO. ADB RAW 0 80-174 63.51 -2.83 13.84 1 AR8 81.57 D313.87 1.5 FLOAT ADB 2.80 5.55 31.11 50,54 ÐB 32.01 5.71 62.28 FLOAT AD3 ---DB AD3 FLOAT DB EGA RAW 1.33 52.30 134.22 ~ 80-175 2 ARB 143.30 53.00 DB 1.5 FLOAT 2.42 5.57 31.04 60.97 AD3 63 5.71 31.81 62.48 FI.OAT SCA 08garage and transfer and the second FLOAT AD3 03 A93 AR3 53 FLOAT DB FLOAT ADB taran tempajah 03 ADB. FLOAT DB.

4. . HOLE NO. EPT - 6 DATE: August 15/80 ANALYST Bernie AREA: EWIN PASS CALC. SAMPLE INTERVAL AIR DRY % % Kcal/ LAB. F.C. F.S.I. SULFUR YIELD LOSS MOISTURE V.M. BASIS (NETRES) NO. NO. SEAM FRACTION ASH kα AD3 80-176 1 38.65 RAW 2.12 24.59 43.30 AE8 OS J.5FLOAT ADB 2.37 3.67 27.42 66.54 DB 3.76 28.09 68.15 FLOAT 408 03 ADB FLOAT DB ADB RAW 54.47 -80-177 2 2.09 26 - 8764.64 AR3 Harris Artes 03 27_44 1.5 FLOAT A03 65.12 4.17 28.88 98 4.25 29.42 .66.33 FLOAT ADB THE CONTRACTOR 26 FLOAT ADS £8 AD3 RAU ARB 80 FLOAT 03 TLOAT ,60A trara inggalanya 03

Mark Services

DB

FLOAT

AREA: IN PASS HOLE NO. TRENCH DATE: MAR. 4/81 ANALYST BERNIE & L. REN.

1 AB.	SAMPLE NO.	Hole NO. SEAM	INTERVAL (METRES)	FRACTION	AIR DRY LOSS	% MU1STURC	% ASH	% V.M.	% F.Ç.	F.S.I.	SULFUR	¥ YICLO		· C. B.
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				1.5 FLOAT		1.43	4.34	29.90	64.33	0 स्टशहरू		•68 নান্ <i>ন</i> া		1
						30/3/98	4.40	30.33	65.27	જુંદ કહેલ				<u> </u>
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,						14 16 F - 10 14 F	9.96					
			21.98	1.5 FLOAT		1.30	5.84	31,11	61.75	0	59	
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AREA: EWIN PASS TRENCH HOLE NO. TRENCH DATE: MAR. 4/81 ANALYST BERNIE & 1 LEN Kcal/ C/ AIR DRY % LAB. SAMPLE Hole No. INTERVAL F.C. F.S.1. V.M. SULFUR YIELD **FRACTION** LOSS MOISTURE ASH kq (METRES) NO. NO. SEAM 0 9,61 12.83 RAW 11,42 . 1. 80T - 826.19 --80 -33.85 14.19 263 1.5 FLOAT 53 62.76 0 4.45 30.22 2.57 4.57 32.04 63,39 FLOAT FLOAT 772.7 RAW 7.92 14,71 2.17 61.77 -80-264 2 80T-14 15.04 77.94 1.5 FLOAT 65 0 28.16 66.04 4.71 TIO, 4.76 28,47 66.77 FLOAT 133.75% FLOAT RAW 2.07 9.36 Reins 50.68 80T-13 80-265 1 9.56 68.31 1.5 FLOAT 67 4.68 28.44 66.02 0 4.72 28.68 66.60 FLOAT FLOAT

1 .

AMALYST BERNIE & DAF HOLE NO. TRENCH JE: MAR. 4/81 AREA: EWIN PASS CAL 'Kcal/ % AIR DRY % INTERVAL SAMPLE LAB. Hole No F.C. F.S.I. SULFUR YIELD BAS kg MOISTURE V.M. LOSS ASH FRACTION (METRES) SEAM 110. NO. AD 0 3.17 20.92 15.13 RAW AR 30.35 -80T-9 .01 80-479 DB 1.16.11.12 21.61 63.69 AC 43 1.5 FLOAT 0 4.75 31.78 1.87 7 V 4 6 1 DB 32.38 4.84 AΓ FLOAT DS ΑE FLOAT Dŧ Αŧ RAW 13.87 3.74 10.77 A! <u>...</u> DI 104.82 -80T-12 02 80-480 11.19 118.07 ΑI 1.5 FLOAT 48 63,48 0 2.03 3.68 30.81 D' 64.79 31.45 3.76 A FLOAT Ð <u>A</u> FLOAT D 0 16.21 2.97 RAW 80T-12 122.10 -80-481 03 £ 16.71 191.15 1.5 FLOAT 62.80 0 5.81 29.68 1.71 34.0 63,90 5.91 30.19 FLOAT teo V FLOAT

AREA: EWIN PASS HOLE NO. TRENCH DATE: MAR. 4/81 ANALYST BERNIE & D .N

LAB. NO.	SAMPLE NO.	Hole No. SEAM	INTERVAL (METRES)	FRACTION	AIR DRY LOSS	% MOISTURE	% ∧SH	% V.M.	% F.C.	F.S.I.	SULFUR	X X	Kcal/	CA BA
				RAW	12.88	3.46	12.44			0				A
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80-266	2	80T-13	88.83-				12.89							D
ļ			110.13	1.5 FLOAT		1.22	5.01	29.01	64.76	0		51		A
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80-267	1	80T -	185.45 -					•						Ā
		16	193.39		Side AND		16.35							D
				1.5 FLOAT		1.55	5.48	28.06	64.91	0		38		ß
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1				RAW	8.93	3.97	8.27			0		· · · · · · · · · · · · · · · · · · ·		A
80-268	1	80T -	11.61 -						 -					A
		18	16.91		8.93		8.61				}. 			C
;				1.5 FLOAT	Here Harris	1.17	4.88	30.71	63.24	0		69		<u> </u>
				F1 557			4.94	31.07	63.99	7				D
				FLOAT		्रमञ्जा स्टब्स्				4633939		##₩# @ \$ ₩#	. <u></u> .	P
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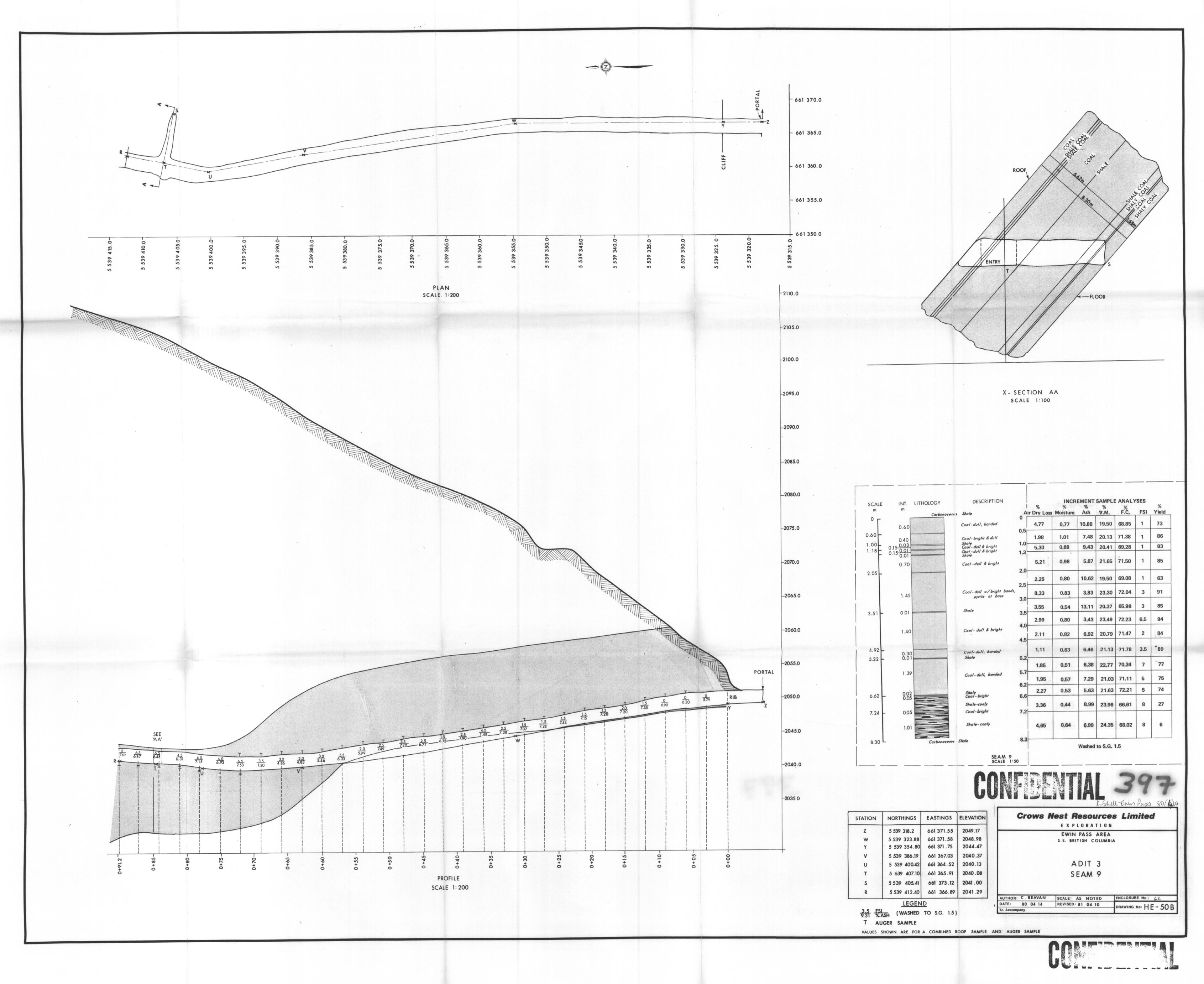
HOLE NO. TRENCH EWIN PASS AREA:

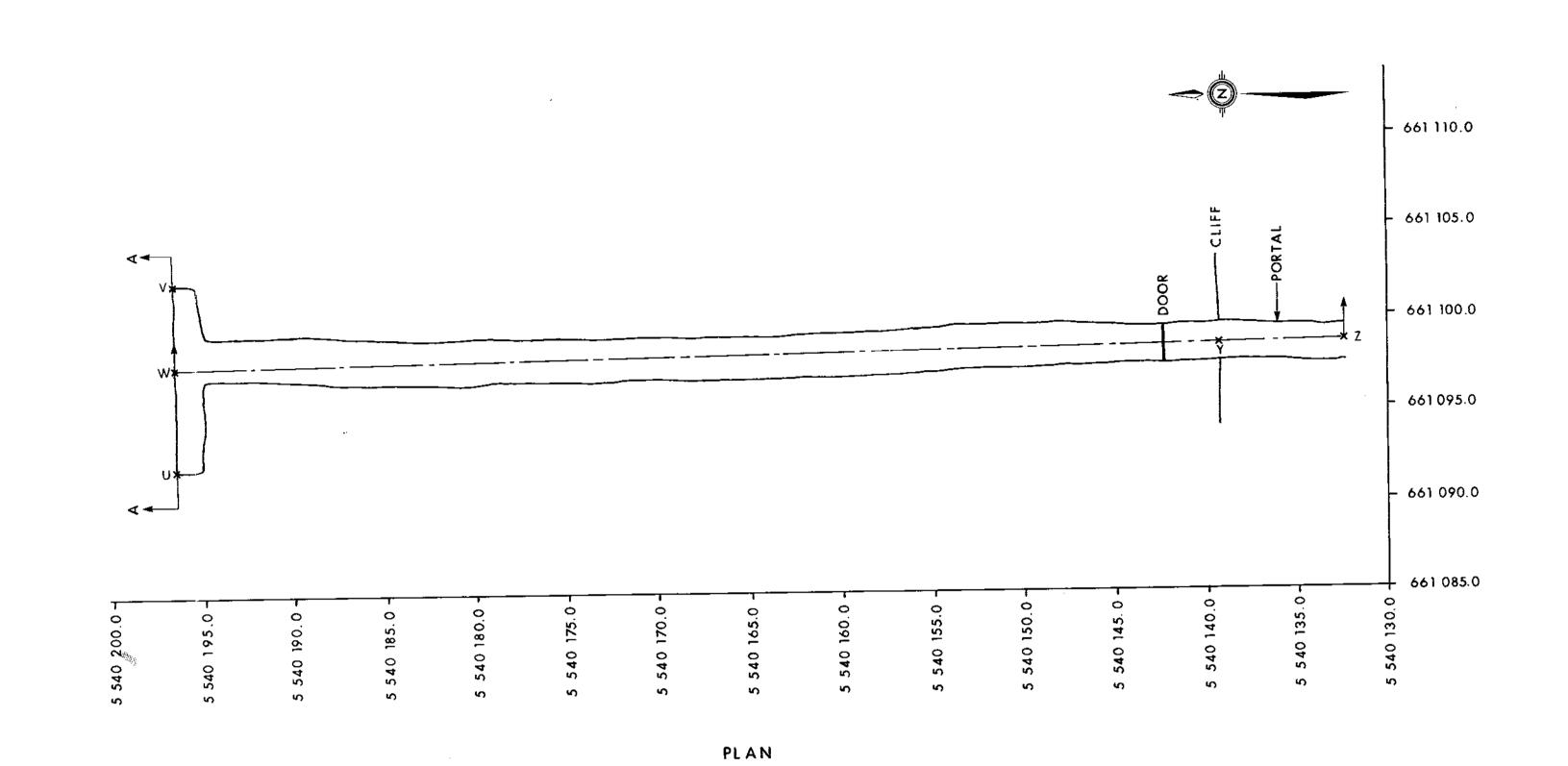
DATE: MAR. 4/81 ANALYST BERNIE & L EN ...

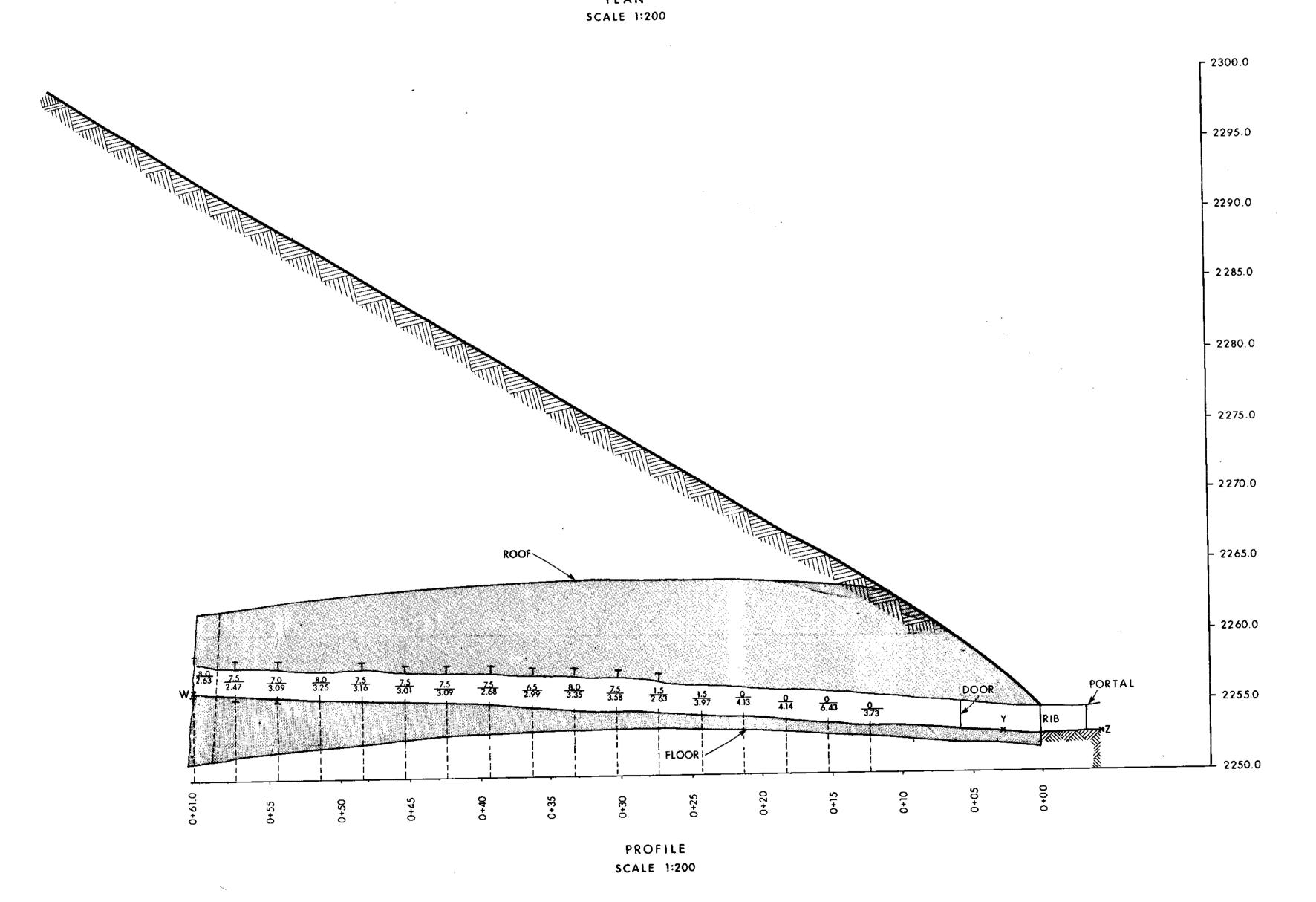
AIR DRY Kcal/ Ci H01e NO. LAB. SAMPLE INTERVAL % % |F.S.I| SULFUR |YICLD| MOISTURE **FRACTION** LOSS ASH V.M. F.C. B_I SEAM (METRES) NO. NO. · kq RAW 6,91 2.71 8.31 80T-29 36.86 -80-275 1 40.95 8.54 1.5 FLOAT *73 3.74 29.56 65.05 0 1.65 Contract Contract 66.15 3.80 30.05 FLOAT FLOAT 3.05 15.78 RAW 7.25 0 * 1 × 1 × 1 80-276 80T-29 88.78 -2 16.28 106.68 1.5 FLOAT 1.51 3.74 30.63 64.12 0 57 3.80 31.10 65.10 FLOAT 13 FLOAT A STATE OF THE STA RAW 6,78 2.29 6.57 80T-29 120.04-80--277 3 6.72 1.5 FLOAT 123.28 64,35 3.40 30.69 3.45 31.17 65.38 FLOAT FLOAT

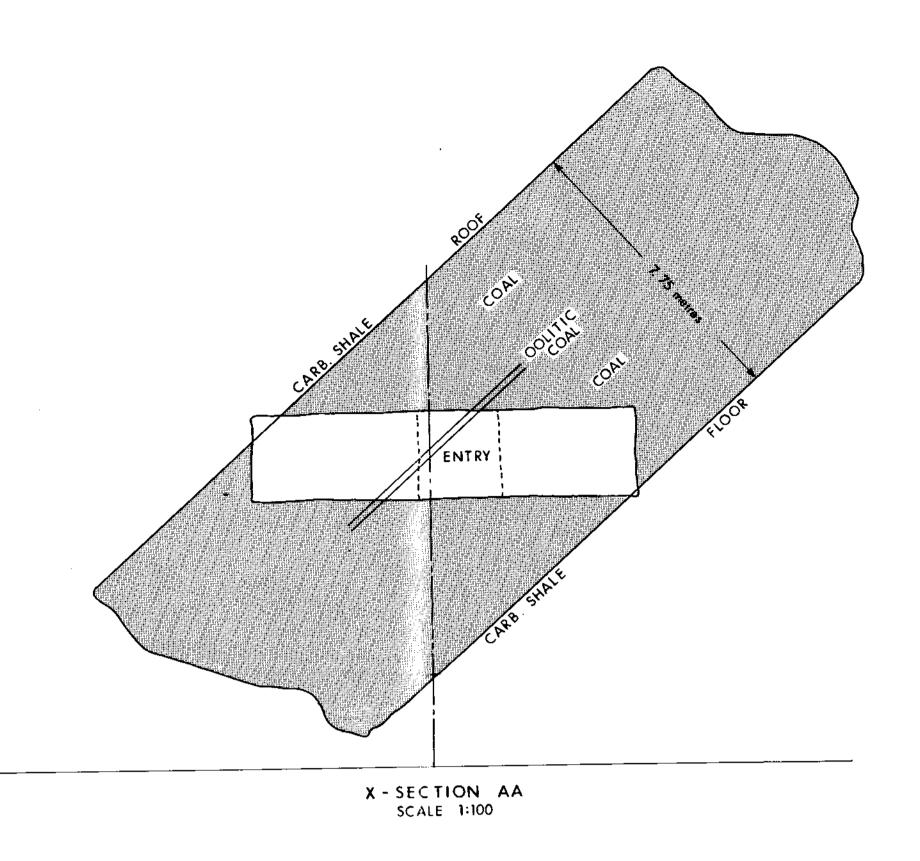
CROWS NEST RESOUR' -- ALYSIS REPORT

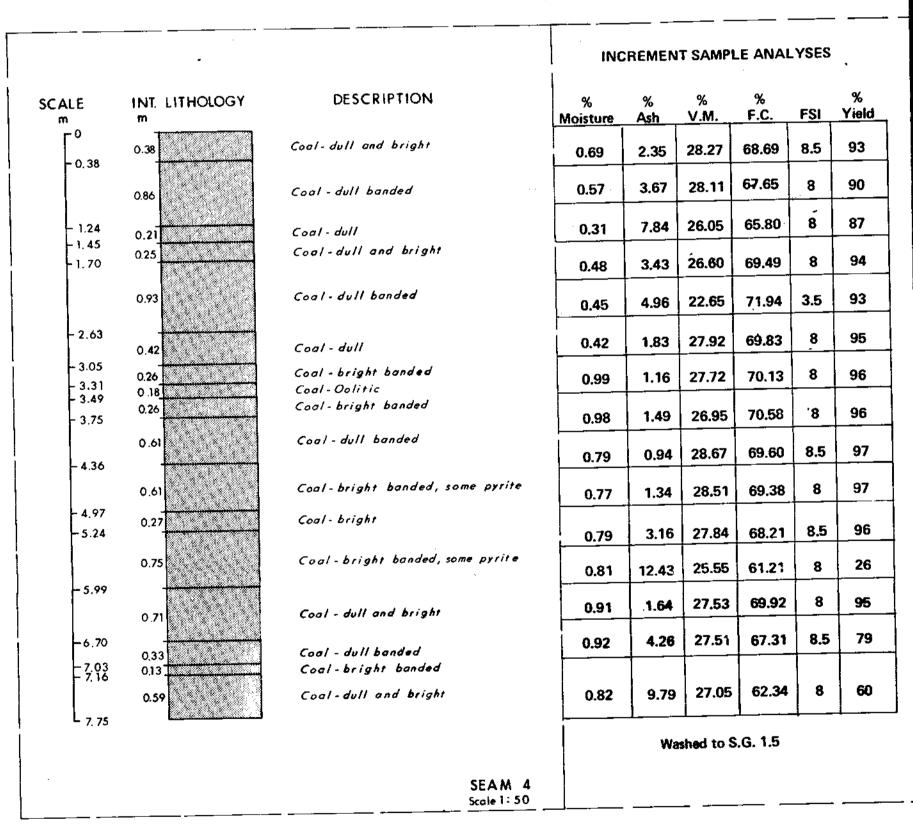
HOLE NO. TRENCH DATE: MAR. 4/81 ANALYST BERNIE & . EN AREA: EWIN PASS Hole No. LAB. SAMPLE INTERVAL AIR DRY % Kcal/ CALI .04 FRACTION SEAM (METRES) MOISTURE F.C. F.S. I SULFUR YIELD NO. LOSS ASH V.M. BAS 2.04 6.96 ADE 11.62 RAW ARI 80-278 4 80T-29 58.20 -D3 7.11 1.5 FLOAT 64.75 1.58 3.71 29.55 65.16 0 AD DB 66.21 30.02 3.77 FLOAT ADE 03 FLOAT ADE DB 11.20 | 2.27 ADE RAN 16.45 0 80-279 5 80T-29 139.82-ARE DB 16.83 143.95 1.5 FLOAT ADE 6.14 28.04 64.58 0 52 6.22 28.39 DB65.39 FLOAT ADE 7 - X DB FLOAT ADE D3RAW 18,77 2.56 ADE 19.67 0 ARE 80-281 1 80T-44 56.29 -*** e a se se DB20.19 59.91 FLOAT ICA 2.38 6.96 30.04 60.62 ÐΒ 7.13 30.77 62.10 SAMPLE TAG HARD TO READ - FADED FLOAT ADS DB FLOAT ADI 13.7 DB











CONFIDENTIAL 397

K-Shell twin Pass 80(18)A

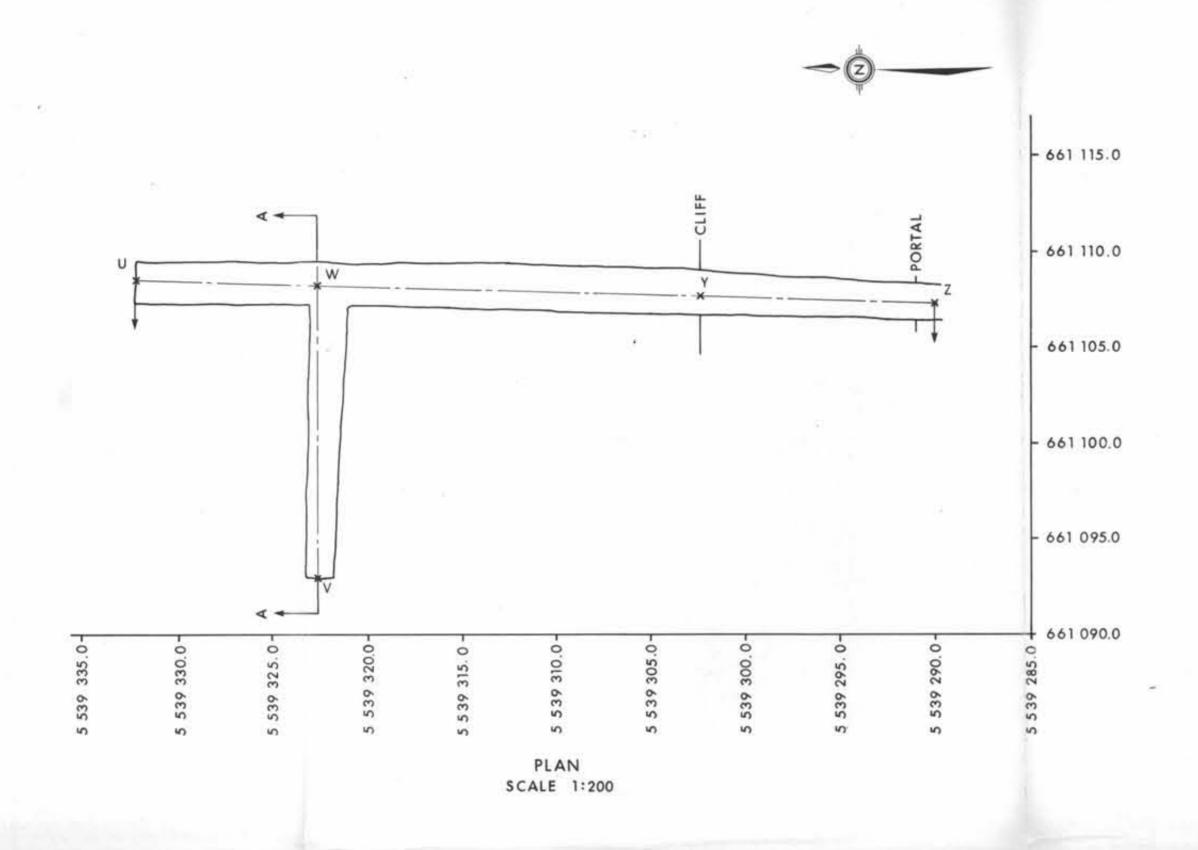
ATION	NORTHINGS	EASTINGS	ELEVATION
Z	5 540 132.03	661 098 . 59	2252.58
w	5 540 138.93	661 098.48	2252.71
Y	5 5 40 198 . 58	661 097.52	2256.72
V	5 540 196.48	661 091.92	2256.72
	5 540 104 44	A61 102 12	2256.73

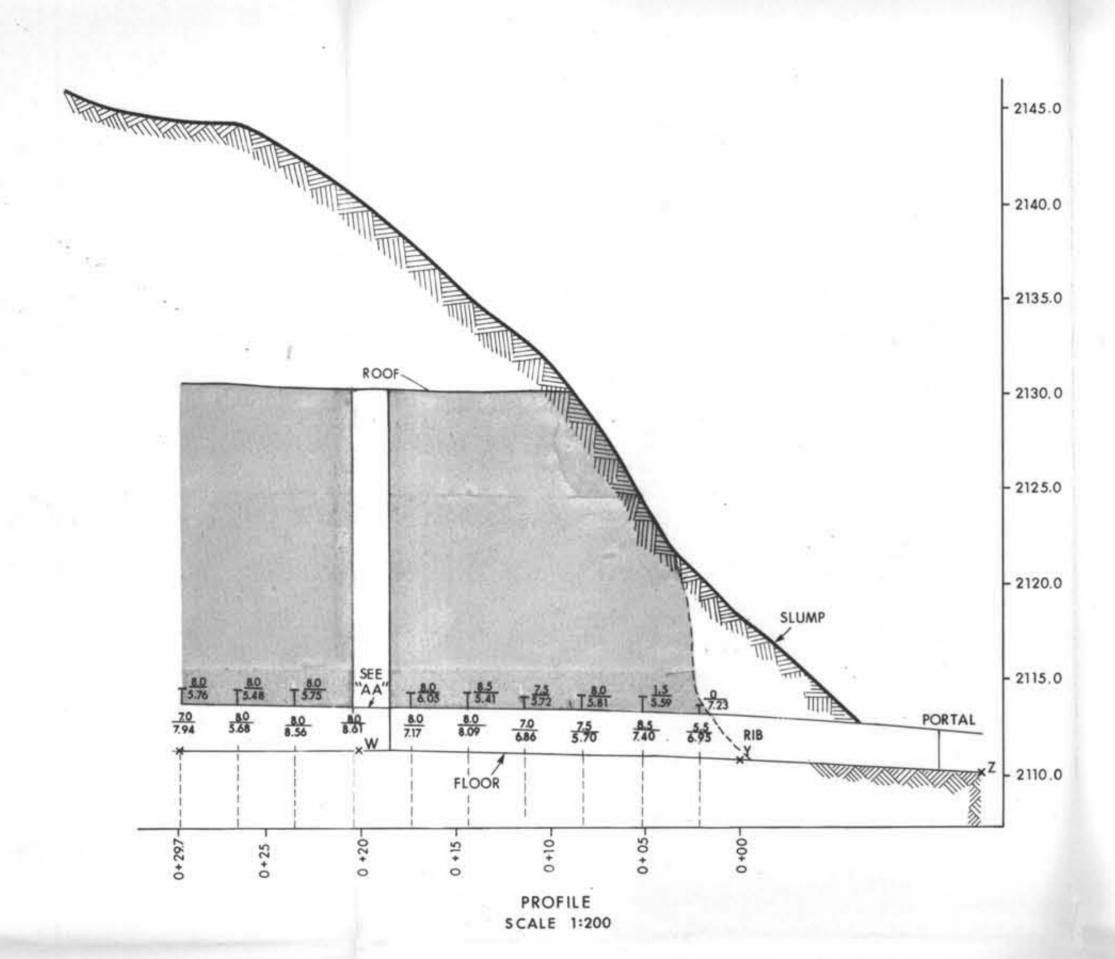
LEGEND

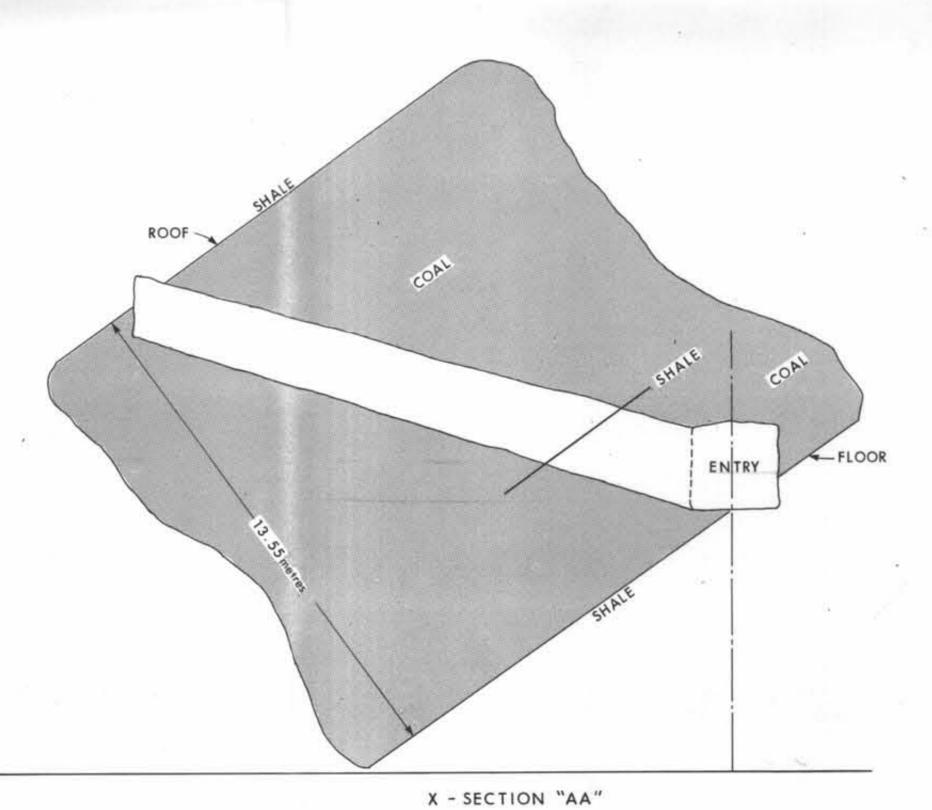
4.5 FSI (WASHED TO S.G. 1.5)

T AUGER SAMPLE
NOTE: VALUES SHOWN ARE COMMINED RIB SAMPLES AND AUGER SAMPLES

Crows N	lest Resource	s Limited
	EXPLORATION	l
<u> </u>	EWIN PASS AREA	•
	S.E. BRITISH COLUMB	IA
	ADIT 2	
	SEAM 4	
	Jesus, as NOTED	ENCLOSURE No : 66
AUTHOR: C. BEAVAN	REVISED: 81 04 09	
DATE: 80 04 09	REVISED: 01 00 01	— DRAWING NO: HE - 50 A







SCALE 1:100

SCALE	INT. LITHOLOGY	DESCRIPTION	0	Moisture	REMEN' % Ash	V.M.	F.C.	YSES	% Yield
[0	0.36	Coal - bright		0.79	2.68	27,36	69,17	8	
- 0.36 - 0.67	0.31	Coal - dull	0.5	0.70	5.23	26.97	67.10	8	
	1.18	Coal-dull and bright	1.0	0.50	4,63	27.26	67.61	8,5	
- 1,85			2.0	0.42	4.01	26.99	68.58	8.5	
	0.61	Coal - dull	-	0.32	4.98	25.48	69.22	8	
- 2.46 2.60	0.14	Coal-bright banded	2.5	0.33	5.53	25.46	68.86	8	
	0.70	Coal - dull	3,0	0.87	4.11	26.72	68.30	9	
- 3.30			3,5	10000	Direction of the control of the cont		Company of		
	1. 25	Coal-dull & bright; some pyrite	4.0	0.76	2,93	27,16	68.15	8.5	
- 4.65			4.5	0.72	5,43	28.66	65.19	8,5	
- 4.92	0,37	Coal-bright	5.0	0.77	5,01	28.29	65.93	8,5	
		According to the second	5.5	0,54	6.32	27.13	66.01	8	
10000	1.10	Cool-dull and bright	6.0	0.60	5.53	24.75	69.12	7	
- 6.02 - 6.34	0.32	Coal - dull banded	32.00	0.79	4.23	25,62	69.36	8	
-6.72	0.38	Coal-dull	6.5	0.74	4.96	26.22	68.08	8	
- 7.17	0.45	Coal-bright banded	7.0			VIII AND DESCRIPTION OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF T	- Lander	15/1	
7.11	0.57	Coal-dull banded , some pyrite	7.5		5.77	28.33	65.35	8.5	_
- 7.74			8.0	0.28	4.93	29,40	65.39	9	_
			8.5	0.22	6,82	26.41	66.55	8.5	3
	2.01	Coal - bright banded	9.0	0.46	6,87	24.66	68,01	7	
			9.5	0.42	4.41	26.08	69.09	8,5	
= 9.75 9.79	0.04	Shale	10.0	0.36	4,43	27.09	68.12	9_	
- 10.12	0.33	Coal - bright banded Coal - dull	10.5	0,37	7.41	26.60	65.56	8.5	
- 10.64	0.32	Coar - auri	11.0	0.73	5.42	25.02	68,83	8.5	
	0.86	Coal-dull and bright		0.58	6:65	22.09	70.68	6	
- 11.50			11,5	0.58	8.47	24.81	66.14	8	89
	0 - 1 - 1 - 3		12.0	0.55	6.83	25.77	66.85	8.5	88
	2.05	Coal-dull with bright bands	12.5	0,40	7.11	24.49	68.00	8.5	91
			13,0		3.24	26.31	70.13	8.5	95
13.55			13.5			d to S.G.	101/01	0.0	

STATION	NORTHINGS	EASTINGS	ELEVATION
z	5 539 289.84	661 107.29	2110.12
W	5 539 302.49	661 107.71	2110.90
Υ	5 539 322.48	661 108.36	2111.43
V	5 539 322 .60	661 092.85	2116.18
U	5 539 332.04	661 108.68	2111 .93

LEGEND

8.0 FS1 (WASHED TO S.G. 1.5) T AUGER SAMPLE

K-Shell-twin Pass 80/4)A

Crows Nest Resources Limited EXPLORATION

EWIN PASS AREA

ADIT 1 SEAM 8

AUTHOR: C.BEAVAN SCALE; AS NOTED
DATE: 80 04 08 REVISED: 81 04 13 ENCLOSURE No : 6a DRAWING No: HE - 50