957088

CRA EXPLORATION PTY. LIMITED

DRILL-HOLE SUMMARY LOG

EL NAME: ZEEHAN 1 HOLE NAME: DD92ZS1
EL NUMBER: EL 28/88 PROSPECT: STONEHENGE
DATE DRILLED: NOV 1992
LOGGED BY: RGP

AMG EAST: 359800 E GRID EAST: 12125E
AMG NORTH: 5359300 N GRID NORTH: 5115N
RL: ~257 m ASL TOTAL DEPTH: 251m

DEPTH	AZIM. (MAG)	INCLIN.
0	048°	-50°
83	054°	-51.5°
166	051°	-53°
241	051°	-52.5°

OBJECTIVES OF HOLE:

To test Gribbo's Shear Zone where it is interpreted to cut Oonah Fm sulphidic black shales. In this position Zn mineralisation may be enriched or focussed.

LITHOLOGICAL SUMMARY:

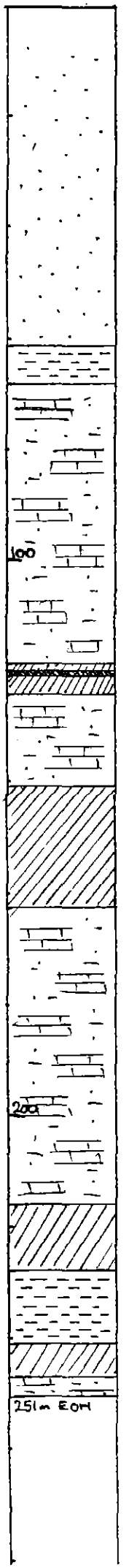
DFROM	DTO	COMMENTS
0	61.1	Sandstone/qbarbeite
61.1	68.1	Carbonaceous shale +10% dissem py
68.1	119.2	Siltstone - dolomite
119.2	124.3	Siderite alteration zone. 120.3-121.0 = massive ga-sp-py
124.3	141.0	Dolomite
141.0	162.8	Siderite altern zone.
162.8	216.3	Siltstone - dolomite
216.3	228.3	Siderite altern zone.
228.3	241.4	Carbonaceous shale
241.4	247.4	Siderite altern zone
247.4	251.0	Siltstone - dolomite

MINERALISATION SUMMARY:

DFROM	DTO	COMMENTS	
119.2	121.35	2.15m @ 7.78% Zn, 10.08% Pb, 191.3 ppm Ag	(0.5% Zn c/off)
143.5	162.85	19.35m @ 1.52% Zn 0.41% Pb 5.7 Ag	-"-
223.8	234.0	10.2m @ 1.40% 0.46% 9.8	-"-

CONCLUSIONS:

Wide zones of low-grade sphalerite mineralisation within structurally controlled siderite alteration envelopes. Unlikely to be of economic significance.



AMG 359800E 5359300N 12125E

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 1 of 13

TENEMENT NAME ZEEHAN 1 No. EL 28/88

PLAN – MAP REFERENCE

CO-ORDINATES 5115N AZIMUTH 048° MAG DRILLERS DIAMOND DRILLING TAS COMMENCED 11/11/92 DEPTH 251.0m HOLE No. DD92ZS1

RL COLLAR ~257m ASL INCLINATION -50° DRILL TYPE LY38 COMPLETED 20/11/92 CASING LEFT HQ 54-78m DPO No(s) 71523

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....)
0	0.3	–	PRECOLLAR		IRONSTONE. Surficial vuggy yellow-brown ironstone	Roller bit precollar. Lithologies + depths based on sump extraction + drill cuttings.					
0.3	5	–	PRECOLLAR		CLAY. Yellow structureless saprolite?						
~5	14.5	–	PRECOLLAR		SANDSTONE. White to light grey. fine gls. Oonah Fm.						
14.5	20.5	3.5	HQ		SANDSTONE. White to light grey fine gls qtz sst. Locally laminated. Totally broken with numerous sandy clay shear zones with no recovery. Oonah Fm.	Pyrite - rare traces of disseminated euhedral grains.	3314010	14.5	17.1	1.9	
							3314011	17.1	20.5	1.6	
20.5	25.0	0	HQ		SANDY CLAY SHEAR. No recovery.						
25.0	30.4	0.8	HQ		SANDSTONE. As for 14.5-20.5m		3314012	25.0	28.0	0.2	
							4013	28.0	32.5	1.1	
30.4	32.5	0.5	HQ		SANDY CLAY. Unconsolidated white to light grey clay and sand.						
32.5	34.0	0	HQ		NO RECOVERY						
34.0	~35.5	0.2	HQ		SANDSTONE. As for 14.5-20.5m. Lower contact is approximate, between 34.3 to 36.7, due to severe core loss		3314014	34.0	37.0	0.45	

DRILL RUNS

FROM	TO	REC
0	14.5	–
14.5	16.0	0.9
	17.1	1.0
	19.0	1.25
	20.5	1.35
	22	0
	25	0
	28	0.2
	30.4	0.6
	32.5	0.5
	34	0
	37	0.45

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DRILL CORE LOG

SHEET No. 2 of 13

TENEMENT NAME ..... No. EL28/88

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH 048° mag DRILLERS DD TAS COMMENCED 11/11/92 DEPTH ..... HOLE No. ZS1

RL COLLAR ..... INCLINATION -50° DRILL TYPE LY38 COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....)	DRILL RUNS FROM	DRILL RUNS TO	DRILL RUNS REC
~35.5	43.8	3.0	HQ		QUARTZITE / SILICIFIED ROCK. Light to dark grey. Fractured and vuggy. Probable shear and breccia zones in areas of no recovery. Local disseminations and fracture coatings of py, up to 5%, but overall ~0.5%. Rock is massive, unable to determine whether the unit is quartzite or silicified sediment. No visible bedding. No core in pieces >10cm, badly fractured. 37.5m Fract - C.A ∠ 60° 37.6m " " 30° 37.7m " " 55° 38.7m " " 70°		3313015	37.0	41.7	2.3		37	37.3	0.5
							3314016	41.7	43.8	0.5			38.7	1.5
													41.7	0.3
							3313715	PET	37.85		Pyritic Siliceous Sinter		43	0.25
													43.8	0.25
													45.9	0.2
													49	0.4
													52	0.5
													55	0
													58	0
													61	0.5
43.8	52.0	1.1	HQ		QUARTZITE / SILICIFIED ROCK Light grey. Silicified rock or massive quartzite? Very strongly vuggy - almost honeycombed. Strongly broken + cut by carbonaceous shears. No core in pieces >10cm. Severe core loss. No visible sulphides		3314017	43.8	45.9	0.2				
							4018	45.9	49.0	0.4				
							4019	49.0	52.0	0.5				
52.0	58.0	0	HQ		NO RECOVERY									
58.0	61.1	0.5	HQ		QUARTZITE / SILICIFIED ROCK. As for 43.8 - 52.0m		3314020	58.0	61.1	0.5				

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 3 of 13

TENEMENT NAME ..... No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. ZS1

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....)	DRILL RUNS From	DRILL RUNS To	DRILL RUNS REC
61·1	68·1	5.85	HQ		CARBONACEOUS SHEAR.		3314021	61·1	63·4	1.85		61	62	0·75
					Shiny black. Carbonaceous and graphitic shear zone with		4022	63·4	65·8	1·9			63·4	1·1
					10-20% very fine g/s dissem. py. Minor calcite		4023	65·8	68·1	2·1			64·7	1·1
					wisps and veinlets.								65·3	0·6
					Graphitic shear surface is wavy + generally irregular.		3313776	PET	66·0		Pyritic Carbonaceous		65·8	0·2
					61·4m shear surface to c.A. ∠ ~40°						Shale.		66·8	0·9
					61·5m " " ~50								68	1·15
					62·5m " " ~50								69·3	0·85
					63·8m " " ~60								70	0·7
					66·5m " " ~55								72·3	2·2
					67·4m " " ~50								75·4	3·1
68·1	68·3	0·2	HQ		CARBONATE BRECCIA.									
					White to light grey. Brecciated clay and carbonate.									
					Rare traces of galena + sphalerite?									
					Contact zone between carbonaceous shear and									
					limestone.									
68·3	72·9	3·9	HQ		LIMESTONE									
					White to light grey massive limestone. Abundant		3314024	68·1	72·9	4·1				
					network of narrow calcite veins making up 20% of									
					core volume.		3313777	PET	71·0		Dolomite Rock.			
					Minor narrow sphalerite veins, generally <2mm									
					wide, 0.2% of core volume.									
					Core is competent, commonly as pieces >10cm.									

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

SHEET No. 4 of 13

TENEMENT NAME..... No. .....

PLAN – MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. ZS1

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)	DRILL RUNS From	DRILL RUNS To	DRILL RUNS Rec.
72.9	90.8	15.8	HQ/NQ		LIMESTONE		3314025	72.9	77.8	2.94.7		75.4	77.8	2.2
					Light grey laminated limestone. Laminations probably		4026	77.8	82.0	3.7			79	1.1
					due to silty bands. White calcite vein network		4027	82.0	86.0	4.0			80.6	1.2
					comprising 20% of core vol. Between 80.6-82.0m veining		4028	86.0	90.8	4.4			82	1.4
					is so intense (60% of vol) that rock is 1st breccia with								85	3
					calcite matrix.								88	3
					Laminations contorted, but generally at low $\measuredangle$ to c.A								89.6	1.35
					Sphalerite veins, ave 2mm wide at 74.4m.								90.6	1.3
					Core competent, mostly as pieces >10cm. Broken								92.1	1.05
					zones 79.8-80.3m, 88.8-89.6m.								94	1.75
					74.9m So to c.A $\measuredangle$	20°							95.1	0.55
					82.0m " "	45°								
					85.0m " "	15°								
					86.8m " "	40°								
					90.0m " "	20°								
					* REDUCED TO NQ AT 77.8m.									
					* DOWNHOLE SURVEY 83m	51.5° → 054° MAG								
90.8	95.25	3.7	NQ		SILTSTONE		3314029	90.8	95.25	3.7				
					Grey well laminated siltstone, probably									
					calcareous. Upper contact with limestone gradational									
					between ~90-90.8m. Minor calcite veins,									
					generally 0.5-5mm wide, some ll to S_o, approx									
					5% of core volume. Between 92.5m-93m are									
					5-20mm wide siderite-sphalerite veins. Sp approx									
					5% of interval									
					Core moderately broken. Sheared 91.7-91.9m.									
					91.4 S_o to c.A $\measuredangle$	30°								
					92.2 " "	40°								
					93.2 " "	15°								

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 5 of 13

TENEMENT NAME..... No. .....

PLAN – MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. ZS1

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)	DRILL RUNS From	DRILL RUNS To	DRILL RUNS REC
95.25	115.6	15.4	NQ		LIMESTONE AND SILTSTONE		3314030	95.25	100.0	4.5		95.1	97	1.75
					Light grey weakly laminated limestone grading to darker grey, more strongly laminated calcareous siltstone. Gradations are broad and indistinct. Siltstone becomes more dominant with increasing depth.		4031	100.0	105.0	3.7			98.9	1.75
							4032	105.0	107.5	2.1			100	1.1
													102.6	2.4
							3314033	109.4	112.9	2.6			103.2	0.4
					Network of 0.5 to 5mm calcite veins, 5-10% of rock volume.		4034	112.9	115.6	2.5			105.2	1.0
													106	0.8
					Core competent above 100.5m, then strongly fractured below. Cavities 107.5-109.4m, and 50cm between 103.2-105.2m.		3313778	PET	102.0		Carbonaceous Siliceous Dolostone.		107.5	1.2
													109.4	0
													109.9	0.4
					At ~~97.1~~ 113.8m is narrow sp-ga vein that overprints calcite network veins.								111.5	1.5
													112.9	0.7
					97.1m S_o to c.A. ∡ 45°								115	2.0
					102.0 " " 10								115.6	0.5
					102.4 " " 20								119.2	0
					103.4 " " 25								121	1.45
					110.3 " " 5									
					113.2 " " 5									
					113.8 " " 10°	$S_o \rightarrow V_{sp}$ ∡ 85°								
					113.8 V_{spga} ∡ 20°									
115.6	119.2	0	NQ		CAVITY								CO	
													CO	
119.2	120.3	0.9	NQ		SIDERITE VEIN		3314035	119.2	120.3	0.9			CO	
					Light brown. Coarse g/s siderite vein with 1-2% each of sphalerite and galena.								CO	
													CO	

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

TENEMENT NAME..... No. .....

PLAN – MAP REFERENCE.....

CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. ZS1

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)	DRILL RUNS From	DRILL RUNS To	DRILL RUNS Rec
20.3	121.0	0.55	NQ		MASSIVE (VEIN) SULPHIDE		3314036	120.3	121.0	0.55		121.0	121.8	0.8
					Massive (probably vein) sulphide composed of 40% galena, 20% sphalerite, 10% pyrite 30% siderite and calcite gangue.								124	2.1
					Sulphide is cavernous and vuggy – at low ∠ to C.A ~20°. True width is therefore <0.7m.								124.3	0.25
													126.7	1.65
												?	128.9	0.6
													129.3	1.8
													130.0	0.55
121.0	121.35	0.35	NQ		SIDERITE VEIN		3314037	121.0	121.35	0.35			133	2.75
					As for 119.2 – 120.3m but with 5mm sp-ga vein at 121m = end of massive sulphide vein.								136	2.95
					121m V_s – C.A ∠ 20°								139	2.8
													139.5	0.6
													142	2.5
21.35	124.3	2.8	NQ		SIDERITE ALTERED LIMESTONE		3314038	121.35	124.3	2.8				
					Light grey with light brown tinge. Massive fine g/s carbonate rock with minor to moderate amounts of siderite as veins and pervasive alteration. Also 5-10% white calcite veins. Minor sp-ga-py mineralisation associated with heaviest siderite development, especially 123.7m.									
124.3	141.0	15.1	NQ		LIMESTONE		3314039	124.3	129.3	4.05				
					Light grey massive unlaminated. Network of 0.5–3mm wide calcite veins, 5-10% of core vol.		4040	129.3	133.0	3.3				
					Locally (esp 130–133m) 1st shows sedimentary breccia textures – 1-5mm grey 1st fragments in light grey 1st matrix.		4041	133.0	138.0	4.9				
					Some black convoluted material at 135.4, look like stylolites.		4042	138.0	141.0	2.9				
					Partly sheared + more intensely calcite veined 130–130.8m.									
					Low levels ~0.5% sp-ga throughout interval in									

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

SHEET No. 7 of 13

TENEMENT NAME ..... No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. ZS1

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) DRILL RUNS From	TO	REC	RQ
124.3	141.0	CTD			calcite and siderite veins. Siderite veins overprint calcite veins. Better mineralisation at 129.4m, 132.3m, 132.9m.						142	145	2.65	3
												147.2	1.65	2
					130.3 Calcite breccia – C.A ∡ 35°	Bx$_{cc}$ – V$_{cc}$ ∡ 0°								
					130.4 V$_{cc}$ – C.A. 65°									
					130.45 Bx$_{cc}$ 40°									
					130.6 V$_{cc}$ 65°									
					131.3 V$_{cc}$ 50°									
					132.9 V$_{cc\,sp}$ 70°									
					136.2 V$_{sid}$ 20°									
					136.7 V$_{cc}$ 80°									
					138.8 V$_{cc}$ 70°									
41.0	143.5	2.3	NQ		SIDERITE VEINED LIMESTONE		3314043	141.0	143.5	2.3				
					Light grey to light brown calcite veined limestone as for 124.3 – 141 m.									
					Irregular vuggy light brown siderite veins 2-10mm wide, at low ∡ to C.A 5-10% of core vol.									
					Locally contains traces of sp minerals									
					141.2m V$_{sid}$ – CA 10°									
43.5	147.2	1.95	NQ		SIDERITE VEIN		3314044	143.5	145.0	1.3				
					Light brown coarse gls vuggy siderite vein with 1-2% each of sp-ga-py. Within the vein are ragged-rimmed pieces of dark grey totally silicified limestone. These pieces are cut by very fine veinlets of siderite ± sp-ga.		4045	145.0	147.2	1.65				
					Possibility the siderite "vein" is total pervasive siderite alteration of limestone?									
					Between 144.4 – 144.7m is siderite veined lst as for 141 – 143.5m.									

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

TENEMENT NAME.................................... No. ....

PLAN – MAP REFERENCE..

CO-ORDINATES.......................... AZIMUTH.......................... DRILLERS.......................... COMMENCED.......................... DEPTH.......................... HOLE No. ZS 1

RL COLLAR.......................... INCLINATION.......................... DRILL TYPE.......................... COMPLETED.......................... CASING LEFT.......................... DPO No(s)..........................

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by..................)	DRILL RUNS From	DRILL RUNS TO	DRILL RUNS REC	DRILL RUNS RQ
147·2	150·5	2·1	NQ		LIMESTONE		3314046	147·2	150·5	2·1		147·2	148	0·65	4
					Massive calcite veined limestone as for 124·3-141m.								150·1	1·1	5
													153·2	2·7	3
50·5	154·0	2·65	NQ		SIDERITE VEINED LIMESTONE		3314047	150·5	154·0	2·65			154	0·3	5
					As for 141-143·5m.									incl	40cm cavity
54·0	155·65	1·6	NQ		SIDERITE VEINED LIMESTONE		3314048	154·0	155·65	1·6		154	157	2·9	2
					As above, but siderite veins and local pervasive alteration comprise 10-15% of core vol. Siderite veins also contain significant sp-ga-py mineraln. Sulphide % py 2%, sp 1%, ga 0·5%.								159·2	2·0	2
													162·3	2·9	3
					155m V_{sid-sp} - CA ∡ 5°	V_{sid} - V_{cc} ∡ 90°									
					155m V_{cc} - CA ∡ 65°										
155·65	156·35	0·7	NQ		SIDERITE VEIN		3314049	155·65	156·35	0·7					
					Light brown (May be totally siderite altered limestone?) ~~[illegible]~~ Minor fragments of dark grey ragged-rimmed silicified rock. Abundant coarse g/s sp 5% and ga 1%. Sp as zoned crystals, yellow-brown cores, rusty brown rims.										
156·35	162·85	6·0	NQ		SIDERITE VEINED ~~LIMESTONE~~ QUARTZITE?		3314050	156·35	159·35	2·8					
					~~[illegible]~~		4051	159·35	162·85	3·2					
					Gradual increase in scratch hardness and decrease in calcite veining. May be silicified lst?		3313779	PET	161·7		Siderite Rock				
					Light grey, massive - fine g/s. 20% coarse g/s siderite veins at low ∡ - C.A, locally with sp-ga mineraln - especially 157·35m. Interval contains 1% py, 0·5% sp+ga. Massive siderite 161·5-162·3m with minor sp.										

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

SHEET No. 9 of 13

TENEMENT NAME .... No. ....

PLAN – MAP REFERENCE ....

CO-ORDINATES .... AZIMUTH .... DRILLERS .... COMMENCED .... DEPTH .... HOLE No. ZS1

RL COLLAR .... INCLINATION .... DRILL TYPE .... COMPLETED .... CASING LEFT .... DPO No(s) ....

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by ....)
					157.35 $V_{sed-sp-ga}$ – C.A ∢	20°					
					157.9 V_{cc-sp} – ∢	15°					
					159.3 V_{sed-sp} –	15°					
162.85	172.35	9.38	NQ		QUARTZITE ?		3314052	162.85	167.6	4.5	
					Light grey massive qtzite (silicified lst?) and interbedded grey siltstone. Carbonate may be present as black, convoluted stylolites are developed on some qtzite-siltstone contacts.		4053	167.6	172.35	4.85	
							3313780	PET	167.2		Banded Chert-Carbonate Rock.
					2-5% of 0.2-2mm calcite network veins.						
					Carbonate vein breccia between 165.8-166.5m.						
					167.3 S_0 – C.A. ∢	25°					
					168.4 S_0 ∢	20°					
					170.0 S_0 ∢	37°					
					171.2 S_0 ∢	30°					
172.35	176.45	4.0	NQ		QUARTZITE BRECCIA		3314054	172.35	176.45	4.0	
					Light grey massive quartzite (silicified lst?) breccia, becoming less brecciated and more strongly calcite veined below 174.6m.						
					Breccia fragments are generally not angular, and appear to have been plastic during brecciation (∴ sedimentary?). Breccia is ~~[illegible]~~ now silicified.						
					Below 174.6m interval contains 20% of 0.5-10mm white calcite veins.						
					DOWNHOLE SURVEY 166m	–53° → 051° MAG					

DRILL RUNS

From	To	REC	RQ
162.3	163.3	0.95	3
	166	2.45	2
	169	3.1	2
	172	3.1	2
	173.3	1.2	3
	175	1.7	2
	177.4	2.2	3

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

TENEMENT NAME..... No. .....
PLAN – MAP REFERENCE.....
CO-ORDINATES..... AZIMUTH..... DRILLERS..... COMMENCED..... DEPTH..... HOLE No. ZS1
RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....)	DRILL RUNS From	DRILL RUNS To	DRILL RUNS Rec	DRILL RUNS RQ
176.45	194.2	15.6	NQ		LAMINATED SILTSTONE		3314055	176.45	181.0	3.7		177.4	178	0	5
					Dark grey finely laminated siltstone. Laminations 1-5mm wide interbedded 1st units at 179.4-179.9 and		4056	181.0	186.0	3.0			184	1.1	5
					189.6m. Silicified 1st breccia (quartzite breccia?) at		4057	186.0	191.0	4.85			187	2.85	3
					186.5-187.9m.		4058	191.0	194.2	3.05			190	3.0	4
					Numerous 0.5-5mm calcite veins in a preferred								193	2.75	4
					orientation - ie not network veins. Angular siltstone								196	2.9	3
					fragments commonly caught up in veins.								199	2.75	2
					Minor very fine disseminated py in siltstone, ~2%								202	2.90	2
					Trace chalcopyrite? at 181.6m.								203.8	1.75	3
					178.3 S_o - C.A ∢ 5°										
					179 S_o ∢ 0°										
					181.2 V_{cc} ∢ 55°] S_o-V_{cc} ∢ 85°										
					181.2 S_o ∢ 10°]										
					186 S_o ∢ 0°										
					188.6 S_o ∢ 0°										
					189 S_o ∢ 0°										
					189.2 S_o ∢ 15°										
194.2	203.2	8.55			LIMESTONE		3314059	194.2	199.0	4.45					
					Light grey massive limestone. 10% calcite		4060	199.0	203.2	4.1					
					veins 0.5-3mm wide.										
					194.2-197.6 1st breccia (sedimentary?)										
					197.6-198.2 laminated siltstone										
					200 -203.2 30% calcite network veins										
					197.8 S_o - C.A ∢ 15°										

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

SHEET No. 11 of 13

TENEMENT NAME ..... No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. ZS1

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT HQ 54-78m DPO No(s) 71523

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....)	DRILL RUNS From	DRILL RUNS To	DRILL RUNS REC	DRILL RUNS RQ
203.2	212.6	9.55	NQ		LAMINATED SILTSTONE		3314061	203.2	208.2	5.2		203.8	206.8	3.2	3
					Grey laminated siltstone, probably calcareous.		4062	208.2	212.6	4.35			208.2	1.45	3
					Laminations 5-30 mm wide. Boundaries with limestone								211	2.75	1
					are gradational								214	3.45	2
					5-10% of calcite network veins 0.5-3mm. Minor								217	2.45	2
					sp-calcite veins 211.8-212.1m.								220	2.9	2
					203.8 So - CA ∡ 0°								223	3.2	3
					204.7 So 15°								226	2.75	5
					205 So 27°										
					205.2 So 0°	fold									
					208 So 21°										
					209 So 20°										
					211 So 20°										
212.6	216.3	3.6	NQ		LIMESTONE		3314063	212.6	216.3	3.6					
					Light grey limestone with distorted bedding grading to										
					limestone breccia. May be sedimentary/diagenetic										
					deformation?										
					20% calcite stockwork veins 0.5-10mm wide										
216.3	222.95	6.75	NQ		SIDERITE VEINED LIMESTONE		3314064	216.3	219.6	3.2					
					Light grey massive and brecciated limestone with		4065	219.6	222.95	3.55					
					intense calcite and siderite veining. Calcite as										
					1-10mm wide stockwork veins locally containing										
					floating angular lst fragments.										
					Siderite as 5-20mm veins that overprint										
					calcite veins. 10% of core volume overall, but up										
					to 40% between 217-219.5m.										

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

SHEET No. 12 of 13

TENEMENT NAME ..... No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. ZS1

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....)
222.95	223.8	0.8	NQ		SIDERITE BRECCIA Yellow-grey. Dark grey angular siltstone fragments in siderite matrix. Matrix supported. Appears to be controlled along S_0 direction. 10% of 1-5mm siderite veins cross-cutting siderite breccia ⇒ later. Breccia – C.A. ∠ 13°		3314066	222.95	223.8	0.8	
223.8	228.3	3.7	NQ		SIDERITE ALTERED + VEINED LIMESTONE Yellow-grey limestone with 40% pervasive siderite alteration and 20% siderite veins 1-10mm wide. Limestone cut by greasy black carbonaceous shears at low ∠ to C.A. Very greasy (bituminous?) when mixed with water. Significant py-sp-ga mineralisation at boundaries between shears - lst. Approx 20% py, 5% sp and 1% ga. 40% dissem py in lst between 226-226.8m		3314067 4068 4069 4070	223.8 224.6 225.7 226.9	224.6 225.7 226.9 228.3	0.8 1.0 0.9 1.0	
228.3	231.5	2.8	NQ		SHEARED CARBONACEOUS UNIT. Greasy black sheared and brecciated carbonaceous unit. Fine g/s. Unit may not be sedimentary but structurally remobilised. Minor zones of siderite altered and veined limestone. 5% dissem very fine g/s py. Minor sp-ga in siderite veins adjacent to carbonaceous – limestone contacts <1% combined sp+ga.		3314071	228.3	231.5	2.8	
231.5	232.65	1.0	NQ		SIDERITE ALTERED AND VEINED LIMESTONE As for 223.8-228.3 but not cut by carb shears. Approx 2% sp 0.5% ga in siderite veins, especially at 232.65		3314072	231.5	232.65	1.0	

DRILL RUNS From	To	Rec	Rq
226	228	1.5	5
	229.9	1.6	5
	230.7	0.7	5
	232.2	1.3	4

CORE LOSS

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

TENEMENT NAME .... No. ....

PLAN – MAP REFERENCE ....

CO-ORDINATES .... AZIMUTH .... DRILLERS .... COMMENCED .... DEPTH 251.0m HOLE No. ZS1

RL COLLAR .... INCLINATION .... DRILL TYPE .... COMPLETED .... CASING LEFT .... DPO No(s) 71523

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by DRILL RUNS) From	To	Rec	RQ
232.65	241.4	8.4	NQ		CARBONACEOUS SHALE		3314073	232.65	234.0	1.3	232.2	233.5	1.2	5
					Shiny black sheared highly carbonaceous shale.		4074	234.0	236.0	2.2		234.2	0.7	5
					2% of white calcite tension veins 0.5-1mm wide.		4075	236.0	238.0	1.8		237.1	3.0	5
					5% very fine g/s dissem py.		4076	238.0	240.0	1.8		238.4	1.1	5
					237.3m S_0 - C.A ∡ 15°		4077	240.0	241.4	1.3		240.3	1.8	5
												241.5	1.05	5
241.4	247.45	5.7	NQ		SIDERITE AND QUARTZ VEINED LIMESTONE		3314078	241.4	244.4	2.7		244	2.3	3
					Light grey laminated silty limestone, laminations		4079	244.4	247.45	3.0		247	2.95	2
					strongly deformed. 10% siderite veins 3-20mm							250	2.9	2
					wide, locally with sp+ga mineralisation.							251	0.8	4
					10% milky quartz veins 20-50mm thick,									
					brecciated, and cut by siderite veins.									
					0.5% each of sp + ga. Best mineral'n 245.8m									
					247.8m Vsid - C.A ∡ 30°									
247.45	251.0	3.3	NQ		LIMESTONE		3314080	247.45	251.0	3.3				
					Light grey laminated silty limestone. 5% milky									
					quartz veins 5-30mm wide. 2% calcite veins									
					2mm wide.									
					DOWNHOLE SURVEY 241m 52.5° → 051° MAG									
					END OF HOLE = 251m									

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