



PROJECT ZEEHAN - TASMANIA NO 7860	ELEVATION 181	COMMENCED 27-10-82	BORE HOLE SURVEY								
PROSPECT OCEANA	DIP COLLAR -65 G.W.	COMPLETED 11-11-82	Depth	Blp	Bearing	Depth	Blp	Bearing	Depth	Blp	Bearing
CO-ORDINATES 3415 N 1562 E	CORE SIZE HQ, NQ	TOTAL LENGTH 574.6 m	325	68	215	200	68	212	350	67	202
BEARING 270 G 217 M 228 T	LOGGED BY P.A.J.	ADD F 32 WINDRILL DIAMOND DRILL.	400	68	215.5	251	68	210	450	67	198
			500	68.5	214.5	300	68	205.5	575	66.5	194.5
											189

METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length	Cu	Pb	Zn	Ag	Mn		
0.00	39.00	HW ROLLER BIT Interbedded siltstone, quartzite, shale and cw to hw limestone.												
39.00	46.50	SOFT SEDIMENT DEFORMED CALCULITE DOLOMITE Tectonic breccias @ 45.1 - 45.3, poor ground conditions and recovers from zone 40.6 - 44.7m.	Pyrite in calcite vein @ 45.00 m.											
46.50	47.10	INTERBEDDED CALCULITE / DOLOMITE Bedding 27° to ca @ 46.80m, becoming very fossiliferous towards the base of the unit (possible biostatic calcarenite).												
47.10	53.10	RHYTHMICALLY INTERBEDDED FOSSILIFEROUS CALCARENITES, DOLOMITES AND CALCULITES. Bedding 42° to ca @ 47.40m, 15° to ca @ 50.6m.												
53.10	75.80	CW DOLOMITE AND CALCULITE. Virtually no recovery through badly weathered zone, however, moderate to good recoveries in ZT-82-10 through same zone.												
75.80	80.00	SOFT SEDIMENT DEFORMED INTER-BEDDED CALCULITE / CALCARENITE / DOLOMITE. Core moderately calcite veined and brecciated calcite healed and weakly brecciated zone from 76.10 - 76.70m contains coarsely crystalline reddish grey sphalerite as blebs and stringers with	76.10-76.70 Est contain 7% sl, 1% gn.	79708	76.0	76.5	0.5	32	630	7.0%	1	9400		
				79709	76.5	77.0	0.5	20	1200	4.5%	1	8100		



METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
75.80	80.00	CON'T. only trace amounts of galena.												
80.00	83.60	VEINED AND BRECCIATED CALCULITE DOLOMITE. Strongly calcite veined and brecciated interbedded sequence of calculites and dolomites. The unit has been brecciated in situ and later heated by an infusion of calcite. Minor zones of stylolitization occur with a carbonaceous infill.												
83.60	93.50	INTERBEDDED DOLOMITE/CALCULITE. Soft sediment deformed, interbedded dolomites and calculites. Bedding 20° to ca @ 86.50 metres.												
93.50	106.6	CALCITE VEINED, BRECCIATED CALCULITE DOLOMITE. Grey weakly fossiliferous calculite, minor calcarenite with thinly interbedded black carbonaceous sparry dolomite. Unit intensely calcite/siderite veined with subsequent brecciation and dolomitization. Disseminated pale yellow/pink sphalerite and trace galena (disseminated) associated with veining. Minor very fine grained blebby pyrite associated with veining and more dolomite rich units. Veins and veinlets show offsetting when cutting carbonaceous filled stylolites indicating later movement. Major calcite veins occur at high angle to ca. averaging 20 to 30° to ca.	Minor diss. pale yellow pink sl and trace gr. Minor very fine grained blebby pyrite.											
106.6	113.4	TECTONIC BRECCIA? Angular fragments of carbonaceous sparry dolomite, siderite, dolomitized calculites set within a matrix of sparry and micritic dolomite with	Minor py, trace sl.											





METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
137.3	144.0	CALCITE VEINED, FRACTURED CALC-LUTITE MINOR DOLOMITE. Massive to weakly bedded, gray calcutites heavily stylolitized with minor thin <1cm width stylolitized argillaceous dolomites. Core extensively fractured, minor brecciation and calcite healing, minor siderite. Minor veining up to 8-10 cm in width perpendicular to bedding. Unit becoming more fissile and cleaved due to increasing argillaceous dolomite content.												
144.0	148.2	BRECCIATED STYLOLITIZED DOLOMITE, CALC-LUTITE. Thinly bedded pyritic argillaceous micritic dolomite interbedded with thin bedded calcutites. Bedding and cleavage? contacts heavily stylolitized. Zones of heavy brecciation and massive infilling of calcite to heal the myriads of fractures.	Minor pyrite generally through dolomite units, fine grained and blebby.											
148.2	160.0	BRECCIATED, DOLOMITIZED SLUMPY CALC-LUTITES, DOLOMITE Heavily tectonically brecciated (major infilling being calcite, minor siderite after calcite) and veined slumply interbedded calcutites, dolomites and minor calc-arenites.	Trace pyrite.											
160.0	160.50	LAMINAR CALC-LUTITE MINOR DOLOMITE. Very laminar to finely bedded grey calc-micrite and calc-lutite with minor dolomite. Birds-eyes, calcite infilled and averaging <2mm across sporadically. Bedding 45° to c.s. @ 160.3 m. Moderate to heavy stylolitization along bedding contacts.												



METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
160.5	174.5	SOFT SEDIMENT DEFORMED CALCULITE, DOLOMITE, CALCARENITE. Dominantly soft sediment deformed grey, fine grained, massive calcutites (showing minor birds-eye and sparry filled lensoidal lites) interbedded with dark grey to black fine grained massive to weakly laminar dolomites, argillaceous, weakly pyritic interbedded with minor fossiliferous calcarenites. Bedding attitudes in general deformed due to soft sediment deformation. Zone weakly to moderately calcite veined. Very minor siderite. Interface between calcutite and dolomite heavily stylotized. Minor brecciation present. Bedding 38° to c.n. @ 169 metres.	Mnor pyrite.											
174.5	175.0	CAVITY - NIL CORE RECOVERY												
175.0	181.0	SLUMPY ARGILACEOUS DOLOMITE / SILTY CALCULITE. Slumpy textured, heavily foliated, load casted argillaceous laminar dolomite interbedded with light grey silty calcutite. Dolomite progressively becomes more abundant down-hole until almost entirely dolomitic. Dolomite is pyritic and weakly dolomitized. Minor calcite veins and veinlets rimmed by siderite. Bedding 40° to ca @ 178.7 m. Minor slickensiding with chlorite surfaces on movement planes.												
181.0	187.2	MASSIVE TO LAMINAR CALCULITE. Interbedded sequence of massive, birds-eyed' weakly dolomitized light grey calcutites with very laminar, finely bedded calcutites, calcarenites and minor dolomites. Moderate stylotization. Minor calcite veining. Bedding 36° to c.n. @ 183.4 m.												

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METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS												
From	To				From	To	Length													
187.2	200.85	SLUMPED CALCULITE, MINOR DOLOMITE. Massive to weakly laminar grey, birds-eyed and occasionally pelletal calcutite interbedded with thin (<1.5cm) black argillaceous heavily stylolitized dolomites. Minor calcite veining. Tectonic breccia @ 195.4 ~ 10cm width containing host rock angular fragments set in a calcite minor siderite matrix. Unit has overall slumpy texture with nodular development.																		
200.85	203.8	LAMINAR CALCULITE, DOLOMITE. Very finely bedded laminar light grey calcutites and dark grey to black dolomites. Minor stylolization. Unit becomes predominantly dolomite downhole. Bedding 32° to ca@ 201.6m.																		
203.8	213.7	MASSIVE DOLOMITE, MINOR CALCULITE. Dark grey massive, becoming laminar downhole, argillaceous dolomite with minor thin interbeds of grey laminar calcutites. Calcite healed tectonic breccia 206.4 - 207.6m. Minor skeletal fossil horizons in calcutites becoming more evident down hole along with increased evidence of slumping.																		
213.7	258.0	DEBRIS FLOW BRECCIA. Chaotic sequence of debris flow breccias - angular to rounded fragments, rip up clasts, stromatopores, oolites, pellets minor coralline debris set in a black argillaceous dolomite fine grained stylolitized matrix. Fragments in breccia up to 10cm in width, however, generally finer grained and average less than 3cm width. Sections of breccia	Trace py. Trace St (yellow) 256.9 to 257.5m.																	

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METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
213.7	258.0	CON'T: comprised entirely of coarse grained pellets and oolites set in a skeletal fossil matrix with grey calcutite cement. Breccia is clast supported with matrix <15% of tot. vol. Minor siderite associated with calcite veining.												
258.0	263.6	SLUMPED MASSIVE CALCUTITE MINOR DOLOMITE. Grey slumped moderately soft sediment deformed massive calcutites with minor thin streaky, lensoidal and nodular beds of dark grey coarsely crystalline dolomite. Interface between the two heavily stylolitized. Zone becomes progressively more slump brecciated downhole and grades into following unit over a couple of metres. Minor calcite veining.												
263.6	287.0	DEBRIS FLOW BRECCIA. Predominantly clast supported, coarse grained (< 5cm) debris flow (rip up clasts, angular to rounded fragments, oolites, minor corals) breccias with finer grained breccias generally < 3cm in width for fragments. Minor calcite veining. Minor dolomitization.	Trace pyrite.											
287.0	304.5	INTERBEDDED CALCUTITE MINOR DOLOMITE. Massive to weakly bedded grey, occasionally birds-eyed calcutites interbedded with dark grey to black finely laminar argillaceous heavily stylolitized and weakly pyritic dolomite. Minor calcite veining generally < 2mm width at high angle to bedding. Bedding: 31° to ca. @ 296.1 metres.	Trace pyrite.											

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METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
304.5	308.3	SOFT SEDIMENT DEFORMED CALC-LUTITE MINOR DOLOMITE. Soft sediment deformed (slumpy) interbedded calcutite dolomite 75:25. Beds show formation of pellets due to deformation and/or slumping. Core very massive and becoming less deformed downhole, passing into next unit gradually.												
308.3	312.7	INTERBEDDED CALCLUTITES/DOLOMITES. Massive grey, occasionally birds-eyed (312.0 - 312.7m) minor birds-eye sparry matrix - replaced by yellow sphalerite, calcutite interbedded with very minor, thin < 1cm width argillaceous and very pyritic dolomite. Minor calcite / carbonaceous filled veins.	Trace sphalerite - yellow, very pyritic dolomite.											
312.7	313.6	DEBRIS FLOW BRECCIA? Large angular to sub rounded rip up clasts and host rock (containing very fossiliferous sections - predominantly shelly) set in a matrix of minor dolomite and calc-lutite.												
313.6	359.6	SLUMP BRECCIATED CALCLUTITE MINOR DOLOMITE. Sequence of interbedded massive, generally unfossiliferous calcutites and black massive to weakly laminar argillaceous dolomites. Sections of core are more slump brecciated than others - varying from mildly load casted and wavy bedded to intensely slumped with nodular and oolitic and minor debris flow breccias (330.5 - 331.9m) containing abundant coralline debris. Minor intervals in calcarenite and	Trace yellow sphalerite. Pyrite becoming abundant as thin stratiform layers within dolomites											



METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
313.6	359.6	CON'T : calcutite contain very fossiliferous skeletal debris and fine oolitic textures towards the base of the sequence. Core weakly calcite veined. Heavy stylolitization between dolomite and calcutite as well as around fragment boundaries.												
359.6	385.6	INTERBEDDED CALCUTITE, DOLOMITE Massive and laminar grey unfossiliferous to highly fossiliferous (shelly fragments, and whole shells) calcutites rhythmically interbedded with very laminar, pyritic, argillaceous dolomites. Contacts between rock types generally heavily stylitized. Minor zones show signs of soft sediment deformation. Bedding 22° to ca @ 368.3 m.	Abundant pyrite as thin layers parallel to bedding within dolomites.											
385.6	395.5	SLUMP BRECCIA Sequence of slumpy and brecciated shelly and birds-eyed grey calcutites with minor dolomites and thin < 1m width intervals of debris flow breccias containing rip up clasts, fossil debris, and minor oolites. Minor calcite veining with trace sphalerite.	Trace sphalerite in calcite veins.											
395.5	398.5	MASSIVE TO WEAKLY BEDDED CALC- LUTITE MINOR DOLOMITE. Dark grey, massive to weakly laminar, pyritic unfossiliferous calcutite with thin (< 1cm) interbeds of black argillaceous dolomite. Contacts are heavily stylitized some of which are infilled by pink coloured sphalerite and minor diss. fine blebs. galeua. Tectonic breccia @ 397.5: 5cm in width with calcite matrix. Sequence becomes heavily dolomitized and contains abundant siderite at contact with mineralized sequence downhole.	Pink sphalerite of minor galeua in stylolites and as diss. fine blebs.											

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METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length	Cu	Pb	Zn	Ag	Mn		
395.5	398.5	CON'T: Contact appears to be conformable. Bedding 25° to ca @ 396.7m												
398.5	399.5	Pb-Zn MINERALIZATION WITHIN SIDERITE DOLOMITE HOST. Layered coarse grained crystalline siderite, minor carbonaceous material, containing blebs and aggregates of fine grained galena and pink sphalerite, trace pyrite. Bedding 28° to ca @ 399m.	2% Pb-Zn as fine disseminations and aggregates of galena and pink sphalerite.	79748	398.5	399.5	1	20	215%	2700	13	70%		
399.5	430.4	BEDDED MUDDY CALCULITE AND MINOR DOLOMITE. Rhythmically bedded calcutites, dolomites, and minor shelly calcarenites becoming predominantly calcutite downhole. Sections of unit show weak signs of slumping (minor nodular texture + oncoliths). Minor calcite veining, trace siderite. Sequence invariably contains finely disseminated pink sphalerite. Minor veinlets contain pink sphalerite and galena. Bedding 34° to ca @ 405.1 m, 30° to ca @ 424.4 m.	Minor sphalerite as disseminations and trace galena in veinlets. Pyrite associated with dolomite.											
				79729	429.5	430	0.5	10	1950	1400	4			
				79730	430	431	1	46	8.45%	3100	84			
				79731	431	432	1	8	340	350	<1			
				79732	432	433	1	36	2.75%	1.50%	39			
430.4	447.4	Pb (Minor zinc) IN SIDERITE DOLOMITE HOST. Coarsely crystalline siderite layered parallel to bedding and containing both fine grained speckled grey black dolomite, minor black shale bands (silicified?) and minor amounts of galena, trace sphalerite. Zone badly fractured in places, minor vugs, with minor calcite occurring on both footwall and hangingwall sides of mineralized body. Best intercepts lie between 430-434 m @ 3% Pb-Zn and 445-447 metres @ 4% Pb-Zn. Layering at 432.6 m - 33° to ca, 38° to ca @ 437.2 metres.	Thinly bedded, blocky and diss. aggregates of galena with trace to minor sphalerite within coarsely crystalline siderite and fine grained dolomites. 3% Pb-Zn 445-447 = 2m @ 4% Pb-Zn.											
				79733	433	434	1	34	2.55%	600	43			
				79734	434	435	1	8	510	490	<1			
				79735	435	436	1	8	4400	430	3			
				79736	436	437	1	6	120	720	<1			
				79737	437	438	1	32	8850	440	14			
				79738	438	439	1	6	1400	310	1			
				79739	439	440	1	8	169	820	<1			
				79740	440	441	1	6	90	410	<1			
				79741	441	442	1	6	260	1050	<1			
				79742	442	443	1	6	190	1000	<1			
				79743	443	444	1	8	540	1200	1			
				79744	444	445	1	8	940	880	1			
				79745	445	446	1	85	7.4%	3000	104			
				79746	446	447	1	14	1.08%	2800	6			
				79747	447	447.5	0.5	14	7600	4700	6			

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METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length	Cu	Pb	Zn	Ag	Mn.		
447.4	452.0	WELL BEDDED CALCARENITES / CALC LUTITES / MINOR DOLOMITES. Well bedded shelly calcarenites (shelly dolos) massive to weakly laminar calcutites and black dolomites. Bedding 31° to ca @ 447.6 m. Moderate to heavy stylolitization at contacts and cross-cutting to bedding.												
452.0	465.6	SOFT SEDIMENT DEFORMED CALC LUTITE MINOR DOLOMITE. Slumpy textured, wavy bedded, deformed thinly interbedded calcutites and argillaceous dolomites. Mod calcite veining. Minor zones of birds-eye and stromatolites at 460.3m, 462.6m. Minor thin shelly horizons. Trace siderite veining.												
465.6	482.4	SEDIMENTARY BRECCIA. Sequence of polymictic sedimentary breccia, chaotic crudely layered assemblage of subrounded to ragged clasts from micro- to 5cm width, comprised of grey weakly fossiliferous limestone, minor bioclastic calcarenites, colonial corals, bryozoa, in a matrix of brown black argillaceous dolomite. Mixture of clast and matrix support - Not chaotic breccia as no contact breccia present. Minor siderite veining present with trace sphalerite and galena.	Trace sphalerite and galena in siderite veins.	91583	472	474	2	6	610	850	2	1600		
				91584	474	476	2	6	1450	770	2	5300		
				91585	476	478	2	6	600	960	2	1800		
				91586	478	480	2	6	280	740	2	1650		
				91587	480	482	2	6	140	420	2	480		
482.4	487.6	INTERBEDDED CALC LUTITE, DOLOMITE. Rhythmically interbedded massive grey calcutites and grey brown weakly laminar argillaceous dolomite. Argillite weakly foliated + streaky, weak stylolitization. Bedding 33° to ca @ 486.2 m.	Minor pyrite, trace sphalerite, galena.	91588	482	484	2	6	3300	570	3	2150		
				91589	484	486	2	10	1700	430	2	1550		
				91590	486	488	2	8	580	500	2	790		

450099 098



METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS				
From	To				From	To	Length	Cu	Pb	Zn	Ag	Mn
487.6	493.6	SLUMPY TEXTURED INTERBEDDED CALCULITE, DOLOMITE. Slumpy textured weakly brecciated, disturbed sequence of ragged nodular (oncaltic) fossiliferous (shelly debris) calculites in a dark grey argillaceous dolomite matrix. Minor calcite siderite veinlets.		91591	488	490	2	16	60	120	1	450
				91592	490	492	2	6	700	730	1	1100
493.6	513.2	RHYTHMICALLY BEDDED WEAKLY DEFORMED CALCULITE, DOLOMITE. Rhythmically interbedded weakly to highly fossiliferous (more fossiliferous downhole with increasing number of gastropods) grey weakly soft sediment deformed wavy bedded nodular textured, calcutite, bioclastic calcarenite and dark grey black thin heavily foliated, weakly hyaline argillaceous dolomite. Minor graded bedding in bioclastic calcarenites. Core moderately calcite veined. Bedding 27° to ca @ 507.9 metres.	Pyrite as blebs and stringers parallel to the foliation.	91593	492	495	3	8	2300	1450	2	1950
513.2	515.2	SEDIMENTARY BRECCIA Ragged clasts of infossiliferous grey limestone, stromatolactis, shelly and minor coral debris, weakly layered and set in a matrix of dark grey to black fine grained pyritic argillaceous dolomite.	Fine grained and blebby pyrite within dolomite.									
515.2	523.6	SLUMPY TEXTURED CALCULITE MINOR DOLOMITE. Slumpy textured light grey massive, birds eyed (minor stromatolactis) calcutite, wavy bedded, showing nodular texture interbedded with thin very wavy heavily stylolitized argillaceous dolomite. Zones have distinctive intervals of stromatolactis from 520.6-523.6m.										

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METERAGE		DESCRIPTION	MINERALIZATION	SAMPLE NO	METERAGE			ASSAYS						
From	To				From	To	Length							
515.2	523.6	CON'T: Core weakly calcite veined.												
523.6	556.8	INTERBEDDED CALCULITE, DOLOMITE Well layered muddy grey unfossiliferous calc-lutites interbedded with bioclastic speckled calcarenites and black to dark grey argillaceous dolomites. Argillaceous dolomites become more prominent down hole at the expense of clean limestone. Core shows some signs of soft sediment deformation, nodular development foliated contacts heavily stylitized etc. Bedding 33° to ca. @ 526.5, 30° to ca @ 535.6 m.	Minor blebby py. Trace sphalerite (yellow)											
556.8	558.2	LAMINAR CALCULITE. Thinly laminated fine grained light grey calcutite minor dolomite. Bedding 27° to ca @ 557.6 metres.												
558.2	559.6	NODULAR CALCULITE. Light grey, nodular (oncalitic) limestone fine grained with minor recrystallization - stromatolites? Fossil debris fairly common, abundant stylitites.												
559.6	569.1	SOFT SEDIMENT DEFORMED WEAKLY FOSSILIFEROUS CALCULITES. Fine grained, grey calcutites interbedded with thin, impersistent argillaceous dark grey to black dolomite. Ragged clasts of stromatolites? 564.2 m.												
569.1	570.3	THINLY BEDDED CALCULITE. Fine grained light grey thinly laminated unfossiliferous calcutite. Tectonic breccias angular fragments set in a matrix of calcite and siderite occur as thin												

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