Amoco Minerals Australia Company

DRILLHOLE Nº ZT-82-12 Page 1 of 10 **drill log** metric

PROJECT ZEEHAN - TASMANIA Nº 7860	ELEVATION	COMMENCED 17-11-82	
PROSPECT OCEANA	DIP COLLAR −64°GE	COMPLETED 05-12-82	
CO-ORDINATES 3605 N 1230 E	CORE SIZE HQ, NQ	TOTAL LENGTH 481.6 m	
BEARING 090 G 037 M 048 T	LOGGED BY P.A.J.	ADD F52 MINDRILL DIAMOND DRILL	

AGRE HOLE SURVEY

Depth	Dip	Bearing	Depth	Dip	Bearing	Depth	Dip	Bearing
60	65	034	229	63.5	040	349	62	042.5
106	63	039	292	63.5	039	398	63	041.5
146	62.5	040	334	62.0	042.5	443	65	043
						480	65	044.5

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION
0.00	16.60	CW GREY LIMESTONE Sequence of completely weathered grey to black (relict laminations) argillaceous and sulphide smelling clays - CW limestone.	
16.60	31.80	MOTTLED ORANGE, GREY, BROWN C.W. LIMESTONE. Sequence of interbedded, mottled orange brown grey argillaceous CW limestone (clays) showing relict laminations and occasional zones of dolomitization (massive, dense, fine grained, silicified? oxidised brown rock) - 28.0 m. Minor HW calcite veining evident.	
31.80	36.40	TECTONIC BRECCIA. Moderately to highly weathered tectonic breccia with ragged angular host rock fragments set in an argillaceous cement of dolomite and coarsely crystalline calcite. Minor siderite veining.	
36.40	43.40	SEDIMENTARY BRECCIA. Sedimentary brecciated and deformed bioclastic calcarenites and calcilutites with ragged fragments and clasts including some brachiopods set in a matrix of fine grained argillaceous dolomite. Core moderately to strongly calcite, minor siderite veined. Crude layering evident.	
43.40	47.00	BRECCIATED CALCILUTITE MINOR DOLOMITE. Weakly brecciated, massive, grey, unfossiliferous calcilutite interbedded with wispy	

SAMPLE Nº	METERAGE From	To	Length	Cu	Pb	Zn	Ag	Mn
91558	6	7	1	26	460	4200	2	70
91559	7	8	1	30	65	800	<1	26
91560	8	9	1	26	170	1900	1	38
91561	9	10	1	24	340	8200	1	18
91562	10	11	1	32	90	560	<1	46
91563	11	12	1	20	70	3700	<1	20
91564	12	13	1	14	140	2100	<1	20
91565	13	14	1	48	840	920	<1	26
91566	14	15	1	20	180	2600	1	22
91567	15	16	1	22	80	1800	1	5700
91568	16	17	1	18	150	2400	1	5600
91569	17	18	1	14	55	1700	1	1.30%
91570	18	19	1	14	730	4600	2	2.10%
91571	19	20	1	20	1400	6700	2	1.40%
91572	20	21	1	22	1350	7300	3	7800
91573	21	22	1	22	920	7800	2	1.30%
91574	22	23	1	12	620	3900	3	320
91575	23	24	1	14	240	5000	1	9900
91576	24	25	1	96	190	1.75%	1	4300
91577	25	26	1	32	90	1.40%	1	6600
91578	26	27	1	32	350	2.30%	1	1000
91579	27	28	1	12	65	2900	1	2.40%
91580	28	29	1	8	470	2200	2	1.60%
91581	29	30	1	6	380	650	1	4800
91582	30	31	1	18	1600	1.40%	5	6.80%

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
43.40	47.00	CON'T: thin argillaceous dolomite. Core moderately to heavily stylolitized especially along bedding planes.						
47.00	57.40	INTERBEDDED QUARTZOSE CALC-RUDITE AND CALCARENITES. Interbedded grey speckled fine grained calcrudites (conglomerates!) containing abundant rounded to ellipsoidal shaped quartz eyes further surrounded by recrystallized calcite lying in a weakly laminar calcareous arenite matrix, with medium grained calclutites, bioclastic calcarenites and minor wispy beds of argillaceous dolomite. Minor soft sediment brecciation and minor tectonic brecciation 55.4 - 55.6m (with secondary calcite, coarse grained cement). Minor siderite veining. Bedding 36° to c.a.						
57.40	85.30	SLUMPY TEXTURED WEAKLY FOSSILIFEROUS CALCLUTITES. Sequence of slumped and soft sediment deformed weakly to unfossiliferous grey calclutites and minor argillaceous weakly brecciated dolomites. Moderate to Strong Stylolitization parallel to bedding planes infilled with black carbonaceous material. Zones of tectonism @ 60.6-64.6m, 65.5m, 74.6-76.2 (possible fault zone) associated with calcite and quartz veining trace siderite. Bedding 45° to c.a @ 66.0m, 39° to ca @ 70.6m.						
85.30	85.70	SHEAR ZONE. Coarse grained calcite, siderite infilled shear zone with minor argillaceous component. Shear @ ≃ 15° to c.a.						

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
85.70	91.30	BRECCIATED BIOCLASTIC QUARTZOSE CALCRUDITE, CALCARENITE. Speckled interbedded very fossiliferous bioclastic calcrudites and calcarenites containing abundant rounded quartz fragments up to 0.5mm averaging 1-3 mm. Core moderately calcite veined. Minor argillaceous dolomite present generally poorly fossiliferous.						
91.30	92.90	TECTONIC BRECCIA. Heavily brecciated, angular and ragged host rock fragments set in a matrix of argillaceous dolomite and coarse grained calcite minor siderite.						
92.90	104.8	WEAKLY LAMINAR LIGHT GREY UNFOSSIL-IFEROUS CALCLUTITE. Weakly laminar, unfossiliferous light grey calclutites with thin argillaceous dolomite laminae present in varying proportions throughout. Sections of core moderately stylolitized and show nodular or start of pelletal development. Sections of core also have birds-eye structures filled with sparry calcite cement. Bedding 30° to ca @ 97.0 m. Calcite vein 103.6-103.7. Rest of sequence weakly calcite veined.						
104.8	133.9	SEDIMENTARY BRECCIAS AND BRECCIATED LIMESTONES. Sequence of sedimentary breccias with ragged and subangular fragments of calclutites and bioclastic calcarenites set in a dark grey argillaceous dolomite matrix and highly to weakly brecciated and soft sediment deformed, bedded calclutites and dolomites. Overall rocks						

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
104.8	133.9	CON'T: poorly fossiliferous (minor oncalites, corals, shelly debris). Sections of core show pelletal or nodular development. Core moderately to strongly calcite minor siderite veined. Abundant pyrite (fine grained) between 131.0 - 131.4 m.						
133.9	136.0	FINE GRAINED QUARTZ CONGLOMERATE. Rounded to sub-rounded grey to white quartz pebbles varying from clast to matrix support and varying from 1mm to 6mm in diameter set within a sandy and mica rich matrix. Minor calcite veining, weak layering present.						
136.0	148.6	SLUMPY TEXTURED BIOCLASTIC CALCARENITE/CALCLUTITE/DOLOMITE. soft sediment deformed and slump textured weakly brecciated, nodular calclutite and argillaceous dolomite with bioclastic calcarenites (containing corals, gastropods, shelly debris, minor quartz pebbles) becoming more prominent downhole. Cavity 141.4 - 142.4 m. Very poor recoveries in broken and ferruginous (pyritic) zone 142.4 to 148.6 (Recoveries <10%).						
148.6	153.5	LIGHT GREY WEAKLY FOSSILIFEROUS CALCLUTITE. Light grey weakly fossiliferous, occasionally porous calclutite with minor wavy laminae of argillaceous dolomite. Laminae heavily stylolitized and also stylolitization, cross cutting to bedding. Minor calcite veining. Minor pyrite on cleavage surfaces.	Minor pyrite on cleavage surfaces.					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
153.5	163.6	TECTONIC BRECCIA - FAULT ZONE Black to dark grey clay zone containing abundant relict angular dolomitized fragments, siderite and other host rock fragments as well as fine grained pyrite fragments. Minor calcite veining.	Fine grained pyrite.					
163.6	175.6	SLUMPY TEXTURED SANDY BIOCLASTIC CALCARENITES AND DOLOMITES. Sequence of quartz sandy bioclastic calcarenites (shelly detritus, gastropods) minor sandy calcilutites and argillaceous dolomites, slumpy textured and showing nodular development. Sections of core weakly brecciated, matrix support. Minor thin zones of calcite filled tectonic breccias < 10 cm in width. Some zones of porous (M.W) units due to leaching?						
175.6	180.2	TECTONIC BRECCIA. Angular and ragged fragments of argillaceous, sandy bioclastic dolomitic calcarenites and dolomites set in a matrix of coarsely crystalline white calcite. Minor siderite fragments.						
180.2	196.2	SOFT SEDIMENT DEFORMED CALCILUTITE, BIOCLASTIC CALCARENITE. Sequence of soft sediment deformed, nodular textured, weakly brecciated bioclastic (shelly) calcarenites, massive grey calcilutites and minor wavy bedded argillaceous dolomites. Core extensively calcite veined with minor thin zones of tectonic brecciation (calcite healed). Minor quartz component (rounded clasts) throughout unit. Bedding 40° to at 183.8m.						

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
196.2	202.6	LIGHT GREY LAMINAR CALCLUTITE. Light grey weakly fossiliferous (shelly) calclutites cut by thin argillaceous black dolomite laminae. Core badly broken and in places HW to CW due to fault zone from 202.6 – 204.1m. Bedding 40° toca @ 195.5						
202.6	204.1	FAULT ZONE. Sequence of brecciated, calcite healed, minor siderite, HW sandy limestones. Zone of very poor recoveries.						
204.1	220.6	INTERBEDDED SLUMP TEXTURED CALCLUTITES / DOLOMITES. Nodular to pelletal slump textured predominantly unfossiliferous calclutites and argillaceous black dolomites. Minor zones of more laminar and less disturbed calclutite 218–219m. Core extensively broken from 204.1 to 211.0 m. Minor calcite veining.						
220.6	238.6	MASSIVE TO LAMINAR CALCLUTITES AND SOFT SEDIMENT DEFORMED CALCLUTITE MINOR DOLOMITE. Sequence of interbedded light grey poorly fossiliferous (shelly) limestones containing minor wispy thin argillaceous dolomite laminae. Sections of more laminar to thinly bedded calclutites show signs of soft sediment deformation (nodular). Minor zones of stromatolactics – 232.7m. Bedding 47° to ca @ 229.6m. Minor calcite veining.						
238.6	259.6	SOFT SEDIMENT DEFORMED UNFOSSILIFEROUS CALCLUTITES / DOLOMITE. Sequence of interbedded unfossiliferous	Minor pyrite on cleavage surfaces.					

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
238.6	259.6	CON'T: grey and dark grey (muddy) limestone and bioclastic (shelly) calcarenites and minor black argillaceous dolomites. Sections of core show moderate soft sediment deformed and nodular to pelletal formation. Weakly calcite veined. Bedding 45° to c.a. @ 239.6 m, 40° to ca @ 257.6 m.						
259.6	265.6	CRUSH ZONE Section of badly broken ground, moderately to heavily weathered, clayey, brecciated and slickensided laminar calclutites. Minor fault zones.						
265.6	268.0	SLUMPY TEXTURED FOSSILIFEROUS CALCLUTITE / DOLOMITE. Sequence of bioclastic calcarenites and weakly fossiliferous calclutites interbedded with thin (< 1.5 cm av) black argillaceous dolomites. Minor movement between dolomites and limestones and contacts moderately stylolitized. Bedding 29° to c.a. @ 267.9 m.						
268.0	270.6	LAMINAR GREY UNFOSSILIFEROUS CALCLUTITES. Sequence of laminar grey unfossiliferous occasionally speckled (birds-eyes) calclutites with interlaminations of green grey argillaceous dolomite.						
270.6	285.8	THICKLY BEDDED CALCLUTITE / DOLOMITE. Thickly bedded, generally unfossiliferous dark grey calclutites interbedded with from 1 to 3 cm wide argillaceous dolomite horizons. Contacts weakly soft sediment deformed and wavy.						

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
270.6	285.8	CON'T: Minor zones showing nodular development. Prominent section of core 280.3 to 280.7m having algal breccia appearance with minor coral fragments. Minor siderite found replacing sections of algal laminae. This section of core having moderate to heavy calcite veining.						
285.8	292.6	BLACK AND DARK GREY SHALEY AND ARGILLACEOUS DOLOMITES. Heavily foliated and cleaved sequence of black shaley and argillaceous dolomites. Laminar sections being partially replaced by siderite. Core badly broken due to carbonaceous component. Possible slumping or soft sediment deformation. Bedding 40° to ca @ 289.9m.						
292.6	337.5	SLUMPY TEXTURED POORLY TO UN-FOSSILIFEROUS CALCLUTITE. Streaked out and slumpy textured, nodular limestone predominates, interbedded with minor bioclastic shelly calcarenites and thin laminae of argillaceous dolomite. Core weakly calcite veined. Cavity 320.10 to 323.0m, 336.0 to 336.7 metres.						
337.5	360.8	INTERBEDDED SPECKLED CALCARENITE / DOLOMITE / CALCLUTITE. Weakly soft sediment deformed, interbedded unfossiliferous grey calclutites, speckled bioclastic calcarenites and bioclastic argillaceous dolomite. Minor nodular development. Colonial coal fragment 355.9 and 358.4m. Minor siderite veining @ 359.0 m. Bedding 43° to ca @ 345.7m, 38° to ca @ 358.6 m.						

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION	SAMPLE Nº	METERAGE From	METERAGE To	Length	ASSAYS Cu	Pb	Zn	Ag	Mn
360.8	367.0	BIOCLASTIC CALCAREOUS SANDSTONE. Speckled grey brown, broken, soft sediment deformed, nodular bioclastic calcareous sandstone. Very poor recoveries core quite soft and friable. Siderite veined at 370 m.										
367.0	372.1	BRECCIATED DOLOMITIZED LAMINAR LIMESTONE? Grey brown brecciated (sedimentary?) very laminar dolomitized and weakly sideritic limestone. Poor recoveries ± 35%. Colonial coral fragment @ 370.4 m.										
372.1	383.6	Pb-Zn MINERALIZATION WITHIN A SIDERITIC DOLOMITE HOST. Very fine grained galena (trace pink sphalerite) occurs as thin laminations and as aggregates or clusters as well as veinlets set within a finely to coarsely crystalline argillaceous dolomite/ankerite host which has been pervasively sideritized with coarsely crystalline cream siderite. Where galena is abundant it tends to be banded at ± 42° to c.a. From 375.6 to 379.2 m siderite very abundant at expense of galena. From 379.2 to 380.0 there is minor interstitial galena, abundant siderite, from 380 - 381.6 m siderite or ankerite fills cavities in recrystallized dolomite, minor pink sphalerite is associated with the siderite - but no galena.	373-377 = 4m @ Est 10% Pb-Zn. 380-383.6 = 3.6m @ Est 2% Pb-Zn.	91597	368	370	2	6	260	1350	1	2.7%
				91598	370	372	2	6	330	2600	1	7.3%
				91599	372	373	1	6	3900	1400	2	8.0%
				91600	373	374	1	38	7.90%	1400	40	8.0%
				91601	374	375	1	105	16.60%	3200	75	6.5%
				91602	375	376	1	430	20.60%	2200	200	3.8%
				91603	376	377	1	14	1.13%	4700	6	4.2%
				91604	377	378	1	12	2300	9300	3	4.2%
				91605	378	379	1	10	1400	2500	2	9.00%
				91606	379	380	1	16	3800	6200	3	8.9%
				91607	380	381	1	16	1.46%	3700	8	7.6%
				91608	381	382	1	8	1.32%	3600	6	9.0%
				91609	382	383	1	8	990	4500	2	9.0%
				91610	383	384	1	34	2.60%	7000	12	6.9%
				91611	384	385	1	8	5000	5400	3	8.4%
				91612	385	386	1	20	430	9500	1	3.45%
				91613	386	387	1	6	130	1200	1	3.7%
				91614	387	388	1	22	850	1950	1	1.4%
383.6	388.8	BRECCIATED DOLOMITIZED LAMINAR LIMESTONE. Grey brown, brecciated (sedimentary? - with very rounded fragments of varying lithologies) laminar dolomitized argillaceous limestone. Poor recoveries. ± 40%.		91615	388	389	1	8	430	3300	1	3.0%
				91616	389	390	1	8	2400	6600	2	4.3%

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION
388.8	405.9	DOLOMITIZED GREY BROWN SLUMPED LIMESTONES. Poor recoveries from a zone of HW to CW black brown and dark grey argillaceous clays and grey brown massive to laminar fragments of dolomitized limestone occasionally showing slumpy textures. Lot of core appears to be cave material from further up the hole prior to and including the mineralized sequence.	
405.9	481.6	SLUMPY TEXTURED BIOCLASTIC CALC-ARENITES, CALCLUTITES, DOLOMITES. Sequence of unfossiliferous grey calclutites interbedded with minor bioclastic calc-arenites (shelly, gastropods) and minor argillaceous dolomites. Core shows slumpy texture, nodular development. Core mod. to strongly calcite and siderite veined (438.6 - 442.6) generally in association with tectonic brecciation. Minor zones of clay infilling and leaching. Zone of stromatolitic from 470.2 to 472.4 m. Bedding 30° to ca @ 423, 30° to ca @ 471.6 m. Major breccia @ 438.5 to 440.5 with associated calcite and siderite cement. Other breccias 460.8 - 462.7 and 469.6 - 469.9 m.	
		END OF HOLE 481.60 metres.	

SAMPLE Nº	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	Mn
91767	391	393	2	210	2500	7000	3	4.5%
91768	393	394	1	800	500	3000	3	2.25%
91769	394	395	1	24	360	1000	1	2.5%
91770	395	397	2	18	180	760	1	1.1%
91771	397	398	1	16	150	3800	2	2.1%
91772	398	400	2	10	550	5000	2	2.6%
91773	400	402	2	10	670	4800	2	2.15%