Amoco Minerals Australia Company

DRILL LOG — HOLE No. ZT-80-7 — PAGE 1 OF 7

					BORE HOLE SURVEY			INSTRUMENT					
PROJECT ZEEHAN	No. A7860	ELEVATION 188 meters	COMMENCED 18-9-80	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing
PROSPECT OCEANA		DIP COLLAR 50° GE	COMPLETED 25-9-80	50	48	040	125	41.5	048			
CO-ORDINATES 3420 mN 1250 mE		CORE SIZE HQ	TOTAL LENGTH 250 meters	75	46	043	200	41.5	052			
BEARING 037 TN MN GN		LOGGED BY PHILIP JONES		100	44	045	250	40.5	051			

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag
0	16	TRICONE Gravels to 4 metres,		27351	16.3	19.3	3	110	65	165	<1
		weathered dolomitic clays to 16.0 metres.		27352	19.3	22.3	3	26	16	90	<1
HQ	Coring.			27353	22.3	25.3	3	16	16	55	<1
16.0	38.0	INTERBEDDED CALCLUTITE/DOLOMITE/CARENITE:	Disseminated and	27354	25.3	28.3	3	250	24	180	<1
		massive grey, weakly calcite (minor siderite)	laminar pyrite in	27355	28.3	31.3	3	12	12	30	<1
		veined calclutites interbedded with dark grey	black dolomite	27356	31.3	34.3	3	16	20	65	<1
		laminar to thickly bedded carbonaceous		27357	34.3	37.3	3	20	16	55	<1
		dolomites with minor fossiliferous (shelly)		27358	37.3	40.3	3	16	8	34	<1
		calcarenites and laminar micritic muds. Beds		27359	40.3	43.3	3	26	24	135	<1
		generally <5cm in thickness, dolomite contains		27360	43.3	46.3	3	10	12	16	<1
		fine grained disseminated pyrite, moderate		27361	46.3	49.3	3	8	12	14	<1
		number of stylolites within calclutites. Calcite/		27362	49.3	52.3	3	8	12	16	<1
		siderite cemented tectonic breccia 22.50-23.35		27363	52.3	55.3	3	10	8	16	<1
		metres. Veining weak to moderate - calcite.		27364	55.3	58.3	3	10	8	18	<1
		Rock moderately microfaulted. Bedding 21m		27365	58.3	61.3	3	14	12	40	<1
		40° to c.a., 27m 43° to c.a.		27366	61.3	64.3	3	14	16	280	<1
38.0	45.8	LAMINAR CALCLUTITE: light grey to grey,	Minor laminar	27367	64.3	67.3	3	18	12	48	<1
		laminar, to thickly bedded, cleaved, muddy	pyrite	27368	67.3	70.3	3	14	12	34	<1
		calclutites and dolomitic calclutites. Minor		27369	70.3	73.3	3	22	44	210	<1
		thin beds of calcrudites (plus qtz frags) and		27370	73.3	76.3	3	14	20	85	<1
		stylolitized massive calclutites. Calcite/siderite		27371	76.3	79.3	3	16	8	32	<1
		healed tectonic breccia 43.10 to 43.50 metres.		27372	79.3	82.3	3	10	8	20	<1
		Minor thinly bedded laminar pyrite present.		27373	82.3	85.3	3	8	8	14	<1
		Bedding 39m 42° to ca, cleavage 55° to ca,		27374	85.3	88.3	3	590	8	560	<1
		44.50 metres 48° to ca, cleavage 65° to ca		27375	88.3	91.3	3	10	8	18	<1
		Core breaking along cleavage planes.		27376	91.3	94.3	3	8	8	14	<1
45.8	53.60	FOLIATED CALCLUTITE: foliated (cleaved?)		27377	94.3	97.3	3	10	12	28	<1
		grey, massive, weakly calcite veined,		27378	97.3	100.3	3	6	8	14	<1
		stylolitized, calcite with rare thin fossiliferous		27379	100.3	103.3	3	6	8	16	<1
		calcarenite interbeds. Minor zone of		27380	103.3	106.3	3	8	8	16	<1
		tectonism from 49.70 to 50.0 metres.		27381	106.3	109.3	3	8	12	18	<1
				27382	109.3	112.3	3	10	16	75	<1
				27383	112.3	115.3	3	12	8	24	<1
				27384	115.3	118.3	3	8	8	16	<1

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	Cd	Sb
53.6	64.5	INTERBEDDED CALCLUTITE/CALCARENITE/DOLOHITE: Soft sediment deformed calclutites and silty dolomites interbedded with thin (2-5cm width) shelly calcarenites. Rare dolomites generally <2cm in width. Bedding 54.5m 40° to ca, cleavage 75° to ca; 63m 30° to ca, cleavage 63° to ca, Disseminated pyrite in calcarenites as fine blebs. Rock competent, foliated, minor broken areas due to fracturing along carbonaceous cleavage planes.	Minor disseminated pyrite.	27385	118.3	121.3	3	6	490	150	<1		
				27386	121.3	124.3	3	6	20	22	<1		
				27387	124.3	127.3	3	8	8	16	<1		
				27388	127.3	130.3	3	6	4	12	<1		
				27389	130.3	133.3	3	6	8	16	<1		
				27390	133.3	136.3	3	8	12	18	<1		
				27391	136.3	139.3	3	8	20	310	<1		
				27392	139.3	142.3	3	16	32	95	<1		
				27393	142.3	145.3	3	6	16	40	<1		
				27394	145.3	148.3	3	6	20	38	<1		
64.5	71.3	INTERBEDDED CALCLUTITE/CALCARENITE/DOLOHITE: Massive, rhythmically bedded, silty to sandy grey calclutites and shelly calcarenites containing abundant 'rip up clasts'. Minor thin interbeds of dark grey carbonaceous, silty, laminar dolomite. Minor calcite veining. Graded bedding at 68m indicates the sequence young down hole (as do flame structures) Bedding 68m 40° to ca; Calclutites have abundant stylolites parallel to bedding and also transgressive. Trace pyrite in dolomite.	Trace Pyrite.	27395	148.3	151.3	3	6	16	40	<1		
				27396	151.3	154.3	3	4	16	80	<1		
				27397	154.3	157.3	3	4	60	250	<1		
				27398	157.3	160.3	3	4	120	500	<1		
				27399	160.3	163.3	3	6	175	860	<1		
				27400	163.3	165	1.7	4	290	1350	<1		
				27564	165	166	1	6	240	1400	<1		
				27565	166	167	1	4	210	1100	<1		
				27551	167	168	1	130	10.4%	4.6%	55	290	<0.005%
				27552	168	169	1	270	13.5%	17.5%	85	1150	0.01%
				27566	169	170	1	4	680	1350	<1		
71.3	75.0	BRECCIATED CALCLUTITE: grey to dark grey, sandy and silty, soft sediment deformed, tectonically brecciated and strongly calcite healed calclutites. Breccia's 72.6-73.0; 73.5-73.7; 74.0-74.3; 74.6-74.8; Coarsely crystalline calcite comprises breccia matrix (plus minor carbonaceous, host rock fragment content) Trace pyrite.	Trace pyrite	27567	170	171	1	6	230	5200	<1		
				36001	171	174	3	4	320	1250	<1		
				36002	174	177	3	4	190	900	<1		
				36003	177	180	3	2	100	410	<1		
				36004	180	183	3	2	75	360	<1		
				36005	183	186	3	2	140	450	<1		
				36006	186	189	3	4	32	195	<1		
				36007	189	192	3	2	16	150	<1		
75.0	85.7	INTERBEDDED DOLOHITE/CALCLUTITE: laminar and pelletal, black, silty and carbonaceous dolomites containing minor bedded and disseminated pyrite, interbedded with grey, foliated, massive, in part weakly fossiliferous, calclutites. Shelly fragments predominate over coral and other detritus in beds generally 2cm in width or less. Pelletal units contain abundant shelly and broken fossil detritus. Carbonaceous dolomite beds vary from 2mm in width to	Trace pyrite	36008	192	195	3	4	16	95	<1		
				36009	195	198	3	4	44	37	<1		
				36010	198	201	3	4	24	36	<1		
				36011	201	204	3	4	12	30	<1		
				36012	204	207	3	4	12	28	<1		
				36013	207	210	3	6	28	140	<1		
				36014	210	213	3	6	16	28	<1		
				36015	213	216	3	8	8	12	<1		
				36016	216	219	3	10	8	22	<1		
			cont.	36017	219	222	3	8	8	22	<1		

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag
75.0	85.7	CONT. 10's of cm's in width. Rock is weakly calcite veined. Bedding 78.5m 35° to ca. Calcite veining 65° to ca (≈ 90° to bedding) 84.50 m 50° to ca. Minor pyrite on cleavage faces along with carbonaceous material. Minor stylolites.		36018	222	225	3	8	12	28	<1
				36019	225	228	3	10	24	40	<1
				36020	228	231	3	6	16	48	<1
				36021	231	234	3	6	12	44	<1
				36022	234	237	3	4	12	28	<1
				36023	237	240	3	6	12	22	<1
85.7	87.9	CALCAREOUS SANDSTONE: Speckled light grey to white, medium grained calcareous sandstone containing numerous thin interbeds of soft sediment deformed calclutite and minor carbonaceous dolomite. Unit is quartz carbonate veined. Foliation enhanced by carbonaceous material. Minor tectonic brecciation. Flame structures indicate sequence youngs down hole. Sandstone pelletal near its base.		36024	240	243	3	32	12	110	<1
				36025	243	246	3	400	12	360	<1
				36026	246	250	4	155	16	175	<1
				EOH.							
87.9	109.0	INTERBEDDED CALCLUTITES / DOLOMITE: massive to laminar, light grey, unfossiliferous, calclutites interbedded with thin (<2cm in width) dark grey silty and carbonaceous dolomite. Rare interbeds of fossiliferous calcarenite occur sporadically. Massive calclutites contain numerous stylolites. Minor zones of tectonism at 90.3-90.5m; 96.8-96.9m; 108.3-108.5m; (all filled with calcite/carbonaceous matrix). Pronounced bedding flexure at 106.5m 20° to ca cleavage 55° to ca; 95.5m 45° to ca; 106m 30° to ca (laminar micritic muds) Minor to moderate calcite veining (trace siderite). Minor fossiliferous sections generally contain coralline and some shelly fragments. Sections of core intensely microfaulted. Core very competent.									
109.0	123.0	INTERBEDDED DOLOMITE / CALCLUTITE: Dark grey in part pelletal, foliated, pyritic, silty dolomite beds generally ≤5 cm in width rhythmically interbedded with fossiliferous grey massive calclutites. Beds show signs of soft sediment deformation.	Trace Pb/Zn in tectonic angular breccia. CON'T								

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
109.0	123.0	cont. tectonic breccia 119.75 to 119.9 m with calcite/siderite matrix containing trace Pb/Zn sulphides. Bedding 121.7 m 42° to ca ; 113.5 m 30° to ca and cleavage 65° to ca. Minor to moderate calcite veining - Core relatively unbroken and competent. Minor breakage along carbonaceous filled cleavage surfaces.						
123.0	129.0	INTERBEDDED CALCLUTITE/DOLOMITE: Very strongly calcite veined and healed, tectonically brecciated sequence of very fossiliferous calcarenites, weakly fossiliferous calclutites and laminar pyritic dolomites.						
129.0	144.5	INTERBEDDED DOLOMITE/CALCLUTITE/CALCARENITE: Fissile and laminar, black, carbonaceous, silty and occasionally pyritic dolomite rhythmically interbedded with massive fossiliferous and unfossiliferous grey calclutites and coarsely crystalline very fossiliferous light grey sparry calcarenites. Moderately calcite veined. Minor calcite/siderite breccia infill from 143.5 to 144.5 containing minor pyrite and trace galena. Fossil fragments generally large shells with abundant shell grit detritus as matrix. Minor pelletal sections. Rip up clasts and flame structures indicate the sequence youngs down hole. Minor stylolites present. Bedding 138.5 m 46° to ca.	Minor pyrite with trace galena					
144.5	158.0	CALCLUTITE: Soft sediment slumped, or load casted, massive dark grey to grey calclutite with minor dark grey silty dolomite as thin interbeds. Rock strongly calcite healed and brecciated from 147-151 m. Abundant stylolites present. Carbonaceous material remobilized along bedding interfaces.						
158.0	166.9	INTERBEDDED CALCLUTITE/DOLOMITE: inter-bedded rhythmically, laminar to massive (5-20 cm in width) grey fossiliferous and unfossiliferous calclutites and dark						

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
158.0	166.9	CONT grey silty and carbonaceous (2-5 cm in width) dolomite. Very minor fossiliferous calcarenites. Moderate calcite veining with minor siderite and trace sphalerite. Some veins autobrecciation. Bedding 159 m 40° to ca; 165.5 m 38° to c a. Stylolites present within massive calclutites. Calcite veins both parallel and crosscutting to bedding. Fossils made up of shells, oolites, and broken debris.						
166.9	169.0	SEMI MASSIVE ZINC-LEAD SULPHIDE: yellow brown, blebby and veinlet sphalerite and galena appears to be selectively replacing the afore mentioned unit in conjunction with a siderite/ankerite/calcite gangue. Brecciation has occured and angular fragments vary in size from a mm to a number of cm's in width. Zn/Pb ratio roughly 60:40. Grades approximately 15% combined Zn/Pb and sulphides very fine grained. No pyrite. Open pore space infilling evident as is vugh infilling. Initial calcite infilling is rimmed by siderite and followed by Zn/Pb sulphide pulse. Mineralized veining trends ± 30° to ca.	Semi massive Zn/Pb sulphide over 2m.					
169.0	173.7	FOSSIL BRECCIA: massive sedimentary slump breccia containing angular fragments (to sub angular) of host rock material, corallina limestone, oolitic material, cemented in a dark grey silty dolomitic matrix. Strongly calcite veined. Strongly stylolitized. 0.5cm wide vein of sphalerite from 169.95 to 170.0 Fragments in breccia vary in size up to 10's of cm's.	Trace sphalerite.					
173.7	182.0	SLUMP BRECCIA: soft sediment slump brecciated or load casted calclutites with a dark grey silty dolomitic matrix. Lot of oolitic and fossil debris material in excess of 10cm diam. Moderate to strong calcite veining. Minor disseminated pyrite. Minor siderite rimming calcite veins. Moderate Number of stylolites.	Trace pyrite					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
182.0	195.6	FOSSIL BRECCIA: massive sedimentary slump breccia containing angular fragments of host rock material, coralline limestone, colites, cemented in a dark grey silty dolomitic matrix.						
195.6	199.0	SLUMPED CALCLUTITE: soft sediment slumped and brecciated, interbedded calclutite with minor dark grey silty dolomite. Minor calcite veining with minor disseminated pyrite	Trace pyrite.					
199.0	217.0	FOSSIL BRECCIA: predominantly an oolitic grey to black, micritic to calcarenitic dolomite matrix with angular to rounded coralline fragments, pisoliths, shells, laminar muds (exotic to sequence) and other fossil debris slumped into it. Moderate calcite veining with minor disseminated pyrite	Trace pyrite.					
217.0	227.7	INTERBEDDED DOLOMITE/CALCLUTITE: the fossil breccia grades down hole into a rhythmically bedded dolomite/calclutite sequence. Dolomite is laminar, pyritic, carbonaceous and silty, generally in beds varying between 1cm and 15cm. Minor very fossiliferous sections of dolomite occur close to fossil breccia. Calclutite generally grey, massive, stylolitized, unfossiliferous with beds varying in width from 1-10 cm's. Minor calcarenites present. Bedding 223.5 m 40° to ca; 219.5 m 50° to ca; 227.5 m 42° to ca, Abundant pyrite occurs along bedding contacts as blebs or as disseminations parallel to bedding. Minor to moderate calcite veining, minor tectonic (healed with calcite) breccia's with minor siderite.	Trace pyrite.					
227.7	234.0	SLUMPED CALCLUTITE: grey, massive, slump brecciated (angular to sub rounded fragments) stylolitized calclutite containing numerous thin interbeds of slumped dark grey silty carbonaceous dolomite (beds < 1.5 cm width) Dolomite occurs also as matrix to breccia. Minor tectonic breccia's with calcite cement.						

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
234.0	240.5	LAMINAR CALCLUTITE: light grey, laminar, carbonaceous and pyritic calclutite interbedded with thin carbonaceous layers and massive calcarenites. Moderate number of stylolites. Moderate calcite (trace siderite) veining. Bedding 239m 45° to ca. Rock very competent.						
240.5	250.0	LAMINAR SLUMPED DOLARENITE: Finely laminar to massive dark grey to black, speckled sandy and weakly pyritic in part slump brecciated dolomitic arenite. Bedding very apparent but breccia fragments within individual beds are very chaotic in orientation. The fragments are subrounded but generally have lengths 3 to 5 times their widths. Minor calcite veining. Minor tension fractures are calcite healed. Minor to trace siderite. Bedding 242.5m 42° to ca, 247.5 m 45° to ca.						
		END OF HOLE 250.0 metres						

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