Amoco Minerals Australia Company

DRILL LOG — HOLE No. ZT-81A-9 — PAGE 1 OF 7

PROJECT	ZEEHAN-TAS	No. A7860 C	ELEVATION meters	COMMENCED 11 DEC '81	BORE HOLE SURVEY			INSTRUMENT Eastman Single Shot						
					Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing	
PROSPECT	AUSTRAL EZ/JV AREA		DIP COLLAR 45° GW	COMPLETED 15 DEC '81	50	45.5	206							
CO-ORDINATES	555 mN	1500 mE	CORE SIZE HQ, NQ	TOTAL LENGTH 149.5 meters	100	46	205							
BEARING	221 TN	210 MN	242 GN	LOGGED BY P. A. JONES	Machine Used: MINDRILL 10L A.D.D. Pty Ltd.	150	47	205						

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
0.00	3.50	GRAVEL: White, quartzose, rounded, iron oxide stained, with peat, sandy matrix.						
HW-HQ Coring								
3.50	7.50	WEATHERED DOLOMITE: Light to dark grey (oxidised olive brown), fine to medium grained weakly rugby (rugbs infilled by calcite), massive dolomite. Core very broken with poor recoveries due to weathering. Minor sericite content indicative of argillaceous component.	Trace fine blebby pyrite.					
7.50	11.20	LAMINAR CALCMICRITE / DOLOMITE: Laminar, white to light grey calcareous argillaceous very weathered calcmicrite and dark grey very weathered (olive-brown) dolomites inter-bedded with minor more massive calcmicrites. Again poor recoveries (= 50-60%) due to extreme weathering. Bedding 60° to ca. @ 10.30 metres.						
11.20	20.10	SLUMPED CALCLUTITE / DOLOMITE / CALCARENITE: Very weathered, broken core comprised of slumped, and soft sediment deformed, grey to dark grey, massive and weakly fossiliferous calclutites, contorted and chaotically bedded fine to medium grained, black, massive, calcite cemented, dolomites and fossiliferous very fragmental (corals, and shelly debris) calcarenites. Section of core from 13.5 - 15.5 more a slumped fossil breccia. (lack of identification due to weathering). Numerous large coralline fragments present along with sub angular intraclasts. Core moderately calcite veined.	Trace pyrite.					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
20.10	21.80	LAMINAR CALCLUTITE / CALMICRITES : Thinly interbedded, very laminar, light grey to olive grey, very calcareous, weathered and porous, calclutites and darker grey calcmicrites. Core badly broken along bedding planes. lamellae from <1mm up to 4-5mm. Bedding 55° to c.a. @ 21 metres.						
21.80	35.50	INTERBEDDED DOLOMITE / CALCLUTITE / CALCARENITE: Thickly interbedded, massive, black, very carbonaceous, pyritic, argillaceous weakly calcite cemented very fine grained dolomite varying from 1cm up to 15-20 cm in width, grey, massive, to weakly fossiliferous calclutites and light grey very fossiliferous calcarenites. The later generally thinly bedded, <5 cm in width. Core badly broken but good recoveries. Core weakly calcite veined with trace cream-siderite with trace sphalerite @ 33.40 m. Core from 31.00 to 31.30 very schistose with aligned sericite plates giving shimmering effect. Core probably foliated argillaceous dolomite due to overprinting by cleavage. Bedding 56° to c.a. @ 25 m ; 58° to c.a. @ 28.5 metres.	Minor very thin bedded pyrite lamellae within dolomite, minor disseminated pyrite within dolomite and minor coarse blebby pyrite generally within calcite veins and to a lesser extent within dolomite. Trace sphalerite @ 33.40 metres.					
35.50	45.10	INTERBEDDED PISOLITHIC CALCARENITES / DOLOMITE / CALCLUTITE : Thinly bedded (from 2-5cm in width) light grey, pisolithic, and oncolithic fragmental calcarenites are interbedded with, 1-5cm wide, black, massive, pyritic, carbonaceous, calcite cemented dolomites and minor grey massive calclutite. Core moderately soft sediment deformed with slumpy textured bedding contacts. Cleavage foliation also masking bedding. Core heavily stylolitized. Core moderately broken. Pisolites and oncolites represent concretionary layers of calcareous mud surrounding numerous	Minor to ≈ 1.5% disseminated pyrite within dolomites. Pyrite replaced layers occur around pisolites					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
35.50	45.10	CON'T: different nuclei including coral frags, crinoid essicles, host rock frags., and other fragmental debris. On numerous occasions these concretionary layers have been pyritized. Bedding 52° to c.a. @ 40.00 metres.						
45.10	46.50	FRAGMENTAL CALCARENITE: Coquina textured fragmental (shells, crinoids, corals and other debris) speckled grey calcarenite with thin wispy and contorted dolomite interbeds. Part of unit weathered and is very porous and leached hence the beige grey colour. Wispy dolomite interbeds vary from 1-5 mm in width.						
46.50	64.90	SOFT SEDIMENT DEFORMED FOSSILIFEROUS CALCLUTITES / DOLOMITE: Grey, generally massive, weakly fossiliferous (coral, shelly and other fragmental debris and minor pisolites and oncolites.) moderately stylolitized, soft sediment deformed and slumpy textured calclutites with thin interbeds of black fine grained, calcite cemented, carbonaceous dolomite. Very minor and thin interbeds of very fossiliferous calcarenites. Core badly broken and shattered near two calcite healed angular breccia's. Breccia's from 52.2 - 52.4 (calcite healed); 54.30 - 54.80 (calcite / pyrite healed); 59.20 - 61.50 (angular + calcite, minor pyrite healed). Core moderately calcite veined apart from breccia's. Cavity from 50.2 to 52.0 metres. Core weakly dolomitized from 46.5 to 48.5. Core moderately fossiliferous, somewhat like fossil breccia horizons but with less debris and more matrix, from 63.5 to 64.9 metres.	Minor pyrite in calcite healed angular breccia's						
64.90	84.20	SLUMPED CALCLUTITE / DOLOMITE / CALCARENITE:	Sphalerite (pink) as fine					
HQ → NQ (75m)		Soft sediment slumped, and contortedly inter-	rounded disseminations					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
64.90	84.20	CON'T: bedded, gray, massive, weakly fragmental and pyritic calclutites, light grey fossiliferous to unfossiliferous calcarenites and black, fine grained, calcite cemented, carbonaceous, dolomite. Core weakly dolomitized with coarser grained, white, crystalline, dolomite aggregates pervasive throughout unit. Core weakly to moderately veined. Trace galena / sphalerite @ 75.2 m and 76.00 m. and 76.3m Calcite minor siderite vein breccia @ 73.20 - 73.50 metres. Unit contains numerous large colonial coral fragments, gastropod casts, and other fragmental debris with sections of unit being very slump brecciated with angular fragments chaotically set within a dolomite matrix. Material appears to have been partly solidified then ripped up and redeposited within the fine dolomite matrix. slump breccia with exotic intraclasts from 77.20 to 77.50 metres. Massive calcite vein from 77.70 - 78.60 metres.	Galena as fine grained to coarse grained aggregates.					
84.20	86.40	FOSSIL INTRACLAST BRECCIA: Angular intraclasts and subrounded coralline debris are deposited within a medium grained, calcite cemented black, carbonaceous dolomite matrix. Coralline fragments up to 2cm in diameter. Minor pyrite. Bedded fine grained pyrite @ 85.9 m intermixed with yellow / brown argillaceous material. Fine fossiliferous material comprised of fragmental shelly coralline and crinoidal material with minor pisolites. Core badly weathered in narrow sections giving porous and leached texture.	Trace pink sphalerite (coarse grained) in calcite filled vugh. Minor pyrite.					
86.40	96.00	RHYTHMICALLY INTERBEDDED CALCLUTITES/ DOLOMITES / CALCARENITES: Interbedded grey massive unfossiliferous calclutites, very fossili-	Trace disseminated pink-brown sphalerite. Trace to minor pyrite.					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
86.40	96.00	CON'T: erous fragmental calclutites, black calcite cemented, fine grained dolomite and light grey very fossiliferous, pisolites and oncolitic fragmental calcarenites. Graded bedded, calcareous quartz arenites occur in the sequence from 95.5 to 96.00 metres with the unit younging up the hole. Minor argillaceous and laminar interbeds occur with the quartzose arenite. (Quartz grains, well sorted and rounded). Core more pisolitic towards base of unit also. Core badly broken brecciated and calcite healed at 89.3 metres to 91.20 metres (poor recoveries) Bedding 43° to ca. @ 87.3 m; 45° to c.a. @ 93.0 m and 43° to ca. @ 96 m.						
96.00	97.60	LAMINAR SPECKLED CALCLUTITE / DOLOMITE: Weakly laminar to thinly bedded grey, massive, speckled (sparite cemented ovoid and lenticular pores) heavily stylolitized (approx. parallel to bedding) calclutites, with thin (< 5 mm) interbeds of carbonaceous, weakly, pyritic, fine grained weakly calcite cemented dolomite. Minor dolomitization near tectonic breccia zone @ 97.40. Core very weakly calcite veined.	Calclutites weakly pyritic.					
97.60	102.40	INTERBEDDED CALCLUTITE / DOLOMITE / CALCARENITE: Well bedded, with sharp laminar contacts, grey massive, pyritic, calclutites (varying in width from 3cm - 10cm) black, laminar to massive, calcite cemented, argillaceous, dolomite (beds generally = 2cm in width) and speckled fragmental very fossiliferous calcarenites (shelly and fragmental debris). Dolomite very fine grained and carbonaceous and weakly pyritic. Minor pervasive dolomitization observed in certain calclutite horizons with clusters of disseminated, coarse grained dolomite being	Minor very fine grained disseminated pyrite in calclutite. Trace blebby pyrite within dolomite. Pyritic smears on cleavage planes.					

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
97.60	102.40	CON'T: evidenced. Fossiliferous calcarenite horizons generally <5cm in width. Bedding 53° to ca. @ 98m ; 47° to ca. @ 101.7 metres.						
102.40	112.60	SOFT SEDIMENT DEFORMED CALCLUTITE/ DOLOMITE/CALCARENITE: Soft sediment deformed and slumpy textured, massive grey calclutites, laminar, but wavy and irregularly bedded, black, massive, fine grained dolomites and thinly interbedded very fossiliferous fragmental shelly calcarenites. Minor sparite filled ovoid pores in certain horizons. Laminar more micritic calclutites also occur from 106.8 to 108.0 m. Core weakly calcite veined. One 5cm wide vein @ 107m parallel to bedding. Other veins from 1-4 mm in width and are transgressive to bedding. Wavy and irregular bedding contacts are slickensided and weakly faulted as evidenced by cut off calcite veins. Bedding 50° to ca @ 110.30 metres. Core moderately foliated and moderately stylolitized.	Trace pyrite.					
112.60	114.80	THINLY INTERBEDDED MICROCRYSTALLINE CALCMICRITES/ANKERITE: Light beige to grey massive, microcrystalline, slumpy textured, weakly fragmental in part speckled white, micrites, thinly interbedded with tan grey medium grained, contortedly bedded ankerites. Ankerite crystals are very white when acid etched but are tan in colour after oxidation, as distinct from the oxidation of ddomite. Core weakly calcite veined. Interbeds generally do not exceed 1cm in width. Core moderately to strongly stylolitized. (carbonaceous filled).						

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
114.80	149.50	SLUMPED FRAGMENTAL CALCLUTITES, DOLOMITES / PISOLITIC CALCARENITES: Slumped, and contortedly and wavy, interbedded, grey fragmental calclutites, grey very fossiliferous pisolitic calcarenites and black very fragmental, to weakly so, dolomites. Dolomites vary from white speckled, black, more massive and medium grained to weakly laminar carbonaceous and argillaceous and fine to medium grained. Calcarenites vary from very pisolitic and fragmental to weakly fragmental and generally has pervasive dolomitization apparent. Minor sections within the unit contain abundant, medium to coarse grained, rounded and well sorted quartz grains (quartzose calcarenites). The calclutites are also weakly to very fragmental with minor more massive sections also apparent. Disseminated (1-2%) pyrite occurs throughout the calclutites and calcarenites as well as minor blebby pyrite. Pyrite also occurs replacing concretionary layers around pisolites. Pisolite nuclei vary from coral fragments to fine intraclasts and other fossiliferous debris. Overall the core is heavily dolomitic. Core cut by massive calcite/siderite/pyrite angular leetonic breccia from 138-142 m. Zone has minor galena/sphalerite mineralization associated with it (<1% Pb/Zn). Breccia comprised of host rock, angular, fragments, siderited (yellow/fawn crystals) and dolomitized fragments set within a calcite matrix. Weak siderite vein-emplacement is also apparent accompanied by finely disseminated galena and trace sphalerite mineralization. Core from 142-149.5 is badly broken brecciated, moderately dolomitized and weakly ankeritic, well calcite veined and contains fudgy sections. Hole at this point is entering faulted contact with Amber Slate. Bedding 47° to ca @ 120.7; 50° @ 136.2m.	1-2% pyrite as fine grained disseminations, blebbs and also occurs replacing concretionary layers around pisolites within calclutites and calcarenites. Calcite/siderite/pyrite breccia with trace galena/sphalerite from 138-142 m.						
END OF HOLE		149.50 METRES.						