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EL 520 AND EL 909

STUART CREEK

PROGRESS AND FINAL REPORTS FOR THE PERIOD 20/8/79 TO 19/10/82

Submitted by

Amoco Minerals Australia Co.
1982

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PRIMARY INDUSTRIES AND RESOURCES SA

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AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520, SOUTH AUSTRALIA

QUARTERLY REPORT TO NOVEMBER 20, 1979

January 1980

G.C. Miller
Project Geologist

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LIST OF PLANS

Plan No.	Title	Scale	
W1160	AEROMAGNETIC CONTOURS - STUART CREEK	1:50,000	In Pocket
W1728	YARRA WURTA PROSPECT GRAVITY CONTOURS - STUART CREEK	1:20,000	In Pocket

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520, SOUTH AUSTRALIA

QUARTERLY REPORT TO NOVEMBER 20, 1979

1. INTRODUCTION

This report covers work completed on Exploration Licence 520 in the period August 20 to November 20, 1979, plus the latter part of the period May 13 to August 20, 1979, when the area was designated DM 237/79.

2. EXPLORATION COMPLETED

Following some infill gravity surveying, a deep stratigraphic diamond drill hole was drilled on the regional gravity high in the Yarra Wurta area. Some geological and geochemical work on folded sediments east of the Torrens Flexure was commenced; this will be reported on in the next Quarterly Report.

2.1 Gravity

Approximately 70 new gravity stations were created and 40 existing stations re-read in the area of a local enhancement of the regional gravity high, near latitude 30° 07' 35" and longitude 137° 09' 20", indicated by a previous survey. The new work confirmed the existence of a local enhancement while also showing the probable northern edge of a high in Western Mining Corporation's ground to the south. All gravity data collected in the Exploration Licence is plotted on Enclosure 2. Where stations were closer than 200 meters, however, only every second value has been plotted.

2.2 Drilling

Essential technical data is as follows :

Hole Number :	SCYW-79-1
Yarra Wurta Grid Position :	6000N 4200E
Latitude :	30° 07' 35" Longitude : 137° 09' 19"
Declination :	Vertical
Commenced :	August 30, 1979
Abandoned :	Due to technical problems September 22.
Percussion Precollar Depth :	228 meters
Depth When Abandoned :	286.50 meters

Hole Number :	SCYW-79-1A		
Yarra Wurta Grid Position :	5960N 4200E		
Latitude :	30° 07' 35"	Longitude :	137° 09' 19"
Declination :	Vertical		
Commenced :	September 23, 1979		
Completed :	October 30, 1979		

For logistical reasons, and by arrangement with the contractor, the hole was fully cored to 750.20 meters.

The drilling contractors were Boring Enterprises Pty. Ltd. (percussion) using an Ingersol Rand T4 Truckmaster and Diamond Drilling Pty. Ltd. (core drilling) using a trailer mounted Longyear 38.

A brief summary log of the hole is as follows (detailed log with analyses and petrological descriptions to be included in the next Quarterly Report).

0.00- 28.47 meters	Yarra Wurta shale (Cambrian)
28.47-196.20 meters	Andamooka limestone (Cambrian)
196.20-750.20 meters	Adelaidean (Upper Proterozoic) siltstones, sandstones and shales. Minor pyrite and chalcopyrite in reduced bands of sandy sediments.

The hole was initially designed to go to 800-1,000 meters, but was terminated early because of a fund shortage caused by the first abandoned hole. Though calculations by Consultant, B. Dockery, indicated no mineralization similar in extent and specific gravity to the Olympic Dam mineralization at these depths, it was decided to test for mineralization with a density contrast of about 0.2 milligals with the surrounding rocks; it was felt such mineralization could be at these depths. The drill site to the west of the peak of the gravity ridge was selected to intersect a geophysical model of an east dipping three-dimensional prism on its closest to surface face.

3. ESTIMATED EXPENDITURE FOR PERIOD

Salaries (Drill supervision, levelling and gravity surveying)	$5,000
Geophysical Consultant	500
Drilling	60,968
Field Operating Costs (Cookery, core trays, fuel)	2,000
Total	$68,468

G.C. MILLER
Project Geologist

137° 05' E

30° 05' S

E.L. 520 BOUNDARY

AREA OF DETAILED GRAVITY INFILLING AND EXTENSION. (AUGUST, 1979). A QUANTUM JUMP OF 1·9 MILLIGALS WAS NOTED AND CORRECTED.

SCYW-79-1 depth 286·5m

SCYW-79-1A depth 750·2m

SCYW-79-1A

Location



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Amoco Minerals Australia Company

Project STUART CREEK		Nº A-77-49
Project Partner		
YARRA WURTA PROSPECT GRAVITY CONTOURS CORRECTED FOR A GROUND DENSITY OF 2·20 gm/cc		
Map Ref. ANG SH 53-12 Latitude 30°00'S Longitude 137°30'E		
Surveyed S.C., M.R.	Date JAN, 79	Scale 1:20 000
Drawn P.J.S.	Date JAN, 80	Drawing Nº W1728

Report

3637-1

Enclosure

136° 55' E | 137° 00' E | 137° 05' E | 137° 10' E | 137° 15' E | 137° 20' E | 137° 25' E | 137° 30' E

30° 05' S

30° 10' S

30° 15' S

E.L. 520

SCYW – 79 – 1A
depth 750·2 m

AIRBORNE SURVEY BY GEOMETRICS INC. OCT. 1977 TO FEB. 1978
AIRCRAFT : BRITTEN NORMAN ISLANDER
MAGNETOMETER : GEOMETRICS AIRBORNE PROTON MODEL G 803
SAMPLE RATE : 0·8 SECONDS
OBJECTIVE AIR SPEED : 100 KNOTS
MEAN TERRAIN CLEARANCE : 90 METRES
FLIGHT LINE SPACING : 400 METRES EAST WEST WITH 1 Km NORTH SOUTH TIE LINES IN THE SOUTH CENTRAL AREA AND 8 Km SPACED TIE LINES ELSEWHERE
CONTOURING BY : PITTMEN DATA SYSTEMS IN JULY 1979.
CONTOUR INTERVAL : 20 GAMMAS

>840 gammas
801 - 840
761 - 800
721 - 760
681 - 720
641 - 680
601 - 640
561 - 600
521 - 560
481 - 520
441 - 480
401 - 440
361 - 400
321 - 360
281 - 320
<280 gammas

Location



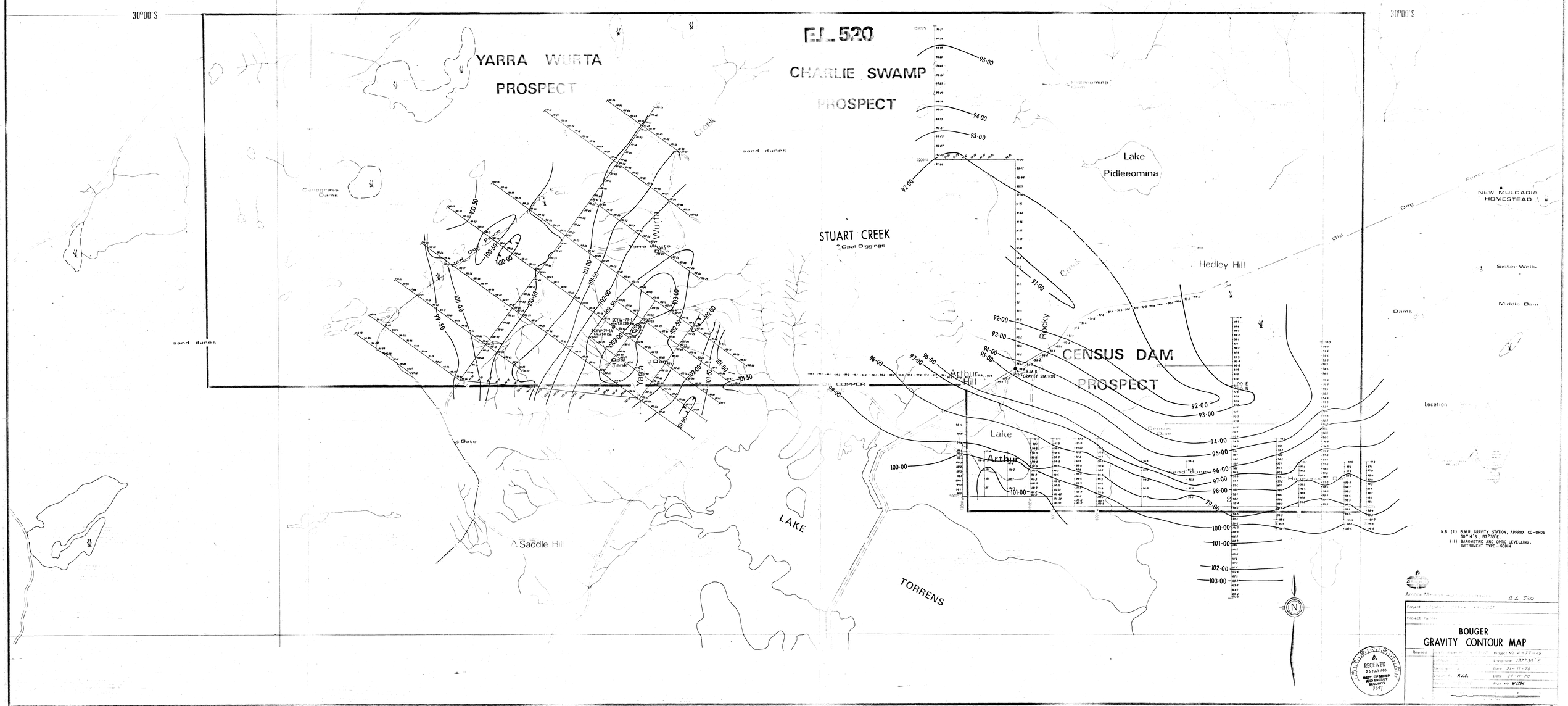
Amoco Minerals Australia Company

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21 JAN 1980
DEPT. OF MINES AND ENERGY SECURITY
5637.

Project STUART CREEK			Nº A-77-49
Project Partner			
AEROMAGNETIC CONTOURS			
Map Ref. ANG SH53-12	Latitude 30°00'S		Longitude 137°30'E
Surveyed G.C.M	Date 20-9-79	Scale 1:50000	
Drawn B.J.Z	Date 21-9-79	Drawing Nº W1160	

Geodart

3637-2



N.B. (I) B.M.R. GRAVITY STATION, APPROX CO-ORDS 30°14'S, 137°30'E.
(II) BAROMETRIC AND OPTIC LEVELLING. INSTRUMENT TYPE – SODIN

EL 520

BOUGER
GRAVITY CONTOUR MAP

Project No. A-77-49
Longitude 137°30'E
Date 21-11-78
Date 24-11-78
Plan No. W1784

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26 MAR 1980
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3637-3

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AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

STUART CREEK, SOUTH AUSTRALIA

REPORT FOR SECOND QUARTER (YEAR 2), ENDING FEBRUARY 20, 1980.

No work was carried out during the quarter. The deepening of the existing diamond drill hole is due to commence in late April 1981.

Expenditure on the Exploration Licence remains at $73,867.

Graham Miller
Project Geologist - South Australia

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31 MAR 1981
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AND ENERGY
SECURITY
7637

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

SOUTH AUSTRALIA

QUARTERLY REPORT (SECOND)

TO FEBRUARY 20, 1980

1. WORK COMPLETED IN THE QUARTER

Work was restricted to geochemical and petrological investigations on drillcores from the stratigraphic hole completed in the first quarter. No surface geological work on the exposed geosynclinal sequence in the eastern part of the Exploration Licence was carried out and presentation of a 1:50,000 geological map will be held over until the third quarterly report (to May 20, 1980).

Appended to this report are :

(a) A detailed geological drill log by R.A. Harley with AAS geochemical analyses by A.C.S. Laboratories of Adelaide (samples 36225-36248, 39251-39282 and 43225-43300) and Analabs (Aust) of Kalgoorlie (36225-36248 and 43201-43224; the former being repeats of copper and some gold analyses).

(b) A drill section, and

(c) Petrological descriptions by I.R. Pontifex.

2. Approximate expenditures during the quarter :

Salaries (re: sample splitting and preparation, drill log preparation)	$500
Office rent and communcations	50
Geochemical analyses	610
Petrology	225
Total	$1,385

3. Work planned for third quarter :

Completion of 1:50,000 geological map.

Graham Miller

G.C. MILLER

Project Geologist SA

Pontifex & Associates Pty. Ltd.

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009

MINERALOGICAL REPORT NO. 2797

19th December, 1979

TO: Mr. R. Harley,
Amoco Minerals Aust. Co.,
1 Pam Street,
PAYNEHAM S.A. 5070

YOUR REFERENCE: Your Order No. W13809
Project No. A-77-49/444

MATERIAL: Core samples

IDENTIFICATION: Nos. 36226 to 36231 (inclusive)

WORK REQUESTED: Thin section and polished section examination as specified

SAMPLES & SECTIONS: Retained, awaiting your collection

PONTIFEX & ASSOCIATES PTY. LTD.

36226 : homogeneous, well sorted, very fine chloritic and arkosic sand; minor, thin and discontinuous carbonaceous pelitic laminae intercalated; accessory disseminated (and bedded) pyrite

The bulk of this rock consists of a homogeneous fairly tightly packed, and well sorted detrital aggregate of subangular, quartz, minor potash felspar (10 - 15%), and lesser plagioclase, average grain size about 0.13 mm.

Pale chlorite is ubiquitous along intergranular contacts, and this same chlorite forms discrete grains, some pellet-like, average size 0.3 mm, randomly scattered through the quartz felspar sediment. This chlorite forms up to 10% of the rock. Indeed in the pellet-like form, it may well be identified as 'chloritic-clay' possibly approaching a glauconite composition, although as far as can be ascertained optically it is not glauconite as such.

Rare, round detrital grains of tourmaline form part of the aggregate. Accessory extremely fine grains of pyrite are disseminate and form trains along the layering.

Braided, streaky, and flame-like wavy layers of weakly metamorphosed pelitic material are variably continuous, and intercalated within this otherwise homogeneous fine sand, to form about 20% of the sequence. These consist of muscovite and 'biotite' but are quite densely clouded, apparently with ultrafine carbonaceous material. Fine pyrite occurs in some of these layers.

Diamond Drillhole S.C.Y.W 1A 713.70 meters

36227 : well sorted, dolomitic chloritic and arkosic, very fine sand, subordinate pelitic material intercalated and partly admixed; accessory authigenic quartz, disseminated chalcopyrite lesser pyrite (including framboids), vein of anhydrite calcite

This rock is partly similar to 36226, although basic differences include a higher proportion of pelitic sediment (40 - 45%) and correspondingly less fine sand (55 - 60%), minor detrital carbonate in the sand, an absence of ubiquitous intergranular chlorite.

The sand consists of a well sorted, fairly tightly packed aggregate, average size 0.13 mm, and is composed of essential quartz; minor K-spar (7 - 10%), detrital carbonate (dolomite or ankerite) in some bands (5 - 7%), detrital plagioclase (<5%), chloritic fragments (5%), some more or less pelletal; accessory detrital tourmaline and muscovite. The chloritic material may be partly 'glauconitic' although this cannot be positively resolved optically. Locally this chloritic material is intergranular.

The quartz is commonly dusty. Authigenic siliceous overgrowths are fairly common on quartz, more or less filling intersticies, more abundant in some layers than in others. Accessory fine sulphides are also disseminated through the sand.

The pelitic material consists of a turbid mixture of extremely fine ill-defined muscovite-biotite-chlorite, quartz silt, accessory titaniferous granules, and minute sulphides. This fine sediment occurs in irregular, wispy intercalated layers as in 36226, but rather than confined essentially to these layers as in that sample, it also grades imperceptibly into the sand tending to become intermixed with it.

Diamond Drillhole S.C.Y.W.1A 536.10 meters ...1

36227 continued :

A single vein of a sulphate mineral (?anhydrite), with associated very small sparry calcite crystals, cuts across the bedding.

In polished section fine sulphide grains up to 0.5 mm in maximum dimension are seen to consist mainly of chalcopyrite albeit <1%.

Generally much finer (0.01 mm) pyrite occurs as single grains, and some in small clumps to 0.5 mm, including pyrite in micro-framboidal clusters. These sulphides are all disseminated through intergranular areas in the sand layers, and to a somewhat lesser extent through the pelitic domains. They tend to be more abundant in some beds than in others.

36228 : silty meta-pelite with irregular beds (? and micro-sedimentary dykes) of the same very fine sand as seen in 36227; sparse small clusters of fine pyrite, intergranular pyrite cement locally in the sand, accessory micro-framboidal pyrite widely disseminated

This rock is dominated by silty-pelitic sediment (of the type in above samples), but contains minor sand (also of the type seen to be so abundant in the two samples above.)

Basically it consists of a bedded mass of pelitic detritus, now low-grade metamorphosed to intimately mixed, extremely fine, muscovite, chlorite, biotite, (including some platy muscovite), crowded with arkosic silt (and including some detrital muscovite). Minor fragments of microcrystalline carbonate are also scattered.

Very fine, weakly dolomitic chloritic and arkosic quartz sand forms 25 - 30% of the rock. This has exactly the same composition as the sand in 36227, but has a highly irregular distribution in discontinuous thin beds and isolated patches, all of which appear to represent a variety of sedimentary, sand (clastic) micro-dykes. Individual grains of this same sand are scattered through some of the silty pelite beds.

Fine pyrite forms isolated clusters up to 2 x 5 mm, associated with chlorite, more or less within the pelitic layers. Trace, minute sulphides are fairly widely disseminated, commonly as micro-framboids. This disseminated pyrite tends to be more abundant in the sand, than in the pelite, and locally it coagulates to form an intergranular cement (in chloritic material).

Diamond Drillhole S-C-J-W 1A 938·80 meters

36229 : arkosic chloritic and silty-pelite (shale), interbedded with pelitic siltstone of essentially the same composition, and a minor intertongue of chloritic arkosic very fine sand;
very fine pyrite, including spheroidal and framboidal forms are disseminated, and clustered in intergranular areas in the sand ± trace chalcopyrite

Macroscopically this core is seen to consist of a thin bed of weakly metamorphosed silty pelitic facies (shale) in contact with a slightly coarser equivalent (pelitic silty facies), with the tip of an intertongue partly along the contact composed of the same very fine sand as described in the samples above. (Accessory small pellet-like 'c hloritic' grains are fairly prominent in the sand.)

In thin section the fine facies consists of arkosic silt evenly dispersed throughout a 'matrix' of somewhat turbid, mixed, extremely fine muscovite, biotite-chlorite. Much of the muscovite appears to be detrital. Fine chlorite 'grains' are equivalent to the discrete 'chloritic' grains in the sand. The potassic felspar silt grains are (as in other samples), highlighted on the thin section offcut by yellow, sodium cobaltinitrite stain.

Minute titaniferous granules, iron oxides and equally pyrite grains are dispersed.

In polished section the fairly abundant (3%) dispersed Fe/Ti oxide granules are clearly recognised. Very fine (0.05 mm) single grains of pyrite are variably, vaguely spherulitic to framboidal and to subhedral in form. In the sandy intertongue they are intergranular to the fairly loose aggregate fabric, and rarely surrounding chloritic grains. In the pelitic facies they are disseminated, and locally coagulated into small cementing clusters up to 0.7 mm across.

Several single grains of chalcopyrite (0.13 mm) occur in the sand.

Sulphides appear to be proportionately most abundant in the sandy facies.

36230 : weakly dolomitic and arkosic, but substantially chloritic very fine sand (cemented by authigenic quartz); intercalated with irregular beds of 'oxidised' silty pelitic sediment; no evidence of sulphides

In sedimentary structure and composition this rock is almost the same as the collective characteristics of samples 36226 and 27. Exceptions are that the intercalated pelitic facies is oxidised to a chocolate colour, and there are more chloritic grains in the sand, and more intergranular authigenic quartz.

The thin bedded sand which forms about 65% of the rock is well sorted, average size about 0.13 mm. Authigenic quartz overgrowths are fairly extensive thus largely occupying intergranular areas. About 10% of disseminated grains consist of K-spar, lesser detrital grains of dolomite are scattered.

Chlorite grains (including roundish pellet-like grains which may approach a glauconite-like composition) are common but tend to be relatively abundant in discrete ('heavy-mineral') layers ± green biotite. These components surely indicate reducing conditions of deposition, however marginal oxidation of the green-biotite has since taken place.

This sandy facies is intercalated with, and rarely forms micro-dykes through, rather irregular layers of pelitic material.

This pelitic material consists of compact, very fine micas, with dispersed arkosic silt. These domains are permeated by ultra-fine limonite, to suggest that they have been selectively oxidised subsequent to deposition, or what seems more likely, they were in fact in an oxidised state during deposition (in contrast to the essentially unoxidised intercalated sandy sediment).

Diamond Drillhole S.C.Y.W.1A 658.65 metres

36231 : homogeneous, weakly dolomitic, but quite strongly arkosic, very fine micaceous siltstone; weakly metamorphosed to shaly siltstone; fine micas completely permeated by limonite

Macroscopically this is a massive, homogenous, 'chocolate-shale or silty shale'. Petrographically it is seen ot have a similar composition as the intercalated pelitic layers in 36230, although it contains more silt and minor carbonate.

It consists of abundant arkosic silt, evenly dispersed and crowded throughout a 'matrix' of similarly oriented and fairly tightly packed very fine micas. These micas are completely permeated by limonite.

Minor silt-size grains of dolomite (10%) are scattered, and no doubt represent fine equivalents of the detrital dolomite seen in the fine sandy facies above.

Diamond Drillhole S·C·Y·W·1A 205.39 meters

Pontifex & Associates Pty. Ltd.

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MINERALOGICAL REPORT NO. 2840

26th February, 1980

TO:	Mr. G. Miller, Amoco Minerals Aust., 1 Pam Street, PAYNEHAM, S.A. 5070
YOUR REFERENCE:	Order No. 12977
MATERIAL:	Core sample
IDENTIFICATION:	43483
WORK REQUESTED:	Thin section description and identify green mineral
SAMPLE & SECTION:	Returned to you with this report

PONTIFEX & ASSOCIATES PTY. LTD.

43483 : bedded, well sorted, medium grained ortho-quartzite; numerous, detrital, soft greenish grains, variably weathered to clay-like material which may be limonitised (oxidised), optically indeterminate - but considered as 'chloritic-clays', ?possibly glauconite

Diamond Drillhole S.C.Y.W 1A 605.26m

This rock is evenly, vaguely thin bedded gradational to fairly massive. It consists mainly of an homogeneous, fairly tightly packed aggregate of subangular to subrounded quartz grains, reasonably well sorted, average size about 0.25 mm.

Authigenic quartz overgrowths are extensive and occupy most original intergranular pore space, + ubiquitous secondary iron oxide staining. Accessory grains of detrital K-spar are scattered.

Fairly abundant (15 - 20%) distinctly rounded, ovoid and some pellet-form grains (or voids after these grains) are scattered along the bedding in variable concentration. Some of these (macroscopically) are seen to be soft, apple-green and somewhat waxy to earthy and clay-li Some of these have a brownish (? limonitic-oxidised) core or rim, distinctly turbid in thin section.

Many of these grains are brokwn down to very pale greenish, and/or brownish-oxidised products, partly or completely removed, to produce partial or complete 'roundish' voids.

Neither the fresh greenish grains, or the weathered equivalent can be positively identified optically. Certainly the unaltered grains are similar to those previously called 'chloritic-clay' in sample 36226, previous report 2797.

.../

43483 continued :

There is no petrographic evidence to suggest that these grains are embolite, which is the identification given by XRD, by AMDEL, of apparently similar greenish grains in a sample 6337RS45 (Amoco DDH SCYW1a).

Geochemical analysis of this sample (43483) for Ag Cl Br may assist in suggesting a correlation between the grains discussed herein and embolite. In the absence of anomalous chemical values for Ag Cl Br, the grains seem best considered as 'chloritic-clays'. However the possibility of glauconite should be checked by XRD.

Amoco Minerals Australia Company

DRILL LOG — HOLE No. SC Y W 1 — PAGE 1 OF 2

PROJECT STUART CREEK No. A-77-49	ELEVATION meters	COMMENCED 30-8-79	BORE HOLE SURVEY Depth (m) / Dip / Bearing	INSTRUMENT Depth (m) / Dip / Bearing	Depth (m) / Dip / Bearing
PROSPECT YARRA WURTA	DIP COLLAR -90°	ABANDONED COMPLETED 22-9-79	160 / -86°	189 / -80°	
CO-ORDINATES 6000 mN 4200 mE	CORE SIZE Percussion, NQ	TOTAL LENGTH 288.5 meters	170 / -86°	192 / -78.5°	
BEARING TN MN GN	LOGGED BY R A. HARLEY		180 / -82.5°		

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	Co	Ni	Mn
0	22.8	Pre collar percussion												
22.8	28.5	NQ core. Hole abandoned.												
		Yarra Wurta Shale (0 - 32 m) - Cambrian												
0	32	Yarra Wurta Shale. - predominantly brown shale with thin green siltstone bands. Minor manganese spotting on siltstones.		43201	0	10	10	10	25	95	x	30	x	
				43202	10	20	10	10	30	65	x	25		
				43203	20	30	10	10	35	70	x	30		
		Andamooka Limestone (32-200m) - Cambrian												
32	~~54~~ 54	LIMESTONE. - massive mottled grey white limestone. Several sandy and silty sections. Minor disseminated pyrite from 38-54m. Strong water flow from 34m.	< 0.5% py between 38 - 54m.	43204	30	40	10	165	50	85	x	40		
				43205	40	50	10	165	50	75	x	50	x	
54	80	DOLOMITIC SILTSTONE SANDSTONE - white and pinkish white massive to bedded siltstone and sandstone. Thin chocolate brown shale bands. Minor gritty sections becomes sandier towards bottom. Badly contaminated 70-72m.	Tr. py 78-80m	43206	50	60	10	20	30	40	x	35		
				43207	60	70	10	10	40	35	x	35		
				43208	70	80	10	10	35	30	x	35		
80	96	DOLOMITIC SANDSTONE - pale pinkish brown dolomitic sandstone and silty sandstone. Minor calcareous sections.		43209	80	90	10	10	40	35	x	35		
96	119	LIMESTONE. - pale green and grey limestone. Disseminated glauconite scattered between 96 - 110 and 114 - 119 m. Several sandy and silty sections with brown siltstone bands between 110 - 114		43210	90	100	10	10	40	35	x	40	x	
				43211	100	110	10	10	35	30	x	45		
				43212	110	120	10	5	30	25	x	40		
119	149	DOLOMITIC SILTSTONE, DOLOMITE - white dolomitic silty sandstone and siltstone. Thin calcareous bands at 123m, 127m 129m. Vuggy in places. Finer grained dolomite from 136-149.		43213	120	130	10	5	30	30	x	35		
				43214	130	140	10	5	25	30	x	35		
				43215	140	150	10	10	25	60	x	35	x	
149	192	DOLOMITE - massive grey dolomite. Vuggy and mottled in places.	Tr. disseminated pyrite 150 - 152m	43216	150	160	10	5	35	20	x	35		
				43217	160	170	10	5	30	15	x	35		
				43218	170	180	10	10	35	15	x	35		
				43219	180	190	10	10	40	20	x	35		
192	200	DOLOMITIC SHALE, SILTSTONE, SANDSTONE - reddish brown shale and siltstone interbanded with white pink siltstone and sandstone. Minor oolitic dolomite. Becomes sandier towards base. Vuggy in places.	Tr. pyrite 195-200m	43220	190	200	10	10	10	70	x	60	x	
		Shale (200-287m) - Adelaidean												
200	~~216~~ 288	SHALE - predominantly red brown shale with thin grey green siltstone interbeds. Badly contaminated between 214-216m		43221	200	210	10	20	20	25	x	25		
				43222	210	216	6	5	5	15	x	25		
216	286.5C	INTERBANDED BROWN SHALE, GREEN-GREY SILTSTONE - red-brown to green siltstone interbanded with grey green		43223	216	226	5	10	10	35	x	30		
				43224	226	235	9	15	15	30	x	25	x	

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DRILL LOG HOLE No. SCYW1 PAGE 2 OF 2

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
216	286·5 (cont)	and pale brown weakly bedded to massive siltstones. Siltstones occasionally show current bedding. Some ripple marks and possible cut and fill structures in shales.						
		Δ angle on bedding 75°-77°						
		Eastman surveys. 160 m - 86°						
		170 m - 84.°						
		180 m - 82·5°						
		189 m - 80°						
		192 m - 78·5°.						
		Hole abandoned at 286·5 m.						

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DRILL LOG

HOLE No. SCYW 1A

PROJECT STUART CREEK No. A-77-49	ELEVATION meters	COMMENCED 24-4-79	BORE HOLE SURVEY		INSTRUMENT
PROSPECT YARRA WURTA	DIP COLLAR -90°	COMPLETED 30-10-79	Depth (m) / Dip / Bearing	Depth (m) / Dip / Bearing	Depth (m) / Dip / Bearing
CO-ORDINATES 5950 mN 4200 mE	CORE SIZE HQ NQ, BQ	TOTAL LENGTH 750.20 meters	196 / -89°	750 / -84°	
BEARING TN MN GN	LOGGED BY R A HARLEY		357 / -88.5°		
			550 / -89°		

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
0	28.47	YARRA-WURTA SHALE - massive to well bonded brown shale interbanded with massive pale green siltstone. Slightly calcareous. Local intraformational breccias, small scale faulting. Calcite in veins and some breccia zones.						
		Andamooka Limestone (28.47 - 196.20) - Cambrian						
28.47	31.85	CALCAREOUS SILTSTONE - massive to crudely bedded with thin breccia sections. Porous and occasionally vuggy.						
31.85	50.40	LIMESTONE - massive to vuggy mottled grey/pink limestone. Mottled appearance decreases from 42.47. Purple amethystine(?) in veins between 32.50 - 34.90. Calcite and anhydrite in veins between 34.90 - 50.40. 5-8% veins.	Traces pyrite in veins and on some fracture surfaces. <0.5% py					
50.40	52.30	LIMESTONE BRECCIA - dolomitic siltstone fragments in calcareous matrix. Fine grained disseminated pyrite in matrix; minor pyrite on fractures. Calcite in veins. Core badly broken.	<1% py overall. Up to 5% in matrix.					
52.30	81.55	DOLOMITIC SILTSTONE - banded dolomitic siltstone and silty shale. Creamy-pinkish white colour. Thin calcareous bands. Grey/dark brown shale bands up to 20 cm wide. Minor thin intraformational breccias in siltstones with conglomerate at 69.1 and 76 m. Fine grained reddish-brown dolomitic sandstone in breccia between 81.05 - 81.53 with green shale and clay infills. Pyrite in fracture faces and veins. Minor py in conglomerate matrix.	Strong py on fracture 53.8'-56.90 m.					
81.55	84.10	FOSSILIFEROUS LIMESTONE BRECCIA - archaeocyathid(?) breccia packed in calcareous conglomeratic limestone with calcareous matrix at base.						
84.10	90.25	DOLOMITIC SANDSTONE SILTSTONE. - massive mid veining dolomitic sandstone and silty sandstone.	<0.1% py on fracture faces.					
90.25	111.05	LIMESTONE BRECCIA - blotchy white and chocolate brown limestone breccia with irregular brown dolomitic shale fragments or infills. Fossiliferous (archaeocyathids?) in slump breccia at 91.5, 98.85, 104.6 m. Fossiliferous limestone between 105 - 104.50 m. Main breccia zone from 96.9 - 111.05. Fragments of dolomitic shale, siltstone, massive dolomite, sandstone in a poorly sorted dolomitic sulfur calcareous matrix. Calcareous rich sections including glauconite rich fragments. 1-10% disseminated glauconite between 90.25 & 96.93.						
111.05	[illegible]	DOLOMITIC SILTSTONE DOLOMITE. - dolomitic crudely banded and sparsely pyritic. Local calcite veining and fracture faces. [illegible]	<0.1% py in fracture					

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DRILL LOG SCYW 1A HOLE No. PAGE 2 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %
144.60	183.30	DOLOMITE. - massive grey dolomite. Ugly sections throughout. Minor pyrite traces.	< 0.01% Py.
183.30	196.20	BASAL DOLOMITE - sandy dolomite, dolomitic sltst. Strong bedding, minor conglomerate with thin interbeds of shale, sltstone and sandstone. Poorly sorted dolomitic sandstone matrix in grey laminate with traces of pyrite. Hole declination at 196m - 89°. Shale (196.20 - 386.57) - Adelaideana	
196.20	210.00	BROWN SHALE. - fine grained chocolate brown micaceous bedded shale, minor thin green bands. Grades to a light brown massive siltstone at base. Δ angle @ 199m = 89° TS 56231 @ 205.39 [PONTIFEX]	
210.00	314.50	INTERBANDED BROWN SHALE - GREEN GREY SILTSTONE - dark purple brown bedded shale interbanded with more massive light brown and greenish-grey siltstones. Shales banded on a 1mm - 1cm scale. Interbanding on a 5cm - 30cm scale. Sedimentary structures include current bedding (cf bb mainly in siltstones), ripple marks and possible cut and fill structures. Δ angle @ 295m = 89.5°	
314.50	386.57	BROWN SHALE - MUDSTONE. - massive brown mudstone, shale. Occasional grey-green siltstone bands. Breaks easily on bedding planes; more fissile towards base. Hole declination at 357m - 88.5°	
		SILTSTONE - SANDSTONE (386.57 - 539.45) - Adelaidean	
386.57	387.12	TRANSITION ZONE. - interbedded dark brown micaceous silty shale and pale green micaceous siltstone and sandstone. Pale green clay shale bands in green sandstone.	
387.12	395.68	BROWN SILTY SHALE - predominantly brown silty shale interbanded with green silty sandstones and [illegible] [illegible]	

SAMPLE NUMBER	METERAGE From	METERAGE To	Length	ASSAYS Cu	Pb	Co	Zn	Ag	Mn	Au
				SEE FRAS 91 SEQUENCE SHEET						
43225	202	208	6	<10	25	20	20	<2	760	
43226	208	214	6	15	<20	15	40	<2	480	
7	214	220	"	10	<20	15	25	<2	520	
8	220	226	"	160	<20	20	35	<2	520	
9	226	232	"	50	<20	25	55	<2	440	
43230	232	238	"	50	<20	20	40	<2	660	
43231	238	244	"	30	<20	25	55	<2	500	
2	244	250	"	40	<20	25	55	<2	540	
3	250	256	"	50	<20	25	55	<2	520	
4	256	262	"	10	<20	20	55	<2	600	
5	262	268	"	<10	<20	25	55	<2	680	
6	268	274	"	<10	<20	20	60	<2	660	
7	274	280	"	35	<20	20	55	<2	680	
8	280	286	"	10	<20	25	70	<2	640	
9	286	292	"	<10	<20	15	70	<2	680	
43240	292	298	"	<10	<20	15	70	<2	800	
1	298	304	"	10	25	15	80	<2	640	
2	304	310	"	<10	<20	30	60	<2	640	
3	310	316	86	<10	<20	30	60	<2	860	
4	316	322	6	<10	25	30	55	<2	800	
5	322	328	"	<10	25	10	50	<2	1000	
6	328	334	"	<10	25	20	60	<2	960	
7	334	340	"	<10	25	20	60	<2	580	
8	340	346	"	<10	20	15	65	<2	960	
9	346	352	"	<10	20	15	60	<2	700	
43250	352	358	"	<10	20	15	60	<2	1880	
43276	358	364	"	<10	35	20	65	<2	2200	
43278	364	370	"	15	45	35	70	<2		
9	370	376	"	10	25	35	70	<2		
43280	376	382	"	10	20	30	65	<2		
1	382	388	6	<10	20	30	60	<2		
43282	388	394	6	<10	<20	15	25	<2		

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Co	Ag	As	Cu (RPT)
387·12	395·68 (Total)	Bedding planes in brown silty shales indicated by brown micaceous mineral. Unit becomes sandier towards base.												
395·68	409·00	GREY GREEN SHALES AND SANDSTONE - interbanded olive green-grey silty shales and silty sandstones. Possible Chlorite on bedding planes in coarser grained sandstones with traces of pyrite and occasional chalcopyrite. Thin intraformational breccia zones at contact of shale and sandstone. Disseminated py and minor cp in sandier portions of breccia. Occasional fine grained py in silty shales. Lithic breccia at 409m with shale and sandstone fragments in a sandstone matrix. Irregular contacts. TS 36229 @ 407·50m [Pontifex]	∠0·5% py cp trace grey tetrahedrite(?) at 397·4m. Py streak 2mm to	43283	394	400	6	190	∠20	85	20	∠2		
				4	400	406	"	130	∠20	40	25	∠2		
				5	406	412	"	45	∠20	55	25	∠2		
409·00	410·06	BROWN SANDSTONE SILTSTONE - current bedded sandstone interbedded with brown siltstone. Bedding indicated by ferruginous material.												
410·06	428·05	GREY GREEN SHALES AND SANDSTONE - as for 395·68 - 409·0m. Sandstone content decreases towards base. Interbanding on 2cm - 20cm scale. Minor intraformational breccia and lead coating. Minor pyrite and trace chalcopyrite disseminations in cleaner sandstone sections. Very minor disseminated pyrite in green silty shales. Possible tetrahedrite at 423·5m in sandstone. Disseminated green glauconite (?) in lead coated sandstone	∠0·2% py cp.	43286	412	418	6	80	∠20	45	30	∠2		
				43287	418	425	7	55	∠20	45	25	∠2		
				36225	425	427	2m	80	∠20	45	20	∠2	x	80
428·05	442·55	GREEN SILTSTONE SHALE - predominantly olive green siltstone and silty shale with thin interbands of indurated massive green sandstone. Siltstones occasionally micaceous on bedding planes. Interbedding on 1cm - 20cm scale with irregular but sharp contacts. Sedimentary features include current bedding, lead coating of sandstone bits, shale units, intraformational breccia. Possible chlorite sandstone losses close to sedimentary contacts. Possible graded bedding in places ie sandy siltstone through to shale. Pyrite and trace cp mainly in more massive sandstone sections occurring as disseminations. Occasional blebs up to 0·5cm. T.S 36225 @ 438·50m [Pontifex]	∠0·1% py, trace cp.	36226	427	429	2m	60	∠20	110	25	∠2		55
				7	429	431	"	60	∠20	90	30	∠2		60
				8	431	433	"	55	∠20	50	30	∠2		50
				9	433	435	"	45	∠20	60	35	∠2		40
				36230	435	437	"	35	∠20	55	25	∠2		40
				1	437	439	"	25	∠20	30	25	∠2		25
				2	439	441	"	40	∠20	25	25	∠2		50
				3	441	443	"	25	∠20	25	25	∠2		25
442·55	443·42	GREEN BROWN SHALE - interbanded grey green siltstone with red brown shale. Similar to sequence at 216 - 314m. Minor disseminated py·te blebs	∠0·1% py.											
443·42	447·21	GREEN SILTSTONE SHALE SANDSTONE - mainly green siltstone and silty shale with sandstone brown and lead coatings. Minor current bedding. Disseminated pyrite in scattered sections. Traces of chalcopyrite.	∠0·1% py, tr cp.	36234	443	445	2m	25	∠20	65	35	∠2		30
				43288	445	452	7	20	∠20	36	20	∠2		
447·21	448·60	SANDSTONE - mainly indurated fine-medium grained sandstone with minor olive green clay (?) matrix. Several thin green-grey siltstone beds. Disseminated pyrite in sandstone.	∠0·1% py.											
448·60	449·16	BROWN GREEN SILTSTONE AND SANDSTONE - interbanded [illegible]	Tr py.											

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	Au	Cu (BPE)
449.18	457.37	INTERBANDED GREEN SHALES SILTY SANDSTONE - green grey silty sandstone and green shales. Massive silty shales in places. Minor disseminated clay spotting in brownish Sandstone at 450.3. Disseminated pyrite and limonite spotting in sandstones. Possible stylolite @ 455.81.	<0.2% py, tr cp	43289	452	458	6.10	40	<20	40	20	2.2		
457.37	458.35	BROWN SHALE SILTY SANDSTONE - brown bedded shale and silty sandstone interbanded with thin greenish siltstone beds. Minor disseminated pyrite	<0.1% py											
458.35	471.81	GREEN GREY SILTSTONE SHALE SILTY SANDSTONE - interbanded grey silty sandstone, green grey siltstone and silty shales. Siltstones micaceous in places with mica on bedding planes. Coarser sandstone is feldspathic. Minor intraformational breccia. Minor brown bedded silty sandstone. Sandstone content decreases towards bottom. Disseminated and blebby pyrite and occasional chalcopyrite occurs mainly in the coarser greenish sandstones. Occasional pyrite in green silty shales. Trace tetrahedrite(?)	<0.5% py, cp Tr. tetrahedrite(?)	43290 1 2	458 464 470	464 470 476	6 6 6	30 25 20	<20 <20 <20	45 40 40	35 25 30	<2 <2 <2		
471.81	477.75	BROWN SILTY SHALE, SANDSTONE - purplish-brown silty shale interbanded with indurated ~~bar~~ current bedded sandstone. Sandstone has ferruginous material on bedding planes. Minor green shales and siltstones. Disseminated pale green in sandstone at 471.6m. Traces pyrite and chalcopyrite.	<0.1% py, cp											
477.75	481.63	GREEN GREY SILTSTONE, SHALE, SILTY SANDSTONE - interbanded silty sandstone, siltstone and silty shales. Massive micaceous sandstone bed bottom with thin intraformational breccia at base. Minor weathered pyrite, trace chalcopyrite	<0.1% py, cp	43293	476	482	6	50	<20	40	.25	<2		
481.63	485.87	BROWN SILTY SHALE, SANDSTONE - interbanded red-brown silty shale micaceous in places and medium grained indurated current bedded sandstone. Current bedding of medium to coarse sand with ferruginous material on bedding planes. Minor green siltstones, shale and chloritic sandstones. Traces pyrite in greenish sandstone.	Tr py	43294	482	488	6	15	<20	25	20	<2		
485.67	497.45	GREEN GREY SILTSTONE SHALE, SILTY SANDSTONE - minor thin brown and purplish brown micaceous siltstone beds. Minor intraformational breccia with traces pyrite and chalcopyrite. Disseminated green glauconite(?) in coarser sandstone at 496.50.	<0.1% py, tr cp	43295 43296	488 496	496 499	6 5	20 50	25 25	40 40	25 30	<2 <2		
497.45	498.61	BROWN SILTY SHALE, SANDSTONE - current bedded brown and grey sandstone, brown micaceous silty shales and greenish-grey silty sandstone. Shale cast conglomerates in sandstones.												
498.61	504.51	GREEN GREY SILTSTONE, SHALE SILTY SANDSTONE - siltstones micaceous in places. Minor sandstone feldspathic. Several minor intraformational breccia sections. Thin [illegible]	<0.2% py, cp	30255 6 30239	499 501 503	501 503 505	2m " "	25 50 35	<20 <20 <20	25 40 40	20 25 25	<2 <2 <2		30 55 40

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DRILL LOG HOLE No. SCYC01A PAGE 5 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Co	Ag	Au	Cu(KPE)
504.51	511.56	BROWN SILTY SHALE SANDSTONE - interbedded current bedded grey brown sandstones. Fining upwards material in bedding planes. Several 1m+ fine grey quartzite sandstone beds. Thin green siltstone and sandstone beds. Shale cast conglomerate 508.10-508.9m Trace pyrite in green units.	Tr pyrite	36238	505	507	2m	60	<20	35	25	<2	X	60
				43297	507	514	7m	10	<20	40	20	<2		
511.56	513.46	GREY GREEN SANDSTONE - indurated micaceous fine-medium grained sandstone with thin green siltstone interbeds. Several poorly sorted sandstone layers with traces pyrite. Occasional disseminated pyrite in more massive sandstone.	Tr pyrite.											
513.44	522.55	BROWN SILTSTONE SANDSTONE - interbedded current bedded sandstone with chocolate brown siltstone, occasionally micaceous. Thin green siltstone beds. Shale cast conglomerate 515.2. Pyrite and possible trace chalcopyrite in green siltstones.	Tr pyrite, cp(?)	43298	514	520	6m	10	<20	35	25	<2		
522.55	524.0	GREEN SILTSTONE - grey green to olive green siltstone with thin sandstone bands.												
524.0	527.22	BROWN SILTY SHALE SANDSTONE - siltstones occasionally micaceous. Thin green lithic casted siltstone and sandstone with trace pyrite disseminations.	Tr. pyrite.	43299	520	527.2	7.2	55	<20	40	26	<2		
527.22	531.67	GREEN SILTY SHALE SANDSTONE - grey green silty shales and grey silty sandstone. Lithic casted sandstones into shales. Thin sandstone lenses. Minor chlorite on bedding planes. Chlorite and minor disseminated carbonaceous specks in coarser sandstones. Minor intraformational breccia.	<0.2% py, cp.	36239	527.2	529	1.8	55	<20	35	25	<2		60
				36240	529	531	2	60	<20	50	25	<2		55
531.67	534.12	BROWN SILTY SHALE SANDSTONE - current bedded sandstone, massive grey silty sandstone interbanded with bedded chocolate brown silty shale. Minor green sandstone and siltstone beds with traces pyrite and chalcopyrite. Disseminated pale green glauconite(?) in coarse sandstone layers.	Tr py, cp	36241	531	533	2	60	<20	40	25	<2	X	65
				2	533	535	2	50	<20	50	25	<2		50
534.12	539.45	GREEN SILTSTONE SANDSTONE - grey green brown micaceous siltstone interbanded with green grey silty sandstone. Thin intraformational breccia and minor lenticular casting of sandstones. Minor chocolate brown siltstone. Disseminated pyrite and chalcopyrite mainly in sandier sections. Py and cp paint sawn or chloritic fracture faces. TS 36227 @ 536.10m [Pooltop] Sandstone (1). (539.45 - 732.29m) - Adelaidean		36243	535	537	2	70	<20	50	35	<2	X	80
			<0.2% py cp	4	537	539	2	90	<20	60	35	<2	X	80
539.45	~~543.14~~	Change to predominantly brown (oxidised) sediments.												
539.45	543.14	BROWN SILTY SHALE SANDSTONE - grey brown current bedded sandstone with chocolate brown micaceous silty shale. Shale cast breccia 541.65-541.95. Sandstone indurated in places.		36245	539	541	2	55	<20	60	35	<2		50
~~543.14~~														
543.14	564.50	GREEN SILTSTONE SILTY SANDSTONE [illegible] brown [illegible]	Tr py.											

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DRILL LOG — HOLE No. SCYW1A. — PAGE 6 OF 7

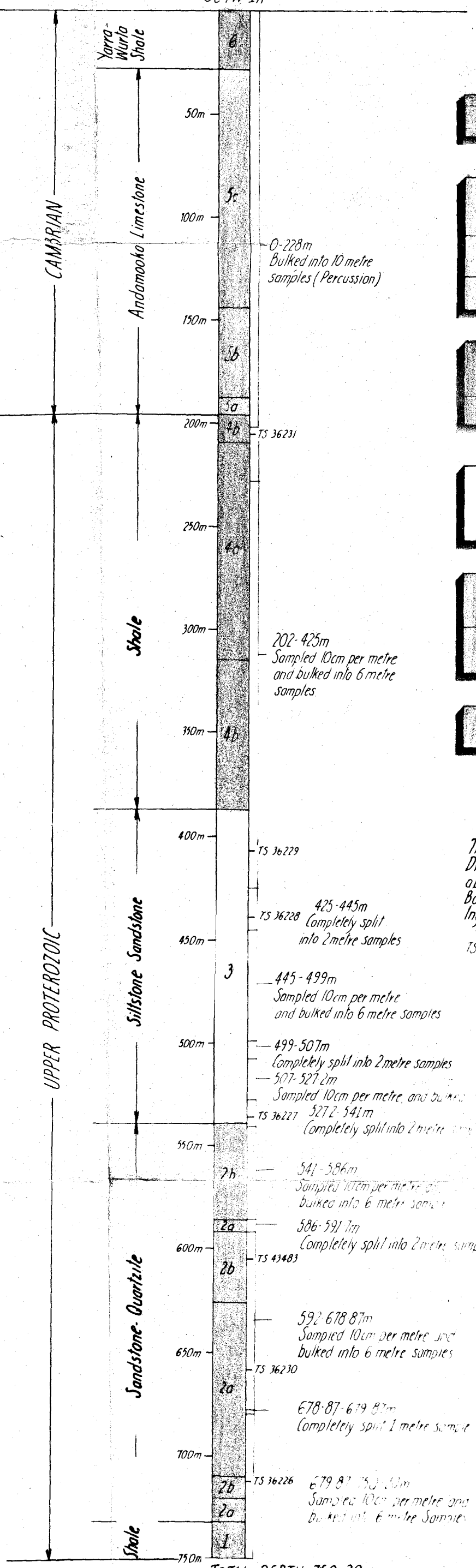
METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ni	Ag	Au	Cu (RPA)
544.50	586.70	BROWN SANDSTONE, SILTSTONE. - interbanded current bedded and massive brownish sandstone with micaceous brown siltstone. Siltstone content decreases markedly past 564. Minor green siltstone beds in upper section with sandstone bands. Some poorly sorted sandstone sections. Sandstones partly in places. Core badly broken between 551 - 555.7m Possible fault or fracture zone. Sandstones contain cross-cutting veins filled with white carbonate(?) material. Thin greenish clay sections - partly consolidated. Small scale faulting indicated by movement of veins and bedding. Salt water from fracture zone. Shale unit has laminations and abundant current bedding. Minor intraformational breccia. Very minor pyrite on some fracture faces. Hole deviation at 555m = 3°0		43300	544	548	7m	<10	<20	80	20	<2		
				39251	548	554	6	10	<20	30	20	<2		
				2	554	560	"	<10	<20	50	20	<2		
				3	560	566	"	10	20	25	20	<2		
				4	566	572	"	10	20	15	15	<2		
				5	572	578	"	40	25	25	15	<2		
				39256	578	586	8m	10	<20	20	15	<2		
586.70	591.40	GREY MASSIVE SANDSTONE. WITH CURRENT BEDDED (LITE) Predominantly massive indurated massive sandstone with thin brown shale and sandstone bands. Several sections of sandstone coarse grained with well rounded grains. Pyrite spherules 587.00	Tr py.	36246	586	588	2	55	<20	40	30	<2		50
				87	588	590	2	55	<20	30	15	<2		30
				36248	590	591.7	1.7	10	<20	25	<10	<2		5.
591.40	625.35	BROWN CURRENT BEDDED SANDSTONE. - reddish brown and grey industrial current bedded sandstone with thin interbeds of chocolate brown micaceous silty shales and massive grey sandstone. Sandstone varies from medium grained to silty sandstone. Pyrite grain disseminated in some sections. Minor shale with associated pyrite and trace chalcopyrite on fracture faces. Disseminated pyrite spherules scattered throughout Sandstones pitted in places where pyrite has leached out. Abundant current bedding, intraformational breccia and shale coat conglomerate. TS 605.26m [No 43303, Potential]	Tr py.	39257	592	598	6m	10	<20	15	10	<2		
				8	598	604	"	10	<20	25	15	<2		
				9	604	610	"	<10	<20	15	15	<2		
				39260	610	616	6	15	20	40	20	<2		
				1	616	622	6	<10	20	25	10	<2		
				2	622	628	"	<10	<20	<10	<10	<2		
				3	628	634	"	<10	<20	<10	<10	<2		
				4	634	640	"	30	20	15	10	<2		
				5	640	646	"	20	<20	20	10	<2		
				39266	646	652	"							
625.35	651.89	GREY MASSIVE SANDSTONE - predominantly massive indurated clean grey sandstone with thin interbeds current bedded sandstone and brown silty shales. Several greenish shale-siltstone beds. Conglomerate at 626.55 with Quartz sandstone clast pebbles, yellowish Sandstone matrix. Sandstone jointed and badly broken in several places. Occasional current bedding and shale coat conglomerate. Pyrite spherules occur in scattered sections.	Tr py.											
651.89	652.92	BROWN CURRENT BEDDED SANDSTONE. - ferruginous material on bedding planes. Sandstone is pitted in places												
652.92	709.95	MASSIVE SANDSTONE, GREEN AND BROWN SILTSTONES interbanded massive grey indurated sandstone with interbeds 40 to several metres of green siltstone and sandstone and chocolate brown silty shales and siltstones. Green siltstone and sandstones show shale lead out textures. Possible glauconite in sandstone bands and lead outlines. Several intraformational breccia sections and minor shale coat conglomerate. Some cross current bedding. Pyrite on fracture surfaces and some bedding planes with thin carbonate. Pyrite spherules scattered throughout massive sandstone. Disseminated pyrite and [illegible]		39267	652	658	6	20	<20	15	15	<2		
				8	658	664	"	45	<20	55	15	<2		
				9	664	670	"	20	<20	35	10	<2		
				39270	670	678	8	15	<20	25	<10	<2		
				39277	67857	67987	1	25	20	45	20	<2		
				8	680	686	6	20	<20	15	<10	<2		
				9	686	692	6	15	<20	20	10	<2		
				39280	692	698	6	20	25	45	25	<2		
				39271	698	706	8	25	<20	30	<10	<2		
				39281	706	712	6	40	<20	95	20	<2		
				39282	709	714	5							

Amoco Minerals Australia Company

DRILL LOG | HOLE No. | PAGE 7 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Co	Ag
652.92	709.95 (cont)	Thin pyrite bands. Mineralization occurs at following depths. 658.85 - 659.10, 678.8 - 679.80, 683.47 - 684.15, 688.74 - 689.14, 692.18 - 693.28, 701.19 - 705.00. Disseminated dark green in sandier load cooled sections. T.S 36230 @ 658.65m [Pontifex]	<0.5% py. cp.									
709.95	719.72.	BROWN SANDSTONE, SILTSTONE. - current bedded indurated sandstone interbedded with chocolate brown silty shales and siltstone and minor green siltstone and sandstone. Strong load casting in places. Minor intraformational breccias. Some massive grey sandstone. Disseminated green in browner sandstone sections (up to 15%). Thin cross cutting fractures filled with yellowish carbonate(?). Chlorite with hazy py and cp on some fracture faces. Dark green disseminated " in sandier load casts. Disseminated pyrite, chalcopyrite and possible grey tetrahedrite in greyer sandier sections. Some pyrite in chocolate brown shales at 712.10. Strong intraformational breccias at 716.57, 715.6 - 715.90 and 716.67 - 716.82 with disseminated py and cp. Pyrite spherules in more massive sandstones. T.S 36226 @ 713.70m [Pontifex]	<0.5% py. cp.	39282	712	717	5m	10	20	30	15	<2
719.72	732.29	MASSIVE SANDSTONE - massive grey and yellowish sandstone with thin silty shales and minor intraformational breccia. Bottom 80cm contain breccia with fragments of brown shale and sandstone. Shale (732.29 - 750.20) - Adelaidean.		39277	717	724	7m	15	25	30	20	<2
				3	724	730	6	<10	<20	20	15	<2
732.29	750.20	GREY-BROWN SILTY SHALE. - grey brown silty shale with green sandstone and silty sandstone in top 2 metres. Shales become dark brown and massive towards bottom with several bedded siltstone sections. Jointed and broken from 734.20 - 738.20. Hole deviation at 750m - 89°.		39274	730	736	6	20	<20	45	25	<2
				5	736	742	6	45	25	60	30	<2
				39276	742	750	8	35	20	65	25	<2
		END OF HOLE.										

SCYW 1A



6 — **Yarra-Wurta Shale** - brown banded shale, thin green siltstones, slightly calcareous

5c, 5b, 5a — **Andamooka Limestone**
Dolomitic siltstone, calcareous siltstone, limestone, limestone breccia - occasionally fossiliferous
Massive grey dolomite
Basal dolomite-breccia, conglomerate, sandy dolomite

4b, 4a — **Shale**
Massive brown mudstone, brown shale
Interbanded brown shale, green and brown siltstones

3 — **Siltstone-Sandstone**
Interbanded greenish siltstones, sandstones, minor shales. Thin red-brown siltstones and sandstones. Traces pyrite and chalcopyrite

2b, 2a — **Sandstone-Quartzite**
Brown siltstones, current bedded sandstone (orthoquartzite)
Massive grey sandstone (orthoquartzite) Minor green siltstone, shale and sandstones. Traces pyrite and chalcopyrite

1 — **Shale**
Grey brown shale, minor green siltstone

This hole was completely cored by Diamond Drilling Pty Ltd using a Longyear 38, abandoned hole was pre collared by Boring Enterprises Pty Ltd using an Ingersol Rand T4 Truckmaster

TS 36.22- THIN SECTION AND NUMBER

TOTAL DEPTH 750.20m.

RECEIVED
15 APR 1980
DEPT. OF MINES AND ENERGY SECURITY
3637

AMOCO

Amoco Minerals Australia Company

Project STUART CREEK		**Nº** A-77-49
Project Partner		
DIAMOND DRILLHOLE SCYW-1A		
Map Ref. ANG	**Latitude** 30°07'35"S	**Longitude** 137°09'19"E
Surveyed G.C.M.	**Date**	**Scale** 1:2000
Drawn	**Date**	**Drawing Nº** W1786

Report

3637-4

Enclosure

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

REPORT FOR THIRD QUARTER (YEAR 2), ENDING MAY 20th, 1980.

The deepening of 1979 Diamond Drill hole SCYWIA commenced on April 29th and at end of the quarter the hole was at 1025 meters in Woomera Shale. Projected total depth of the hole is about 1450 meters.

Approximate expenditure for the quarter was:

Salaries (on-site geologist, supervision)	$ 2500
Field Costs (vehicle, fuel, cookery)	1200
Drilling Costs	30800
Field Supplies (core trays etc)	1200
Overheads/Adminstration	3570
Total	$ 30,270

Total expenditure on the Exploration Licence since granting on 20th April 1979, is approximately $113,130.

Graham Miller

G.C. Miller
Senior Geologist - South Australia

July 8th, 1981.

RECEIVED
9 JUL 1981
DEPT. OF MINES AND ENERGY SECURITY

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

STUART CREEK, SOUTH AUSTRALIA

QUARTERLY REPORT (THIRD) TO MAY 20, 1980

South Australia
July 29, 1980

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3.	APPROXIMATE EXPENDITURE DURING QUARTER	6.
4.	REFERENCES	7.

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APPENDIX I SOIL GEOCHEMISTRY RESULTS. LINE A-A

LIST OF PLANS

W1726 GEOLOGICAL MAP - EXPLORATION LICENCE 520 Scale 1:50,000

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

SOUTH AUSTRALIA

QUARTERLY REPORT (THIRD) TO MAY 20, 1980

1. INTRODUCTION

During the quarter a 1:50,000 scale surface geology map of Exploration Licence 520 was completed (see Plan No. W1726).

Geological data, excluding that from the geosynclinal sequence in the eastern section of the Licence, was plotted from 1:80,000 black and white aerial photographs and the Andamooka 1:250,000 geological map sheet (Johns 1966) onto a 1:50,000 scale photomosaic. There was limited field examination. Geology of the Adelaidean Geosynclinal sequence was plotted on a 1:20,000 scale aerial photograph enlargement, reduced to 1:50,000 and a final map completed. Geology of the Flagstaff Creek area in the south-east of the Licence area was interpreted from Murrell 1980 (Map 3).

The location of a previously completed soil sampling traverse over part of the Geosynclinal sequence is plotted on Plan No. W1726. Eighty samples were collected at approximately 100 meter intervals; assay results are contained in Appendix I. Values are generally low and uninteresting; weakly anomalous zinc values in the range 60-75 ppm were obtained in several locations.

2. GEOLOGY

2.1 Stratigraphy

The following stratigraphic sequence is found within the Licence area.

Quaternary		
Tertiary		
Cretaceous		
Cambrian		) Yarra Wurta Shale) Andamooka Limestone
Upper Proterozoic (Adelaidean)	(Wilpena Group	) Pound Quartzite) Wonoka Formation) Bunyeroo Formation) ABC Quartzite) Brachina Formation) Nuccaleena Formation
	(Umberatana Group	) Elatina Formation (?)) Enorama Shale (?)) Amberoona Formation) ----Unconformity----) Sturt Tillite

Quaternary

This includes sand dunes, alluvial deposits, colluvium and clay pans. Approximately 50 percent of the Licence is covered by Quaternary cover mainly in the western half of the Licence area. The moderately vegetated sand dunes form discontinuous ridges up to 10 meters in height and trending north-east/south-west. Dune ridges are separated by clay pans or scrub covered water channelways that are impassable in wet weather.

Tertiary

Tertiary formations consist of extremely resistant silcrete conglomerate or breccia plus duricrusted Mesozoic sediments. Tertiary outcrop is marked by strong topographic relief with mesa and plateau features often with steep sided slopes. Tertiary units on these mesas are often covered by colluvium scree and soft powdery soil. Tertiary units are nearly always overlying Cretaceous units.

Cretaceous

Where exposed, the Cretaceous sediments consist of flat-lying grey and white siltstones and shale that show partial kaolinization. They are mostly soft with several indurated white mudstone bands. Best exposures are in cliffs underlying Tertiary silcrete and in breakaway features. Beds of gypsum are usually associated with the Cretaceous sediments. Most Cretaceous sediments form low hills and are covered by colluvium and soil. The presence of gypsum float is generally a reliable indicator of underlying Cretaceous sediments. Cretaceous sediments are mostly found west of the Torrens Lineament and in the northern part of the Licence area. The Cretaceous is host to precious opal deposits at the Stuart Creek Opal Field.

Middle Cambrian - Yarra Wurta Shale (C3)

Predominantly red-brown, grey-brown and green banded siltstones and shales that occupy topographic lows in the vicinity of Opal Tank and Yarra Wurta Creek on the shelf portion of the Licence area. They are reported to be tuffaceous. Thickness is probably in the order of 30-60 meters (approximately 30 meters cored in SCYW1A - Amoco drill hole). Sediment thickness may increase toward Lake Torrnes.

Lower Cambrian - Andamooka Limestone (C1, C2)

Massive grey and mottled grey-brown limestone underlain by a sequence of yellow, brown and cream bedded and banded limestones with minor oolitic sections. This unit also occurs only on the shelf portion of the Licence area. The lower most Cambrian unit has been faulted off to the east by the Torrens Lineament.

A small outcrop of massive grey Andamooka Limestone is located approximately one kilometer south-west of Yarra Wurta Dam. This could be a local topographic high or an exposed rim of a basinal structure into which the Yarra Wurta Shale has been deposited. There was 170 meters of Andamooka Limestone in SCYW1A.

Upper Proterozoic (Adelaidean)

The Upper Proterozoic is represented only by upper units of the Geosynclinal sequence to the east of the Torrens Lineament. No Upper Proterozoic sediments outcrop west of the Lineament. The geosynclinal sequence, which has moderate exposure, has been folded into an anticlinal, or domal, structure with a north-west/south-east trending axis. Stratigraphy of Murrell (1970) and Johns (1966) have been adopted.

Wilpena Group - Pound Quartzite (PW6)

Red, brown and white flaggy sandstone and quartzite with ripple marks is located 1.5 kilometers south-east of Lake Pidleeomina. The sandstone is medium to coarse grained and slightly friable and is intercalated with calcareous siltstones and is probably a transition zone between the Pound Quartzite and the underlying Wonoka Formation. It appears that the Pound Quartzite was not fully developed in this area (maximum thickness probably about 250 meters). Pound Quartzite is only found on the eastern limb of the anticline; it has presumably been faulted off in the western limb by the Torrens Lineament.

- Wonoka Formation (PW5)

Grey and green calcareous siltstones and shales; dolomitic and sandy siltstones, minor thin limestones. The unit becomes more calcareous toward the top of the sequence and nearly all the limestones are found in the uppermost section. There is a broad transition zone between the Wonoka Formation and the underlying Bunyeroo Formation. Like the Pound Quartzite, the Wonoka Formation is found only on the eastern limb of the anticlinal structure. Thickness is 700 to 1,300 meters.

- Bunyeroo Formation (PW4)

Predominantly red-brown, occasionally micaceous shales with thin green beds and lenses. Outcrop is found near Lake Pidleeomina where the Bunyeroo grades into the overlying Wonoka Formation and a small area of outcrop is located just north-west of Lake Arthur on the western limb of the anticline. It is possible Lake Arthur is formed over Bunyeroo and possibly Wonoka Formations. Thickness is about 350 meters.

- ABC Quartzite (PW3) (Upper Brachina Formation)

Massive grey quartzite with red-brown shale casts; flaggy current bedded red-brown quartzite and sandstone with poorly outcropping interbedded red-brown and grey-green siltstones. The ABC Quartzite forms the two prominent limbs of the anticline forming a high ridge system in the Arthur Hill and Hedley Hill areas. The tops of the ridges are generally covered by colluvium and occasionally sand dunes and Tertiary silcrete. The interbedded siltstone bands are best exposed immediately north-east of Lake Arthur where the ABC

Quartzite is faulted against Amberoona Formation and approximately 15 kilometers west of Pidleeomina Dam where interbanded siltstone and quartzite bands are exposed in erosional breakaways. Thickness is 700 meters maximum.

- Brachina Formation (PW2)

Poorly outcropping red-brown and grey-green siltstones. This unit is exposed only on the western limb of the anticline, mainly in creek exposures. It is completely covered by sand dunes and scree on the eastern limb. Thickness is estimated at about 800 meters.

.- Nuccaleena Formation (PW1)

Pale yellow and cream dolomite. This unit, exposed only on the western limb of the anticline, forms a prominent narrow ridge and is an excellent stratigraphic marker bed. Thickness is approximately 10-15 meters.

Umberatana Group

Most of the Umberatana Group sediments are found only on the western limb of the anticline. Stratigraphy has been correlated with the stratigraphy of Murrell (1970) and exact field relationships are uncertain. Further detailed mapping would be required in this group.

- Elatina Group (?) (PU7)

Black weathering dolomitic sandstone and gritty dolomites interbedded with thin siltstone beds. Minor thin dolomitic breccia. Thickness is 80-100 meters.

- Enorma Shale (?) (PU6, PU5)

This unit has been divided into a brown siltstone and shale section (PU6) and a dolomitic section (PU5). The dolomitic section consists of sandstone, siltstones, grits with minor oolitic sandstone, thin limestone and dolomite beds. Combined thickness is about 200 meters.

- Amberoona Formation
(PU4, PU3, PU2)

This is the thickest unit (possibly up to 3,000 meters) within the geosynclinal sequence. Much of the ground near the anticline axis is covered by colluvium and sand dunes and possibly Lower Umberatana Group sediments exist. The main part of the formation (PU2) is greater than 600 meters thick and consists of flaggy to fissile green and grey siltstones with thin yellow basal dolomites. The extensive colluvium and sand dune areas near the anticlinal axis are probably underlain by Amberoona Formation (but possibly also by stratigraphically lower Umberatana Group rocks).

Two units have been included in the Amberoona Formation based on Murrell's (1970) mapping :

PU3 - This unit consists of massive to algal pale grey to yellow limestone and dolomite that form distinct local topographic highs. Five areas of outcrop were located with a maximum area of about 0.75 square kilometers. These limestones occupy the same approximate stratigraphic position within the Amberoona Formation. Internally the structure is extremely haphazard with a large number of circular and curvilinear features formed by the limestone beds. No brecciation is observed. There are minor thin lenses of dolomitic sandstone and grits. Murrell (1970) has interpreted these structures as slump deposits within the Amberoona Formation.

PU4 - In several locations the above limestone outcrops are flanked by yellow dolomites that are occasionally stromatolitic and exhibiting strong local brecciation.

More detailed mapping would be required to determine the exact relationship of the above units to the rest of the Amberoona Formation.

- Sturt Tillite (PU1)

Approximately 7 kilometers north-north-east of Arthur Hill, a previously unrecorded outcrop of tillite has been found in what is interpreted as the core of the regional anticlinal or domal structure. The unit consists of rounded to angular clasts, up to one meter maximum dimension, of meta-arkose, massive quartz, quartzite, gabbro, acid to intermediate porphyritic volcanics, black shale and chert in a matrix of green, sometimes gritty siltstone and greywacke. Clast to matrix ratio is variable throughout the outcrop.

Yellow dolomites of the Amberoona Formation (?) lie immediately above the tillite unit. This would suggest an unconformity with Tapley Hill Formation and other Lower Umberatana Group sediments missing. Further stratigraphic mapping is required.

2.2. Structure

Exploration Licence 520 straddles the Torrens Hinge Zone (Torrens Lineament). The main fault can be observed just west of Lake Arthur where generally flat-lying Cambrian Limestones of the Stuart Shelf are juxtaposed against folded Geosynclinal sediments of the Lower to Middle Wilpena Group.

The fault strikes approximately 330 degrees in the vicinity of Lake Arthur. Murrell's mapping of Flagstaff Creek indicates that the lineament curves in an easterly direction around the southern margin of Lake Arthur and then continues in a general south-easterly direction down the east side of Lake Torrens to at least the point where Flagstaff Creek enters Lake Torrens. East-south-easterly

strikes of ABC Quartzite immediately north of Lake Arthur would tend to confirm this.

West of the Torrens Lineament, Proterozoic to Cretaceous sediments on the Stuart Shelf are generally flat-lying, as shown in DDH SCYW1A. Middle Cambrian Yarra Wurta Shale shows some gentle warping features. Dips on Lower Cambrian Limestone beds immediately west of the fault are as steep as 33 degrees (south-west). These were probably dragged upwards during faulting. East of the Torrens Lineament, the geosynclinal sediments form a slightly asymetrical anticline with the fold axis striking 330 degrees located approximately 7.5 kilometers north-east of the Torrens Lineament. A gentle dome structure occurs in the vicinity of the outcropping Sturt Tillite and it is possible that the anticline plunges both north-west and south-east. A possible north-westerly trending synclinal axis is located 5 to 7 kilometers north-east of Lake Pidleeomina.

Several smaller faults, with a general north-east or north-west trend, are located within the geosynclinal sequence. Immediately north-east of Lake Arthur, a small fault has juxtaposed ABC Quartzite against Amberoona Formation; this fault may be part of the Torrens Hinge Zone. Sideritic veins 6 kilometers north-east of Stuart Creek Opal Diggings are presumably intruded into fault structures.

Several large lineaments have been interpreted from aerial photographs and landsat imagery. It is interesting that the largest outcrop of possible slump deposits of Murrell (1970) appears to lie in a west-north-west trending structural corridor.

3. APPROXIMATE EXPENDITURE DURING THE QUARTER

Salaries (re-mapping, drafting, report preparation)	$2,500
Field Costs (food, fuel, vehicle costs, etc.)	900
Office Rent, Communications, Administration	500
	$3,900

4. REFERENCES

Murrell, B. 1970 : Stratigraphy and Tectonics across the Torrens Hinge Zone between Andamooka and Marree, South Australia.

Unpublished Ph.D thesis, University of Adelaide

Johns, R.K. 1966 : Geology and Mineral Resources of the Andamooka-Torrens area. Geological Survey of South Australia. Bulletin No. 41

R.A. HARLEY
Geologist

South Australia
July 29, 1980

APPENDIX I

SOIL GEOCHEMISTRY RESULTS - LINE A-A

ALL RESULTS IN PARTS PER MILLION

ANALABS (AUST.)
52 Murray Road, Welshpool, W.A. 6106 Phone (09) 458 7999
44 Lane Street, Kalgoorlie, W.A. 6430 Phone (090) 21 1416
15 Traders Way Mt. Isa, Qld. 4825 Phone (077) 43 6837

Code No. 4 0 10 4868
Rack No. R – 33
Page No. 1
Order No. W 13091

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Co				
1	A 00E	10	15	x	x	15				
2	100	5	15	5	x	15				
3	200	15	5	40	x	20				
4	300	15	10	40	x	15				
5	400	15	15	30	x	20				
6	500	20	15	55	x	25				
7	600	20	15	50	x	25				
8	700	20	10	50	x	25				
9	800	20	15	50	x	20				
10	900	15	20	60	x	20				
11	1000	15	15	45	x	20				
12	1100	x	15	30	x	30				
13	1200	10	15	50	x	15				
14	1300	20	15	50	x	30				
15	1400	20	15	60	x	20				
16	1500	15	15	65	x	25				
17	1600	10	10	60	x	20				
18	1700	5	10	40	x	20				
19	1800	10	20	60	x	25				
20	A 1900E	15	20	55	x	20				
21	2000	25	15	55	x	20				
22	2100	25	15	50	x	20				
23	2200	15	15	35	x	25				
24	2300	5	15	20	x	20				
25	2400	10	15	25	x	25				
26	2500	15	10	55	x	25				
27	2600	15	15	45	x	20				
28	2700	20	15	70	x	20				
29	2800	15	15	65	x	25				
30	2900	30	15	45	x	25				
31	3000	40	20	55	x	25				
32	3100	15	15	25	x	25				
33	3200	20	15	30	x	25				
34	3300	15	20	35	x	30				
35	3400	65	10	30	x	25				
36	3500	20	10	30	x	20				
37	3600	15	15	40	x	25				
38	3700	25	15	40	x	25				
39	3800	15	15	35	x	25				
40	A 3900E	25	10	50	x	25				
Detection		5	5	5	0.5	5				
Standard	AGS5	365	310	95	x	70				
Repeat –	A 00E	10	10	x	x	10				
Repeat –	A 900E	15	15	45	x	20				
Method		All AAS / KV ± 5%								

RESPONSIBLE OFFICER 17/9/79

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

ANALABS (AUST.)
52 Murray Road, Welshpool, W.A. 6106 Phone (09) 458 7999
44 Lane Street, Kalgoorlie, W.A. 6430 Phone (090) 21 1416
15 Traders Way Mt. Isa, Qld. 4825 Phone (077) 43 6837

Code No. 4.0 10 4868
Rack No. R – 12
Page No. 2
Order No. W 13091

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Co				
1	A4000E	15	10	55	x	25				
2	4100	20	20	50	x	25				
3	4200	20	15	55	x	20				
4	4300	20	25	50	x	25				
5	4400	20	20	60	x	20				
6	4500	20	20	50	x	25				
7	4600	30	30	65	x	25				
8	4700	30	30	55	x	25				
9	4800	20	30	65	x	25				
10	4900	25	30	60	x	25				
11	5000	25	25	55	x	25				
12	5100	30	30	75	x	25				
13	5200	25	25	70	x	25				
14	5300	25	20	65	x	25				
15	5400	10	15	15	x	20				
16	5500	T	15	x	x	10				
17	5600	15	15	35	x	20				
18	5700	15	20	30	x	20				
19	5800	10	20	25	x	20				
20	A5900E	10	20	T	x	10				
21	6000	15	20	25	x	20				
22	6100	20	20	35	x	15				
23	6200	10	20	5	x	15				
24	6300	15	20	45	x	15				
25	6400	20	20	55	x	20				
26	6500	25	30	40	x	25				
27	6600	10	15	30	x	15				
28	6700	15	20	30	x	15				
29	6800	15	20	45	x	15				
30	6900	15	25	30	x	25				
31	7000	15	20	35	x	15				
32	7100	15	15	60	x	20				
33	7200	20	20	50	x	25				
34	7300	15	15	40	x	20				
35	7400	20	20	45	x	20				
36	7500	15	15	35	x	15				
37	7600	10	25	30	x	25				
38	7700	20	25	50	x	25				
39	7800	45	15	45	x	20				
40	A7900E	30	20	60	x	25				
Detection		5	5	5	0.5	5				
Standard	AGS5	365	300	95	x	70				
Repeat–	A4000E	20	15	55	x	30				
Repeat–	A5900E	10	10	5	x	15				
Method		A1	AAS/GV ±5%.							

RESPONSIBLE OFFICER B Mars 17/9/79

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

ANALABS (AUST.)
52 Murray Road, Welshpool, W.A 6106 — Phone (09) 458 7999
44 Lane Street, Kalgoorlie, W.A 6430 — Phone (090) 21 1416
15 Traders Way Mt. Isa, Qld. 4825 — Phone (077) 43 6837

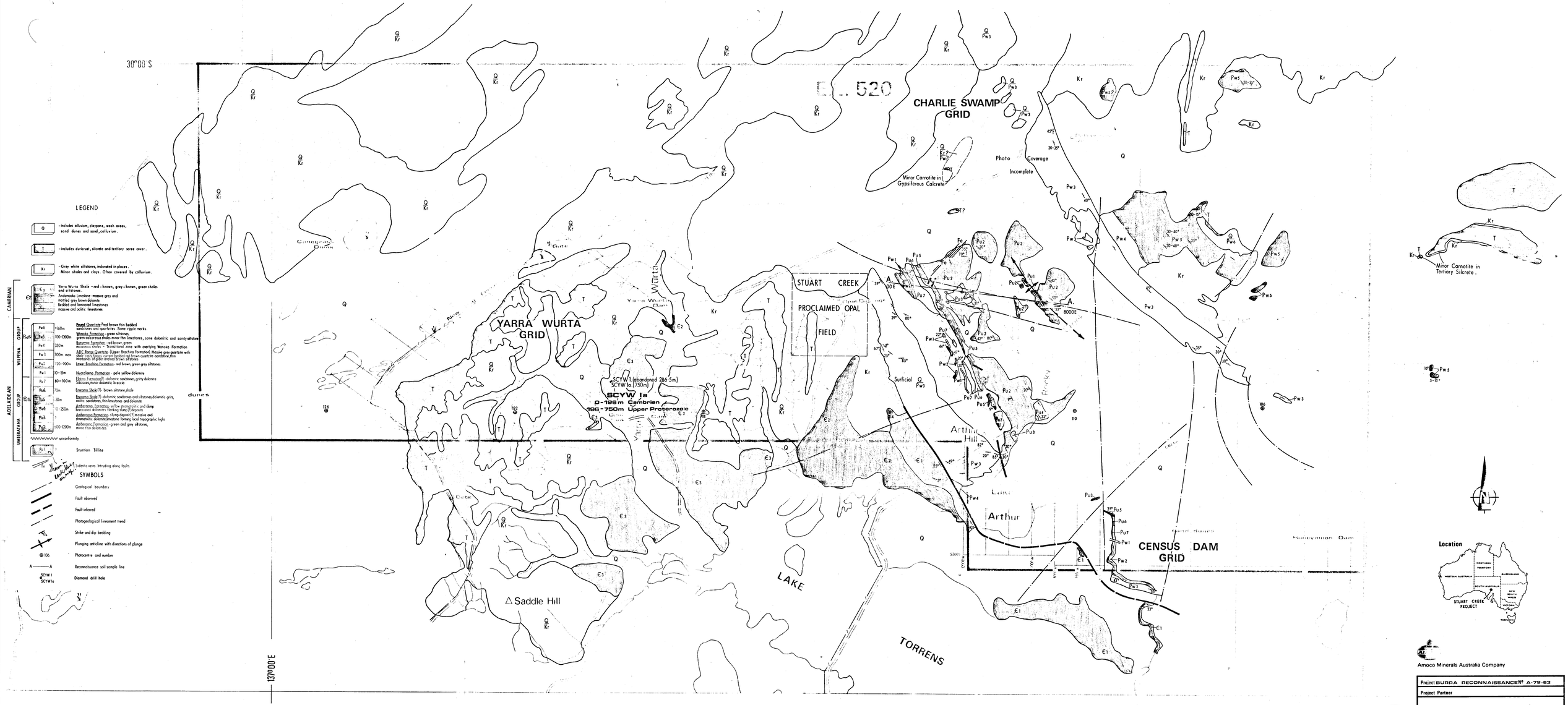
Code No. 4.0 10 4868
Rack No. R - 24
Page No. 3
Order No. W13091

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	Co				
1	A8000E	20	25	40	x	25				
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
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Detection		5	5	5	0.5	5				
Standard	AS55	400	335	95	x	70				
Repeat–	A8000E	25	25	45	x	25				
Repeat–										
Method		AAS/cv ± 5%								

RESPONSIBLE OFFICER B. Mora 17.7.79

Results in ppm unless otherwise specified
T = element present, but concentration too low to measure
X = element concentration is below detection limit
– = element not determined



Reference : (1) Geology west of Stuart Creek Opal Diggings - O.K. Copper Mine interpreted from aerial photographs, Andamooka 1:250 000 mapsheet, Geological Survey of South Australia and limited field traverses.
(2) Geology of Flag Staff Creek interpreted from Burton Murrell (1970). Map 3 Ph. D. Thesis.

Amoco Minerals Australia Company

Project BURRA RECONNAISSANCE Nº A-79-83	
Project Partner	
GEOLOGICAL MAP E.L. 520	
Map Ref. ANG SH 53-12 Latitude 30°00'S Longitude 137°30'E	
Surveyed R.HARLEY	Date Nov., 1979 Scale 1:50 000
Drawn P.J.S.	Date Dec., 1979 Drawing Nº W 1726

RECEIVED 31 JUL 1980 DEPT. OF MINES AND ENERGY SECURITY REG.

Report

3637-5

Enclosure

043

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

SOUTH AUSTRALIA

REPORT FOR FOURTH QUARTER, ENDING AUGUST 20, 1980

South Australia
September 1980

RECEIVED
29 SEP 1980
DEPT. OF MINES AND ENERGY SECURITY
3637

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

SOUTH AUSTRALIA

REPORT FOR FOURTH QUARTER, ENDING AUGUST 20, 1980

No work was carried out in the quarter pending the completion of farm-out arrangements with Chevron Exploration Corporation who have agreed to finance the deepening of drill hole SCYW-79-1A to about 1,400 meters.

An application for a twelve month extension of the Licence was submitted and subsequently a Memorandum of Extension, together with the Licence document and annual rental in advance of $714.75, was returned to the Mines Department.

G.C. MILLER
Project Geologist

South Australia
September 25, 1980

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

FOURTH QUARTERLY REPORT

FOR PERIOD ENDING AUGUST 20, 1981

Adelaide Office
November 1981

CHECK LIST

- o Denver
- ● Mines Department
- o Perth
- o Sydney
- o Field
- o Spare



KEY WORDS

Adelaidean

Tapley's Hill Formation

Tregolana Shale

Sturtian Glacials

Sphalerite

Stromatolite

Fluvioglacial

Dolomite

Dropped Pebble

Upper Proterozoic

Stylolites

Tillite

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APPENDIX II	THIN SECTION DESCRIPTIONS
APPENDIX III	ANALYTICAL REPORTS

SUMMARY

Exploration in the quarter consisted of 425 meters of diamond drilling from 1,025 meters to 1,450 meters and 46 kilometers of gridding and ground geophysics. The hole was terminated at 1,450 meters. All core from the hole has been moved to storage at the South Australian Department of Mines and Energy Core Library. Exploration Licence 520 has now been replaced by Exploration Licence 909.

DIAMOND DRILLING

All rock units intersected are members of the Adelaidean System. A summary log is :

1,025-1,039 meters	Green and red banded shales-Tregolana Shale
1,039-1,077 meters	Interbanded siltstones and coarse sandstones
1,077-1,147 meters	Interbanded brown siltstones/sandstones and brown calcareous shales/dolomite
1,147-1,188 meters	Grey stromatolitic dolomite
1,188-1,210 meters	Interbanded grey siltstones and dolomite
1,210-1,373 meters	Grey/green siltstones, becoming carbonaceous near base-Tapleys Hill Formation
1,373-1,450 meters	Dominantly poorly sorted fluvioglacial sandstones with minor tillitic beds, containing a large percentage of dolomite near bottom of the hole Sturtian Glacials

Drill core from Newmont Pty. Ltd.'s hole SR 17, located 65 kilometers north-west of SCYW 1A, was viewed at the S.A.D.M.E. Core Library. Rock types in Hole SR 17 correlate well with those intersected in SCYW 1A.

MINERALIZATION

Pyrite occurs in minor amounts throughout the Tregolana Shale and Tapleys Hill Formation with slightly increased amounts in the carbonaceous basal section of the Tapleys Hill Formation. Anomalous zinc values (3200 ppm) also occur at the base of the Tapleys Hill Formation.

Occasional small (< 1 cm) sphalerite or sphalerite rimmed clasts are present in sections of the Sturtian Glacials producing slightly anomalous zinc values.

GROUND GEOPHYSICS

Forty-six kilometers of surveyed gridding were completed, followed by seismic, gravity and magnetic surveys. Surveys and gridding work were done by Petty-Ray Geophysics. Geophysical data is being processed and will be included in the First Quarterly Report for Exploration Licence 909. As the costs for this geophysical program have not yet been accurately assessed, they have not been included in the expenditure figure in this report. They will be included with expenditures for the first quarter of Exploration Licence 909.

PETROLOGY

Thin section descriptions of 12 samples from the interval 1,360 meters to 1,450 meters are included in Appendix 2. Sample preparation and descriptions are by Pontifex and Associates Pty. Ltd.

EXPENDITURES

Drilling (including demobilization)	$63,800
Water Cartage	3,500
Other Contractors (assays, petrology, core transport)	2,460
Salaries (on-site geologist, supervision)	4,750
Field Costs (cookery, fuel, vehicle)	3,950
Field Supplies (core trays, etc.)	1,050
Overheads/Administration	7,950
Total	$87,500

Cumulative total for Exploration Licence 520 is now $200,630.

FUTURE WORK

No further work is planned pending evaluation of the seismic data.

G.KARY
GEOLOGIST

APPENDIX I

Amoco Minerals Australia Company

DRILL LOG — HOLE No. SCYW 1A — PAGE 1 OF 7

PROJECT STUART CREEK No. A-77-49	ELEVATION meters	COMMENCED 24-9-79	BORE HOLE SURVEY Depth (m) / Dip / Bearing		INSTRUMENT Depth (m) / Dip / Bearing
PROSPECT YARRA WURTA	DIP COLLAR −90°	COMPLETED 30-10-79	196 / −89°		750 / −84°
CO-ORDINATES 5950 mN 4200 mE	CORE SIZE HQ NQ BQ	TOTAL LENGTH 750.20 meters	357 / −88.5°		
BEARING TN MN GN	LOGGED BY R A HARLEY		550 / −89°		

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
0	28.47	YARRA-WURTA SHALE - massive to well bedded brown shale interbedded with massive pale green siltstone. Slightly calcareous. Local intraformational breccias, small scale faulting. Calcite in veins and some breccia zones.						
		Andamooka Limestone (28.47 − 196.20) - Cambrian						
28.47	31.85	CALCAREOUS SILTSTONE - massive to crudely bedded with thin breccia sections. Porous and occasionally vuggy.						
31.85	50.40	LIMESTONE - massive to vuggy mottled grey pale limestone. Mottled appearance decreases from 42.47. Purple amethystine in vugs between 32.50-36.90. Calcite and carbonate in vugs between 34.90 - 50.40 5-8% vughs.	Traces pyrite in vughs and in some fracture surfaces. <0.5% py					
50.40	52.30	LIMESTONE BRECCIA - dolomitic siltstone fragments in calcareous matrix. Fine grained disseminated pyrite in matrix, minor pyrite on fractures. Calcite in vughs. Core badly broken.	<1% py overall. Up to 5% in matrix.					
52.30	81.55	DOLOMITIC SILTSTONE - banded dolomitic siltstone and silty shale. Creamy - pinkish white colour. Thin calcareous bands. Grey pink-brown shale bands up to 20cm wide. Minor thin intraformational breccias in siltstones with conglomerate at 60.1 and 76.0m. Coarse grained reddish-brown dolomitic sandstone in breccia between 81.05 - 81.53 with green shale or clay infills. Pyrite on fracture faces and vugs. Minor pyrite in conglomerate matrix.	Strong py on fracture 53.5-54.90m.					
81.55	84.10	FOSSILIFEROUS LIMESTONE BRECCIA - archaeocyathid(?) breccia pinkish colour. Conglomeratic limestone with calcareous matrix at base.						
84.10	90.25	DOLOMITIC SANDSTONE SILTSTONE - massive and vuggy dolomitic sandstone and silty sandstone.	<0.5% py on fracture faces.					
90.25	111.05	LIMESTONE BRECCIA - blotchy white and chocolate brown limestone breccia with irregular brown dolomitic shale fragments or infills. Fossiliferous (archaeocyathids?) in slump breccia at 91.5, 98.85, 109.0m. Fossiliferous limestone between 105 - 109.50m. Main breccia zone from 96.9 - 111.05. Fragments of dolomitic shale siltstone, massive dolomite, sandstone in a poorly sorted dolomitic calcareous matrix. Glauconitic rich sections including glauconite rich fragments. 1-10% disseminated glauconite between 90.25 - 91.95.						
111.05	196.60	DOLOMITIC SILTSTONE DOLOMITE - pale brown to banded and stromatolitic pale brown to dark brown calcareous [illegible] ... 1-2.5	<0.1% py on fracture faces					

Amoco Minerals Australia Company

DRILL LOG SCYW 1A HOLE No. PAGE 2 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Co	Zn	Mo	Ag	Au
144·60	188·30	DOLOMITE. - massive grey dolomite. Ughy sections throughout. Minor pyrite traces	< 0·01% Py					SEE ASSAY RECAP SHEET						
188·30	196·20	BASAL DOLOMITE - sandy dolomite, dolomitic slump breccia, minor conglomerate with thin interbeds of shale, siltstone and sandstone. Poorly sorted dolomitic sandstone matrix conglomerate with traces of pyrite. Bedding declination at 196m - 99° Shale (196·20 - 386·57) - Adelaideana												
196·20	210·00	BROWN SHALE. - fine grained chocolate brown micaceous banded shale; minor thin green bands. Grades to a light brown massive siltstone at base. Δ angle @ 199m = 89° TS 56231 @ 205·39 [PONTIFEX]		43225	202	208	6	<10	25	20	20	<2	5	760
210·00	314·50	INTERBANDED BROWN SHALE - GREEN GREY SILTSTONE - dark purple brown banded shale interbanded with more massive light brown and greyish grey siltstones. Shale banded on a 1mm - 1cm scale. Interbanding on a 5cm - 30cm scale. Sedimentary structures include current bedding (visible mainly in siltstones), ripple marks and possible cast and fill structures. Δ angle @ 295m = 89·5°		43226	208	214	6	15	<20	15	20	<2		480
				7	214	220	"	10	<20	15	25	<2		520
				8	220	226	"	160	<20	20	35	<2		520
				9	226	232	"	50	<20	25	55	<2		440
				43230	232	238	"	50	<20	20	40	<2		600
				43231	238	244	"	30	<20	25	55	<2		500
				2	244	250	"	40	<20	25	55	<2		540
				3	250	256	"	50	<2	25	55	<2		520
				4	256	262	"	10	<20	20	55	<2		600
				5	262	268	"	<10	<20	25	55	<2		680
				6	268	274	"	<10	<20	20	60	<2		640
				7	274	280	"	35	<20	20	50	<2		680
				9	280	286	"	10	<20	25	70	<2		640
				9	286	292	"	<10	<20	15	70	<2		680
				43240	292	298	"	<10	<20	15	70	<2		800
				1	298	304	"	10	25	15	80	<2		640
				2	304	310	"	<10	<20	30	60	<2		640
				3	310	316	86	<10	<20	30	60	<2		840
314·50	386·57	BROWN SHALE - MUDSTONE. - massive brown mudstone, shale. Occasional grey-green siltstone bands. Breaks easily on bedding planes; more fissile towards base. Bedding declination at 357m - 88·5°		4	316	322	6	<10	25	30	55	<2		800
				5	322	328	"	<10	25	10	50	<2		1000
				6	328	334	"	<10	25	20	60	<2		960
				7	334	340	"	<10	25	20	60	<2		560
				8	340	346	"	<10	20	15	65	<2		960
				9	346	352	"	<10	20	15	60	<2		700
				43250	352	358	"	<10	20	15	60	<2		1880
				43276	358	364	"	<10	35	20	65	<2		2200
				43278	364	370	"	15	45	35	70	<2		
				9	370	376	"	10	25	35	70	<2		
				43280	376	382	"	10	20	30	65	<2		
				1	382	388	6	<10	20	30	60	<2		
		SILTSTONE - SANDSTONE (386·57 - 539·45) - Adelaideana												
386·57	387·12	TRANSITION ZONE - interbedded dark brown micaceous silty shale and pale green micaceous siltstone and sandstone. Pale green clay or shale bands in green sandstone.		43282	388	394	6	<10	<20	15	25	<2		
387·12	395·68	BROWN SILTY SHALE - predominantly brown silty shales interbedded with brownish silty sandstones and sandy siltstones. Sandstones silty, interbedded and contain possible pale green clay clasts (?) [illegible] and [illegible] brown.												

Amoco Minerals Australia Company

DRILL LOG HOLE No. SCYW1A PAGE 3 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Co	Ag	Au	Cu (RPT)
387·12	395·68 (end)	Bedding planes in brown silty shales indicated by bronze mica mineral. Unit becomes sandier towards base.												
395·68	409·00	GREY, GREEN SHALES AND SANDSTONE - interbanded olive green-grey silty shales and silty sandstones. Possible chlorite on bedding planes in coarser grained sandstones with traces of pyrite and occasional chalcopyrite. Thin intraformational breccia zones at contact of shale and sandstone. Disseminated py and minor cp in sandier portions of breccia. Occasional fine grained py in silty shales. Lithic breccia at 409 m with shale and sandstone fragments in a sandstone matrix. Irregular contacts. T.S 36229 @ 407·50m [Pontifex]	< 0·5% py, cp, and trace grey tetrahedrite(?) at 397·40m. Py streak @ 400·70	43283	394	400	6	190	<20	85	20	<2		
				4	400	406	"	130	<20	40	25	<2		
				5	406	412	"	95	<20	55	25	<2		
409·00	410·06	BROWN SANDSTONE, SILTSTONE - current bedded sandstone interbedded with brown siltstone. Bedding indicated by ferruginous material.												
410·06	428·05	GREY, GREEN SHALES AND SANDSTONE - as for 395·68 - 409·0m. Sandstone content decreases towards base. Interbanding on 2cm - 20cm scale. Minor intraformational breccia and load casting. Minor pyrite and trace chalcopyrite disseminations in cleaner sandstone sections. Very minor disseminated pyrite in green silty shales. Possible tetrahedrite at 423·5m in sandstone. Disseminated green glauconite (?) in load casted sandstone.	< 0·2% py, cp.	43286	412	418	6	80	<20	45	30	<2		
				43287	418	425	7	55	<20	45	25	<2		
				36225	425	427	2m	80	<20	45	20	<2	x	80
428·05	442·55	GREEN SILTSTONE, SHALE - predominantly olive green siltstone and silty shale with thin interbands of indurated massive quartz sandstone. Siltstones occasionally micaceous on bedding planes. Interbedding on 1cm - 20cm scale with irregular but sharp contacts. Sedimentary features include current bedding, load casting of sandstone into shale units, intraformational breccia. Possible chloritic sandstone lenses close to sedimentary contacts. Possible graded bedding in places ie sandy siltstone through to shale. Pyrite and trace cp mainly in more massive sandstone sections occurring as disseminations. Occasional blebs up to 0·5mm. T.S 36228 @ 438·90m [Pontifex]	< 0·1% py, trace cp.	36226	427	429	2m	60	<20	110	25	<2		55
				7	429	431	"	60	<20	90	30	<2		60
				8	431	433	"	55	<20	50	30	<2		50
				9	433	435	"	45	<20	60	35	<2		40
				36230	435	437	"	35	<20	35	25	<2		40
				1	437	439	"	25	<20	30	25	<2		25
				2	439	441	"	40	<20	25	25	<2		50
				3	441	443	"	25	<20	25	25	<2		25
442·55	443·42	GREEN BROWN SHALE - interbanded grey green siltstone with red-brown shale. Similar to sequence at 218 - 374m. Minor disseminated pyrite blebs.	< 0·1% py.											
443·42	447·21	GREEN SILTSTONE, SHALE, SANDSTONE - mainly green siltstone and silty shale with sandstone lenses and load castings. Minor current bedding. Disseminated pyrite in scattered sections. Traces of chalcopyrite.	< 0·1% py, tr. cp.	36234	443	445	2m	25	<20	65	35	<2		30
				43288	445	452	7	20	<20	35	20	<2		
447·21	448·60	SANDSTONE - mainly indurated fine - medium grained sandstone with minor pale green clay (?) matrix. Several thin grey-grey siltstone beds. Disseminated pyrite in sandstone.	< 0·1% py.											
448·60	449·68	BROWN GREEN SILTSTONE AND SANDSTONE - interbanded purple brown siltstone and silty sandstone with grey-grey silty sandstone. Minor slump breccia at top. Trace pyrite.	Tr. py.											

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DRILL LOG — HOLE No. SCYW1A — PAGE 4 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	Au	Cu (RPE)
449·68	457·37	INTERBANDED GREEN SHALES SILTY SANDSTONE. - green grey silty sandstone and green shales. Meaceous silty shales in places. Likely disseminated clay sparking in brownish sandstone at 450·5. Disseminated pyrite and chalcopyrite mainly in sandstone. Possible tetrahedrite @ 453·81.	< 0·2% py, k, cp	43289	452	458	6m	40	<20	40	20	22		
457·37	458·35	BROWN SHALE SILTY SANDSTONE - brown banded shale and silty sandstone interbanded with thin greenish siltstone beds. Minor disseminated pyrite	< 0·1% py											
458·35	474·81	GREEN-GREY SILTSTONE SHALE SILTY SANDSTONE - interbanded grey silty sandstone, green grey siltstone and silty shales. Siltstones micaceous in places with mica on bedding planes. Coarser sandstone in lead castings. Minor intraformational breccia. Minor brown banded silty sandstone. Sandstone content decreases towards bottom. Disseminated and blebby pyrite and occasional chalcopyrite occurs mainly in the coarser greenish sandstones. Occasional pyrite in green silty shales. Trace tetrahedrite(?)	< 0·5% py, cp Tr tetrahedrite(?)	43290 1 2	458 464 470	464 470 476	6 " "	30 25 20	<20 <20 <20	45 40 40	35 25 30	<2 <2 <2		
474·81	477·75	BROWN SILTY SHALE, SANDSTONE. - purplish-brown silty shale, interbanded with indurated ~~bar~~ current bedded sandstone. Sandstone has ferruginous material in bedding planes. Minor green shales and siltstones. Disseminated pale green in sandstone at 476m. Traces pyrite and chalcopyrite.	< 0·1% py, cp											
477·75	481·63	GREEN-GREY SILTSTONE, SHALE, SILTY SANDSTONE. - interbanded silty sandstone, siltstone and silty shales. Massive micaceous sandstone towards bottom with thin intraformational breccia at base. Minor weathered pyrite, trace chalcopyrite	< 0·1% py, cp.	43293	476	482	6	50	<20	40	25	<2		
481·63	485·87	BROWN SILTY SHALE, SANDSTONE - interbanded red-brown silty shale micaceous in places and medium grained indurated current bedded sandstone. Current bedding in medium to coarse scale with ferruginous material in bedding planes. Minor green siltstones, shale and cleaner sandstones. Traces pyrite in greenish sandstone.	Tr py.	43294	482	488	6	15	<20	25	20	<2		
485·67	497·45	GREEN GREY SILTSTONE SHALE, SILTY SANDSTONE. - minor thin brown and purplish brown micaceous siltstone beds. Minor intraformational breccia with traces pyrite and chalcopyrite. Disseminated green glauconite(?) in coarser sandstone at 496·50.	< 0·1% py, k, cp.	43295 43296	488 496	496 499	6 5	20 60	25 25	40 40	25 30	<2 <2		
497·45	498·61	BROWN SILTY SHALE, SANDSTONE - current bedded brown and grey sandstone, brown micaceous silty shales and greenish-grey silty sandstone. Shale cast conglomerates in sandstones.												
498·61	504·51	GREEN GREY SILTSTONE SHALE SILTY SANDSTONE. - siltstones micaceous in places. Minor sandstone lead castings. Signal massive indurated chert sandstone 501m. Thin intraformational breccias. Minor brown siltstone beds [illegible] sandstones.	< 0·2% py, cp	36255 6 36257	499 501 503	501 503 505	2m " "	20 30 30	<20 <20 <20	25 40 40	20 15 15	<2 <2 <2		30 55 40

Amoco Minerals Australia Company

DRILL LOG — HOLE No. SCYW1A — PAGE 5 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Co	Ag	Au	Cu (RPE)
504.51	511.56	BROWN SILTY SHALE SANDSTONE - interbanded brown micaceous silty shales and siltstones with indurated current bedded grey-brown sandstones. Fairly high material on bedding planes. Several massive grey quartzite sandstone bands. Thin green siltstone and sandstone beds. Shale cast conglomerate 508.70 - 509.0. Trace pyrite in green units.	Tr pyrite	36238	505	507	2m	60	<20	35	25	<2	X	60
				43297	507	514	7m	10	220	40	20	<2		
511.56	513.44	GREY GREEN SANDSTONE - indurated micaceous fine-medium grained sandstone with thin green siltstone interbands. Several partly baked sandstone bands with trace pyrite. Occasional disseminated pyrite in more massive sandstone.	Tr pyrite.											
513.44	522.55	BROWN SILTSTONE SANDSTONE - interbanded current bedded sandstone with chocolate brown siltstone, occasionally micaceous. Thin green siltstone beds. Shale cast conglomerate 515.2. Pyrite and possible trace chalcopyrite in green siltstones.	Tr pyrite, cp(?)	43298	514	520	6m	10	<20	85	25	<2		
522.55	524.0	GREEN SILTSTONE - grey green to olive green siltstone with thin sandstone bands.												
524.0	527.22	BROWN SILTY SHALE SANDSTONE - siltstones occasionally micaceous. Thin green lead coated siltstone and sandstone with trace pyrite disseminations.	Tr. pyrite.	43299	520	527.2	7.2	55	<20	40	25	<2		
527.22	531.67	GREEN SILTY SHALE SANDSTONE - grey green silty shales and grey silty sandstone. Lead coated sandstones into shales. Thin sandstone leaders. Minor chlorite on bedding planes. Chlorite and minor disseminated carbonaceous specks in coarser sandstones. Minor intraformational breccia.	c.0.2% py, cp.	36239	527.2	529	1.8	85	<20	35	25	<2		60
				36240	529	531	2	60	<20	50	25	<2		55
531.67	534.12	BROWN SILTY SHALE SANDSTONE - current bedded sandstone, massive grey silty sandstone interbanded with banded chocolate brown silty shale. Minor green sandstone and siltstone beds with trace pyrite and chalcopyrite. Disseminated pale green glauconite(?) in coarser sandstone leaves.	Tr py, cp	36241	531	533	2	60	<20	40	25	<2	X	65
				2	533	535	2	50	<20	50	25	<2		50
534.12	539.45	GREEN SILTSTONE SANDSTONE - green green brown micaceous siltstone interbanded with green grey silty sandstone. Thin intraformational breccia and minor lead coating of sandstones. Minor chocolate brown siltstone. Disseminated pyrite and chalcopyrite mainly in sandier sections. Py and cp paint smears on chlorite fracture faces. T.S 36227 @ 536.10m [Partly or] Sandstone (?). (539.45 - 737.29m) - Adelaidean	c.0.2% py, cp.	36243	535	537	2	70	<20	50	25	<2	X	80
				2	537	539	2	90	<20	60	35	<2	X	80
539.45	~~543.14~~	Change to predominantly brown (oxidised) sediments.												
539.45	543.14	BROWN SILTY SHALE SANDSTONE. grey brown current bedded sandstone with chocolate brown micaceous silty shale. Shale cast breccia 541.65 - 541.95. Sandstone is indurated in places.		36245	539	541	2.	55	<20	60	35	<2		50
~~543.14~~														
543.14	544.50	GREEN SILTSTONE SILTY SANDSTONE - green green brown, green with sandstone leaves. Trace pyrite + Sandstone	Tr py.											

Amoco Minerals Australia Company

DRILL LOG — HOLE No. SCYW1A. — PAGE 6 OF 7

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ci	Ag	Au	Cu (RPA)
544.50	586.70	BROWN SANDSTONE, SILTSTONE. - interbanded current bedded and massive brownish sandstone with micaceous brown siltstone. Siltstone content decreases markedly past 581.4. Minor green siltstone beds in upper section with sandstone bands. Some poorly sorted sandstone sections. Sandstone partly in places. Core badly broken between 551 - 555 m. Possible fault or fracture zone. Sandstones contain concretionary veins filled with white carbonate(?) material. Thin greyish clay sections - poorly consolidated. Small scale faulting indicated by movement of veins and bedding. Salt water from fracture zone. Shale cast boreholes and abundant current bedding. Minor intraformational breccia. Very minor pyrite on some fracture faces. Hole deviation at 580m = 5°0		43300	541	548	7m	<10	<20	80	20	<2		
				39251	548	556	6	10	<20	30	20	<2		
				2	556	560	"	<10	<20	50	20	<2		
				3	560	566	"	10	20	25	20	<2		
				4	566	572	"	10	20	15	15	<2		
				5	572	578	"	40	25	25	15	<2		
				34256	578	586	8m	10	<20	20	15	<2		
586.70	591.60	GREY MASSIVE SANDSTONE (WITH SCATTERED PYRITE) - predominantly massive indurated sandstone with thin brown shale and sandstone bands. Several sections of sandstone comprised with well rounded grains. Pyrite spherules 587.60.	Tr py.	36246	586	588	2	55	<20	40	30	<2		50
				47	588	590	2	55	<20	30	15	<2		30
				36248	590	591.7	1.7	10	<20	25	<10	<2		5
591.60	625.35	BROWN CURRENT BEDDED SANDSTONE. - reddish brown and grey indurated current bedded sandstone with thin interbeds of chocolate brown micaceous silty shales and massive grey sandstone. Sandstone varies from medium grained to silty sandstone. Pyrite grain disseminated in some sections. Minor shale with associated pyrite and trace chalcopyrite on fracture faces. Disseminated pyrite spherules scattered throughout. Sandstones pitted in places where pyrite has been leached out. Abund ant current bedding, intraformational breccia and shale cast conglomerate. TS 605.26 m [No 43403, Portsjon]	Tr py.	39257	592	598	6m	10	<20	15	10	<2		
				8	598	604	"	10	<20	25	15	<2		
				9	604	610	"	<10	<20	15	15	<2		
				39260	610	616	6	15	20	40	20	<2		
				1	616	622	6	<10	20	25	10	<2		
				2	622	628	"	<10	<20	<10	<10	<2		
				3	628	634	"	<10	<20	<10	<10	<2		
				4	634	640	"	30	20	15	10	<2		
				5	640	646	"	20	<20	20	10	<2		
				39266	646	652	"							
625.35	651.89	GREY MASSIVE SANDSTONE - predominantly massive indurated clean grey sandstone with thin interbeds current bedded sandstone and brown silty shales. Several greyish shale-siltstone bands. Conglomerate at 626.75 with quartz sandstone chert pebbles, yellowish sandstone unit. Sandstone jointed and badly broken in several places. Occasional current bedding and shale cast conglomerate. Pyrite spherules occur in scattered sections	Tr py.											
651.89	652.92	BROWN CURRENT BEDDED SANDSTONE. - Limy micaceous material on bedding planes. Sandstone is pitted in places												
652.92	709.95	MASSIVE SANDSTONE, GREEN AND BROWN SILTSTONES. interbanded massive grey indurated sandstone with interbedded up to several meters of green siltstone and sandstone and chocolate brown silty shales and siltstones. Green siltstone and sandstones show shale lead cast textures. Possible glauconite in sandstone bases and lead castings. Several intraformational breccia sections and minor shale cast conglomerate. Some crude current bedding. Chlorite on fracture surfaces and some bedding planes. Thin laminae chalcopyrite. Pyrite spherules disseminated and massive sections. Disseminated pyrite and [illegible]		39267	652	658	6	20	<20	15	15	<2		
				8	658	664	"	45	<30	55	15	<2		
				9	664	670	"	20	<20	35	10	<2		
				39270	670	678	8	15	<20	25	<10	<2		
				39277	678.87	679.87	1	25	20	45	20	<2		
				8	656	656	6	20	<20	15	<10	<2		
				9	686	692	6	15	<20	20	10	<2		
				39280	692	698	6	20	25	45	25	<2		
				39271	698	706	8	25	<20	30	<10	<2		
				39281	706	712	6	10	<20	95	20	<2		
				39282	712	717	5							

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Co	Ag
652·42	709·95 (cont)	thin pyrite bands. Mineralization occurs at following depths. 658·85 659·10 678·8 - 679·80 685·47 - 686·15 688·74 - 689·14 692·18 - 693·25 701·04 - 705·00 Disseminated dark green in sandier laval coated sections T.S 36230 @ 658·65 - [Ponta/ser]										
709·95	719·72.	BROWN SANDSTONE SILTSTONE. - current bedded indurated sandstone interbedded with chocolate brown silty shales and siltstone and minor green siltstone and sandstone. Strong load casting in places. Minor intraformational breccias Some massive grey sandstone. Disseminated green in brownish sandstone sections (up to 15%) Thin cross cutting fractures filled with yellowish carbonate(?) Chlorite with trace py and cp on some fracture faces. Dark green disseminated in sandier load casts. Disseminated pyrite, chalcopyrite and possible grey tetrahedrite in greener sandier sections. Some pyrite in chocolate brown shales at 712·10 Strong intraformational breccias at 716·57, 715·6 - 715·4 and 716·67 - 716·82 with disseminated py and cp. Pyrite spherules in more massive sandstone. TS 36226 @ 713·70m [Ponta/ser]	<0·5% py cp.	39282	712	717	5m	10	20	30	15	<2
719·72	732·29	MASSIVE SANDSTONE - massive grey and yellowish sandstone with thin silty shale and minor intraformational breccia. Bottom 80cm contains breccia with fragments of brown shale and sandstone. Shale (732·29 - 750·20) - Adelaidean.		39272	717	724	7m	15	25	30	20	<2
				3	724	730	6	<10	<20	20	15	<2
732·29	750·20	GREY-BROWN SILTY SHALE. - grey brown silty shale with green sandstone and silty sandstone in top 2 metres. Shales become dark brown and massive towards bottom with several bedded siltstone sections. Jointed and broken from 734·20 - 738·20. Hole declination at 750m - 89°.		39274	730	736	6	20	<20	45	25	<2
				5	736	742	6	45	25	60	30	<2
				39276	742	750	8	35	20	65	25	<2

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DRILL LOG

HOLE No. SCYW 1A

PROJECT STUART CREEK No. A-77-49	ELEVATION meters	COMMENCED 01/05/81	BORE HOLE SURVEY			INSTRUMENT						
PROSPECT YARRA WURTA	DIP COLLAR -90°	COMPLETED 07/07/81	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing
CO-ORDINATES 5950 mN 4200 mE	CORE SIZE BQ	TOTAL LENGTH 1150 meters	1397	87°							
BEARING TN MN GN	LOGGED BY 0-750.2 BY R A HARLEY 751.2 - 1150 m BY G KARY										

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
0	750.2	SEE LOG SHEETS BY R A HARLEY						
750.2	1031.5	BROWN AND GREEN BANDED SHALE - MINOR SILTSTONE LAYERS, SHOWING LOADCAST & CROSS BEDDING STRUCTURES 775.0 - 780.0 m - BRECCIA SHEAR ZONE - SOFT CLAY MATRIX WITH SHALE FRAGMENTS - SHEAR MAKES ANGLE OF 30° TO CORE AXIS 827.80 - 830.10 - BRECCIA SHEAR ZONE AT 25 - 30° TO CORE AXIS 852.70 - 852.75 - CALCITE FILLED FRACTURES 4mm WIDE AT 22° TO CORE AXIS - 1CM VERTICAL OFFSET OF BEDS VISIBLE. 941.0 - 949.0 - EXTENSIVE CROSS BEDDING 974.2 - 974.3 - GYPSUM FILLING FRACTURES	751.2 - 1039.3 m TRACE OF PYRITE DISSEMINATED ALONG BEDDING PLANES, ESPECIALLY IN GREEN LAYERS 871.00 - 877.00 m TRACE CHALCOPYRITE ALONG BEDDING PLANES					
1031.5	1039.30	BROWN SHALE - SAME UNIT AS ABOVE, BUT LACKS GREEN BANDS - OCCURRENCE OF <1% 4mm GREEN OVAL SHAPES WITH A PYRITE NUCLEUS, MAY REPRESENT REDUCING HALO SURROUNDING A SULPHIDE						
1039.30	1039.46	TRANSITION ZONE - INTERBANDED BROWN SHALE & COARSE GRAINED SANDSTONE - SANDSTONE IS: 40% QTZ 10% LITHIC FRAGMENTS 20% MATRIX 30% [illegible] - POOR SORTING [illegible] 2mm L > 1mm						

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DRILL LOG HOLE No. SCYW 1A

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
1039.46	1056.85	COARSE GRAINED LITHIC SANDSTONE - CLASTS SUB-ANGULAR TO WELL ROUNDED - CLAST SIZE VARIABLE FROM 2mm TO <1mm, SMALLER CLASTS TEND TO BE WELL ROUNDED QTZ GRAINS - ~20% MATRIX, POORLY INDURATED - 30% QTZ GRAINS - WELL ROUNDED - 10% RED GRANITIC CLASTS - SUB-ROUNDED - 10% BRICK RED LITHIC CLASTS - SUB ROUNDED TO SUB ANGULAR - 10% IGNEOUS + MINOR METAMORPHIC CLASTS SUB ROUNDED - 20% FELSIC FRAGMENTS - LIGHT GREY COLOURED						
1056.85	1069.72	FINE TO MEDIUM GRAINED, GREEN TO BROWN SANDSTONE - POORLY SORTED, CLAST SIZE <1 → 3 mm						
1069.72	1072.47	COARSE GRAINED, POORLY SORTED SANDSTONE - SUB ANGULAR CLAST, 4 → 9mm IN SIZE - CLAST TYPE - RED IGNEOUS - MINOR HEMATITIC + JASPEROID IRONSTONE - GREY ARENITES - WELL ROUNDED QTZ GRAINS <1mm → 2mm - BROWN TO GREEN COLOURED						
1072.47	1075.29	BROWN SILTSTONE WITH MINOR LAYERS OF WELL ROUNDED QTZ GRAINS						
1075.29	1077.28	FINE GRAINED GREEN QUARTZOSE SANDSTONES - MAINLY WELL SORTED WITH MINOR BANDS OF COARSE GRAINED, POORLY SORTED SANDSTONES						
1077.28	1141.30	INTERBANDED BROWN CALCAREOUS SHALE/DOLOMITE, FINE GREEN SILTSTONES, AND POORLY SORTED LITHIC SANDSTONE - BRECCIATION AND WARPING OF SHALE LAYERS + RESULT OF NAPA STRUCTURES WITH CALCITE AND SANDSTONE IN CORE OF NAPA, SHALE CLASTS ALSO SEEN AS RIP UP CLASTS IN SANDSTONE LAYERS						

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DRILL LOG — HOLE No. SCYW 1A — PAGE 3 OF 8

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
		1090 - 1091m - WARPING OF SHALE LAYERS FROM DIAPIR STRUCTURES						
1141.30	1141.95	COURSE BROWN SANDSTONE WITH MINOR BROWN CALCAREOUS SHALE/DOLOMITE LAYERS - POORLY SORTED - CALCAREOUS CEMENT - 60% QTZ GRAINS - 15% BROWN SHALE FRAGMENTS - 20% BRICK RED CLASTS						
1141.95	1143.05	BROWN CALCAREOUS SHALE/DOLOMITE - CONTORTED BEDDING - INTERSTITIAL SPARRY CALCITE - MINOR BRECCIATION OF BEDS						
1143.05	1143.29	BROWN FINELY LAMINATED, NON CALCAREOUS SILTSTONE						
1143.29	1147.19	BROWN DOLOMITE - FINELY BANDED - STROMATOLITIC WITH SANDSTONE IN FRACTURES BETWEEN STROMATOLITES						
1147.19	1182.03	GREY STROMATOLITIC DOLOMITE - GREY FINE GRAINED SANDSTONE IN FRACTURES BETWEEN STROMATOLITES - STROMATOLITES ARE GENERALLY POORLY DEVELOPED - PINK TO SPARRY ANHYDRITE AGGREGATES 2 → 10mm IN SIZE IN FRACTURES WITH SANDSTONES - STYLOLITES AS SUTURE LIKE LINES IN STROMATOLITES - THE CHANGE FROM BROWN TO GREY STROMATOLITIC DOLOMITE IS VERY GRADUAL NO DEFINITE DIVISION POINT EXISTS.						
1182.03	1188.63	GREY STROMATOLITIC DOLOMITE WITH MINOR THIN BANDS OF NON-CALCAREOUS DARK GREY SILTSTONES - CROSS BEDDING IN SILTSTONE LAYERS	1182.03 - 1188.63 <1% PYRITE ALONG BEDDING PLANES IN DARK GREY SILTSTONES					

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DRILL LOG HOLE No. SCYW 1A

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS (ppm) Zn	Cu	Ba	F	As
1188.63	1210.46	DARK GREY SILTSTONE WITH MINOR GREY DOLOMITE BANDS - OCCASIONAL PINK ANHYDRITE AGGREGATES	1201.35 - 1201.46 < 1% CHALCOPYRITE SURROUNDING SMALL AGGREGATES OF ANHYDRITE									
		1190.32 - 1190.38 - SLUMP BRECCIATED DOLOMITE	1205.43									
		1190.69 - 1191.09 - GREY STROMATOLITIC DOLOMITE	< 1% PYRITE ASSOCIATED WITH ANHYDRITE AGGREGATES									
		1195.00 - 1195.07 - LARGE AGGREGATE OF PINK/ORANGE ANHYDRITE CRYSTALS WITH MINOR GYPSUM	1210.36 < 1% PYRITE ASSOCIATED WITH ANHYDRITE AGGREGATE									
1210.46	1372.95	GREY/GREEN SILTSTONE - SLIGHTLY CALCAREOUS - GOOD CROSS BEDDING AND SCOUR FILLING TEXTURES	1207 - 1350 TRACE PYRITE ALONG BEDDING PLANES WITH OCCASIONAL CONCENTRATION									
		1215.82 - 1216.78 - VEIN OF ANHYDRITE WITH 1mm SELVAGE OF CALCITE	1215.82 - 1216.78 TRACE CHALCOPYRITE AS SELVAGE IN VEIN									
		1235.00 - 1235.70 - VEIN OF ANHYDRITE WITH MINOR CALCITE AT < 5° TO CORE AXIS	1220.28 3% PYRITE ALONG BEDDING PLANE									
		1259.00 - 1264.00 - MINOR 5 - 20mm BANDS OF GREY DOLOMITE										
		1297.00 - 1301.00 - MINOR 5 - 25mm BANDS OF GREY DOLOMITE	1318.24 - 1318.27									
		~ 1355 - 1372.95 - DARK GREY SILTSTONE WITH NUMEROUS SHALE AND DOLOMITE BANDS	RIDDIR OF PYRITE SWELLING OVERLYING SILTSTONE LAYERS	34501	1358.4	1360.4	2m	95	34	250	700	14
				34502	1360.4	1362.4	2m	60	36	260	700	12
				34503	1362.4	1364.4	2m	145	40	230	700	14
		THIN SECTION DESCRIPTION 1363.2m	~1355 - 1372.60									
		SEQUENCE OF WEAKLY CARBONACEOUS AND EXTREMELY FINELY PYRITIC LAMINATED, SILTY DOLOMITIC PELITES ("DOLOMITIC BLACK SHALE") WITH MINOR THIN BEDS OF DOLOMITE CARRYING COARSER PYRITE, RARE PATCHY SPHALERITE, RARE - TRACE CHALCOPYRITE.	2% PYRITE DISSEMINATED ALONG BEDDING PLANES	34504	1364.4	1366.4	2m	110	36	240	650	14
				34505	1366.4	1368.4	2m	400	40	230	650	14
				34506	1368.4	1370.4	2m	3460	55	190	500	18
		CHARACTERISTIC TARLEYS HILL FORMATION										

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DRILL LOG — HOLE No. SCYW 1A — PAGE 5 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS (ppm) Zn	Cu	Pb	F	Ag
		1369.30 - 1369.38 - GRAPHITIC ZONE WITH MINOR CALCITE VEINS	1370.23 - 1370.37 1mm WIDE VEIN OF SPHALERITE AT < 10° TO CORE AXIS									
		1370.01 - 1370.16 - GRAPHITIC ZONE WITH MINOR CALCITE VEINS		34507	1370.4	1372.95	2.55m	2900	42	270	600	20
		THIN SECTION DESCRIPTION 1370.2 m THIN BEDDED AND LAMINATED CARBONACEOUS AND SILTY DOLOMITE, MINOR QUITE COARSE COLOURLESS SPHALERITE SCATTERED THROUGH SOME BEDS; FAR LESSER AND FINER PYRITE, TRACE CHALCOPYRITE; VEIN OF YELLOWISH SPHALERITE/CARBONATE		34508	1372.95	1374.95	2 m	115	16	230	300	2
				34509	1374.95	1376.95	2 m	14	6	210	200	2
				34510	1376.95	1378.95	2 m	55	10	240	300	3
		THIN SECTION DESCRIPTION 1372.3 m THIN BEDDED TO LAMINATED, PYRITIC, DOLOMITIC, PELITIC, SILTY, AND FINE SANDY FACIES (FINE SANDY, PYRITIC SILTSTONE); INCORPORATING A SMALL PEBBLE OF PYRITIC QUARTZO FELSPATHIC METASEDIMENT (POSSIBLE "DROPPED PEBBLE" FROM AN ICEBERG OR ICE-FLOW)		34511	1378.95	1380.95	2 m	540	12	270	400	5
				34512	1380.95	1382.95	2 m	320	12	240	350	4
1372.95	1373.83	GREY TILLITE TO FLUVIOGLACIAL SEDIMENT DIRTY GREY SANDY MATRIX WITH 20% LITHIC CLASTS - CLAST TYPES CHERT, SHALE, QUARTZITE,										
		THIN SECTION DESCRIPTION 1373.8 m MASSIVE, SILTY, FINE TO VERY COARSE, FELSPATHIC QUARTZ SANDSTONE, WITH A MINOR PELITIC AND DOLOMITIC MATRIX, TRACE PYRITE, INCORPORATING SMALL PEBBLES AND ONE LARGE CLAST OF ALTERED GLASSY RHYOLITE										
1373.83	1377.78	GREY QUARTZ FELSPATHIC SANDSTONE - MASSIVE APPEARANCE	1377.78 - 1382.58 MINOR PYRITE IN SOME CLASTS, < 1% SPHALERITE RIMMED CLASTS + TRACE SPHALERITE CLASTS									
		THIN SECTION DESCRIPTION 1374.6 m MASSIVE TO WEAKLY IRREGULARLY BEDDED, FINE GRAINED FELSPATHIC DOLOMITE SANDSTONE (DOLOMITE FORMS AN ESSENTIAL MATRIX) TRACE PYRITE										

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DRILL LOG HOLE No. SCYW 1A PAGE 6 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS
1377.78	1392.58	LIGHT TO DARK GREY TILLITIC OR FLUVIOGLACIAL UNIT - SAND SUPPORTED WITH CLAST SIZE VARIABLE FROM 2 → 242 mm - CLAST TYPES SHALE, SILTSTONE, CHERT, GRANITE, PORPHYRITIC RHYOLITE, GNEISS						
		THIN SECTION DESCRIPTION 1378.6 m MIXED SEDIMENT OF DOLOMITIC/PELITIC MATRIX, ANGULAR FELSPATHIC QUARTZ SILT, THROUGH TO VERY COARSE ROUNDED SAND, INCORPORATING MINOR SMALL PEBBLES OF METASEDIMENT, "GRANITE" AND VOLCANIC; TRACE PYRITE TEXTURE AND COMPOSITION SIMILAR TO THIN SECTION AT 1373.8 m						
		THIN SECTION DESCRIPTION 1379.5 m DOLOMITIC PELITIC MATRIX, WITH SILTY TO FINE SAND, INCORPORATING VERY COARSE SAND AND NUMEROUS CLASTS OF VARIABLE SIZE AND COMPOSITION (APPARENTLY MAINLY OF BASEMENT); PROBABLY FLUVIOGLACIAL; SINGLE CLAST OF SPHALERITE ENCLOSING CHALCEDONIC-CHERT IS PROBABLY DETRITAL; VAGUELY BEADED; RARE SMALL CLASTS OF COARSE BASALT OR MICRODOLERITE; TYPICAL GLACIGENE DIAMICTITIC DEPOSIT						
		1382.85 - 1383.12 - BOULDER OF QUARTZ FELDSPAR BIOTITE GNEISS WITH 10mm FELDSPAR PORPHYROBLASTS						
		THIN SECTION DESCRIPTION 1383.4 m SMALL PEARLY, VERY COARSE TO MEDIUM GRAINED FELDSPATHIC, QUARTZ-SANDY, DOLOMITIC SILTSTONE; RANDOM NETWORK OF PARTLY RECRYSTALLISED DOLOMITE VEINS; CLAST TYPES INCLUDE FINE SEALITIC QUARTZ-FELDSPATHIC METASEDIMENT, MICRITIC CARBONATE, MINOR "GRANITE" (OR GNEISS), TRACE GRANOPHYRE AND ACID VOLCANIC						

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METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS (ppm) Zn	Cu	Ba	F	As
		THIN SECTION DESCRIPTION 1384.4m										
		PEBBLY AND DOLOMITIC, VERY COARSE SANDSTONE (UNDERLYING A CHLORITIC SHALE), CONTAINING		34513	1382.95	1384.95	2m	120	12	185	300	3
		A LARGE COMPOSITE PEBBLE OF SIDERITIC-CARBONATE, QUARTZ-ALBITE ROCK INCORPORATING		34514	1384.95	1386.95	2m	24	8	130	100	4
		SMALL CHERTY AND CARBONATE RICH CLASTS; ACCESSORY PYRITE IN ALL DOMAINS, INCLUDING		34515	1386.95	1388.95	2m	60	12	200	350	2
		SOME PROBABLE DETRITAL PYRITE AND PYRITE ASSOCIATED WITH SIDERITIC CARBONATE		34516	1388.95	1390.95	2m	430	20	250	450	<2
		1385.00 - 1387.40 - 20% WEATHERED OUT CLAST SPACES		34517	1390.95	1392.58	1.63m	175	14	240	350	3
		1387.71 - 1388.00 - LARGE BOULDER OF RUSTY RED SILICEOUS IRON RICH CONGLOMERATE	1387.71 - 1388.00 1% PYRITE IN BOULDER									
1392.58	1404.95	LIGHT GREY TO WHITE QUARTZ FELSPATHIC SANDSTONE		34518	1392.58	1397.58	5m	20	10	120	200	2
		- MINOR THIN (<1mm) BLACK SHALE BANDS										
		- MINOR TILLITIC OR FLUVIOGLACIAL BANDS										
		THIN SECTION DESCRIPTION 1393.4m										
		HOMOGENEOUS, MASSIVE TO WEEKLY BEDDED, HIGHLY DOLOMITIC FINE TO MEDIUM FELSPATHIC QUARTZ SANDSTONE (OR SANDY-DOLOMITE)		34519	1397.58	1402.58	5m	65	6	125	200	<2
		1395.80 - 1396.33 - BAND OF COARSE TO VERY COARSE TILLITIC OR FLUVIOGLACIAL MATERIAL: CLAST SIZE 2 → 30mm										
1404.95	1423.20	GREY MUD SUPPORTED SANDSTONE		34520	1402.58	1407.58	5m	36	14	180	450	2
		- POORLY SORTED CLAST SIZE 2 - 40mm		34521	1407.58	1412.58	5m	38	14	210	450	4
		- <5% OF CLASTS >5mm		34522	1412.58	1417.58	5m	48	16	230	400	<2
		- CLAST ANGULAR TO SUB-ROUNDED		34523	1417.58	1422.58	5m	34	14	230	400	3
		- MINOR SHALE BANDS		34524	1422.58	1427.58	5m	50	18	230	500	<2
		- VERY POORLY BEDDED										
		- SLIGHTLY CALCAREOUS										

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DRILL LOG — HOLE No. SCYW 1A — PAGE 5 OF 8

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS (ppm) Zn	Cu	Ba	F	As
1423.20	1425.30	GREY SILTSTONE - VERY POORLY BEDDED										
1425.30	1431.92	GREY MUD SUPPORTED SANDSTONE - MILDLY CALCAREOUS - 20% CLASTS, OF WHICH 30% ARE DOLOMITE 1426.28 - 1426.39 - SMALL ZONE OF COARSE FLUVIOGLACIAL TO TILLITIC MATERIAL; MAINLY DOLOMITE AND OOLITIC CHERT CLASTS	1425.30 - 1450.00 TRACE OF SPHALERITE RIMMING << 1% OF CLASTS	34525	1427.58	1432.58	5m	30	28	200	400	5
1431.92	1450.00	GREY MUD SUPPORTED SANDSTONE - SIMILAR TO 1425.30 - 1431.92 m INTERVAL WITH AN INCREASE IN CLAST CONTENT TO 40% CLASTS OF WHICH 40% ARE DOLOMITE - MINOR PEBBLE TO COBBLE SIZE BLACK OOLITIC CHERT CLASTS		34526	1432.58	1437.58	5m	22	16	160	400	2
				34527	1437.58	1442.58	5m	20	6	200	350	<2
				34528	1442.58	1447.58	5m	28	14	210	450	2
		THIN SECTION DESCRIPTION 1440.8m SMALL DOLOMITIC-PEBBLY, FINE TO COARSE QUARTZ-SANDY, DOLOMITE		34529	1447.58	1450.00	5m	22	6	195	350	<2
		THIN SECTION DESCRIPTION 1443.2m FINE TO COARSE SANDY DOLOMITE, INCORPORATING A VERY LARGE CLAST OF (DOLOMITIC) OOLITIC CHERT AND RARE SMALLER PEBBLES OF MICRITIC DOLOMITE										
		THIN SECTIONS 1373.8 TO 1443.2m COLLECTIVELY SUGGEST A PROBABLE FLUVIOGLACIAL SEQUENCE, WITH THE HIGHLY RUDACEOUS ROCKS PERHAPS GENUINELY GLACIAL IN THERE STRATIGRAPHIC POSITION BELOW THE TARLEYS HILL FORMATION, THEY MUST SURELY REPRESENT "STURTIAN GLACIGENE SEDIMENTS THIN SECTIONS OF PONTIFEX & RANDMIRES ARE TO											

APPENDIX II

Pontifex & Associates Pty. Ltd.

TEL. 332 6744
A.H. 31 3816

26 KENSINGTON ROAD, ROSE PARK
SOUTH AUSTRALIA

P.O. BOX 91, NORWOOD
SOUTH AUSTRALIA 5067

MINERALOGICAL REPORT NO. 3403

088

21st August 1981

TO:	Mr. G. Miller, Amoco Minerals Aust. Co., P.O. Box 47, Norwood, S.A. 5067
YOUR REFERENCE:	Order No. W 15946
MATERIAL:	Split core samples (12 in all)
IDENTIFICATION:	Drill hole SCYN-1A 1363.2 m to 1443.2 m - various intervals
WORK REQUESTED:	Petrographic descriptions, also polished sections where necessary
SAMPLES AND SECTIONS:	Returned to you with this report

PONTIFEX & ASSOCIATES PTY. LTD.

1. Tapley Hill Formation

The three uppermost samples in this hole SCYN-1A, at 1363.2, 1370.2 and 1372.3 m, were submitted as probable Tapley Hill Formation. Petrographically these three rocks are laminated to thin bedded, variably pyritic and carbonaceous, with variable amounts of clays, dolomite and silt. Fine sand also occurs in 1372.3.

Sample 1363.2 and 1370.2 contain coarse, near-colorless syngenetic sphalerite in some beds; 1370.2 is also cut by a vein of pale sphalerite/carbonate.

Sample 1372.3 incorporates a single large clast of pyritic quartzofelspathic metasediment, the mode of occurrence of which indicates a probable "dropped-pebble" from an iceberg or ice-flow.

The petrography, also the mineralisation and probable "glacial component" are characteristic of the basal part of the Tapley Hill Formation.

2. Sturt Tillite

The samples from 1373.8 to 1443.2 m were submitted as possible "Sturt Tillite".

Certainly many of these samples contain "pebbles", in variable abundance and up to 50 mm across. These are generally rounded to subrounded, randomly disposed and unsorted, within a whole rock matrix composed of variable amounts of : (1) very coarse through to fine sand, generally rounded to subrounded, but unsorted; weakly felspathic and lithic

(2) very fine sand to silt, notably angular in contrast to the coarser sand

(3) pelitic material and/or micritic dolomite.

This relationship of unsorted pebbles and very coarse sand which do not form a continuous framework within a matrix of finer

sand, silt and mud, are characteristic of diamictites, which 070
are commonly the result of deposition from a highly viscose medium, such as a glacier or mud flow. (There is no evidence of submarine slumping in these rocks.)

Tillite is an example of a diamictite, but objectively, particularly in thin section, it is not possible to positively distinguish a tillite from a mud-flow-conglomerate, which indeed may be fluvioglacial.

Indeed further evidence of a fluvioglacial interpretation is suggested by relatively well sorted silty and sandy (dolomitic) facies, without pebbles, intercalated with the apparently thicker rudaceous (diamictitic) beds.

A lack of any continuous framework formed by the coarse component in this sequence and the general lack of angularity of the clasts, indicates that the sequence does not represent sedimentary breccias.

The collective evidence suggests, therefore, a probable fluvioglacial sequence, with the highly rudaceous rocks perhaps genuinely glacial. Objectively, the petrography cannot classify the sequence as "Sturt Tillite", but in its stratigraphic position below the Tapley Hill Formation, it must surely represent "Sturtian glacigene sediments".

A fairly consistent variation in composition of this ?fluvioglacial facies, from the top of the sequence down-hole to the deepest sample at 1443.2, is manifest as :

(1) an increase in dolomite content from a minor to subordinate component in a generally dolomitic/pelitic matrix at 1373.8 to about 1383.4; through a sediment with an essential dolomitic matrix at 1384.4 (largely substituting for the silt to very fine angular sand higher up), also essential dolomite matrix at

1393.4; to a facies in which dolomite is considerably more abundant than quartzose detritus at 1440.8 and 1443.2.

(2) in the rudaceous samples, the pebbles show greatest variation in composition and include a greater metasediment, "granitic", and volcanic (polymict) component in samples 1373.8, 1378.6, 1379.8, 1383.4, 1384.4. These clasts are apparently derived from crystalline basement.

Below this, at 1440.8, the pebbles consist almost entirely of micritic dolomite (themselves incorporating dolomite intraclasts) and at 1443.2, where a single large clast consists of oolitic dolomitic chert. These clasts appear to derive from a cherty-carbonate provenance, but from what stratigraphic level is unknown.

1363.2 m — sequence of weakly carbonaceous and extremely finely pyritic, laminated, silty dolomitic pelite ("dolomitic black shale") with minor thin beds of dolomite carrying coarser pyrite, rare patchy sphalerite, rare-trace chalcopyrite

The thin section from this piece of core consists essentially of a sequence of laminated, dolomitic "black-shale" with two paler colored, carbonate beds, 4 mm and 10 mm thick, carrying minor sulphides, intercalated in the black shale sequence, about 20 mm apart.

The shale consists of essential, turbid, micro to almost cryptocrystalline dolomite, intimately mixed with pelitic detritus (clay/sericite) minor quartz silt and ultrafine carbonaceous material (which in polished section is seen to include graphite). Extremely fine (5 to 15 micron) pyrite , commonly framboidal, is scattered along the laminated bedding to form about 5% of the rock.

The carbonate beds generally have a planar bedding plane contact with the shale, although one contact is gently irregular. These consist of micro to cryptocrystalline (micritic) dolomite with irregular (?fused intraclastic) domains cemented by slightly coarser (microcrystalline) carbonate. Extremely fine pyrite (5 to 15 micron) is dispersed, coarser euhedral pyrite (0.15 mm) occurs as individuals and elongate aggregates along the bedding.

Trace chalcopyrite ($<<1\%$), maximum size 0.1 mm rarely accompanies the pyrite. In the thinner dolomite layer, with least pyrite, several highly irregular patches of near-colorless sphalerite, up to 3 mm, are more or less intergranular within the carbonate mosaic, and also incorporates several single cubes of pyrite.

This sample is fairly characteristic of Tapleys Hill Formation.

1370.2 m — thin bedded and laminated, carbonaceous and silty dolomite, minor quite coarse colorless sphalerite scattered through some beds; far lesser and finer pyrite, trace chalcopyrite; vein of yellowish sphalerite/carbonate

Field Note: Tapleys Hill Formation.

This rock is banded (bedded) on a scale of 3 to 6 mm, with most bands also laminated on a much finer scale. All bands consis essentially of turbid extremely fine (micritic) dolomite, and they are differentiated on the basis of variable concentrations of quartz silt, ultrafine carbonaceous material and lesser clays. These components may form up to a maximum of 25% of a given bed or lamination.

Fine pyrite 0.02 mm to rarely 0.15 mm is disseminated, total about 5%, and slightly more abundant in some layers than in others. Rare ($<<1\%$) chalcopyrite of similar size is also present

Sphalerite, virtually colorless to very pale honey colored, occurs in subhedral to rarely anhedral grains, commonly about 0.15 mm in size. These occur as individuals and in small clusters $\pm$ very fine crystalline quartz, mainly in the several thicker, non-carbonaceous beds within the sequence and forming 7 - 10% of those beds.

A vein 1.4 mm wide, consists mainly of pale yellowish, fairly coarse crystalline sphalerite, extending into carbonate carrying only accessory sphalerite.

1372.3 m — thin bedded to laminated, pyritic, dolomitic, pelitic, silty and fine sandy facies (fine sandy, pyritic siltstone); incorporating a small pebble of pyritic quartzofelspathic metasediment

Most of this sample consists of a homogeneous laminated (bedded) sequence, with more or less alternating variably continuous layers of fine pyrite (25%), average thickness 0.15 mm, of silt to fine sand (35%), average thickness 1 mm, and of silty dolomitic, pelitic sediment dominating beds up to 1 mm, also gradational into the sulphide and fine sandy layers.

The sandy detritus consists of angular to subrounded grains of mainly quartz, minor plagioclase, K-spar, accessory carbonate, argillic-sericitic lithic fragments, trace tourmaline, detrital muscovite, zircon.

The pyrite is well bedded, including being intricately intergranular to the silicate detritus; it is not particularly well crystalline.

A subangular, more or less quadrangular pebble 10 x 15 mm "sits" within the bedded sequence, with warping of the bedding laminae under the down-hole side more pronounced than over the up-hole side, but without any dislocation. This pebble consists of a patchy metamorphically microcrystalline mosaic of quartz felspar and fine crystalline pyrite, minor argillised grains and random muscovite. Pyrite and k-spar are relatively more concentrated than in the sedimentary host rock.

A single grain of bright green ?glauconite is present.

1373.8 m — massive, silty, fine to very coarse, felspathic quartz sandstone, with a minor pelitic and dolomitic matrix, trace pyrite, incorporating small pebbles and one large clast of altered glassy rhyolite

The bulk of this rock consists of a random loose-packed aggregate of generally subrounded to rounded detrital grains, ranging in size from 0.03 mm to 0.85 mm, within a matrix (15 - 25%) of extremely fine clays, turbid carbonate, minor sericite and rare carbonaceous stringers. The detrital grains consist of the following, in order of approximate decreasing abundance :

- single and far lesser coarse-polycrystalline quartz grains (of igneous or plutonic origin)
- microcrystalline lithic detritus, including chert ± fine carbonate and sericite; rarely of micritic carbonate, clay-sericite
- grains of K-spar (7%) and lesser plagioclase, argillised rarely composite with quartz
- grains of granophyre
- grains of ?detrital pyrite and trace bright green ?glauconite

Very small pebbles (2 mm) of metamorphic quartzofelspathic micromosaic are present.

One much larger clast (25 mm) in the massive sediment described with a very weakly warped (or dished) apparent bedding plane on the immediate down-hole side. This clast is a volcanic with a diffuse patchy micromosaic groundmass of sericitised and argillised K-spar enclosing rare quartz phenocrysts, a felspar phenocryst altered to clays + biotite and rare small carbonate "bodies".

1374.6 m — massive, to weakly irregularly bedded, fine grained felspathic dolomite sandstone (dolomite forms an essential matrix); trace pyrite

This has a similar composition to the bulk of 1373.8, but it is weakly bedded, more homogeneous (including being better sorted) with more carbonate in the intergranular matrix and lacking the pebbles in 1373.8.

Essentially it consists of a reasonably tightly-packed aggregate of subrounded to rounded, with more angular finer grains, of mainly single crystal quartz, minor plagioclase and K-spar; grain size ranging from 0.05 mm to 0.15 mm, but a large proportion about 0.1 mm.

A ubiquitous intergranular matrix (25 - 30%) consists of extremely fine granular dolomite, very rare clays/silt. Rare (< 1%) extremely fine pyrite is disseminated.

1378.6 m — mixed sediment of dolomitic/pelitic matrix, angular felspathic quartz silt, through to very coarse rounded sand, incorporating minor small pebbles of metasediment, "granite" and volcanic; trace pyrite

This massive to irregularly bedded sedimentary rock has a notably heterogeneous texture and composition very similar to the bulk of 1373.8, and including fine sand similar to the bulk of 1374.6 (also similar to facies deeper in this hole).

Approximately four sediment types are variably mixed to form this rock.

(a) matrix of extremely fine dolomite clouded with clays, extremely fine sericite and minor ?carbonaceous dust (in local thin lenses). This matrix is more abundant in some areas of the rock than in others.

(b) silt to medium sand (< 0.25 mm) of mainly single crystal quartz grains, angular to subangular.

(c) medium to very coarse sand (< 1 mm), rounded to subrounded grains of single and polycrystalline quartz, minor (sericitised) K-spar, lesser plagioclase, small lithic grains variably quartzofelspathic, sericitic, rarely dolomitic.

(d) small rounded pebbles of variably quartz-felspar metasedimentary micromosaic; argillised/sericitised granite; ?glassy andesitic volcanic; black shale.

Trace fine pyrite grains are scattered.

1379.8 m — dolomitic pelitic matrix, with silty to fine sand, incorporating very coarse sand and numerous clasts of variable size and composition (apparently mainly of "basement"); probably fluvioglacial; single clast of sphalerite enclosing chalcedonic-chert is probably detrital

This is a complex, vaguely bedded, sedimentary facies with four essential, compositional/textural components, which form finest to coarsest, as follows :

(1) a ubiquitous intergranular cement/matrix of extremely fine turbid carbonate, probably dolomite (15%). The clouding may be partly due to carbonaceous dust.

(2) silt to fine sand (30%) as a ubiquitous matrix to coarser components, composed mainly of angular to subangular quartz grains, quite well sorted.

(3) coarse to very coarse, quartz sand grains (25 - 30%) reasonably well sorted, average size 0.5 mm, apparently as a distinct size population (i.e. bimodal with the finer sediment). These grains are also distinguished by their rounded to well-rounded (spherical) form.

(4) clasts of various size, unsorted and up to 8 mm maximum dimension (25 - 30%), of variable composition, generally angular to subangular, they include :

a. microcrystalline quartz-plagioclase rock ± minor carbonate (common as a "basement rock" in various parts of South Australia, e.g. upper Yorke Peninsular, Olary Province, locally in North Flinders Ranges).

b. coarse granular quartz-felspar rock ± chloritised biotite ± minor myrmekite; possible "granite" or acid-gneiss.

c. homogeneous microcrystalline dolomite.

d. heterogeneous intraclastic sandy, micritic dolomite.

e. minor smaller clasts of sericitic shale.

f. rare small clasts of coarse basalt or microdolerite.

inued ....

1379.8 m continued

A single "clast", 2 x 5 mm, consists of chalcedony, surrounded by an envelope of honey colored, microcrystalline sphalerite. This occurs independently in the fine sandy rock matrix, essentially as a clast, which appears to be detrital, conceivably derived from a sphalerite-bearing chert (?carbonate) source rock.

This complex sediment, which is at least bimodal, possibly trimodal, is more or less diamictitic, due to unsorted clasts and very coarse (sorted) round sand grains randomly and independently disposed through a calcareous muddy and quartz silty matrix. This is rather typical of "glacigene" deposits, but probably fluvioglacial, rather than geneuinely glacial (tillitic). Alternatively it may have formed by deposition from submarine slumping.

1383.4 small pebbly, very coarse to medium grained felspathic, quartz-sandy, dolomitic siltstone; random network of partly recrystallised dolomite veins

This is similar to the mixed pebbly facies described above, but containing more carbonate (dolomite) and thus more or less transitional in this regard to the quite strongly dolomitic sandy rudaceous facies below

About 60% of this rock consists of irregularly lenticular-bedded angular silty to very fine sandy grains, loosely packed within a dolomitic matrix. The grains are mainly quartz, with minor felspar. The dolomite matrix, which forms about 30% of the whole rock is micritic and clouded (by clays?) and is more concentrated in some domains, thus difficult to distinguish at this limiting size from coarse dolomitic clasts.

The other 40% of the rock consists of medium to coarse and very coarse, rounded grains of quartz sand, minor lithic fragments and accessory felspar grains of this size. The clasts range in size up to small pebbles, 10 mm across.

The clasts include fine sericitic quartzofelspathic meta-sediment, micritic carbonate, minor "granite" (or gneiss), trace granophyre and acid volcanic.

An irregular network of variably turbid/micritic, to clearer microcrystalline dolomite cuts the rock, rare trace pyrite is present.

1384.4 m — pebbly and dolomitic, very coarse sandstone (underlying a chloritic shale), containing a large composite pebble of sideritic-carbonate, quartz-albite rock incorporating small cherty and carbonate-rich clasts; accessory pyrite in all domains, including some probable detrital pyrite and pyrite associated with sideritic carbonate

About 60 mm length of this core sample is a rudaceous sediment of heterogeneous composition, mainly by virtue of abundant, random, loose-packed clasts, which are unsorted and measure up to 40 mm in maximum dimension. This "rudite" is part of a sedimentary unit underlying a homogeneous sericitic, chloritic, quartzose, "shale". The thin section was cut almost entirely of the rudite, but including one large, reddish, clast indicated by Amoco to be of special interest.

The matrix of the rudite is similar to the bulk of the non-pebbly component in most samples described in some detail above, but generally without the silt to fine angular quartz sand fraction which is largely substituted for by intergranular dolomite on a similar scale to the matrix in 1383.4.

This whole-rock "matrix" consists of a fairly loosely packed aggregate of rounded to well rounded coarse quartzose sand grains, reasonably wellsorted with an average size of 0.5 mm, in an intergranular matrix/cement of carbonate (dolomite).

It contains minor felspar of similar grainsize, also numerous small clasts (to 6 mm across) of micritic carbonate, micro-crystalline quartz, shale, dolomitic chert, carbonaceous chert, sheared "granite" or acid gneiss and carbonated microcrystalline plagioclase rock. Minor fine pyrite occurs as indigenous inclusions in some clasts, and as independent apparently detrital grains.

1384.4 m continued

The large reddish clast of special interest, consists of a heterogeneous, microcrystalline mass of plagioclase (albite) and subordinate quartz (50 - 60%) incorporating numerous irregular carbonate crystals (30%), some rhomb-shaped, and all clouded with reddish iron oxide dust and very fine grained pyrite is commonly clustered within these carbonate grains. Small ?clasts of chert, dolomitic siltstone, shale and of near cryptocrystalline albite rock are also scattered through this large rock fragment.

This massive microcrystalline albite rock type is known to the author from "basement" in upper Yorke Peninsula, Olary district and Northern Flinders Ranges. Its precise genesis there is unknown, but possibly an albitised metasediment, possibly a metavolcanic.

In this core its genesis is equally confusing, but may be an albitised carbonate, lithic metasediment.

1393.4 m — homogeneous, massive to weakly bedded, highly dolomitic, fine to medium felspathic quartz sandstone (or sandy-dolomite)

This is a fairly homogeneous sediment consisting largely of a loose-packed aggregate of subrounded to rounded sand grains (60%), ranging in size from 0.1 mm to 0.5 mm, but with a majority about 0.2 mm, representing a reasonable degree of sorting compared with most facies above. Most grains are of single crystal quartz, however minor K-spar (10%) and lesser plagioclase are evenly disposed.

There is negligible lithic detritus, except for minor grains of cloudy micritic dolomite, and the angular silt to very fine sand fraction seen in most sediments above is absent.

An intergranular cement/matrix of fairly clear, very fine crystalline dolomite has an even distribution throughout to form about 40% of the rock. This is clearer and slightly coarser than the equally ubiquitous carbonate in the more heterogeneous sediment at 1383.4.

1440.8 m — small dolomitic-pebbly, fine to coarse quartz-sandy, dolomite

This rock is similar to 1383.4 above, but more dolomitic, with up to 65% micritic dolomite, as a dominant part of a matrix which incorporates numerous small dolomite pebbles.

The bulk of the whole rock consists of turbid micritic dolomite with grains of quartz and accessory felspar randomly disposed throughout. These consist of subangular very fine sand to silt, ranging through to more abundant and more rounded coarser sand grains.

Minor small grains, to very small pebbles of chert and micritic carbonate are scattered.

Larger clasts (small pebbles) up to a maximum dimension of 15 mm consist essentially of micritic dolomite which themselves inherently incorporate smaller intraclasts of dolomite and minor coarse sand. These must surely derive from a dolomitic provenance + minor chert.

1443.2 m — fine to coarse sandy dolomite, incorporating a very large clast of (dolomitic) oolitic chert and rare smaller pebbles of micritic dolomite as at 1440.8.

The bulk of this core consists of a fine to coarse sandy dolomite, essentially the same as the non-pebble component of 1440.8 and does not warrant a separate description.

Of special interest, however, is the large pebble (50 mm across) incorporated in this rather massive sediment. This pebble consists of a random, loose-packed aggregate of ovoid to spheroidal oolites of chert-chalcedony composition, commonly with rims of fine fibrous chalcedony and voids within the aggregate filled by fine, euhedral-crystalline dolomite.

A smaller pebble (8 mm) of cloudy micritic dolomite (as in 1440.8) is also present.

These pebbles must surely derive from a provenance of cherty carbonate facies.

APPENDIX III

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM 810986 (Additional)

086

Results in ppm

SCYW 1A

FROM	TO	SAMPLE	F	LENGTH (M)
1358.40	1360.40	34501	700	2
1360.40	1362.40	2	700	2
1362.40	1364.40	3	700	2
1364.40	1366.40	4	650	2
1366.40	1368.40	5	650	2
1368.40	1370.40	6	500	2
1370.40	1372.95	7	600	2.55
1372.95	1374.95	8	300	2
1374.95	1376.95	9	200	2
1376.95	1378.95	10	300	2
1378.95	1380.95	1	400	2
1380.95	1382.95	2	350	2
1382.95	1384.95	3	300	2
1384.95	1386.95	4	100	2
1386.95	1388.95	5	350	2
1388.95	1390.95	6	450	2
1390.95	1392.58	7	350	1.63
1392.58	1397.58	8	200	5
1397.58	1402.58	9	200	5
1402.58	1407.58	20	450	5
1407.58 ~~1412.58~~	1412.58	1	450	5
1412.58	1417.58	2	400	5
1417.58	1422.58	3	400	5
1422.58	1427.58	4	500	5
1427.58	1432.58	34525	400	5

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ANALYTICAL REPORT

JOB COM 810986 (Additional)

Results in ppm

087

FROM	TO	SAMPLE	F	LENGTH
1432.58	1437.58	34526	400	5
1437.58	1442.58	7	350	5
1442.58	1447.58	8	450	5
1447.58	1450.00	34529	350	2.42

Method of Analysis - SIE 2

COMLABS Pty Ltd
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM810986 O/N : W 15770

088

Results in ppm

SAMPLE LOCATION (METRES) FROM	TO	SAMPLE	As	Ba	Mo	Sn	Ta	U	W	LENGTH
1358.40	1360.40	34501	14	250	<4	4	<10	<4	10	2M
1360.40	1362.40	34502	12	260	8	<4	<10	<4	25	2M
1362.40	1364.40	34503	14	230	<4	<4	<10	<4	<10	2M
1364.40	1366.40	34504	14	240	6	4	<10	<4	40	2M
1366.40	1368.40	34505	14	230	<4	<4	<10	<4	<10	2M
1368.40	1370.40	34506	18	190	6	<4	<10	<4	25	2M
1370.40	1372.95	34507	20	270	6	<4	<10	<4	<10	2.55M
1372.95	1374.95	34508	2	230	6	<4	<10	<4	35	2M
1374.95	1376.95	34509	2	210	<4	<4	<10	<4	<10	2M
1376.95	1378.95	34510	3	240	<4	4	<10	<4	25	2M
1378.95	1380.95	34511	5	270	<4	<4	<10	<4	<10	2M
1380.95	1382.95	34512	4	240	4	<4	<10	<4	30	2M
1382.95	1384.95	34513	3	185	<4	10	<10	4	10	2M
1384.95	1386.95	34514	4	130	6	<4	<10	<4	30	2M
1386.95	1388.95	34515	2	200	<4	<4	<10	<4	15	2M
1388.95	1390.95	34516	<2	250	<4	<4	<10	<4	10	2M
1390.95	1392.58	34517	3	240	<4	<4	<10	4	20	1.63M
1392.58	1397.58	34518	2	120	<4	<4	<10	4	15	5M
1397.58	1402.58	34519	<2	125	4	<4	10	<4	30	5M
1402.58	1407.58	34520	2	180	<4	10	<10	<4	10	5M
1407.58	1412.58	34521	4	210	<4	<4	<10	<4	<10	5M
1412.58	1417.58	34522	<2	230	<4	6	<10	<4	<10	5M
1417.58	1422.58	34523	3	230	<4	<4	10	<4	15	5M
1422.58	1427.58	34524	<2	230	<4	6	<10	<4	15	5M
1427.58	1432.58	34525	5	200	<4	<4	<10	<4	10	5M

.../2

COMLABS Pty Ltd
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

089

JOB COM810986 O/N : W 15770

Results in ppm

Sample Location

From	To	SAMPLE	As	Ba	Mo	Sn	Ta	U	W	LENGTH
1432.58	1437.58	34526	2	160	<4	<4	<10	<4	<10	5 m
1437.58	1442.58	34527	<2	200	<4	<4	<10	<4	10	5 m
1442.58	1447.58	34528	2	210	<4	4	<10	<4	<10	5 m
1447.58	1450.00	34529	<2	195	<4	4	<10	<4	<10	2.42 m

Method of Analysis : As Ba Mo Sn Ta U W : XRF1

COMLABS Pty Ltd
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

090

JOB COM810986 O/N : W 15770

Results in ppm

Sample Location FROM	TO	SAMPLE	Cu	Pb	Zn	Ni	Co	Cd	LENGTH
1358.40	1360.40	34501	34	65	95	36	12	<1	2 M
1360.40	1362.40	34502	36	80	60	40	16	<1	2 M
1362.40	1364.40	34503	40	100	145	40	16	<1	2 M
1364.40	1366.40	34504	36	95	110	36	12	<1	2 M
1366.40	1368.40	34505	40	125	400	40	16	1	2 M
1368.40	1370.40	34506	55	120	3400	36	16	8	2 M
1370.40	1372.95	34507	42	135	2900	32	16	7	2.55 M
1372.95	1374.95	34508	16	26	115	8	<4	1	2 M
1374.95	1376.95	34509	6	22	14	8	<4	<1	2 M
1376.95	1378.95	34510	10	42	55	16	8	<1	2 M
1378.95	1380.95	34511	12	44	540	16	8	2	2 M
1380.95	1382.95	34512	12	34	320	16	4	1	2 M
1382.95	1384.95	34513	12	26	120	16	<4	1	2 M
1384.95	1386.95	34514	8	16	24	8	<4	1	2 M
1386.95	1388.95	34515	12	26	60	16	<4	<1	2 M
1388.95	1390.95	34516	20	26	430	16	4	<1	2 M
1390.95	1392.58	34517	14	28	175	20	8	1	1.63 M
1392.58	1397.58	34518	10	16	20	8	<4	<1	5 M
1397.58	1402.58	34519	6	18	65	8	<4	1	5 M
1402.58	1407.58	34520	14	28	36	16	4	<1	5M
1407.58	1412.58	34521	14	24	38	16	4	<1	5 M
1412.58	1417.58	34522	16	20	48	16	4	<1	5 M
1417.58	1422.58	34523	14	26	34	16	8	<1	5 M
1422.58	1427.58	34524	18	24	50	16	8	<1	5M
1427.58	1432.58	34525	28	24	30	16	4	<1	5M

.../4

COMLABS Pty Ltd
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

091

JOB COM810986 O/N : W 15770

Results in ppm

Sample Location FROM	TO	SAMPLE	Cu	Pb	Zn	Ni	Co	Cd	Length
1432.58	1437.58	34526	16	22	22	16	<4	<1	5 m
1437.58	1442.58	34527	6	20	20	20	4	<1	5 m
1442.58	1447.58	34528	14	18	28	20	8	<1	5 m
1447.58	1450.00	34529	6	22	22	16	4	<1	2.42 m

Method of Analysis : Cu Pb Zn Ni Co Cd : AAS1

COMLABS Pty Ltd
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM810986 O/N : W 15770 092

Results in ppm

SAMPLE LOCATION FROM	TO	SAMPLE	Ag	Bi	Hg	Au	LENGTH
1358 40	1360.40	34501	<1	-	<10	<0.05	2 M
1360 40	1362.40	34502	<1	-	<10	<0.05	2 M
1362 40	1364.40	34503	<1	-	<10	<0.05	2 M
1364.40	1366 40	34504	<1	-	<10	<0.05	2 M
1366 40	1369 40	34505	<1	-	<10	<0.05	2 M
1368.40	1370.40	34506	<1	-	<10	<0.05	2 M
1370.40	1372 95	34507	1	-	<10	<0.05	2 55 M
1372 95	1374.95	34508	<1	-	<10	<0.05	2 M
1374 95	1376.95	34509	<1	-	<10	<0.05	2 M
1376 95	1378 95	34510	<1	-	<10	<0.05	2 M
1378.95	1380.95	34511	<1	-	<10	<0.05	2 M
1380.95	1382.95	34512	<1	-	<10	<0.05	2 M
1382 95	1384.95	34513	<1	<4	-	<0.05	2 M
1384.95	1386.95	34514	<1	<4	-	<0.05	2 M
1386.95	1388.95	34515	<1	<4	-	<0.05	2 M
1388.95	1390.95	34516	<1	<4	-	<0.05	2 M
1390.95	1392 58	34517	<1	<4	-	<0.05	1.63 M
1392 58	1397.58	34518	<1	<4	-	<0.05	5 M
1397.58	1402.58	34519	<1	<4	-	<0.05	5 M
1402 58	1407.58	34520	<1	<4	-	<0.05	5 M
1407.58	1412 58	34521	<1	<4	-	<0.05	5 M
1412.58	1417.58	34522	<1	<4	-	<0.05	5 M
1417.58	1422.58	34523	<1	<4	-	<0.05	5 M
1422.58	1427 58	34524	<1	<4	-	<0.05	5 M
1427 58	1432 58	34525	1	<4	-	<0.05	5 M

.../ 6

COMLABS Pty Ltd
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

093

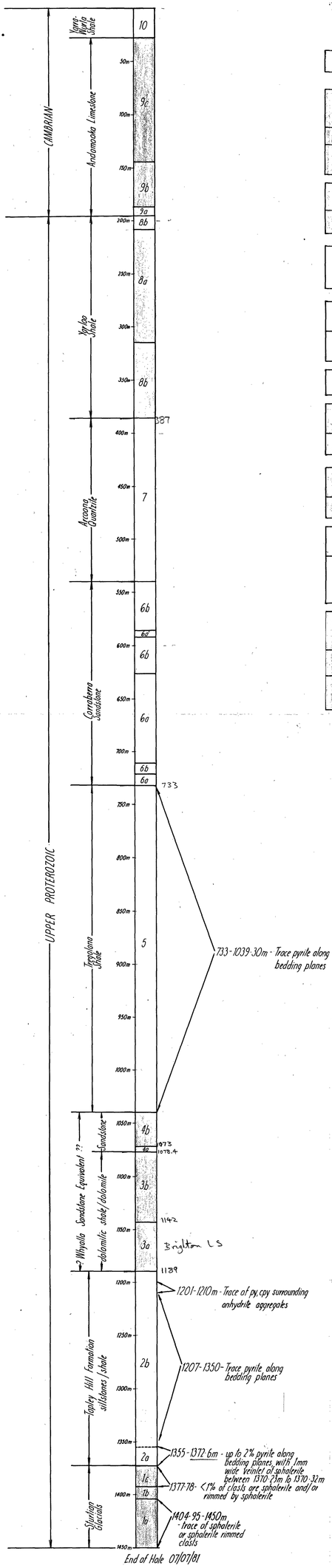
JOB COM810986 O/N : W 15770

Results in ppm

SAMPLE LOCATION

FROM	TO	SAMPLE	Ag	Bi	Hg	Au	LENGTH
1432.58	1437.58	34526	1	<4	-	<0.05	5m
1437.58	1442.58	34527	<1	<4	-	<0.05	5m
1442.58	1447.58	34528	<1	<4	-	<0.05	5m
1447.58	1450.00	34529	<1	<4	-	<0.05	2.42m

Method of Analysis : Bi : AAS1
Ag : AAS3
Au : AAS5 Special
Hg : XRF1



REFERENCE

10	Yarra Warta Shale banded shale. Thin green siltstones, slightly calcareous
9c	Andamooka Limestone dolomite siltstone, calcareous siltstone limestone, limestone breccia, occasionally fossiliferous
9b	Massive grey dolomite
9a	Basal dolomite breccia conglomerate, sandy dolomite
8b	Yaldo Shale Massive brown mudstone brown shale
8a	Interbanded brown shale, green and brown siltstones
7	Arcoona Quartzite Interbanded greenish siltstones, Siltstones, minor shales. Thin red-brown siltstones and sandstones traces pyrite and chalcopyrite
6b	Corraberra Sandstone Brown siltstones current bedded sandstones (orthoquartzite)
6a	Massive grey sandstone (orthoquartzite) Minor green siltstone shale and sandstones. Traces pyrite and chalcopyrite.
5	Tregolana Shale Grey brown shale minor green siltstones
4b	? Whyalla Sandstone Equivalents ?? Poorly sorted, coarse grained sandstone and quartzose sandstones
4a	Brown siltstone overlying green quartzose sandstone
3b	Whyalla Sandstone Equivalents ?? Brown dolomite shale and brown dolomite
3a	Grey stromatolitic dolomite
2b	Tapley Hill Formation grey/green siltstone with minor thin dolomite bands
2a	dark grey siltstone/shale with minor thin dolomite bands ~2% pyrite along bedding planes and small veinlet of sphalerite at 1370.23m.
1c	Sturtian Glacials light grey sandstone and sand supported tillite clast size 2-242m
1b	light grey Quartz feldspathic sandstone with glacial varves
1a	Dark grey mud supported fluvioglacial sandy dolomite 20-30% dolomite clasts.

Amoco Minerals Australia Company

Project STUART CREEK		**No** A-72.49
Project Partner CHEVRON		
DIAMOND DRILL HOLE SCYW 1A		
3637-6		
Map Ref. ANG	**Latitude** 30°07'35"S	**Longitude** 137°09'19"E
Surveyed G.L.K	**Date** JUNE, 1981	**Scale** 1:2000
Drawn	**Date**	**Drawing No** 2412
Report		

094

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 520

STUART CREEK, SOUTH AUSTRALIA

REPORT FOR FIFTH QUARTER ENDING NOVEMBER 20, 1980

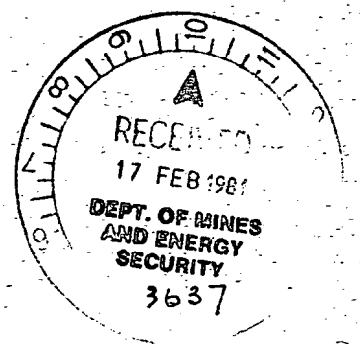
No work was carried out during the quarter except for correcting minor problems in the joint venture agreement with Chevron Exploration Corporation and negotiating with Longyear (Australia) Pty. Ltd. for the deepening off the existing diamond drill hole.

Considering no expenditure for the quarter, the amount spent since the granting of the Exploration Licence on August 20, 1979 remains at $73867.

Graham Miller

GRAHAM MILLER
Project Geologist - South Australia

12th February 1981



AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 909

STUART CREEK

REPORT FOR FIRST QUARTER, ENDING JANUARY 19th, 1982.

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2 Seismic Survey Processing Parameters

3 Geophysical Drillhole Logging Data (in roll)

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2418 Specific Gravity Data

1784 Bouguer Gravity Contour Plan Showing Seismic Lines

(Plans 2412, 2418 and 1784 In Pockets, Sepias Accompanying)

2471 Shot Point Location Map Sheet I

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2473 Geosource Profile Line Sc-01-81

2474 " " "-02 "

2475 " " "-03 "

2476 " " "-04 "

2477 Chevron Processed Profile Line Sc-01-81

2478 " " " "-02 "

2479 " " " "-03 "

2480 " " " "-04 "

(Above Plans In Roll Accompanying Report, No Sepias Available)

INTRODUCTION.

Exploration Licence 909 replaces E.L. ~~530~~ 520 (and before that, E.L. 328). Amoco carried out an airborne magnetometer and scintillometer survey and follow-up ground gravity work in 1977-79 prior to the drilling of a 750 meter diamond drill hole in 1979. Chevron Exploration Corporation agreed to farm-in to the area in 1980 and in 1981 sponsored a ground seismic survey and the extension of Amoco's drill hole to 1450 meters. The hole terminated in Sturtian (Adelaidean) glacigene sediments without intersecting significant mineralization. At the expiry of E.L. 520, on August 20th, 1981, processing interpretation of the seismic data was in progress.

EXPLORATION.

General

Work carried out in the period under review comprised processing and examination of the seismic data, measuring the specific gravity of the core and additional geochemical work on drill core from the recently completed hole. An attempt to geophysically log the hole met with very limited success due to caving.

Seismic Data

The seismic data suggest Pre-Adelaidean basement to be at a depth of 2,000-2,200 meters; plans and sections are attached. Magnetometer and gravity readings taken during the seismic survey confirmed the earlier Amoco results.

Specific Gravity Data

Eighty specific gravity measurements were made on drill core, at intervals from 5 to 50 meters depending on lithology. Weight measurements were carried out on about ten centimeter pieces of core, at the Mines Department Core Library, with a balance accurate to one decimal point. Volumes were calculated by the amount of displaced water in a graduated cylinder; these measurements were accurate to about two millilitres. Specific gravity results were:

	meters	gm/cc
Yarrawurta Shale	(0-28)	2.38
Andamooka Limestone	(28-196=168)	2.61
Yarloo Shale	(196-387=191)	2.69
Arcoona Quartzite	(387-539=152)	2.68
Corraberra Sandstone	(539-732=193)	2.56
Tregolana Shale	(732-1039=307)	2.73
Whyalla Sandstone time equivalent	(1039-1189=150)	2.72
Tapleys Hill Fm.	(1189-1373=184)	2.73
Sturtian Glacigene Sediments	(1373-E.O.H.=77)	2.70

Geochemistry

Previously unsampled core was analysed in six meter sections, for copper, lead, zinc and silver, plus some for fluorine, barium and gold. There were no anomalous results. (see drill log).

Downhole geophysical logging

Gamma and neutron logging were carried out down to 550 meters, where there was considerable repeated caving. Analogs are attached (appendix 3).

EXPENDITURE.

Expenditure by Amoco for the period under review was:

Salaries	890
Field Office Rental	70
Communication	230
Travel	400
Downhole Geophysics	1614
Core Cutting	125
Geochemical Analyses	455
Overheads/Administration	380
Total $	4164

In addition Chevron incurred salaries and expenses of $18,130 and seismic processing costs of $40,760 in evaluating their seismic survey. Total expenditure for the period under review was therefore $63,054.

Expenditures associated with the collection of the seismic data - not available at the time of writing the final quarterly report for E.L. 520 - were $290,631, being $181,506 survey fees and $109,125 in reimbursable expenses; this amount was paid by Chevron to the Petty Ray Geophysical Division: Geosource Inc.

FUTURE WORK.

No further work planned, pending a completed evaluation of all data.

Graham Miller
Senior Geologist

March 25th, 1982.

Appendix I

Drill Log

Amoco Minerals Australia Company

DRILL LOG

HOLE No. SCYN 1A (EXTENSION) PAGE 1 OF 9

PROJECT	SMART CREEK	No. A 77-49	ELEVATION meters	COMMENCED 01/05/81	BORE HOLE SURVEY			INSTRUMENT						
PROSPECT	YARRA WURTA		DIP COLLAR -90°	COMPLETED 07/07/81	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing	Depth (m)	Dip	Bearing	
CO-ORDINATES	5950 mN	4200 mE	CORE SIZE BQ	TOTAL LENGTH 1450 meters	1387	87°								
BEARING	TN	MN	GN	LOGGED BY 0-751.2 R.A. HARLEY 751.2-1450 LOGGED BY G. KARY										

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Ba
0	751.2	SEE LOG SHEETS BY RA. HARLEY (1979)											
-	1039	TREGOLANA SHALE (Aeroplan)											
751.2	1021.5	BROWN AND GREEN BANDED SHALE - MINOR SILTSTONE IN SOME GREEN BANDS - GOOD GRADED BEDDING VISIBLE IN SILTY LAYERS LOAMX ASS + CROSS BEDDING VISIBLE	751.2-1039.3 TRACE OF PYRITE -ESPECIALLY IN GREEN SILTY LAYERS	34551	752	758	6	30	40	75	2.0		
				552	758	764	6	30	45	75	2.0		
				553	764	770	6	35	45	80	1.5		
				554	770	776	6	30	45	80	1.5		
				555	776	782	6	45	40	85	1.5		
				556	782	788	6	35	45	75	1.5		
		775-780.0 - SHEARED/BRECCIATED ZONE SOFT CLAY WITH SHALE FRAGMENTS - SHEAR MAKE ANGLE OF 30° to CORE AXIS	871.0-877.0 TRACE CHALCOPYRITE ALONG BEDDING PLANES.	557	788	794	6	30	40	75	1.5		
				558	794	800	6	20	40	80	1.5		
				559	800	806	6	25	65	85	1.5		
				560	806	812	6	45	40	80	1.5		
				561	812	818	6	30	35	75	2.0		
		827.8 - 850.1 SHEARED/BRECCIATED ZONE 25°-30° TO CORE AXIS		562	818	824	6	20	40	75	2.0		
				563	824	830	6	30	40	90	2.0		
				564	830	836	6	40	60	90	2.0		
		852.70 - 852.75 CALCITE FILLED FRACTURES 4mm WIDE AT 22° TO CORE AXIS - 1cm VERTICAL OFFSET OF BEDS		565	836	842	6	55	40	100	2.0		
				566	842	848	6	30	50	85	2.0		
				567	848	854	6	45	40	80	2.0		
				568	854	860	6	35	45	100	2.0		
				569	860	866	6	70	40	100	2.5		
				570	866	872	6	55	40	100	2.5		
				571	872	878	6	65	40	85	2.0		
				572	878	884	6	50	50	90	2.0		
				573	884	890	6	35	40	95	2.5		
				574	890	896	6	60	35	95	2.0		
				575	896	902	6	30	40	90	2.0		
				576	902	908	6	50	35	85	2.0		
				577	908	914	6	55	40	80	2.0		
				578	914	920	6	65	40	95	2.0		
				34579	920	926	6	55	40	95	2.0		

DRILL LOG HOLE No. SCYH-1A (EXTENSION) PAGE 2 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Ba
				34580	926	932	6	40	45	90	2.0		
				581	932	938	6	130	40	85	2.0		
		941.0 - 949.0 EXTENSIVE CROSS		582	938	944	6	15	40	80	2.0		
		(BEDDING.		583	944	950	6	10	40	85	2.0		
				584	950	956	6	20	40	90	2.0		
				585	956	962	6	370	40	90	2.0		
				586	962	968	6	5	40	85	2.0		
				587	968	974	6	25	50	85	2.5		
		974.2 - 974.3 GYPSUM FILLING		588	974	980	6	5	40	90	2.0		
		FRACTURES		589	980	986	6	5	40	95	2.0		
				590	986	992	6	5	45	95	2.5		
				591	992	998	6	5	40	85	2.0		
				592	998	1004	6	15	45	80	2.0		
				593	1004	1010	6	10	45	95	2.0		
				594	1010	1016	6	10	45	85	2.0		
1021.5	1039.3	BROWN SHALE - SIMILAR TO ABOVE, BUT		595	1016	1022	6	10	45	85	2.0		
		HAS NO GREEN BANDS		596	1022	1028	6	5	45	80	2.0		
		- OCCURRENCE OF 4mm		597	1028	1034	6	5	50	70	2.0		
		GREEN OVAL SHAPES WITH PYRITE?		598	1034	1040	6	10	50	65	2.0		
		NUCLEUS, POSSIBLE REDUCING											
		HALO SURROUNDING SULPHIDE.											
1039.3	1188.63	WHYALLA SANDSTONE TIME EQUIVALENTS? (Adelaidean)											
1039.3	1039.46	INTERBANDED BROWN SHALE & COARSE											
		GRAINED SANDSTONE - SANDSTONE IS											
		40% WELL ROUNDED QTZ											
		10% SUBROUNDED RED LITHIC											
		FRAGMENTS											
		20% MATRIX											
		30% FELSIC GRAINS, IT IS POORLY											
		SORTED WITH CLAST SIZE VARIES FROM											
		2mm to <1mm.											

DRILL LOG HOLE No. SCYN-11A (EXTENSION) PAGE 3 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Ba
1039.46	1056.85	COARSE GRAINED LITHIC SANDSTONE/GRIT,		34599	1040	1046	6	5	25	25	1.0		
		CLASTS ARE SUB ANGULAR TO WELL		34600	1046	1052	6	10	25	25	1.0		
		ROUNDED AND VARY FROM 1mm TO		34451	1052	1058	6	10	25	30	1.0		
		<1mm IN SIZE.											
		COMPOSITION IS :-											
		20% MATRIX - QUITE FRIABLE											
		30% QTZ GRAINS - WELL ROUNDED											
		10% BRICK RED LITHIC FRAGMENTS											
		SUB ROUNDED TO SUB ANGULAR											
		10% RED GRANITE? CLASTS -											
		SUB ROUNDED											
		10% ASSORTED IGNEOUS + MINOR											
		METAMORPHIC CLASTS - SUB ROUNDED											
		20% FELSIC FRAGMENTS											
		- GOOD GRADED BEDDING, MINOR											
		+ CROSS BEDDING PRESENT											
		- LIGHT GREY COLOURED.											
				34452	1058	1064	6	5	30	35	1.0		
1056.85	1069.72	FINE TO MED GRAINED POORLY SORTED		34453	1064	1070	6	5	25	40	1.0		
		GREEN TO BROWN COLOURED SANDSTONE											
		SIMILAR CLASTS TO ABOVE UNIT,											
		SIZES <1mm TO 3mm.											
1069.72	1072.47	COARSE GRAINED GREEN/BROWN GRIT		34454	1070	1076	6	5	40	60	1.5		
		WITH SUB ANGULAR CLASTS 4mm - 7mm											
		CLASTS INCLUDE - RED IGNEOUS ROCK,											
		- MINOR HEMATITIC +											
		JASPEROID IRONSTONE											
		- GREY ARENITES AND											
		WELL ROUNDED QTZ GRAINS											
		<1mm to 2mm											
1072.47	1075.29	BROWN SILTSTONE WITH MINOR LAYERS											
		OF WELL ROUNDED QTZ GRAINS											

DRILL LOG HOLE No. SCYN-1A (EXTENSION) PAGE 4 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS W	ASSAYS Pb	ASSAYS Zn	ASSAYS Ag	ASSAYS F	ASSAYS Ba
				34453	1076	1082	6	5	45	65	1.5		
1075.29	1077.28	GREEN FINE GRAINED, QTZ RICH WELL SORTED SANDSTONE WITH OCCASIONAL BANDS OF COARSE, POORLY SORTED SANDSTONE						-					
1077.28	1141.30	INTERBANDED BROWN SHALE, FINE GREEN SILTSTONE AND POORLY SORTED LITHIC SANDSTONE - BRECCIATION + NARPING VISIBLE IN SHALE LAYERS (1090m - 1091m), SHALE FRAGMENTS ALSO SEEN AS RIP-UP CLASTS IN POORLY SORTED SANDSTONE SHALE IS CALCAREOUS IN MANY PLACES, WITH CALCITE PRESENT AS INTERSTITAL FILLINGS IN BRECCIA ZONES.		34456	1082	1088	6	5	35	70	1.5		
				457	1088	1094	6	5	40	70	1.5		
				458	1094	1100	6	5	45	75	1.5		
				459	1100	1106	6	5	40	75	2.0		
				460	1106	1112	6	5	45	70	2.0		
				461	1112	1118	6	5	45	75	2.0		
				462	1118	1124	6	5	45	70	2.0		
				463	1124	1130	6	5	40	75	2.0		
				464	1130	1136	6	5	40	65	2.0		
				465	1136	1142	6	5	45	45	2.0		
1141.30	1141.95	COARSE BROWN CALCAREOUS CEMENTED, POORLY SORTED SANDSTONE WITH MINOR BROWN CALCAREOUS SHALE THE SANDSTONE COMPOSITION IS — 60% QTZ GRAINS 15% BROWN SHALE FRAGMENTS 20% BRICK RED CLASTS											
1141.95	1143.05	BROWN CALCAREOUS SHALE WITH CONTORTION AND MINOR BRECCIATION OF BEDS AND INTERSTITIAL CALCITE		34466	1142	1148	6	5	45	55	2.0		
1143.05	1143.29	BROWN NONCALCAREOUS SHALE — FINELY BEDDED											
1143.29	1147.19	BROWN DOLOMITIC SHALE - FINELY BANDED, STROMATOLITES PRESENT WITH BROWN FINE SANDSTONE OCCURRING IN FRACTURES BETWEEN STROMATOLITES — FRACTURES MAYBE	SUN CRACKS?										

DRILL LOG HOLE No. SCYW-1A (EXTENSION) PAGE 5 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Bi
				34467	1148	1154	6	5	45	55	2.0		
1147.19	1182.03	GREY STROMATOLITIC DOLOMITE		468	1154	1160	6	15	50	55	20		
		WITH GREY FINE GRAINED SANDSTONE		469	1160	1166	6	20	55	50	2.0		
		OCCURRING IN FRACTURES - POSSIBLE		470	1166	1172	6	5	50	50	2.0		
		SUN CRACKS?		471	1172	1178	6	20	45	50	2.0		
		- STROMATOLITES TENDS TO BE		472	1178	1184	6	10	50	45	2.0		
		POORLY DEVELOPED WITH 'PENCIL LINE' THIN											
		CARBONACEOUS MATERIAL DEFINING											
		SURFACES.											
		- PINK TO SANDY ANHYDRITE											
		OCCURS AS 2mm to 10mm CLUSTERS											
		IN FRACTURES WITH SANDSTONE.											
1182.03	1188.63	GREY STROMATOLITIC DOLOMITE WITH THIN	1182.03 - 1188.63	34473	1184	1190	6	10	45	50	2.0		
		BANDS OF NONCALCAREOUS DARK GREY,	<1% PYRITE WITH										
		SILTSTONE	DARK GREY										
		- CROSS BEDDING VISIBLE IN	SILTSTONE										
		SILTSTONE LAYERS AND PYRITE											
		VISIBLE ALONG BEDDING PLANES.											
1188.63	1332.85	TAPLEYS HILL FORMATION (Adelaidean)											
1188.63	1210.46	DARK GREY SILTSTONE WITH MINOR	1201.35 - 1201.46	34474	1190	1196	6	10	55	60	2.0		
		CROSS BEDDING AND MINOR BANDS	<1% CHALCOPYRITE	475	1196	1202	6	10	50	60	2.0		
		OF GREY DOLOMITE PLUS OCCASSIONAL	SURROUNDING SMALL	476	1202	1208	6	30	55	80	2.0		
		SMALL (3mm - 20mm) AGGREGATES	AGGREGATES OF	477	1208	1214	6	25	55	80	2.0		
		OF PINK/ORANGE ANHYDRITE/	ANHYDRITE/										
		GYPSUM CRYSTALS:	GYPSUM CRYSTALS										
		1190.32 - 1190.38 - SLUMP BRECCIATED	1205.45										
		DOLOMITE	<1% PYRITE										
		1190.69 - 1191.09 - GREY STROMATOLITIC	ASSOCIATED WITH										
		DOLOMITE	ANHYDRITE/										
		1192.35 - 1192.73 - SLUMP BRECCIATED	GYPSUM CRYSTAL										
		DOLOMITE	AGGREGATE										
		1195.00 - 1195.07 - LARGE AGGREGATE											
		OF PINK/ORANGE ANHYDRITE	1209-1350										
		CRYSTALS WITH MINOR GYPSUM	TRACE PYRITE										
			ALONG BEDDING										
			PLANES IN										
			SILTSTONE.										

DRILL LOG HOLE No. SCYM-1A (EXTENSION) PAGE 6 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	B2
1210.46	1372.25	SLIGHTLY CALCAREOUS/DOLOMITIC	1212.30	344478	1214	1220	6	70	45	80	2.5		
		GREY/GREEN SILTSTONE WITH GOOD	1% PYRITE	479	1220	1226	6	25	45	80	2.0		
		CROSS BEDDING + SCOUR FILLING	ALONG BEDDING	480	1226	1232	6	25	45	90	2.0		
		TEXTURES	PLANE										
		1215.82 - 1216.78 — VEIN OF PINK/ORANGE	1215.82 - 1216.78										
		ANHYDRITE WITH CALCITE OCCURRING	TRACE CHALCOPYRITE										
		AS A SELVAGE (CRYSTAL GROWN ⊥ VEIN	AT CONTACT OF										
		- COUNTRY ROCK CONTACT)	VEIN (SELVAGE IN										
			VEIN)										
		1235.00 - 1235.70 - VEIN OF PINK/		344481	1232	1238	6	40	80	80	2.0		
		ORANGE ANHYDRITE CYRSTAL WITH	1220.28	482	1238	1244	6	25	55	80	2.0		
		MINOR CALCITE - VEIN IS 15mm WIDE	3% DISSEMINATED	483	1244	1250	6	30	50	80	2.0		
		+ CUTS CORE AT <5° TO C.A.	PYRITE ALONG	484	1250	1256	6	30	55	90	2.0		
			BEDDING PLANE										
		1259 - 1264 — MINOR BANDS OF		344485	1256	1262	6	30	55	90	2.0		
		GREY DOLOMITE 5mm - 20mm WIDE		486	1262	1268	6	25	55	75	2.0		
				487	1268	1274	6	30	50	75	2.0		
				488	1274	1280	6	35	55	75	2.0		
				489	1280	1286	6	30	65	100	2.0		
				490	1286	1292	6	35	110	200	1.5		
		1297 - 1301 — MINOR GREY BANDS OF		491	1292	1298	6	35	95	310	2.0		
		DOLOMITE 5mm - 25mm		492	1298	1304	6	30	90	270	2.0		
				493	1304	1310	6	35	80	250	2.0		
		1313 - 1318.4 — MINOR BANDS OF	1318.24 - 1318.27	494	1310	1316	6	25	80	230	2.0		
		GREY DOLOMITE 5mm - 30mm	SMALL DIAPIR	495	1316	1322	6	25	75	180	1.5		
			OF PYRITE										
		TS: 1363.2	CUTTING THROUGH										
			A DOLOMITE +	344496	1322	1328	6	35	60	200	2.0		
			SMELLING	497	1328	1334	6	30	70	260	2.0		
			OVERLYING	498	1334	1340	6	40	75	160	2.0		
			SILTSTONE.	499	1340	1346	6	45	85	260	2.0		
				345000	1346	1352	6	130	170	160	2.0		
				392498	1352	1358	6	40	95	75	2.0		

DRILL LOG HOLE No. SCYW-1A (EXTENSION) PAGE 7 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Ba
			1355 - 1372.60	34501	1358.4	1360.4	2	34	65	95	<1	700	250
			2% PYRITE	502	1360.4	1362.4	2	36	80	60	<1	700	260
			DISSEMINATED +	503	1362.4	1364.4	2	40	100	145	<1	700	230
			IN MASSES ALONG	504	1364.4	1366.4	2	36	95	110	<1	650	240
			BEDDING PLANES	505	1366.4	1368.4	2	40	125	400	<1	650	230
		1369.30 - 1369.38 - GRAPHITIC ZONE		506	1368.4	1370.4	2	55	120	3400	<1	500	190
		WITH SOME CALCITE	1370.23 - 1370.32	507	1370.4	1372.95	2.55	42	135	2900	1	600	270
			VEINLET OF										
		1370.01 - 1370.16 - AS ABOVE	SPHALERITE?										
			1mm WIDE AT										
		FROM 1355m TO BASE OF UNIT - THE	< 10° TO CORE AXIS										
		ROCK IS DARK GREY PYRITIC SILTSTONE/											
		SHALE WITH NUMEROUS THIN											
		DOLOMITE BANDS, (TINDELPINA											
		SHALE MEMBER), VERY SHARP											
		CHANGE TO UNDERLYING UNIT.											
		TS: 1370.2 AND 1372.3											
1372.95	EOH.	STURTIAN GLACIGENE SEDIMENTS (Adelaidean)											
1372.95	1373.88	GREY TILLITE		34508	1372.95	1374.95	2	16	26	115	<1	300	230
		MATRIX 80% IS A DIRTY GREY											
		QUARTZ CLAY SAND, CLASTS											
		INCLUDE CHERT, SHALE, GRANITE											
		+ QUARTZITE TS: 1373.8											
1373.88	1377.18	GREY FELDSPATHIC DOLOMITIC		34509	1374.95	1376.95	2	6	22	14	<1	200	210
		SANDSTONE; NO VISIBLE CROSS											
		BEDDING; MASSIVE APPEARANCE.											
1377.18	1392.58	LIGHT TO DARK GREY SAND AND CLAY	1377.18 - 1392.58	3451 0	1376.95	1378.95	2	10	42	55	<1	300	240
		SUPPORTED TILLITE WITH CLAST	MINOR PYRITE	511	1378.95	1380.95	2	12	44	540	<1	400	270
		SIZE VARIABLE 2mm TO 242 mm	IN SOME CLASTS	512	1380.95	1382.95	2	12	34	320	<1	350	240
		CLASTS INCLUDE - SHALE	< 1% SPHALERITE	513	1382.95	1384.95	2	12	26	120	<1	300	185
		- SILTSTONE	WITH SOME	514	1384.95	1386.95	2	8	16	24	<1	100	137

DRILL LOG HOLE No. SCYH-1A (EXTENSION) PAGE 8 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Ba
1377.78	1392.58												
(CONT)		- CHERT	SILICEOUS CLASTS -	34515	1386.95	1388.95	2	12	26	60	<1	350	200
		- PORPHYRITIC ANDESITE	MAYBE A REPLACE-	516	1388.95	1390.95	2	20	26	430	<1	450	250
		AND GRANITE	MENT TEXTURE	517	1390.95	1392.58	1.63	14	28	175	<1	350	240
		TS: 1378.6 AND 1379.8	SPHALERITE										
			RIMMING CLASTS.										
		1382.85 - 1383.12 - LARGE QUARTZ/											
		FELDSPAR BIOTITE GNEISS WITH 10mm											
		FELDSPAR PORPHYROCLASTS (EYES)											
		BOULDER											
		TS: 1383.4 AND 1384.4											
		1385.0 - 1387.4 - VACANT CLAST SHAPE											
		SPACES - POSSIBLE WEATHERED OUT											
		CLAY											
		1387.71 - 1388.00 - LARGE IRONSTONE	1387.71 - 1388.00										
		BRECCIA BOULDER	1% PYRITE IN										
			BOULDER										
1392.58	1404.95	WHITE/GREY QUARTZ FELDSPATHIC		34518	1392.58	1397.58	5	10	16	20	<1	200	120
		DOLOMITIC SANDSTONE WITH MINOR		519	1397.58	1402.58	5	6	18	65	<1	200	125
		LITHIC CLASTS (TILLITE)											
		SOME THIN BLACK (1mm) SHALE											
		BANDS - MAY REPRESENT GLACIAL											
		VARVES											
		TS: 1393.4											
		1395.80 - 1396.33 - TILLITE											
		CLAST SIZE 2mm TO 30mm											
1404.95	1415.20	GREY MUD SUPPORTED, POORLY		34520	1402.58	1407.58	5	14	28	36	<1	450	180
		SORTED, SLIGHTLY CALCAREOUS		521	1407.58	1412.58	5	14	24	38	<1	450	210
		SANDSTONE WITH MINOR SHALE		522	1412.58	1417.58	5	16	20	48	<1	400	230
		BANDS, BUT GENERALLY LACKING		523	1417.58	1422.58	5	14	26	34	<1	400	230
		VISIBLE BEDDING. CLASTS ARE											
		ANGULAR TO SUBROUNDED, BUT											
		GENERALLY 2mm TO 5mm IN SIZE											

DRILL LOG HOLE No. SCYN-1A (EXTENSION) PAGE 9 OF 9

METERAGE From	METERAGE To	DESCRIPTION	MINERALIZATION %	SAMPLE NUMBER	METERAGE From	METERAGE To	METERAGE Length	ASSAYS Cu	Pb	Zn	Ag	F	Ba
1423.2	1425.3	GREY SILTSTONE — NO VISIBLE BEDDING.		34524	1447.58	1427.58	5	18	24	30	<1	500	230
1425.3	1431.92	SLIGHTLY CALCAREOUS / DOLOMITIC MUD SUPPORTED GREY SANDSTONE; — 20% CLASTS OF WHICH AT LEAST 30% ARE DOLOMITIC 1426.28 – 1426.39 – SMALL ZONE OF 80% CLASTS INCLUDES OOLITIC CHERT, DOLOMITE	1425.3 – 1450.0 TRACE OF SPHALERITE RIMMING <<1% OF CLASTS.	34525	1427.58	1432.58	5	28	24	30	1	400	200
1431.92	1450.0	MUD SUPPORTED SLIGHTLY DOLOMITIC GREY TILLITE; 40% CLASTS OF WHICH 10% ARE DOLOMITIC 20% OF CLASTS ARE >5mm TS: 1440.8		34526	1432.58	1437.58	5	16	22	22	1	400	160
				527	1437.58	1442.58	5	6	20	20	<1	350	200
				528	1442.58	1447.58	5	14	18	28	<1	450	210
				34529	1447.58	1450.0	2.42	6	22	22	<1	350	195
		E.O.H.											

Appendix 2

Seismic Survey Processing Parameters

Chevron

Chevron Exploration Corporation

18 Bowman Street South Perth Western Australia 6151.
Telephone (09) 367 7544
Telex CHEVEX AA 92777

COPY

110

GEM/ljh

10th December, 1981.

Mr B.E. Milton / Mr R. Nelson,
Department of Mines and Energy,
191 Greenhill Road,
Parkside S.A. 5063

Dear Mr Milton,

My understanding of our verbal agreement of July 1, 1981 concerning seismic data to be provided to the Department of Mines from the Stuart Creek prospect is that the following will be provided before or upon release of the T.R.:

a) Copies of all final stack sections
b) Generalized process flow for sections
c) Shotpoint base map for line locations
d) Raw field data on magnetic tape in a standard format

Towards that end, Mr Graham Miller of Amoco Minerals will be delivering items (a) and (c) shortly. Item (b) is included in this letter. Item (d) will be provided at a later date. Note that the sections processed by C.G.C. are designed to enhance the data above 1.5 seconds while the G.S.I. sections are processed for the data deeper than 1.5 seconds. The following is the process flow used by G.S.I.:

Format and apply geometry
Correct for spherical divergence and exponential gain
Remove traces
Velocity filter for wind and blast noise
NMO velocity
Deconvolution
Stack
Filter 20 - 70
Balance
Display

The following is the process flow used by C.G.C.:

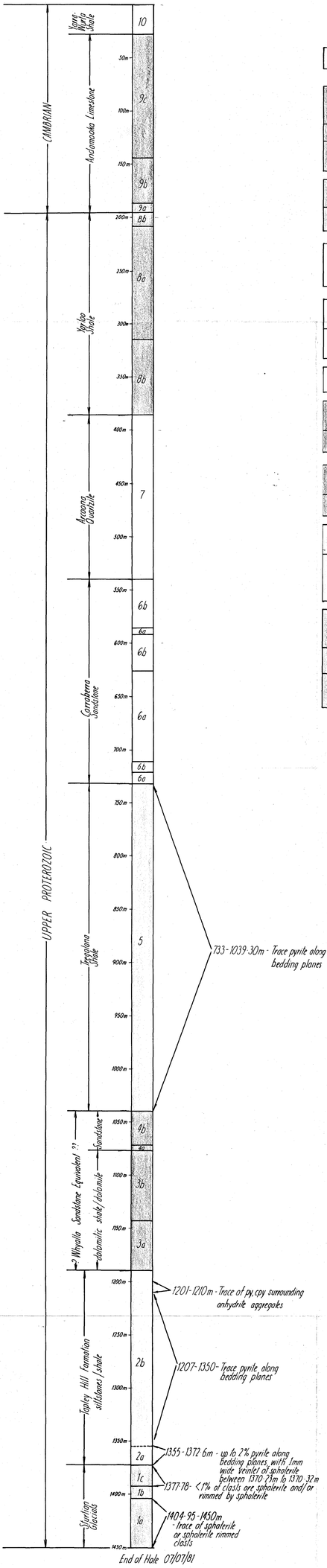
Format and apply geometry
Correct for spherical divergence and exponential gain
Remove bad traces
Frequency and wavenumber domain filter
NMO velocity
Inside trace mute (blast noise)
Outside trace mute
Balance
Stack
Deconvolution
Filter 20 - 70
Coherency enhancement
Display.

Yours sincerely,

George E Marion

GEORGE E. MARION
Geophysicist

CC: G. Miller, Amoco



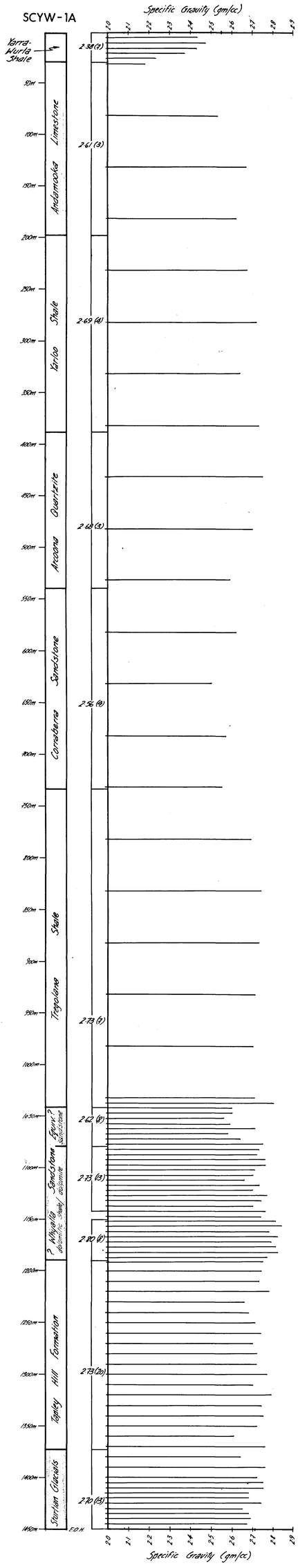
REFERENCE

10	Yarra Warta Shale Banded shale. Thin green siltstones, slightly calcareous
9c	Andamooka Limestone dolomitic siltstone, calcareous siltstone limestone, limestone breccia, occasionally fossiliferous
9b	Massive grey dolomite
9a	Basal dolomite breccia conglomerate, sandy dolomite
8b	Yaroloo Shale Massive brown mudstone brown shale
8a	Interbanded brown shale, green and brown siltstones
7	Arcoona Quartzite Interbanded greenish siltstones, Siltstones, minor shales. Thin red-brown siltstones and sandstones traces pyrite and chalcopyrite
6b	Corraberra Sandstone Brown siltstones current bedded sandstones (orthoquartzite)
6a	Massive grey sandstone (orthoquartzite) Minor green siltstone, shale and sandstones traces pyrite and chalcopyrite
5	Tregalana Shale Grey brown shale minor green siltstones
4b	? Whyalla Sandstone Equivalents ?? Poorly sorted coarse grained sandstone and quartzose sandstones
4a	Brown siltstone overlying green quartzose sandstone
3b	Whyalla Sandstone Equivalents ?? Brown dolomitic shale and brown dolomite
3a	Grey stromatolitic dolomite
2b	Tapley Hill Formation grey/green siltstone with minor thin dolomite bands
2a	dark grey siltstone/shale with minor thin dolomite bands ~2% pyrite along bedding planes and small veinlet of sphalerite at 1370.23m.
1c	Sturtian Glacials light grey sandstone and sand supported tillite clast size 2-242m
1b	light grey Quartz feldspathic sandstone with glacial varves
1a	Dark grey mud supported fluvioglacial sandy dolomite 20-30% dolomite clasts.

Amoco Minerals Australia Company

Project STUART CREEK		**№** A-77-49	
Project Partner CHEVRON			
DIAMOND DRILL HOLE SCYW 1A			
Map Ref. ANG	**Latitude** 30°07'35"S	**Longitude** 137°09'19"E	
Surveyed G.L.K.	**Date** JUNE, 1981	**Scale** 1:2000	
Drawn	**Date**	**Drawing №**	
Report			

3637-7



2.70 (13)
average (number of readings)

Amoco Minerals Australia Company

Project STUART CREEK			Nº A·77·49
Project Partner CHEVRON JOINT VENTURE			
DDH SCYW·1A Specific Gravity Data			
Map Ref. ANG	Latitude 30° 07' 35" S		Longitude 137° 09' 19" E
Surveyed RAH, GLK	Date JUNE 1981		Scale 1:2000
Drawn	Date FEB 1982		Drawing Nº W2468

Report

36378

Enclosure

Amoco Minerals Australia Company

Exploration 909

STUART CREEK.

Report for second and third quarters, ending July 19th, 1982.

GENERAL.

By funding the 1981 diamond drilling and seismic investigations, Chevron Exploration Corporation earned a 50% equity in the tenement.

Following review of all data it was decided that further work directed towards locating a polymetallic Middle Proterozoic deposit was unwarranted.

Approaches were made to Stockdale Exploration and BHP Minerals to further explore the area with a diamond emphasis. Subsequently we have arranged to have the located magnetic data tape from the 1977 geometrics Inc. aeromagnetic survey re-produced in the BHP format for re-contouring by BHP Minerals at their Melbourne computer facility.

EXPENDITURE.

Approximate expenditure for the period has been:

Salaries	$ 400
Drafting materials	100
Communication	50
Travel/accommodation (J.V.Meeting)	150
Magnetic tape re-production	250
Overheads/administration	95
Total	$1045

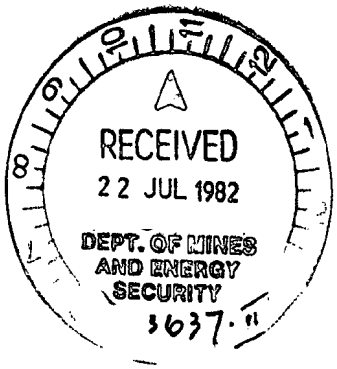
Cumulative expenditure on the Licence since October 19th, 1981 has therefore been $64,099 (Vs twelve months commitment of $50,000).

FUTURE WORK.

Should BHP Minerals elect not to further explore the ground after a study of the re-contoured data, and no reply be received from Stockdale, the Licence will be relinquished.

Graham Miller
Senior Geologist

July 29th, 1982.



G.S.I.
STUART CREEK 03
UNFILTERED
40TPI 5IN/SEC

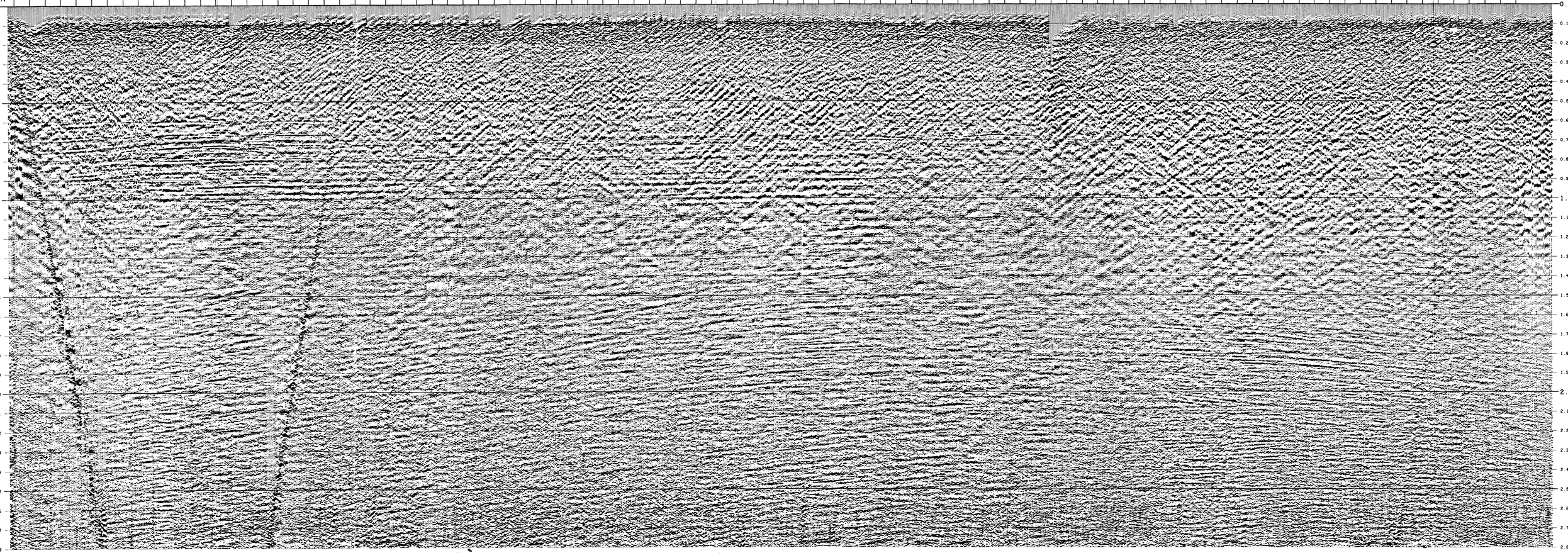
G.S.I.
SC-03-81

1km

NW SE

CDP 1525 1445 1365 1285 1205 1125 1045 965 885 805 725 645 565 485 405 325 245 165 85 5 CDP

SPN 195 185 175 165 155 145 135 125 115 105 95 85 75 65 55 45 35 25 15 5 SPN



3637-8A

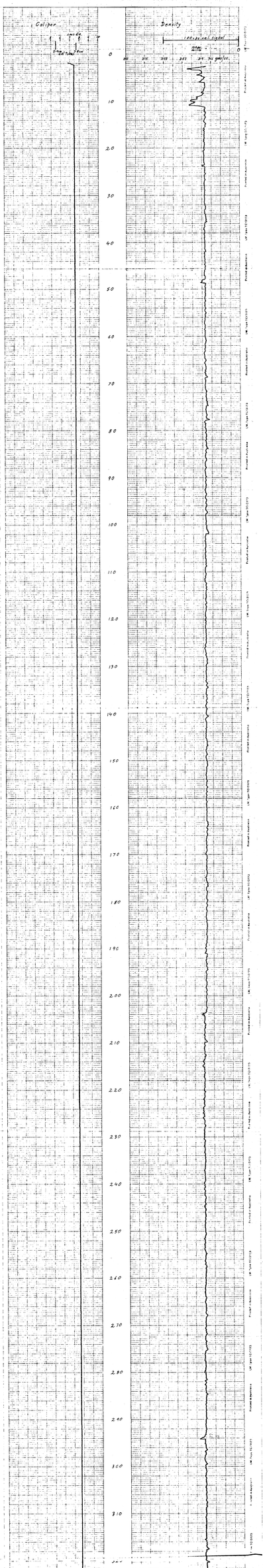
SOUTH AUSTRALIAN DEPARTMENT OF MINES

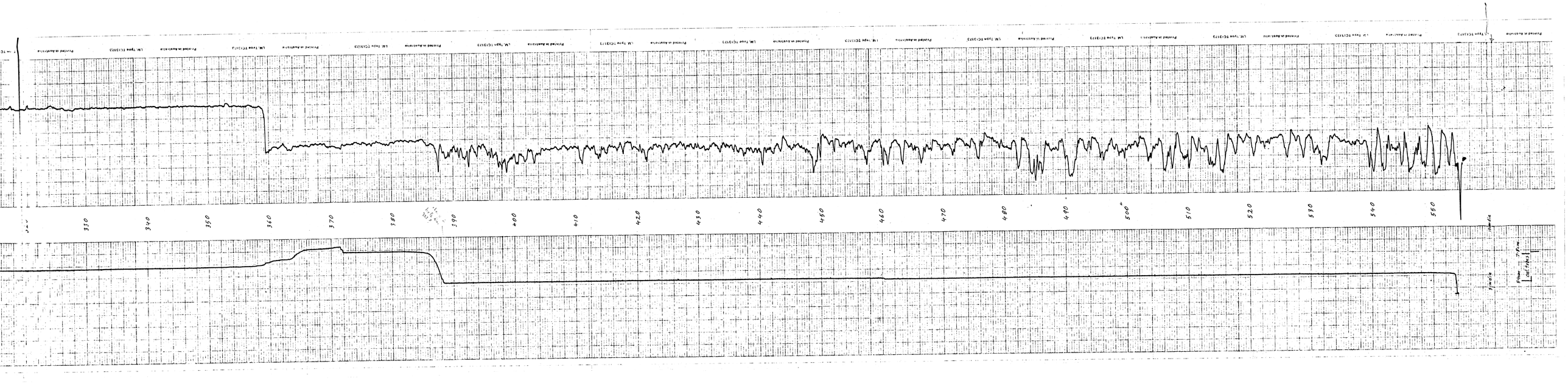
CLIENT: Hmas CHEVRON AREA: MULGARIA BORE: BEYWEA

TYPE OF LOG	Caliper, Density	DEPTH DRILLER	1050m
LOC:- Latitude		DEPTH LOGGER	554m
Longitude		FIRST READING	554m, 555m
ELEVATION:- G L		LAST READING	2m, 2.5m
Log	GL	CASING LOGGER	359m
LOGGER / UNIT	R.P. Taylor / Chevrolet	CASING DRILLER	HQ @ 200m NQ @ 350m
DATE	10-8-81	MUD: Type	
PROBE	Comprobe	Rm @ °C	@

REMARKS :-

3637-9




330
340
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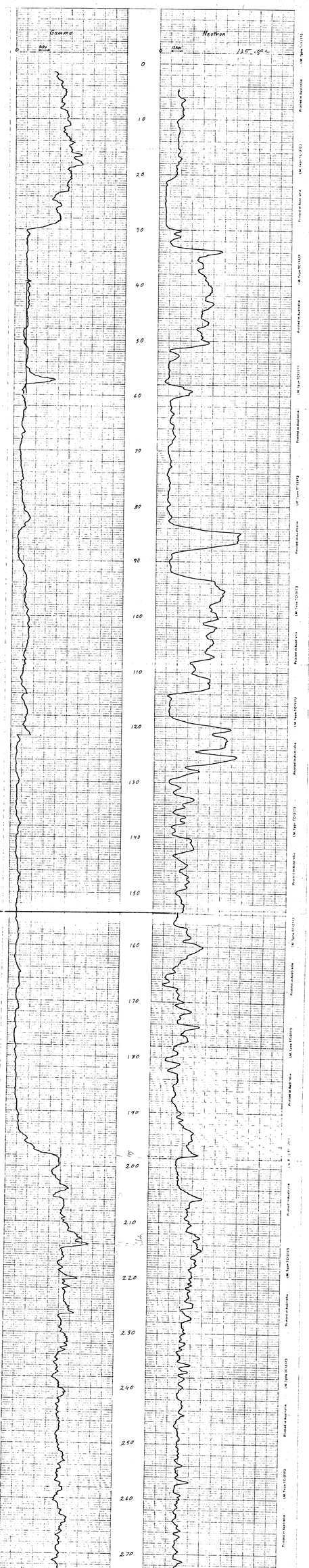
SOUTH AUSTRALIAN DEPARTMENT OF MINES

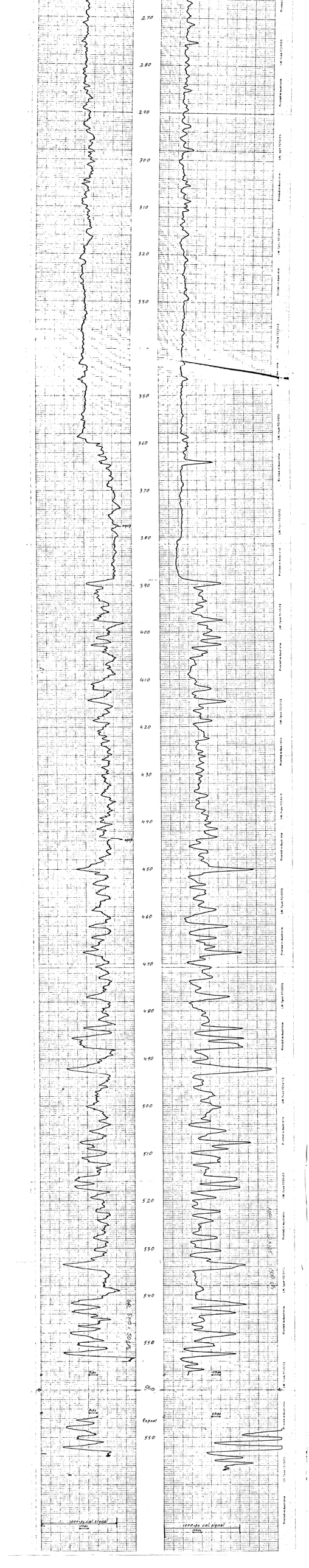
CLIENT: CHEVRON Amoco AREA: MULGARIA BORE: SEYWIA

TYPE OF LOG		Gamma, Neutron		DEPTH DRILLER	1950m
LOC:- Latitude				DEPTH LOGGER	556m
Longitude				FIRST READING	556m, 556m
ELEVATION:- G.L				LAST READING	1m, 3m
Log		G.L.		CASING LOGGER	
LOGGER	UNIT	AMS/gr	Chemolet	CASING DRILLER	NQ @ 350m HQ 200m
DATE		10-8-81		MUD: TYP	
PROBE		GS, N1		RM @ °	

REMARKS:-

3637-10




270
280
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Repeat
seconds cal signal
seconds cal signal

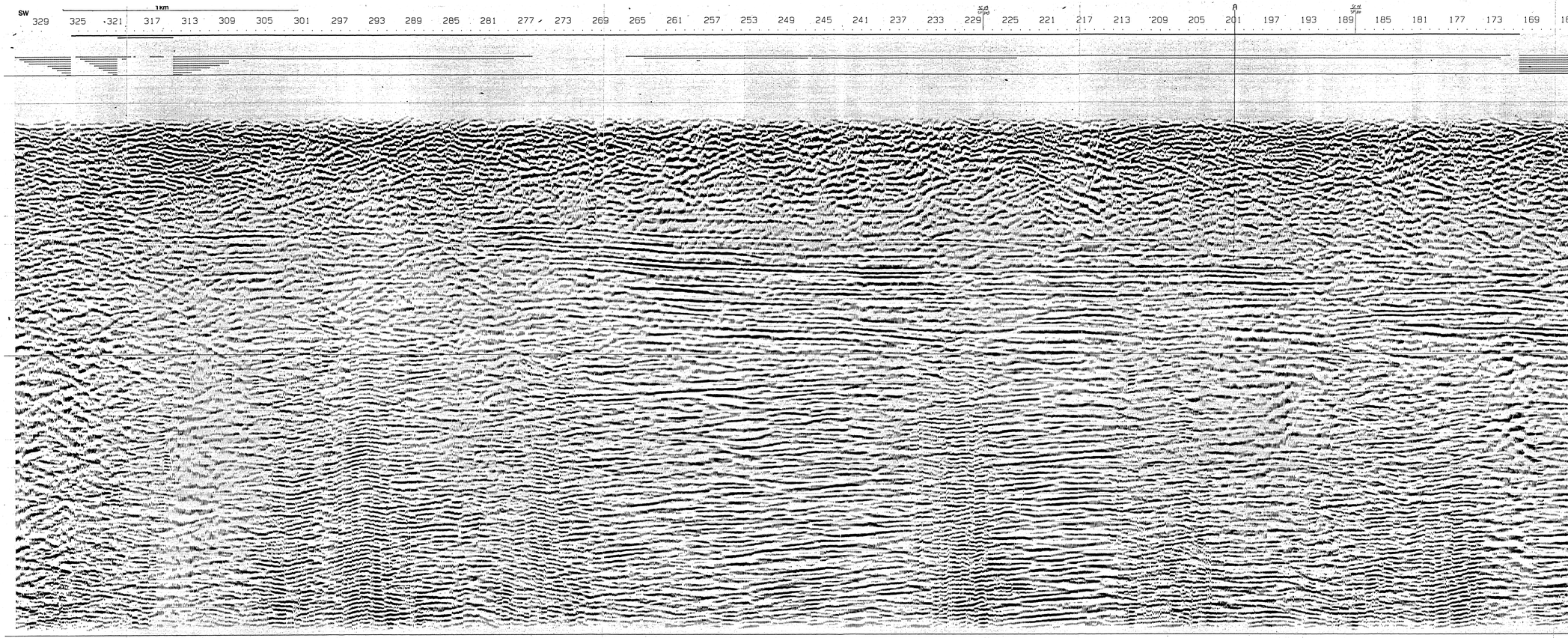
LINE SC-02-81
STUART CREEK

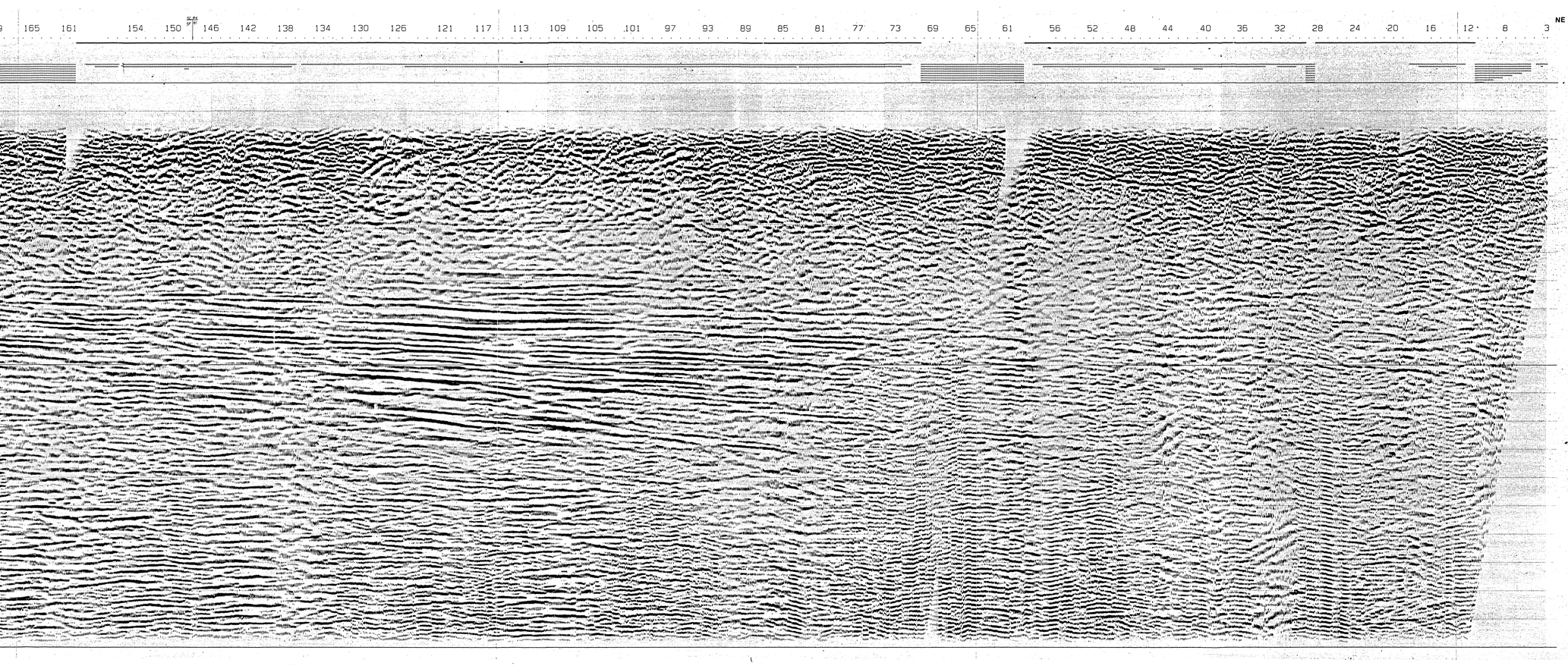
PROFILES 332 - 2
CHEVRON RESOURCES MINERALS DV.
COUNTRY AUSTRALIA
PROCESSED BY CHEVRON GEOSCIENCES COMPANY
A DIVISION OF CHEVRON INDUSTRIES INC.
HOUSTON DATA PROCESSING SYSTEM

RECORDING PARAMETERS

CREW PETTY-RAY 6081 RECORDED JUNE 81 SOURCE DYNAMITE INST DFS V
FILTER 30-125 HZ 2 MS, SAMPRT 3.0 SEC.DATA GAIN IFP
GEOTYPE L20E 96 TRACE DATA GRPINT 10 METERS SPINT 40 METERS
SP 2 TO NORTHEAST TRACE #1 TO NORTHEAST SPREAD 5-35-985 METERS
COVERAGE 1200% PROCESSED RING NO LISW

EDITED 4 MS
MERGE
NMO-STATICS
AVC
NMO-STACK
DECONVOLUTION
FILTER
EVENT ENHANCEMENT
PLOT 81 290 17.51.15





LINE SC-02-81
STUART CREEK

PROFILES 332 - 2
CHEVRON RESOURCES MINERALS DV.
COUNTRY AUSTRALIA
PROCESSED BY CHEVRON GEOSCIENCES COMPANY
DIVISION OF CHEVRON INDUSTRIES INC.
HOUSTON DATA PROCESSING SYSTEM

RECORDING PARAMETERS

CREW PETTY-RAY 626| RECORDED JUNE 81 SOURCE DYNAMITE INST DFS V
FILTER 30 125 HZ 2 MS SAMPRT 3.0 SEC DATA GAIN IFP
GEOTYPE LINE 66 TRACE DATA DRFINT 10 METERS SPINT 40 METERS
SP-2 TO NORTHEAST TRACE #1 TO NORTHEAST SPREAD 5-35-985 METERS
COVERAGE 1200% PROCESSED RINE| TO LISW)

EDITED 4-8
EDITOR SETSS1=11381085 TIME-23.45.33 DATE-81.244
-- COORDINATE SYSTEM LU DIGITIZED CROSYS-YROT --
GAIN SPHER DIV AND EXPON GAIN EXPON COMP - 6 DB/SEC
EXPERIMENTAL GAIN APPLIED TO A TIME OF 3.000
CREAM 1408113B 81.282 22.13.54
CHANGES
NMO CORRECTIONS, RNE VELOCITY USED AT 7 LOCATIONS. VELOCITY PLOTTED FOR 1 LOCATION
VELOCITY AT REFLECTION POINT 453 MS
TIMES 0.100 0.200 0.300 0.400 0.500 0.600 0.700 0.800 0.900 1.000 - 1.200 1.400 1.600 1.800 2.000
OFFSET 985 MS
VNMO 3200 3400 3600 3750 3850 3850 3900 4500 4850 5250 5950 6600 6750 6850 6950
CREAM 1408113B 81.289 15.56.35
ADAIR
DIAL
DIAL
AEC TIME CONST- 400 MS
NMO AND CDPS STACK ONLY NO NMO APPLIED
MUTE X1- 0.0 M T1- 0.0 SEC X2- 10.00 M T2- 0.0 SEC X3-1085.00 M T3- 1.000 SEC
DECON DECONVOLUTION
AUTOCORRELATION GATE 0.500 TO 1.000
FILTER LO CUT- 20 CPS SLOPE- 36 DB/OCT HI CUT- 70 CPS SLOPE- 36 DB/OCT PHASE-ZERO
CREAM 1408113B 81.295 18.28.18
COMPLC NTR- 324 NSKIP- 0 TSTART- 1.000 MS NSECT-17 MINDIP- .64 MS TX- 40 MS NITER- 1
T1- 0.150 SEC T2- 2.000 SEC -IACIP- 0
THRESH- 0.170
CREAM 1408113B 81.298 17.30.40
PLOT 81.298 17.51.15 13181219
FLOATING POINT DATA TRACE EQUALIZED
CONFIDENTIAL-RESTRICTED TO SECAL USE

3637-11

N2478

LINE SC-01-81
STUART CREEK

PROFILES 10-266
CHEVRON RESOURCES MINERALS DV.
COUNTRY AUSTRALIA
PROCESSED BY CHEVRON GEOSCIENCES COMPANY
DIVISION OF CHEVRON INDUSTRIES INC.
HOUSTON DATA PROCESSING SYSTEM

RECORDING PARAMETERS

CREW PETTY-RAY 6281 RECORDED JUN.81 SOURCE DYNAMITE INST DFS V
FILTER 30-125 HZ 2 MS SAMPRT 3.0 SEC.DATA GAIN IFP
GEOTYPE L-28E 96 TRACE DATA GRPINT 10 METERS SPINT 40 METERS
SP 0 TO SOUTHEAST TRACE #1 TO SOUTHEAST SPREAD S-35-985 METERS
DATUM MT. DATUM VELOCITY MT. PROCESSED RISE) TO LINE)
COVERAGE 800%

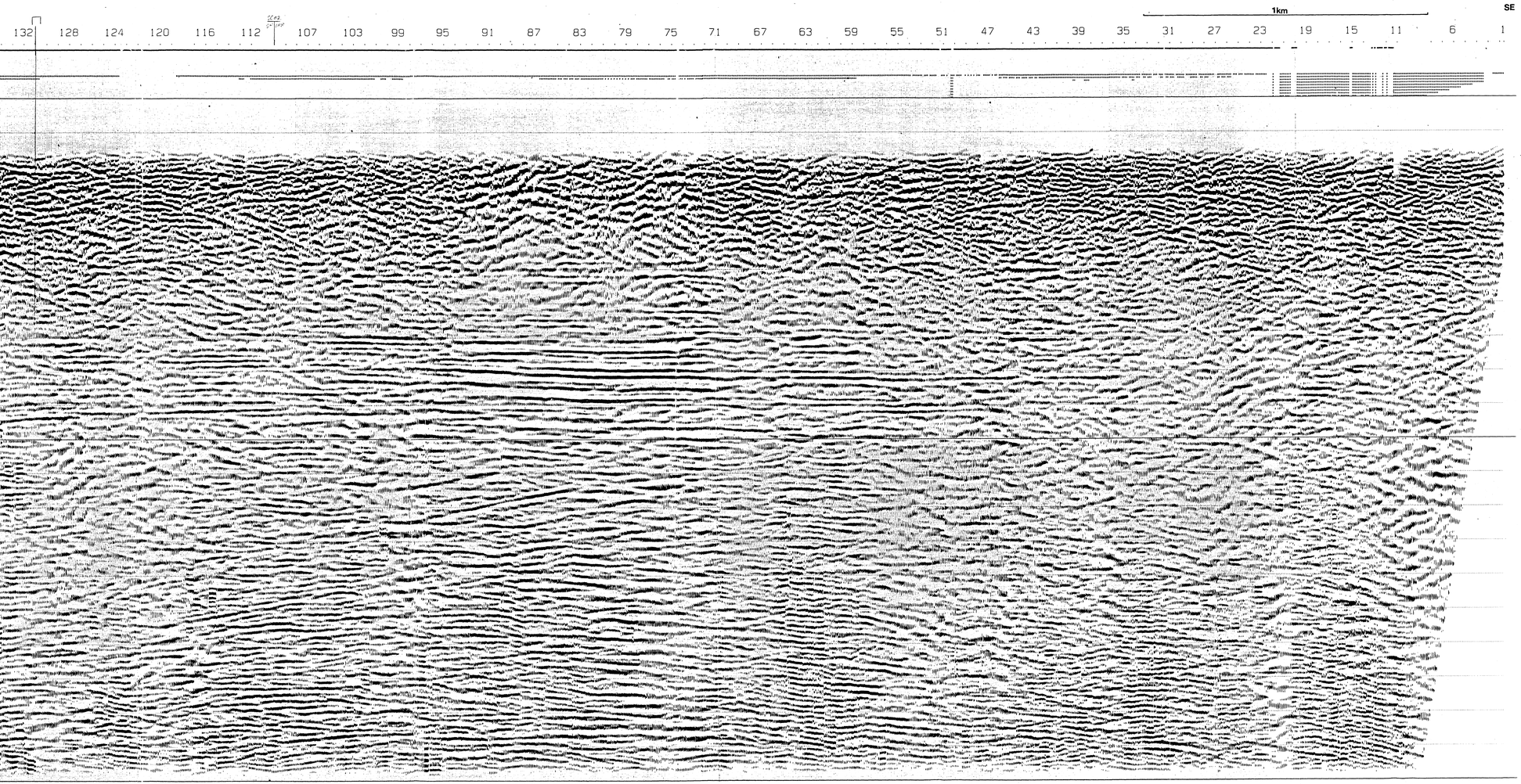
EDITED 4
NMO-STATICS
AVC
NMO-STACK
DECONVOLUTION
FILTER
EVENT ENHANCEMENT
PLOT 81.296 17.40.35

3637-12

254 250 246 242 238 234 230 226 222 217 212 208 201 197 193 189 185 181 177 172 168 164 160 156 152 148 144 140 136 132

0

2000



LINE SC-01-81
STUART CREEK

PROFILES 0-266
CHEVRON RESOURCES MINERALS DV.
COUNTRY AUSTRALIA
PROCESSED BY CHEVRON GEOSCIENCES COMPANY
DIVISION OF CHEVRON INDUSTRIES INC.
HOUSTON DATA PROCESSING SYSTEM

* * * * * * *

RECORDING PARAMETERS

CREW PETTY-RAY 6201 RECORDED JUN.81 SOURCE DYNAMITE INST DFS V
FILTER 30-125 HZ 2 MS SAMPRT 3.0 SEC.DATA GAIN IFP
GEOTYPE L-28E 96 TRACE.DATA GRPINT 10 METERS SPINT 40 METERS
SP 0 TO SOUTHEAST TRACE #1 TO SOUTHEAST SPREAD 5-35-96S METERS
DATUM MT. DATUM VELOCITY MT. PROCESSED RISE) TO (INK)
COVERAGE BOOK#
EDITED 4
EDITOR SETSS(-1138)085 TIME-08.39.00 DATE-81.244
·· COORDINATE SYSTEM LU CREATED CROSYS-YRGT ··
GAIN SPHER.DIV. AND EXPON.GAIN EXPON CORR·· 6 DB/SEC
EXPONENTIAL GAIN APPLIED TO A TIME OF 3.000
CREAM 140B1138 81.282 19.02.15
CREAM 140B1138 81.282 19.23.14
NMO CORRECTIONS. ONE VELOCITY USED AT 1 LOCATION
VELOCITY AT REFLECTION PRINT 7803 MS.
TIMES 0.100 0.200 0.300 0.400 0.500 0.600 0.700 0.800 0.900 1.000 1.200 1.400
1.600 1.800 2.000
OFFSET 985 MS.
VNMO 3400. 3700. 3900. 4000. 4100. 4400. 4700. 5000. 5250. 5550. 6100. 6200.
6300. 6400. 6500.
AGMIX
DIAL
AEC TIME CONST· 400 MS
CREAM 140B1138 81.295 11.40.04
DIAL
NMO AND CDPS STACK ONLY NO NMO APPLIED
MUTE X1· 0.0 M T1· 0.0 SEC X2· 10.00 M T2· 0.0 SEC X3·1085.00 M T3· 1.000 SEC
DECON DECONVOLUTION
AUTOCORRELATION GATE 0.500/TB 1.000
FILTER LO CUT· 20 CPS SLOPE· 36 DB/OCT HI CUT· 70 CPS SLOPE· 36 DB/OCT PHASE·ZERO
CREAM 140B1138 81.295 18.56.04
COMPIC NTRACE·24 NSKIP· 12 INCRMT· 8 MS NSECT·17 MINDIP· -64 MS TX· 40 MS NITER· 1·
T1· 0.150 SEC T2· 5.000 SEC IACIP· 0
THRESH· 0.170
CREAM 140B1138 81.296 10.14.25
PLOT 81.296 17.40.35 13181219
FLOATING POINT DATA TRACE EQUALIZED

CONFIDENTIAL RESTRICTED TO SRCAL USE

N2477

PL2870 S-581-2PE

LINE SC-03-81
STUART CREEK

PROFILES 00.0 - 200.0
CHEVRON RESOURCES MINERALS DV.
COUNTRY AUSTRALIA
PROCESSED BY CHEVRON GEOSCIENCES COMPANY
DIVISION OF CHEVRON INDUSTRIES INC.
HOUSTON DATA PROCESSING SYSTEM

RECORDING PARAMETERS

CREW PETTY-RAY 6061 RECORDED JUN 81 SOURCE DYNAMITE INST OPS V
FILTER 30-125 HZ 48 DB/OCTAVE SLOPE GEOPHONE 1 ONE 5K TRACE DATA
GEOPHONE 5 ONE 5K TRACE DATA GROUP INTERVAL 10 METERS SPIN 40 MET
SP 25 TO SOUTHEAST TRACE #1 TO SOUTHEAST SPREAD 5-25-080 METERS
DATUM MT DATUM VELOCITY MT PROCESSED RISE/SET
COVERAGE 8004

3637-13

LINE SC-03-81
STUART CREEK

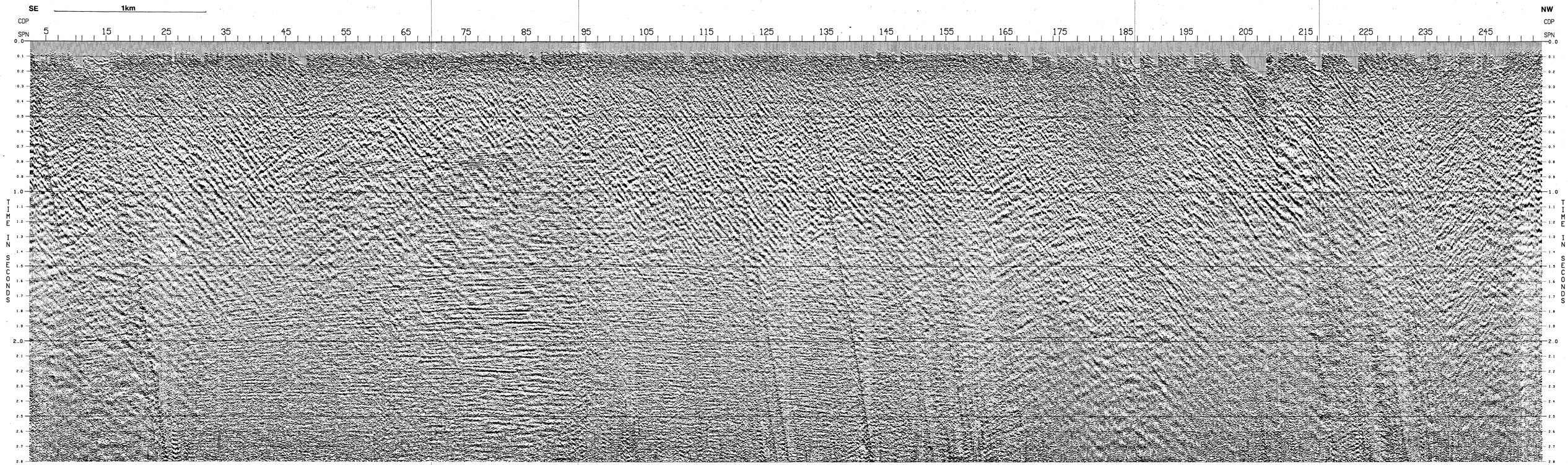
PROFILES 00.0 - 200.0
CHEVRON RESOURCES MINERALS DV.
COUNTRY AUSTRALIA
PROCESSED BY CHEVRON GEOSCIENC
DIVISION OF CHEVRON INDUSTRIE
HOUSTON DATA PROCESSING SYSTEM

RECORDING PARAMETERS

GSI

STUART CREEK 01
UNFILTERED
40TPI 5IN/SEC

3637-14



W2473

LINE SC-04-81
STUART CREEK

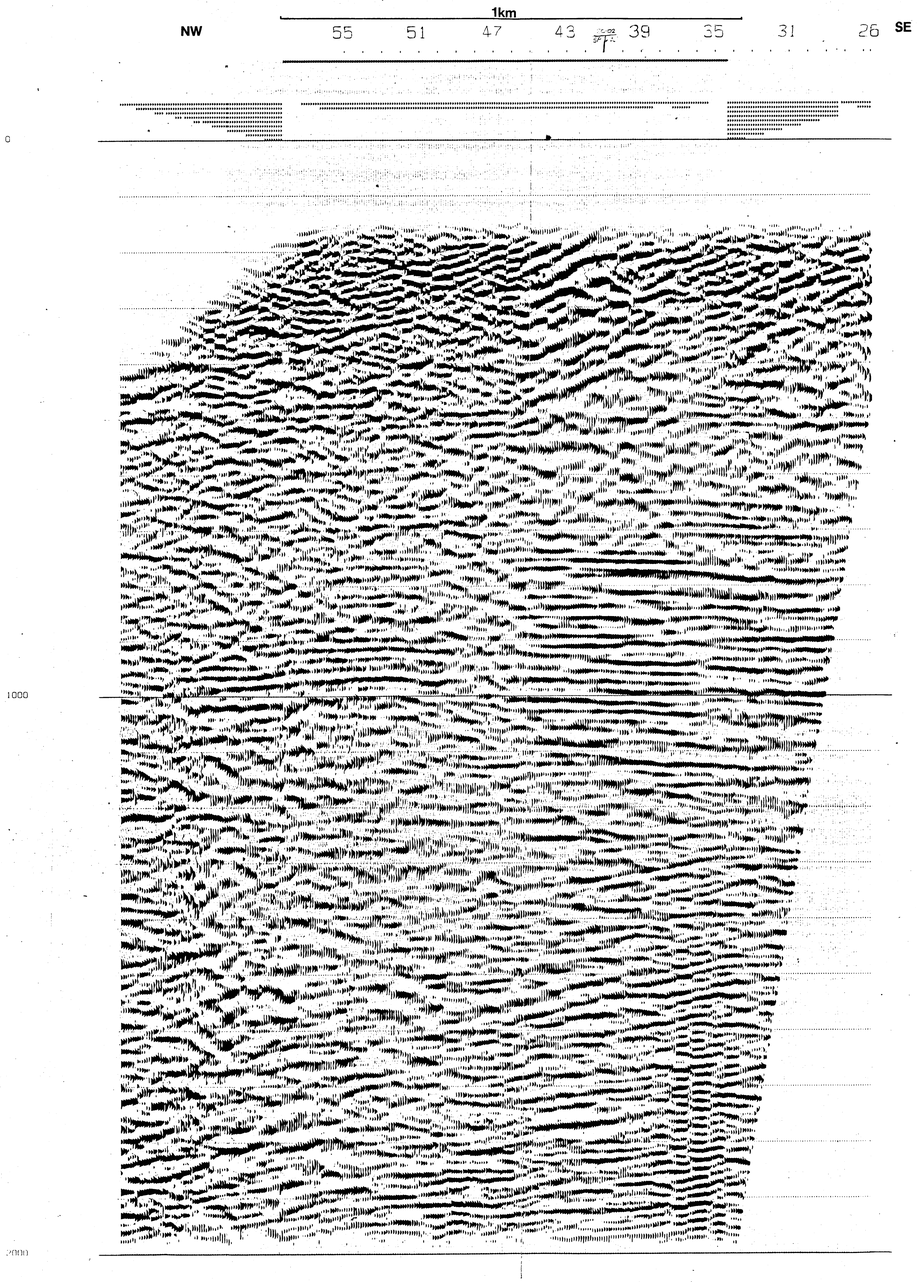
PRØFILES 25.0-55.0
CHEVRØN RESØURCES MINERALS DV.
CØUNTRY AUSTRALIA
PRØCESSED BY CHEVRØN GEØSCIENCES CØMPANY
DIVISIØN ØF CHEVRØN INDUSTRIES INC.
HØUSTØN DATA PRØCESSING SYSTEM

RECØRDING PARAMETERS

CREW PETTY-RAY 6281 RECØRDED JUN.81 SØURCE DYNAMITE INST DFS V
FILTER 30-125 HZ 2 MS SAMPRT 3.0 SEC.DATA GAIN IFP
GEØTYPE L-28E 96 TRACE DATA GRPINT 10 METERS SPINT 40 METERS
SP 25 TØ SØUTHEAST TRACE #1 TØ SØUTHEAST SPREAD S-35-985 METERS
DATUM MT. DATUM VELØCITY MT. PRØCESSED L(NW) TØ R(SE)
CØVERAGE 800%

EDITED
NMØ-STATICS
AVC
NMØ-STACK
DECØNVØLUTIØN
FILTER
EVENT ENHANCEMENT
PLØT 81.299 09.01.08

3637-15



LINE SC-04-81
STUART CREEK

PRØFILES 25.0-55.0
CHEVRØN RESØURCES MINERALS DV.
CØUNTRY AUSTRALIA
PRØCESSED BY CHEVRØN GEØSCIENCES CØMPANY
DIVISIØN ØF CHEVRØN INDUSTRIES INC.
HØUSTØN DATA PRØCESSING SYSTEM

RECØRDING PARAMETERS

CREW PETTY-RAY 6281 RECØRDED JUN.81 SØURCE DYNAMITE INST DFS V
FILTER 30-125 HZ 2 MS SAMPRT 3.0 SEC.DATA GAIN IFP
GEØTYPE L-28E 96 TRACE DATA GRPINT 10 METERS SPINT 40 METERS
SP 25 TØ SØUTHEAST TRACE #1 TØ SØUTHEAST SPREAD S-35-985 METERS
DATUM MT. DATUM VELØCITY MT. PRØCESSED L(NW) TØ R(SE)
CØVERAGE 800%

EDITED
EDITØR SESSI-14281244 TIME-12.04.55 DATE-81.293
-- CØØRDINATE SYSTEM LU CREATED- CRDSYS-YRGT --
GAIN SPHER.DIV. AND EXPØN.GAIN EXPØN CØRR. 6 DB/SEC
EXPØNENTIAL GAIN APPLIED TØ A TIME ØF 3.000
CREAM 14081138 81.294 07.43.56
NMØ CØRRECTIØNS. ØNE VELØCITY USED AT 1 LØCATIØN
VELØCITY AT REFLECTIØN PØINT 3623.MS.
TIMES .100 .200 .300 .400 .500 .600 .700 .800 .900 1.000 1.200 1.400
1.600 1.800 2.000
ØFFSET 985.MS.
VNMØ 3200. 3375. 3525. 3675. 4050. 4350. 4600. 4950. 5300. 5750. 6225. 6550.
6700. 6800. 6900.

AGMIX
DIAL
AEC TIME CØNST- 400 MS
NMØ AND CDPS STACK ØNLY NØ NMØ APPLIED
MUTES TAKEN DIRECTLY FRØM INPUT HEADERS
DECØN DECØNVØLUTIØN
AUTØCØRRELATIØN GATE .0.500 TØ 1.000
FILTER LØ CUT- 20 CPS SLØPE- 36 DB/ØCT HI CUT- 70 CPS SLØPE- 36 DB/ØCT PHASE-ZERØ
CØMPIC NTRACE-24 NSKIP- 12 INCRMT- 8 MS NSECT-17 MINDIP- -64 MS TX- 40 MS NITER- 1
T1- 0.150 SEC T2- 2.000 SEC IACIP- 0
THRESH- 0.170
CREAM 14081138 81.299 08.55.01
PLØT 81.299 09.01.08 13181219
FLØATING PØINT DATA TRACE EQUALIZED
CONFIDENTIAL-RESTRICTED TØ LØCAL USE

N2480

PL0872 SY
SYDNEY 07 04 35 05 SEP 81 SCD 01 TO AT 82.0000 DEPTH
10.AL A3EMAR82000 AR

G.S.I.
CHV-SC02
40TPI 5INS/SEC

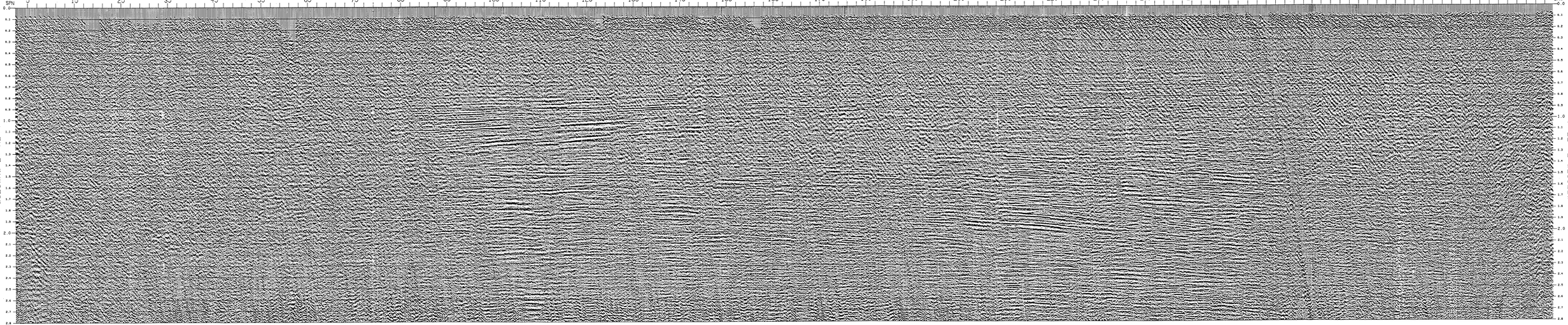
3637-16

G.S.I.
SC-02-81

1 km

NE

SW



N2174

G.S.I.

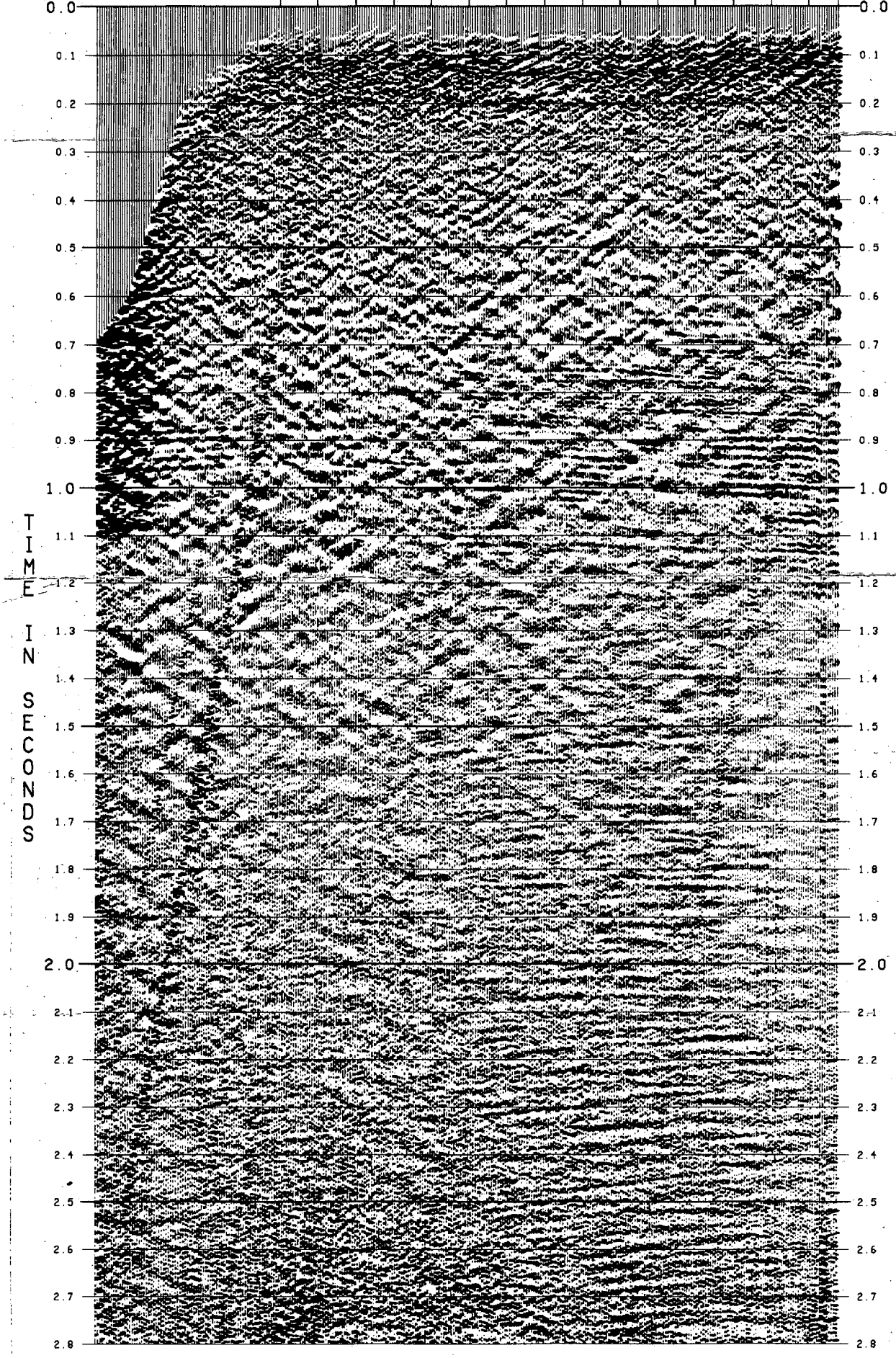
STUART CREEK 04
UNFILTERED STACK
40 TPI 5 IN/SEC

1 km

NW SE

CDP 237 157 77 1 CDP

SPN 55 45 35 25 SPN



W2476

AMOCO MINERALS AUSTRALIA COMPANY

EXPLORATION LICENCE 909, STUART CREEK, S.A.

Final quarterly report for period ending October, 19th 1982.

INTRODUCTION

Exploration Licence 909, covered 953 square kilometres on the north eastern margin of the Stuart Shelf. Former EL's 328 and 520 covered the same ground.

Exploration, primarily in search of Olympic Dam-style mineralization, by Amoco in the period 1977-1980, comprised an aeromagnetic survey, geological mapping, ground magnetic and gravity surveys and the drilling of a diamond drill hole to 750 metres.

Chevron Exploration Corporation farmed into the Licence in 1981 and sponsored the extension of the diamond drill hole to a depth of 1450 metres, and a seismic reflection survey designed for targets at a depth in excess of 1000 metres. By their expenditure on drilling and seismic work, Chevron earned a 50% interest in the ground.

As the drill hole terminated in(Adelaidean) Sturtian glacigene sediments, and comprehensive evaluation of the seismic data indicated Pre-Adelaidean basement to be at a depth of 2000-2200 metres, no additional work was considered to be warranted.

FINAL QUARTER EXPLORATION

In the course of evaluating the Licence for diamond exploration potential, B.H.P. Minerals recontoured the 1977 aeromagnetic data at their Camberwell, Victoria, computer facility. This work suggested a discrete magnetic anomaly (Flight Line 70, Fiducial 43975; Latitude 30° 01', Longitude 137° 03') to possibly be indicative of a kimberlite intrusion. Two separate attempts at locating this anomaly with ground magnetometer traverses failed and it was concluded that no anomaly actually existed. It is difficult to explain; ground navigation presented no problem and the anomaly was 30 nanoteslas in a noise envelope of about 5 nanoteslas.

EXPLORATION DATA

The recontoured data are supplied in print and transparency form. All other plans have previously been supplied as have geophysical, geochemical, petrological and keyword data.

....2....

RECEIVED
15 MAR 1983
DEPT. OF MINES AND ENERGY SECURITY
3637-11

EXPENDITURE

Approximate expenditure on EL 909 for the final quarter was:

Salaries: (mainly BHP aeromagnetic data treatment plus ground magnetic traversing)	$1900
Field Costs: (Fuel, cookery, accomodation)	600
Vehicle Costs	600
Overheads/adminstration	300
TOTAL	$3400

Therefore the total spent on EL 909 was $67,099.

G.C. Miller
Senior Geologist

EL 909

Potential kimberlite

SCALE 1:50000

0 1000 2000 3000 4000 5000 METRES

STUART CREEK, S.A.

ALL FIDUCIALS HAVE BEEN DIVIDED BY 10.
THE ANNOTATED FIDUCIALS ARE NOT THE RECOVERED FIDUCIALS.

DETAILS OF SURVEY

FLOWN BY : GEOMETRICS
DATE : DECEMBER 1977
1:250,000 SHEET : ANDAMOOKA SH53-12
E.L. 909
AMG ZONE : 53

LINE SPACING : 300m
SURVEY HEIGHT : 90m
MAGNETOMETER : GEOMETRICS G803

DETAILS OF PROCESSING

PROCESSED BY BHP EXPLORATION : CAMBERWELL

IGRF REMOVED 7-Sep-82
ITERATIVE HEADING ERROR ADJUSTMENT (LINE BY LINE) 8-Sep-82
ITERATIVE HEADING ERROR ADJUSTMENT (LINE BY LINE) 9-Sep-82
5000 nT ADDED TO DATA 9-Sep-82
DATA WAS GRIDDED AND CONTOURED USING GRID PROGRAM GPCGRD 9-Sep-82
TIE LINES WERE NOT CONTOURED
CONTOUR INTERVAL : 2.5 nT
GRIDDING PARAMETERS:
MESH SIZE : 100m x 100m
SCAN DISTANCE : 500 m
NO EXTRAPOLATION USED

N

SHEET 1 SHEET 2 SHEET 3

A = 77516
YARRI WHITE
PROJECT

E.L. Boundary

STUART CREEK, S.A.

ALL FIDUCIALS HAVE BEEN DIVIDED BY 10.
THE ANNOTATED FIDUCIALS ARE NOT THE RECOVERED FIDUCIALS.

DETAILS OF SURVEY

FLOWN BY : GEOMETRICS
DATE : DECEMBER 1977
1:250,000 SHEET : ANDAMOOKA SH53-12
E.L. 909
AMG ZONE : 53

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SURVEY HEIGHT : 90m
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IGRF REMOVED 7-Sep-82
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GRIDDING PARAMETERS:
MESH SIZE : 100m x 100m
SCAN DISTANCE : 500 m
NO EXTRAPOLATION USED

SHEET 1 SHEET 2 SHEET 3

Amoco Minerals Australia Company

Project		Nº	
Project Partner	Chevron Exploration Corporation		
EL 909 STUART CREEK, S.A. RECONTOURED AEROMAGNETIC DATA			
Map Ref. ANG	Latitude	Longitude	
Surveyed	Date	Scale	1:50,000
Drawn I. Ley	Date 11-3-83	Drawing Nº	W2817

STUART CREEK, S.A.

ALL FIDUCIALS HAVE BEEN DIVIDED BY 10.
THE ANNOTATED FIDUCIALS ARE NOT THE RECOVERED FIDUCIALS.

DETAILS OF SURVEY

FLOWN BY : GEOMETRICS
DATE : DECEMBER 1977
1:250,000 SHEET : ANDAMOOKA SH53-12
E.L. 909
AMG ZONE : 53

LINE SPACING : 300m
SURVEY HEIGHT : 90m
MAGNETOMETER : GEOMETRICS G803

DETAILS OF PROCESSING

PROCESSED BY BHP EXPLORATION : CAMBERWELL

IGRF REMOVED
ITERATIVE HEADING ERROR ADJUSTMENT (LINE BY LINE)
ITERATIVE HEADING ERROR ADJUSTMENT (LINE BY LINE)
5000 nT ADDED TO DATA
DATA WAS GRIDDED AND CONTOURED USING GRID PROGRAM GPCGRD
TIE LINES WERE NOT CONTOURED
CONTOUR INTERVAL : 2.5 nT
GRIDDING PARAMETERS:
MESH SIZE : 100m x 100m
SCAN DISTANCE : 500 m
NO EXTRAPOLATION USED

3637-11

6668 000m N

6667 000m N

6666 000m N

6665 000m N

6664 000m N

6663 000m N

6662 000m N

6661 000m N

6660 000m N

705 000m E

706 000m E

707 000m E

708 000m E

709 000m E

710 000m E

711 000m E

712 000m E

713 000m E

714 000m E

SC-04-81

SC-03-81

SC-02-81

SC-01-81

RIG SITE
(AMOCO)

T.R. BOUNDARY

3637-18

CHEVRON EXPLORATION CORPORATION

STUART CREEK
SHOT POINT LOCATION MAP

PETTY - RAY GEOPHYSICAL CREW 6281

AUTHOR : D. Potter

DRAWN	DATE	SCALE	REVISED	DRAWING NUMBER
	22-7-81	1:10 000		SHEET 1 W2271

6676 000m N

6675000m N

6674 000m N

6673 000m N

6672000m N

6671 000m N

6670 000m N

6669000m N

6668 000m N

704 000m E

705 000m E

706 000m E

707 000m E

708 000m E

709 000m E

710 000m E

711 000m E

712 000m E

713 000m E

714 000m E

SC-01-81

SC-02-81

3637-19

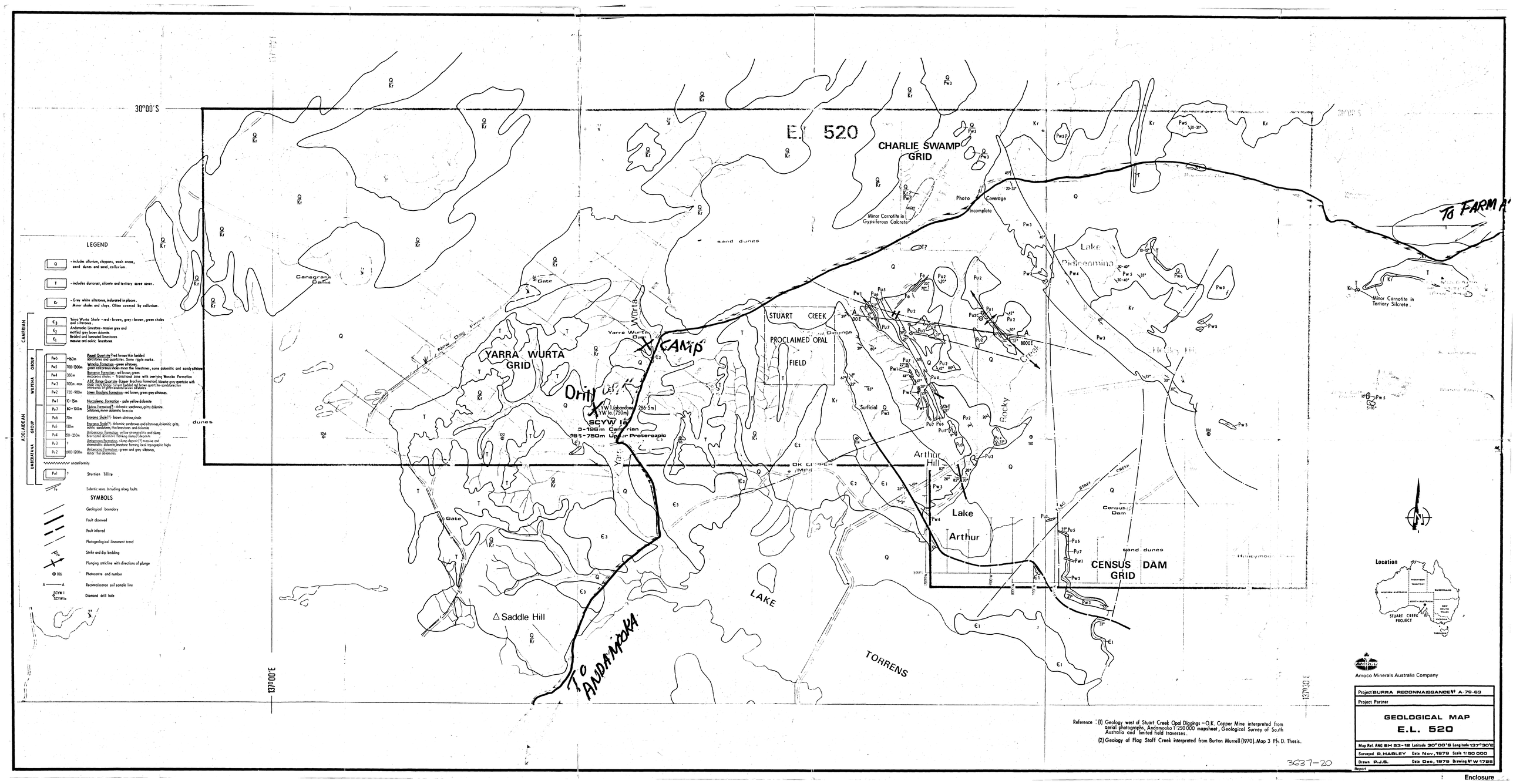
CHEVRON EXPLORATION CORPORATION

STUART CREEK
SHOT POINT LOCATION MAP

PETTY - RAY GEOPHYSICAL CREW 6281

AUTHOR - D. Potter

DRAWN	DATE	SCALE	REVISED	DRAWING NUMBER
	22-7-81	1:10 000		SHEET 2 N2472


30°00'S
137°00'E
E.L. 520
CHARLIE SWAMP GRID
YARRA WURTA GRID
CENSUS DAM GRID
STUART CREEK PROCLAIMED OPAL FIELD
Yarra Wurta Camp
Drill
SCYW 1 (abandoned 286·5m)
SCYW 1a (750m)
SCYW 1a
0-196m Cambrian
196-750m Upper Proterozoic
Canegrass Dams
Gate
New Day Fence
sand dunes
dunes
Photo Coverage Incomplete
Minor Carnotite in Gypsiferous Calcrete
Minor Carnotite in Tertiary Silcrete.
Surficial
Lake Arthur
Census Dam
Saddle Hill
LAKE TORRENS
TO ANDAMOOKA
TO FARM A
Rocky Creek
Stony Creek
OK COPPER MINE
Lake Pobeegoonia
Location
STUART CREEK PROJECT
LEGEND
Q - includes alluvium, claypans, wash areas, sand dunes and sand, colluvium.
T - includes duricrust, silcrete and tertiary scree cover.
Kr - Grey white siltstones, indurated in places. Minor shales and clays. Often covered by colluvium.
CAMBRIAN
Yarra Wurta Shale - red-brown, grey-brown, green shales and siltstones.
Andamooka Limestone- massive grey and mottled grey brown dolomite. Bedded and laminated limestones massive and oolitic limestones
ADELAIDEAN
WILPENA GROUP
UMBERATANA GROUP
Pw6 - 190m Pound Quartzite Pred brown thin bedded sandstones and quartzites. Some ripple marks.
Pw5 700-1300m Wonoka Formation - green siltstones, green calcareous shales more thin limestones, some dolomitic and sandy siltstone
Pw4 350m Bunyeroo Formation - red brown, green micaceous shales - Transitional zone with overlying Wonoka Formation
Pw3 700m. max A.B.C. Range Quartzite - (Upper Brachina Formation) Massive grey quartzite with shale clasts, minor current bedded red brown quartzite sandstone, thin interbeds of green and red brown siltstones
Pw2 720-900m Lower Brachina formation- red brown, green grey siltstones.
Pw1 10-15m Nuccaleena Formation - pale yellow dolomite
Pu7 80-100m Elatina Formation? - dolomitic sandstones, gritty dolomite Siltstones, minor dolomitic breccia
Pu6 70m Enorama Shale (?) - brown siltstone, shale
Pu5 130m Enorama Shale (?) - dolomitic sandstones and siltstones, dolomitic grits, arkitic sandstones, thin limestones and dolomite
Pu4 150-250m Ambrosia Formation - yellow stromatolitic and slump brecciated dolomites thinning slump (?) deposits
Pu3 ? Ambrosia Formation - slump deposit (?) massive and stromatolitic dolomite, limestone forming local topographic highs
Pu2 600-1200m Ambrosia Formation - green and grey siltstone, minor thin dolomites
unconformity
Pu1 ? Sturtian Tillite
Fe Siderite veins intruding along faults
SYMBOLS
Geological boundary
Fault observed
Fault inferred
Photogeological lineament trend
Strike and dip bedding
Plunging anticline with directions of plunge
@ 106 Photocentre and number
A — A Reconnaissance soil sample line
SCYW 1 SCYW 1a Diamond drill hole
Reference : (1) Geology west of Stuart Creek Opal Diggings - O.K. Copper Mine interpreted from aerial photographs, Andamooka 1:250 000 mapsheet, Geological Survey of South Australia and limited field traverses.
(2) Geology of Flag Staff Creek interpreted from Burton Murrell (1970), Map 3 Ph. D. Thesis.
Amoco Minerals Australia Company
Project BURRA RECONNAISSANCE № A-79-63
Project Partner
GEOLOGICAL MAP
E.L. 520
Map Ref. ANG SH 53-12 Latitude 30°00'S Longitude 137°30'E
Surveyed R.HARLEY Date Nov.,1979 Scale 1:50 000
Drawn P.J.S. Date Dec, 1979 Drawing № W 1725
Report
3637-20
Enclosure

EL 909 ENV 3637 AMOCO - STUART CK.

TAPE OF MAGNETIC DATA FROM AIRBORNE SURVEY BY GEOMETRICS HELD BY GEOPHYSICS

AIRBORNE CODE 77 SA 6 SADME

117 OPEN FILE

ENVELOPE NO. 3637

CONTENTS - TRANSPARENCY CYLINDER NO. 3637/1

(Data received after 1/3/83)

TITLE	SCALE	PLAN NO.
E.L. 909 - Stuart Creek, S.A. - Recontoured Aeromagnetic Data.	1:50 000	W 2817