GEOLOGY, GEOCHEMISTRY AND GOLD MINERALISATION IN THE SUNSET WELL AREA, EASTERN GOLDFIELDS PROVINCE, WESTERN AUSTRALIA

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DEDICATION

To my wife Nikki with love and thanks for her encouragement, support and tolerance; and our sons Tobias and Sebastian.

DECLARATION

The material presented in this thesis has not been submitted, either in whole or in part, for the award of any degree or diploma at any university or institution. This thesis does not contain any material previously published or written by another person, except where it is duly acknowledged and referenced in the text.

Signed

ABSTRACT

The Sunset Well study area, 10 kilometres east of Leonora in the Archaean Eastern Goldfields Province of Western Australia, forms part of a group of gold exploration tenements held by RGC Exploration Pty Ltd. Geological mapping and a variety of geochemical techniques have outlined alteration within a shear zone and mineralisation at the Prospero prospect.

Geological mapping has delineated three lithostratigraphic sequences separated by NNW trending faults. The western succession is comprised of andesite-derived volcaniclastic sediments (sandstone, breccia) with minor fine grained clastic sediment (shale) which are interpreted to represent a stack of subaqueous debris flows derived from a subaqueous andesite-dominated volcanic complex. The central succession is dominated by massive tholeiitic and high-Mg basalts with minor sediments. Fine grained clastic sediments make up the majority of the eastern succession. All sequences have been intruded by dolerite/gabbro sills and the western and central successions are intruded by several granodioritic porphyry stocks. Deep lateritic weathering and subsequent partial erosion has exposed saprolitic subcrops over much of the area with remnants of lateritic duricrust.

Surface geochemical anomalism related to the mineralisation within the Prospero shear is outlined in residual lateritic material with a Au-W association (380 ppb Au and 12 ppm W). Sampling of saprolite from surface soil and drilling samples displays a spatial but non-coincident Au-As-W-Pb-Sb-Cu-Zn association. Analysis of K and Na in saprolite and saprock material outlines the sericitic and albitic alteration zones with maximum values centred on the mineralised Prospero shear zone.

Mineralisation at Prospero is located within a broad east-dipping shear zone between andesitic volcaniclastics and high-Mg basalt. Supergene saprolitic mineralisation is well developed in broad subhorizontal sheets in the middle saprolite with a smaller accumulation near the saprolite-saprock boundary.

Bedrock mineralisation is associated with intense zonal metasomatic alteration comprising an outer chlorite-sericite-quartz-calcite, middle sericite-quartz and inner quartz-albite-sericite-dolomite/ankerite-fuchsite alteration zone. Sulphide mineralogy is dominated by pyrite with minor galena, chalcopyrite, arsenopyrite, sphalerite, chalcocite and covellite. Gold grades are generally 0.2-0.6 ppm in the sericite zone and 0.5-3.0 ppm in the inner silicified zone. Thin quartz veins contain higher grade (5.0-30.0 ppm) mineralisation, with gold occuring as fine (~5 micron) free grains. The primary mineralised zone has a Au-As-W-Cu-Sb-Sr-V-Si-K-Na association. Mineralisation is interpreted to have formed during D1 shear zone formation and synchronous with zonal alteration.

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1. INTRODUCTION

1.1 OUTLINE AND SCOPE OF THESIS

The study area forms part of a group of tenements held by RGC Exploration Pty Ltd. Systematic geological mapping, rock chip and soil sampling and drilling have provided information on the lithologies, structure, alteration styles and mineralisation within the study area.

A low grade gold resource has been outlined within the study area on the Prospero shear zone, this mineralisation and the exploration work leading up to its discovery, forms the basis of this thesis.

All field project work was conducted or supervised by the author over the last 2.5 years. Work conducted specifically for (or prompted by) this thesis included the soils orientation traverse, some of the drilling multielement analysis and part of the thin section/petrographic work. Compared to the remainder of the tenement group outside the study area additional descriptions and/or interpretation work was conducted on the lithology, geochemistry and regolith development sections. Additional interpretation, particularly on the geochemical associations and alteration zonation, is presented here for the mineralisation at Prospero.

The aims of this thesis are to:

i) Describe the lithologies present in the study area using geological mapping and drilling data.

ii) Describe the exploration work completed leading up to the discovery of the Prospero prospect. Decipher the regolith development over the tenements, and the use of regolith geochemistry in guiding the exploration program.

iii) Document the alteration pattern, structural setting, and mineralisation style of the Prospero prospect.

This thesis is a broad based study providing an example of a gold exploration case study utilising a regolith geochemical approach and a description of the supergene and bedrock gold mineralisation outlined.

LOCATION OF THE SUNSET WELL STUDY AREA IN THE YILGARN CRATON, WESTERN AUSTRALIA

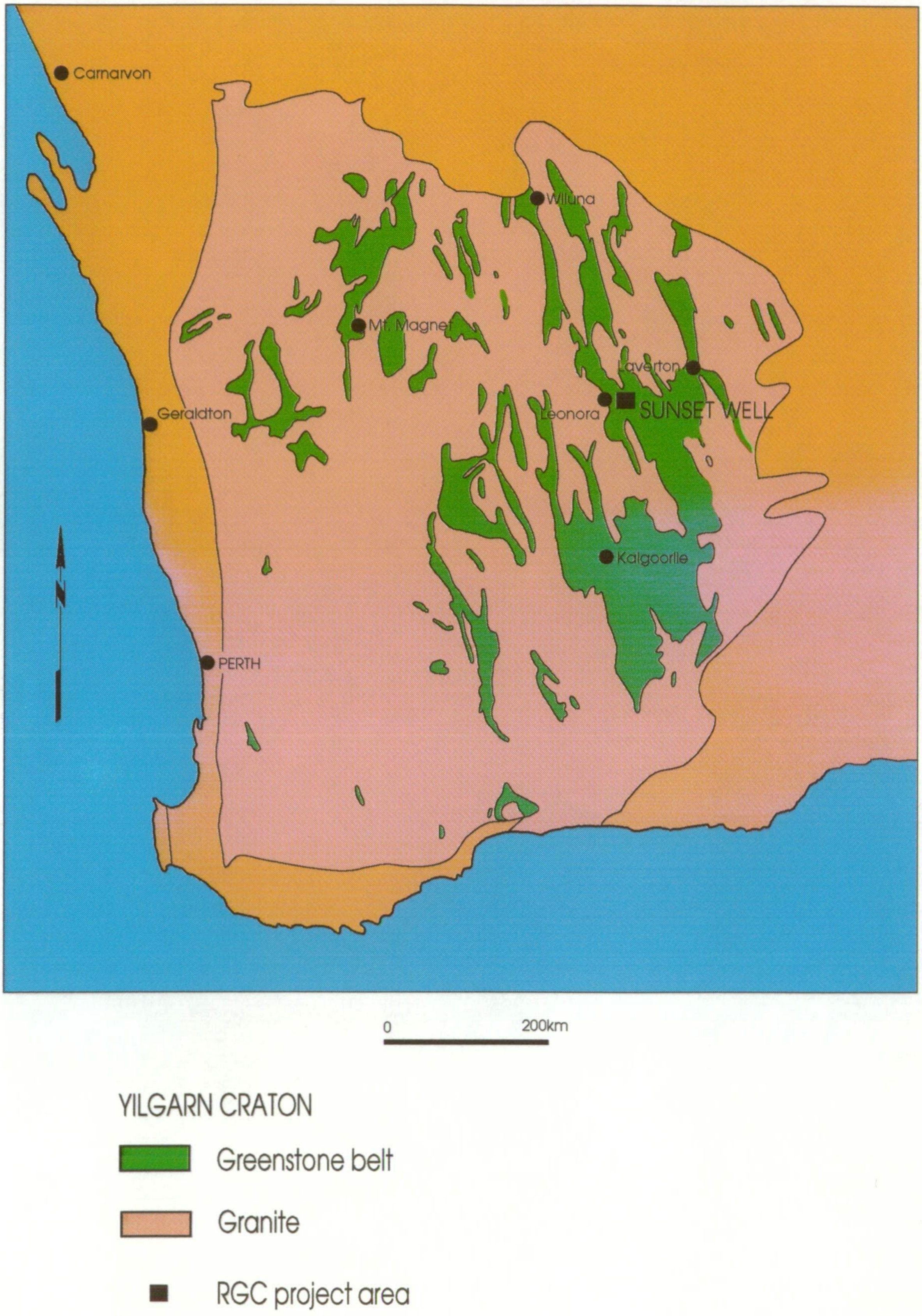

Figure 1

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References to outcrop locations are located by either AMG or the local (RGC Exploration) grid coordinates. In general, local grid coordinates are used from within the Prospero shear zone area, where much of the geochemical and drilling information has been positioned on the local grid. Other areas are refered to by their AMG coordinates; both are usually referenced to a figure number.

1.2 LOCATION, CLIMATE AND PHYSIOGRAPHY

The Sunset Well study area is located approximately ten kilometres to the east of Leonora, in the Eastern Goldfields Province of Western Australia. Leonora is situated 200 kilometres north of Kalgoorlie, and 650 kilometres east-northeast of Perth, as shown in Figure 1.

The study area is included within the Leonora 1:250,000 (SH51-1) and Leonora 1:100,000 map sheets. The tenements lie on the Leonora Southeast and Leonora Northeast Department of Minerals and Energy tenement plans, within the Mt Margaret Mineral Field.

The Leonora district has an arid climate with average annual rainfall of approximately 200 millimetres from convectional summer storms, much of which falls between January and April. Summers are hot to very hot, winters are mild but frosts are common.

The study area has low relief with undulating plains broken by low hills. In the southeast of the study area Mt Malcolm rises to approximately 60 metres above the surrounding plain, while the hills surrounding Sunset Well and the chert ridges along the western boundary of the study area have 20-40 metres of relief. A single major intermittent creek system drains to the south through the study area with Malcolm Dam (Leonora water supply) along its eastern tributary.

The vegetation over the study area is dominated by mulga (*Acacia aneura*), with scattered medium to tall shrubs over slopes and plains. Dense stands of mulga occur along creek lines.

1.3 ACKNOWLEDGEMENTS

The support provided by RGC Exploration Pty. Limited for this study and the Master of Economic Geology coursework is gratefully acknowledged. Project work in the Sunset Well area has been supervised by K. Watkins, and has benefitted from discussions with K. Watkins, S. Gatehouse and R. Sillitoe. A.J. Roberts, B. Gemmell and S. Gatehouse are thanked for reading drafts of this thesis. The guidance provided by CODES Key Centre staff, in particular B. Gemmell, is appreciated. N. Grey and T. Ellis are thanked for contributing to the drafting and compilation of this thesis.

2. REGIONAL GEOLOGY

2.1 PREVIOUS REGIONAL STUDIES

The Leonora area has been the subject of several recent regional geological studies. Hallberg (1985, 1986) presented a regional geological synthesis of the Leonora-Laverton area. Reconnaissance interpretive geological mapping at 1:25000 scale was used to provide a geological and lithostratigraphic framework for mineralogical, geochemical and mineralisation studies conducted by CSIRO. Immobile element plots (Ti, Zr, Cr) were used as an aid to identification of weathered rocktypes (Hallberg, 1984).

Hallberg (1985) proposed a structural subdivision of the Leonora-Laverton area into three "geological" sectors separated by two "tectonic" zones. Geological sectors were characterised by open upright folding, low metamorphic grade, and relatively coherent stratigraphic sequences. The tectonic zones show isoclinal folding, penetrative polyphase deformation and discontinuous stratigraphy. The present study area falls within the western Keith-Kilkenny Tectonic Zone (KKTZ) of Hallberg (1985) as shown in Figure 2.

Other earlier regional geological work includes: Clark (1925), Noldart and Bock (1960), and the Geological Survey of Western Australia 1:250,000 map sheet explanatory notes for the Leonora (Thom and Barnes, 1977) and Laverton (Gower, 1976) map sheets.

In the last 10 years publications on the geology of the Leonora area have concentrated on structural and tectonic studies, description and geochemical classification of the felsic volcanic and plutonic rocks, and mineralisation studies.

2.2 LEONORA AREA REGIONAL GEOLOGY

Determination of the lithostratigraphic sequence in the area east of Leonora is complicated by the structural disruptions and isoclinal folding within the KKTZ. Figure 3 shows the regional geology and stratigraphic sequence in the Leonora area.

Dudley (1987) recognised six sequences in the Leonora area. Sequence one is restricted to west of the Mt. George shear zone (west of the KKTZ), while sequence six forms the eastern margin of the KKTZ.

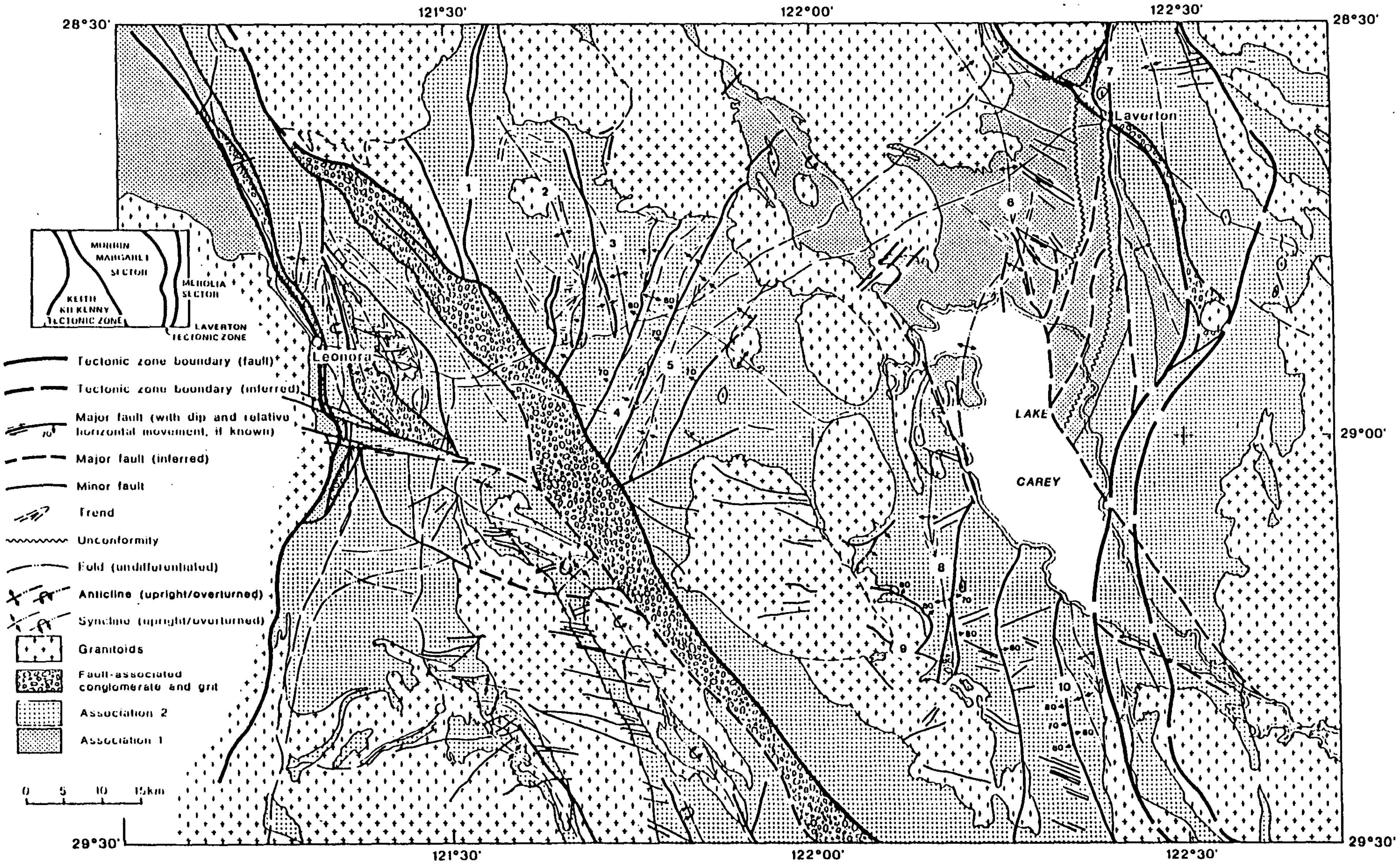


Figure 2. Major structural features, stratigraphy, and structural subdivision of the Leonora–Laverton area (after Hallberg, 1985).

At Leonora the Harbour Lights-Gwalia mafic-ultramafic sequence consists of komatiitic and tholeiitic basalt with thin interflow sediments. The western boundary of this sequence is the broad, strongly sheared (Sons of Gwalia Shear Zone of Williams et al., 1989), east dipping contact to the Raeside Gneiss. The Raeside Gneiss is a medium to coarse grained monzogranite to granodiorite gneiss.

Within the KKTZ, east of the Mt George shear zone, sequences 2, 3, 4 and 5 of Dudley (1987) are distributed through several fault-bound sectors. Sequence two comprises andesitic volcanics and volcaniclastics with minor mafic volcanics, dacites and exhalites; in sequence three tholeiitic basalts predominate; sequence four consists of acid (rhyolite and dacite) volcanics and volcaniclastics, tuffs and epiclastic sediments; while sequence five is comprised predominantly of tholeiitic basalt.

The predominantly felsic sequence in the KKTZ between Teutonic Bore and Melita to the south, is described by Hallberg et al. (1993) as forming a chain of locally emergent, mildly peralkaline, large ion lithophile (LIL) element enriched, rhyolite dominated felsic volcanic centres. Hallberg (1985) describes locally emergent rhyolitic, dacitic and andesitic centres, separated by predominantly subaqueous epiclastic sediments (vitric tuff, tuff breccia) in the KKTZ east of Leonora.

Rattenbury (1993), in an attempt to correlate stratigraphy in the Leonora-Laverton area across tectonic terranes using marker komatiite lavas, places the sequence in the KKTZ east of Leonora (Malcolm Domain, Braemore area of Rattenbury, 1993) above the Harbour Lights-Gwalia mafic-ultramafic sequence, and below the Pig Well Graben epiclastic sequence to the east. SHRIMP U-Pb zircon dating of the felsic sequence rocks from Pig Well and Teutonic Bore give dates of ca. 2700 Ma (Pidgeon, 1993).

Sequence six of Dudley (1987) comprises the polymict granitoid pebble conglomerate unit of the Pig Well Graben. This unit (see Figure 2) forms the eastern margin of the KKTZ and is bounded by major faults and contains internal faults with mylonite zones (Hallberg, 1985). Polymict conglomerate predominates, however quartz grits, arkose, sandstone and shale are present. Clast type is variable and reflects local sourcing with clasts near the graben margins reflecting adjacent lithologies (basalt, gabbro, chert), whereas centrally clasts of granite, felsic porphyry and felsic volcanic dominate.

Intrusives are common within the KKTZ and several granodiorite porphyry and syenite stocks crop out in the KKTZ east of Leonora. The granodiorite from the central Sunset Well area and around the Malcolm volcanic complex to the southeast is composed of anhedral

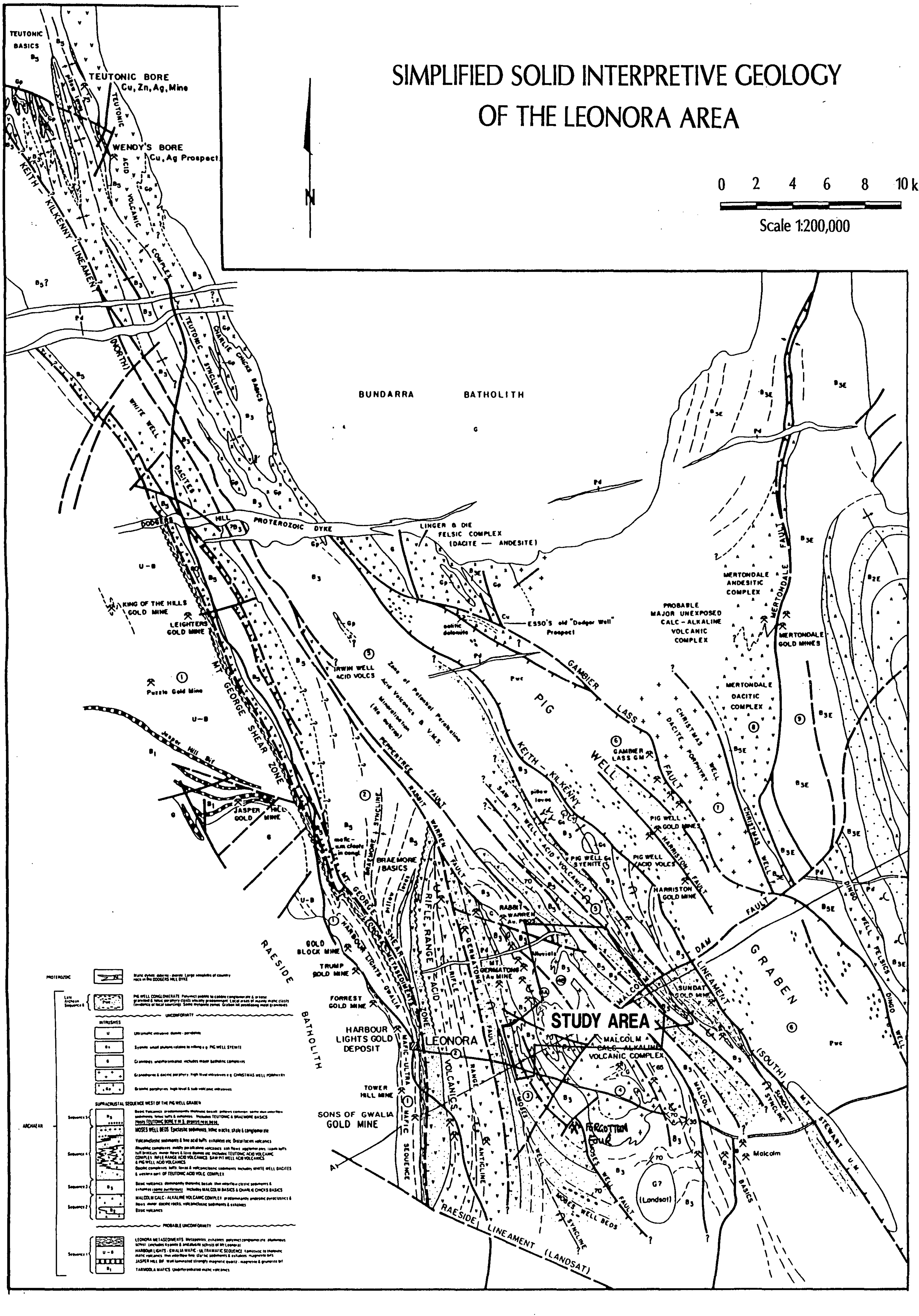


Figure 3. Leonora area regional geology and location of the study area (Modified after Dudley, 1987).

plagioclase laths, minor anhedral quartz and K-feldspar phenocrysts with minor biotite flakes. Several dykes and small stocks of syenite and quartz syenite are exposed near Pig Well to the northeast of the study area.

Champion and Sheraton (1993) have geochemically classified the granitoids of the Leonora-Laverton area, with the granodiorites from the Sunset Well-Malcolm area falling in the high Ca post-folding granitoid classification. Syenites (Group 6 of Champion and Sheraton, 1993) are readily distinguished by their high total alkali content (>10% $K_2O + Na_20$).

2.3 REGIONAL STRUCTURE

The Sunset Well study area falls within the central KKTZ to the east of Leonora. Hallberg (1985) defined the KKTZ as a broad (5-60 kilometres wide) zone of disruption whose main features include:-

i) Penetrative ductile polyphase deformation with numerous faults and shear zones.

ii) Structurally disrupted stratigraphy and frequent isoclinal folding.

iii) Extensive regional metasomatic alteration.

iv) Bimodal basalt-rhyolite sequences with large ion lithophile (LIL) element enrichment (Hallberg et al., 1993) and,

v) Small syenitic intrusions (Champion and Sheraton, 1993).

Recent structural studies in the Leonora and central KKTZ area include: Swarnecki (1987), Williams et al., (1989), Passchier (1990), Hammond and Nisbet (1990, 1993), Vearncombe (1992), VanderHor and Witt (1992), Vanderhor (1992), Williams and Currie (1993), Williams and Whitacker (1993), Williams (1993), and Hammond and Nisbet (1993).

Table 1 summarises the deformation events recognised in the Eastern Goldfields Province, north from Kalgoorlie, and relative timing of granitoid emplacements. With the exception of De, a similar deformational history has been recognised from the Kambalda-Kalgoorlie area (Swager et al., 1990) to the north of Agnew (Hammond and Nisbet, 1990).

EVENT	Swager & Griffen, 1990 (Kalgoorlie)	Williams et al., 1993 (Seismic line)	Hammond & Nisbet, 1992 (Northern)	Williams & Currie, 1993 (Leonora)
De1		Basin formation, possible growth faults and half-graben development	Shear zones on gneiss/granite-greenstone margins	Shear zones on gneiss/granite greenstone margins
D1	Thrust faults and sequence repeats	Basal shears on greenstone, high level thrust faults	NNW directed thrusts, sequence repeats	Thrust faults and sequence repeats
De2		Extensional faulting, affecting whole of upper and middle crust, core complex emplacement.		
D2	ENE-WSW shortening, upright folds, NNW steep cleavage	ENE-WSW shortening, upright folds, regional cleavage	ENE-WSW shortening, fault inbricatiotion over a deep detachment	ENE-WSW shortening, upright folds, cleavage, reactivation of earlier shears
D3	Sinistral wrench fault during regional shortening, later faults	NW-NNW sinistral faults and shears NE faults	NS dextral faults and shears, related to D2	NS dextral shears, NNW sinistral reactivation

Table 1. Regional deformation events recognised in the Eastern Goldfields Province.

Recognition and relative timing of deformation events is made difficult due to reactivation of structures and overprinting relations. De structures have been recognised only in the northeastern goldfields (north and east of Leonora) in recent studies (e.g. Williams et al., 1989; Hammond and Nisbet, 1990). These low-angle extensional shear zones form on granite/greenstone contacts with wide (>100 metre) deformation zones. The Sons of Gwalia (SOG) shear zone, at Leonora, has N-S to NNW-SSE lineations and top (east) block to the south movement.

The widely recognised D1 event is characterised by thrust shortening, stratigraphic repetition and local isoclinal folding of the greenstone sequence.

Williams (1993) proposes a second extensional event (De2) between D1 and D2, based on interpretation of the 1990 Eastern Goldfields Province seismic profile (Goleby et al., 1993). As yet there is no field evidence to support this.

Major ENE-WSW shortening (D2) resulted in large-scale thrust imbrication, penetrative shortening fabrics and isoclinal folding and appears to be responsible for the gross granitoid-greenstone distribution. Compression has probably resulted in steepening of initially low-angle De and D1 structures and/or reactivation (reversal) of shear zones.

D3 tectonism in the Leonora district is recognised by N-S (Mertondale Fault) to NNW-SSE (Mt George shear zone) striking dextral shear zones (Hammond and Nisbet, 1992; Dudley, 1987; Williams and Currie, 1993).

2.4 REGIONAL MINERALISATION

Mineralisation in the Leonora district includes numerous gold deposits (Thom and Barnes, 1977; Williams et al., 1989). The major gold producing mine in the area is at Sons of Gwalia, other significant producers are Harbour Lights, Tower Hill, Tarmoola, Mertondale and Malcolm. The geology of the Sons of Gwalia mine will be reviewed as it is the largest in the district and has several features similar to the mineralisation at the Prospero prospect in the Sunset Well area.

Base metals (Cu-Zn-Ag) have been mined from the Teutonic Bore VHMS deposit (Hallberg and Thompson, 1984) within the KKTZ, 30 kilometres north of the study area.

Gold was discovered in the Leonora area by prospectors in 1896 with most known mining centres producing by 1897. Production declined early this century and the Sons of Gwalia mine closed in 1963. Resurgence of activity during the 1980's led to the commencement of open cut mining at Sons of Gwalia in 1984 and open cut mining of the Tower Hill deposit between 1983 and 1992 (Schiller and Hanna, 1990), Harbour Lights deposit between 1985 and 1993 (Dudley et al., 1990; Swarnecki, 1987), and the Mertondale deposits between 1986 and 1992 (Nisbet and Williams, 1990).

2.4.1 Sons of Gwalia Deposit

The Sons of Gwalia deposit (Finucane, 1965; Williams et al., 1989; Kalnejais, 1990) produced 2.5 million ounces between 1896 and 1963, and has produced a further 0.7 million ounces from open cut mining between 1984 and mid 1994, and has existing open pit reserves to 280 metres depth of 6.05 Mt @ 3.5ppm Au and underground reserves/resources to 560 metres depth of 6.0 Mt @ 3.4ppm Au.

Gold mineralisation at Sons of Gwalia (Kalnejais, 1990; Coates, 1993; Williams et al. 1989) occurs within a strongly sheared zone of tholeiitic basalt underlain by ultramafic rocks, and has a weak to moderately foliated tholeiitic basalt hanging wall sequence, all within sequence one of Dudley (1987) as described above. Gold has been mined from three lodes (main lode, west lode and south gwalia series), U-shaped in plan, having a combined strike length of 500 metres and a vertical extent of over 1000 metres (1700 metres down plunge). Foliation dips at 45^{O} to the east with mineral lineations, small scale fold axes and high grade ore shoots plunging at 70^{o} to the south.

The dominant ore host is strongly foliated pyritic, chlorite-sericite-quartz schist with abundant thin sheared quartz-carbonate veins. Alteration types include strong silicification and sericitisation with patchy albite, fuchsite, biotite and carbonate alteration. Alteration is laterally zoned with chlorite and biotite enveloping relatively narrow sericitic alteration, and calcite replaced by ferroan dolomite in inner zones (Skwarnecki, 1987). While pyrite is the dominant sulphide occurring as fine disseminations and within veinlets, chalcopyrite, arsenopyrite, galena, gersdorfite, scheelite and sphalerite have been identified in minor quantities.

The lode horizons are interpreted by Williams et al. (1989) as zones of more intense shearing and fluid flow, while Finucane (1965) considers that drag folding was the most significant control. Williams et al. (1989) suggests the high grade shoots may be sheath folds, propagated parallel to the movement direction and producing dilational sites. Coates (1993) and Williams et al. (1989) suggest that the two gabbro intrusions northwest and south of the ore zones may have been a factor in localising the mineralisation within the shear zone adjacent to these competent masses.

Timing of mineralisation is considered syn-deformational (Finucane, 1965; Skwarnecki, 1987; Williams et al., 1989), with recent studies having the Sons of Gwalia shear formed during De extension and tectonic emplacement of the Raeside Gneiss (Williams and Currie, 1993). Emplacement of the Raeside Gneiss generated amphibolite facies metamorphism of adjacent greenstone. Synchronous De extensional shearing along the gneiss margin, and within a thin zone of amphibolite resulted in amphibolite being placed in contact with mafic greenschist, an abrupt change in composition of the fluid phases from CO_2 dominated to lower temperature H_2O-rich fluid, and deposition of gold within structurally prepared dilational sites.

2.4.2 Mineralisation within the KKTZ

Gold production from within the KKTZ in the vicinity of the study area includes Mt Malcolm and workings along the Mt Germatong-Ironstone Well line with historic production of 1565.7 kg (Hallberg, 1985). Within the study area minor historic production (<20 kg Au) has been recorded from the Flanders workings and several diggings around Sunset Well.

Mineralisation at Mt Malcolm is adjacent to an early (D1) folded mylonite zone along basalt-gabbro/dolerite contacts (Williams et al., 1989; Hallberg, 1985) with extensive ferroan dolomite development. Recent open cut mining has been carried out at the Sundat mine

(40,000 tonnes @ 2.7 ppm Au grade), and Sabre-Triton Resources mined the Forgotten Four deposit (54,000 tonnes @ 4.45 ppm Au) in 1992 and have measured and indicated resouces along the Forgotten Four shear zone of 2.0 Mt @ 2.03 ppm Au (Gold Gazette, 11/7/94) to the south of the study area.

Williams et al. (1989) considered the early (De, D1) high strain zones and higher metamorphic grade zones had the best potential for discovery of significant gold deposits in the Leonora area.

3. SUNSET WELL AREA

3.1 WORK COMPLETED

R.G.C. Exploration Pty Ltd currently (July 1994) hold a total of 49 Prospecting Licences in the Sunset Well project area. This study is restricted to tenements falling on the Sunset Well and Mt Malcolm 1:10000 scale base plans comprising 24 Prospecting Licences covering an area of approximately 4500 hectares. These tenements (P37/4144-4147, 4246-4251, 4350-4363) were granted between 15/1/92 and 19/8/92.

Within the Sunset Well study area exploration work has consisted of : regional aeromagnetic interpretation, 1:10000 scale geological mapping, six areas of 1:2000 scale mapping, rock chip sampling, soil sampling (including an orientation survey), RAB drilling (over 500 holes for over 25000 metres), RC drilling (70 holes for 6187 metres) and diamond drilling (20 holes for 730 metres of core). Additional work included preparation of 62 thin sections or polished thin sections from rock chips and drill cuttings and multielement analysis of all soil and rock chip samples and selected drilling samples. The regional aeromagnetic interpretation (RGC Exploration Unpublished Report-Watkins, 1992) and descriptions of 37 thin sections (RGC Exploration Unpublished Report-Halsall, 1993; and Consultant Report for RGC Exploration Rugless, 1994) were not completed by the author. The exploration program was supervised by K. Watkins, and the project has benefitted from discussions with K. Watkins, S. Gatehouse and consultant R. Sillitoe.

The Sunset Well project area was acquired following a regional reconnaissance rock chip sampling program conducted by K. Watkins. A single rock chip sample of ferruginous saprolitic sericite-albite-quartz-limonite schist assaying 116 ppb Au, in an area with no old workings, was the basis for pegging the original four Prospecting Licences. This sample was taken adjacent to the initial soil anomaly that outlined the Prospero prospect, and is near where the mineralised structure crops out.

Soil sampling over the majority of the residual and erosional regolith was completed during 1992 and several multielement anomalies were generated. A broad zone of anomalism was outlined extending in excess of six kilometres and trending NNW from a broad bulls-eye peak at local grid coordinates 5700N 10300E (see Figures 4 and 5).

RAB drilling along this anomalous corridor has outlined an inferred resource, called the Prospero prospect, and a zone of patchy low grade mineralisation extending to the NNW along the Prospero shear zone. Infill RC and limited diamond drilling on the Prospero prospect have outlined the extent of gold mineralisation, as well as providing geological data on the structure, alteration and mineralisation style of the resource.

Details of the exploration work leading to the definition of the Prospero prospect will be discussed below. As a result of the large quantity of analytical and geochemical data used in this thesis, only some of the raw data will be presented here as appendices. Full listings of geochemical and regolith datasets can be found in Grey (1993) and Grey (1994).

3.2 GEOLOGY OF THE SUNSET WELL AREA

The following description of the geology and regolith setting of the study area is based on 1:10,000 scale and limited 1:2000 scale mapping, drilling information, geochemical data and limited petrography completed by the author. Mapping work was aimed at outlining the regolith distribution, broad lithostratigraphy and identification of alteration and structures indicative of gold mineralisation.

1:10000 scale geological mapping of the study area (45 sq. km.) was completed during September and October 1992, following preliminary geological reconnaissance from February 1992. Six subareas were remapped at 1:2000 scale during 1993 in areas with anomalous geochemistry (rock chip or soil sampling) or interesting geology and/or structure.

The regolith setting and exploration implications will be discussed first, followed by description of the Archaean lithostratigraphy.

3.2.1 Regolith Setting

The distribution and composition of the regolith units in the study area highlight:-

i) the regolith-landform relationships (areal and three dimensional distribution), regolith stratigraphy and relation to bedrock lithologies and mineralisation.

ii) the use of regolith models in designing appropriate geochemical exploration programs, control of sampling, and interpretation of results.

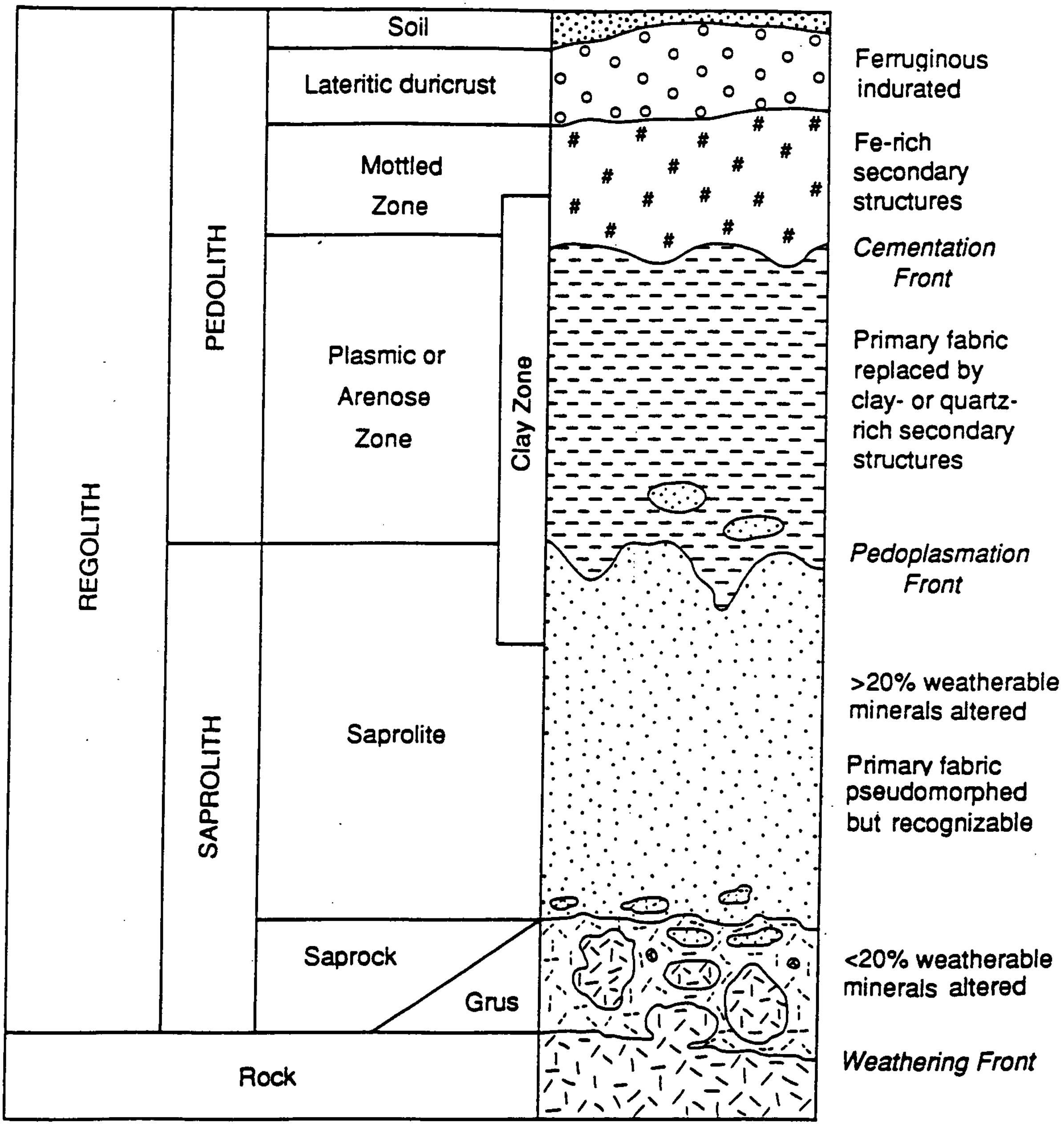


Figure 6. Regolith stratigraphy and terminology

Major advances have been made in the understanding of regolith and geochemical dispersion processes in deeply weathered terrains over the last two decades. (e.g. Butt and Zeegers, 1992; Chan et al., 1992). Within the Yilgarn Craton this increased understanding has been largely brought about by ongoing research into weathering and dispersion processes and laterite geochemistry by the CSIRO in industry-sponsored AMIRA projects in collaboration with the GSWA, AGSO and universities (Smith, 1993; Butt et al., 1991; Anand and Smith, 1993; and Butt et al., 1993).

The Yilgarn Craton has been tectonically stable since the mid-Proterozoic. Remnants of Permian fluvioglacial sediments are scattered over Eastern Goldfields Province and are exposed near Mertondale northeast of the study area. Since the Permian most of the Yilgarn Craton has been above sea-level and deep weathering commenced. Erosion during the Jurassic and Cretaceous led to extensive planation by the mid-Cretaceous. Subsequent weathering over the last 100 Ma has formed the present regolith pattern, with initially warm humid conditions resulting in lateritic weathering, and warm semi-arid climates since the Miocene resulting in modifications of the laterite profile (Smith et al., 1992; Butt et al., 1993).

The regolith stratigraphy and terminology used here follows CSIRO usage as defined in Smith et al. (1992), Butt and Zeegers (1992), and Anand and Smith (1993), and shown on Figure 6.

Regolith mapping within the study area was completed using 1:10000 scale photo interpretation with significant ground checking, and is shown on Figures 7 and 8, while subsurface distribution is derived from drill logging. The broader district scale patterns were interpreted with the aid of 1:100,000 scale Landsat TM imagery.

Generally the study area has a stripped profile with only small residual regime areas. The western half of the study area is predominantly erosional with saprolitic exposures and saprolitic lag surfaces, with minor saprock and fresh outcrops on ridges, narrow alluvial channels and thin colluvial scree slopes along ridge flanks. Similar saprolitic exposures are found in the southeast and northeast of the study area. The rounded hills in the middle of the study area, around Sunset Well, have deeply truncated profiles exposing fresh and partly weathered basalt and porphyritic granodiorite. Other exposures of saprock/fresh bedrock are small and generally of massive mafic or gabbroic compositions.

Depositional regime areas are composed of alluvium within major and minor south-draining creek systems, and extensive colluvial plains. The major creek system in the area runs north-south with widths of alluvium and sheetwash between 100 and 600 metres. A major tributary of this system drains southwest into Malcolm Dam, below which they join and head south into the Lake Raeside saline playa lake system ten kilometres south of the study area. Alluvial sediments in the active creeks are predominantly coarse gravels and grits composed of pisoliths and iron segregation fragments, quartz, and locally derived lithic fragments (eg. chert, basalt).

Colluvial plains have reddish brown clayey soils with a mixed lag composed of varying proportions of glossy black-brown pisoliths, iron segregation fragments, quartz vein fragments, and ferruginous lithic material (eg. chert).

Only remnants of lateritic residuum remain in the study area. Seven areas of lateritic duricrust have been mapped, each less than 100 x 200 metres in area. Mapped residual pisolitic gravels are more extensive and form areas along lateritic crests and upper backslopes up to 300 metres wide.

The Fe-rich duricrust bodies consist of coarse black to dark red brown nodules and ferruginous fragments with minor pisolites composed of hematite and geothite set in fine grained hematite-geothite-kaolinite matrix. The duricrust layer is thin with drill intercepts of 1-3 metres thickness and developed on mafic lithologies (where bedrock has been identified by drilling).

The residual pisolitic gravels consist of surfaces with abundant loose lateritic nodules and pisoliths in a red brown ferruginous clay (hematite-geothite-kaolinite) matrix. Pisoliths have a thin (1-2 millimetres thick) yellow to brown cutan skin around a hematite-rich, black-dark red nucleus. These gravels have gradational boundaries down the backslopes with progressive decrease in pisolith grainsize, colour change (from yellow to light brown to brown to red-brown to black down the backslope surface) as the cutan skins are abraded with increased transport, and increase in exotic components of lag (eg. quartz, chert and lithic fragments). The boundary for mapping residual versus transported colluvial backslope pisolitic lag surfaces is taken when less than 5% of pisoliths have retained cutan skin (see the soils orientation traverse section 3.3.2 where this boundary may be picked geochemically). The lateritic gravel layer is more extensive in the subsurface than the underlying cemented duricrust in the areas where this can be determined with drilling data.

The five residual exposures between the Prospero prospect and Sunset Well are remnants of a valley laterite layer which has been incised and mostly removed by alluvial channels and then partly covered by colluvium. These remnants, based on surface exposures and drill information, dip at low angle (1-3°) towards the main creek line. On the outer margins of this area there are very poorly developed lateritic breakaways with relief of less than one metre and only partial exposure of clay zone and saprolite.

The saprolitic erosional regime areas and deeply truncated saprock-fresh bedrock erosional regime areas will be discussed separately.

Approximately 45% of the study area consists of erosional regime saprolitic lag or scattered saprolitic pavement subcrop surfaces exposed on broad low-lying flats. These areas have light brown thin (less than 0.5 metres), weakly-ferruginous soils composed of saprolitic material (kaolinite, sericite, and quartz), clays and minor geothite-hematite. The lag developed is composed of iron segregations, vein quartz fragments and saprolitic lithic fragments. The geothite-rich iron segregations are black, subrounded to subangular, range in size from 10 to 200 millimetres, and do not show any cutan development. These thin soils are developed on saprolite with the Fe-rich lag accumulating from iron segregations within the saprolite zone.

Deeply truncated fresh bedrock is exposed over the basaltic hills surrounding Sunset Well and the central granodiorite stock area, in the southwest of the study area on a low gabbro ridge, and scattered rubbly outcrops of gabbro and basalt. The hills in the west of the study area (ca. 6,805,700mN, 344,000mE) have saprock to lower saprolite exposures of ferruginous chert (quartz-hematite) bands and sericite-quartz schists (after sediments) and minor quartz-feldspar porphyry along ridge crests.

The limited drilling information over the transported pisolitic colluvium to the north of Malcolm Dam indicates erosion to saprolitic levels over this area. Buried lateritic duricrust is limited to within 400 metres of duricrust outcrops in the Prospero area. The colluvial scree draping the slopes of the chert ridges in the west of the study area is thin (generally less than three metres thick) and numerous saprolitic exposures crop out through this coarse chert-rich layer.

The physical and chemical features resulting from the onset of semi-arid conditions during the Miocene are discussed by Anand (1993) and Butt et al. (1993). Surface cementation products noted from the study area include large areas of hardpan development (Si-Al-Fe-Mn cementation), and minor silicified caprock developed on mafic lithologies.

Authigenic hardpan is developed over large flat-lying areas of both erosional saprolitic lag and subcrop and transported backslope colluvial deposits. Hardpan is exposed on low saprolitic breakaways and within old workings and wells in the area has outlined extensive sheets of hardpan generally formed between one and six metres depth. Hardpan exhibits a sub-horizontal lamination/parting with deposition of Mn oxides (pyrolusite), and glassy and opaline silica (hyalite) within partings in red-brown to brown, porous and partially silicified matrix. Hardpan developed within saprolite frequently preserves primary fabric features.

Siliceous caprock outcrops are developed on erosional saprolitic lag surfaces overlying high-Mg basalt to the west of Sunset Well and along the eastern side of the Prospero shear zone between 5650N 10200E and 10500N 11000E. These strongly silicified, light yellow-brown massive outcrops and rubbly subcrops have numerous irregular fracture planes lined with very fine grained crystaline quartz. A weak foliation was the only relict textural feature observed in outcrop and no microscopic examination was undertaken.

In the subsurface silicified layers within the saprolite were identified from a 400 x 200 metre area to the east of Prospero (ca. 5600N 10800E) at 20-25 metres depth overlying massive high-Mg basalt. This subhorizontal zone may have formed at a palaeo-redox front (water table still stand) during post-Miocene arid conditions (Lawrance, 1993).

3.2.2 Lithostratigraphy

The following general description of the lithologies of the study area is based on weathered outcrops and drilling information, and as such will be more detailed over areas of better exposure (central and southwestern areas) and detailed drilling (the Prospero prospect, Prospero shear zone and the Oberon area). 1:10,000 scale mapping of the study area is shown on Figures 7 and 8.

The study area, as discussed above in section 2.2, is within the Archaean Eastern Goldfields Province in the Keith-Kilkenny Tectonic Zone. The area has exposures of Archaean intermediate to mafic volcanics and volcaniclastics, several intrusives and epiclastic sediments.

Three broad lithological sequences have been recognised in the study area, seperated by major NNW trending shear zones. The western succession is composed of andesitic and felsic-derived volcaniclastics (breccias, sandstones), cherts and shales and has been intruded by gabbro and granodiorite porphyries. To the east of the Prospero shear zone the sequence includes high-Mg basalt and tholeiitic basalt with minor sediments and dolerite/gabbro, and has been intruded by porphyritic granodiorite. The eastern succession is poorly exposed but contains fine clastic sediments (shale and sandstones) and several dolerite/gabbro intrusive sills.

Widespread metasomatic alteration has been described by Hallberg (1985) for the Mt. Malcolm area, southeast of the study area. Within the study area, an intense metasomatic alteration system has been outlined in the Oberon area and general features are described in section 3.2.2.1 below.

3.2.2.1 Western Succession

The western succession includes all of the study area to the west of the Prospero shear. Within this zone the most prominent exposures are on the chert ridges west of Prospero and saprolitic exposures along ridge flanks and subcrops on saprolitic lag surfaces.

The majority of the western succession has been mapped as very fine to fine grained sericite-quartz-chlorite-albite-plagioclase schist (unit Afs on Figures 7 and 8). This unit is composed of strongly foliated, intermediate (and possibly felsic) volcaniclastic sediments, minor epiclastic sediments (shale, sandstone), and possibly minor andesitic volcanics. Primary textures have often been destroyed as a result of pervasive deformation and weathering. The following descriptions are drawn from the Oberon area (ca. 4700N 9400E to 5700N 9600E) where limited widespaced drilling (Reverse Circulation with short diamond tails) has been conducted.

The predominant lithology in the Oberon area is massive, poorly-sorted, matrix-supported, andesite-derived volcaniclastic sandstone and breccia. This sequence in the Oberon area, is over 500 metres thick with a strike length of at least 1000 metres. Grainsize ranges from cobble breccia (clasts to 200 millimetres diameter) with a sandy matrix to fine sandstone and laminated siltstone. The majority of the breccias are matrix supported, with relatively minor clast support in coarse (>100 millimetre clast size) breccias. Units of breccia are several metres thick with the thickest drill intercept exceeding 30 metres of massive sandy breccia.

Clasts consist of andesitic lava fragments. The least altered samples of andesite are fine, weakly plagioclase-porphyritic in fine grained chlorite-sericite-quartz-plagioclase-leucoxene-carbonate groundmass (see Appendix C, Platel, A). Some chlorite forms flaky aggregates with a prismatic shape which is likely to represent completely altered mafic minerals. Carbonate forms fine granular aggregates and patches up to several millimetres in size and both calcite and dolomite are present with dolomite being more common. Minor dacitic clasts have been identified and rare andesitic clasts show relict flow banding. Clasts are angular to subangular and range in size from 200 millimetres diameter to coarse sand sized fragments.

Fine grained matrix material of the breccias consists of plagioclase and minor quartz and albite crystal fragments in a sericite-chlorite-quartz matrix. Vesicular or pumiceous material has not been recognised in core or thin section.

Volcanic sandstones and pebbly sandstones are massive with beds up to several metres thick. The proportion and size of breccia clasts is highly variable with some thick massive beds grading from granule sandstone to cobble breccia (clasts up to 150 millimetres). Relatively rare silty, fine sand layers show thin beds with ill-defined lamination and weak graded beds (see Appendix C, Platel, A and B).

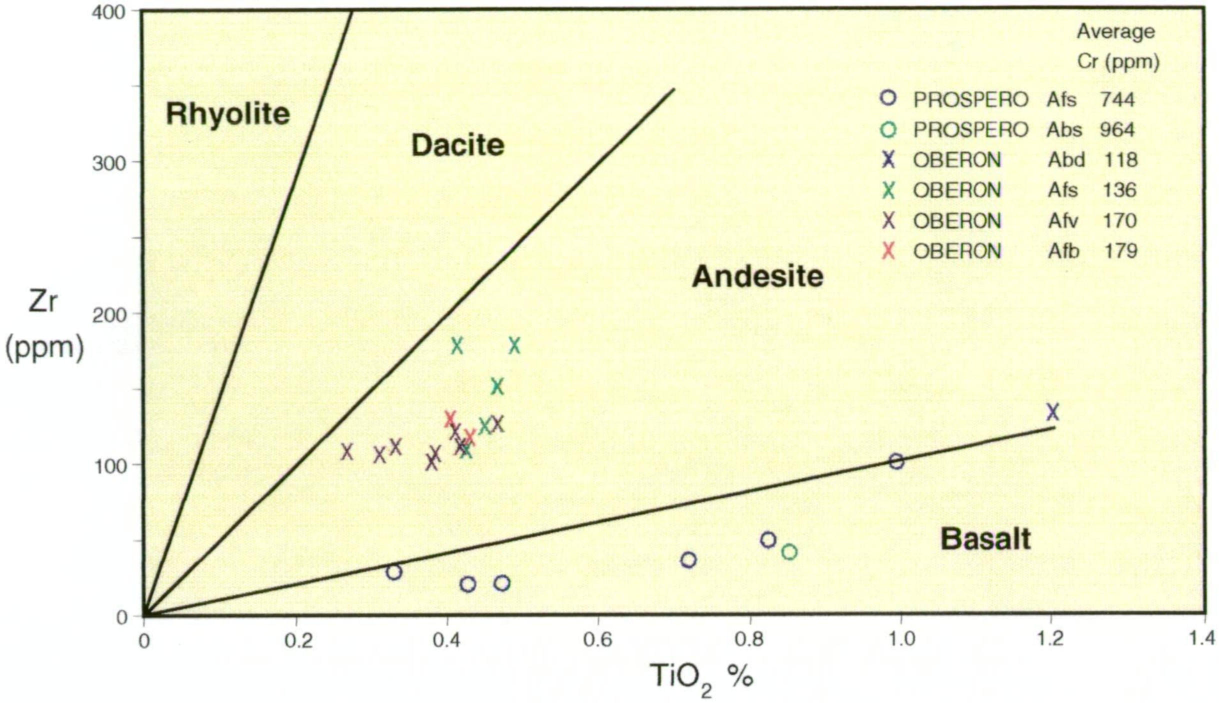
A subaqueous extrusive source is suggested by the poorly vesicular lava fragments while the lack of pyroclasts and epiclastic-derived material suggest autoclastic lava fragmentation. The thick, massive, coarse-grained, monomict mass flow bedforms and lack of traction current bedforms are typical of deep subaqueous volcaniclastic deposits (McPhie et al., 1993). Hallberg (1985, p. 48) suggests a subaqueous depositional setting for the andesitic sequence between Mt. Malcolm and Mt. Germotong, which includes the Oberon area.

Therefore the sequence at Oberon is interpreted as a stack of debris flows deposited in a (probably deep) subaqueous setting. Clastic material is derived from autoclastic brecciation of poorly-vesicular, probably subaqueous, andesitic lavas. Syn-eruptive gravitational slumping of the volcanic pile has resulted in resedimentation in thick massive debris flows.

Thin laminar graded beds may represent subaqueous suspension sedimentation associated with, and overlying the debris flow.

The majority of the volcaniclastic rocks in the Oberon area have a weak to moderate pervasive foliation defined by sericitic alignment. This foliation is steep east-dipping (340/70E) and is consistent with D2 structures throughout the study area. The finely divided sericite is locally concentrated in undulose bands with subparallel orientation. Chlorite, when present, has similar orientations and is frequently intergrown with sericite/muscovite. Shear sense, where measured, indicates oblique shallow (10-40^{o}) north-plunging (340-010^{o}) normal motion along shear planes at 340/70E. While additional structural data has been acquired, a detailed structural analysis is outside the scope of this report.

A VOLCANIC/VOLCANICLASTIC ROCKS



B PLUTONIC ROCKS

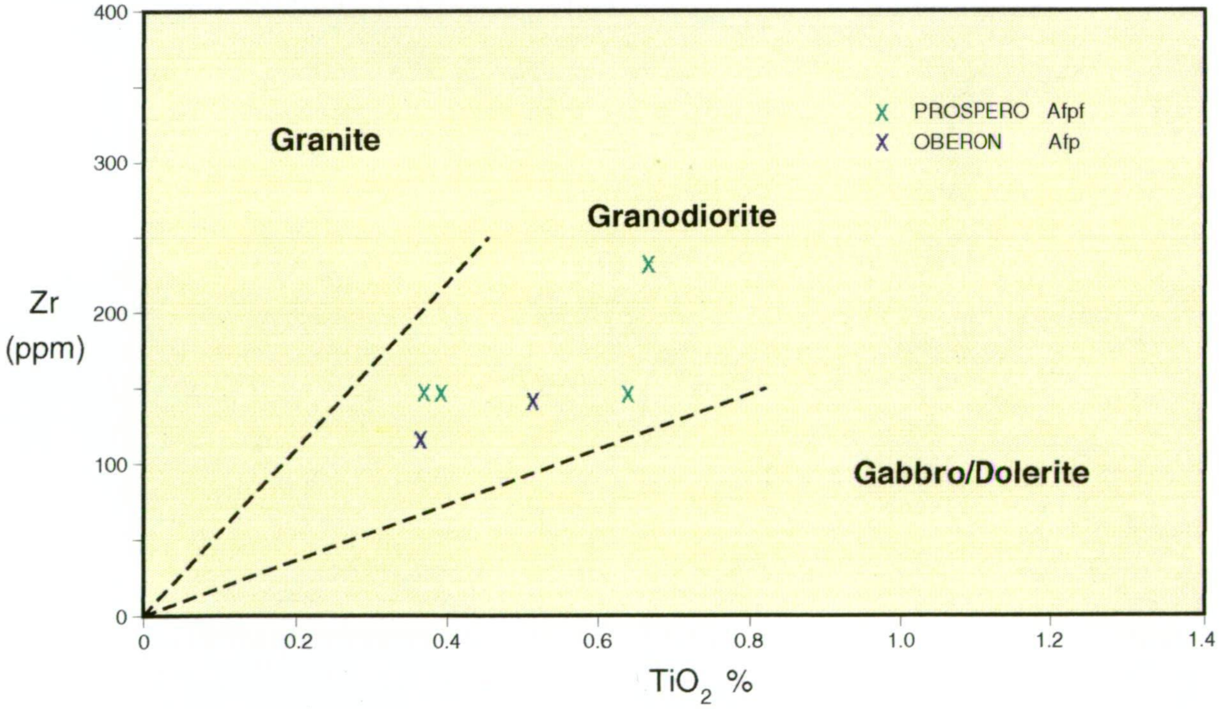


FIGURE **9**: Trace element plots for volcanic/volcaniclastic and plutonic rocks from the Sunset Well area. A = TiO_2 versus Zr plot for Prospero schists and volcanic/volcaniclastic, hydrothermal breccia and dolerite samples from Oberon. Average Cr values for each are listed. B = TiO_2 versus Zr plot for small porphyritic intrusives from the Prospero and Oberon areas. Lithological subdivisions are from Hallberg (1984).

Titanium/zirconium ratios from volcaniclastic mass flow sediment (clasts and matrix) from the Oberon area are plotted on Figure 9. Values range from 13.5 to 53.0 all falling within the andesitic field (Ti/Zr = 12-60) defined by Hallberg (1984). In relatively monomict volcaniclastic material these values indicate a consistent andesitic source for the volcaniclastic rocks in the Oberon area.

Using the detailed interpretation based on drilling data from the Oberon area some comments can be made on the "felsic" schist (Afs) mapped elsewhere in the western succession:-

i) The coarse volcaniclastic breccia textures identified in fresh drill intercepts are difficult to recognise in weathered RAB and RC drill chips and unrecognisable in most saprolitic (kaolinite-sericite-quartz) exposures in the Oberon area. Coarse volcaniclastics are likely to be more widespread than indicated by surface mapping.

ii) While the Oberon volcaniclastic sequence has a predominantly andesitic volcanic source, minor dacitic clasts are observed. Elsewhere in the western succession andesite-derived volcaniclastics are most likely, however dacitic sequences are possibly represented by more quartz-rich saprolitic (quartz-sericite-kaolinite) exposures.

iii) A subaqueous setting in other parts of the western succession is indicated by the interdigitation of chert with fine grained clastic sediments.

iv) Fine grained, sericite-quartz-kaolinite schists within the western succession may also represent volcanic-derived epiclastic sediments (e.g. volcanic sandstone) and non-volcanic clastic sediments (e.g. shale, siltstone).

The chert bands along ridges are up to three metres thick with thinly-bedded, laminar, quartz-hematite jaspilitic layering. Some ridges have several bands separated by up to five metres of fine sericite-quartz-geothite schist (after shale?). Cherts are often pyritic with up to 10% cubic hematite casts after pyrite. Both chevron and isoclinal large scale folds have been mapped and numerous parasitic folds recognised, with NNW-trending and near vertical fold axes. These folds are disrupted and offset by several N-S and approximately E-W faults. In some outcrops the chert bands have bedding parallel shearing resulting in a silicified mylonitic texture that can be traced along strike into weakly deformed laminated chert.

Several small to moderate-sized feldspar and feldspar-quartz porphyry stocks intrude the western succession, most in the south and southeast (Oberon area). These stocks are up to approximately 50 x 300 metres but most are mapped as less then 50 x 50 metres in area.

Varieties include feldspar (plagioclase), feldspar-quartz, and minor quartz-eye porphyry with some stocks having two or three phases present.

In the Oberon area stocks are medium to coarse grained moderately porphyritic with the dominant phenocryst phase being plagioclase in anhedral laths to 6 millimetres, variably replaced by sericite. Vague fine grained polygonal chlorite, and minor epidote, outlines represent completely altered ferromagnesian minerals, probably amphibole. The matrix has a typical grainsize of 0.05-0.20 millimetres and consists of feldspar, quartz, sericite, and minor chlorite and epidote. Fine disseminated opaque minerals include rutile/leucoxene, magnetite and hematite possibly formed by alteration of primary titanomagnetite.

Samples of fresh feldspar porphyry from the Oberon area have Ti and Zr results plotted on Figure 9, and fall within the granodiorite/andesitic porphyry field of Hallberg (1984).

Quartz-phyric porphyries are less common in the western succession however feldspar-quartz and quartz eye porphyries have been identified from more differentiated phases in feldspar-phyric stocks and as individual intrusions. Quartz phenocrysts are anhedral and usually 2-6 millimetres long while quartz-eye porphyries have sub-rounded quartz to 10 millimetres. Some quartz phenocrysts from the Oberon area show highly-embayed textures typical of acid volcanic rocks.

Porphyritic intrusives are mostly massive with some displaying weak foliations defined by sericitic alignment in relict feldspar and matrix material.

One gabbroic sill crops out in the far southwest of the study area displaying well-defined, weakly differentiated banding. Saprolitic exposures of dolerite dykes and sills occur west of Prospero and Oberon. Dolerites are undeformed with fine grained, sub-ophitic textured amphibole (actinolite), plagioclase and minor quartz.

Within the western succession widespread metasomatic alteration is characterised by frequent chloritoid and minor andalusite crystals in the sericite-quartz-albite schist outcrops. Chloritoid has been observed in numerous drill intersections in the Oberon area and rarely in outcrop throughout the western succession. Small (1-4 millimetre) randomly-oriented idioblastic platelets/laths of dark green chloritoid have been noted in fresh drill intercepts while weathering results in hematite pseudomorphs at surface. Andalusite has been noted from a single outcrop at the southern end of Oberon (4700N 9350E) where coarse (4-8 millimetre) rectangular to lozenge-shaped porphyroblasts are found in quartz-sericite schist.

3.2.2.2 Central Succession

The central succession is composed predominantly of mafic volcanics with minor sediments, and is intruded by a large granodiorite porphyry stock and several smaller stocks and dykes. The central zone is bound to the west by the Prospero shear zone and to the east by a poorly exposed north-northwest trending shear zone. The eastern shear is exposed in saprolitic subcrops to the north and northeast of Sunset Well.

The zone is variably exposed, with no outcrop to the south of the ridges surrounding Sunset Well (under pisolitic colluvial plain sediments) and significant colluvial and alluvial cover east of Prospero. The best exposures are on the hills at Sunset Well and subcrops on saprolitic lag surfaces to the north of Sunset Well (ca. 9000N 11500E). Drilling information is limited to RAB sampling to the east of Prospero and adjacent to the Prospero shear in the north.

The central succession between Prospero (ca. 6500N 10100E) and Sunset Well (6500N 11800E) comprises the following sequence:-

- Strongly sheared chlorite schist and chlorite-tremolite schist of basaltic composition within the Prospero shear zone. This unit is up to 100 metres thick, follows the shear zone (trending 330^{o}) and dips at approximately 50^{o} to the east. Outcrop is limited to strongly silicified caprock exposures to the north of Prospero.

- Massive to weakly foliated high-Mg basalts with frequently preserved bladed spinifex textures. This unit is approximately 700 metres wide and extends at least four kilometres to the north but is unexposed to the east of Prospero. Figure 10 shows the regolith relationships of this unit at Prospero with well developed duricrust restricted to the high-Mg basalt unit. This remnant of laterite follows the unit to the north as outlined by drilling, while to the north of 9000N the lateritic residuum has been eroded and sparse saprolitic subcrops are found.

The basalt, where intersected in saprolitic RAB chips, consists of chlorite-tremolite-clay with remnants of accessory opaque oxides (titanomagnetite/ magnetite). Bladed spinifex textures are preserved in lower saprolite weathered material with blades to 15 millimetres defined by chlorite, tremolite, hematite and kaolinite.

- To the east of the high-Mg basalt unit at Prospero is a strongly deformed sericite-quartz schist unit. This probably represents fine clastic sediment but has only been intercepted in widespaced RAB drilling where it appears to be of limited extent (ca. 200 x 600 metres).

- The eastern contact of the fine clastic sediment unit is exposed on the eastern side of the creek at ca. 7000N 10950E. Several bucky white quartz blows crop out within a 20 metre wide shear zone striking 70/340W. Exposures adjacent to quartz veins are strongly sheared fine chlorite and chlorite-sericite schists after basalt.

East of this shear zone is a flat, saprolitic lag surface approximately 300 metres wide with scattered subcrops of mafic lithologies including: high-Mg basalt, tholeiitic basalt, gabbro and mafic schists (chlorite-tremolite). Widespaced drilling in the area indicates the tholeiitic basalt and schistose basalt predominate and high-Mg basalt is a relatively minor component of this composite unit. A massive leucogabbro sill is exposed in bouldery subcrop over 50 x 300 metres at 7200N 11000E.

- Fresh tholeiitic basalt is exposed on prominent ridges surrounding Sunset Well. This fine grained massive basalt is approximately 300 metres thick and is folded with a steeply-inclined (80/320E) steep northwest plunging chevron form. The eastern limb, striking at 315°, has a faulted inner contact which cuts the fold hinge with a sinistral offset of approximately 200 metres.

At Sunset Well a porphyritic granodiorite stock has intruded in the core of the basaltic fold. This stock is partially exposed over an area of 500 x 1700 metres and extends under cover at least 2000 metres to the south. Contacts with basalt on the western, northern and southeastern margins of the stock are intrusive. Several porphyry dykes up to four metres wide and minor thin aplite dykes intrude the basalt, particularly in the faulted hinge zone.

The granodiorite is essentially massive with foliation developed only within thin impersistent quartz-filled shear zones described below. Abundant coarse (4-10 millimetre), anhedral, zoned plagioclase laths, and scattered fine biotite books are distributed in a fine to medium grained quartzo-feldspathic matrix. The crowded porphry is cut by several thin (less than 0.5 metres), impersistent (less than 30 metres long), shear zones with variable orientations (some of which extend into the basalt unit). Most of the shears have small workings and pits developed on auriferous quartz-calcite-pyrite veins within sheared granodiorite or basalt.

To the north of Sunset Well several small granodioritic porhyries intrude the mafic sequence. They are generally less than 50 metres in size with the largest outcrop approximately 50 x

100 metres. These small stocks and dykes are similar in composition to the main granodiorite stock at Sunset Well.

A single exposure, of approximately 20 x 80 metres, on a saprolitic lag surface at 6,808,900mN 344,450mE (see Figure 8) is of porphyritic quartz syenite. The weathered outcrop has coarse K-feldspar laths (to 10 millimetres) in a fine grained feldspathic matrix with minor quartz and probable accessory biotite. This appears to be similar to quartz syenites described by Hallberg (1985) from the Pig Well area approximately 4 kilometres to the northeast.

The central succession narrows to the north, from 2200 metres width at Sunset Well to approximately 1100 metres width in the north of the study area. In this northern area the sequence consists of high-Mg basalts to the west and sheared basalt/dolerite to the east with minor exposures of gabbroic dykes.

The eastern margin of the central succession is marked by a major shear zone. The shear crops out to the northeast of Sunset Well (6,808,200mN 346,600mE on Figure 8) along the eastern margin of the east limb of the tholeiitic basalt. Elsewhere the shear is poorly exposed except for two areas of old gold workings. In the north of the study area (6,809,400mN 344,850mE) minor workings are developed in sheared dolerite. To the southeast of the study area, at 6,803,700mN 349,900mE, workings are within sericitic schists and a folded and sheared chert layer.

3.2.2.3 Eastern Succession

The eastern succession comprises the remainder of the study area east of the major shear described above. The sequence is dominated by strongly foliated sericite-quartz schist with minor mafic schist/tholeiitic basalt, chert bands and gabbro/dolerite sills. The succession exceeds three kilometres in width (to the northeast margin of the study area), and is over nine kilometres along strike. Exposure is good in the northeast and southeast on saprolitic subcrop surfaces.

The majority of the succession is composed of strongly foliated very fine grained sericite and sericite-quartz schist with a consistent near- vertical foliation striking 320-330^{O}. Rare weakly-foliated exposures display clastic sedimentary textures (laminated shales and fine sandstones) and the sequence probably represents fine epiclastic or volcaniclastic sediments (siltstone, sandstone and shales).

Numerous discontinuous chert horizons have been mapped within this fine clastic sequence. Limited drilling in this area indicates these banded quartz- hematite rocks represent laminated shales.

A number of the quartz rich units mapped as chert represented silicified shear zones, with deformation preferentially concentrated in bedding-parallel shale horizons and subsequent formation of silicified mylonite zones, silicified sheared shale, and in one outcrop (6,808,100mN 346,650 mE) silicified fault hydrothermal breccia.

The eastern sedimentary sequence has been intruded by gabbro sills (e.g. 6,805,700mN 350,000mE) which are parallel to the regional foliation and sedimentary bedding (where observed). Sills are up to 100 metres wide and over 1000 metres long with bouldery fresh outcrops. In the northeast a unit of chloritic schist is exposed in saprolitic subcrops over an area of 400 x 600 metres. This may represent a strongly sheared dolerite sill or a basalitic extrusive unit within the sedimentary succession.

3.3 SOIL SAMPLING

A number of soil sampling programs have been completed within the study area between February 1992 and September 1993. Three of these will be discussed below as they were conducted over the Prospero prospect and the northern extension of the Prospero shear zone. Two previous soil sampling programs, February 1992 and November 1992, outlined a broad anomalous corridor between 200-600 metres wide and in excess of 6.5 kilometres along strike. This corridor coincides with the Prospero shear zone as defined by drilling (see below).

Following definition of the Prospero prospect, a soil and lag sampling orientation traverse was conducted over the main Prospero soil anomaly.

3.3.1 Soil Sampling Programs - 2/92 and 11/92

The February 1992 soil sampling program was conducted over the original four tenements within the project area, in the southwest of the study area. The main soil anomaly identified in this program outlined the Prospero anomaly; subsequent drilling delineated mineralisation within the Prospero shear zone.

Soil sampling in November 1992 was conducted to the north of the Prospero anomaly. Specifications of the two programs will be outlined followed by combined interpretation of multielement results and relation to regolith setting and mineralisation.

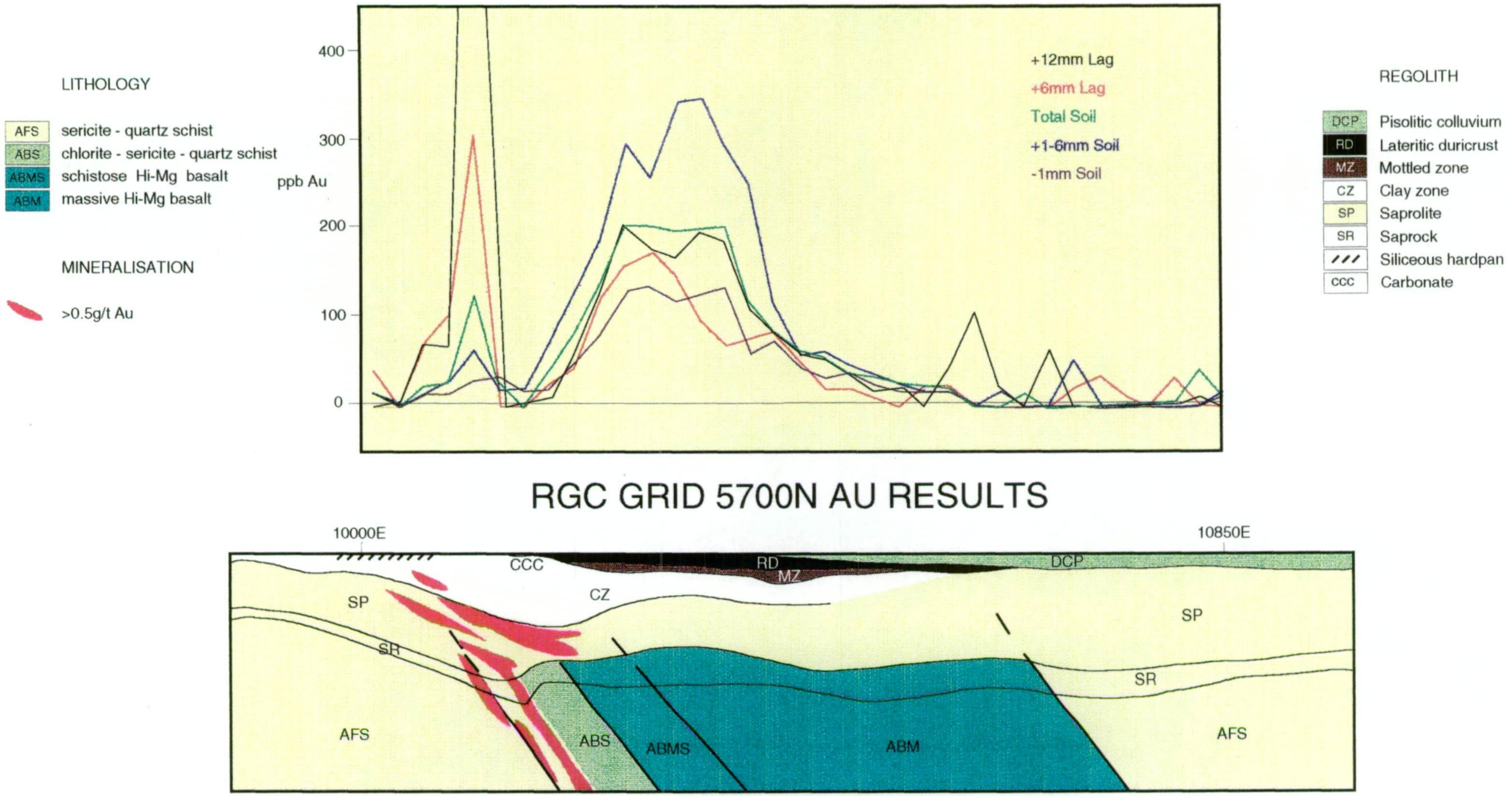
A total of 279 soil samples were taken in February 1992. Samples from two composited sites 50 metres apart on lines 200 metres apart, give a sampling density of 100 x 200 metres. The 2-3 kg, +1-6 millimetre soil samples were analysed for Au by the Fire Assay-Carbon Rod technique (detection limit 1 ppb Au), and ICP-OES for As (5 ppm), Cu (5 ppm), Fe (0.01%), Mn (10 ppm), Mo (10 ppm), Pb (2 ppm), W (2 ppm), and Zn (5 ppm). Gold results for both programs are plotted on Figures 4 and 5.

The main anomaly at Prospero is shown on Figure 5, centred at grid co-ordinates 5800N 10295E. This is a large (500 x 900 metre) bullseye gold anomaly (maximum value 380 ppb Au) over lateritic duricrust and residual pisolitic gravels with yellow-brown cutans preserved. The gold anomaly covers the extent of the residual lateritic outcrop with assays gradually dropping off to the east onto the transported pisolitic backslope. Gold assays along the western side of the anomaly (ca. 5800N 10100E) reflect erosional saprolitic subcrops and soils with results from below detection to 79 ppb Au. A cross section through the centre of the main anomaly, showing the regolith distribution, can be seen on Figure 10.

Tungsten correlates strongly over the anomaly with a similar area outlined and maximum values of 13 ppm W. None of the other elements analysed show coincident anomalies. Arsenic has low values over residual and erosional regime soils in the vicinity of the Propero anomaly and has elevated values (>50 ppm As) outlining the transported pisolitic colluvium.

Other anomalous areas within the February 1992 survey area include:-

i) Weak (6 to 39 ppb Au) gold only anomalies in residual pisolitic gravel soils following the remnant lateritic breakaway to the north of the Prospero anomaly (ca. 6000N 10400E, 6400N 10450E and 6800N 10300E). Most of these samples are from partially preserved laterite or pisolitic gravels with some transported component. Gold grades tend to decrease to the north.



RGC GRID 5700N AU RESULTS

SUNSET WELL PROJECT

SOIL/LAG ORIENTATION LINE REGOLITH GEOLOGY & GOLD RESULTS

Figure 10

ii) A Au-As-Pb anomaly centred at 4800N 9375E is in an area of mapped strong alteration (tourmaline-quartz-sericite-albite-pyrite) and rock chip anomalism called the Oberon prospect. Results of up to 32 ppb Au, 283 ppm As, and 49 ppm Pb are recorded from an erosional lithic-lag dominated soil with scattered saprolitic subcrops.

The November 1992 soil program was conducted to the north of Prospero on an area of erosional saprolitic lag with minor saprolitic subcrops. Soil samples were composed of light brown, weakly ferruginous, kaolinitic soils with scattered lag, composed of variable proportions of lithic fragments, quartz vein fragments and saprolitic iron segregations.

Gold results (see Figures 4 and 5) outline a patchy, weakly anomalous corridor between 7800N 10000-10450E extending over four kilometres to 12000N 10800-11000E. This trend is associated with the northern extension of the Prospero shear zone. Other anomalous areas (eg. 9600N 11800E) are related to different structures and will not be discussed here.

Percentile values for gold and other chalcophile elements analysed are shown in Table 2. Using the 90th percentile for Au (11 ppb) as an anomalous threshold value there are several anomalies within the corridor of up to 800 x 150 metres in area (8600N 10200E). Multielement results display a similar pattern along the corridor with anomalies for W, Sb, Cu, Zn, As and Pb. To display this multielement anomalism adequately, to better define anomalism which may outline mineralisation, and design follow-up drilling, a chalcophile index (CHI) value was calculated based on the technique outlined by Smith and Perdix (1983), and Smith et al. (1992). The CHI index is an additive value based on the abundances of several chalcophile elements. For soil sampling at Sunset Well a CHI index was based on element statistics taken over a number of soil surveys (within mostly erosional saprolitic lag areas) and weighted according to the following formula :-

$$CHI = As + Cu + 5\ Au + 14\ Sb + 21W$$

The CHI values are plotted on Figure 11 and contoured on 90th (347), 95th (404) and 98th (535) percentile values for CHI. This plot shows the strong lateritic anomaly at Prospero and a better defined, although still patchy, anomalous corridor along strike to the north from Prospero which outlines the Prospero shear zone.

Table 2. Gold and chalcophile element distribution statistics for November 1992 soil sampling.

ELEMENT	PERCENTILE VALUES 25%	50%	75%	90%	95%	MAXIMUM VALUES
As (ppm)	25	40	55	70	78	249
Au (ppb)	<5	<5	7	11	17	768
Cu (ppm)	27	58	68	92	95	130
Pb (ppm)	8	12	18	20	26	170
Sb (ppm)	<2	3.0	4.0	5.2	6.8	19
W (ppm)	<2	<2	2.3	3.0	6.0	33.8
Zn (ppm)	5	38	50	66	85	210

3.3.2 Soil/Lag Sampling Orientation Traverse

A soil and lag sampling orientation traverse was conducted over the original Prospero soil anomaly area during September 1992, prior to extensive soil sampling of areas to the north of Prospero. The survey was designed to provide geological information on the regolith setting type and lag components present, and to determine the optimum soil and/or lag sampling size fraction and spacing to detect geochemical anomalies of similar type in other parts of the Sunset Well area.

A total of 35 sites were sampled along a single line (5700N) at 25 metre spacings between 10000E and 10850E. Sample sites were logged for lithology, regolith and lag type. Five sample types were collected at each site for a total of 175 samples:-

i) +12 mm lag (excluding quartz vein lag fragments)
ii) +6 mm lag (excluding quartz vein lag fragments)
iii) total soil (including lag component)
iv) +1-6 mm soil fraction
v) -1mm soil fraction

Analysis was by Instrumental Neutron Activation Analysis (30g charge) for Au (detection limit 5 ppb), As (1 ppm), Sb (0.2 ppm), and W (2 ppm), and by ICP-OES for Cu (5 ppm), Pb

(5 ppm), Zn (5 ppm), Ag (1 ppm), As (1 ppm), Fe (0.01%), Mn (10 ppm), Mo (5 ppm) and Bi (5 ppm). Relative proportions of the various lag components and the regolith code are plotted in Figure 12.

Soil and regolith data and sample assays are listed in Appendix A. Profile plots of the five sample types for W, Sb, As and Pb are presented as Figures 13, 14, 15, and 16 respectively. The diagrammatic cross section in Figure 9 shows Au results and the location of the traverse relative to the regolith and mineralisation at Prospero.

3.3.2.1 Regolith Setting

As can be seen in Figures 10 and 12 the traverse passes from west to east through erosional, residual and depositional regolith units. The complete weathering profile is preserved to the east of 10150E, with the lateritic duricrist layer, east of approximately 10400E being progressively buried under pisolite-dominated sheetwash/colluvium forming a lateritic backslope.

Between 10000E and 10125E the erosional regime soils are thin (less than 0.5 metres), and contain significant quartz and kaolinite and small fragments of fine grained sericite-kaolinite-limonite-quartz-albite schist fragments derived from adjacent saprolitic felsic schist subcrop. At 10075E to 10125E there is no bedrock exposed but felsic schist lithic lag is common. A "goanna" mound formed on a patch of strongly calcareous powdery soil has been sampled at the 10125E site. These calcareous soils are frequently found immediately below lateritic duricrust breakaways indicating the soil is developed on uppermost saprolite (clay zone).

The lag fraction between 10075E and 10125E is composed of ferruginous fragments with minor quartz vein fragments, calcareous nodules, ferruginous saprolitic lithic fragments and pisolitic/nodular material. The ferruginous nodules consist of black and dark brown ferruginous clay lithorelics, occasionally displaying a relict schistosity. The geothitic ferruginous nodule (ironstone), quartz vein fragment, and ferruginous clay lithorelic lag is typical of large areas of the study area with erosional lag soils (unit El on Figures 7 and 8). The relative proportion of these three main components within the study area is dependant on the amount of vein quartz and distance from exposed saprolite.

At the 10175E sample site a thin, lateritic duricrust layer is exposed over an area of approximately 20 x 50 metres and the exposure forms a subtle topographic high with a breakaway to the west. While the orientation traverse has not been levelled there is very low relief. The 10000E (saprolitic subcrop) and 10175E (lateritic duricrust) sites form

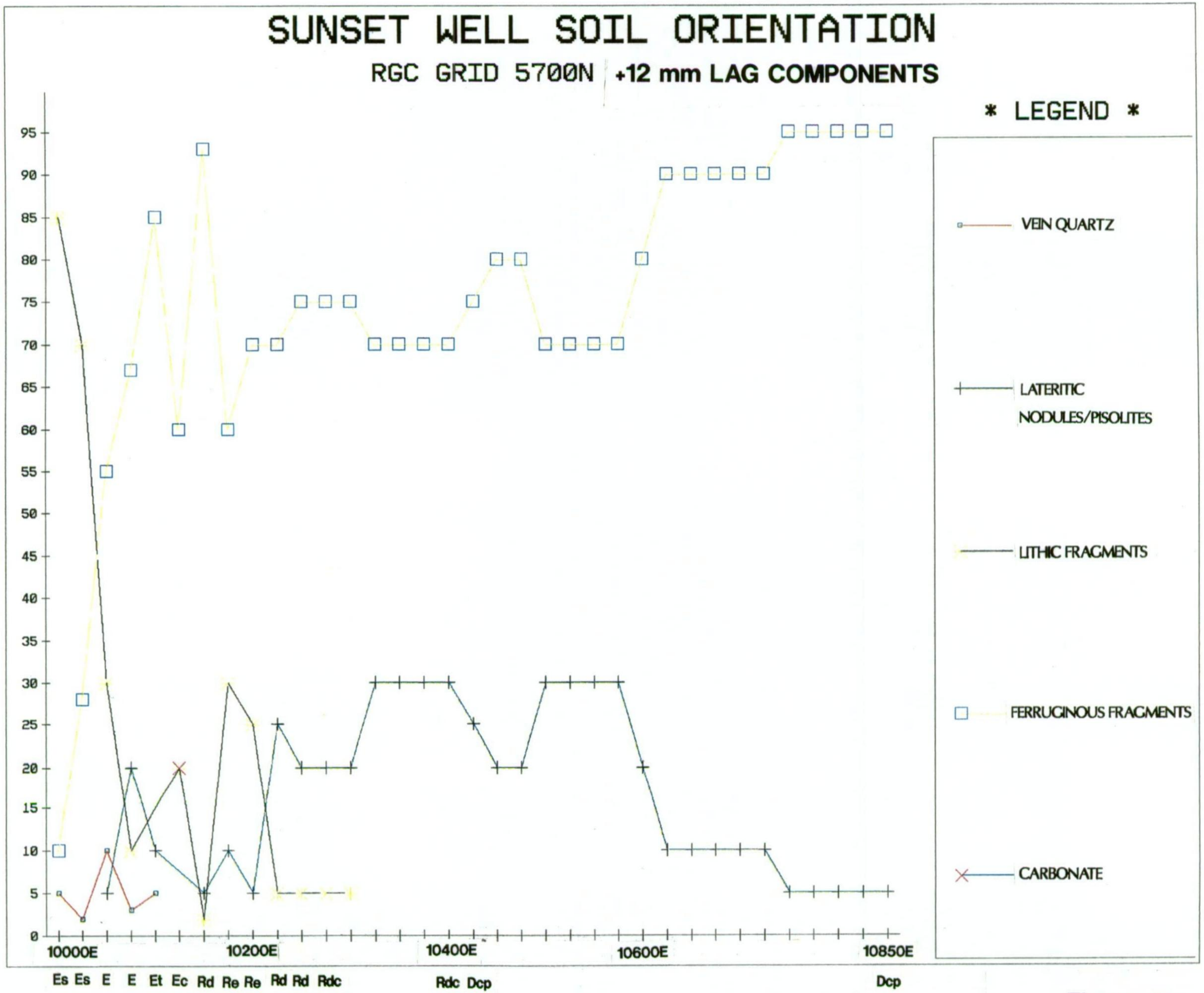

SUNSET WELL SOIL ORIENTATION
RGC GRID 5700N
+12 mm LAG COMPONENTS
* LEGEND *
VEIN QUARTZ
LATERITIC NODULES/PISOLITES
LITHIC FRAGMENTS
FERRUGINOUS FRAGMENTS
CARBONATE
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
10000E
10200E
10400E
10600E
10850E
Es Es E E Et Ec Rd Re Re Rd Rd Rdc
Rdc Dcp
Dcp

Figure 12

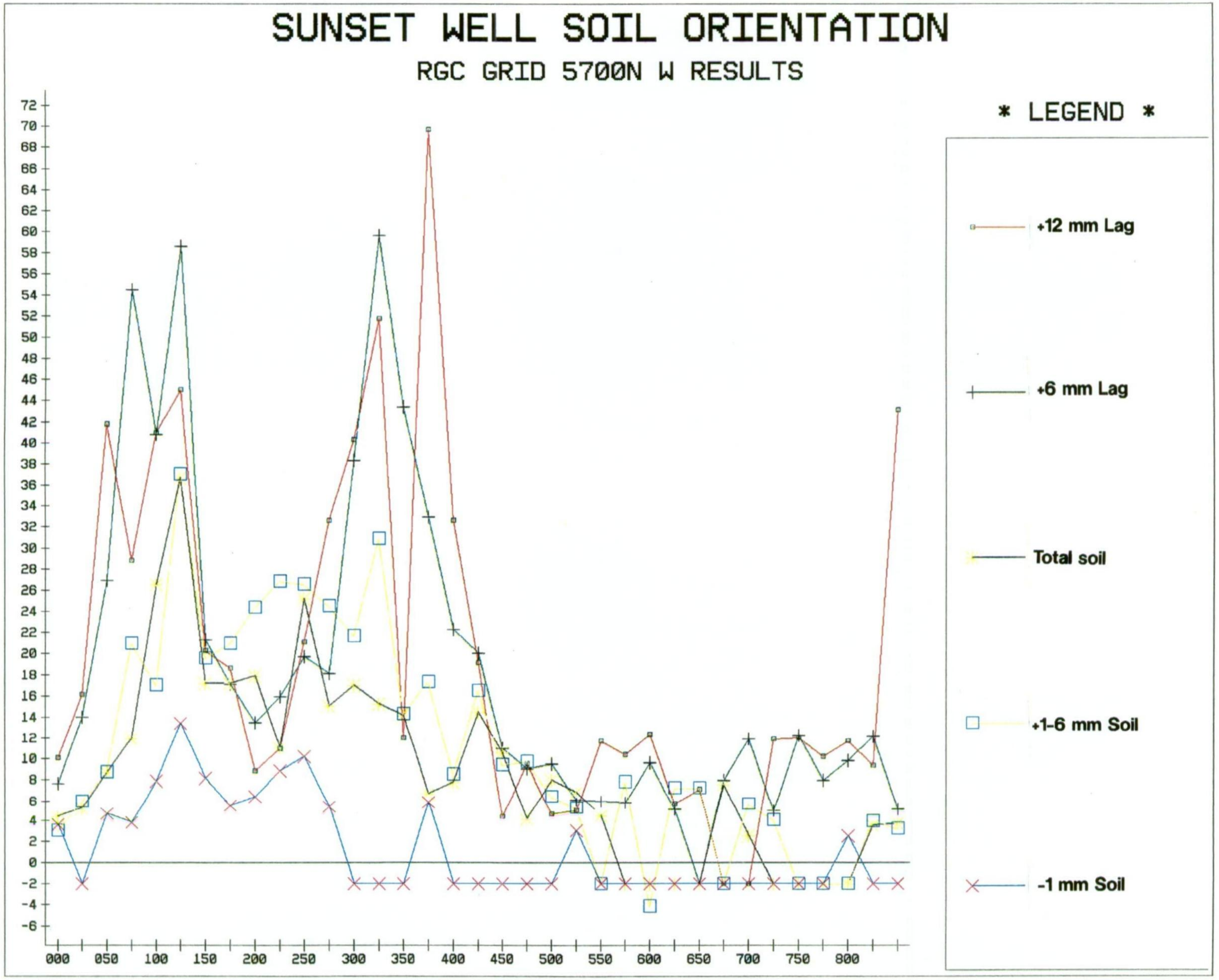
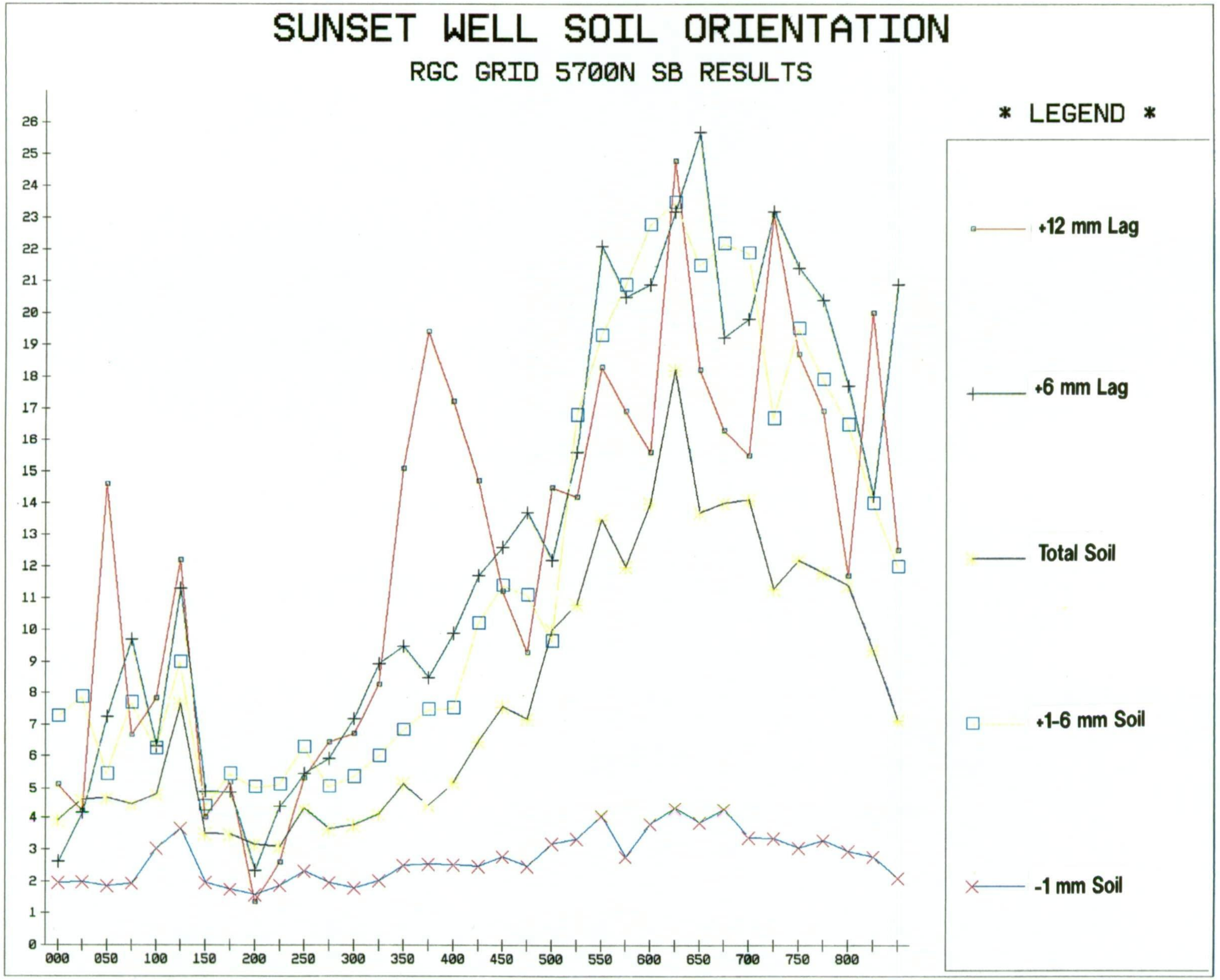

SUNSET WELL SOIL ORIENTATION
RGC GRID 5700N W RESULTS
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
-4
-6
000
050
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
* LEGEND *
+12 mm Lag
+6 mm Lag
Total soil
+1-6 mm Soil
-1 mm Soil

Figure 13


SUNSET WELL SOIL ORIENTATION
RGC GRID 5700N SB RESULTS
* LEGEND *
+12 mm Lag
+6 mm Lag
Total Soil
+1-6 mm Soil
-1 mm Soil
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
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100
150
200
250
300
350
400
450
500
550
600
650
700
750
800

Figure 14

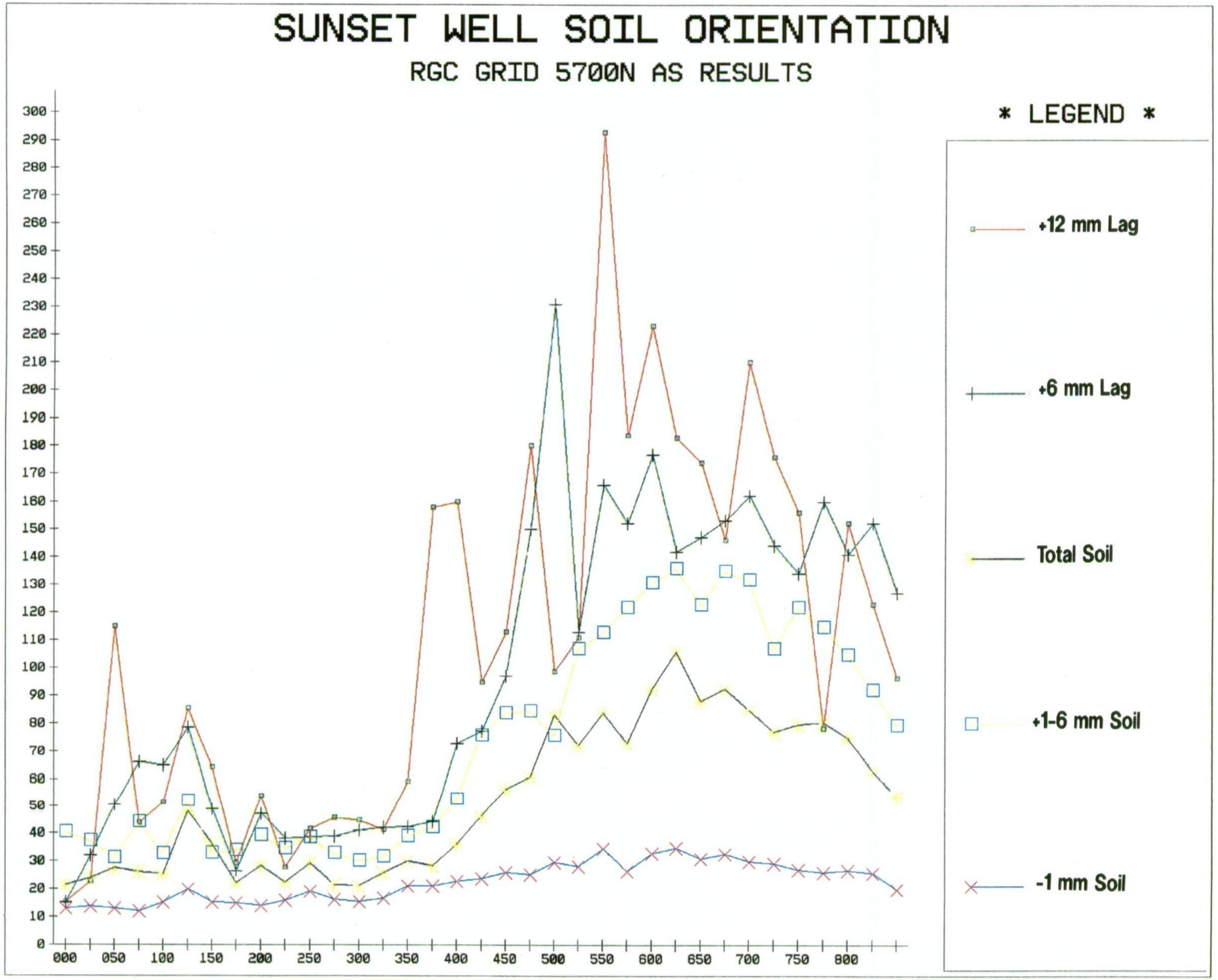
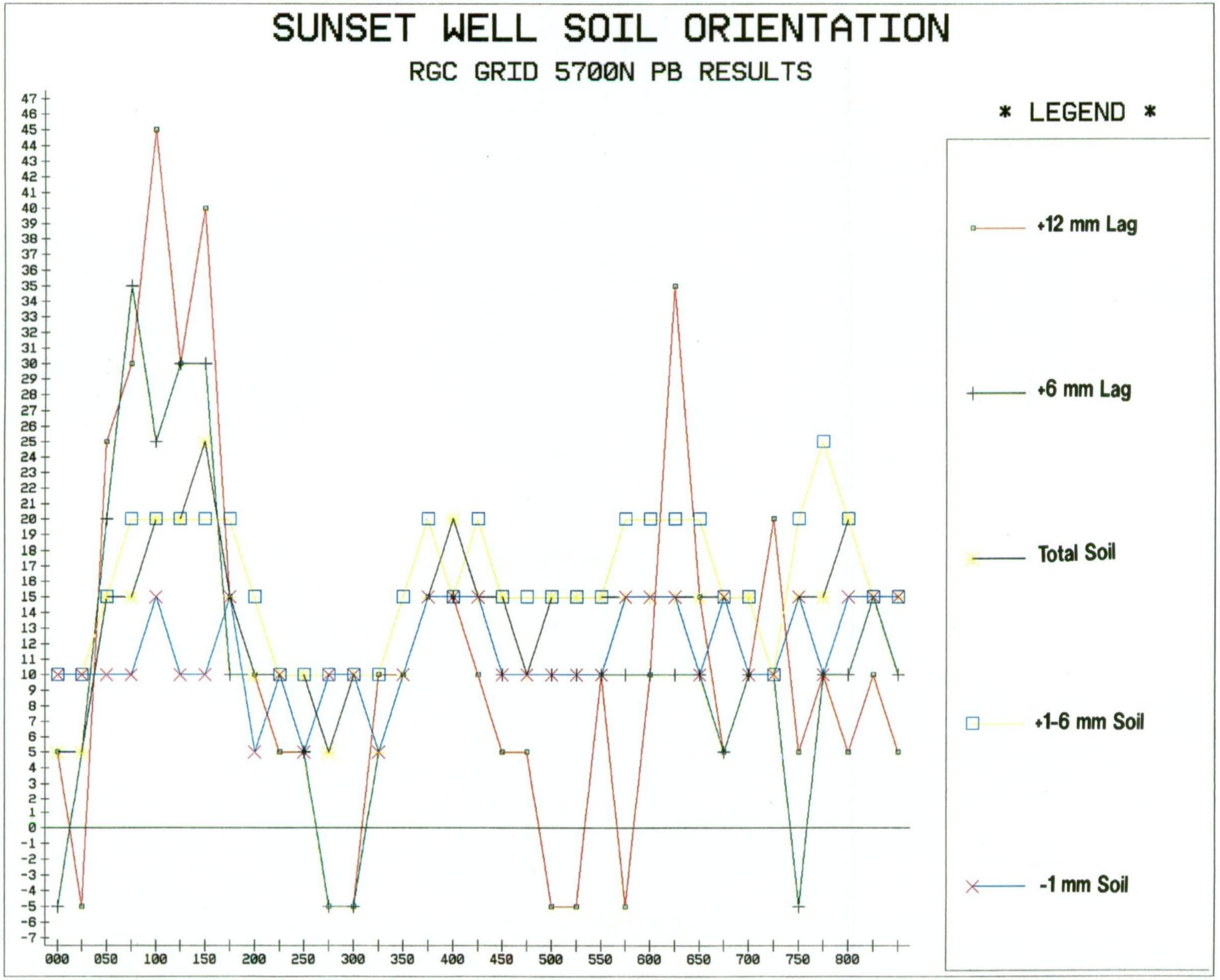

SUNSET WELL SOIL ORIENTATION
RGC GRID 5700N AS RESULTS
* LEGEND *
+12 mm Lag
+6 mm Lag
Total Soil
+1-6 mm Soil
-1 mm Soil
300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
000
050
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800

Figure 15


SUNSET WELL SOIL ORIENTATION
RGC GRID 5700N PB RESULTS
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
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12
11
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9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
000
050
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
* LEGEND *
+12 mm Lag
+6 mm Lag
Total Soil
+1-6 mm Soil
-1 mm Soil

Figure 16

topographic highs with approximately 0.5 metres of relief down to the 10100E site. Between 10175E and 10850E there is a consistent slope down to the east with total relief of less than three metres.

The lateritic duricrust consists of nodules (to 30 millimetres diameter) and pisoliths variably cemented in a dark brown geothite-hematite-clay matrix. The pisoliths are mostly dark brown with minor dark reddish brown and moderate brown coatings and black hematite-geothite nuclei.

East from the duricrust outcrop residual lateritic gravels are found from 10200E to approximately 10400E. The loose pisoliths and nodules have well developed greenish and yellowish brown cutan coatings particularly between 10250E and 10350E. The size of the lag fraction (nodules and pisolites) gradually decreases to the east from average diameters of approximately 20 millimetres (nodular lag) at 10225E, to less than 6 millimetres at 10400E. The proportion of pisoliths with cutan coatings decreases from over 50% at 10300E to less than 5% at 10500E indicating a gradual change from residual lateritic pisolitic gravels to transported pisolitic colluvium. As shown in Figure 10, the residual duricrust and lateritic gravel layer is progressively buried beneath transported pisolite-dominated colluvial gravels down the backslope. The lag fraction between 10400E and 10850E contains increasing amounts of exotic material including coarse (20-100 millimetre) chert ferruginous saprolite and vein quartz fragments. East of the orientation traverse is a major creek with ferricreted and loose pisolitic gravels and gravelly clay alluvium.

Values for geochemical background and threshold levels were not determined as the dataset of 35 sites covering three major regolith units is too small, and the traverse contains true anomalies (Joyce, 1984; Gatehouse, 1993) over most of the erosional and residual areas.

3.3.2.2 Gold Results

Figures 10 shows two significant Au anomalies: one at 10100E, which roughly coincides with the outcrop of the Prospero mineralisation, and the second between 10200E and 10400E over the residual lateritic gravel surface.

The 10100E anomaly has a maximum value (875 ppb Au) in the +6 millimetre lag fraction in a background of less than 50 ppb Au (over the erosional soils 10000E to 10125E). The +12 millimetre lag, total soil and +1-6 millimetre soil fractions have coincident lower magnitude peaks and the -1 millimetre soil fraction has a weak high at 10125E. Best definition of the anomaly relative to background levels for Au is for the two lag fractions followed by the total soil and +1-6 millimetre soil fractions. The lag fractions would be expected to have erratic peaks due to particulate sampling effect.

The lateritic anomaly (10200-10400E) is a broad even bullseye anomaly for all five fractions sampled. The maximum value is in the +1-6 millimetre fraction (i.e. pisolites), with all fractions having peaks of over 100 ppb Au. East of 10400E the values for all fractions gradually decrease indicating either distance from the primary gold source and/or increased transported component. The pisolitic colluvium east of 10500E has low background values and only spikes in the lag fraction samples. Sampling of any of the five fractions would have defined the Prospero lateritic anomaly, however the +1-6 millimetre fraction collecting pisolitic material has the highest magnitude and best definition relative to background levels in residual regimes.

3.3.2.3 Tungsten Results

Tungsten (Figure 13) values range from below detection to 72 ppm, and shows the strongest correlation with the gold pattern, with two peaks at 10050-10125E and in various fractions between 10225-10425E.

At 10050-10125E the maximum values are in the lag fractions (+6 millimetre lag peak 59 ppm W) with well defined anomalies in the total soil and +1-6 millimetre fractions, and a ill-defined peak for the -1millimetre fraction.

The two lag fractions define a slightly higher magnitude anomaly, between 10275E and 10400E, which is not seen in the -1 millimetre fraction. The +1-6 millimetre and total soil samples have moderately anomalous values offset to the west and tapering down to the east. This W peak corresponds with residual pisolitic gravel.

The strong correlation here between Au and W suggests that it is likely that W is held within similar ferruginous materials to Au in the upper regolith, lateritic pisolites (or more specifically probably within the kaolinite/hematite cutan skins on pisolites) in residual regime areas, and saprolitic iron segregation lag fragments in erosional regime areas.

3.3.2.4 Antimony and Arsenic Results

Antimony (Figure 14) and arsenic (Figure 15) have similar geochemical patterns over the traverse. Both elements have a weak peak in all sample fractions at 10075-10125 E coinciding with the Au-W erosional lag anomaly. Neither element has a corresponding lateritic anomaly (ca. 10200-10400E) however all fractions have significantly elevated values in the pisolitic colluvium, showing gradual increases east of 10300E. The distribution of both elements suggests fixing and weak enrichment of As and Sb in saprolitic iron segregations, however the lack of enrichment in the lateritic layer is surprising given the frequent enrichment reported by Smith *et al.*(1992). Enrichment in the transported backslope samples may relate to high background values in exotic transported fragments (eg. chert).

3.3.2.5 Lead Results

Lead values (Figure 16) range from <5 to 45 ppm. The erosional lag anomaly has been outlined by +12 millimetre lag (maximum 45 ppm Pb), +6 millimetre lag (maximum 35 ppm Pb), total soil (maximum 25 ppm Pb), +1-6 millimetre soil (maximum 20 ppm Pb). This distribution suggests that the Pb is held within saprolitic ferruginous lag fragments.

Sampling over the residual area has values <10 ppm and did not outline any lateritic Pb anomaly. The pisolitic colluvial area returned erratic lag assays and slightly elevated soil results compared to the residual area.

3.3.2.6 Zinc Results

Zinc shows a weak anomalous response over the erosional area in the lag fractions and a low contrast anomaly in both total soil and +1-6 millimetre soil fractions. The residual pisolitic material has consistently low Zn assays (most 30-60 ppm Zn), while on the colluvial backslope the lag fractions have erratic elevated values.

This distribution indicates that Zn is not concentrated in lateritic pisolitic material. The erratic lag results over the colluvial area is likely to be derived from transported ferruginous (gossanous) fragments.

3.3.2.7 Copper Results

Copper analyses do not show any coherent anomalous zones related to the Prospero mineralisation. The +12 millimetre lag sampling shows an erratic distribution over the traverse with a general low over the residual area (residual nodular laterite). The +6 millimetre lag has higher values (100-170 ppm Cu) over the erosional area (ferruginous lag), moderate values (100-150 ppm Cu) over the residual area (pisolites), and low values (50-125 ppm Cu) on the colluvial backslope.

3.3.2.8 Other Elements

Iron results show a consistent increase east along the line for all fractions. The transition from erosional to residual soils is outlined by a subtle increase in Fe for the +1-6 millimetre soil (at approximately 20% Fe), however there is no significant break between residual pisolitic soils and pisolitic colluvium.

Manganese has highest values in the soil samples (particularly the -1 millimetre soil) on the pisolitic colluvium surface, possibly related to hardpan development in colluvium.

Bismuth and silver results were all below the detection limits of 5ppm and 1ppm respectively. Molybdenum results were mostly below detection (5 ppm) with some values of up to 20 ppm, but no trends or correlations were apparent.

3.3.2.9 Conclusions

The main conclusions relating to the identification of mineralisation from the orientation data are:-

i) Gold results in the residual regime show the highest magnitude and probably the best contrast from background values in the +1-6 millimetre soil fraction, suggesting that gold is held with lateritic nodules and pisolites. This has been noted from numerous areas in lateritic terrains (e.g. Anand and Smith, 1993).

ii) In the Prospero mineralisation lateritic anomaly tungsten is the only element analysed that shows a similar anomalous pattern to gold. The lateritic gold anomaly is a broad well defined high (over 200 metres wide) and all five fractions would have detected anomalism over the same area. Tungsten has reasonably well defined anomalism over the same area in the lag and +1-6 millimetre soil fractions only. Sampling of the +1-6 millimetre fraction at 100 to 200 metre spacings would be adequate to detect this style of mineralisation in residual material (either surface or drill sampling).

iii) In erosional regime soil areas the highest magnitude gold anomalies are in the two lag fractions suggesting that gold is held within saprolitic ferruginous segregations. These fractions have highly erratic data, whereas the +1-6 millimetre soil and total soil fractions have more consistent data with moderate anomaly contrasts.

iv) The gold anomaly related to Prospero mineralisation cropping out in the erosional regime has correspondingly well-defined tungsten and lead anomalies, and weak arsenic, antimony, copper and zinc anomalies discernable mostly on the coarser (saprolitic ferruginous segregation) sampling fractions.

v) The erosional regime anomalies require sample spacings of less than 50 metres across strike.

vi) To adequately test areas with predominantly erosional regime area and minor residual soils it was decided to use a +1-12 millimetre size fraction soil (including surface lag from the sample site) sample. Two sites 25 metres apart were composited to give a sampling density of 50 x 200 metres.

3.4 BOTTOM HOLE RAB MULTIELEMENT ANALYSIS

A suite of 310 samples from RAB drilling were analysed for Ca, K, Na, Rb and Sr to attempt to map the phyllic alteration pattern associated with gold mineralisation along the Prospero shear zone. Identification of the phyllic halos associated with mineralisation, determined by K, Na, Rb, and Ba analysis of pisolitic lag and XRD identification of muscovite in lag fragments, has been investigated in the Bottle Creek area (80 km west of Leonora) by Robertson and Wills (1993).

A total of 310 RAB drill holes along the Prospero trend were chosen and pulps from the four metre composite bottom of hole sample, initially analysed for gold only (Fire Assay, Detection Limit = 0.01 ppm), were re-analysed by ICP-OES for Ca and Sr, and by Instrumental Neutron Activation Analysis for K, Na and Rb. Data is listed in Appendix B while percentile values for elements are listed in Table 3.

Table 3. Percentile values for alteration index elements from bottom hole RAB sampling.

ELEMENT	PERCENTILE VALUES					MAXIMUM
	25	50	75	90	95	VALUES
Ca	0.07	0.15	0.65	2.00	2.50	5.54
K	0.22	0.32	0.53	0.65	1.00	1.59
Na	0.60	1.08	1.50	1.80	2.20	3.43
Rb	25	32	45	60	80	116
Sr	20	28	45	65	100	204
K/Na	0.25	0.45	0.75	1.40	2.20	7.42

All holes were RAB drilled to saprock/blade refusal at depths of three to 88 metres with almost all holes being drilled dry and of comparatively good quality for the RAB technique. Samples analysed were mostly of saprock material, with few holes terminated in lower saprolite materials.

Contoured plots of potassium results are shown in Figure 17, while Figure 18 shows the K/Na ratio data.

Potassium contoured at 0.53% (75th percentile) outlines an almost continuous linear zone over seven kilometres long, striking N-S, which is up to 300 metres wide. This anomaly matches extremely well with the Prospero shear zone, also shown on Figure 17, as defined by geological logging. The higher grade (>90th percentile 0.65% K) and wider zones of anomalous potassium match very well with observed sericitic (phyllic) alteration along the Prospero shear. The high K values (up to 1.12%) between 5700-6700N outline the gold mineralisation at the Prospero prospect. The Oberon prospect is also outlined by anomalous K results, the maximum K value (1.59% K) being from the RAB hole (in this dataset) with the highest gold value at Oberon (0.20 ppm Au).

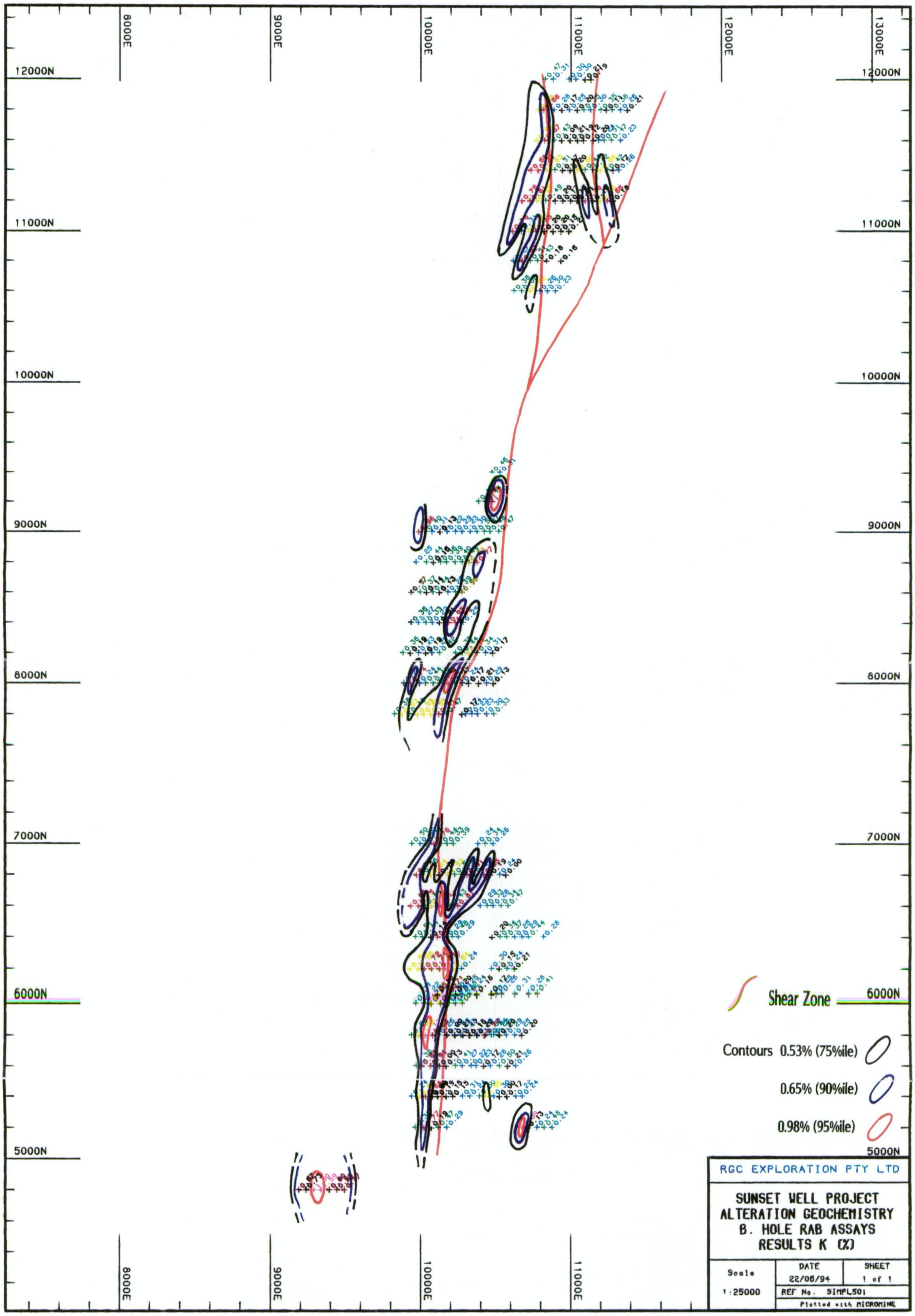
Sodium contours show moderate correlation with the phyllic zone outlined by K results and geological logging of albitic alteration. The K/Na ratio (Figures 18) shows a similar pattern to K and at the 95th percentile value (K/Na=2.2) outlines the higher grade core of the Prospero mineralisation very well.

Other elements (Sr, Rb, and Ca) did not display significant trends that could be attributed to alteration along the Prospero trend.

3.5 RAB DRILLING MULTIELEMENT GEOCHEMISTRY

RAB drilling which outlined the saprolitic mineralisation at the Prospero prospect, was analysed for a multielement suite, as well as for gold, to determine chalcophile element anomalism and correlation of these elements with the gold mineralisation.

A total of 1726 samples from four metre composite samples in 153 RAB holes were analysed by ICP-OES for Ag (detection limit 1 ppm), As (5 ppm), B (10 ppm), Cu (5 ppm), Fe (0.01%), Mn (10 ppm), Mo (10 ppm), Pb (5 ppm) and Zn (5 ppm), as well as by Fire Assay (detection limit = 0.01 ppm) for gold. Holes were drilled on a 50 x 200 metre pattern mostly

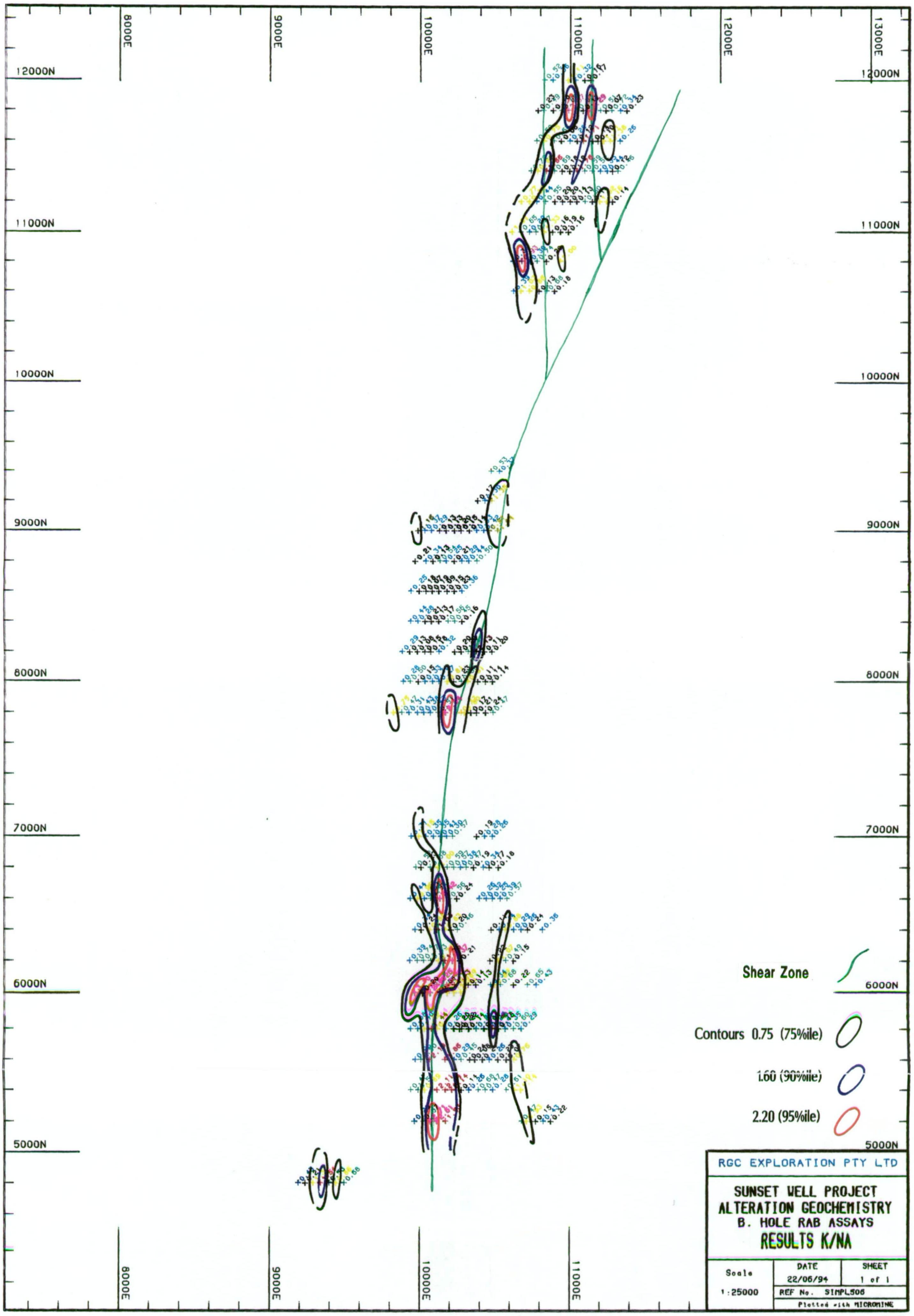


RGC EXPLORATION PTY LTD

SUNSET WELL PROJECT
ALTERATION GEOCHEMISTRY
B. HOLE RAB ASSAYS
RESULTS K (%)

Scale	DATE	SHEET
1:25000	22/06/94	1 of 1
	REF No. SIMPL501	
	Plotted with MICROMINE	

Figure 17



RGC EXPLORATION PTY LTD

SUNSET WELL PROJECT
ALTERATION GEOCHEMISTRY
B. HOLE RAB ASSAYS
RESULTS K/NA

Scale	DATE	SHEET
1:25000	22/06/94	1 of 1
	REF No. SIMPL506	

Plotted with MICROMINE

Figure 18

angled to grid west with depths of up to 77 metres. Samples were taken from the surface to the bottom of the hole and include, transported alluvium and pisolitic colluvium, residual gravels, lateritic duricrust, mottled zone, clay zone, saprolite and saprock. Clay zone and saprolitic material accounting for approximately 85% of data set .

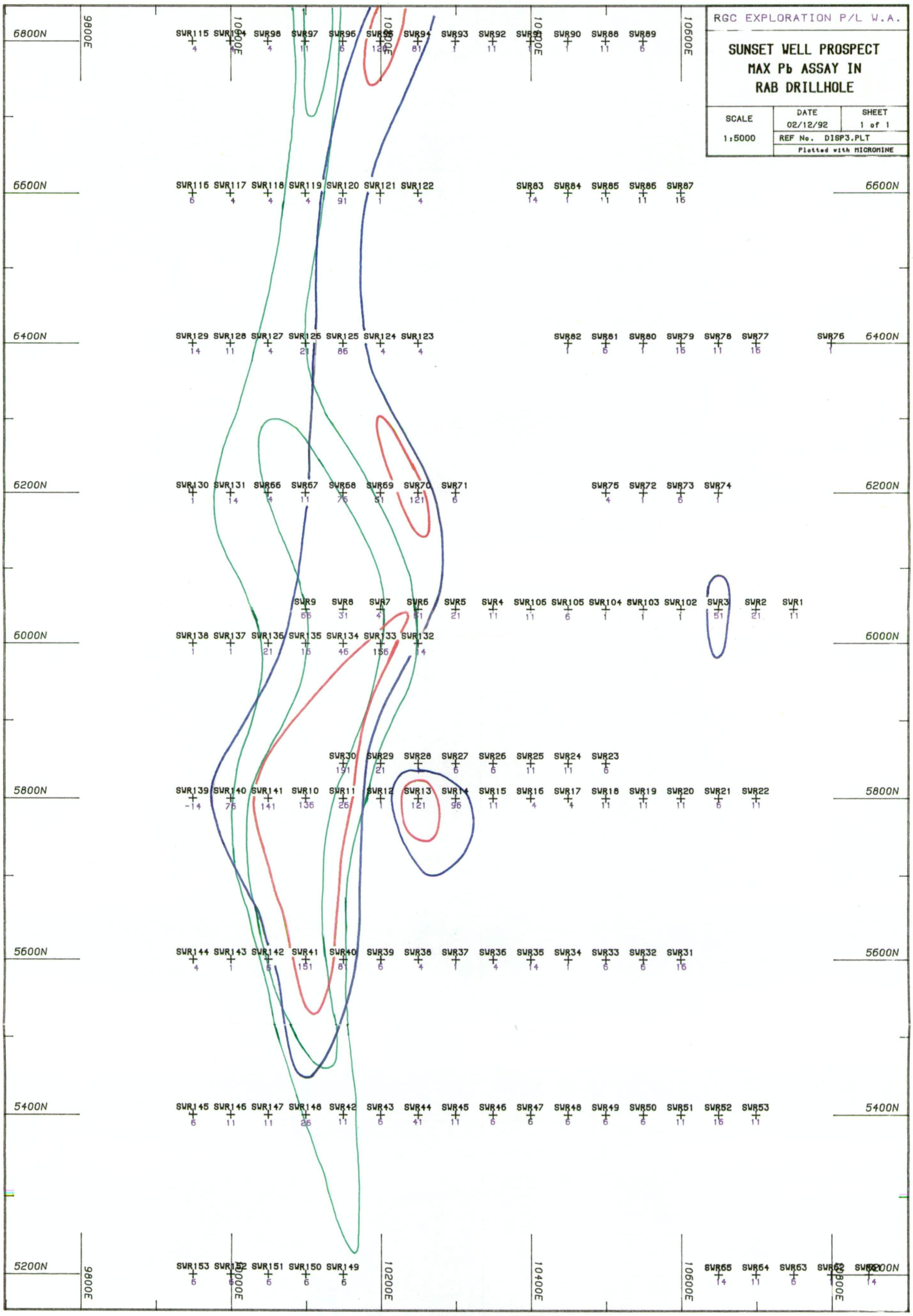
Bivariate correlation coefficients and visual inspection of X-Y scatter plots show none of the chalcophile elements have any significant correlation with the gold results. The majority of the samples in this dataset are saprolitic and the lack of direct correlation with gold suggests that while there is chalcophile enrichment in the saprolite it is not coincident with gold accumulations due to differing chemical mobilities and precipitation levels during arid-phase supergene redistribution. The only geological trend in the Au scatter plots was a correlation of weak Au enrichment (0.05 to 0.40 ppm Au) in samples with 21 to 28 % Fe coming from lateritic duricrust and residual gravel samples, which was to be expected.

Weak correlations (Pearson correlation coefficents = 0.2-0.44) were noted for As-Sb, Cu-Zn, Zn-Mn and As-Fe. These correlations indicate similarities in the chemical mobilities and levels of precipitation of the metals within the supergene saprolitic environment.

The spatial distribution of elements was investigated by calculation of the maximum elemental value for each hole, and plotting a series of plans contoured for each element. These plots show lateral saprolitic dispersion patterns without showing the varied vertical differentiation resulting from arid phase supergene redistribution. Figures 19, 20, 21, and 22 show Pb, W, As and B results respectively, the outline of 0.5 and 1.0 ppm Au mineralisation over the Propero prospect is also shown on Figure 22.

Anomalous Pb results (Figure 19) coincide very well with the gold mineralisation (Figure 22); the 30 ppm max.-in-hole Pb contour outlining the Prospero shear zone with a similar distribution to the 0.5 ppm Au halo. The 100 ppm max.-in-hole Pb contour outlines part of the higher grade Au mineralisation.

The main zone of anomalous W (>30 ppm max.-in-hole W), shown on Figure 20, coincides with the southern part of the Prospero mineralisation and the higher W values (200-420 ppm max.-in-hole W) coincide with the area of higher gold grades (5800-6100N). This anomaly suggests W has a more restricted distribution compared to Au within the saprolite. The W anomaly at 5800N 10550E is contained in residual lateritic material (pisolitic gravels and thin duricrust). Although some 600-900 metres distant from the saprolitic Au mineralisation it is considered related and indicates the wide lateral distribution of W anomalies within lateritic material (up to 1000 metres distant from bedrock Au mineralisation at Prospero).


RGC EXPLORATION P/L W.A.
SUNSET WELL PROSPECT
MAX Pb ASSAY IN
RAB DRILLHOLE
SCALE
1:5000
DATE
02/12/92
SHEET
1 of 1
REF No. DISP3.PLT
Plotted with MICROMINE
6800N
6600N
6400N
6200N
6000N
5800N
5600N
5400N
5200N
9800E
10000E
10200E
10400E
10600E
10800E
SWR115 4
SWR114 11
SWR98 4
SWR97 11
SWR96 6
SWR95 126
SWR94 81
SWR93 1
SWR92 11
SWR91 1
SWR90 1
SWR88 11
SWR89 6
SWR116 6
SWR117 4
SWR118 4
SWR119 4
SWR120 91
SWR121 1
SWR122 4
SWR83 14
SWR84 1
SWR85 11
SWR86 11
SWR87 16
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SWR80 1
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SWR78 11
SWR77 16
SWR76 1
SWR130 1
SWR131 14
SWR66 4
SWR67 11
SWR68 76
SWR69 51
SWR70 121
SWR71 6
SWR75 4
SWR72 1
SWR73 6
SWR74 1
SWR9 66
SWR8 31
SWR7 4
SWR6 51
SWR5 21
SWR4 11
SWR106 11
SWR105 6
SWR104 1
SWR103 1
SWR102 1
SWR3 51
SWR2 21
SWR1 11
SWR138 1
SWR137 1
SWR136 21
SWR135 16
SWR134 46
SWR133 156
SWR132 14
SWR30 191
SWR29 21
SWR28 1
SWR27 6
SWR26 6
SWR25 11
SWR24 11
SWR23 6
SWR139 -14
SWR140 76
SWR141 141
SWR10 136
SWR11 26
SWR12 1
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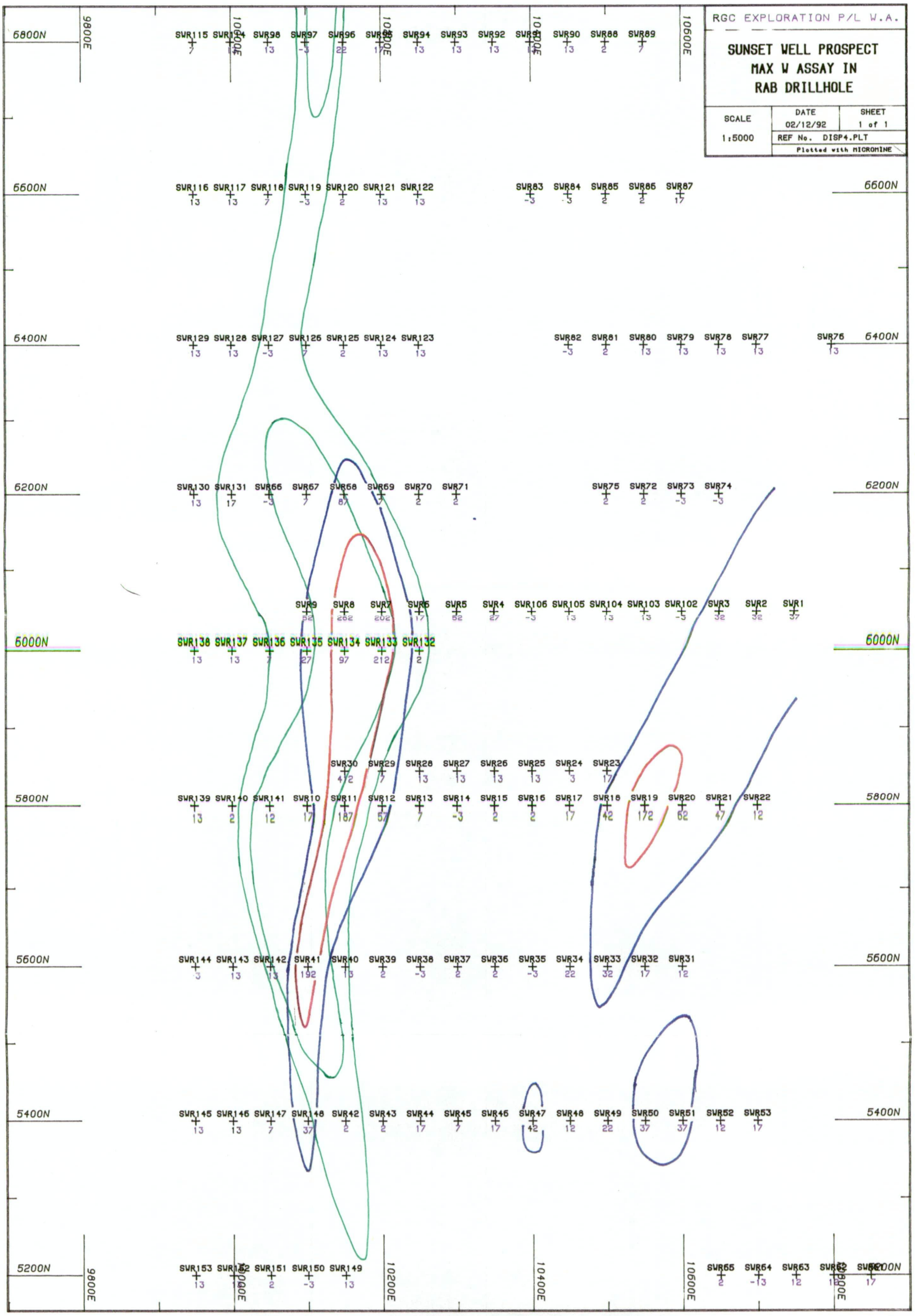
SWR21 6
SWR22 11
SWR144 4
SWR143 1
SWR142 6
SWR41 151
SWR40 81
SWR39 6
SWR38 4
SWR37 1
SWR36 4
SWR35 14
SWR34 1
SWR33 6
SWR32 6
SWR31 16
SWR145 6
SWR146 11
SWR147 11
SWR148 26
SWR42 11
SWR43 6
SWR44 41
SWR45 11
SWR46 6
SWR47 6
SWR48 6
SWR49 6
SWR50 6
SWR51 11
SWR52 16
SWR53 11
SWR153 6
SWR152 6
SWR151 6
SWR150 6
SWR149 6
SWR65 14
SWR64 11
SWR63 6
SWR62
SWR61 14
30ppm 100ppm Contours
0.5ppm 1.0ppm Gold Outline

Figure 19



RGC EXPLORATION P/L W.A.

SUNSET WELL PROSPECT
MAX W ASSAY IN
RAB DRILLHOLE

SCALE	DATE 02/12/92	SHEET 1 of 1
1:5000	REF No. DISP4.PLT	
	Plotted with MICROMINE	

Figure 20

30ppm 100ppm Contours

0.5ppm 1.0ppm Gold Outline

RGC EXPLORATION P/L W.A.

SUNSET WELL PROSPECT
MAX As ASSAY IN
RAB DRILLHOLE

SCALE	DATE	SHEET
1:5000	02/12/92	1 of 1
	REF No. DISP1.PLT	
	Plotted with MICROMINE	

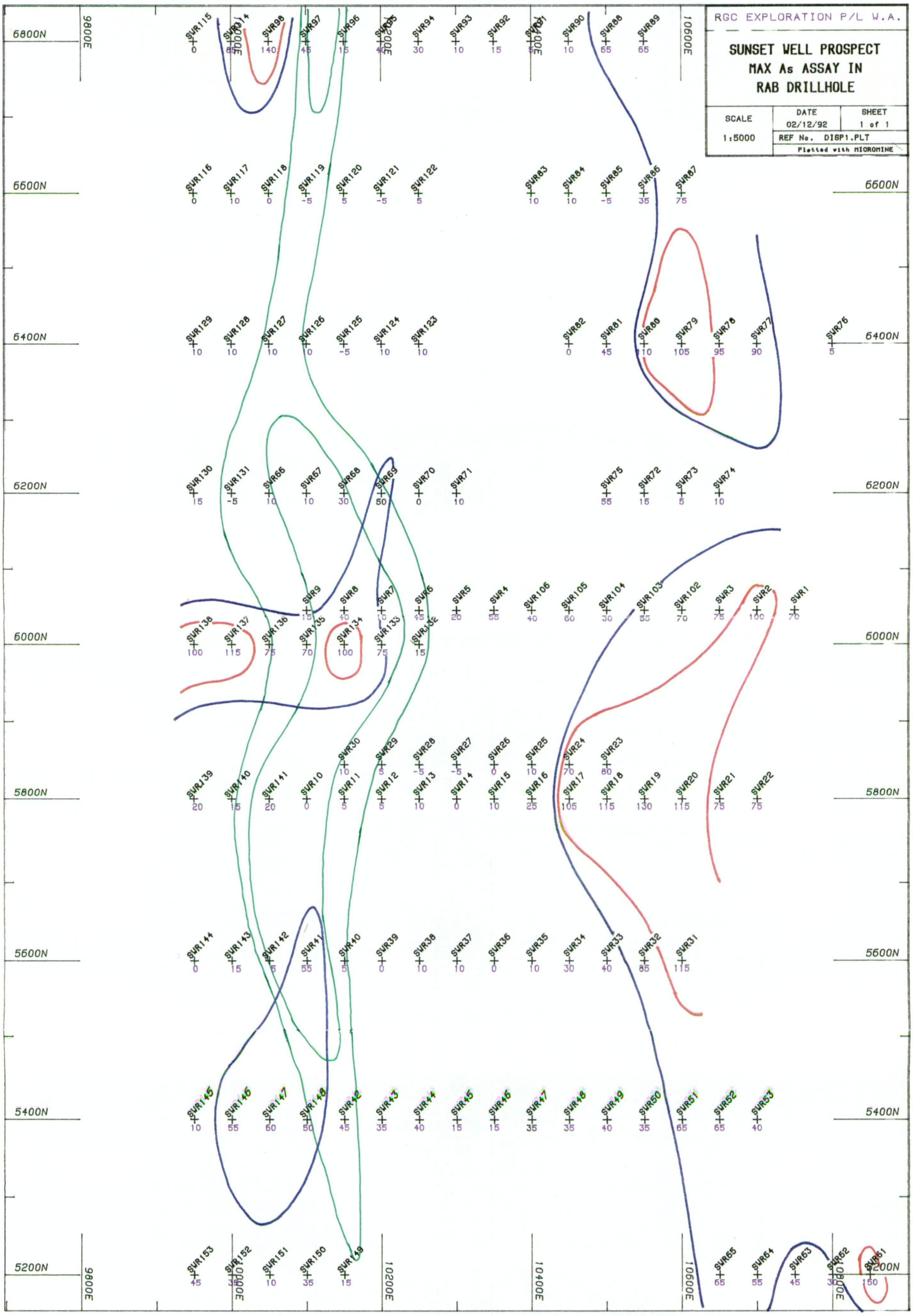
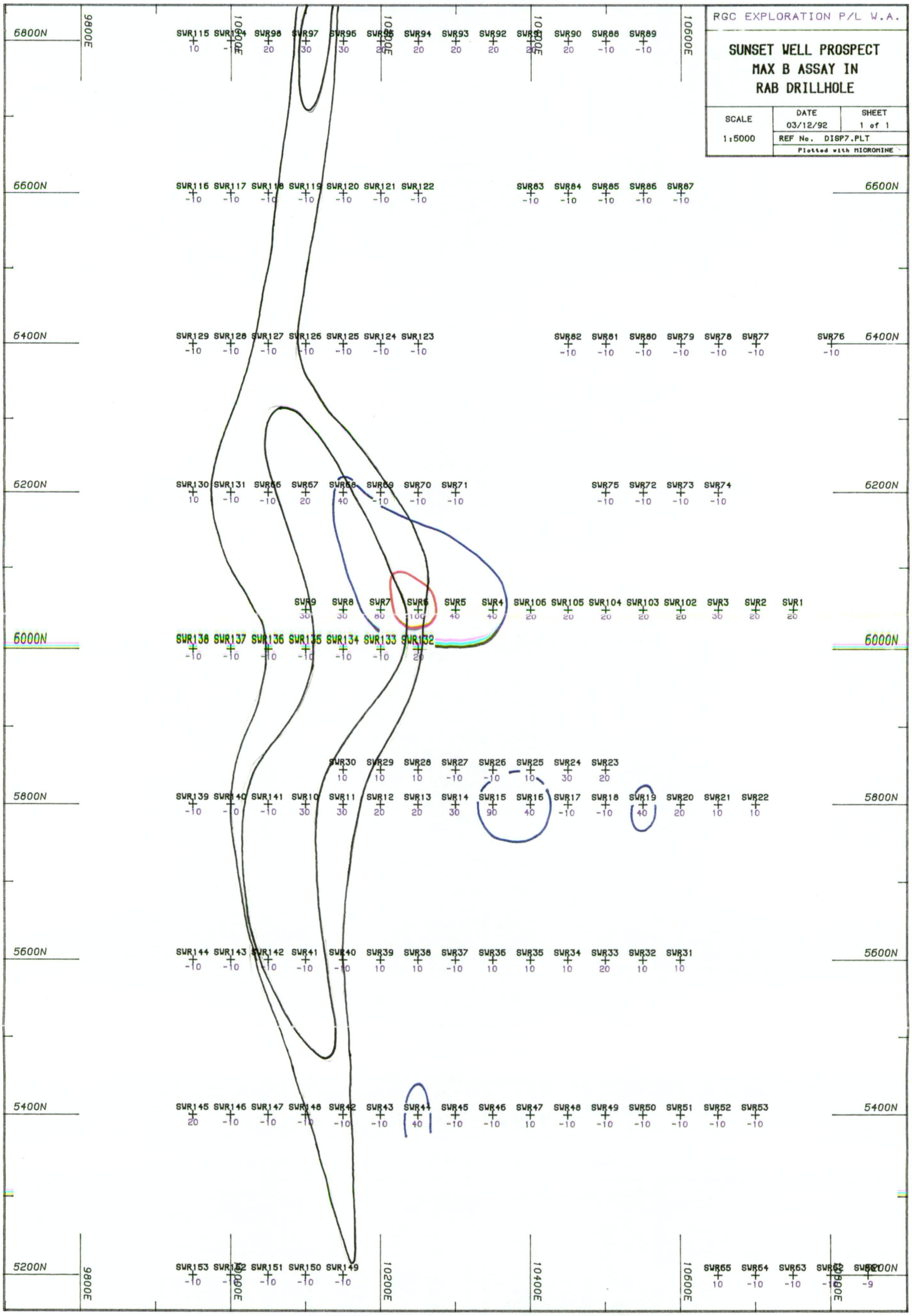


Figure 21

/ / 50ppm 100ppm Contours

○ 0.5ppm 1.0ppm Gold Outline



RGC EXPLORATION P/L W.A.

SUNSET WELL PROSPECT
MAX B ASSAY IN
RAB DRILLHOLE

SCALE	DATE	SHEET
	03/12/92	1 of 1
1:5000	REF No. DISP7.PLT	
	Plotted with MICROMINE	

Figure 22

/ / 40ppm 100ppm Contours

0 0.5ppm 1.0ppm Gold Outline

The largest area of anomalous As (Figure 21) is to the east of 10400E, where it outlines the area of transported colluvium on the backslope with samples with the maximum As value in these holes mostly coming from surface to 12 metres depth and sampling pisolitic colluvium. The max.-in-hole As anomaly at 6000N 10150E overlaps with the higher grade Au mineralisation.

Anomalous B results (Figure 22) indicate the presence of tourmaline which is highly resistant to weathering and stable throughout the weathering profile. The B high adjacent to Au mineralisation indicates minor tourmaline is present within the Prospero alteration system.

These max.-in-hole contoured plans give an idea of the relative geochemical dispersion patterns within the regolith profile. Supergene redistribution of elements is controlled by the mineral host and chemical (Eh, pH, solution chemistry) and physical (rocktype, topography) conditions (Lawrance, 1993; Smith et al., 1992). In the Prospero area W shows a more restricted distribution in saprolite, relative to gold, but in lateritic material shows wide lateral dispersion (anomalous up to 1000 metres from the primary zone) providing a larger target for geochemical prospecting. Anomalous Pb provides a similar sized target to Au in the saprolite but is not enriched in lateritic material. Boron, locked within stable tourmaline, is essentially immobile in the regolith, but may be physically enriched in surface lag.

4. PROSPERO MINERALISATION

4.1 INTRODUCTION

This section describes the features of gold mineralisation at the Prospero prospect. The prospect here is restricted to the area of infill RC and diamond drilling, on which the inferred resource is based. Local grid coordinates 5300N 10000E and 6700N 10300E outline an area of 1400x300 metres. The prospect can be located on the mapping of the study area in Figures 7 and 8, while Figure 23 shows drilling and bedrock lithologies present in the prospect area.

4.1.1 Work Completed

Exploration work completed at the Prospero prospect during the last 30 month period is outlined below:-

- As part of a regional reconnaissance project generation program carried out by K. Watkins, several samples were taken in the vicinity of Prospero and within 500 metres to the southwest and northwest. A single rockchip was taken from a ferruginous sericite-albite-quartz-hematite schist at coordinates 6,805,200mN 345,550mE. A 116 ppb Au assay was recognised as highly anomalous for a sample of saprolitic material in an area with no old workings, and was the basis of pegging the original tenement block (Prospecting Licences P37/4144-4147) in late 1991.

- Subsequent to granting of the tenements a brief geological survey was made of the area to assess suitability for soil sampling. The area was gridded and soil sampled during February 1992, details of the soil sampling program and anomalies generated are discussed in section 3.3.1 above.

The original reconnaissance rock chip sample was taken from grid coordinates 5800N 10050E, on the western margin of the Prospero soil anomaly.

- Anomalies outlined by the soil sampling program were RAB drilled on a 50 x 200 metre grid during May to June 1992. Details of these programs can be found in Grey (1993), drillhole locations are shown on Figure 23 .

- A 34 hole RC drilling program was completed in the area during October 1992. Holes were spaced at 50 x 100 metres over the zone of >0.1 ppm Au RAB anomalism. Drilling was mostly to 80 metres depth and designed to outline the saprolitic resource area.

- In November 1993 a further 22 RC holes were drilled to depths of 80 to 140 metres. Holes were sited to partially infill the higher grade sections of the resource and to test the mineralisation in fresh bedrock. Four of these holes intersected the primary mineralised intervals.

- Two diamond drill holes were drilled through the primary mineralised zone in February 1994.

- Thin sections or polished thin sections were prepared for five rock chip samples from the area of rock chip anomalism (ca. 5800N 10050E), six RC drill chip samples from saprolitic and saprock mineralised intercepts, and five mineralised fresh rock intercepts in the diamond drillholes.

4.1.2 Description and Interpretation

The general geological setting of the deposit will be discussed based on mapping and RAB/RC drilling information. Comment will be made on the regolith setting and broad structural features, however a detailed structural study of the deposit has not been attempted.

Over 90% of the currently outlined resource is within the weathered profile, there has been significant supergene gold remobilization (Lawrance, 1993) and the general features of this supergene mineralisation will be discussed.

Intercepts of bedrock mineralisation are restricted to the two diamond drillholes and four RC drillholes. Features of the mineralisation, wallrock alteration, ore mineralogy, geochemistry, structure and intrusives will be outlined and timing relationships and a genetic model for mineralisation will be developed.

4.2 GEOLOGY OF THE PROSPERO AREA

4.2.1 Regolith Setting

The surface regolith pattern in the Prospero area has been discussed above with reference to geochemical sampling programs and will not be discussed further. However some comment on the subsurface weathering profile is required.

The depth of weathering varies substantially with changes attributed to, lithological variation, structural and alteration features, amount of erosion and thickness of transported cover. This variation is best illustrated by estimation of the vertical depth to the saprolite/saprock boundary as most of the RAB holes have terminated in saprock material. This depth includes residual layers (duricrust and residual gravels) but excludes transported overburden, and varies from one metre to approximately 65 metres.

The mafic hanging wall sequence, described below, is generally weathered to depths of 30-50 metres between 5000N and 6200N. This covers most of the resource area, and includes the remnant of lateritic duricrust, between 5700N and 6000N, where depths are mostly 40-50 metres. North of 6300N is a zone of shallow weathering 1-30 metres where relatively fresh massive high-Mg basalt subcrops on a flat erosional lag surface (ca. 6450N 10300E). The western contact of this unit with the sheared footwall sequence, frequently has an abrupt increase in weathering depth (eg. on line 6300N depth to saprock at 10200E of five metres in high-Mg basalt and 58 metres at 10120E in sericite-quartz schist).

The depth of weathering of the footwall schists varies from approximately 10 metres to 65 metres. Cross sections (eg. Figures 10 and 24) show an increase in depth from west to east resulting from increased erosion to the west, and progressive increase in shearing and alteration to the east. The level of erosion increases to the west with complete profiles over parts of the eastern mafic unit and outcrops of lower saprolite to the west of the deposit (eg. 5800N 9950E). Increases in depth of weathering with increased shearing or faulting and more intense alteration, particularly phyllosilicate alteration, relating to mineralised systems, are common in the Yilgarn.

4.2.2 Bedrock Lithology

The general geological setting of the Prospero mineralisation is within a sheared contact between "felsic" (sericite-quartz) schists to the west and high-Mg basalt to the east. Within this broad (50-200 metres wide) shear zone, developed mostly within phyllosilicate altered felsic schists, primary textures are destroyed and alteration/structural features make protolith identification difficult. The shear zone dips at 40-60^{O} to grid east (50/330E) over the resource area, however to the north the strike varies between 325-350^{O} (at 7500N).

4.2.2.1 Western Footwall Schists

The western footwall schists crop out to the west of the 10,000E baseline between 5600N and 6300N where the upper-middle saprolitic exposures have been mapped as very finegrained, strongly foliated sericite-quartz- albite-geothite schists. Rare exposures display fine clastic textures over- printed by a moderate-to-strong foliation.

Diamond drilling in the northeastern Oberon area at 5600N 9650E and 5550N 9690E, is approximately 300 metres west of the Prospero area. These holes intersect an andesitic-derived volcaniclastic sequence. Saprolitic subcrop exposures between these areas outline a contiguous sequence of sericite-quartz schists which extends over much of the Oberon area further to the south and west.

The predominant lithology outlined over the area including the northeastern part, is andesitic-derived volcaniclastics (see section 3.2.2.1 and Appendix C Plate 1). The area to the immediate west of Prospero is interpreted to be fine grained andesite-derived volcaniclastic sediments and possibly minor sandy breccias. This fine grained andesite-derived volcaniclastic sediment footwall lithology is similar over the strike length of the Prospero area between 4800N and 7000N. Similar sericite-quartz schists have been encountered to the west of the Prospero shear zone in RAB drilling between 7000N and the northern limit of the study area (ca. 12000N 10600E).

4.2.2.2 Eastern Hangingwall High-Mg Basalt

The sequence to the east of the Prospero shear is massive to moderately foliated high-Mg basalt. The general features of this sequence have been described above in section 3.2.2.2. Approaching the Prospero shear zone the basalt becomes progressively more deformed over a zone exceeding 100 metres wide. Within the shear zone primary textures are destroyed and the unit is described as chlorite-tremolite and chlorite schist.

4.2.2.3 Porphyry Dykes

Several drillholes have intercepted thin (0.5-7 metres wide) plagioclase- phyric porphyry dykes within the Prospero shear zone between 5500N 10050E and 6600N 10190E. Dykes are subparallel to foliation, generally dipping at 40-60^{O} to grid east (50/327E), and hosted by sheared basalt, sericite-chlorite-quartz schists and sericite-quartz schist across the shear zone, although they are concentrated in the central strongly sheared and altered sections. Dykes are shown on Plate 2 in Appendix C.

The andesitic porphyries consist of plagioclase phenocrysts in up to 6 millimetre laths in a finely-granular, feldspar-quartz matrix. Plagioclase phenocrysts show well developed prismatic shapes with occasional fracturing and granulation. Quartz phenocrysts are present in some dykes where they make up approximately 5-15% of the phenocryst component and occur in polycrystaline aggregates up to three millimetres in diameter.

The matrix minerals have a grainsize less than 0.1 millimetres with quartz aggregates somewhat coarser than the more common granular feldspar. The fine grained strongly recrystalised granular feldspar lacks twinning and is thought to be mostly plagioclase, with probable minor albite.

Moderate sericitic alteration and mild deformation has resulted in undulose subparallel sericite bands defining a weak foliation. Moderate silicification, carbonate replacement and quartz-carbonate veining are also developed. Dolomite/ankerite is present as fine granular intergrowths in matrix material and polycrystaline bodies of up to 0.4 millimetres. These polycrystaline patches contain finely divided rutile/leucoxene, have vague prismatic shapes, and probably represent altered mafic phenocrysts.

Pyrite is present in disseminated cubic and subhedral crystals of 0.1-0.5 millimetre diameter, comprising 1-5% of the dykes. Within the central ore zone, traces of chalcopyrite and galena have been identified. In polished thin section rare galena aggregates have fine intergrowths containing sphalerite, covellite and chalcocite.

Four analyses of feldspar and feldspar-quartz porphyry dykes from Prospero are shown on Figure 9 with compositions falling into the intermediate (granodioritic) field of Hallberg (1984).

4.3 SUPERGENE MINERALISATION

The Prospero deposit has significant supergene mineralisation associated with the well-developed deep weathering profile. The remnants of laterite marginal to the ore system have low grade (0.1-0.5ppm Au) supergene accumulations. Within the saprolite a number of subhorizontal to shallow east-dipping lenses have formed, overlying and in some cases partially offset from the primary mineralisation. Both lateritic and saprolitic supergene dispersion halos provide significantly larger exploration targets than the primary mineralisation system.

The distribution of gold and associated elements within lateritic weathering profiles has been the subject of several detailed studies over the last decade (Smith, 1993). In the Yilgarn Block, combined CSIRO/AMIRA orientation studies have provided detailed datasets describing multielement patterns of distribution in various regolith materials. These studies (Smith, 1993) have been used to add to knowledge of regolith geochemical dispersion processes (eg. Lawrance, 1993) and aid in the use of multielement geochemistry in design and interpretation of exploration programs in deeply weathered terrains (Butt et al., 1993).

4.3.1 Lateritic Accumulation

Concentration of gold within the residual lateritic horizon is well documented (eg. Butt and Zeegers, 1992; Smith et al., 1992) and when preserved, may form significant tonnage economic lateritic supergene gold deposits. Examples from the Yilgarn Craton include the Boddington (Symons et al., 1990) and Mt. Gibson (Gee, 1990) deposits (Smith et al., 1992).

Accumulation of gold within the lateritic layer is ascribed to the Mid- Cretaceous to Miocene lateritic weathering period by Butt and Zeegers (1992) and Butt et al. (1993). Subsequent modifications and saprolitic accumulations have been produced during post-Miocene semi-arid conditions.

4.3.1.1 Gold

The residual layer formed over the Prospero system has been mostly removed by erosion. The remnant centred at 5700N 10300E is offset between 100 to 300 metres from the area of subcrop of the primary mineralised zones. Within this remnant gold values for surface rock chip samples range from 10 to 480 ppb Au, soil sampling has returned values up to 380 ppb Au while RAB drilling of exposed and buried residuum has values of up to 0.35 ppm Au.

This horizon forms an anomaly of approximately 500 x 900 metres which is significantly larger than the primary halo (ca. 50 x 1000 metres). If all the duricrust was retained over the Prospero area it is likely that the lateritic anomaly would be at least 600 x 1500 metres in area.

4.3.1.2 Chalcophile Elements

Analysis of chalcophile elements within lateritic material is discussed in section 3.3.1 and 3.3.2 for soil sampling and the soil/lag orientation programs respectively. Multielement analysis from RAB drilling discussed in section 3.4 note some chalcophile accumulations within the lateritic duricrust layer.

In the remnant of laterite over Prospero tungsten is the only element analysed which shows strong enrichment, to 13 ppm W, coinciding with the Au anomaly.

4.3.2 Saprolitic Accumulations

The onset of warm semi-arid conditions from the Miocene has led to several important modifications to the existing lateritic profiles. Characteristics of modifications generally relate to an excess of evaporation over precipitation, which results in accumulation in the regolith of weathering products that would otherwise be leached. Some important modifications are:-

- Progressive decline in the water-table and vegetation loss which has led to significant erosion and extensive alluvium/colluvium deposition. Lateritic duricrust layers have been dehydrated and hardened with precipitation of iron oxide cements.

- Decreased weathering and an increase in groundwater salinity.

- Oxidising surface acid waters result in dissolving of iron oxides in chloride complexes in the upper regolith. Reprecipitation of iron oxides (geothite) occurs near the water table where conditions change from an upper oxidised zone to reducing conditions. This iron oxidation level (ferrolysis zone) is referred to by Lawrance (1993) as the redox front.

- Within the upper part of the profile (above the water-table) repeated leaching by strongly oxidising fluids is capable of dissolving Au and Ag as halide complexes and formation of a Au depleted horizon which corresponds to the upper saprolite clay zone.

- Deposition of this Au takes place in response to a rise in pH or dilution of the halide concentration, both of which occur at the water table. Precipitation may also take place in response to reduction of the Au halide by ferrous iron occurring at the redox front. Thus a number of sub-parallel subhorizontal horizons of supergene Au mineralisation are developed within the saprolite with progressive stepwise water-table reduction (Smith et al., 1992; Lawrance, 1993; Butt et al., 1993).

The gold distribution in the saprolite is shown for sections 5800N, 6000N and 6045N in Figure 24. Sections show lithologies, regolith development and gold distribution with interpreted 0.5 ppm Au outlines marked. Drill hole spacings vary from 10 to 50 metres along lines which is considered adequate to outline the broad patterns of saprolitic mineralisation. Figure 10 shows a idealised cross section of the Prospero prospect and the broad lithology and regolith setting.

All three sections show development of subhorizontal lenses of supergene mineralisation in central and lower saprolitic layers. Intercepts within the upper saprolite have gold values generally below 0.1 ppm Au in the leached clay zone.

On section 6045N a well-developed 2-8 metre layer of ferruginous saprolite with gold values of 0.55 to 3.61 ppm Au is formed. This layer is over 160 metres across strike and formed between 20 and 36 metres below the surface. Gold concentration has formed within a narrow zone with grades falling below 0.2 ppm Au above and below the +0.5 ppm zone. The clay zone, in holes where it has been differentiated from saprolite, is developed within 10 metres above the ferruginous supergene mineralised zone indicating there has been a significant water-table still stand at approximately this position.

Lower in the profile, near the saprolite-saprock boundary, a smaller supergene shallow east-dipping layer is developed and this zone merges into the moderate east-dipping primary mineralised zone.

Section 6000N has been RC drilled on 25 metre spacings and has two diamond core intercepts of the primary zone. As such it represents the best example for comparison of supergene and primary mineralisation.

A well developed, subhorizontal, mineralised horizon, defined here by gold values greater than 0.5 ppm, occuring at depths of 25 to 40 metres below surface between two and eight metres thick is formed within the central saprolite layer. This zone is approximately 100 metres wide with grades of up to 14.4 ppm Au. The leached clay zone lower boundary is approximately five to 10 metres above the top contact of this supergene zone. The horizon is between 15 and 30 metres above the saprock boundary and the current weathering/redox fronts.

Two small pods of supergene mineralisation are developed at depths of 10 to 20 metres within the clay zone and uppermost saprolite. These zones are two to four metres thick and less than 30 metres long. The clay zone on this section has background values of less than 0.1 ppm, however in the zone immediately up-dip of the primary mineralisation (between 10125E and 10175E) gold values are mostly between 0.1 to 0.3 ppm, a modest enrichment.

At the saprolite-saprock boundary there is only weak (0.10-0.75 ppm Au) supergene gold accumulations. Within the lower saprolite, at depths of 40 to 60 metres, anomalous intercepts generally follow the attitude of the primary mineralisation (moderate east-dipping).

Section 5800N has a shallow east-dipping supergene layer two to four metres thick and over 120 metres long. The zone dips at 10* to the east from 15 metres deep in the west at 10000E and 50 metres deep at 10125E. This dip is subparallel to the dip in the saprolite/saprock and saprock/fresh rock boundaries approximately 10 to 20 metres below, and the dipping clay zone/saprolite boundary approximately five metres above. Minor subhorizontal saprolite/saprock accumulations and east-dipping primary intercepts are similar to those described from sections 6045N and 6000N above.

The above descriptions have highlighted a number of features of saprolitic supergene mineralisation at Prospero:-

- A well-developed subhorizontal mineralised horizon occurs at depths of 20 to 40 metres below surface, ranges from two to eight metres thick, with grades of 0.5 to 14.4 ppm, and is up to 160 metres wide. This horizon is developed in the upper saprolite zone within 10 metres of the lower contact of the clay zone and has associated variable amounts of ferruginisation. This zone is thought to have formed during a periodic water-table stillstand with iron oxide and gold deposition near the palaeo water-table level.

- Minor subhorizontal to east-dipping supergene concentrations, with grades of 0.5 to 4.0 ppm, are formed near the saprolite/saprock boundary. These have formed during lower water-table levels in a similar manner as described above. Part of this distribution would be attributable to the primary mineralisation with minimal redistribution in saprock material.

- The saprolitic supergene accumulations present a substantially larger target for exploration compared to the primary mineralised zone. The supergene blanket mineralisation is up to 160 metres across strike while the primary zone is generally patchily distributed over a width of less than 50 metres.

- The shallow east-dipping zone, particularly evident on 5800N, likely results from a combination of primary and secondary features. The moderate east-dipping primary zone would favour similar or lower angle orientations within the regolith for the immobile gold component (i.e. gold grains locked in vein quartz). Supergene deposition of gold is strongly controlled by the groundwater level and is mostly subhorizontal. On section 5800N the regolith units are east-dipping as a result of deeper weathering in the strongly altered and sheared contact zone, and possibly progressively deeper erosion of the upper profile going from east to west.

4.4 BEDROCK MINERALISATION

Information on the unweathered primary mineralisation zone at Prospero is restricted to four RC drill intercepts and two diamond drillholes. RC holes are located on section lines 6200N, 6045N, 6000N and 5800N and intercept mineralisation at 80-95 metres (vertical) depth (see Figure 23). The two diamond holes shown on section 6000N (Figure 23) have drill logs included in Appendix C and geochemical data displayed on Figures 9, 24 and 25. The discussion below will focus on the diamond drilling intercepts, however the RC logging has outlined very similar patterns.

4.4.1 Geology

Within the 50-200 metre wide Prospero shear zone primary lithological textures, with the exception of the feldspar-phyric porphyry dykes, have been destroyed. Rocktypes are strongly sheared schists with mineralogy consisting of various combinations of sericite, chlorite, quartz, albite and fuchsite. Mineralogical variation is generally related to hydrothermal alteration and often comprises the majority of the lithotypes.

Appendix C, particularly the diamond drill logs for hole SWDD 020, gives a good indication of the lithologies within the Prospero shear, these are illustrated on Plates 1 and 2 in Appendix C.

4.4.3 Alteration

Within the Prospero shear zone several zones of alteration can be recognised. The sequence is best illustrated in diamond drillhole SWDD 020 (see drill log Appendix C). The alteration sequence from outer to inner zones is described below.

4.4.3.1 Chlorite Zone

The outermost or chlorite alteration zone occurs as dark green, calcareous chlorite-sericite schist. Alteration mineralogy includes: chlorite, minor sericite, quartz (as thin stringer veins), and carbonate (calcite and possible minor ankerite/dolomite) in fine disseminations and thin stringers. In hole SWDD 020 this zone is best developed between 112-117 metres in the hangingwall. Quartz and quartz-carbonate stringers make up approximately 6 % of the zone and orientations are parallel to the sericite-chlorite defined moderate foliation. Up to 2 % disseminated pyrite is noted from this zone and gold grades are in the range 0.1-0.4 ppm.

4.4.3.2 Sericite Zone

The sericite zone comprises weak to moderate sericite and moderate silicification in sericite-quartz schists. Chlorite is generally a minor component of this zone and fuchsite is present in minor quantities in parts of the zone. In hole SWDD 020 it is developed between 117-120 metres (Appendix C, Plate 2, A) and 127-143 metres forming a broad symmetrical halo around the inner quartz alteration zone. Up to 6 % disseminated cubic pyrite to one millimetre diameter is present, with up to 1 % disseminated arsenopyrite in some portions. Strong shearing is defined by anastomising sericitic shear bands and sericite-quartz banding. Quartz stringers commonly form 2-5 % of the zone, carbonate as stringer veins are rare. Gold grades within the sericite zone are generally in the range 0.2-0.6 ppm.

4.4.3.3 Quartz Zone

The quartz alteration zone is found at 120-127 metres in SWDD 020 (see Appendix C, Plate 1, B) and 91-94 metres and 101-102 metres in SWDD 001. The zone is characterised by strong silification, moderate sericite alteration, carbonate (dolomite/ankerite?) and up to 6 % disseminated pyrite. These very fine grained quartz-sericite-ankerite rocks are only weakly foliated, possibly due to quartz recrystalisation and/or the relative lack of phyllosilicates.

In addition to chlorite-sericite-quartz schists there are a number of quartz veins generally between 0.1-1.0 metres thick which are orientated parallel to the foliation. Veins contain up to 3% disseminated pyrite and rare arsenopyrite mainly along micaceous sheared selvages.

4.4.2 Structure

The main structure developed within the Prospero shear zone is a strong penetrative moderate east-dipping foliation. Twenty measurements in orientated core average 48/328E with a moderate spread, dips range from 30-62^{O} and strike varies between 300-355^{O}. This foliation has a similar strike to other structures and foliation in the Sunset Well study area however the dip is shallower than the regionally developed foliation. This planar structure matches the dip measured from lithological/structural contacts from RC drilling elsewhere in the Propero area and the general dip of the shear zone as determined from surface exposures.

A weak to strong lineation, defined by mineral elongation in fine-grained quartz and sericite and streaking of sericite and chlorite is present over the Prospero area. The lineation is interpreted as the finite extension direction (cf. Williams et al., 1989). Thirteen measurements in orientated core have a shallow north plunge (005/20) and a narrow spread. Movement sense indicators were rare and a tentative oblique normal sinistral sense has been interpreted from asymetrical sericitic pressure shadows around quartz crystals.

This structure is interpreted as a D1 shear zone with the moderate east dipping foliation pre-dating the widespread D2 foliation and upright folding event which has a steeper (ca. 330/70-90E) foliation and axial surface. The mineral lineation is considered to be a later feature related to D2/D3 sinistral faulting, overprinting the original thrust movement.

Several thin, tensional, quartz-filled brittle faults were measured in core sections, one of which is illustrated in hole SWDD 001 in Appendix C. Faults are steep dipping with E-W strikes, four measurements average 279/85S. Faults cut the shear foliation and in one case a thin mineralised (pyrite and arsenopyrite) quartz vein (post-foliation) represents late-stage gold remobilisation. A shallow-dipping (0-10^{0}) sinistral sense has been measured from selvage slickensides and minor dilational sites.

These faults are interpreted as D3 or post-D3 structures and similar structures have been noted by VanderHor and Witt (1992). This fault orientation is noted in outcrop at 6,805,300mN 344,450mE and 6,805,300mN 343,600mN, up to 2.2 kilometres west of Prospero. While these late faults are developed on a regional scale there appears to be minimal offset involved.

In hole SWDD 001 the quartz zones have developed along the selvages of quartz veins which are up to 0.8 metres wide. Metasomatic silification of wallrocks is intense within one metre and is present up to 2-3 metres distant from the veins.

Thin sections from this zone (from hole SWDD 020) display very fine grained sericite flakes defining a moderate foliation. Quartz is concentrated in irregular veins up to a few millimetres wide and has a granular deformed texture exhibiting undulose extinctions and sutured grains. Ankerite occurs in irregular patches and granular ankerite-quartz veins. Pyrite is disseminated in euhedral (cubic) to subhedral shapes to 0.5 millimetres in size, and tend to be concentrated within sericitic shear bands. Some of the very fine grained (<0.05 millimetre) felsic matrix is composed of plagioclase and albite.

The strongly silicified central zone in SWDD 020 and the quartz veins and silicified selvages in SWDD 001 contain the highest gold values for the two diamond drill holes. Grades are generally 0.5-2.0 ppm Au in the silicified rocks and are up to 21.8 ppm Au in quartz veins.

4.4.3.4 Albite Alteration

Albite alteration has been noted from several sections of diamond drill core and RC chips in the centre of the Prospero shear, and scattered saprolitic outcrops of the sheared footwall sequence (ca. 5750N 9975E). In hole SWDD 020 it is developed within the central quartz alteration zone (see Appendix C, Plate 2, C and D) where grades are approximately 0.5 ppm Au. Albitic alteration in very fine grained schists is difficult to confirm by microscopic methods and is possibly more widespread than noted on the diamond drill logs in the quartz and sericite alteration zones.

4.4.3.5 Alteration Timing and Summary

The pattern of alteration and concentric zoning displayed suggests that the three zones described above (chlorite-sericite-quartz) have developed during a single hydrothermal event. Progressive alteration of the wallrocks adjacent to the shear zone conduit has produced a zonal distribution pattern.

Relative timing of hydrothermal alteration is poorly constrained. Alteration is either synchronous with or post-dates D1 shearing and predates E-W brittle faulting (D3).

4.4.4 Mineralisation

4.4.4.1 Gold Mineralisation

Gold mineralisation at Prospero is contained within the strong quartz-albite-sericite-pyrite alteration zone and within thin pyritic quartz veins within the alteration system and shear zone. The mineralisation within the central alteration zone is characterised by, strong silification and quartz stringer veining, variable development of albite and sericite alteration, up to 5 % disseminated pyrite, rare disseminated arsenopyrite, and moderate ankerite/dolomite alteration in quartz-carbonate stringers and patches. Gold grades are generally 0.5-3.0 ppm with moderate widths (eg. SWRC 044 94-105 metres 11 metres @ 1.89 ppm Au).

Quartz veins contain higher grade mineralisation within thin (0.5-1.0 metre) veins. The veins are developed parallel to foliation within the central quartz alteration zone or the sericite alteration zone and are white, un-laminated and weakly pyritic (0.5-1.0 %). Grades from selective sampling in diamond holes include; SWDD 001 92.8-93.2 metres 0.4 metres @ 5.04 ppm Au, and 101.9-102.7 metres 0.8 metres @ 21.8 ppm Au.

Vein hosted mineralisation is thought to be synchronous with lower grade mineralisation in the silicified zones. In hole SWDD 001 low grade mineralisation is associated with the zonal alteration pattern developed on the selvages of a high grade quartz vein.

4.4.4.2 Ore Mineralogy

Gold has only been identified in one polished thin section of quartz-sericite-ankerite altered rock. The gold occurs as two five micron intergrowths within a fine grained, partially weathered pyrite grain.

The major opaque mineral present, pyrite, is found throughout the alteration system mostly as euhedral disseminated cubic grains and within strongly sheared material concentrated in undulose shear bands. Pyrite is fine grained (0.05-0.5 millimetres) and may make up to 6 % of the rock, however 2-3 % pyrite within the alteration system is more common.

Minor sulphides identified within the quartz and sericite zones include up to 1 % disseminated fine grained arsenopyrite, fine grained anhedral disseminated chalcopyrite, galena, rare sphalerite as intergrowths with chalcopyrite, and chalcocite and covellite intergrown with galena.

4.4.4.3 Ore Geochemistry

Multielement analysis of selective samples from the two diamond drill holes are shown on Figures 24 and 25, detailed geological logs are shown in Appendix C.

Lead and strontium show good correlation with the central quartz-albite altered mineralised zones in hole SWDD 001 between 91-96 metres and in hole SWDD 020 between 80-83 and 120-127 metres. Lead is also high in the vein quartz hosted mineralisation. Lead values in the central alteration zone are over 100 ppm while background in unaltered schist is less than 10 ppm and quartz veins have values of up to 441 ppm. Strontium values are highly variable with enrichments in the quartz veins and silicified alteration zone (max. 1470 ppm Sr).

The limited data for the other elements shown suggest:

- Tungsten is strongly enriched in the five samples from hole SWDD 020. Values of 20-160 ppm W are strongly anomalous compared to background values of <2 ppm in fresh and saprolitic samples from drillholes outside the Prospero shear system. The anomalous W values in hole SWDD 020 overlap with and, with the exception of the peak value of 160 ppm in the weakly mineralised porphyry, coincide with the central alteration zone. In hole SWDD 001 a similar pattern with lower values is displayed. The W peaks in both holes displayed on Figures 24 and 25 do not correlate strongly with the gold mineralisation, however, compared with background values of <5 ppb Au and <2 ppm W outside the shear zone a reasonable correlation exists.

- Arsenic shows only weak enrichment to a maximum of 69ppm compared to regional background of 10-20 ppm.

- Both Cu and V (not shown on Figures) display weak enrichment within the shear zone. This is attributed to chalcopyrite, and V-rich sericite/muscovite and fuchsite respectively.

- Albite alteration is indicated by 1.0-4.1 % Na and is present in the quartz-sericite schists and the porphyry dykes.

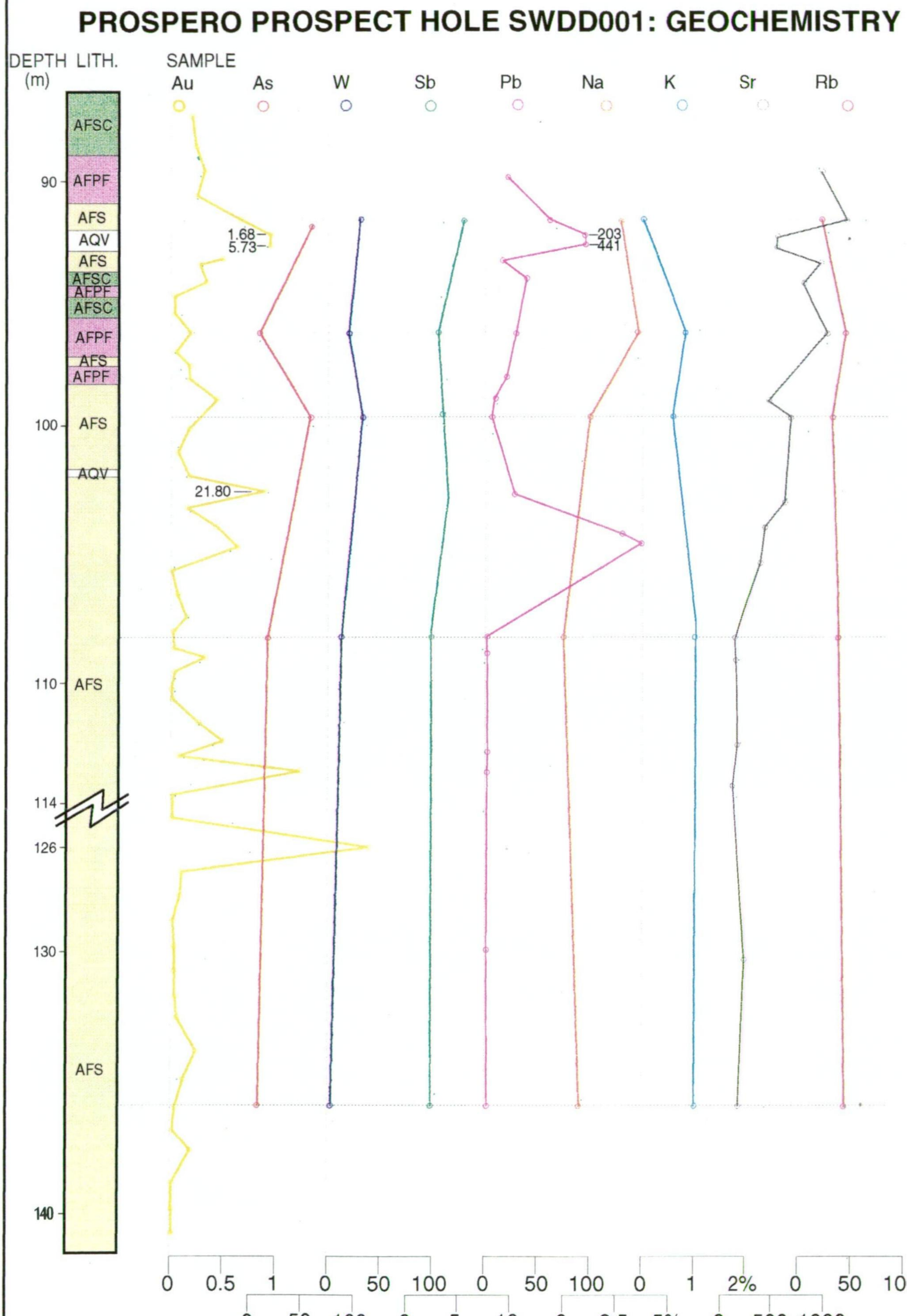


FIGURE 25 Prospero prospect diamond drillhole SWDD001, geology and geochemistry. Refer to detailed log for lithology codes; units are ppm unless stated.

PROSPERO PROSPECT HOLE SWDD020: GEOCHEMISTRY

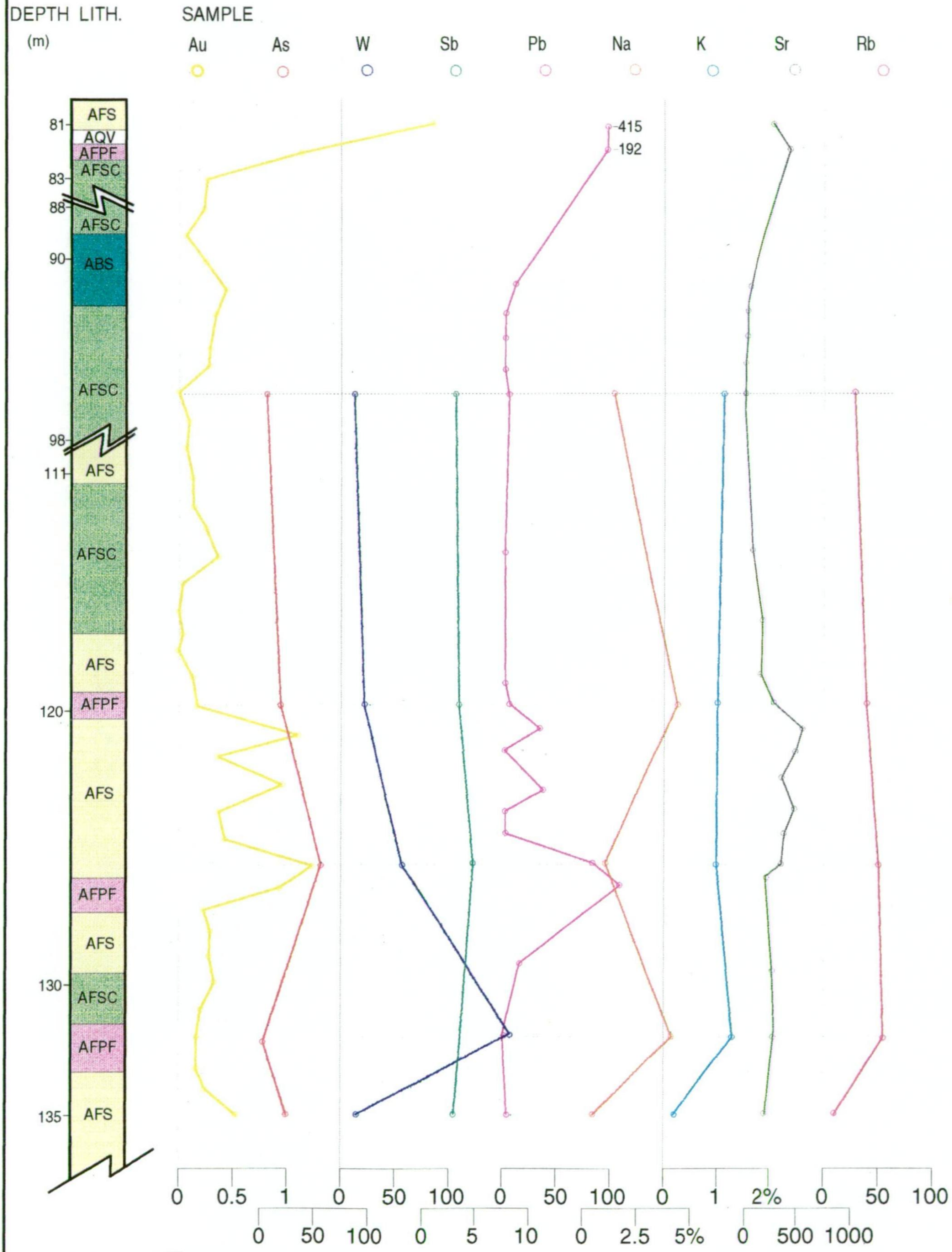


FIGURE 26 Prospero prospect diamond drillhole SWDD020, geology and geochemistry. Refer to detailed log for lithology codes; units are ppm unless stated.

- Potassium enrichment to greater than 0.75 % levels outlines the broad alteration zone while >1.0 % K values in SWDD 020 are within the sericite alteration zone.

In summary the gold mineralisation/alteration system is associated with strong Pb, Sr, K and Na and moderate to weak or patchy W, As, Sb, Cu and V enrichments.

Figure 9 shows seven analyses of Ti vs. Zr for chlorite-sericite to quartz-sericite schists in the central Prospero shear zone. Intense metasomatic alteration has destroyed primary features and most of the central zone was considered to be part of the footwall sequence. These analyses fall within the mafic field defined by Hallberg (1984), Cr analyses also support a mafic precursor for the strongly altered mineralised zone. This interpretation requires a significant metasomatic addition of quartz and phyllosilicates to the primary mafic mineral assemblage within the central alteration zone.

4.4.4.4 Ore Genesis

Gold mineralisation at Prospero is considered to be synchronous with the strong zonal metasomatic alteration within the Prospero shear zone. Gold deposition has occurred within quartz veins and the inner sericite-quartz-ankerite-albite metasomatically altered rocks along the vein selvages.

The Prospero shear is considered to be a D1 structure which has been overprinted by weak D2 foliation and late (D3) E-W faults, with minor offsets.

Source and transportation mechanisms for gold and associated chalcophile elements have not been studied, however, the primary mineralisation at Prospero has general features that are consistent with a structurally controlled metamorphogenic origin. A mesothermal origin has been proposed for numerous Archaean gold deposits in the Yilgarn Block (eg. Groves, 1993).

5. SUMMARY AND CONCLUSIONS

This thesis represents a broad based study of a gold exploration project area. Geological mapping and various geochemical techniques have delineated a regional shear zone within which mineralisation has been outlined at the Prospero prospect. The first section of this thesis presents a case study of geochemical exploration in deeply weathered terrains. The second half describes the geological and structural setting, alteration, mineralogy and geochemistry of the Prospero resource. Lateritic enrichment, supergene saprolitic mineralisation and primary mineralisation is described and related to weathering processes, lithology , alteration and structure.

The Sunset Well study area forms part of a group of tenements held by RGC Exploration Pty. Ltd. Geological mapping, systematic soil sampling, extensive RAB drilling and infill RC and diamond drilling has been completed over the last 30 months as part of an ongoing gold exploration program in the district.

The study area has a mostly stripped regolith profile with only minor laterite preserved. Saprolitic exposures and lag surfaces cover 45 % of the study area while fresh/saprock exposures make up less than 5 %. Extensive alluvial/colluvium plains cover parts of the east, south central and northeast of the study and are mostly underlain by saprolite.

Three broad lithological sequences are recognised, separated by two NNW trending shear zones. The western succession comprises andesitic-derived volaniclastic sediments (sandstone, breccias), chert (after shale), and extensive areas of sericite-quartz schist thought to represent fine grained andesitic volcaniclastics or epiclastic sediments. This sequence is intruded by minor dolerite/gabbro sills and several feldspar porphyry stocks. Mafic volcanics are the dominant lithology in the central succession. Tholeiitic and high-Mg basalts are recognised with several minor sedimentary lenses, thin gabbroic sills have been mapped and a large granodiorite porphyry intrudes the sequence. The eastern succession is composed predominantly of fine grained sericite and sericite-quartz schists after epiclastic sediments (shale, siltstone).

Extensive soil sampling was conducted over the study area in 1992. Two programs outlined; a strong (500 x 900 metre) Au-W anomaly in remnant residual gravels and lateritic duricrust, a 200-600 metre wide 6.5 kilometre long zone of patchy W-As-Sb-Cu-Zn anomalism on saprolitic lag surfaces. Both anomalies correspond to the Prospero shear zone.

A soil/lag sampling orientation traverse in the Prospero area highlighted:- Au-W anomalism in residual soils is contained within pisolitic cutan coatings and a +1-6 millimetre soil fraction gives the best definition and highest magnitude anomaly, Au-W-As-Sb-Pb anomalism on an erosional saprolitic iron segregation material and is best defined by lag sampling.

Bottom-hole (saprock) samples were analysed for Ca, K, Na, Rb and Sr over the Prospero shear zone. Phyllosilicate alteration is well defined by >0.53 % K contours while higher values (>0.65 % K) and wider zones outline the Prospero mineralisation.

Multielement analysis of RAB drilling in the Prospero area has weak correlations between Au and chalcophile elements. A max.-in-hole value correlates well with the 0.5 ppm contoured Au anomaly for Pb, W and As. This non-coincident but spatial correlation results from supergene (post-laterite) remobilisation within the saprolite.

The Prospero mineralisation is located within a broad east-dipping D1 shear zone between andesite-derived volcaniclastic footwall sequence and a high-Mg basalt. Low grade remnants of lateritic enrichment and extensive, subhorizontal, saprolitic supergene mineralisation are developed.

Bedrock mineralisation is associated with an intense single-stage zonal metasomatic alteration system. A concentric zonation with outer chlorite-sericite-quartz-calcite, middle sericite-quartz-pyrite, and inner quartz-albite-sericite-dolomite/ankerite-pyrite-galena-chalcopyrite-sphalerite is developed. Gold grades are generally 0.2-0.6 ppm in the sericitic zone and 0.5-3.0 ppm within the central quartz zone. Thin (0.1-1.0 metre) foliation-parallel sulphide-poor quartz veins contain high grade (5.0-21.8 ppm) gold mineralisation. A strong Pb-Sr-K-Na-Si and moderate W-As-Sb-Cu-V association with Au is noted in the primary mineralised zone.

Gold mineralisation is interpreted to be synchronous with strong metasomatic alteration, is synchronous with or post-dates D1 shearing, and has minor overprinting by D2 foliation and D3 E-W faulting.

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APPENDIX A

SOIL/LAG SAMPLING ORIENTATION TRAVERSE REGOLITH AND GEOCHEMICAL DATA

REGOLITH CODES

E	Erosional Regime
R	Residual Regime
D	Depositional Regime
t	minor transported component

Es	saprolitic subcrop
El	erosional lag (quartz-lithic lag)
Ec	pedogenic calcrete/goanna mound

Rd	residual lateritic duricrust
Rdc	residual lateritic gravel (pisolites/nodules with yellow brown cutans)
Rd(c)	residual lateritic gravel (pisolites/nodules with minor cutans)
Dcp	transported pisolitic colluvium

SAMPLE	N	E	AU	AU	AU	AU	AU	SB	SB	SB	SB	SB	AS	AS	AS	AS	AS	W	W	W	W	W
			+10mm La	+6mm Lag	Total So	+1 -6mm	-1mm Soil	+10mm La	+6mm Lag	Total So	+1 -6mm	-1mm Soil	+10mm La	+6mm Lag	Total So	+1 -6mm	-1mm Soil	+10mm La	+6mm Lag	Total So	+1 -6mm	-1mm Soil
163559	5700	10000	30.2	-5	7.7	7.1	8.8	5.12	2.62	3.92	7.29	1.95	15.5	15.2	21.5	40.5	13.1	10.1	7.66	4.42	2.99	3.59
163565	5700	10025	-5	-5	-5	-5	-5	4.22	4.15	4.61	7.87	1.97	22.8	32	23.9	37.2	13.8	16.1	14	5.36	5.94	-2
163570	5700	10050	57	57.8	15.1	8.3	7.3	14.6	7.27	4.67	5.45	1.85	115	50.4	27.5	31.3	12.9	41.8	26.9	8.71	8.71	4.7
163575	5700	10075	86.1	54.2	18.9	19.4	7.4	6.67	9.7	4.45	7.71	1.92	43.7	66	26.2	44.2	12	28.8	54.5	12	21	3.76
163581	5700	10100	281	879	108	51	19.9	7.84	6.3	4.8	6.23	3.01	51.3	64.7	25.4	32.7	15.1	41	40.8	26.6	17	7.88
163586	5700	10125	-5	-5	20.5	12.8	25.9	12.2	11.3	7.66	8.99	3.64	85.4	78.6	47.9	52.2	19.9	45	58.6	36.7	37	13.4
163591	5700	10150	-5	-5	-5	11.2	9.5	4	4.9	3.49	4.41	1.96	64	48.7	36.2	32.9	15.2	20.3	21.3	17.2	19.6	8.17
163596	5700	10175	17.2	-5	25.8	57	11.3	5.19	4.87	3.46	5.44	1.74	29.3	26.4	22.3	33.9	15	18.6	17.1	17.2	21	5.53
163602	5700	10200	31.9	45	67.7	109	37.7	1.36	2.36	3.14	5.05	1.57	53.9	47	28.4	35.2	14	8.85	13.5	17.9	24.4	6.44
163607	5700	10225	100	102	113	156	64.6	2.6	4.35	3.09	5.12	1.86	27.8	38	22.4	34.6	15.8	11	15.9	11.1	26.8	8.85
163612	5700	10250	135	176	178	262	112	5.32	5.45	4.29	6.28	2.32	41.4	38.6	29.3	38.5	19	21.1	19.7	25.2	26.6	10.2
163617	5700	10275	156	155	178	222	116	6.43	5.91	3.63	5.07	1.95	45.5	38.8	21.6	32.9	16.2	32.6	18.1	15.1	24.5	5.39
163623	5700	10300	128	144	173	298	98.9	6.7	7.2	3.77	5.36	1.77	44.7	41	21.2	30.2	15.3	40.3	38.3	17	21.7	-2
163628	5700	10325	82.9	170	174	323	120	8.26	8.93	4.11	6	2.01	41.3	41.9	26	31.6	16.6	51.7	59.6	15.3	30.9	-2
163633	5700	10350	71.3	163	180	262	119	15.1	9.49	5.15	6.84	2.49	59.1	42.1	30.1	39.1	20.9	12	43.4	14.2	14.3	-2
163638	5700	10375	17.7	94.9	101	222	44.9	19.4	8.47	4.41	7.5	2.52	158	44.2	28.4	42.1	21	69.7	32.9	6.77	17.3	5.84
163644	5700	10400	71.3	72	72.6	101	62.4	17.2	9.88	5.2	7.53	2.51	150	72.7	36.2	52.8	22.7	32.6	22.3	7.83	8.51	-2
163649	5700	10425	38.2	50	39.6	46.6	33.8	14.7	11.7	6.46	10.2	2.47	94.9	77.5	46.3	76.1	23.6	19.1	20	14.5	16.5	-2
163654	5700	10450	12.8	46	28.2	53.4	22.5	11.2	12.6	7.58	11.4	2.75	113	97.2	56.4	84	25.8	4.36	11	10.6	9.42	-2
163659	5700	10475	13	26.6	31.9	39.1	29.3	9.29	13.7	7.19	11.1	2.46	180	150	60.8	84.8	25.1	9.58	9.02	4.17	9.74	-2
163665	5700	10500	14	11.1	25.2	27.8	17.3	14.5	12.2	10	9.64	3.16	98.9	231	83.3	75.9	29.6	4.62	9.52	7.99	6.39	-2
163670	5700	10525	-5	19.8	17.6	18	10.4	14.2	15.6	10.8	16.8	3.31	111	113	72.3	107	28	5.02	6.02	6.84	5.25	3.04
163675	5700	10550	15.3	-5	16.7	11.1	8.6	18.3	22.1	13.5	19.3	4.03	293	166	84	113	34.3	11.7	5.88	4.47	-2	-2
163681	5700	10575	14.8	32.4	12	10.9	9.5	16.9	20.5	12	20.9	2.77	184	152	73	122	26.3	10.4	5.78	-2	7.83	-2
163686	5700	10600	-5	91.6	-5	-5	-5	15.6	20.9	14	22.8	3.78	223	177	92.4	131	32.8	12.3	9.61	-2	-4.1	-2
163691	5700	10625	-5	16	-5	12.8	-5	24.8	23.2	18.2	23.5	4.29	183	142	106	136	34.7	5.62	5.07	-2	7.23	-2
163696	5700	10650	-5	-5	9.6	-5	-5	18.2	25.7	13.7	21.5	3.83	174	147	88.1	123	30.8	7.12	-2	-2	7.27	-2
163702	5700	10675	-5	54.8	-5	-5	-5	16.3	19.2	14	22.2	4.26	146	153	92.6	135	32.5	-2	7.97	7.56	-2	-2
163707	5700	10700	11.4	-5				15.5	19.8				210	162				-2	11.9			
163712	5700	10725																				
163717	5700	10750			-5	-5	-5			12.2	19.5	3.04			79.8	122	26.8			-2	-2	-2
163723	5700	10775	-5	-5	-5	-5	-5	16.9	20.4	11.8	17.9	3.27	78.4	160	80.5	115	25.9	10.2	7.98	-2	-2	-2
163728	5700	10800	24.7	-5	-5	-5	-5	11.7	17.7	11.4	16.5	2.94	152	141	75.1	105	26.7	11.7	9.82	-2	-2	2.47
163733	5700	10825	-5	6.8	33.8	-5	-5	20	14.2	9.37	14	2.76	123	152	62.8	92.2	25.6	9.34	12.1	3.53	3.93	-2
163738	5700	10850	-5	-5	6.5	9.6	5.1	12.5	20.9	7.15	12	2.1	96.5	127	53.9	79.6	19.7	43.1	5.05	3.75	3.18	-2

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ANALYTICAL REPORT

PAGE 1 of 22

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

21 OCT 1992

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312 SAMPLE TYPE: SOIL PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Cu ppm IC586	Pb ppm IC586	Zn ppm IC586	Ag ppm IC586	As ppm IC586
163559		155	5	135	<1	40
163560		300	25	25	<1	24
163561		100	<5	115	<1	34
163562		60	5	55	<1	42
163563		65	10	55	<1	46
163564		45	10	45	<1	22
163565		115	<5	120	<1	34
163566		140	5	90	<1	42
163567		60	5	45	<1	30
163568		70	10	50	<1	40
163569		50	10	45	<1	22
163570		145	25	140	<1	90
163571		150	20	165	<1	55
163572		85	15	80	<1	36
163573		95	15	70	<1	38
163574		55	10	50	<1	20
163575		170	30	120	<1	55
163576		155	35	130	<1	70
163577		95	15	55	<1	34
163578		120	20	70	<1	50
163579		65	10	50	<1	20
163580		210	300	1300	1	1100
163581		165	45	210	<1	65
163582		135	25	140	<1	65
163583		95	20	80	<1	38
163584		120	20	75	<1	44
163585		70	15	50	<1	22
163586		165	30	50	<1	95
163587		170	30	55	<1	90
163588		110	20	50	<1	60
ETECTION LIMIT:		5	5	5	1	1

OMMENTS: *** DUPLICATE ASSAYS.

All pages of this report
have been checked and
approved for release.

Signed

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ANALYTICAL REPORT

PAGE 2 of 22

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ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Cu ppm IC586	Pb ppm IC586	Zn ppm IC586	Ag ppm IC586	As ppm IC586
163589		125	20	50	<1	65
163590		65	10	45	<1	26
163591		165	40	75	<1	80
163592		135	30	65	<1	60
163593		115	25	50	<1	44
163594		105	20	45	<1	42
163595		60	10	40	<1	20
163596		180	15	55	<1	40
163597		145	10	50	<1	36
163598		90	15	40	<1	28
163599		120	20	45	<1	42
163600		90	190	690	<1	55
163601		70	15	40	<1	19
163602		155	10	105	<1	65
163603		170	10	100	<1	75
163604		100	10	50	<1	46
163605		125	15	50	<1	55
163606		60	5	40	<1	28
163607		120	5	55	<1	44
163608		110	10	50	<1	44
163609		75	10	45	<1	32
163610		100	10	45	<1	44
163611		60	10	40	<1	26
163612		135	5	60	<1	44
163613		100	5	45	<1	40
163614		85	10	45	<1	38
163615		105	10	45	<1	46
163616		65	5	40	<1	22
163617		100	<5	50	<1	40
163618		100	<5	45	<1	42
DETECTION LIMIT:		5	5	5	1	1

COMMENTS:

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ANALYTICAL REPORT

PAGE 3 of 22

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ADDRESS: P O BOX 285
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WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Cu ppm IC586	Pb ppm IC586	Zn ppm IC586	Ag ppm IC586	As ppm IC586
163619		80	5	45	<1	30
163620		40	15	85	<1	360
163621		100	10	45	<1	42
163622		60	10	40	<1	18
163623		90	<5	40	<1	32
163624		115	<5	45	<1	38
163625		90	10	40	<1	28
163626		105	10	40	<1	36
163627		60	10	40	<1	26
163628		60	10	25	<1	30
163629		100	5	35	<1	48
163630		90	5	40	<1	40
163631		105	10	35	<1	46
163632		60	5	40	<1	26
163633		85	10	40	<1	55
163634		115	10	35	<1	55
163635		105	10	40	<1	44
163636		135	15	35	<1	55
163637		75	10	40	<1	26
163638		90	15	250	<1	175
163639		150	15	35	<1	55
163640		950	<5	25	3	400
163641		95	15	35	<1	48
163642		110	20	30	<1	55
163643		80	15	40	<1	30
163644		120	15	115	<1	155
163645		120	15	35	1	75
163646		90	20	35	<1	50
163647		85	15	25	<1	55
163648		70	15	40	<1	30
DETECTION LIMIT:		5	5	5	1	1

COMMENTS:

AUSTRALIAN LABORATORY SERVICES P/L
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ANALYTICAL REPORT

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PAGE 4 of 22

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT	Cu	Pb	Zn	Ag	As
	UNIT	ppm	ppm	ppm	ppm	ppm
	METHOD	IC586	IC586	IC586	IC586	IC586
163649		100	10	200	<1	75
163650		50	15	25	<1	48
163651		55	15	30	<1	44
163652		55	20	20	<1	55
163653		55	15	35	<1	28
163654		85	5	140	<1	80
163655		50	10	40	<1	50
163656		50	15	45	<1	48
163657		55	15	25	<1	55
163658		50	10	40	<1	30
163659		105	5	110	<1	140
163660		420	35	125	<1	20
163661		60	10	75	<1	95
163662		55	10	30	<1	48
163663		55	15	30	<1	65
163664		50	10	40	<1	30
163665		85	<5	180	<1	70
163666		50	10	60	<1	105
163667		50	15	30	<1	60
163668		50	15	30	<1	55
163669		45	10	40	<1	32
163670		160	<5	160	<1	100
163671		55	10	45	<1	46
163672		50	15	35	<1	60
163673		50	15	25	<1	60
163674		40	10	35	<1	30
163675		100	10	240	<1	240
163676		85	10	180	<1	110
163677		50	15	40	<1	70
163678		50	15	30	<1	75
DETECTION LIMIT:		5	5	5	1	1

COMMENTS:

ANALYTICAL REPORT

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 295
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Cu ppm IC586	Pb ppm IC586	Zn ppm IC586	Ag ppm IC586	As ppm IC586
163679		45	10	40	<1	32
163680		25	25	65	<1	240
163681		120	<5	240	<1	160
163682		55	10	70	<1	85
163683		50	15	35	<1	55
163684		50	20	30	<1	80
163685		40	15	40	<1	30
163686		80	10	120	<1	145
163687		50	10	40	<1	70
163688		50	15	35	<1	60
163689		45	20	25	<1	55
163690		40	15	40	<1	34
163691		145	35	170	<1	130
163692		50	10	65	<1	80
163693		45	15	40	<1	55
163694		50	20	30	<1	55
163695		45	15	40	<1	32
163696		65	15	250	<1	90
163697		80	10	145	<1	80
163698		45	15	45	<1	50
163699		50	20	40	<1	60
163700		100	320	1300	1	430
163701		40	10	40	<1	30
163702		100	5	260	<1	115
163703		45	5	65	<1	60
163704		60	15	65	<1	60
163705		50	15	30	<1	55
163706		45	15	40	<1	34
163707		195	10	270	<1	185
163708		65	10	100	<1	75
ETECTION LIMIT:		5	5	5	1	1

OMMENTS:

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ANALYTICAL REPORT

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT	Cu	Pb	Zn	Ag	As
	UNIT	ppm	ppm	ppm	ppm	ppm
	METHOD	IC586	IC586	IC586	IC586	IC586
163709		N.R.	N.R.	N.R.	N.R.	N.R.
163710		N.R.	N.R.	N.R.	N.R.	N.R.
163711		N.R.	N.R.	N.R.	N.R.	N.R.
163712		N.R.	N.R.	N.R.	N.R.	N.R.
163713		N.R.	N.R.	N.R.	N.R.	N.R.
163714		N.R.	N.R.	N.R.	N.R.	N.R.
163715		N.R.	N.R.	N.R.	N.R.	N.R.
163716		N.R.	N.R.	N.R.	N.R.	N.R.
163717		N.R.	N.R.	N.R.	N.R.	N.R.
163718		N.R.	N.R.	N.R.	N.R.	N.R.
163719		80	15	80	<1	85
163720		350	25	25	<1	19
163721		55	20	35	<1	110
163722		45	15	45	<1	32
163723		110	10	240	<1	80
163724		60	10	95	<1	110
163725		55	15	70	<1	80
163726		55	25	35	<1	105
163727		45	10	45	<1	34
163728		105	5	210	<1	150
163729		45	10	75	<1	75
163730		55	20	50	<1	70
163731		55	20	35	<1	85
163732		45	15	45	<1	32
163733		75	10	85	<1	90
163734		120	15	220	<1	135
163735		55	15	60	<1	75
163736		65	15	50	<1	85
163737		50	15	50	<1	36
163738		105	5	230	<1	105
ETECTION LIMIT:		5	5	5	1	1

OMMENTS:

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ANALYTICAL REPORT

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0
No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Cu ppm IC586	Pb ppm IC586	Zn ppm IC586	Ag ppm IC586	As ppm IC586
163739		50	10	60	<1	75
163740		90	175	640	1	120
163741		55	15	60	<1	55
163742		55	15	45	<1	75
163743		50	15	55	<1	32
163744		60	<5	80	<1	60
163745		55	10	45	<1	44
163746		55	15	45	<1	38
163747		60	15	35	<1	48
163748		50	10	50	<1	26
163749		50	10	85	<1	50
163750		50	10	40	<1	44
163751		50	10	45	<1	32
163752		55	15	45	<1	42
163753		50	10	50	<1	24
163754		45	5	55	<1	38
163755		50	10	45	<1	42
163756		50	10	45	<1	34
163757		55	15	45	<1	36
163758		60	10	55	<1	26
163759		45	10	45	<1	38
163760		310	25	25	<1	20
163761		45	10	50	<1	38
163762		50	15	40	<1	36
163763		55	15	40	<1	44
163764		60	10	50	<1	26
163765		45	10	45	<1	44
163766		45	10	30	<1	44
163767		55	10	45	<1	36
163768		60	15	45	<1	40
ETECTION LIMIT:		5	5	5	1	1

OMMENTS:

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ADDRESS: P O BOX 285
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WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Fe % IC586	Mn ppm IC586	Mo ppm IC586	Bi ppm IC586
163559		16.4	210	10	<5
163560		2.90	200	5	10
163561		15.8	140	10	<5
163562		8.98	170	10	<5
163563		12.7	180	10	<5
163564		5.98	180	5	<5
163565		15.9	430	10	<5
163566		13.9	360	10	<5
163567		8.54	490	5	<5
163568		11.6	460	5	<5
163569		6.27	430	5	<5
163570		24.8	530	10	<5
163571		24.9	630	10	<5
163572		14.6	420	5	<5
163573		14.7	530	5	<5
163574		7.29	350	5	<5
163575		24.7	560	10	<5
163576		26.0	420	10	<5
163577		12.7	400	5	<5
163578		18.8	470	10	<5
163579		7.30	360	5	<5
163580		2.42	320	10	<5
163581		29.9	650	10	<5
163582		27.3	540	10	<5
163583		14.9	490	5	<5
163584		17.6	560	10	<5
163585		8.58	380	5	<5
163586		23.0	190	15	<5
163587		25.3	210	15	<5
163588		16.8	220	10	<5
DETECTION LIMIT:		0.01	10	5	5

COMMENTS:

AUSTRALIAN
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CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Fe % IC586	Mn ppm IC586	Mo ppm IC586	Bi ppm IC586	
163589		20.9	230	15	<5	
163590		8.30	230	5	<5	
163591		29.9	500	10	<5	
163592		27.0	350	10	<5	
163593		17.5	340	5	<5	
163594		18.5	360	10	<5	
163595		8.70	310	<5	<5	
163596		20.6	760	5	<5	
163597		19.8	470	5	<5	
163598		14.3	490	5	<5	
163599		19.6	670	5	<5	
163600		4.20	1300	10	<5	
163601		8.13	390	<5	<5	
163602		27.6	730	10	<5	
163603		31.3	990	10	<5	
163604		19.6	330	10	<5	
163605		25.7	340	10	<5	
163606		9.57	190	5	<5	
163607		20.2	260	10	<5	
163608		26.1	240	10	<5	
163609		15.9	180	5	<5	
163610		23.9	180	10	<5	
163611		10.2	190	5	<5	
163612		31.0	1050	5	<5	
163613		28.9	150	5	<5	
163614		20.9	230	<5	<5	
163615		27.9	170	5	<5	
163616		11.5	180	5	<5	
163617		30.1	190	5	<5	
163618		32.2	190	5	<5	
ETECTION LIMIT:		0.01	10	5	5	

OMMENTS:

AUSTRALIAN LABORATORY SERVICES P/L
A.C.N. 009 936 029

Brisbane Head Office and Laboratory
32 Shand Street, Stafford, Q. 4053
P.O. Box 66, Everton Park, Q. 4053
Telephone: (07) 352 5577
Facsimile: (07) 352 5109

ANALYTICAL REPORT

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Fe % IC586	Mn ppm IC586	Mo ppm IC586	Bi ppm IC586
163619		18.5	240	5	<5
163620		3.89	100	10	<5
163621		26.4	240	5	<5
163622		9.31	270	<5	<5
163623		30.8	230	<5	<5
163624		32.4	230	5	<5
163625		20.1	560	5	<5
163626		23.6	420	5	<5
163627		9.27	890	<5	<5
163628		19.4	220	<5	<5
163629		35.0	260	10	<5
163630		20.7	340	10	<5
163631		25.1	280	5	<5
163632		9.31	430	5	<5
163633		31.7	350	10	<5
163634		30.8	240	10	<5
163635		21.8	160	10	<5
163636		28.4	140	10	<5
163637		10.4	200	5	<5
163638		27.4	280	10	<5
163639		31.5	160	5	<5
163640		9.32	20	15	<5
163641		21.1	190	10	<5
163642		29.7	160	5	<5
163643		11.9	350	<5	<5
163644		30.1	190	5	<5
163645		34.8	150	10	<5
163646		21.7	140	<5	<5
163647		23.3	100	10	<5
163648		10.6	180	5	<5
DETECTION LIMIT:		0.01	10	5	5

COMMENTS:

AUSTRALIAN LABORATORY SERVICES P/L
A.C.N. 009 936 029

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ANALYTICAL REPORT

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CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Fe % IC586	Mn ppm IC586	Mo ppm IC586	Bi ppm IC586
163649		28.3	210	5	<5
163650		23.4	130	5	<5
163651		17.7	160	5	<5
163652		26.2	120	5	<5
163653		9.69	260	5	<5
163654		21.3	260	5	<5
163655		22.0	180	5	<5
163656		18.8	130	5	<5
163657		25.6	110	5	<5
163658		9.60	190	5	<5
163659		23.3	210	5	<5
163660		3.67	630	15	25
163661		25.4	160	5	<5
163662		17.5	140	5	<5
163663		25.5	120	5	<5
163664		8.92	180	5	<5
163665		23.1	230	5	<5
163666		22.1	180	5	<5
163667		21.2	140	5	<5
163668		20.2	130	5	<5
163669		10.4	170	5	<5
163670		26.8	230	10	<5
163671		23.3	220	<5	<5
163672		21.5	250	5	<5
163673		27.3	330	5	<5
163674		9.43	530	<5	<5
163675		24.9	200	5	<5
163676		30.0	200	5	<5
163677		25.0	600	5	<5
163678		31.8	470	5	<5
ETECTION LIMIT:		0.01	10	5	5

OMMENTS:

AUSTRALIAN LABORATORY SERVICES P/L
A.C.N. 009 936 029

[redacted]

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ANALYTICAL REPORT

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2251-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Fe % IC586	Mn ppm IC586	Mo ppm IC586	Bi ppm IC586
163679		10.0	620	5	<5
163680		4.90	70	10	<5
163681		29.2	230	5	<5
163682		28.7	230	5	<5
163683		21.4	760	5	<5
163684		29.6	500	10	<5
163685		8.84	760	5	<5
163686		22.3	690	10	<5
163687		23.0	380	<5	<5
163688		20.3	630	5	<5
163689		24.6	340	5	<5
163690		10.3	650	<5	<5
163691		23.5	200	5	<5
163692		28.5	470	5	<5
163693		20.0	1200	5	<5
163694		25.9	1550	5	<5
163695		10.4	1200	<5	<5
163696		23.9	660	5	<5
163697		26.7	580	5	<5
163698		19.6	580	<5	<5
163699		25.9	960	5	<5
163700		3.10	1100	10	<5
163701		9.86	770	<5	<5
163702		32.6	300	5	<5
163703		20.8	390	<5	<5
163704		22.2	890	5	<5
163705		25.2	1150	<5	<5
163706		11.2	910	<5	<5
163707		32.0	400	5	<5
163708		25.1	530	<5	<5
DETECTION LIMIT:		0.01	10	5	5

COMMENTS:

AUSTRALIAN LABORATORY SERVICES P/L
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ANALYTICAL REPORT

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CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0
No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT	Fe	Mn	Mo	Bi
	UNIT	%	ppm	ppm	ppm
	METHOD	IC586	IC586	IC586	IC586
163709		N.R.	N.R.	N.R.	N.R.
163710		N.R.	N.R.	N.R.	N.R.
163711		N.R.	N.R.	N.R.	N.R.
163712		N.R.	N.R.	N.R.	N.R.
163713		N.R.	N.R.	N.R.	N.R.
163714		N.R.	N.R.	N.R.	N.R.
163715		N.R.	N.R.	N.R.	N.R.
163716		N.R.	N.R.	N.R.	N.R.
163717		N.R.	N.R.	N.R.	N.R.
163718		N.R.	N.R.	N.R.	N.R.
163719		24.9	1150	10	<5
163720		3.29	240	<5	<5
163721		37.9	700	10	<5
163722		10.5	1050	5	<5
163723		29.3	260	5	<5
163724		32.8	380	10	<5
163725		25.9	1400	5	<5
163726		33.4	1200	10	<5
163727		10.9	1600	5	<5
163728		26.6	350	10	<5
163729		28.4	360	5	<5
163730		26.1	1200	5	<5
163731		32.5	750	5	<5
163732		10.6	1950	5	<5
163733		32.3	280	5	<5
163734		28.4	310	10	<5
163735		19.8	1150	10	<5
163736		25.4	750	10	<5
163737		9.22	1850	10	<5
163738		23.8	180	10	<5
DETECTION LIMIT:		0.01	10	5	5

COMMENTS:

AUSTRALIAN LABORATORY SERVICES P/L
A.C.N. 009 936 029

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ANALYTICAL REPORT

CLIENT: RGC EXPLORATION PTY LTD
ADDRESS: P O BOX 285
BELMONT
WA 6104

CONTACT: MR K GREY

LABORATORY: PERTH
BATCH NUMBER: PH2281-0

No. of SAMPLES: 316
DATE RECEIVED: 01/10/92
DATE COMPLETED: 15/10/92

ORDER No: 5312
SAMPLE TYPE: SOIL
PROJECT No:

SAMPLE NUMBER	ELEMENT UNIT METHOD	Fe % IC586	Mn ppm IC586	Mo ppm IC586	Bi ppm IC586
163739		28.1	390	5	<5
163740		4.21	1200	10	<5
163741		16.7	670	5	<5
163742		23.0	430	10	<5
163743		8.49	1200	10	<5
163744		24.5	260	10	<5
163745		26.6	230	10	<5
163746		17.1	290	10	<5
163747		25.5	240	15	<5
163748		8.87	350	10	<5
163749		23.7	200	5	<5
163750		25.1	210	10	<5
163751		14.9	220	10	<5
163752		21.0	200	10	<5
163753		7.52	240	10	<5
163754		19.0	220	10	<5
163755		25.6	230	10	<5
163756		14.0	190	10	<5
163757		16.9	180	10	<5
163758		8.23	220	10	<5
163759		25.9	220	10	<5
163760		3.09	340	5	<5
163761		24.0	210	10	<5
163762		18.0	190	10	<5
163763		21.8	170	10	<5
163764		8.83	220	5	<5
163765		25.1	260	10	<5
163766		24.0	210	10	<5
163767		15.6	220	10	<5
163768		17.9	220	10	<5
DETECTION LIMIT:		0.01	10	5	5

COMMENTS:

NEUTRON ACTIVATION ANALYSIS

NEUTRON ACTIVATION ANALYSIS REPORT

Date: 22-10-92

KEITH WATKINS, RGC PERTH. PROJECT CODE 1568.
BECQUEREL JOB # 933

Page 1 of 8

NOTE:- A NEGATIVE SIGN INDICATES "LESS THAN".
- RESULTS ARE IN PARTS PER MILLION (ppm) UNLESS OTHERWISE INDICATED.

ELEMENT	DL	#163559	#163560	#163561	#163562	#163563	#163564	#163565	#163566	#163567	#163568
ANTIMONY	.2	5.12	1.81	2.62	3.92	7.29	1.95	4.22	4.15	4.61	7.87
ARSENIC	1.0	15.50	11.80	15.20	21.50	40.50	13.10	22.80	32.00	23.90	37.20
GOLD, ppb	5.0	30.2	517.0	-5.0	7.7	7.1	8.8	-5.0	-5.0	-5.0	-5.0
TUNGSTEN	2.0	10.10	-2.00	7.66	4.42	2.99	3.59	16.10	14.00	5.36	5.94

ELEMENT	DL	#163569	#163570	#163571	#163572	#163573	#163574	#163575	#163576	#163577	#163578
ANTIMONY	.2	1.97	14.60	7.27	4.67	5.45	1.85	6.67	9.70	4.45	7.71
ARSENIC	1.0	13.80	115.00	50.40	27.50	31.30	12.90	43.70	66.00	26.20	44.20
GOLD, ppb	5.0	-5.0	57.0	57.8	15.1	8.3	7.3	86.1	54.2	18.9	19.4
TUNGSTEN	2.0	-2.00	41.80	26.90	8.71	8.71	4.70	28.80	54.50	12.00	21.00

ELEMENT	DL	#163579	#163580	#163581	#163582	#163583	#163584	#163585	#163586	#163587	#163588
ANTIMONY	.2	1.92	4.06	7.84	6.30	4.80	6.23	3.01	12.20	11.30	7.66
ARSENIC	1.0	12.00	1220.00	51.30	64.70	25.40	32.70	15.10	85.40	78.60	47.90
GOLD, ppb	5.0	7.4	374.0	281.0	879.0	108.0	51.0	19.9	-5.0	-5.0	20.5
TUNGSTEN	2.0	3.76	-2.00	141.00	40.80	26.60	17.00	7.88	45.00	58.60	36.70

ELEMENT	DL	#163589	#163590	#163591	#163592	#163593	#163594	#163595	#163596	#163597	#163598
ANTIMONY	.2	8.99	3.64	4.00	4.90	3.49	4.41	1.96	5.19	4.87	3.46
ARSENIC	1.0	52.20	19.90	64.00	48.70	36.20	32.90	15.20	29.30	26.40	22.30
GOLD, ppb	5.0	12.8	25.9	-5.0	-5.0	-5.0	11.2	9.5	17.2	-5.0	25.8
TUNGSTEN	2.0	37.00	13.40	20.30	21.30	17.20	19.60	8.17	18.60	17.10	17.20

NEUTRON ACTIVATION ANALYSIS

BECQUEREL JOB # 933

ELEMENT	DL	#163599	#163600	#163601	#163602	#163603	#163604	#163605	#163606	#163607	#163608
ANTIMONY	.2	5.44	2.70	1.74	1.36	2.34	3.14	5.05	1.57	2.60	4.35
ARSENIC	1.0	33.90	296.00	15.00	53.90	47.00	28.40	39.20	14.00	27.80	38.00
GOLD, ppb	5.0	57.0	256.0	11.3	31.9	45.0	67.7	109.0	37.7	100.0	102.0
TUNGSTEN	2.0	21.00	-2.00	5.53	8.85	13.50	17.90	24.40	6.44	11.00	15.90

ELEMENT	DL	#163609	#163610	#163611	#163612	#163613	#163614	#163615	#163616	#163617	#163618
ANTIMONY	.2	3.09	5.12	1.86	5.32	5.45	4.29	6.28	2.32	6.43	5.91
ARSENIC	1.0	22.40	34.60	15.80	41.40	38.60	29.30	38.50	19.00	45.50	38.80
GOLD, ppb	5.0	113.0	156.0	64.6	135.0	176.0	178.0	262.0	112.0	156.0	155.0
TUNGSTEN	2.0	11.10	26.80	8.85	21.10	19.70	25.20	26.60	10.20	32.60	18.10

ELEMENT	DL	#163619	#163620	#163621	#163622	#163623	#163624	#163625	#163626	#163627	#163628
ANTIMONY	.2	3.63	20.90	5.07	1.95	6.70	7.20	3.77	5.36	1.77	8.26
ARSENIC	1.0	21.60	338.00	32.90	16.20	44.70	41.00	21.20	30.20	15.30	41.30
GOLD, ppb	5.0	178.0	397.0	222.0	116.0	128.0	144.0	173.0	298.0	98.9	82.9
TUNGSTEN	2.0	15.10	19.10	24.50	5.39	40.30	38.30	17.00	21.70	-2.00	51.70

ELEMENT	DL	#163629	#163630	#163631	#163632	#163633	#163634	#163635	#163636	#163637	#163638
ANTIMONY	.2	8.93	4.11	6.00	2.01	15.10	9.49	5.15	6.84	2.49	19.40
ARSENIC	1.0	41.90	26.00	31.60	16.60	59.10	42.10	30.10	39.10	20.90	158.00
GOLD, ppb	5.0	170.0	174.0	323.0	120.0	71.3	163.0	180.0	262.0	119.0	17.7
TUNGSTEN	2.0	59.60	15.30	30.90	-2.00	112.00	43.40	14.20	14.30	-2.00	69.70

BECQUEREL JOB # 933

ELEMENT	DL	#163639	#163640	#163641	#163642	#163643	#163644	#163645	#163646	#163647	#163648
ANTIMONY	.2	8.47	38.40	4.41	7.50	2.52	17.20	9.88	5.20	7.53	2.51
ARSENIC	1.0	44.20	347.00	28.40	42.10	21.00	160.00	72.70	36.20	52.80	22.70
GOLD, ppb	5.0	94.9	1070.0	101.0	222.0	44.9	71.3	72.0	72.6	101.0	62.4
TUNGSTEN	2.0	32.90	7.21	6.77	17.30	5.84	32.60	22.30	7.83	8.51	-2.00

ELEMENT	DL	#163649	#163650	#163651	#163652	#163653	#163654	#163655	#163656	#163657	#163658
ANTIMONY	.2	14.70	11.70	6.46	10.20	2.47	11.20	12.60	7.58	11.40	2.75
ARSENIC	1.0	94.90	77.50	46.30	76.10	23.60	113.00	97.20	56.40	84.00	25.80
GOLD, ppb	5.0	38.2	50.0	39.6	46.6	33.8	12.8	46.0	28.2	53.4	22.5
TUNGSTEN	2.0	19.10	20.00	14.50	16.50	-2.00	4.36	11.00	10.60	9.42	-2.00

ELEMENT	DL	#163659	#163660	#163661	#163662	#163663	#163664	#163665	#163666	#163667	#163668
ANTIMONY	.2	9.29	.67	13.70	7.19	11.10	2.46	14.50	12.20	10.00	9.64
ARSENIC	1.0	180.00	16.60	150.00	60.80	84.80	25.10	98.90	231.00	83.30	75.90
GOLD, ppb	5.0	13.0	509.0	26.6	31.9	39.1	29.3	14.0	11.1	25.2	27.8
TUNGSTEN	2.0	9.58	-2.00	9.02	4.17	9.74	-2.00	4.62	9.52	7.99	6.39

ELEMENT	DL	#163669	#163670	#163671	#163672	#163673	#163674	#163675	#163676	#163677	#163678
ANTIMONY	.2	3.16	14.20	15.60	10.80	16.80	3.31	18.30	22.10	13.50	19.30
ARSENIC	1.0	29.60	111.00	113.00	72.30	107.00	28.00	293.00	166.00	84.00	113.00
GOLD, ppb	5.0	17.3	-5.0	19.8	17.6	18.0	10.4	15.3	-5.0	16.7	11.1
TUNGSTEN	2.0	-2.00	5.02	6.02	6.84	5.25	3.04	11.70	5.88	4.47	-2.00

NEUTRON ACTIVATION ANALYSIS

BECQUEREL JOB # 933

ELEMENT	DL	#163679	#163680	#163681	#163682	#163683	#163684	#163685	#163686	#163687	#163688
ANTIMONY	.2	4.03	12.90	16.90	20.50	12.00	20.90	2.77	15.60	20.90	14.00
ARSENIC	1.0	34.30	212.00	184.00	152.00	73.00	122.00	26.30	223.00	177.00	92.40
GOLD, ppb	5.0	8.6	355.0	14.8	32.4	12.0	10.9	9.5	-5.0	91.6	-5.0
TUNGSTEN	2.0	-2.00	7.61	10.40	5.78	-2.00	7.83	-2.00	12.30	9.61	-2.00

ELEMENT	DL	#163689	#163690	#163691	#163692	#163693	#163694	#163695	#163696	#163697	#163698
ANTIMONY	.2	22.80	3.78	24.80	23.20	18.20	23.50	4.29	18.20	25.70	13.70
ARSENIC	1.0	131.00	32.80	183.00	142.00	106.00	136.00	34.70	174.00	147.00	88.10
GOLD, ppb	5.0	-5.0	-5.0	-5.0	16.0	-5.0	12.8	-5.0	-5.0	-5.0	9.6
TUNGSTEN	2.0	-4.10	-2.00	5.62	5.07	-2.00	7.23	-2.00	7.12	-2.00	-2.00

ELEMENT	DL	#163699	#163700	#163701	#163702	#163703	#163704	#163705	#163706	#163707	#163708
ANTIMONY	.2	21.50	5.18	3.83	16.30	19.20	14.00	22.20	4.26	15.50	19.80
ARSENIC	1.0	123.00	873.00	30.80	146.00	153.00	92.60	135.00	32.50	210.00	162.00
GOLD, ppb	5.0	-5.0	733.0	-5.0	-5.0	54.8	-5.0	-5.0	-5.0	11.4	-5.0
TUNGSTEN	2.0	7.27	-2.00	-2.00	-2.00	7.97	7.56	-2.00	-2.00	-2.00	11.90

ELEMENT	DL	#163719	#163720	#163721	#163722	#163723	#163724	#163725	#163726	#163727	#163728
ANTIMONY	.2	12.20	1.74	19.50	3.04	16.90	20.40	11.80	17.90	3.27	11.70
ARSENIC	1.0	79.80	12.40	122.00	26.80	78.40	160.00	80.50	115.00	25.90	152.00
GOLD, ppb	5.0	-5.0	545.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	24.7
TUNGSTEN	2.0	-2.00	-2.00	-2.00	-2.00	10.20	7.98	-2.00	-2.00	-2.00	11.70

NEUTRON ACTIVATION ANALYSIS

ELEMENT	DL	#163729	#163730	#163731	#163732	#163733	#163734	#163735	#163736	#163737	#163738
ANTIMONY	.2	17.70	11.40	16.50	2.94	20.00	14.20	9.37	14.00	2.76	12.50
ARSENIC	1.0	141.00	75.10	105.00	26.70	123.00	152.00	62.80	92.20	25.60	96.50
GOLD, ppb	5.0	-5.0	-5.0	-5.0	-5.0	-5.0	6.8	33.8	-5.0	-5.0	-5.0
TUNGSTEN	2.0	9.82	-2.00	-2.00	2.47	9.34	12.10	3.53	3.93	-2.00	43.10

ELEMENT	DL	#163739	#163740	#163741	#163742	#163743	#163744	#163745	#163746	#163747	#163748
ANTIMONY	.2	20.90	3.07	7.15	12.00	2.10	7.99	7.13	3.51	4.75	1.67
ARSENIC	1.0	127.00	302.00	53.90	79.60	19.70	65.60	51.00	28.60	38.50	17.90
GOLD, ppb	5.0	-5.0	222.0	6.5	9.6	5.1	49.4	7.1	12.1	10.8	8.9
TUNGSTEN	2.0	5.05	2.55	3.75	3.18	-2.00	101.00	9.78	11.50	7.08	3.15

ELEMENT	DL	#163749	#163750	#163751	#163752	#163753	#163754	#163755	#163756	#163757	#163758
ANTIMONY	.2	5.67	6.58	2.76	3.93	1.12	4.92	6.51	2.66	3.26	1.32
ARSENIC	1.0	50.50	48.70	23.50	31.60	15.10	38.40	45.00	27.30	28.10	16.60
GOLD, ppb	5.0	-5.0	-5.0	-5.0	7.3	8.4	11.3	-5.0	9.2	-5.0	7.3
TUNGSTEN	2.0	25.40	9.73	5.02	6.59	-2.00	9.38	17.00	4.42	4.42	-2.00

ELEMENT	DL	#163759	#163760	#163761	#163762	#163763	#163764	#163765	#163766	#163767	#163768
ANTIMONY	.2	6.15	1.94	6.96	3.16	4.80	1.17	5.39	5.77	2.74	3.36
ARSENIC	1.0	38.70	13.10	40.80	27.10	42.20	14.40	48.00	50.40	29.60	32.90
GOLD, ppb	5.0	18.8	537.0	-5.0	-5.0	9.3	5.2	17.5	28.0	9.6	7.2
TUNGSTEN	2.0	6.64	-2.00	8.18	5.15	-2.00	-2.00	4.33	10.10	8.04	-2.00

APPENDIX B

BOTTOM HOLE RAB MULTIELEMENT SAMPLING GEOCHEMICAL DATA

Project GSUNSET File swallalt.dat Thu Jun 23 00:00 1994

SAMPLE	NORTHING	EASTING	REGOLITH	HOLE	CAPCT	KPCT	NAPCT	RBPPM	SRPPM	K/NA
160014	6045.00	10777.00	SRAFSC	SWR1	3.04	0.41	0.96	-20	37	0.43
160025	6045.00	10718.75	SP	SWR2	0.29	0.28	0.43	-20	38	0.65
160052	6045.00	10374.50	SP	SWR4	0.19	0.16	1.24	-20	18	0.13
160066	6045.00	10324.50	SP	SWR5	0.17	0.24	1.75	-20	30	0.14
160079	6045.00	10274.50	SP	SWR6	0.15	0.25	0.28	-20	23	0.89
160097	6045.00	10233.00	FRAFS	SWR7	0.05	0.20	0.14	-20	-10	1.43
160115	6045.00	10182.50	FRAFS	SWR8	0.02	0.71	0.20	27	14	3.55
160125	6045.00	10115.00	SPAFS	SWR9	0.04	0.18	0.08	-20	-10	2.25
160136	5800.00	10079.25	SRAFS	SWR10	0.02	0.88	0.61	25	15	1.44
160153	5800.00	10119.00	FRAFS	SWR11	0.34	0.26	0.34	25	49	0.76
160167	5800.00	10174.75	SPAFS	SWR12	0.17	0.22	0.86	-20	14	0.26
160182	5800.00	10223.00	SP	SWR13	0.41	0.25	0.52	-20	31	0.48
160199	5800.00	10267.00	SP	SWR14	0.71	0.23	1.04	-20	51	0.22
160213	5800.00	10325.50	SPAFS	SWR15	0.23	0.18	1.32	-20	25	0.14
160227	5800.00	10374.75	SP	SWR16	0.28	0.20	0.80	-20	31	0.25
160241	5800.00	10424.75	SPAFS	SWR17	1.76	0.72	1.77	116	138	0.41
160257	5800.00	10469.50	SRABD	SWR18	1.22	0.44	1.72	57	88	0.26
160275	5800.00	10517.50	SRABM	SWR19	1.49	0.38	1.39	-20	42	0.27
160292	5800.00	10569.50	SRAFS	SWR20	2.79	0.29	0.82	-20	29	0.35
160306	5800.00	10624.75	SP	SWR21	0.14	0.25	0.42	25	24	0.60
160319	5800.00	10675.50	SRABM	SWR22	0.41	0.20	0.69	-20	30	0.29
160334	5801.00	10526.50	SRAFS	SWR23	0.50	0.20	1.14	-20	52	0.18
160353	5801.00	10484.75	FRAFS	SWR24	5.54	0.28	0.20	-20	34	1.40
160370	5801.00	10430.50	FRAFS	SWR25	0.18	0.22	2.77	-20	26	0.08
160384	5801.00	10375.25	SPAFS	SWR26	0.19	0.28	0.42	-20	25	0.67
160399	5801.00	10328.75	SPAFS	SWR27	0.15	0.16	1.43	-20	22	0.11
160417	5801.00	10281.75	SRAFS	SWR28	0.38	0.17	0.77	-20	31	0.22
160433	5801.00	10229.50	FRAFS	SWR29	0.13	0.21	1.07	-20	18	0.20
160446	5801.00	10173.25	SP	SWR30	0.00	0.00	0.00	0	0	
160463	5600.00	10631.25	SPAFS	SWR31	0.17	0.26	0.34	-20	28	0.76
160478	5600.00	10578.75	FRAG	SWR32	0.22	0.21	3.12	-20	113	0.07
160491	5600.00	10522.75	SPAFS	SWR33	0.18	0.50	2.14	20	25	0.23
160498	5600.00	10462.75	SP	SWR34	2.28	0.28	1.09	-20	58	0.26
160509	5600.00	10419.00	SPABM	SWR35	1.71	0.17	0.82	-20	33	0.21
160519	5600.00	10367.50	SPAB	SWR36	2.72	0.23	2.87	-20	59	0.08
160538	5600.00	10334.75	SRAFSC	SWR37	0.70	0.27	1.14	-20	88	0.24
160552	5600.00	10275.25	SPABS	SWR38	0.70	0.27	0.60	-20	34	0.45
160568	5600.00	10228.75	SPAFS	SWR39	0.16	0.41	1.42	-20	32	0.29
160579	5600.00	10170.75	SPAFS	SWR40	0.03	0.13	0.07	-20	-10	1.86
160594	5600.00	10127.00	SPAFS	SWR41	0.00	0.00	0.00	0	0	
160612	5400.00	10117.00	SPAFSC	SWR42	0.03	0.19	0.09	-20	-10	2.11
160628	5400.00	10171.25	SPAFS	SWR43	0.03	0.15	0.07	-20	-10	2.14
160647	5400.00	10215.25	SRAFSC	SWR44	0.03	0.15	0.07	-20	-10	2.14
160659	5400.00	10277.50	SP	SWR45	0.21	0.31	2.16	-20	29	0.14
160673	5400.00	10325.50	SP	SWR46	0.21	0.24	0.94	-20	41	0.26
160679	5400.00	10389.25	DA	SWR47	2.19	0.50	0.74	74	49	0.68
160688	5400.00	10435.00	SP	SWR48	1.70	0.55	1.18	102	58	0.47
160696	5400.00	10484.75	SP	SWR49	1.68	0.30	1.08	29	66	0.28
160710	5400.00	10525.00	SRABS	SWR50	0.00	0.00	0.00	0	0	
160724	5400.00	10575.50	FRABMS	SWR51	0.12	0.17	0.28	-20	13	0.61
160733	5400.00	10633.00	FRABMS	SWR52	0.70	0.22	0.20	-20	48	1.10
160747	5400.00	10675.50	SRAB	SWR53	0.10	0.24	0.21	-20	15	1.14
160753	4800.00	9189.00	SP	SWR54	0.03	0.67	1.57	52	32	0.43
160761	4800.00	9237.25	CZ	SWR55	0.09	0.73	3.43	47	44	0.21
160766	4800.00	9291.00	CZ	SWR56	0.02	1.30	1.00	73	-10	1.30
160772	4800.00	9339.25	SPABMS	SWR57	0.02	1.59	1.03	64	19	1.54
160775	4800.00	9394.75	SP	SWR58	0.08	0.80	1.52	29	95	0.53
160779	4800.00	9443.50	SP	SWR59	0.71	0.99	1.15	55	77	0.86
160783	4800.00	9494.75	CZ	SWR60	0.45	0.77	1.13	49	70	0.68
160796	5200.00	10874.50	SP	SWR61	1.27	0.24	1.08	-20	47	0.22
160809	5200.00	10822.75	SPAFS	SWR62	1.03	0.48	1.12	23	41	0.43
160823	5200.00	10774.50	SPAFSC	SWR63	1.34	0.24	1.55	-20	41	0.15
160830	5200.00	10713.25	FRAFS	SWR64	0.17	0.13	0.14	-20	-10	0.93
160846	5200.00	10678.50	SPAFS	SWR65	0.22	1.09	2.32	41	17	0.47
160859	6200.00	10024.75	SRAFS	SWR66	0.02	0.72	1.54	48	10	0.47
160874	6200.00	10073.00	SRAFS	SWR67	0.02	0.71	1.34	52	-10	0.53
160887	6200.00	10126.75	SRAFS	SWR68	0.03	0.84	1.06	35	-10	0.79
160904	6200.00	10168.75	SPAFS	SWR69	0.02	1.17	0.67	38	-10	1.75
160921	6200.00	10218.75	SRAFS	SWR70	0.03	0.64	0.19	46	-10	3.37
160937	6200.00	10269.50	SRABM	SWR71	2.89	0.24	1.12	-20	21	0.21
160951	6200.00	10524.75	SP	SWR72	0.09	0.15	0.14	-20	-10	1.07
160966	6200.00	10573.00	SRABM	SWR73	0.18	0.24	0.49	-20	25	0.49
160979	6200.00	10625.25	SRABM	SWR74	1.52	0.21	1.37	21	69	0.15
160996	6200.00	10469.50	SRABM	SWR75	0.23	0.30	1.36	-20	38	0.22
161006	6400.00	10816.75	SPAFS	SWR76	0.26	0.28	0.77	-20	43	0.36
161017	6400.00	10720.75	SPABG	SWR77	0.77	0.44	1.83	21	52	0.24
161031	6400.00	10674.50	SRABM	SWR78	1.47	0.29	1.12	-20	58	0.26
161045	6400.00	10625.25	SRABM	SWR79	0.40	0.25	0.85	-20	49	0.29
161057	6400.00	10572.75	SP	SWR80	0.49	0.37	0.42	20	38	0.88
161073	6400.00	10528.75	SRABM	SWR81	1.57	0.34	0.77	-20	37	0.44
161088	6400.00	10477.00	SRABM	SWR82	1.58	0.20	1.74	-20	59	0.11
161091	6600.00	10394.75	SRABB	SWR83	0.73	0.29	1.12	30	45	0.26
161096	6600.00	10441.00	SRABM	SWR84	1.24	0.33	1.03	-20	56	0.32
161107	6600.00	10481.25	SRABM	SWR85	2.21	0.28	1.13	-20	93	0.25
161115	6600.00	10535.25	SRABM	SWR86	0.78	0.34	0.87	-20	57	0.39
161126	6600.00	10581.50	SRABM	SWR87	2.11	0.47	0.82	47	83	0.57

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SAMPLE	NORTHING	EASTING	REGOLITH	HOLE	CAPCT	KPCT	NAPCT	RBPPM	SRPPM	K/NA
161139	6800.00	10524.50	SRABM	SWR88	1.05	0.24	1.30	-20	35	0.18
161150	6800.00	10568.50	SRABM	SWR89	0.00	0.00	0.00	0	0	
161157	6800.00	10463.25	SRABM	SWR90	0.19	0.19	1.13	27	24	0.17
161169	6800.00	10421.25	SRABM	SWR91	1.79	0.65	1.90	21	88	0.34
161174	6800.00	10359.00	SRABM	SWR92	1.69	0.23	1.22	-20	38	0.19
161179	6800.00	10309.00	SRAG	SWR93	0.44	0.81	1.72	100	35	0.47
161190	6800.00	10268.50	SRABM	SWR94	0.96	0.36	0.94	-20	36	0.38
161204	6800.00	10225.00	SRAFS	SWR95	1.10	0.51	0.90	27	51	0.57
161222	6800.00	10182.75	SRAFS	SWR96	0.04	0.53	0.90	23	11	0.59
161235	6800.00	10125.00	SRAFS	SWR97	0.04	0.20	0.20	-20	-10	1.00
161246	6800.00	10068.75	SRAFS	SWR98	2.70	0.64	1.10	35	133	0.58
161257	7000.00	10379.00	SRABM	SWR99	1.21	0.24	1.26	-20	38	0.19
161269	7000.00	10429.00	SRABM	SWR100	0.63	0.34	1.20	-20	44	0.28
161279	7000.00	10480.75	SRABM	SWR101	1.97	0.26	0.99	-20	33	0.26
161294	6045.00	10626.75	SRABM	SWR102	1.04	0.31	1.41	-20	84	0.22
161311	6045.00	10501.00	DC	SWR104	0.04	0.25	0.28	33	-10	0.89
161330	6045.00	10537.25	SRABM	SWR104	0.37	0.26	0.38	-20	26	0.68
161342	6045.00	10471.25	SRAG	SWR105	0.05	0.17	0.50	-20	-10	0.34
161386	7000.00	9939.75	SRAFS	SWR107	0.04	0.50	1.62	45	11	0.31
161390	7000.00	9993.75	SRAFS	SWR108	0.38	0.30	0.26	-20	26	1.15
161397	7000.00	10037.75	SRAFS	SWR109	0.06	0.37	1.07	-20	21	0.35
161404	7000.00	10089.25	SRAFS	SWR110	2.98	0.76	2.16	27	111	0.35
161411	7000.00	10137.50	SRAFS	SWR111	0.05	0.44	1.08	29	13	0.41
161424	7000.00	10176.75	SRAFS	SWR112	0.03	0.33	1.09	24	-10	0.30
161442	7000.00	10217.50	SRABM	SWR113	0.03	0.39	0.68	36	-10	0.57
161447	6800.00	10009.25	SRAFS	SWR114	0.03	0.36	1.57	27	-10	0.23
161459	6800.00	9973.00	SRAFS	SWR115	0.02	0.77	1.47	67	-10	0.52
161468	6600.00	9935.25	SRAFS	SWR116	0.03	0.68	1.54	51	26	0.44
161476	6600.00	9985.25	SRAFS	SWR117	0.03	0.75	0.83	48	-10	0.90
161488	6600.00	10028.75	SRAFS	SWR118	0.03	0.44	1.34	25	18	0.33
161504	6600.00	10071.00	SRAFS	SWR119	0.02	0.57	1.03	35	11	0.55
161512	6600.00	10134.75	SRAFS	SWR120	0.04	1.41	0.19	79	20	7.42
161515	6600.00	10195.50	SRABD	SWR121	2.29	0.43	0.77	-20	88	0.56
161517	6600.00	10247.25	SRAG	SWR122	1.21	0.81	3.37	58	204	0.24
161518	6400.00	10250.75	SRABM	SWR123	0.82	0.29	0.63	31	33	0.46
161524	6400.00	10208.50	SRABD	SWR124	0.42	0.48	2.46	-20	188	0.20
161536	6400.00	10172.50	SRAFS	SWR125	0.13	0.29	0.35	-20	20	0.83
161544	6400.00	10113.00	SRAFS	SWR126	0.05	0.88	0.54	63	39	1.63
161554	6400.00	10068.75	SP	SWR127	0.03	0.14	0.16	-20	-10	0.88
161561	6400.00	10010.75	SRAFS	SWR128	0.03	0.44	1.80	27	-10	0.24
161570	6400.00	9966.75	SRAFS	SWR129	0.04	0.51	1.51	29	23	0.34
161581	6200.00	9931.00	SRAFS	SWR130	0.04	0.54	1.37	31	14	0.39
161590	6200.00	9983.00	SP	SWR131	0.11	0.55	0.74	-20	67	0.74
161604	6000.00	10275.25	SRABM	SWR132	0.17	0.42	0.46	-20	26	0.91
161621	6000.00	10230.50	SRABM	SWR133	0.06	0.31	0.26	-20	11	1.19
161639	6000.00	10184.75	SP	SWR134	0.05	0.30	0.35	-20	-10	0.86
161657	6000.00	10132.75	SRAFS	SWR135	0.03	0.75	1.16	36	21	0.65
161669	6000.00	10070.75	SRAFS	SWR136	0.03	0.95	0.33	35	34	2.88
161681	6000.00	10021.25	SRAG	SWR137	0.13	0.22	1.11	40	14	0.20
161690	6000.00	9967.00	SP	SWR138	0.03	0.31	0.10	-20	-10	3.10
161697	5800.00	9937.25	SRAFS	SWR139	1.22	0.50	1.33	-20	57	0.38
161706	5800.00	9985.50	SRAFS	SWR140	0.03	0.59	1.48	46	24	0.40
161716	5800.00	10031.50	SRAFS	SWR141	0.03	1.12	0.92	37	23	1.22
161726	5600.00	10066.75	SRAFS	SWR142	0.07	0.94	0.43	31	48	2.19
161730	5600.00	10006.75	SRAFS	SWR143	0.06	0.69	1.39	41	37	0.50
161741	5600.00	9969.25	SRAFSC	SWR144	0.03	0.36	1.40	-20	12	0.26
161747	5400.00	9939.50	SRAFSC	SWR145	0.10	0.24	0.51	34	29	0.47
161753	5400.00	9989.50	SRAFSC	SWR146	4.35	0.64	1.13	27	98	0.57
161762	5400.00	10034.75	SP	SWR147	0.04	0.84	0.94	44	25	0.89
161773	5400.00	10079.00	SP	SWR148	0.00	0.00	0.00	0	0	
161778	5400.00	10069.50	SRAFS	SWR148	0.00	0.00	0.00	0	0	
161791	5200.00	10173.00	SRAFSC	SWR149	0.13	0.29	0.19	-20	19	1.53
161801	5200.00	10117.00	SP	SWR150	0.12	0.47	0.18	52	14	2.61
161813	5200.00	10072.50	SRAFS	SWR151	0.04	0.19	0.07	-20	-10	2.71
161826	5200.00	10023.00	SRAFS	SWR152	0.05	0.77	1.36	43	61	0.57
161833	5200.00	9963.25	SRAFS	SWR153	0.11	0.38	1.48	-20	31	0.26
180219	10600.00	10619.00	SPAFSC	SWR236	0.05	0.38	0.97	40	19	0.39
180236	10600.00	10669.50	SPAFS	SWR237	0.04	0.36	0.35	52	-10	1.03
180249	10600.00	10727.75	SPAFS	SWR238	0.03	0.62	0.72	-20	19	0.86
180254	10600.00	10791.50	SRABMS	SWR239	2.33	0.26	1.94	-20	23	0.13
180259	10600.00	10841.50	SRABMS	SWR240	2.94	0.30	0.44	25	26	0.68
180264	10600.00	10893.50	SRABMS	SWR241	1.77	0.23	1.31	-20	41	0.18
180283	10800.00	10615.00	SRABS	SWR242	0.03	0.27	0.76	33	-10	0.36
180296	10800.00	10675.50	SPABS	SWR243	0.03	0.97	0.14	51	-10	6.93
180309	10800.00	10727.00	SPAFS	SWR244	0.03	0.51	1.70	40	17	0.30
180323	10800.00	10775.50	SPAFS	SWR245	0.02	0.43	0.58	31	-10	0.74
180329	10800.00	10839.00	SRABS	SWR246	0.60	0.18	0.89	-20	16	0.20
180346	10800.00	10933.00	SRABS	SWR248	0.71	0.16	0.16	-20	20	1.00
180367	11000.00	10611.50	SPAFSC	SWR249	0.04	0.76	0.75	23	17	1.01
180385	11000.00	10666.75	SP	SWR250	0.02	0.31	0.48	-20	11	0.65
180399	11000.00	10723.50	SPAFS	SWR251	0.02	0.55	1.89	24	-10	0.29
180417	11000.00	10767.00	SRAFS	SWR252	0.03	0.75	1.61	35	34	0.47
180432	11000.00	10822.75	SPAFSC	SWR253	0.03	0.20	0.15	-20	17	1.33
180443	11000.00	10881.25	SRABS	SWR254	0.27	0.20	1.29	-20	23	0.16
180452	11000.00	10933.00	SRABS	SWR255	2.96	0.15	0.77	-20	21	0.19
180461	11000.00	10985.50	SRABS	SWR256	1.18	0.21	1.28	-20	48	0.16

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SAMPLE	NORTHING	EASTING	REGOLITH	HOLE	CAPCT	KPCT	NAPCT	RBPPM	SRPPM	K/NA
180475	11200.00	10672.75	SPAFS	SWR257	0.02	0.75	0.98	44	11	0.77
180488	11200.00	10727.00	SPAFS	SWR258	0.02	0.81	0.91	34	-10	0.89
180504	11200.00	10771.00	SPAFS	SWR259	0.02	0.55	1.26	22	13	0.44
180514	11200.00	10831.25	SPAFS	SWR260	0.04	0.49	0.89	45	18	0.55
180517	11200.00	10895.00	SRABMS	SWR261	1.34	0.20	0.98	-20	27	0.20
180521	11200.00	10945.00	SRABMS	SWR262	3.20	0.17	0.84	-20	23	0.20
180523	11200.00	10996.75	SRABMS	SWR263	1.92	0.15	1.04	-20	119	0.14
180528	11200.00	11041.25	SRABMS	SWR264	1.90	0.21	1.61	-20	40	0.13
180532	11200.00	11093.50	SRABG	SWR265	4.19	0.76	1.51	39	148	0.50
180535	11200.00	11145.00	SRABS	SWR266	0.12	0.16	1.13	-20	16	0.14
180539	11200.00	11193.00	SRABS	SWR267	0.12	0.60	0.59	39	13	1.02
180545	11200.00	11241.50	SRABS	SWR268	1.16	0.66	0.57	35	31	1.16
180556	11200.00	11279.50	SRABS	SWR269	0.10	0.18	1.27	-20	19	0.14
180565	11400.00	10734.75	SPAFS	SWR270	0.02	0.68	0.95	28	24	0.72
180575	11400.00	10781.00	SRAFSC	SWR271	1.28	0.73	0.85	40	54	0.86
180582	11400.00	10839.00	SPABS	SWR272	0.04	0.63	0.38	40	15	1.66
180588	11400.00	10889.25	SPABS	SWR273	0.04	0.51	0.74	-20	23	0.69
180592	11400.00	10943.00	SRABMS	SWR274	1.17	0.17	0.94	-20	29	0.18
180596	11400.00	10993.50	SRABMS	SWR275	3.58	0.20	1.06	-20	23	0.19
180602	11400.00	11041.00	SRABMS	SWR276	0.83	0.60	0.34	27	37	1.76
180607	11400.00	11091.50	SPABMS	SWR277	0.04	0.44	0.74	23	19	0.59
180612	11400.00	11141.50	SRABMS	SWR278	1.63	0.42	0.81	40	45	0.52
180615	11400.00	11195.50	SRABMS	SWR279	2.10	0.56	1.71	23	103	0.33
180621	11400.00	11241.00	SRABMS	SWR280	0.25	0.42	0.96	25	30	0.44
180632	11400.00	11279.50	SRABMS	SWR281	0.39	0.17	1.39	-20	35	0.12
180651	11400.00	11314.75	SPABMS	SWR282	0.57	0.26	0.56	22	32	0.46
180666	11600.00	10773.00	SRAFSC	SWR283	0.03	0.53	1.05	41	-10	0.50
180681	11600.00	10823.50	SRABS	SWR284	0.04	0.67	0.89	47	15	0.75
180688	11600.00	10886.75	SPABS	SWR285	0.02	0.43	0.66	26	20	0.65
180695	11600.00	10937.25	SRABMS	SWR286	0.10	0.09	1.10	20	12	0.08
180699	11600.00	10993.50	SRABMS	SWR287	3.40	0.21	0.74	-20	34	0.28
180704	11600.00	11043.00	SRABMS	SWR288	2.11	0.19	1.56	-20	30	0.12
180713	11600.00	11083.00	SP	SWR289	0.03	0.12	0.07	-20	-10	1.71
180715	11600.00	11147.00	SRABMS	SWR290	2.44	0.20	1.46	-20	62	0.14
180726	11600.00	11181.50	SRABMS	SWR291	0.89	0.24	2.40	21	56	0.10
180744	11600.00	11217.25	SRABMS	SWR292	0.03	0.51	0.46	49	-10	1.11
180763	11600.00	11265.00	SP	SWR293	0.03	0.47	0.34	30	21	1.38
180775	11600.00	11327.00	SPAFS	SWR294	0.01	0.23	0.89	-20	-10	0.26
180785	11800.00	10783.00	SRABMS	SWR295	0.04	0.58	2.57	22	18	0.23
180803	11800.00	10817.00	SRABMS	SWR296	0.08	0.68	1.38	36	15	0.49
180812	11800.00	10883.50	SRABS	SWR297	0.06	0.28	1.56	21	15	0.18
180818	11800.00	10939.00	SRABS	SWR298	0.08	0.17	0.26	20	16	0.65
180826	11800.00	10986.75	SRABMS	SWR299	0.09	0.25	0.07	30	-10	3.57
180831	11800.00	11040.75	SRABMS	SWR300	0.45	0.20	0.38	-20	24	0.53
180841	11800.00	11083.00	SRAGS	SWR301	0.21	0.35	2.06	-20	58	0.17
180853	11800.00	11127.00	SPABMS	SWR302	0.08	0.30	0.07	28	10	4.29
180858	11800.00	11197.00	SPABG	SWR303	0.22	0.35	0.69	-20	25	0.51
180865	11800.00	11235.00	SRABMS	SWR304	0.86	0.11	1.57	-20	50	0.07
180881	11800.00	11271.00	SRABMS	SWR305	0.04	0.38	0.53	-20	21	0.72
180892	11800.00	11328.75	SRABMS	SWR306	0.03	0.26	0.77	27	14	0.34
180906	11800.00	11375.25	SRABMS	SWR307	0.03	0.21	0.92	-20	15	0.23
180919	12000.00	10825.50	SRABS	SWR308	0.02	0.47	0.91	29	21	0.52
180931	12000.00	10879.00	SRABS	SWR309	0.08	0.31	0.87	-20	37	0.36
180946	12000.00	10983.00	SRABMS	SWR311	0.36	0.30	0.27	-20	29	1.11
180957	12000.00	11029.00	SPABG	SWR312	0.25	0.30	0.94	20	26	0.32
180962	12000.00	11093.25	SRABM	SWR313	3.47	0.21	1.35	-20	72	0.16
180971	12000.00	11133.00	SPABMS	SWR314	1.54	0.19	1.15	-20	95	0.17
165014	7800.00	9823.25	SRAFS	SWR154	0.86	0.38	0.51	34	45	0.75
165027	7800.00	9877.00	SPAFS	SWR155	0.04	0.63	1.34	20	17	0.47
165042	7800.00	9923.50	SRAFS	SWR156	0.18	0.40	1.31	-20	22	0.31
165052	7800.00	9981.25	SRAFS	SWR157	0.08	0.59	1.36	26	66	0.43
165067	7800.00	10023.00	SRAFSC	SWR158	0.08	0.55	1.46	23	44	0.38
165085	7800.00	10067.00	SPAFS	SWR159	0.05	0.55	1.27	-20	51	0.43
165101	7800.00	10121.00	SRAFS	SWR160	0.02	0.91	1.78	48	30	0.51
165117	7800.00	10169.25	SPABM	SWR161	0.06	0.47	0.16	-20	22	2.94
165135	7800.00	10297.00	CZ	SWR162	0.67	0.24	0.30	-20	18	0.80
165147	7800.00	10275.25	SPABS	SWR163	0.05	0.17	0.22	21	-10	0.77
165153	7800.00	10339.25	SRABM	SWR164	2.19	0.23	1.37	-20	54	0.17
165166	7800.00	10377.50	SRABMS	SWR165	0.15	0.23	1.11	-20	21	0.21
165173	7800.00	10437.25	SRABMS	SWR166	0.21	0.30	1.24	-20	25	0.24
165182	7800.00	10484.75	SRABMS	SWR167	1.97	0.33	0.70	-20	37	0.47
165190	8000.00	9885.50	SRAFS	SWR168	0.97	0.26	0.94	-20	40	0.28
165199	8000.00	9933.25	SPAFS	SWR169	0.26	0.74	1.48	51	52	0.50
165206	8000.00	9989.25	SPAFS	SWR170	2.68	0.24	1.63	-20	64	0.15
165216	8000.00	10031.50	SPAFS	SWR171	2.67	0.44	1.35	-20	53	0.33
165227	8000.00	10081.00	SRAFS	SWR172	1.87	0.40	1.35	-20	48	0.30
165241	8000.00	10125.25	SRAFS	SWR173	0.04	0.43	1.62	-20	21	0.27
165250	8000.00	10182.75	SRAFS	SWR174	0.05	1.13	1.40	72	42	0.81
165264	8000.00	10225.25	SRAFS	SWR175	0.03	0.47	2.07	25	32	0.23
165277	8000.00	10274.75	SPABM	SWR176	0.22	0.24	0.40	-20	33	0.60
165294	8000.00	10319.25	SPABMS	SWR177	0.05	0.17	0.21	-20	17	0.81
165303	8000.00	10384.75	SPABM	SWR178	0.42	0.21	1.93	-20	48	0.11
165311	8000.00	10435.50	SPABM	SWR179	0.39	0.29	2.08	-20	67	0.14
165321	8000.00	10483.00	SPABM	SWR180	0.05	0.13	0.96	21	11	0.14
165332	8200.00	9879.50	SPAFS	SWR181	0.02	0.36	1.25	47	-10	0.29
165343	8200.00	9931.50	SRAFSC	SWR182	0.99	0.19	1.50	-20	29	0.13

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SAMPLE	NORTHING	EASTING	REGOLITH	HOLE	CAPCT	KPCT	NAPCT	RBPPM	SRPPM	K/NA
165352	8200.00	9983.25	SPAFSC	SWR183	0.39	0.23	2.81	21	22	0.08
165362	8200.00	10033.00	SPAFS	SWR184	0.19	0.19	1.30	27	19	0.15
165376	8200.00	10072.75	SPAFSC	SWR185	0.30	0.25	1.38	28	14	0.18
165391	8200.00	10123.50	SPABMS	SWR186	0.04	0.42	1.30	29	12	0.32
169619	8200.00	10231.00	SPABMS	SWR188	0.03	0.32	1.58	30	-10	0.20
169634	8200.00	10273.50	SRAFS	SWR189	0.04	0.44	2.18	25	16	0.20
169651	8200.00	10319.25	SRAFS	SWR190	0.03	0.64	1.35	31	12	0.47
169665	8200.00	10375.25	SRABMS	SWR191	0.05	0.34	0.16	30	-10	2.13
169676	8200.00	10428.75	SRABMS	SWR192	0.45	0.31	2.83	32	44	0.11
169688	8200.00	10479.25	SRABM	SWR193	0.37	0.17	0.86	38	18	0.20
169696	8400.00	9935.50	SRAFSC	SWR194	0.05	0.36	0.81	38	27	0.44
169706	8400.00	9983.25	SRAFS	SWR195	0.05	0.27	0.95	-20	18	0.28
169715	8400.00	10033.00	SRAFS	SWR196	0.08	0.33	1.54	20	15	0.21
169729	8400.00	10075.50	SRAFS	SWR197	0.02	0.22	1.63	-20	-10	0.13
169743	8400.00	10125.25	SRAFSC	SWR198	0.03	0.21	1.21	24	-10	0.17
169751	8400.00	10185.50	SRAFS	SWR199	0.02	0.95	1.71	42	30	0.56
169763	8400.00	10228.75	SRAFS	SWR200	0.02	0.66	1.48	32	20	0.45
169774	8400.00	10278.75	SRAFSC	SWR201	0.02	0.25	1.61	30	-10	0.16
169782	8600.00	9937.25	SRAFSC	SWR202	0.05	0.57	2.28	43	-10	0.25
169785	8600.00	9994.75	SRAFSC	SWR203	0.10	0.37	2.08	41	11	0.18
169791	8600.00	10039.25	SRAFS	SWR204	0.58	0.14	2.00	32	19	0.07
169802	8600.00	10080.75	SRAFS	SWR205	0.01	0.44	2.36	35	-10	0.19
169815	8600.00	10125.25	SRAFSC	SWR206	0.02	0.13	1.50	24	-10	0.09
169827	8600.00	10179.50	SPAFS	SWR207	0.04	0.25	1.71	26	-10	0.15
169839	8600.00	10227.50	SPAFS	SWR208	0.13	0.39	1.67	26	10	0.23
169853	8600.00	10275.25	SPAFS	SWR209	0.01	0.56	1.55	59	12	0.36
169871	8800.00	9967.00	SRAFSC	SWR210	0.03	0.25	1.21	21	11	0.21
169878	8800.00	10037.00	SRAFS	SWR211	0.02	0.44	1.31	55	-10	0.34
169887	8800.00	10085.50	SRAFS	SWR212	0.55	0.16	1.25	-20	24	0.13
169897	8800.00	10131.25	SPAFS	SWR213	0.04	0.36	0.67	60	-10	0.54
169913	8800.00	10171.00	SPAFS	SWR214	0.02	0.39	1.53	24	-10	0.25
169926	8800.00	10227.00	SRAFS	SWR215	0.05	0.40	1.90	25	11	0.21
169939	8800.00	10275.25	SRAFSC	SWR216	2.34	0.44	1.53	21	44	0.29
169955	8800.00	10321.50	SRAFS	SWR217	0.03	0.64	1.45	49	-10	0.44
169969	8800.00	10375.50	SPAFS	SWR218	0.02	0.77	1.55	71	16	0.50
169977	9000.00	9985.50	SRAFSC	SWR219	0.03	0.96	0.83	90	-10	1.16
169989	9000.00	10029.25	SRAFS	SWR220	2.27	0.40	1.08	22	38	0.37
180004	9000.00	10073.25	SRAFSC	SWR221	0.27	0.31	1.07	39	15	0.29
180015	9000.00	10129.50	SRAFS	SWR222	0.29	0.13	1.02	-20	16	0.13
180030	9000.00	10173.50	SRAFS	SWR223	0.03	0.22	1.76	29	-10	0.13
180042	9000.00	10229.00	SRAFSC	SWR224	0.31	0.29	1.42	43	14	0.20
180056	9000.00	10272.75	SPAFS	SWR225	0.01	0.23	1.53	-20	-10	0.15
180069	9000.00	10327.00	SRAFS	SWR226	0.04	0.30	2.11	-20	-10	0.14
180084	9000.00	10373.00	SPAFS	SWR227	0.03	0.52	1.60	40	13	0.33
180099	9000.00	10421.00	SPAFS	SWR228	0.02	0.51	1.22	51	-10	0.42
180122	9000.00	10459.00	SPAFS	SWR229	0.02	0.48	0.53	66	-10	0.91
180139	9000.00	10517.50	SPAFS	SWR230	0.02	0.47	0.45	61	-10	1.04
180149	9200.00	10383.00	SPAFSC	SWR231	0.02	0.33	1.94	35	-10	0.17
180161	9200.00	10429.00	SPAFS	SWR232	0.02	0.44	1.47	26	-10	0.30
180173	9200.00	10477.00	SPAFS	SWR233	0.04	1.00	0.74	41	32	1.35
180189	9400.00	10471.00	SPAFSC	SWR234	0.02	0.46	0.87	47	-10	0.53
180203	9400.00	10525.50	SPAFS	SWR235	0.03	0.31	0.84	-20	-10	0.37

APPENDIX C

PROSPERO PROSPECT: DIAMOND DRILLING GEOLOGICAL LOGS AND PHOTOGRAPHIC PLATES

LEGEND FOR RAB/RC GEOLOGICAL LOGS

REG/ROCK

- Computer code for regolith and lithology information

Regolith

SO - soil
DA - alluvium
DS - sheetwash
DC - colluvium
DCP - pisolitic colluvium
RD - lateritic duricrust
MZ - mottled zone
CZ - clay zone (pedolith)
SP - saprolite
SR - saprock
FR - fresh bedrock

Modified Regolith

HP - hardpan
SC - silicified caprock
FC - ferricrete
SF - ferruginous saprolite

Lithology

AB - vfg-fg mafic (undifferentiated)
ABB - tholeiitic basalt
ABBS - schistose (mod-strong) thol. basalt
ABD - dolerite
ABG - gabbro
ABGL - leucogabbro
ABM - hi-mg basalt trem±chl
ABMS - schistose hi-Mg basalt
ABS - vfg-fg chl ± ser schist
AFA - andesitic volcanic (fg ser+chl±qz) schist
AFP - felsic porphyry
AFPF - felsic porphyry - feldspar phyric
AFPQ - felsic porphyry - quartz phyric
AFS - felsic schist (fg ser±qz±tr.chl)
AFSC - felsic - intermediate schist (fg ser±qz±tr.qz)
AFST - tourmaline altered felsic (f-mg ser±to±qz±alb±py)
AG - undifferentiated
AGS - Syenogranite/microsyenogranitoid
AGT - tonalite
AIC - chert (vfg qz±lim±hem)
AMZ - mylonite zone silicified felsic (vfg qz-ser)
AQV - quartz vein

Munsell

- Colour code modified after the Munsell chart

Munsell codes are composed as follows QQCCDD:-
QQ - qualifier (value), CC - (optional) qualifying colour (chroma), DD - colour (chroma). With the following abbreviations being used.

LT - light or pale
MD - moderate
DK - dark or dusky
BR - brown
RD - red
OL - olive
PL - purple
WH - white

GR - green
GY - grey
OR - orange
YW - yellow
PK - pink
BL - blue
BK - black

eg. LTBR light brown
MDRDBR moderate reddish brown
DKYWGR dark yellowish green etc.

Grainsize

- Grainsize code

VFG - very fine grained
FG - fine grained
MG - medium grained
CG - coarse grained
VCG - very coarse grained

use F-MG, M-CG etc for transitions

Mineralogy

- List minerals in decreasing order of abundance

QZ - quartz
FSPAR - feldspar
KSPAR - K-feldspar
PLAG - plagioclase
ALB - albite
CHL - chorite
SER - sericite
BIO - Biotite
MU - muscovite
TC - talc
AMPH - amphibole
ACT - actinolite
TREM - tremolite

HNB - hornblende
CPX - clinopyroxene
OPX - orthopyroxene
SERP - serpentine
OL - olivine
EP - epidote
MGT - magnetite
HEM - hematite
LIM - limonite
CC - carbonate
TO - tourmaline
CLY - clay minerals

LEGEND FOR DDH LOGS

PICTORIAL LOG - STRUCTURE

Foliation

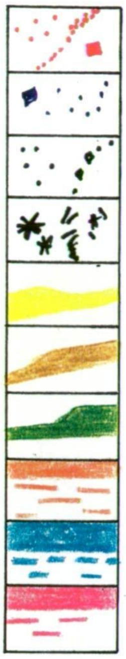
Shear zone

Microshear bands

Fault

PICTORIAL LOG - LITHOLOGY		Summary Code
🟪	Dolerite	ABD
🟩	Chlorite schist	ABS
🟩	Sericite - chlorite ± quartz schist	AFSC
🟩	Sericite - quartz ± feldspar schist	AFS
🟥	Feldspar porphyry	AFP
	_ Quartz phyric	AFPQ
🟨	Quartz vein	AQV
🟧	Quartz-carbonate vein	AQCCV
🟩	Felsic hornfels	AFH

PICTORIAL LOG - MIN/ALT



Sulphides - Pyrite
- Arsenopyrite
- Other (as indicated in graphic log column)

Tourmaline

Quartz veins

Carbonate veins

Chlorite veins

Alteration - Albitic
- Fuchsitic
- Hematitic

GRAPHIC LOG

Weak Alteration

Moderate Alteration

Strong Alteration

SURVEY No	DEPTH	AZIMUTH	DIP
1	93m	227°	63°
2	117m	228°	62.2°
3	141m EOH	227°	61.5°
AZIMUTH			
GRID WEST 270°	= 237°	MAG.	

NOTES/LEGEND

0.0 - 87.7m RC HOLLOW HAMMER 5½" WDHD

87.7 - 141.5m NQ2 CORE WDHD

DRILL HOLE No : SWDD ØØ1
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 16-02-94

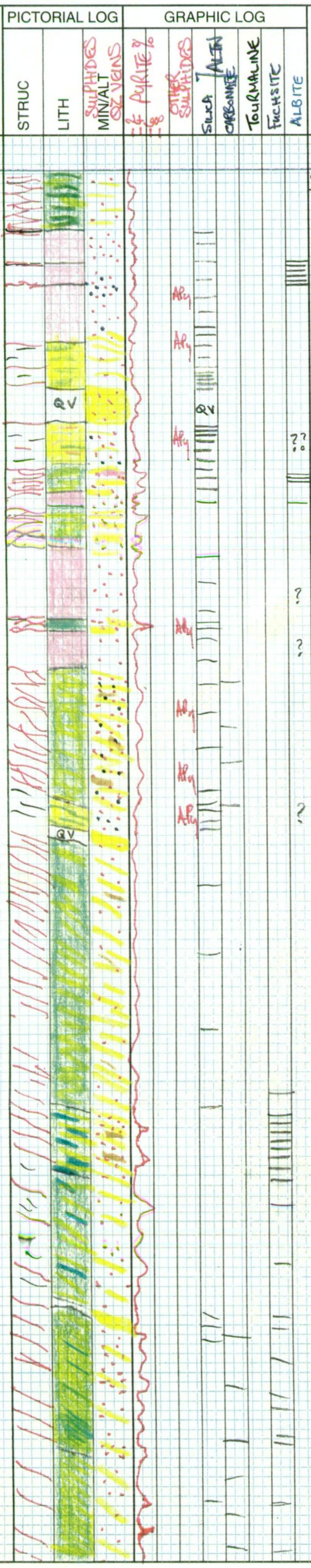
GEOLOGIST
COLLAR DETAILS

NORTHING : 6000 N
EASTING : 10215 E
ELEVATION : 0 m RL
AZIMUTH : 235°
DIP : 60°

HOLE DEPTH: 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117

CORE RECOVERY: 100% | 90.5 | 98% | 93.5 | 100% | 96.0 | 100% | 99.1 | 100% | 102.2 | 100% | 105.3 | 100% | 108.4 | 96% | RUBBLE | 111.5 | 104% | 114.5 | 100%

SAMPLE No PREFIX 199	ASSAY INTERVAL	Au (PPM)	AuR (PPM)
686	88.7	0.255	
687	89.7	0.283	
688	90.2	0.399	
689	91.4	0.24	
690	92.4	0.636	
691	92.8	1.680	
692	93.2	5.730	4.350
693	94.1	0.315	
694	94.6	0.459	
695	95	0.076	
696	95.7	0.105	
697	96.5	0.274	
698	97.3	0.065	
699	97.6	0.166	
701	98.3	0.150	
702	99.2	0.538	
703	100	0.272	
704	101	0.095	
705	101.9	0.128	
706	102.7	26.700	21.900
707	103.3	0.152	
708	104	0.443	
709	104.8	0.805	0.781
710	105.6	0.044	
711	107	0.067	
712	107.6	0.203	
713	108	0.020	
714	108.5	0.017	
715	109	0.442	
716	109.6	0.087	
717	110	0.089	
718	110.8	0.061	
719	111.8	0.273	
721	112.3	0.545	
722	112.9	0.119	
723	113.3	1.320	
724	113.9	0.045	
725	115.6	0.339	
726	115.6	0.160	
727	116.5	0.087	
728		0.047	



GEOLOGY NOTES

START CORING 87.7m

87.7 - 89.0 m VFG MDGR ser - tr qz + minor chl str fol schist str shear fabric @ 70-80° to C.A. (unoriented), bands coalescing over +100mm ser - chl filled with thin qv+ccv infill, ccqv to 5-10% core, Py & wthd py to 2%, qv stringers <10mm wide.

89.0 - 89.7 m LTGY F-CG feldspar porphyry, massive, plag to 5mm subhedral in qz-Kfspar matrix vfg, Py dissem vfg & in microfractures

89.7 - 90.2 m feldspar porphyry F-CG LTPKBR plag-spar phenos to 6mm in Kfspar altered ± ? Hem + qz matrix, rare (1-2%) qz phenos to 4mm Py VFG dissem & in microfractures, top & bottom contacts ~50mm wide wkly fractured (⇒ different intrusive phase?), tr APy near 90.2m

90.2 - 91.4m as per 89.0 - 89.7m
@ 91.4 contact 50/065 silicified with qv

91.4 - 92.44 qz - ser wk fol LTGY VFG - FG minor thin shr bands, few qv, @ 92.4 qv + cc, mod silicified 92 - 92.4, VFG dissem Py & rare APy.

92.44 - 93.2 m quartz vein + ser - tr chl - tr fuchsite filled thin <10mm shear bands laminated qv, Py 2-4%, APy to 1%, shr. subhorizontal

93.2 - 94.1 m VFG LTGY qz - ser - tr feld wk fol rock, thin qv stringers with altn ~±10mm selvages, v. rare cc, Py 2-3%, mod sil altn & ? Kspar altn. fractures steep ENE dipping.

94.1 - 94.7m VFG LTGR ser - qz - tr chl schist mod - str sheared with qv stringers & ser in shr bands, 2 Kspar stringers seen, Py in cubic VFG & clots, shr 32/082 plane lin wk.

94.7 - 94.92m feldspar porphyry plag. to 6mm as per 89.0 - 89.7m

94.92 - 95.7 m VFG LTGYGR ser - qz - tr chl str shrd (30-40/040) schist, anastom coalescing shr bands filled with ser - chl & qv, qv <20mm wide & along shr planes up to 30% core, Py 2-5% dissem FG, tr ccv.

95.7 - 97.25, 97.5 - 98.3 m M-CG, LTGY feldspar porphyry, plag. to 6mm in qtz to feld VFG matrix massive, wk fractures Py filled + dissem 2%

97.25 - 97.5m VFG LTGYGR ser - qz schist str shrd + qv in ser filled shr bands Py dissem FG to 6%, tr APy?

98.3 - 101.1m VFG LTGYGR ser - qz - tr chl str fol / shrd schist, shr coalescing bands 30-40/060 ser filled & qv (to 20% of core), Py dissem + APy to 1% dissem, ccv & wk cc altn, wk sil?

101.1 - 101.6 m VFG LTGRGY ser - qz wk fol rock tr Py wk shr, 1-2% Py 1% APy, qv stringers nearly vertical dipping with sil + ? Ksp alt selvages

101.6 - 101.9 m quartz vein ? late bucky qz <0.5% Py

101.9 - 107.5 VFG LTGYGR ser - qz schist str fol / shr (shallow E dipping) with ~10-25% qv stringers Py 1-2% in lamellae / shr zones up to 3% ccv

SUMMARY CODE:
FR AFSC
FR AFPF
FR AFS
FR AQV
FR AFS
FR AFSC
FR AFPI
AFSC
AFPF
AFS
AFPF
AFS
AQV
AFS
AFS

SHEET 2 OF

SURVEY No	DEPTH	AZIMUTH	DIP

NOTES/LEGEND

Additional Geological Notes
(Sheet 1/2).

DRILL HOLE No : SWDD001
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 16-02-94

GEOLOGIST
COLLAR DETAILS

NORTHING : 6000N
EASTING : 10215E
ELEVATION : 0mRL
AZIMUTH :
DIP :

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX	ASSAY INTERVAL	THIN SECTION No/DEPTH	HAND SPECIMEN No/DEPTH	PICTORIAL LOG STRUC	PICTORIAL LOG LITH	PICTORIAL LOG MIN/ALT	GRAPHIC LOG	GEOLOGY NOTES	ASSAY DATA Au	SUMMARY CODE
										101.9 – 107.5 m cont. becoming more cc altn & incr. %ccv to 5% 105 – 107.5 m 107.5 – 109.0 m ser-qz-fuchsite schist mod-str shr fabric 30/355 qv stringers to 20 mm in shr & ser-fuchsite filled shrs Py to 8% along shrs, to 10% fuchsite, ccv to 10% of core 109.0 – 111.5 m VFG MDGYGR ser-w qz-H fuchsite mod fol schist, lesser shr bands, Py dissems & veinlets to 5% minor fuchsitic shear bands, qv ~ 5% core + minor ccv 111.5 – 111.7 m quartz vein coarse qz vughy crystals rare sulph + ser/chl gouge 111.7 – 114.75 m ser-qz VFG MDGYGR schist mod-str fol / shr bands shrs filled ser + rare fuchsitic infill, Py 1-3% FG dissem qv to 10% core stringers in shr bands minor 1-2% ccv & v. wk cc altⁿ 114.75 – 117.5 m VFG LTGYGR ser-qz schist mod shr fabric 45/030 lin 10-20°/360 irregular shear bands < 20% core, wk-mod cc altⁿ & ~ 2-4% ccv, qv ~ 5% of core thin & in shr bands minor ptygmatic irreg. qv Py 2-4% dissem VFG. ↓ to page 3/3.		

SURVEY No	DEPTH	AZIMUTH	DIP

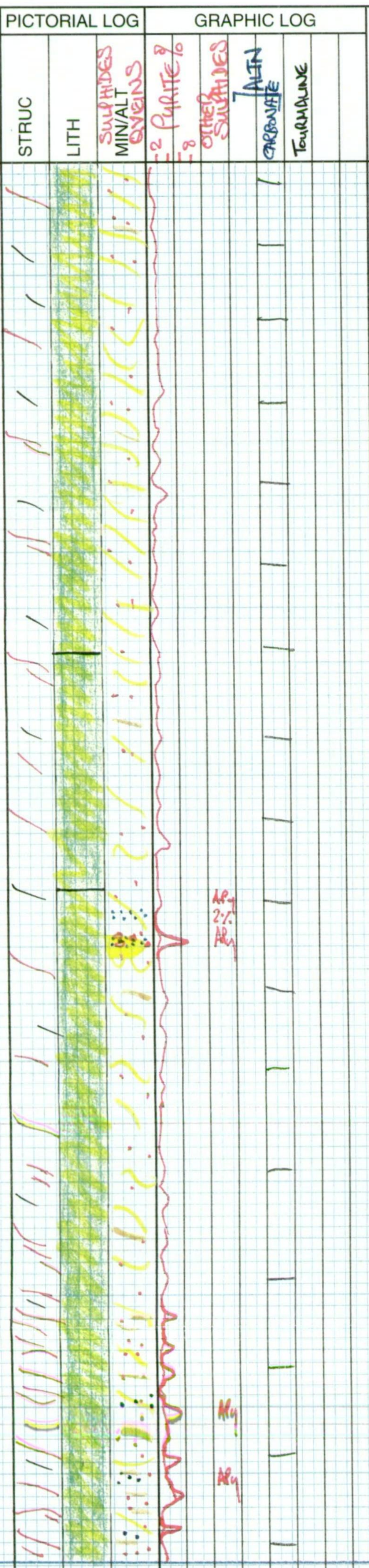
NOTES/LEGEND

ORIENTED CORE EXCEPT FOR
87.7 – 90.2 m; 96.2 – 96.4 m;
101.5 – 101.9 m; 104.7 – 107.5 m;
111.5 – 111.6 m.

DRILL HOLE No : SWDD 001
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 16-02-94

GEOLOGIST
COLLAR DETAILS
NORTHING : 6000N
EASTING : 10215E
ELEVATION : 0m RL
AZIMUTH :
DIP :

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX	Au	Au R		SUMMARY CODE
117	117.5	117.5	0.047			
118		729	0.042			
		118.5				
119	100%	730	0.112			
		119.5				
120		731	0.058		FR	AFS
	120.5	120.5				
121		732	0.023			
		121.5				
122	100%	733	0.091			
		122.5				
123		734	0.071			
	123.5	123.5				
124		735	0.040			
		124.5				
125	100%	736	0.057			
		125.5				
126		737	1.960			
	126.5	126.5				
127		738	0.180	0.120		
		127.5				
128	100%	739	0.108			
		128.5				
129		741	0.32			AFS
	129.5	129.5				
130		742	0.061			
		130.5				
131	100%	743	0.051			
		131.5				
132		744	0.066			
	132.5	132.5				
133		745	0.062			
		133.5				
134	100%	746	0.291	0.261		
		134.5				
135		747	0.127			
	135.5	135.5				
136		748	0.065			
		136.5				
137	100%	749	0.027			
		137.5				
138		750	0.226			
	138.5	138.5				
139		751	0.020			
		139.5				
140	100%	752	0.034			AFS
		140.5				
141		753	0.027			
141.5	141.5	141.5				



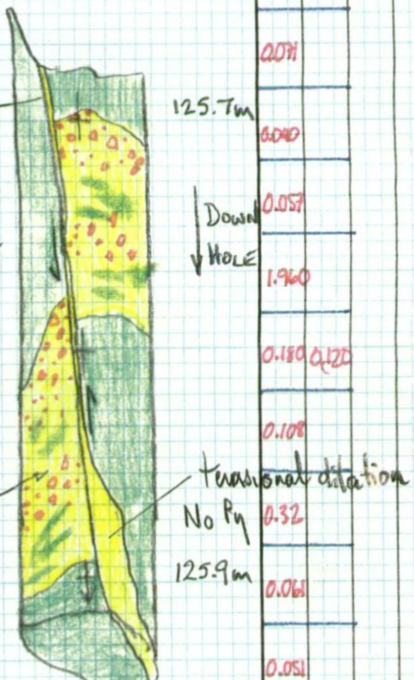
GEOLOGY NOTES

117.5 – 137.0 m VFG LTGYGR ser – qz schist, VFG ser & minor qz, wk fol – massive, rare shear bands to 20mm wide with ser – qv fill & 2-3% Py, dissem Py VFG to 1%, qv stringers in shr's & irregular, v.rare cc veining, wk cc altⁿ
@ 120m shr 50/050° lin 20/348°
@ 140m shr 35/060 lin 10/020°
@ 130m shr 30/050° lin 24/014°

'late' qtz filled fault
81/135° minor vFG cc
lin 1. 03/217
2. 17/085 sinistral
? rel. timing 1 early
2 later ?
? D3 structure
post mineral

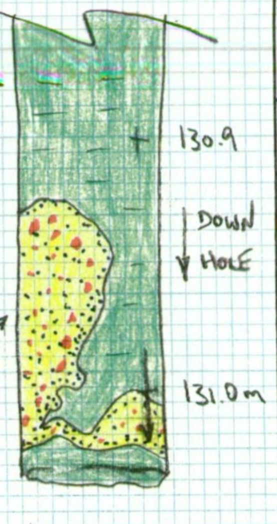
pyritic qz vein + cc
incl. bx ser frags

similar late vert/EW fault
@ 130m.



137.0 – 141.5 VFG MDGYGR
ser – minor qz – tr chl
mod – str fol str shr fabric
35/060 lin 10/020° @ 140m
36/030 lin 27/067° @ 139m

wk fol ser – tr qz
schist 30/050



E.O.H. 141.5m.

sub spherical bleb of
qz – tr cc – Py – APy & minor
ser inclusions
Py FG to 4mm cubic 5%
APy VFG to 5% (of bleb), conc. along margins

SURVEY No	DEPTH	AZIMUTH	DIP
1	87m	233'	61.5'
2	129.5m	231'	62.2'
3	165.5m	231'	62.5'

AZIMUTH
GRID WEST 270° = 237° MAG.

NOTES/LEGEND
(SWRC 017 CIVIL'S 09/92)
0-80.5m R.C. 4½" RODS, RC46 HOLLOW HAMMER
80.5-165.5 NQ2 CORE 15-16/02/94
(WESTERN DEEP HOLE DRILLING)

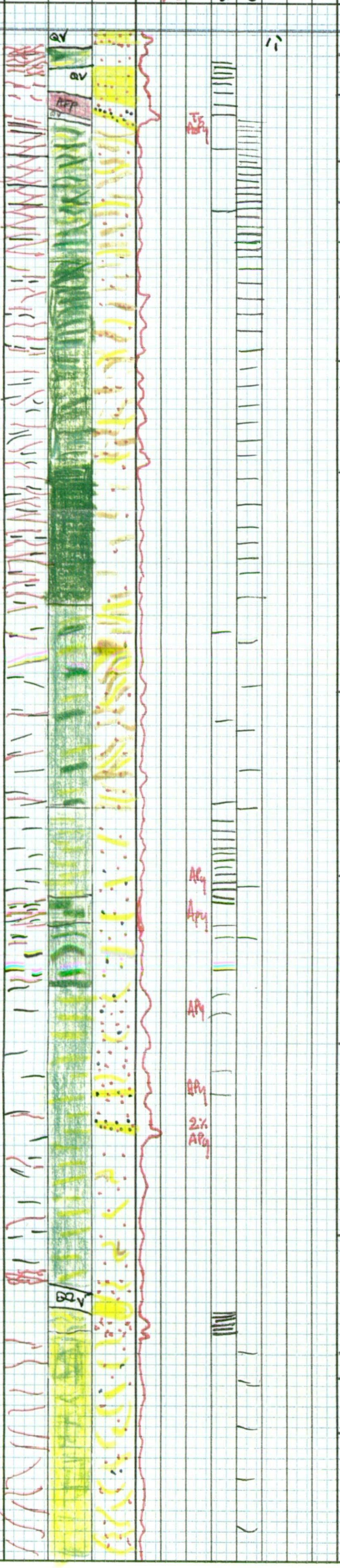
UNORIENTED CORE 80.5 - 102.5m

DRILL HOLE No : SWDD020
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 15-02-94

GEOLOGIST
COLLAR DETAILS
NORTHING : 6000
EASTING : 10250
ELEVATION : 0mRL
AZIMUTH : 237'
DIP : 59'

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX 199	ASSAY INTERVAL	THIN SECTION No/DEPTH	HAND SPECIMEN No/DEPTH	Au	AuR
		80.5					
81	72% 81.5	593 81.5				2.880	2.660
82	78% θ2%	594 82.5				1.250	
83	82.4	595 83.5				0.292	
84	100%	596 84.5				0.254	
85	85.0	597 85.5				0.059	
86	96%	598 86.5				0.236	
87	87.5	599 87.5				0.465	
88		601 88.5				0.382	
89	96%	602 89.5				0.297	
90	90.35	603 90.35				0.303	
91		604 91.4				0.017	
92	94%	605 92.4				0.115	
93	93.45	606 93.45				0.066	
94	95% 94.6	607 94.6				0.015	
95		608 95.6				0.212	
96	96% 96.5	609 96.5				0.092	
97		610 97.2				0.013	
98	97%	611 97.8 612 98.3				0.118 0.017	
99	98.8	613 99.5				0.009	
100	100%	614 100.5				0.013	
101	101.2	615 101.5				0.072	
102	100% 102.5	616 102.5				0.263	
103		617 103.5				0.017	
104	100%	618 104.5				0.100	
105	105.5	619 105.5				0.299	
106		621 106.5				0.112	
107	100%	622 107.5				0.015	0.018
108	108.5	623 108.5				0.054	
109	100% 109.0	624 109.5				0.177	
110	100%	↓					

PICTORIAL LOG — STRUC, LITH, SULPHIDES MIN/ALT QVEINS
GRAPHIC LOG — PYRITE % (0 5 10), OTHER SULPHIDES, SILICIFIC.] ALTN. CARB.], TOURMALINE



GEOLOGY NOTES

Start coring 80.5m Mod.-wkly weathered → 92m

80.5 - 80.8 Quartz vein frags, Py 1-3%, Tr To, minor-
80.8 - 81.25 VFG Ser-Tr Chl-Tr Q2 schist wthd.-Chl.
81.25 - 81.7 QV + 2-3% Py + minor chl shear bands mod. sil. of adj schist, anastom. shr bands ~⊥ core axis. Tr cc veinlets.
81.7 - 82.16 LTGYBR VFG-FG qtz porphyry to 1.5mm wkly porphyritic, tr Py, wk Hem altn wk shr bands
82.16 - 82.21 Q2 vein 1% Py, 0.5 ApY in stringer shears 2mm wide, Aspy < 0.5mm in elongate agg.
82.21 - 84.5m LTGYGR VFG ser+chl +tr q2 (tk) schist str shrd (anastom) numerous cc & cc+qv stringers cc veins to 20mm // shr fabric + dissem cc.
84.5 - 89.1m - as above more chloritic - minor ser - tr q2 shearing weaker & less carbonate veins, Py mostly in cc veins. (to 8% of stringers 2% of core)
89.1 - 91.8 - BKGR VFG chlorite schist str fol / mod shr fabric minor sericite v. rare q2, carbonate veins to 5% core < 10mm wide irreg & // fol ~ ⊥ core axis rare Py in cc, rare qv with cc, wk - mod cc altn & veining
91.8 - 95.5m MDGYGR VFG Sericite - v. minor q2 - tr chl mod fol schist wk shr fabric anastom, abundant cc & q2/cc veins to 20% core av. 10% stringers generally < 10mm pale pink cc & white, qv white, rare tr Py in veins, Wk cc altn in AFS.

95.5 - 95.8m & LTGYGR VFG ser-q2 wk fol minor qv & ccv wk cc altn rare tr Py

95.8 - 97.3m as above + mod silicified LTGY VFG q2 + ser wk schistose + minor qv & minor fol fractures, dissem VFG Py (0.5-1.0%) & tr APy VFG dissem, Py minor in cc/qv.
97.3 - 97.9m MDGYGR ser - chl schist mod fol mod shr (~⊥ core axis), 3-15% ccV & cc/qv stringers irreg to // fol. rare Py
97.9 - 98.95m MDGR VFG - FG chl-ser schist rare q2 str fol / shr fabric ⊥ C.A., 1-3% qv stringers < 5mm wide generally // fol & shr, rare Py
98.95 - 102.5m MDGYGR VFG-FG Ser-q2-feldspar wk fol schist minor shear bands, minor qv stringers < 10mm, dissem Py 1-3% & rarer APy to 1% (dissem), No cc or ccv

* UNORIENTED CORE 80.5 - 102.5m.
* ORIENTED CORE 102.5m →

102.5 - 104.87m VFG LTGYGR Ser-q2-tr chl Schist mod fol wk lin/shr fabric, thin shear bands chloritic to 10mm ⊥ to C.A., qv (+ rare ccv) to 4% rock, v. wk cc altn 104.8 - 104.87 chloritic str shred
104.87 - 105.1m Q2 vein white bucky v rare Py in qv
105.1 - 105.5m Str. silicified felsic ? porphyry ? white Kspar altn? fg massive numerous qv stringers
105.5 - 110.0m VFG - FG LTGYGR q2 - ser wk fol schist common (~100mm) thin (1-4mm) shear bands anastom. qv & ccqv stringers in fol orientation to 5mm wide & ~5-10% core, Py 0.5 - 3% VFG dissem & v rare APy VFG dissem in AFS

SUMMARY CODE
A QV
AFS
A QV
AFPQ
AFSC
ABS
AFS
AFSC
AFS
AQV
AFS

SHEET 2 OF

SURVEY No	DEPTH	AZIMUTH	DIP

NOTES/LEGEND

DRILL HOLE No : SWDD 020
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 15-02-94

GEOLOGIST
COLLAR DETAILS

NORTHING : ~~[illegible]~~ 6000N
EASTING : 10250E
ELEVATION : 0 m RL
AZIMUTH :
DIP :

HOLE DEPTH	CORE RECOVERY
110	
111	100%
112	111.5 100% 112.0
113	
114	100%
115	114.5
116	100%
117	
118	117.5
119	100%
120	
121	120.5
122	100%
123	
124	123.5
125	100%
126	
127	126.5
128	100%
129	
130	129.5
131	100%
132	
133	132.5
134	100%
135	
136	135.5
137	100%
138	
139	138.5
140	100%

SAMPLE No PREFIX	Au	AuR
625 110.5	0.046	
626 111.5	0.181	
627 112.5	0.136	
628 113.5	0.256	
629 114.5	0.397	
630 115.5	0.070	
631 116.5	0.037	
632 117	0.088	
633 118	0.051	
634 119.2	0.189	
635 120.2	0.169	
636 121.2	1.160	1.210
637 122.2	0.337	
638 123.2	0.948	
639 124.2	0.361	
641 125.2	0.438	
642 126.0	1.300	
643 126.5	0.961	
644 127.5	0.271	
645 128.5	0.285	
646 129.5	0.274	
647 130.5	0.337	
648 131.65	0.191	
649 132.5	0.147	
650 133.35	0.124	
651 134.4	0.203	
652 135.6	0.524	
653 136.1	0.492	
654 136.8	0.551	
655 137.5	0.214	
656 138.5	0.132	
657 139.5	0.099	

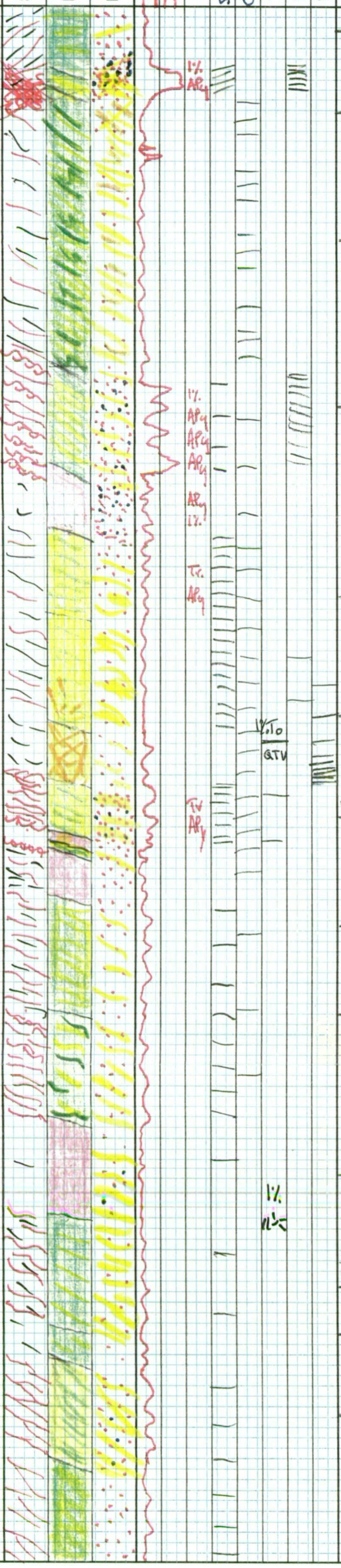
ASSAY INTERVAL

THIN SECTION No/DEPTH
TS 120.0 11
TS 122.9 12
TS 125.9 13

HAND SPECIMEN No/DEPTH

PICTORIAL LOG: STRUC, LITH, SULPHIDES MIN/ALT QZ VEINS

GRAPHIC LOG: PYRITE % (2 4 6 8), OTHER SULPHIDES, SILICIFIC. / CARB.] ALTN, TOURMALINE, FUCHSITE ALT, KSPAR ALT.



GEOLOGY NOTES

LINEAR MEASUREMENTS DIP/BRG 5/355
PLANAR MEASUREMENTS DIP/DIP DIRN eg 60/070

110.0 - 111.3m ser-qz VFG LTGYGR mod-str fol mod shrd schist, fol ~⊥ CA., thin shear bands ser ± chl filled, 0.5-1.5% Py VFG Dissem wk cc altn, ccv rare, qv 1-6% core

111.3 - 111.7 m ser-qz VFG LTGYGR str shrd felsic schist shr bands 45/057' lin 5/355 thin anastomosing chl-ser-fuchsite-Pyrite filled, to 10% Py to 1% APy dissem & in shr bands, qz filled (silicified)

111.7 - 117.05m VF-FG MDGYGR ser-qz-chl wk fol schist mostly massive with shr defined by qv & ccqv, 1-2% dissem Py & in veins wk cc altn VFG Dissem.
+ Hbr min 115-116m ?
113.75 - 114.0m as above + intense cc veining + 3% Py

117.05 - 119.2m VFG LTGRGY qz-ser-tr chl str fol/sheared schist str shr fabric 60/057' lin. dip 3° → North. coalescing ser-qz filled shear bands to 200mm minor to 5% fuchsite, qv stringers in shr to 10mm, v. rare ccv, Pyrite 1-5%, APy to 1% dissem. @ 119.2 30/315 lin 22/345'

119.2 - 120.3m MG LTGY feldspar porphyry Kspar to 6mm subhedral laths in qtz feld & ser VFG matrix, massive, v.wk thin microshear bands ca. 10mm long <1mm wide ser filled. Py dissem VFG 2-4%, APy to 2%.

120.3 - 121.9 M VF-FG LTGYGR qz-ser mod fol schist, wk anastom shr fabric v thin <1mm ser filled. 2-4% QV, v rare ccv, Py 1-3% VFG Dissem,

121.9 - 124.1m - as above + mod Kspar altn around fractures & shears + silicification, qv to 20% core, altn adj to fractures & qv stringers. → VFG LTPK Kspar - qz rock

124.1 - 125.14 m VFG - FG LTPK Kspar - qz rock wk fol, str Kspar altn adj qv stringers + Py 1-2%, minor sericite VFG, rare APy

125.14 - 126.13m VFG LTGYGR qz-ser-tr fuchsite str shrd schist, qv (No cc) stringers to 10mm // within shr fabric, shr bands to 20mm anastom & coalescing, ser filled + tr fuchsite, Py 2-5% & tr APy mod silicification (overprint?). shr plane 62/085 lin 22/065'

126.13 - 126.28m VFG LTGY qz-feldspar porphyry Kfeld to 6mm & lesser qz to 4mm in qtz feld + tr ser matrix VFG, dissem Py 1-2%.

126.28 - 126.37m ser-qz str fol/shrd schist 2% Py

126.37 - 127.42m feld-qz porphyry as above basal contact 60/057' wk shr.

127.42 - 129.5m VFG LTGR ser-minor qz wk shrd/fol felsic qv stringer generally oriented 80/250 wk sil Py VFG 1-3%. Tr APy

129.5 - 131.65m VFG MDGYGR ser-qz + tr chl str shrd schist, ser defining str shrd fabric with qz-ser + qv inbetween, shr bands to 100mm coalescing ~ 50/030 lin not measurable qv 5-25% of core Py 1-3%. Tr APy (rare) wk silic

SUMMARY CODE
AFS
AFS
AFSC
AFS
AFPF
AFS
AFPF
AFS
AFSC
AFPF
AFS

SURVEY No	DEPTH	AZIMUTH	DIP

NOTES/LEGEND

Additional Geology Notes for page (2/4)

DRILL HOLE No : SWDD 020
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 15-02-94

GEOLOGIST
COLLAR DETAILS
NORTHING :
EASTING :
ELEVATION :
AZIMUTH :
DIP :

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX	ASSAY INTERVAL	THIN SECTION No/DEPTH	HAND SPECIMEN No/DEPTH	PICTORIAL LOG STRUC	PICTORIAL LOG LITH	PICTORIAL LOG MIN/ALT	GRAPHIC LOG	GEOLOGY NOTES	ASSAY DATA Au	SUMMARY CODE
										131.65 – 133.35m LTGY / LTPKGY FG-MG feldspar porphyry, massive, Kspar to 8mm in qtzofeld + ser matrix VFG, 4 x 50-80mm qv + rare ccv @ 131.95, 132.8, 133.0, 133.25m (+To) rare microshears, 1% Py VFG dissem + tr APy 133.35 – 135.5m MDGYGR VFG ser-qz-tr chl str fol mod-str shrd schist, shr bands ser filled & up to 30mm wide anastomosing / coalescing. Py to 2%, tr fuchsite in shr bands. wk sil alt^n near qv 135.5 – 136.1m FG LTGYGR Ser – tr qz + tr chl wk fol rock 1-2% VFG dissem Py, wk thin shr bands, 136.1 – 138.1 VFG LTGYGR qz-ser-tr chl str. sheared schist, qz-ser vfg + shear bands 2-20mm wide ser-chl filled + thin <20mm qv stringers in shrs up to 40% of core, Py 2-5% dissem. VF-FG cubic & clots predom. in chl-ser shr bands, Tr APy shr 50/080° lin v.shallow → N. 138.1 – 138.9m LTGYGR VF-FG ser-qz wk fol schist, 1-5% qv stringers, Py 2-4% in VF-FG clots/cubes. 138.9 – 141.3 LTGYGR VFG ser-qz mod fol schist mod shr fabric with ser filled shr bands, qv to 10% core < 20mm wide in shears, Py 1-3% dissem, wk silic		

SHEET 4 OF

SURVEY No	DEPTH	AZIMUTH	DIP

NOTES/LEGEND

102.5 - EOH 165.5m ORIENTED CORE EXCEPT FOR
108.6 - 110.5m, 151.5 - 152.5 m.

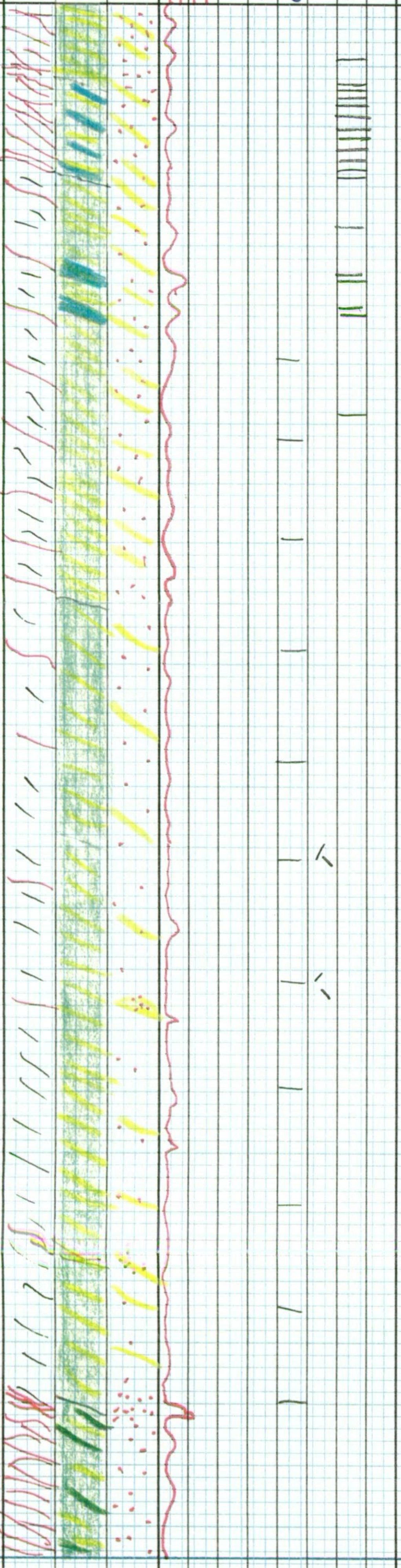
DRILL HOLE No : SWDD 020
PROJECT : SUNSET WELL
PROSPECT : PROSPERO
DATE : 15-02-94

GEOLOGIST
COLLAR DETAILS
NORTHING : 6000N
EASTING : 10250E
ELEVATION : 0m RL.
AZIMUTH : 237'
DIP : 59'

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX	ASSAY INTERVAL	THIN SECTION No/DEPTH	HAND SPECIMEN No/DEPTH	Au	AuR	SUMMARY CODE
140		658 140.5				0.054		
141	100% 141.5	659 141.5				0.129		
142		661 142.5				0.026		
143	100%	662 143.5				0.127		
144	144.5	663 144.5				0.198		AFS
145		664 145.5				0.125		
146	100%	665 146.5				0.497	0.442	
147	147.5	666 147.5				0.161		
148		667 148.5				0.083		
149	100%	668 149.5				0.225		
150	150.5	669 150.5				0.072		
151		670 151.5				0.261		
152	100%	671 152.5				0.054		
153	153.5	6672 153.5				0.147		
154		673 154.5				0.118		
155	100%	674 155.5				0.330		
156	156.5	675 156.5				0.174		
157		676 157.5				0.289		
158	100%	677 158.5				0.054		AFS
159	159.5	678 159.5				0.040		
160		679 160.5				2.880		
161	100%	681 161.5				0.137		
162	162.5	682 162.5				0.324		
163		683 163.5				0.678		
164	100%	684 164.5				0.067		
165	165.5	685 165.5				0.009		
165.5								EOH

PICTORIAL LOG: STRUC, LITH, SULPHIDES MIN/ALT QZ VEINS

GRAPHIC LOG: PYRITE%, OTHER SULPHIDES, SILIC. ALTN, CARBONATE, TOURMALINE, FUCHSITE, KSPAR



GEOLOGY NOTES

140.0 - 141.3m as above.

141.3 - 142.9m MDGYGR/MDYWGR VFG ser - tr qz - minor fuchsite str sheared schist shr bands to 50mm coalescing. Π core axis → 34/080 lin 26/020'

142.9 - 150.0m VFG LTGYGR ser - qz wk-mod fol schist, wk-mod shr banding thin (<50mm), ser filled shr bands, Py 1-2%, occasionally clots to 5%, minor <2% qv str.

144.15 - 144.5m & 144.9 - 145.3 as above + <5% fuchsite in str shr zone + qv str. + 1-2% Py

150.0 - 153.9 ser - qz VFG LTGRGY wk fol schist fol 50/065, thin shr bands qv + Py infill <10mm wide, Py ~0.5-1% dissem, to 2% in qv/shr bands. minor cc in ccqv stringers. v.wk cc altn

153.9 - 163.0m VFG MDGYGR ser - qz - tr chl wk fol ~~schist~~ schist (variable 30-60 dip to ENE) with thin to 100mm wide shear bands every ±~500mm, Py dissem ~1%, Py in ser qv shr bands to 5%, minor altn ? ser, minor cc altn & qv/ccv.

163.0 - 165.7m VFG MDGRGY ser - minor chl - tr qz str fol schist, str shear fabric 25/355 lin 23/318, Py to 1%, qv + rare ccv stringers to 20mm mostly in fol plane.

165.5m EOH.

EXPLORATION PTY LTD – ARCHAEAN GOLD – DIAMOND DRILL LOG

SHEET 1 OF 2

SURVEY No	DEPTH	AZIMUTH	DIP
1	44.7	235'	61.5
2	72.5	240'	61.8

NOTES/LEGEND

0.0 - 40.0 m RC HOLLOW HAMMER 5½" WDHD. 12/02/94.
40.0 - 72.5 m NQ2 CORE WDHD 23/02/94.
UNORIENTED 39.66 - 46.50, 55.9 - 56.5 m.

DRILL HOLE No : SWDD 005
PROJECT : SUNSET WELL
PROSPECT : OBERON
DATE : 23/02/94

GEOLOGIST
COLLAR DETAILS

NORTHING : 5550N
EASTING : 9690E
ELEVATION : 0m RL
AZIMUTH : 237'
DIP : 60'

HOLE DEPTH	RQD
39	
40	
41	100
42	94
43	100
44	100
45	77
46	68
47	35
48	86
49	96
50	100
51	82
52	83
53	87
54	83
55	62
56	41
57	20
58	100
59	85
60	100

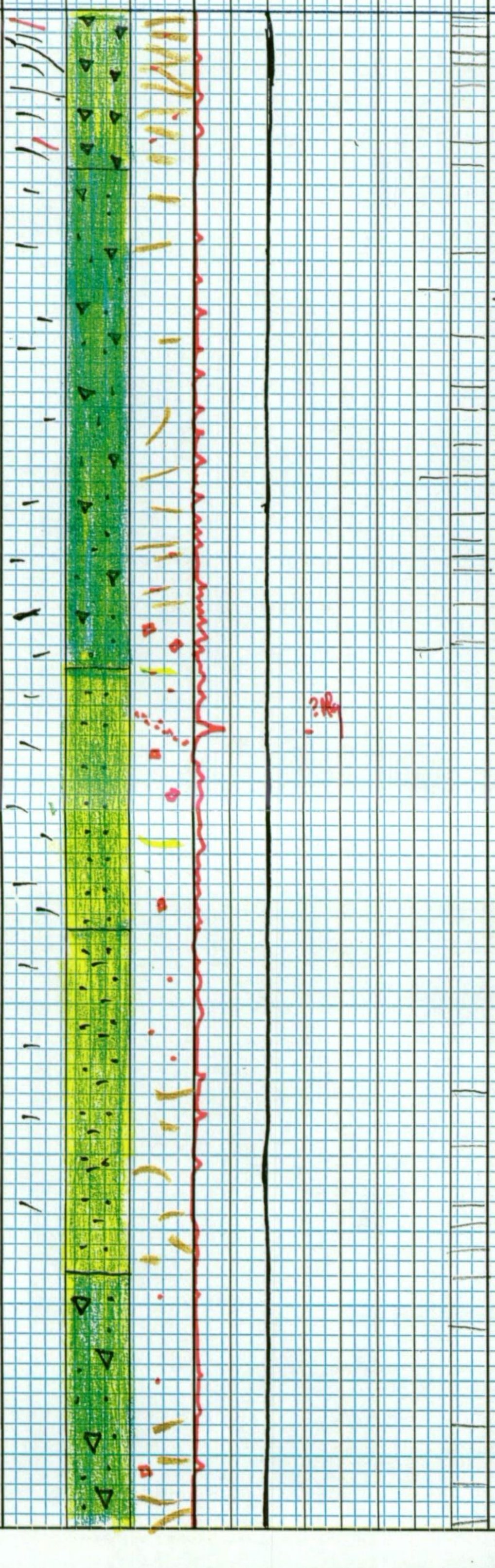
CORE RECOVERY	
100%	40
100%	41.6
100%	44.7
94%	47.5
100%	50.9
98%	53.9
97%	56.5
99%	59.6

SAMPLE No PREFIX 200	
186	40.5
187	41.5
188	42.5
189	43.5
190	44.5
191	45.5
192	46.5
193	47.5
194	48.5
195	49.5
196	50.5
197	51.2
198	51.7
199	52.7
201	53.8
202	54.9
203	56.0
204	57.0
205	58.0
206	59.0
207	60.0

ASSAY INTERVAL | THIN SECTION No/DEPTH | HAND SPECIMEN No/DEPTH

PICTORIAL LOG: STRUCTURE | LITH | QV, CCV, PY. MIN/ALT

GRAPHIC LOG: -2% -4% -8% -16% % PYRITE | -2% -4% % TOURMALINE | OTHER SULPHIDES | SERICITE ALT. | CARBONATE ALT.



GEOLOGY NOTES

39.66 – 41.8 m FG LTGYBR qz - ser - cc - tr feldspar, volcaniclastic sandy breccia to sandstone, lithic frags (qz, feldspar) (? pyroclastic), mod - wk foliation elongate qz & ser, fol ~ 60' to core axis, str cc alteration dissem FG - MG clots & cc veins mod wthd calcite/dol → siderite, v. wk Py rare dissem, ccv both ∥ to & xcutting fol, cc up to 20% of core, clasts mostly sand sized by minor frags to 20 mm.

41.8 - 48.5m F-CG LTGY felsic derived volcanogenic sediment, clasts sand

39.66 m START CORE RUN

sized to 20mm subrounded, min - qz - ser - tr feldspar, ~~—~~ wk fol ~⊥ CA wk - mod carbonate alt (as shown graphic log) alt^n replacement & dissem., wk sericitisation?, 45 - 48.5 CG cubic dissem Py (late recryst).

48.5 - 52.0 m FG LTGY qz - tr ser - tr feldspar clastic (sandstone) grains 0.5 - 2mm ~ 10% of clasts, wk fol pervasive & minor thin shr bands ser filled. no alteration, rare dissem MG py cubes, rare qv + vrare ccv @ 49.3m Py veinlet + VFG ? APy

52.0 - 56.6m VFG LTGY/LTBRGY qz - minor feldspar - minor sericite, granules qz to 1mm diam ~ 2% of core remainder VFG qz - ser matrix, hint of banding ? tuffaceous AFT (or just AFS), wk fol & minor shr ser bands no alt^n, rare FG - MG cubic & irreg Py grains disseminated, minor cc alt^n & ccv 54 - 58m - 55 - 56m wk hem ferruginous wthd lamellae

56.6 - 60.0 m FG - VCG LTGY - LTBRGY fine fragmental, clasts to 50mm in sand - 10mm sized matrix poorly sorted sedimentary breccia wk fol, wk cc alt^n & ccv No other alt^n, v. rare sulph, min - qz - ser tr feld (sericitized)

* 39.66 - 56.6m possible fining downwards
⇒ ? overturned facing

ASSAY DATA

Au

SUMMARY CODE
AFVG
AFVP
AFVP
AFVS
AFS (VM)
AFVP

ARCHAEAN GOLD – DIAMOND DRILL LOG

SHEET 2 OF 2

SURVEY No	DEPTH	AZIMUTH	DIP

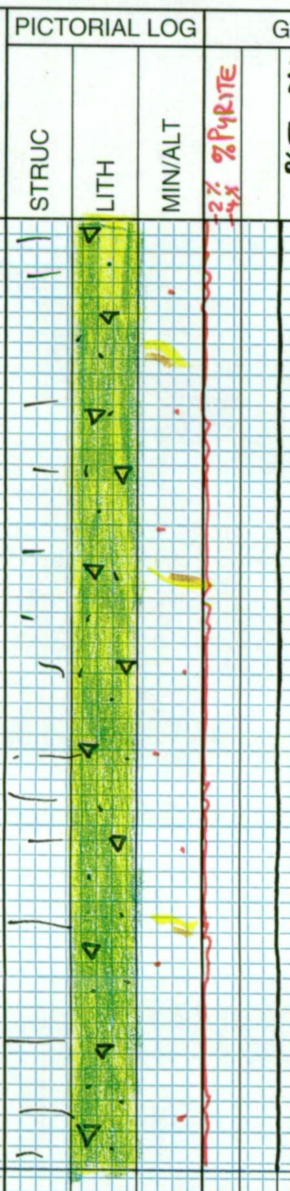
NOTES/LEGEND

DRILL HOLE No : SWDD 005
PROJECT : SUNSET WELL
PROSPECT : OBERON
DATE : 23/02/94.

GEOLOGIST
COLLAR DETAILS

NORTHING : 5550 N
EASTING : 9690 E
ELEVATION : 0 m RL
AZIMUTH :
DIP :

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX 200	ASSAY INTERVAL	THIN SECTION No/DEPTH	HAND SPECIMEN No/DEPTH	SUMMARY CODE
94 61	100% 60.5	208 61.0				
62 62		209 62.0				AFVP
77 63	100%	210 63.0				
92 64	63.5	211 64.0				
96 65	100%	212 65.0				
		213 65.4				
91 66		214 66.0				
93 67	66.5	215 67.0				
84 68	100%	216 68.0				
100 69		217 69.0				
94 70	69.5	218 69.8				
		219 70.2				
100 71		221 71.0				AFVP
91 72	100%	222 71.8				
	72.53	223 72.53				
73						



GEOLOGY NOTES

ASSAY DATA
Au

60-72.53m at above,
F-VCG LTGY sed. breccia / sandstone clasts up to 100mm (mostly 2-30mm) sand sized clasts dom qz grains subrounded to 10mm, larger clasts qz-ser-hex-feldspar, matrix qz-ser, most of 12.5m core has recognisable sed/breccia texture rest AFS/AFFC? wk alt^n rare ccv & qccv, rare Py < 0.5%, fresh cubic or clusters to 3mm, wk-mod fol ~60-80° to CA ⇒ mod NE-SE dip, veins ~ ∥ to fol & unmineralized.

72.53m E.O.H.

PTY LTD – ARCHAEAN GOLD – DIAMOND DRILL LOG

SHEET 1 OF 2

SURVEY No	DEPTH	AZIMUTH	DIP
1	57.5	228°	61.5°
2	81.5	233°	61.8°

NOTES/LEGEND

0– 52m RC H.H. 5½" WDHD 13/02/94

51.6 – 81.5m NQ2 CORE WDHD 21/02/94

DRILL HOLE No : SWDD 006
PROJECT : SUNSET WELL
PROSPECT : OBERON
DATE : 21/02/94

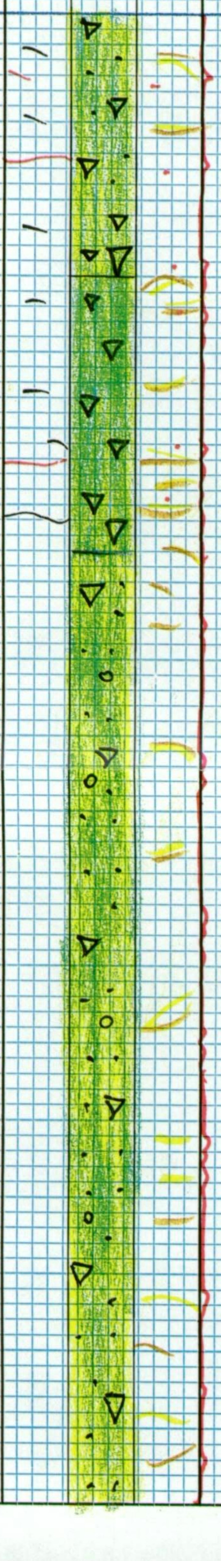
GEOLOGIST
COLLAR DETAILS
NORTHING : 5250N
EASTING : 9700E
ELEVATION : 0mRL
AZIMUTH : 237°
DIP : 60°

HOLE DEPTH	RQD	CORE RECOVERY
51		
52	85	
53	100	98%
54	100	54.5
55	86	
56	93	99%
57	20	57.5
58	82	
59	74	97%
60	79	60.5
61	91	
62	84	100%
63	100	63.5
64	100	
65	97	100%
66	90	66.5
67	100	
68	95	100%
69	100	69.5
70	100	
71		

SAMPLE No PREFIX 200	
224	52.6
225	63.6
226	54.6
227	55.2
228	55.8
229	56.4
230	57.4
231	57.9
232	58.6
233	69.1
234	59.6
235	60.6
236	61.3
237	62.1
238	63.3
239	64.3
241	65.3
242	66.3
243	67.3
244	67.9
245	69.0
246	69.8
247	70.8
248	

ASSAY INTERVAL | THIN SECTION No/DEPTH | HAND SPECIMEN No/DEPTH

PICTORIAL LOG: STRUC | LITH | MIN/ALT



GRAPHIC LOG: 2% 4% % PYRITE | 2% 4% % TOURM. | SERICITE ALT. | CARBONATE ALT/V

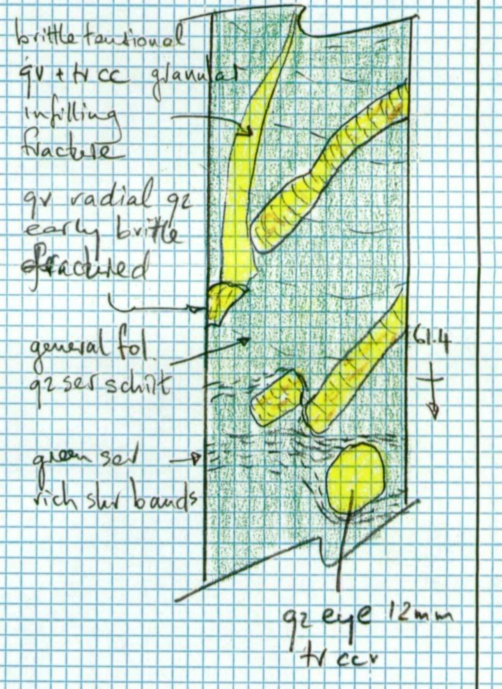
GEOLOGY NOTES

51.6 – 55.0m VF-VCG LTGY volcaniclastic breccia AFVP, fresh, qz-ser-feldspar (Kspar?) wk fol & thin (<10mm) minor ser filled shr bands, clasts up to 80mm most core <1 to 40mm matrix supported sedimentary breccia (?volcanogenic), clasts mostly felsic volcanics/schist, lithics, no primary textures preserved, rare thin irregular qccv <4mm wide & xcut fol. (later), unaltered, v. rare Py dissem VFG. @54.6m 120mm fragment/clast

55.0 – 58.6m as above with wk-mod qccv & wk carbonate altn in matrix dissem, ccv slightly wthd → siderite?

51.6 START CORE RUN
matrix fresh.

58.6 – 71.0m VF-MG qz-ser-minor feldspar (Kspar?) schist, mod-wk fol., ~70-90° to CA, minor round qz (+ minor cc) blebs/clasts/pebbles? (altn?). mostly VFG-FG matrix pebbles more common 65-73m prob altn? → lithol. AFS (?AFVS), minor thin <20mm shr bands ser filled, v. rare Py., ccv & qccv stringers rare - minor <8mm wide & subparallel to fol.



ASSAY DATA: Au

SUMMARY CODE

AFVP

AFVP

AFVS

AFVS

RGC EXPLORATION PTY LTD – ARCHAEAN GOLD – DIAMOND DRILL LOG

SHEET 2 OF 2

SURVEY No	DEPTH	AZIMUTH	DIP

NOTES/LEGEND

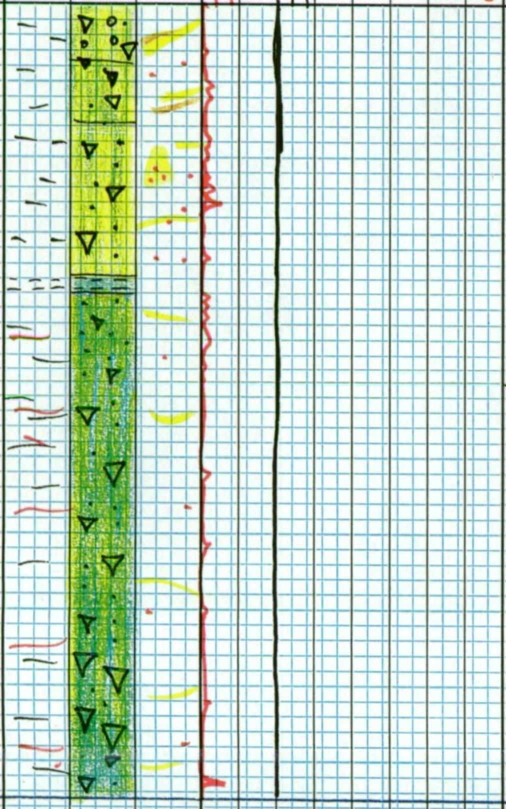
DRILL HOLE No : SWDD006
PROJECT : SUNSETWELL
PROSPECT : OBERON
DATE : 21/02/94.

GEOLOGIST
COLLAR DETAILS
NORTHING : 5250N
EASTING : 9700E
ELEVATION : 0mRL
AZIMUTH : 237°
DIP : 60°

HOLE DEPTH	CORE RECOVERY	SAMPLE No PREFIX 200	ASSAY INTERVAL	THIN SECTION No/DEPTH	HAND SPECIMEN No/DEPTH
100	100%	248			
		71.7			
72					
92	72.5	249			
		72.7			
73		250			
91					
		73.7			
74	100%	251			
100		74.5			
75		252 74.9			
100	75.5	253			
76		75.9			
100		254			
77	100%	76.7			
90		255			
78		77.7			
86	78.5	256			
79		78.7			
92		257 79.5			
80	100%				
95		258 80.5			
81		259			
	81.5	81.5			
82					

PICTORIAL LOG: STRUC, LITH, MIN/ALT

GRAPHIC LOG: -2% -4% %PYRITE; -2% -4% %TOURMALINE; SERICITE ALT.; CARBONATE ALT.



GEOLOGY NOTES

71.0 – 71.7m as above VF-MG LTGY qz-ser-minor Kspar wkly fol volcanogenic sed. predom sand sized frags ⇒ volcaniclastic pebbly sst. ~2-5% of core rounded elongate (~2:1) 5-30mm qz-?cc VFG blebs may be pumiceous/pebbles wk fol in thin <5mm ser shr bands, mostly massive, minor qv & qz-dol/cc tr veins, v.rare Py

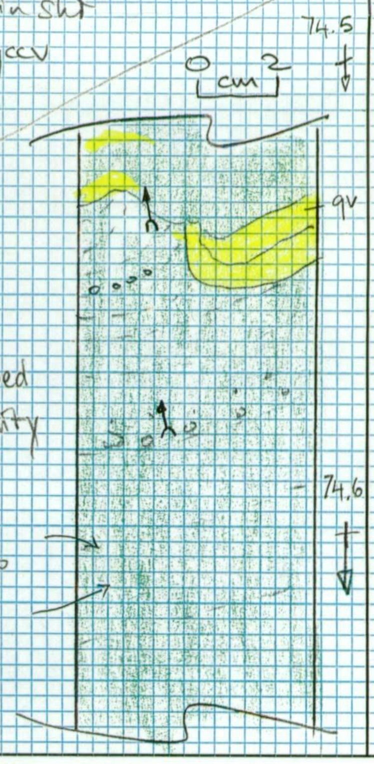
71.7-72.5 m F-MG LTGY-MDGY volcaniclastic Sandstone (to pebbly Sandstone) dom 1-2mm qz & feld clasts in finer matrix mod-poorly sorted massive wk fol through more sericitic (?tr chl) matrix, coarser clasts subrounded, tr Py some as rounded replacement of clasts (pumice) to 3mm disseminated

72.5-74.54 m F-VCG LTGY epiclastic coarse sandstone, as above + additional ~5-10% of core fragments to 60mm (→ sandstone/breccia), some VFG (<0.5mm) beds ~100mm wide ie @ 73.4-73.5m, wk fol, @73.5' fol 33/040 lin28/010, wkly altered only qv & rare qccv. tr Py in F-MG cubes & agg.

81.5

74.54 - 74.78m LTGY VFG thinly bedded wacke, graintize VFG (<0.25mm) with 2 bands up to 1mm gsize, thinly bedded qz-ser 3-20mm bands, no crossbeds, ?wk graded bedding → ? upright seq. facing, wk thin shr bands ∥ to So, So 33/045 wk lin on So/Shr plane 30/355, at 74.55 erosional uncomf. → upright facing (see below).

74.78-81.5m LTGY F-VCG mixed epiclastic wacke / Sandstone / sandy breccia → debris flow? subaqueous? v poorly sorted qz-ser-feldspar (kspar) felsic derived wk fol dev in ser x thin shr bands, wk qv + rare qccv stringers Xcutting fol v.rare Py dissem



upright facing from wkgraded bed & erosional unconformity

So

thin bedded tuff

ASSAY DATA: Au

SUMMARY CODE
AFVS
AFVS
AFVS
AFVM
AFVS
EOH

APPENDIX C PLATE 1

Note: All photographs of cut faces of NQ2 core, nominal diameter 50mm.
: Drill hole geological logs and assay results are included in Appendix C.

A: Hole SWDD 005
Oberon Prospect 5550N 9690E

57.02 - 57.18m: Partially weathered, coarse grained, medium grey-brown, andesitic volcaniclastic breccia. Subrounded to angular clasts to >50mm diameter, composed of fine grained, weakly porphyritic (plagioclase) intermediate volcanic fragments in a very fine grained matrix (<0.008 ppm Au).
61.22 - 61.32m: Volcaniclastic sandstone. Fine to coarse grained (fine sand to grit) volcaniclastic sediment with subrounded clasts to 5mm composed of felsic-intermediate volcanic fragments, quartz fragments (generally less than 2mm), and minor plagioclase feldspar clasts in a very fine grained matrix (<0.008 ppm Au).

B: Hole SWDD 006
Oberon Prospect 5250N 9700E

Parts of 71.5 - 74.85m. Fine to very fine grained sediment composed of greywacke/ fine sandstone (ca. 71.6m) to thinly laminated shale/siltstone/fine sandstone (ca. 74.6m) (<0.0008 ppm Au).

C: Hole SWDD 001
Prospero Prospect 6000N 10215E

Parts of 90.4 - 94.6m.
90.4 - 91.4m: Massive light pink grey, medium to coarse grained plagioclase porphyry (to 0.399 ppm Au).
91.4 - 92.4m and 92.8 - 93.2m: Strongly silicified, pyritic quartz - minor sericite - chlorite schist, pyritic quartz - minor sericite - chlorite schist with several veins and minor albitic alteration (to 0.676 ppm Au).
92.4 - 92.8m: Weakly laminated quartz vein with minor sericite and trace chlorite, 2-4% pyrite and 1% arsenopyrite (0.8m @ 3.70 ppm Au).
93.2 - 94.6m: Strongly sheared sericite - quartz - chlorite schist. Abundant quartz stringers and strong sericite alteration (0.459 ppm Au).

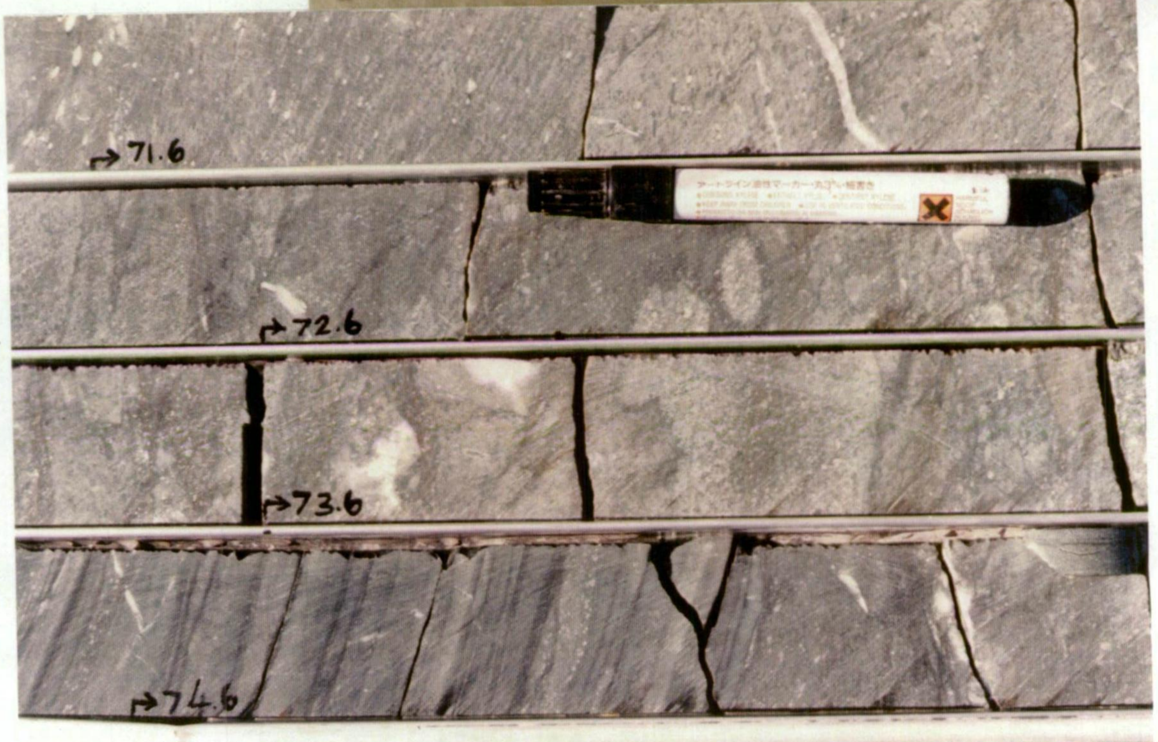
D: Hole SWDD 001
Prospero Prospect 6000N 10215E

Parts of 97.6 - 102.1m. 97.6 - 98.3m: Medium grained light pink grey feldspar porphyry. Plagioclase and albite phenocrysts to 6mm in a very fine grained quartz - albite - plagioclase - sericite matrix (0.150 ppm Au).
98.3 - 100.3m: Strongly sheared chlorite - sericite - quartz schist with strong quartz - sericite alteration and abundant quartz stringer veins in the foliation plane (to 0.538 ppm Au).
100.3 - 101.6 and 101.9 - 102.1m: Quartz, albite, sericite altered very fine grained sericite-quartz-albite-plagioclase schist (to 0.152 ppm Au).
101.6 - 101.9m: Quartz vein, coarse grained (bucky) with rare disseminated pyrite (21.8 ppm Au).

APPENDIX C
PLATE 1

A

B



C

D

APPENDIX C PLATE 2

Note: All photographs of cut faces of NQ2 core, nominal diameter 50mm.
: Drill hole geological logs and assay results are included in Appendix C.
: All photographs from SWDD020 (6000N, 10250E) Prospero Prospect.

A: Parts of 119.0 - 121.1m.
119.0 - 119.22m: Very fine to fine grained chlorite - sericite - quartz schist. Moderate sericite - quartz and weak carbonate - fuchsite alteration with disseminated pyrite to 3% and minor arsenopyrite to 1% (0.189 ppm Au).
119.22 - 120.3m: Massive medium grained (to 6mm) plagioclase porphyry. Fine grained plagioclase - albite - quartz - sericite matrix with moderate sericite - albite - quartz alteration and 2-4% pyrite and trace arsenopyrite.
120.3 - 121.1m: Strongly silicified, very fine grained quartz - sericite - plagioclase schist with minor quartz - ankerite stringers and 2-5% disseminated pyrite (1.18 ppm Au).

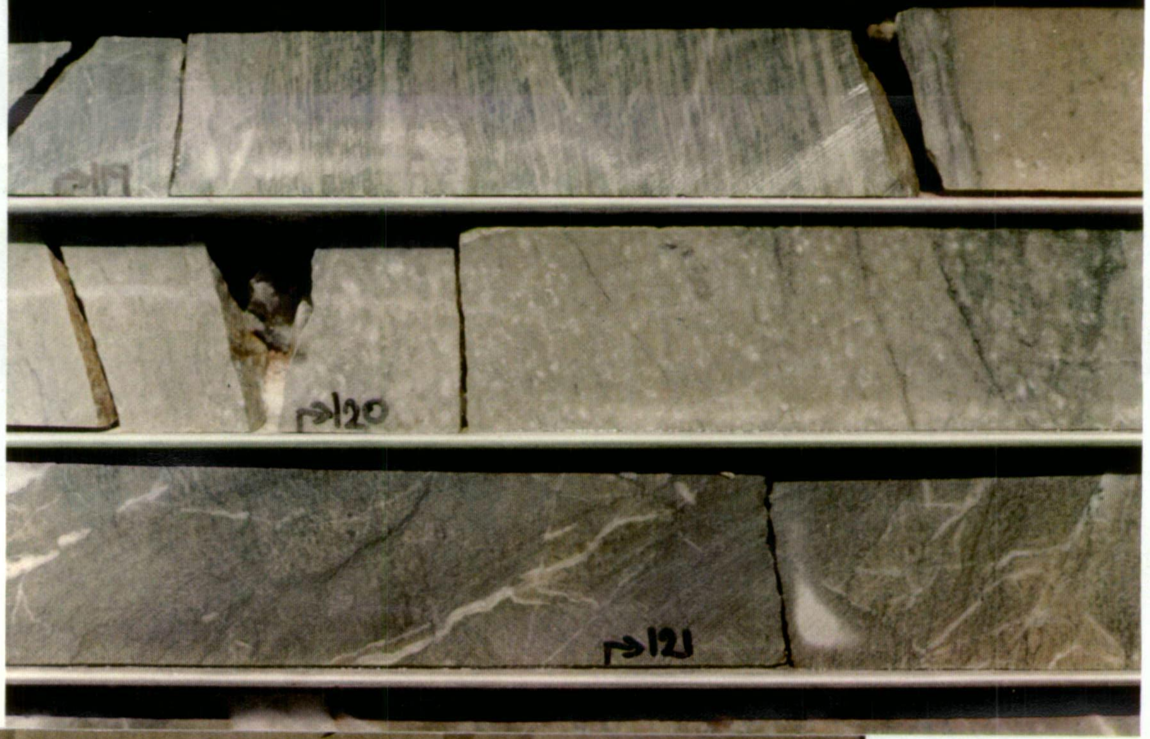
B: 122.20 - 122.71m: Intense silicification of massive to weakly foliated, fine grained quartz - sericite rock after intermediate volcanic (?). Abundant irregular quartz and rare quartz - ankerite stringers with disseminated pyrite to 4% (0.993 ppm Au).

C: 124.36 - 124.60m: Weakly foliated, very fine grained, chlorite - sericite - minor plagioclase schist with several quartz and quartz - ankerite stringers displaying thin albite - quartz altered selvages (0.438 ppm Au).

D: Parts of 124.98 - 127.07m.
124.98 - 125.15m: Light pink grey, very fine grained, moderately sheared, strongly albite altered, quartz - albite - sericite schist. Moderate pervasive albite alteration with intense alteration along quartz stringer and fracture selvages and minor (<1%) pyrite (0.438 ppm Au).
125.15 - 126.13m: Quartz - sericite - minor chlorite schist. Moderate foliation with numerous sub-parallel quartz stringers to 50 mm wide. Moderate sericite - quartz alteration, rare fuchsite, 1-5% pyrite and trace arsenopyrite (1.300 ppm Au).
126.13 - 127.1m: Feldspar porphyry. Medium grained, massive plagioclase porphyry with weak albite - sericite alteration and minor quartz and quartz - ankerite stringers (0.271 ppm Au).

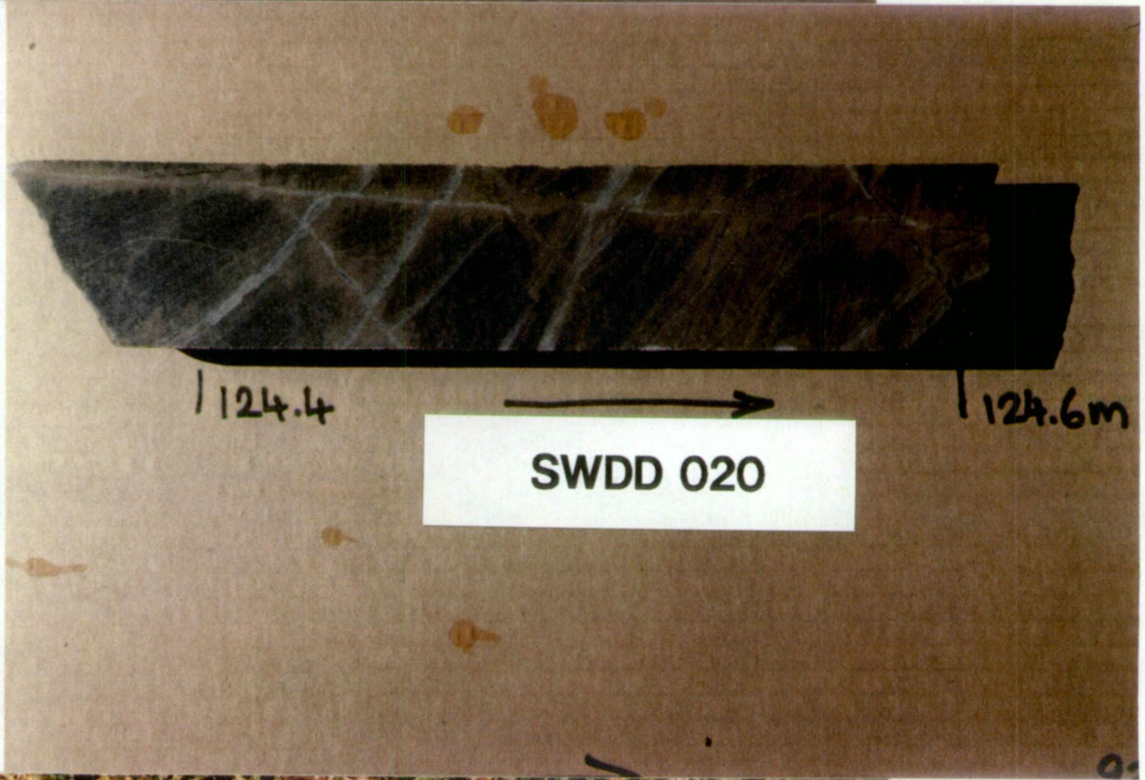
APPENDIX C
PLATE 2

A



B

C



D