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EL 1711

COPPERLINKA

FIRST PARTIAL SURRENDER REPORT FOR THE PERIOD 16/4/1991 TO 15/4/1993

Submitted by
Aztec Mining Co. Ltd
1972

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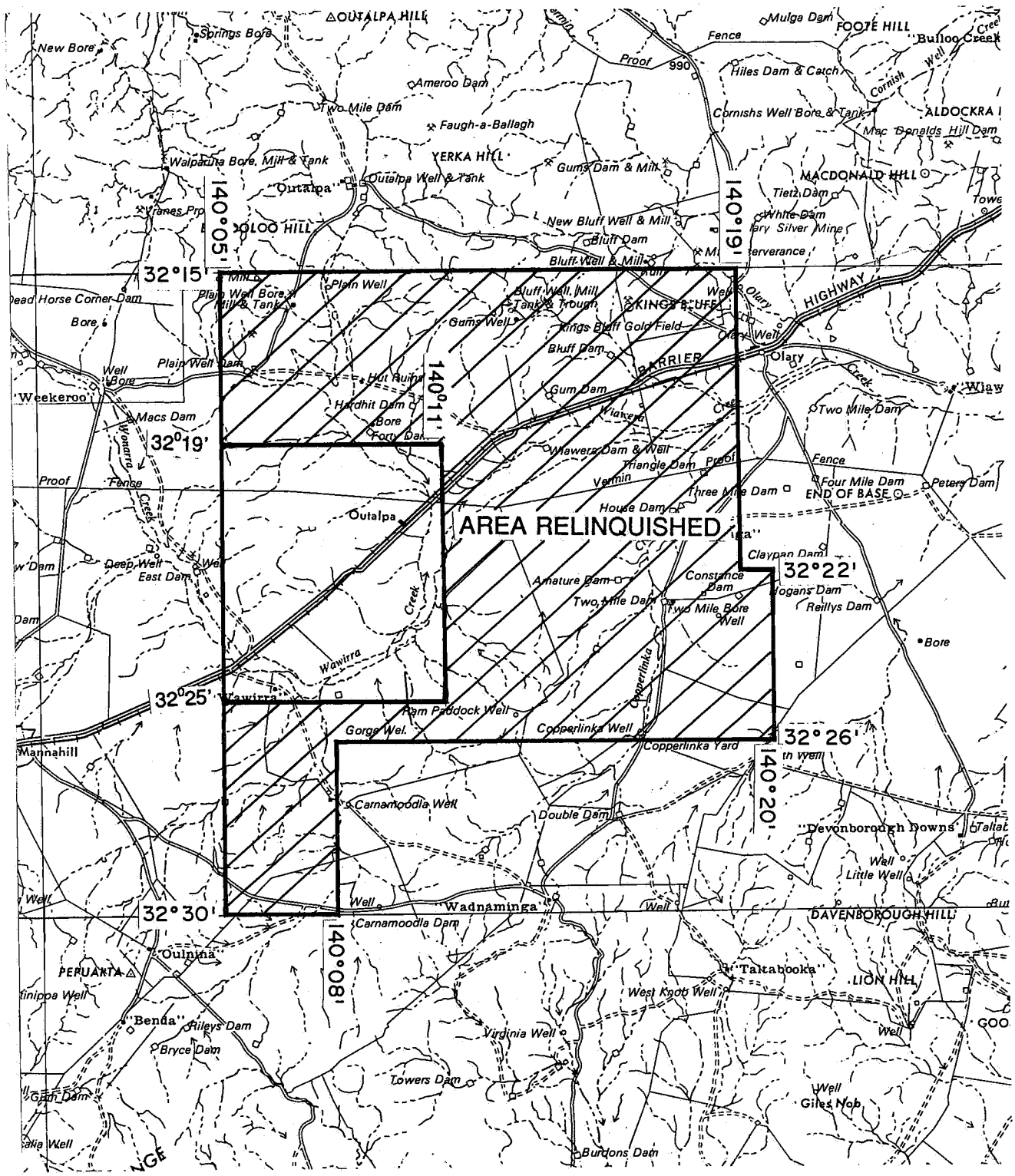
Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



EXPIRED

SCALE 1:250,000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

APPLICANT: ~~AZTEC MINING COMPANY LTD~~ OXFORD RESOURCES P.L.

DME 298/90

AREA: ~~493~~ 104 square kilometres (approx.)

1:250000 PLANS: OLARY

LOCALITY: COPPERLINKA AREA - approximately 14 kms. SW of OLARY

DATE GRANTED: 16-4-91

DATE EXPIRED: 15-4-92 ~~13~~ ~~94~~ 95 96

EL No: 1711

PS. 18915

SOUTH AUSTRALIA

DEPARTMENT OF MINES AND ENERGY

OPEN FILE ENVELOPE NO. 8698

EL 1711, COPPERLINKA

PARTIAL RELINQUISHMENT REPORT 15/4/93

Submitted by

Aztec Mining Company Ltd

1993

ENVELOPE 8698

TENEMENT: EL 1711, Copperlinka

TENEMENT HOLDER: Aztec Mining Company Ltd

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MINERALS EXPLORATION REPORT

EXPLORATION LICENCE 1711
COPPERLINKA AREA
OLARY PROVINCE, SOUTH AUSTRALIA

RELINQUISHMENT REPORT
for the period ending 15 April 1993

Aztec Mining Company Limited
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DATE: 20 April 1993

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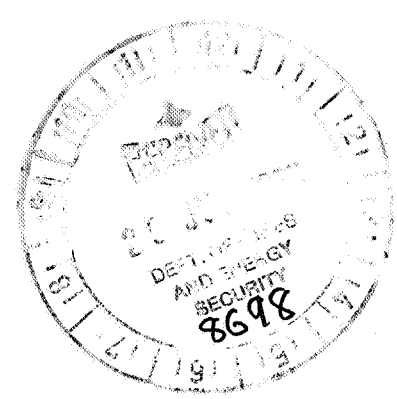

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Relinquishment Report
for the period ending 15 April 1993

Copperlinka Area - EL 1711
Olary Province, South Australia

SUMMARY

Exploration work carried out on EL 1711 for the six months period ending 15 April 1993 involved revaluation of existing exploration results and petrographic studies of the spotted siltstone.

Field work included re-establishment of the original survey grid, collection of rock specimens and discussions with property owners.

The original area of 493 sq km is herewith being reduced by 79 % to 104 sq km. The area to be retained centres on the set of easterly trending, late Delamerian (D5) folds that include the the Boomerang Gold Mine and other old Au prospects.

INTRODUCTION

The Licence area has been extensively explored during the past two years commencing 16 April 1991. Principal metal sought has been gold, preferably in open-cuttable deposits.

The tenement is located in the central Olary Province roughly 325 and 150 airline kms from Adelaide and Broken Hill respectively (Fig 1).

Aztec Mining Company, a Perth based miner, is the sole licensee and exploration manager. The company's exploration program is being carried out by Oxford Resources Pty Limited of Sydney, NSW.

PHYSIOGRAPHY

Situated within the Olary Upland of Forbes (1991), the landscape comprises a series of low hills and occasional jutting ridges sculptured from differentially uplifted tough quartzite interbedded with mostly soft, marine sediments. Vestigial ranges, chiefly the resistant sandstones on the limbs of the Ulupa Syncline, have a maximum relief of 150 m and trend N70°E in accord with the regional structural grain.

RETAINED AREA

RELINQUISHED AREA

FIGURE 01

COPPERLINKA (EL 1711) AREA

STATION LOCATION MAP

ADELAIDE GEOSYNCLINE, SOUTH AUSTRALIA

Modified from SADME Olary (6933) and Winninnie (6833) maps

0006

0 2 4 6 8 10 km

1/100 000 SCALE

Principal drainages and their tributaries, Olary, Wawirra and Copperlinka Creeks, exhibit a dissection pattern equally the respondent of the area's rock composition (resistance) and folded structural setting.

A good example of this relationship occurs in the structurally and compositionally toughened hills near the old railway siding of Outalpa. At this location Wawirra Creek saliently scours a channel that faithfully adheres to the strike of the curving sediments of the Enorama Shale.

Interestingly, Wawirra and its tributary drainages enclose a community of old gold workings, the Boomerang, Cooee, and Golden Dewdrop mines which are currently being studied in detail (Fig 2).

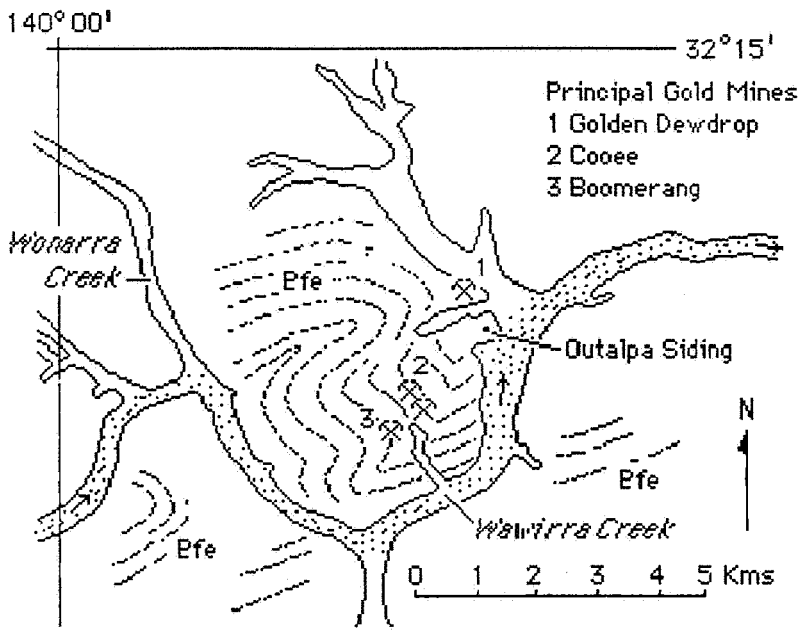

Figure 2. Wawirra Creek eroding a channel of least resistance about the folded hills near Outalpa Siding. A spotted siltstone member, local silicification and auriferous quartz veining of the Enorama Shale (Pfe) aid in the rock's resistance. Modified from Forbes, 1989.

Climate is arid with a fallible annual rainfall that during the past five years averaged 247 mm, a high of 375 mm in 1989 to a low of 128 mm in 1991 (Crawford, 1991). During most years, mean evaporation (≅ 2500 mm) greatly exceeds rainfall which contributes to an inadequate water supply. Mean maximum temperature variations of 5° to 40°C occur between July and February respectively (Gibbs, 1977).

EXPLORATION ACTIVITIES

Re-establishment of the orginal survey grid within the Boomerang Au prospect area has been necessary as a result of damage caused by grazing livestock. The work required the use of a theodolite only where key grid markers were missing.

Collection of a suite of rock specimens was carried out. The specimens are intended for petrographic studies and additional geochemical analysis.

A thorough review of all accumulated exploration data, including pertinent information obtained from SADME open files, has been carried out. As a result of this work, it is herein proposed that the original Licence area be reduced from its original 493 sq km to 104 sq km, a reduction of 77 percent.

Area to be retained covers the sequence of easterly-trending D5 folds (Fig. 2) which are believed contemporaneous with folding of the central Adelaidean synclinorium. Geographic relationship of old mine and prospect workings with this folding is regarded as evidence that the structural setting has contributed to the localisation of gold-bearing ores.

Data relating to the relinquished ground are presented in Appendix A, geochemical analytical results are in Appendix B and geologic field stations are plotted on the Location Map (Fig 1).

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APPENDIX A

RELINQUISHMENT REPORT

GEOLOGICAL FIELD NOTES

COPPERLINKA AREA - EL 1711
Olary Province, South Australia

Data relating to geologic stations 02-13, 38, 72-73, 83, 86-89 and 92-125 lie within the retained area of EL 1711 and consequently have been omitted from this Relinquishment Report. Data for these stations is recorded in previous Quarterly Reports 1 thru 4.

APPENDIX "A"

1991-1992 GEOLOGICAL FIELD NOTES

COPPERLINKA AREA - EL 1711
Olary Province, South Australia

01 431350/6411900. Copperlinka Creek, 8 m wide, 2 m banks. Siltstone, strongly calcareous, finely bedded, light to medium gray. Bed: 50/55NW. Abundant black magnetic shot in creek float. Down stream 20 m, bed: 45/45NW

14 417267/6421602. Prominent outcrop (1 m relief). Siltstone, dark gray-brown on exposed, light gray on fresh surfaces. Very well defined flaser bedding, emphasised by alternating light and dark bands. Bed: essentially horizontal.

Approx 100 m SSE. Siltstone. Bed: 250/15SE (II).

15 417947/6423049. Isolated outcrop. Siltstone, flaser bedded. Bed: 250/10SE ? Joint: 185/85SE, 3/m. 2nd bed: 20/20NW (II). Area littered with milky-white quartz. Most of the hill crests in this area support quartz veins.

17 419059/6422149. Prominent outcrop, 3-4 m relief, nose of syncline. Siltstone, medium to dark brown, well-developed flaser bed. Bed: 05/20SW (I).

18 419540/6422288. Siltstone, medium to dark brown, locally black, on exposed surfaces, light to medium gray on fresh. Excellent flaser bedding. Bed: 300/15SW (I). Joint: 70/90, 1/m.

19 418868/6421971. Prominent outcrop, 2 m relief, well-exposed strike length (shows well on aerial photo). Siltstone, gray-brown. Excellent flaser bedding. Bed: 215/25NW (I). Joint: 240/80SE.

20 418263/6422009. Prominent outcrop. Siltstone, flaser bedding. Bed: 155/10SW (I). Joint: 60/80SE; 165/85SW. Large quartz outcrop, 250 m easterly, milky white, parallels bedding, to 2 m thick, 60 m length pinching out at both ends, non-productive.

21 416029/6422976. Creek bed. Exposes flaser bedded siltstone. Bed: 65/40SE (I). Joint: 325/85NE, 3/m. Abundant quartz float, milky-white, crackled but well-healed. Quartz vein: 220/80NW, 60 cm thick, slightly FeO-stained. Bed: 230/55SE (I). Sample GA01R from quartz vein, well-crackled, slight greasy lustre, FeO and limonite smears on fractures, rare gossanous clots filling vugs (1-3 mm). Numerous such quartz veins this location. 2nd quartz vein: 230/35SE, 5 cm thick, several in same general area, clots siderite.

22 416431/6423881. Stream channel (as above). Siltstone, flaser-bedded. Bed: 65/25SE (I). Creek alluvials runs approx 90% bull quartz.

23 418188/6424419. Prominent outcrop, crosses stream channel. Limestone dolomitic, highly reactive to HCl. Very finely bedded, 75 cm thick, medium to dark gray, shows flaser banding, trace amounts FeO. Bed: 75/50SE (I).

24 417377/6424000. Edge of alluvial covered area (to east). Siltstone, flaser bedding. Bed: 95/25SW (I). Joint: 155/80SW.

25 416675/6421817. Siltstone, flaser-bedded. Bed: 60/20SE (I). Joint: 180/80E, 2/m.

26 423903/6406807. Rain diversion channel. Siltstone, finely laminated, punky, light gray-greenish to olive-green. Bed:60/50 NW(II). Extensive calcrete development.

27 423208/6407105. Tillite, medium brown on exposed surfaces, medium on fresh. Strongly reactive to HCl. Fracture cleavage: 60/75NW.

28 424516/6408254. Tillite, medium gray-brown on exposed surfaces, medium gray on fresh. Weathers to elongate, sub-rounded outcrops parallel to ridge. Fracture cleavage: 75/85NW. Jointing: 10/80SE, 5/m.

29 426154/6410817. Quartzite, exposed surfaces gray-brown. Bed: 65/40NW.

30 423963/6410000. Siltstone, gray-green. Bed: 240/35NW. Minor amounts detrital magnetite in creek alluvials.

31 423496/6400020. Siltstone, blue-gray, very finely laminated. Bed: 90/20N. Fracture cleavage: 70/90.

32 422417/6407917. Creek, draining 310° magnetic. Siltstone, blue-gray. On weathering produces slabs to 15cm thickness, excellent building stone. Bed: 85/15NW.

33 420953/6406827. Tillite. Fracture cleavage: 250/90. Bed: 75/50N.

34 430208/6408967. Slight topo rise. Ruin, stone shepherd's hut. Shale, silty, light gray on exposed surfaces, light greenish-gray on fresh. Disseminated spots, 1-2mm, dark gray to black. Very reactive to dilute HCl. Enorama Shale. Bed: 55/60NW (I); 55/70NW (I).

35 433412/6411100. Limestone, silty, medium gray. Strongly reactive to HCl. Medium brown on freshly broken surfaces. Bed: 50/50NW (I). Sandy lenses tend to resist weathering 30-40cm width, stand in slight relief.

36 434536/6412174. Ridge trending N45E magnetic parallel to regional strike. Limestone, silty with sandy lenses, strongly reactive to HCl. Light light brown on exposed surfaces, medium brown on fresh. Exhibits characteristic FeO spotting to 3mm diameter, suspect former disseminated pyrite. Outcrops stand in slight relief 30-40cm. Bed: 45/55NW. Jointing: 150/90, 5/m.

37 434521/6412648. Prospect pit. Quartz-ferruginous vein, 8cm, ferruginous portion very fine cellular, siliceous, intergrown quartz with "greasy" lustre and trace amounts anhedral pyrite blebs (1-2mm). Vein: 25/80NW. Siltstone, gray, very finely laminated, medium, non-reactive to HCl. Bed: 35/55 NW. Rockchip sample **A318375** from quartz-ferruginous vein, returned 80.0 ppm Au. Lies within the Outalpa Lineament of Davies (1991, Thematic Mapper Study).

434589/6412732. Siltstone. Bed: 45/30NW (I).

39 436610/6412767. Prospect pit down approx 1m. Siltstone, gray-green. Mullock comprises calcite, siderite, argillic products. Micaceous sandstone. Bed: 30/25NW. Joints: 115/85SW, 5/m. Fracture cleavage: 55/85NW, best developed in siltstone.

40 438174/6414329. Sandstone, silty, medium brown. FeO cementing medium plus $CaCO_3$. Moderately reactive to HCl. Very finely laminated. Laminations (2-4mm) alternate light and dark brown. Bed: 40/30NW (I). Tarcowie Siltstone.

41 423427/6403912. Prominent ridge trending 235° magnetic. Sandstone, light brown, calcareous. Exhibits light and dark brown, wavy layering (1-2mm). Siderite veinlets (1-2mm). Minor quartz veining to 50cm thickness, generally leached with development of open spaces: 260/85 SE. Rock resembles Cox Sandstone member. Sample A318376 (0.26ppm Au, contaminated?). Rock chip sample **A318377**, sandstone, light gray-brown, siliceous, laced with thin quartz veinlets (1-5mm) with clots red-brown limonite-goethite, returned 0.15 ppm Au (lab contamination ?), disseminated limonite specks 10-12%.

423125/6403802. Ridge as previous. Limestone, reddish, sand or calcareous sandstone. Strongly reactive to dilute HCl. Bed: 235°/50NW (I). Quartz veins to 30cm thickness: 245/75SE, milky white with intergrown ferruginous clots, brown, siliceous.

42 422819/6402927. Sandstone, silty, reddish-brown on exposed surfaces, medium-gray on fresh. Strongly reactive to HCl. Very finely and faintly laminated. Bed: 235/35 NW (I).

43 422596/6402060. Gully, drains 175° magnetic. Mudstone or shale, gray, dark gray on freshly broken surfaces, slightly punky. Strongly reactive to dilute HCl. Very finely bedded with some bedding planes marked by dense limonite staining (1-2mm). Bed: 60/35NW (I). Jointing: 140/80SW, 5/m frequently with calcrete coatings.

44 421283/6401877. Ridge trending N60E. Siltstone, very fine grained, slightly ferruginous. Locally brecciated. Strongly reactive to HCl. Interstitial cavities (in breccia) filled with greasy lustred quartz and dense, red-brown ferruginous product. Rock not everywhere reactive to HCl. Breccia very productive appearing.

Rockchip sample A318378, returned 0.012 ppm Au and 410 ppm As. Comprises finely (1-2cm) brecciated sandstone with interstitial quartz and limonite-goethite. Numerous multi-directional limonite veinlets. Bed: 55/35NW (I). Jointing: 150/85SW, 5/m.

420430/6401169. A prominent fault-like linear feature shown on aerial photo is a very old road. Rock is shale, light red-brown on exposed surfaces, medium to dark gray on fresh. Very finely laminated. Abundant fine (0.5mm) calcite veinlets. Bed: 55/45NW (I). Jointing 140/85SW, 3/m.

45 420397/6402209. Moderate topo rise trends N70E. Sandy siltstone, non-calcareous. Heavily FeO-stained. Medium brown on exposed surfaces, beige on fresh. Thin bedding planes alternate light and dark brown. Bed: 60/85NW (?). Fracture cleavage: 75/90. CLT

46 419372/6402508. Outcrops restricted to thin (30-50cm) linear trending limestone beds, light gray on exposed surfaces, medium on fresh. Strongly reactive to HCl. Bed: 40/75NW (I).

47 418467/6403887. Slight topo rise. Siltstone, light gray on exposed surfaces, medium gray on fresh. Exhibits disseminated gray to black spots 1-2mm diameter, resemble minute manganese rosettes. Strongly reactive to HCl. Bed: 65/60NW (I).

48 420476/6404374. Sandstone, brownish surface coating, dark red-brown on freshly broken surfaces. Locally medium gray with irregular blotches (1-2cm), oval-shaped, strong FeO stain. Forms prominent linear outcrops. Strongly reactive to HCl.

Rockchip sample **A318379**, calcareous sandstone with irregular blotches and stringers FeO staining, slightly silicified, very even textured. Bed: 55/45NW. Jointing: 135/85NE, 5/m, frequently with calcrete smears to 2-3mm thickness. Enorama Shale.

420579/6404656. Enorama Shale, medium brown on exposed surfaces, gray on fresh. Bed: 65/50NW (I). Jointing: 165/90, 3/m. Highly reactive to HCl. Bed: 60/35NW, surface exhibits well-developed asymmetrical ripple marks with foreset beds developing 160° magnetic.

49 422283/6405419. Sandstone, silty, calcareous. exhibits recrystallised texture. Freshly broken surfaces medium gray. Very reactive to HCl. Bed: 60/45NW (I).

50 422888/6406125. Silty sandstone and siltstone, mottled reddish-gray. Non-reactive to HCl. Bed: 50/55NW. Fracture cleavage: 55/85NW.

51 420159/6404877. Silty sandstone and siltstones, light light brown, slightly mottled reddish. Bed: 70/55NW (II). Surface littered with FeO stained quartz clasts.

Rock chip sample **A318380** from surface quartz clasts, strongly fractured with limonite fillings and a dark red hematite-like mineral, trace amounts sericite, anomalous Pb (255 ppm).

52 418819/6404972. Slight topo rise. Siltstone, calcareous, recrystallised, strongly reactive to HCl, fine to medium grained. Light gray on exposed surfaces, light to medium gray on fresh. Bed: 80/60NW (I).

53 418084/6406902. Quartzite, prominent ridge former, trending: N75E. Quartzite comprises 20-30% argillic products. Estimated 60-70m width. Bed: 80/20NW (III); 75/50 (III). Identified as Seacliff Sandstone.

54 418576/6407264. Small creek, drains 280° magnetic. Ulupa Siltstone, light gray-green, well-bedded siltstone. Bed: 70/45NW (I).

418576/640729430. Heavy concentration well-rounded magnetic granules. Sample **A318381**, magnetic granules.

55 418179/6408638. Siltstone, gray-green, non-reactive to HCl. Bed: 80/45NW (II); 80/50NW (I). Surface covered with well-rounded granular dimension magnetic material, sample **A318382**.

56 418387/6409105. Stream channel, drains N25E. Siltstone, gray green. Ulupa siltstone. Bed: 100/25SW. West bank of creek, surface black with small (5-20mm), well-rounded magnetic products, sample **A318383**.

57 417764/6410418. Several bulldozer cuts in this general area, most down 1.5-2.0 m by 4 m length, property owner (Will Crawford) informs DMR responsible for the excavations in their search for road metal. Rock in mullock is silcrete.

South bank of tributary creek, outcrop highly disrupted and altered silty sandstone and siltstone. Thoroughly leached. Bed: 70/70SE.

Rockchip sample **A318384** (0.009 Au, <1.0 Ag, <10 As, 54 Cu, 25 Pb, 60 Zn, ppm) from more preserved silty sandstone Overall length of alteration approximately 110m.

417993/6410214. In main stream channel draining generally north. Quartzose sandstone. Shown as Grampus Quartzite. Very pyritic with 10-12% disseminate euhedral cubes limonite pseudomorphs after pyrite (0.5-1.5mm). Area extensively bulldozed.

Appears some attempt made to dam main creek channel with large blocks (1-2m) very tough quartzose sandstone. Note presence natural spring on west side of creek. Fractures often with thin smears hematite. Sample **A318385** from pyritic quartzose sandstone, slightly greenish on freshly broken surfaces.

58 418323/6404578. Tillite top 2 m relief x 200 m length, trending: N75W. Sandstone, silty, very finely laminated. Freshly broken surfaces reveal finely recrystallised texture. Laminations about 10/cm, alternating light and dark, fine wavy. Weakly reactive to HCl. Manganese dendrites on most fracture surfaces. Bed: 70/45NW (I).

At northwest corner of hill is occupied by a small anticlinal fold which appears to have contributed to toughening of the siltstone and consequently its resistance to erosion (Fig 01). Bedding attitudes: 295/45NE; 15/85NW; nose, 75/80NE.

59 417447/6404877. Slight topo rise, oval-shaped trends 75° magnetic. Siltstone, recrystallised, slightly sandy, light gray on exposed surfaces, medium gray to slightly brownish on fresh. Moderately reactive to HCl. Fracture cleavage: 70/80NW. Bed: 70/60NW (I).

60 417779/6405189. Slight topo rise. Siltstone or shale, very fine grained and finely laminated, recrystallised. Moderately reactive to HCl. Light on exposed surfaces, medium on fresh. Outcrop exposures exhibit tight folding (sketch).

61 417968/6406364. Ridge crest, trends N75E magnetic. Sandstone, recrystallised. Gray-brown on exposed surfaces, medium to dark on fresh. Moderately reactive to HCl. Numerous small (3-10cm) pebbles and cobbles of quartzite. Bed: 75/35 NW(I). Jointing: 160/90, 5/m.

Figure 01. Station 58. Tight anticlinal fold developed in Enorama Shale on the south limb of the Ulupa Syncline. Folding of this nature is frequently found in this area and is usually coincident with slight topographic relief. View N80°W.

62 415397/6405708. Ridge crest, trends N40E. Tillite, reddish-brown on exposed surfaces, medium on fresh. Slightly reactive to dilute HCl. Minor anhedral pyrite, <1%. Jointing: 10/85SE, 3/m; 70/85NW, 3/m. Fracture cleavage: 75/80NW poorly developed. Bed: 90/55N (II).

63 414486/6406548. Top of range. Sandstone, quartzose, interbedded with tillitic sandstone (Pepuarta Tillite). Surfaces typically reddish-brown, supports sparse vegetation (Fig 02). Freshly broken surfaces light to medium gray-brown. Strongly reactive to HCl. Fracture cleavage: 70/80NW, poorly developed. Bed: 80/30NW.

110m brg N50W. Sandstone. Bed: 85/35NW(I). Jointing: 10/85SE, 3/m.

64 415591/6406767. Hill top. Siltstone, calcareous, finely laminated. Med brown on exposed surfaces, light gray on fresh. Bed:70/65NW (III). Jointing: 15/85SE, 5/m. Fracture cleavage: 85/75NW. CLT.

65 415710/6407354. Ulupa siltstone, light gry-green, brownish on exposed surfaces, light gry-green on fresh. Fracture cleavage: 70/85 NW, well-developed. Bed: 70/45NW (I).

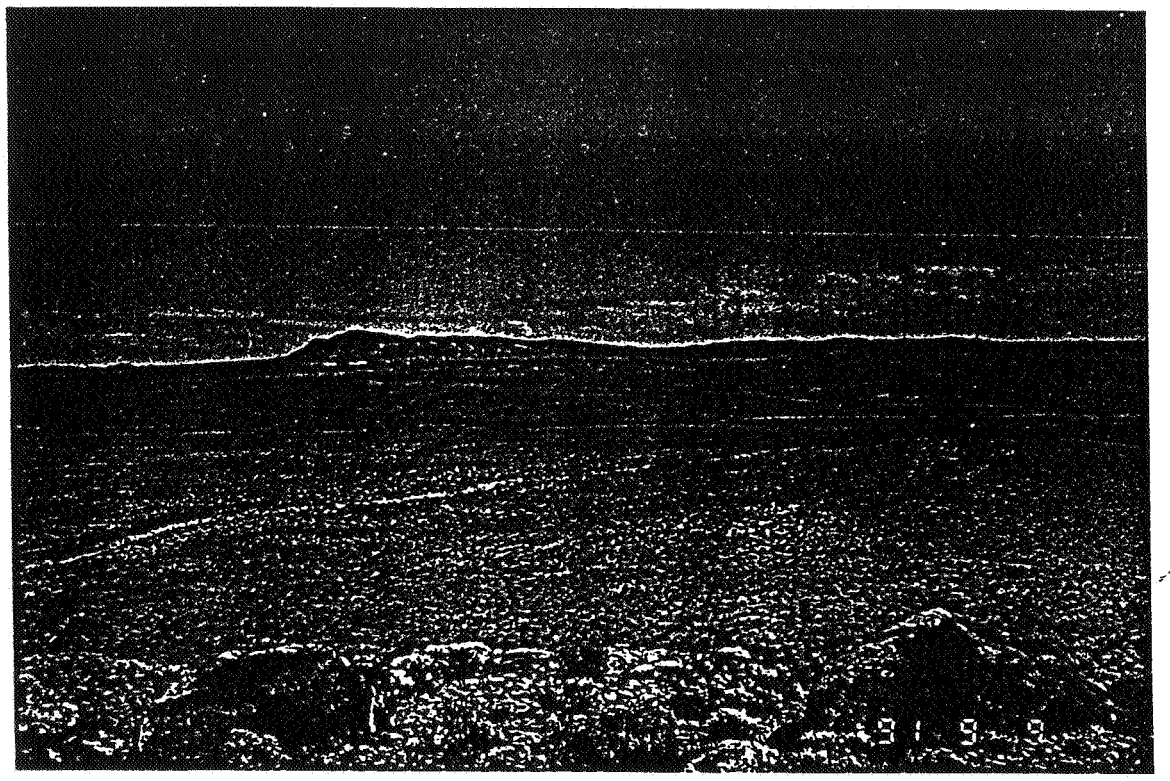

Figure 02. Station 63. View from top of Ulupa Range looking S55°W. Tillitic sandstone (Pepuarta Tillite) in foreground. Pepuarta Bluff, type section for the Pepuarta Tillite, shows on skyline. Oulnina homestead at base of bluff.

66 415323/6408279. Small creek, drains N50E. Siltstone, light blue-gry, green-gry on freshly broken surfaces. Slightly sandy texture. Non-reactive to HCl. FeO staining tends to concentrate along bedding planes, discontinuous (1-3mm). Outcrop conspicuous for large (1m x 10cm) tabular blocks. Bed: 60/10NW (I). Jointing: 160/85SW, 5/m.

67 413068/6408977. Creek, drains N45E. Siltstone, light gry-green. Bed: 65/60SE (I). Jointing: 145/80NE, 10m.

68 411923/6407713. Creek, drains N45E. Siltstone, pastel green. Very finely laminated. bed: 70/10SE. Fracture

cleavage: 70/75NW. Jointing 165/85SW, 5/m generally smeared with calcrete.

69 413065/6408229. Creek, drains N45E. Siltstone, pastel green. Finely laminated. Bed: 70/10SE(I). Jointing: 170/90, 3/m; 75/80NW, 5/m with calcrete fillings.

70 414189/6409115. Creek, drains N50E. Ulupa Siltstone light pastel green. Bed: 75/65SE(I). Jointing: 10/85SE, 10/m.

71 414720/6409553. Creek, sharp bend from NE to SE (downstream). Northeast bank exposes conspicuous reddish color anomaly (Fig 03). Rock is silty sandstone, excessively fractured and locally brecciated, leached and bleached, twisted bedding.

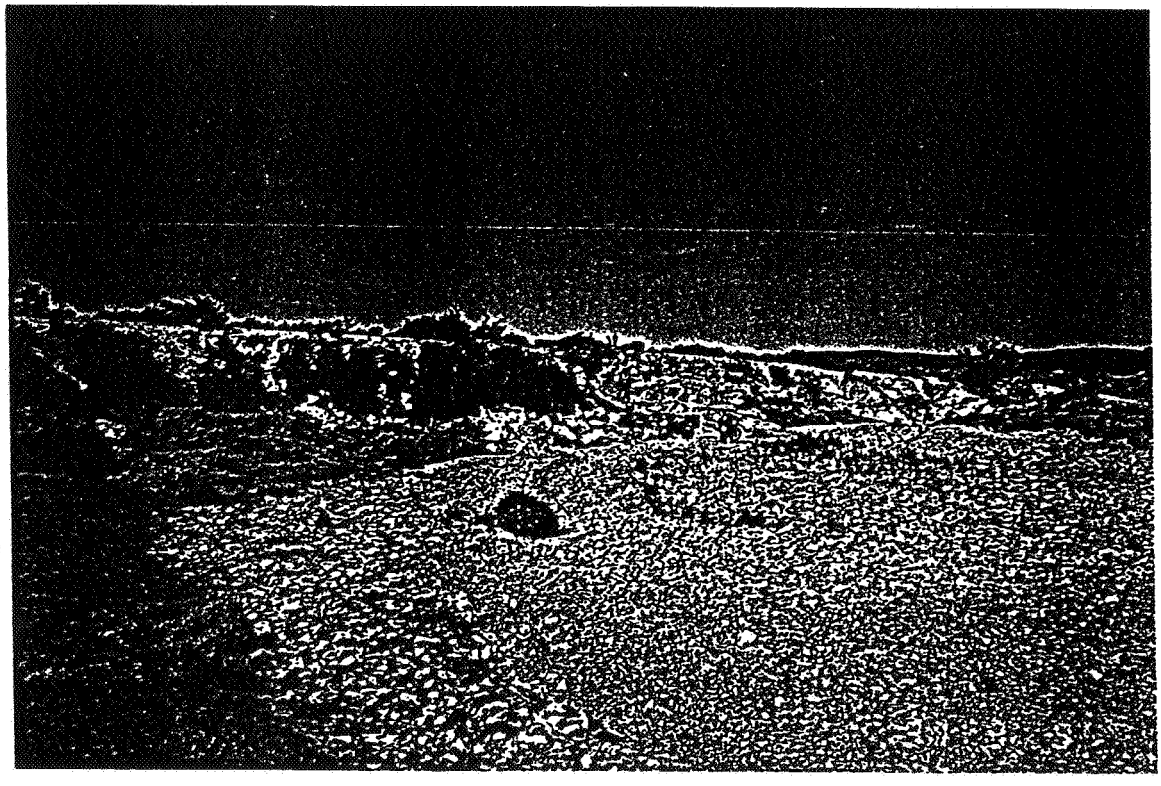

Figure 03. Conspicuous reddish color anomaly in strongly deformed siltstone-sandstone sequence (Unnamed formation, Pe). Tributary drainage to Wawirra Creek. View N85°E.

Less severely deformed and altered siltstone exhibits slight greenish color. Latter rocks are sharply demarcated from FeO-stained sandstones. V-shaped pattern resembling chevron folding is actually heavily stained fracture: 30/70SE that intersects equally FeO-stained bedding plane shear: 60/65NW.

Other prominent fracturing: 175/75SW, suspect may be jointing with minor displacement, frequently occupied by

thin (0.5-1.5cm) FeO bearing quartz veinlets. Second quartz bearing fracture system: 180/30E, appears to post-date previous set. Wallrocks thoroughly fractured and locally brecciated.

Third fracture set: 70/80NW to 30cm width and filled with mylonitised wall rock (silty sandstone), heavily impregnated with FeO also disseminated limonitic spots, hard (siliceous) stringers ferruginous material. Sample **A318386** (0.011 Au, 10 As, 370 Cu, 35 Pb, 300 Zn, 1.00 Ag, ppm) ferruginous vein filling: 80/80NW, 25cm width, dense ferruginous material with intergrown quartz.

Bedding conspicuously wavy but not sharply folded. Best (most representative) bedding: 70/60NW conspicuously marked by heavy FeO staining. Bedding plane partings often occupied by tough ferruginous material. Sample **A318387** (0.015 Au, 20 As, 228 Cu, 5 Pb, 114 Zn, <1.0 Ag ppm) from multi-directional quartz veinlets, all intensely fractured. Principal quartz vein trend: 65/40NW, veins to 20cm width.

Silty sandstone, heavily impregnated with FeO, probably transported (exotic) including local concentration limonite. In places rocks intensely leached and bleached. Overall length of altered exposure approximately 110m. Bed: 50/40NW with ferruginous impregnations along bedding plane partings.

Southeast end of exposure, rock is siltstone, slightly bleached, pastel green, finely and uniformly sheared. Sharply demarcated from fractured rock to NW. "Contact", however is gradational with altered rock short distance (3-4m) to well defined fault: 80/85SE. Bedding in greenish siltstones: 70/60SE, exhibit sympathetic shearing parallel to fault. Prominent fracture system in siltstone: 55/70SE, 15-20/m.

Large quartz vein: 65/80SE to 40cm, probably a pre-alteration structure of the massive type frequently found in Grampus Quartzite.

Reverse fault occupying precise bend in creek: 70/70NW to 3m width including some sympathetic displacement in wall rocks, extensive leaching.

74 417238/6410478. Slight topo rise. Sandstone or sandy limestone, silty, very finely laminated. Buff coloured on exposed and fresh surfaces. Calcrete coatings and fracture fillings. Highly reactive to dilute HCl. Bed: 70/80SE(I).

75 417223/6411015. Relatively flat terrain. Surface black with small (0.15-1.5cm) rounded magnetic particles. Sample **A318388** (0.007 Au, <1.0 Ag, 10 As, 34 Cu, 150 Pb, 122 Zn, ppm) of magnetic particles.

417223/6411090. Quartzose sandstone, pinkish matrix. Bed: 55/75SE (III).

76 417337/6412862. Limestone, silty, very finely bedded. Characterised by disseminate black specks (1-3mm). Bed: 55/85SE (II).

77 415710/6413628. Sandstone, alternating silty and sandy layer (1-3cm thickness) weathering to grooved surface. Strongly reactive to HCl. Bed: 60/45SE (I).

78 414516/6412862. Siltstone or silty limestone, calcareous, gray. Strongly reactive to HCl. Quartz vein, 1.5 m thickness, appears to be the massive type: N45E. Rockchip sample **A318389** (0.008Au, <1.0 Ag, 10 As, 56 Cu, <5 Pb, 1062 Zn ppm), from quartz vein extensively fractured and rehealed with dense, hard black manganese product, often fine cellular with trace amounts yellowish-orange limonite. Bed: 55/25NW; 70/45SE; 50/25NW(I). Fracture cleavage: 60/85SE.

414516/6412612. Silty limestone, slightly resistant with moderate relief. Fracture cleavage: 65/90.

79 413635/6412593. Slight topo rise. Sandstone, fine grained, even textured, gry-brown on exposed and freshly broken surfaces. Bedding conspicuous for its fine, wavy laminations. Slightly reactive to dilute HCl. Bed: 70/75SE(I). Fracture cleavage: 65/90. Considerable vein quartz scattered about surface obviously local sample **A318390** (0.024 Au, 1.0 Ag, 120 As, 980 Cu, 225 Pb, 360 Zn ppm) taken from FeO and limonite-bearing quartz clasts (surface float), some pieces carry gray anhedral pyrite, all fractured and rehealed, some clots (2-3cm) limonite-goethite in association with fine cellular box work. Find old prospect monument.

80 412913/6411209. Slight topo rise. Shale, light on freshly broken surfaces, laced with calcrete-filled seams. Bed: 65/30SE.

81 412486/6410324. Slightly elevated ground. Sandstone, silty, finely laminated. Pinkish on freshly broken surfaces. Strongly reactive to HCl. Bed: 70/50SE (I).

300m brg S15W magnetic, hill top. Sandstone, silty, calcareous. Reddish coloration. Strongly reactive to HCl. Bed: 65/60NW.

82 412015/6410867. Broad, inundated northerly draining channel, poorly defined. Prominent outcrops fine silty sandstones and siltstones, strongly calcareous. Medium brown, mottled on exposed surfaces, light to medium on fresh. Numerous calcite veinlets (1-2mm thickness).

Outcrops distinctive for grooved, differentially weathered, surfaces, which appear to be due easily dissolved limestone layers (1-2cm thickness) as compared with more resistant silty and sandy carbonate layers (Fig 04). Bed: 55/75SE (I). Enorama Shale.

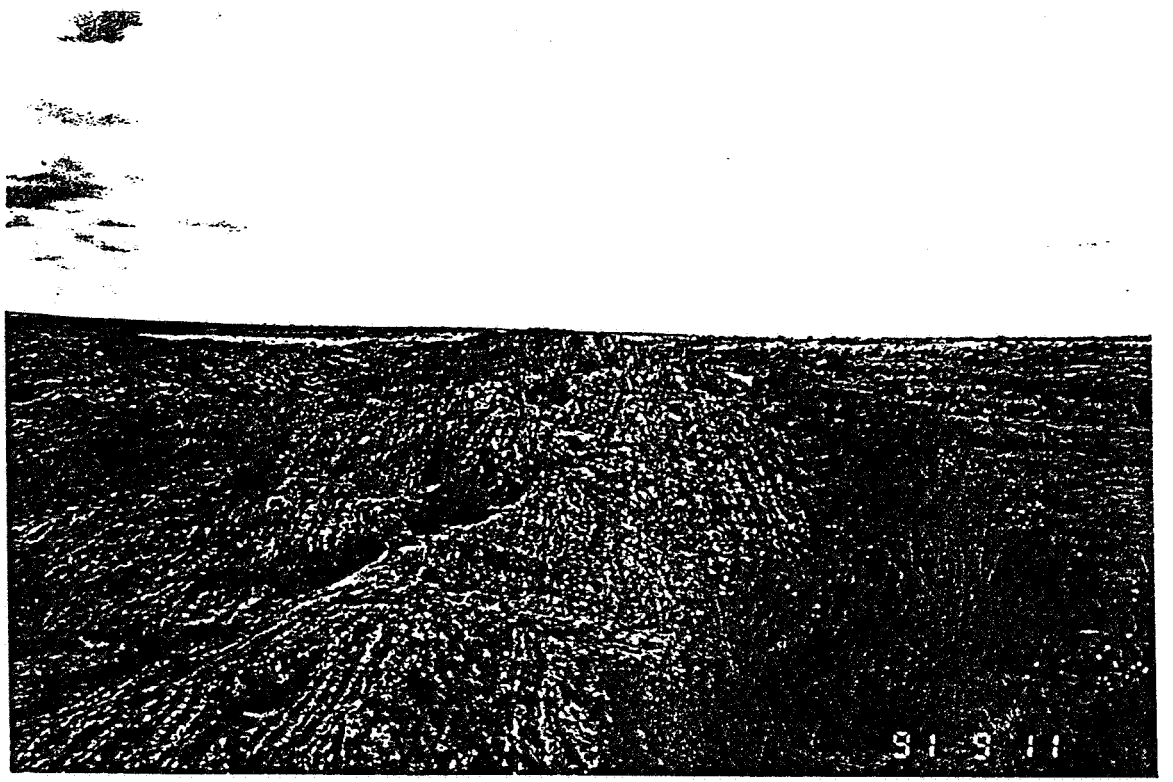

Figure 04. Station 82. Prominent outcrops of corrugated calcareous silty sandstone belonging to the Enorama Shale. View N45°E.

84 413625/6417987. Gently undulating terrain. Jetrex Anomaly 88 studded with prominent o/c's. Enorama Shale, medium-brown on exposed surfaces, medium on fresh. Fresh surfaces slightly FeO blotchy. Strongly reactive to HCl. Bed: 30/50NW (I). Jointing 140/80NE, 5/m. Fracture cleavage: 65/85SE.

Jetrex Anomaly 88 described as terrain with "cross cutting fractures with indurated walls and quartz filling." Prominent sail-like o/c's owe their existence to pervasive iron oxide and possibly siderite. Quartz veining is massive type, non-productive.

85 413516/6419299. Siltstone, greenish, slightly punky. Bed: 65/45SE. Fracture cleavage: 65/80SE. Jointing: 165/85NE, 10/m.

90 412730/6422324. Gully drains 275° magnetic. Siltstone, very decomposed, heavily FeO stained. Cut by Mn-bearing quartz veins, tend to parallel bedding: 55/40SE and jointing: 155/80NE. Veins are 5-30cm thickness. Sample **A318391** (0.007 Au, <1.0 Ag, 10 As, 22 Cu, 20 Pb, 78 Zn ppm) from Mn-bearing quartz vein 5cm thickness, smoky to bluish translucence.

91 411486/6422125. Hill top. Shows very dark on aerial photo due to vegetation and shale o/c's. Brownish gray on exposed surfaces, medium to dark on fresh. Supports 5-10% FeO staining in matrix. Strongly reactive to HCl, stands in slight relief. Bed: 80/45SE.

126 421705/6425010. Creek, drains 185° magnetic. Sandstone, lithic, alternating light and dark gry to 1 mm width. Bed: 70/80SE.

127 422074/6426143. Gully, drains 195° magnetic. Sandstone, olive-green micaceous. Non-reactive to HCl. Bed: 70/70SE (I). Numerous quartz veins 10-20 cm width. Sample **A318440** quartz vein with limonite-filled cavities: 80/80NW with anhedral pyrite, slight FeO staining.

128 420571/6427454. Limestone, occur as resistant linear o/c's 30-50 cm thickness. Attitude: 80/35NW (III); 85/25SE (I).

APPENDIX A

1992 GEOLOGIC FIELD NOTES

COPPERLINKA (EL 1711) AREA
OLARY PROVINCE, SOUTH AUSTRALIA

129 424405/6426205. Creek, drains 185°, 4 m wide. Sandstone, medium to dark gray on freshly broken surfaces, brownish-gray on exposed. Reactive to HCl. Bed: 270/30S (I). Joints: N/80W, 20/m. All fractures carry calcrete fillings. Stream sediment sample A319026. Creek float comprises gray sandstone, calcareous; dark-brown sandstone, ferruginous; gray-green siltstone; much milky-white quartz, less amounts greasy-lustred quartz with trace amounts pyrite altered to limonite; quartz grit sandstone; granitic type, minor quartz, diorite (?) found a well-rounded cobble to 7 cm diameter. Bed (upstream approx 60 m): 85/80SE (I). Sample A319027 consists of greasy-lustred quartz pieces weathered from veins to 10-20 cm. Most well crackled with FeO-staining throughout.

130 425350/6428130. Hill crest. Sandstone, fine-grained, dark gray, calcareous, strongly reactive to HCl. Bed: 85/30SE (I). Numerous quartz veins in this area, most are milky-white, 30-60 cm thickness, 30-50 m length: 60/85SE; 60/85NW. Find numerous gray quartzite and granitic cobbles to 60-70 cm diameter. Pebbly sandstone.

131 426270/6429230. Hand excavated well. Rock in mullock is silty sandstone, weakly calcareous, dark Gray-green. Finely laminated showing graded bedding and micro (soft rock) deformation. Creek drains 65. Rock is light gray. Bed: 75/20SE. Thin quartz veins: 60/85NW to 4 cm thickness, locally with greasy lustre. Joints: N/90, 20/m. Rockchip sample A319028.

132 424925/6429670. Creek, drains N70E. Sandstone, silty, medium to light gray, well-bedded: 50/45NW (I). Joints: 5/85SE, 5/m, coated with calcrete. Creek float comprises massive, milky-white quartz, granite, silty sandstone. Stream sediment sample A319029.

133 423605/6430000. Hill, SE slope. Sandstone, gray, silty, calcareous. Bed: 65/40SE (II). Numerous quartz veins, quartz veins to 60 cm thickness: 60/70NW. Fracture cleavage: 60/85SE, well-developed. Quartz vein: 65/80NW, 50 cm non-productive appearing. Numerous cobble of granite weathered from tillite to 30 cm. Bed: 75/30NW (I). Disseminated limonite spots. Weakly reactive to HCl. Rockchip sample A319030 comprises chips from several quartz veins, some have greasy lustre, minor clots limonite (yellowish).

134 424160/6430290. Sandstone, med to dark gray, silty. Bed: 60/30NW (I). Joints: 150/90, 5/m. Numerous massive quartz veins cutting 60/80NW through this area. Surface is littered with quartz gravels 2-60 cm diameter. Silty sandstone characterised by light and dark gray banding (1-2 cm).

135 423370/6431165. Stream fork. West channel drains 17°. Rock exposed is sandstone, gray, silty. Bed: 70/40SE (I). Joints: N/85W, 5/m. Creek float comprises quartzose sandstone, pebbly tillite, gray siltstone and finely laminated silty sandstone. Bed: 65/35SE (I). Stream sediment sample A319031.

136 415200/6430980. Creek, drains 125° m. Sharp bend in channel. North bank exposes conspicuous fault zone 2-3 cm width, breccia blocks quartz-feldspar-amphibole schist to 30 cm diameter. Matrix of broken schist. Some breccia blocks exhibit mica (muscovite) flakes to 10 mm. Attitude: 70/35SE, may have some bedding plane influence. Downstream 30 m, good outcrop beige siltstone, very hard, siliceous, conchoidal fracture, non-calcareous, ferruginous, very fine-grained, carries blebs of quartz 5-10 mm often drawn or stretched. Bed: 110/30SW (I). Rockchip sample A319032, hard specimen.

350m upstream (N54W) another prominent bend in drainage. Outcrop on N bank is greenish silty sandstone, non-reactive to HCl. Contains numerous quartz and granitic cobbles, well-rounded. Granite is coarse-grained biotite-bearing. A second granitic type very leucocratic comprised of quartz and feldspar (altered), fine to medium-grained. Joints: 350/85NE, 2/m, open (102 cm) and barren. Bed: 120/40SW (I), exhibit

a slight stretching deformation. Joints: 15/85SE, 10/m, surfaces with thin FeO-stain.

865 m at N76W m. Creek as previous. Sandstone, gray-green, silty. Bed: 65/25SE (I). Alternating sandstone beds 1.5-2.0 m and gray-green siltstone. Joints: 165/85NE, 10/m, open and barren. Many quartz vein (to 20 cm thickness) exhibit boudinage deformation. Creek float comprises a high proportion of granitic cobbles.

137 414505/6431290. Creek, drains N70E. Sandstone, light bluish-gray, pebbly. Numerous dropstones biotite granite and quartz cobbles, rounded, 20 cm diameter. Bed: 95/20SW (I).

819 m at 571.5W m. Granite, biotite-rich, coarse granular. Limestone with granitic inclusions, silicified.

138 411825/6430120. Sandstone, pebbly. Fracture cleavage: 60/60SE. Large (15-20 cm) quartz vein: 60/75NW. 20 m length, pinches both ends, massive. Surface carries much quartzite float weathered from ridge to northwest.

138 m at 572E. Black ferruginous, linear outcrop, strongly magnetic, very fine-grained, equigranular. Trends: 255, 1-3 m in width. Sample A319034.

139 412430/6428700. Creek, drains 160° m. Sharp bend due to resistant outcrop sandstone, brown. Bed: 50/65SE (?). Leucocratic granular rock, faint suggestion igneous texture, supports disseminated FeO-specks, 2.5 m wide parallels bedding, probably quartzite. Joints: 10/90, 20/m. Stream sediment sample **A319035**.

140 415630/6429290. Sandstone, dark gray-green, silty, reactive to HCl. Bed: 65/45SE (I). Interbedded dark brown sandstone 2-3 m thickness. Bed: 75/45SE (I).

141 420700/6431105. Ridge top trending 180°. Quartzose sandstone, well-indurated, salmon-colored, disseminated limonite specks derived from matrix, black metallic specks (heavy minerals). Non-reactive to HCl. Outcrops in series of parallel ribs N to E. Bed: 70/40SW (I). Joints: 155/85NE, 5/m, open, non-productive.

142 421750/6431500. Ridge crest. Quartzose sandstone, extremely tough, reddish-discoloration. Well-developed

jointing: 355/90, locally densely spaced to 20/m. Bed: 55/30SE (III).

143 421320/6430395. Siltstone, medium to dark gray, strongly reactive to HCl. Surrounding area (4-500 m radius) laced with quartz veins 2-20 cm thickness, 50-60 m length, highly crackled, pinkish staining. Bed: 70/50SE. Tillite, find numerous granitic dropstones. Bed: 75/55SE. Quartz veins mostly milky-white lacking the attractive limonite clots derived from former sulfide concentrations. Most yellowish to pinkish stain is derived from decomposition of small wallrock inclusions. Rockchip sample **A319036** comprises a collection of numerous quartz veins, most exhibiting some FeO-staining and greasy-lustred, over an area of approx 100 m radius.

252 m at S55E, creek draining 255° m. Stream sediment sample **A319037**.

144 421850/6429780. Creek, drains 260° m. Stream sediment sample **A319038**. Outcrop is greenish, pebbly sandstone. Bed: 70/40SE. Numerous milky-white quartz veins traverse this area. Numerous large (30-70 cm) normal granite. Bed: 75/40SE (I).

145 417900/6432715. Schist, granitic (quartz-plagioclase). Foliation: 235/65SE.

146 422545/6429130. Sandstone, medium to dark brown, massive. Bed: 285/25SW (I). Joints: N/80E, 5/m, barren. Stream sediment sample **A319039**.

239 m at S19E. Ferruginous outcrop, conspicuous dark black-brown color (on aerial photo). Prospect pit, down originally about 2 m, centrally located on ferruginous outcrop. Material in mullock has suffered breakage and rehealing by iron oxide, in places breccia-like although suspect insitu movement without rotation of clasts. Abundance of coarse (1-10 mm) mica plotted on shear surfaces. Trend of ferruginous outcrop: 75. Rockchip sample **A319040** from ferruginous breccia.

147 424100/6428500. Tillite, pebbly composition in sandstone cementing medium. Cut by multi-directional quartz veins, 2-3 cm, 45/85NW. Bed: 60/40SE (I).

148 425750/6432420. Sandstone, brown, with interbedded siltstone. Fracture cleavage: 85/80SE, well developed. Bed: 85/25SE (III).

149 426560/6432820. Creek, drains 80° m. Siltstone, gray, very finely laminated (resembles Tapley Hill). Bed: 105/45NE (I); 110/40NE (I). Fracture cleavage: 100/80SW, well developed. Bed: 105/55NE (I).

582 m at N76E, creek, drains N75E. Siltstone, pebbly with numerous cobbles and boulders comprising granite, quartzite and massive vein quartz. Some vein quartz represent boudinaged products. Foliation: 95/90 which parallel by stretched and boudinaged quartz veins and jointing. Most quartz veins are 2-3 cm thickness, pinch and swell, milky-white.

150 429540/6431580. Creek, drains 350° m. Siltstone, greenish-gray, finely laminated. Exhibit alternating light and dark-gray banding (light sandy and dark silty lithics). Bed: 105/15NE, very wavy bedding. Fracture cleavage: 80/85SE, well-developed. Stream sediment sample A319041.

151 429060/6430525. Tillite, pebbly. Bed: 75/65SE; (65 m northerly): 75/35SE (I). Jointing: 170/80NE, open and barren, 5/m. Bedding here very wavy; 75/25NW (I).

418 m at S73W creek as previous. Rock is pastel-green siltstone. Bed: 55/15SE. Jointing: 155/80NE, 5/m, locally very densely spaced to 20/m.

152 427520/6430050. Creek drains 170° m. Siltstone, pastel greenish-gray, finely laminated. Beds are very undulating producing small folds 15-20 m wave length (Photo 01). Stream sediment sample A319042.

153 426850/6429305. Creek, sharp bend or elbow, drains 35° from 290° m. Sandstone, gray-green, finely laminated. Bed: 80/15SE (I). Quartz veins, 1-3 cm, 340/90, few. Jointing: 340/85NE, 5/m. Find occasional large (15-25 cm) cobbles quartzite. Stream sediment sample A319043.

154 431090/6430115. Vertical shaft, two compartment, down 25-30 m. Rock in mullock is gray siltstone, pebbly sandstone with stretched

Photo 01. Wavy bedding in finely-laminated siltstone. Bedding: 65/65NW; 65/25SE. Hammer on small anticlinal crest. View N65E.

constituents, quartzite and milky-white quartz. Quartz has been screened. Outcrops comprise a near-white quartzite, medium-grained, equi-granular (approx 1 mm diameter) in places slightly FeO-stained (pinkish). On freshly broken surfaces rock is white comprising a medium-grained equi-granular texture with interstices filled with a slightly yellowish clay. Sericite is ubiquitous found as particles and in places clotted mats.

34 m at N40E polyethylene pipe marks site of angle drill hole 150° m at -45° percussion est 22 m.

386 m at S45E. Inclined workings driven 280° m. Rock at portal is sandstone, pebbly. Bed: 270/30S. Quartzite sandstone is bleached nearly white, slightly porous as if leached by hydrothermal solutions. Estimate 15% white clay fillings and sericite the latter often creamy discoloration.

Approximately 5 m directly above previous another adit driven 290° m 15 m. Back of adit marked by flat seam or shear zone 15-20 cm, comprises sheared quartzite, clay and sericite: 350/05SW, weak FeO-stain. Quartzite strongly jointed: 90/85E, 20/m, generally filled with weakly FeO-

stained argillic products. Rock at portal is white (fresh surfaces) quartzite with clay interstitial fillings.

793 m at S59E. One of the larger of inclined adits, driven 200° m at -35. Follows a densely spaced sheet fracture system, approx 2 m width: 20/90, filled with crushed quartzite, argillic products, minor vein quartz. Workings appear to have initiated as horizontal drives roughly 11-12 m to face thence from approx 5 m from portal commended incline at -35°. Wallrock is white feldspathic quartzite, 0.5-1.0 mm, porous, laden with white kaolinite clays and sericite. Cross shear zone near portal: 75/55SE. Minor quartz veining, most 2-3 cm thickness, tend to pinch and swell, do not appear to be actively sought after in mining: 195/85NW.

25 m at 270 from above workings. Another inclined adit: 195 at -30°. Follows a well-defined densely spaced fracture zone approx 1.5 m width which includes several thin (2-4 cm) quartz veins which are relatively undisturbed: 195/85-90NW. Quartzite very massive, white.

155 432300/6429790. Easterly-most of larger inclined adits on Kings Bluff line of lode. Rock is quartzite, slight gray discoloration, definitely less argillic and sericitic alteration. Bed: 90/40S. Shear zone 35-45 cm thick on floor of adit: 90/40S. Quartzite fractured: 175/90. Jointing: 25/85NW, numerous, close-spaced carry slightly FeO-stained clays.

397 m at N03W. Tillite, gray, reactive to HCl. Abundance of granitic cobbles weathered from local tillite. Bed: 80/55SE (I).

Floors of most workings constitute the contact between feldspathic quartzite and underlying dark gray-green siltstone. Variable intensity of shearing is evident here being strongly developed at the westerly portion of the Bluff anticline, becoming less well developed to inconspicuous in the easterly-most workings. Vertical (195-200/90) fractures and especially thin intersection with the contact shear probably constitute the most productive (Au-bearing) environments.

Gold was discovered at Kings Bluff in 1887 by alluvial prospecting in local drainages. The line of lode is marked by numerous mullock heaps where inclines have been driven southerly (Photo 02). Workings are 8 to 85 m in length. Total

recorded production is about 967 tonnes ore treated for 31.570 kg Au bullion.

Photo 02. View S65°E from the cairn at top of King's Bluff. Alignment of inclined adits, in feldspathic quartzite, driven southerly from the inside south flank of Kings Bluff anticline. Olary at center skyline.

The bluff itself is a prominent "L" shaped landform rising to maximum 400 m, or roughly 50 m relief, concave northerly with the south flank trending east.

Its top comprises a tough, scarp-forming quartzite 20 m thick (Forbes, 1991) characterised by whiteness (on freshly broken surfaces), medium-grained, equi-granular texture and interstitial argillic (kaolin) and sericitic products. The rock has a definite leached appearance.

A light gray siltstone follows which can be described as the footwall to the sheared, southerly-dipping (20-25°) auriferous contact. It is equally heavily impregnated with argillic and sericite alteration products with the latter occasionally as dense mats. Collector quality quartz crystals are reported to be found here, especially well developed in open space fractures (Spackman, 1992).

In some localities the quartzite is immediately underlain by a pebbly sandstone (as at Station 154) which varies from lightly to densely packed pebbles (0.5-1.5 mm) with well-defined parallel orientation that relates to bedding. Geoff Lowder, Consulting Petrologist, described the rock (for CRAE, 1980) as a "pebble conglomerate with moderately well-sorted clasts derived from a low-grade metamorphic province". The cementing matrix was identified as fine granular quartz with limonite along grain boundaries. A noteworthy feature of the rock, Lowder wrote, was an unusual abundance of accessory tourmaline.

At least two episodes of drilling have been carried out. The first is marked by cast-iron collars and the more recent by polyethylene collars. All drilling was concentrated along the western limits, or breached nose portion of the anticline.

SADME, in 1978, conducted an extensive underground channel sampling program to determine whether the highly fractured Wilyerpa Formation, which forms the host rock of the lodes, itself was auriferous. The work was carried out by Martin and Fradd (1978) who cut 143 channel samples with 33 samples returning trace amounts of gold.

156 432600/6430720. Hill, trends N70E, north slope. Vertical shaft, originally down 5-6 m. Quartzite, cut by numerous thin quartz veinlets milky-white, most veins trend 110° m. Bed: 320/15SW; 145/65NW.

157 433540/6431985. Prominent outcrop. Quartz-feldspar-mica schist, highly schistose: 30/85NW. Quartz veins to 5 cm have been stretched and pulled apart. Fracture cleavages: 30/80SE. Well-defined ridge to southeast is occupied by a massive quartz vein to 1.5-2.5 m thickness, has been exploited by several vertical shafts down 3-4 m. Quartz crackled but rehealed, thoroughly FeO-stained with local concentrations ferruginous alteration material.

358 m at S73W from Station 157. Quartz-feldspar-mica schist. Foliation: 40/75SE. Large muscovite clots to 20 mm diameter, well developed parallel to schistosity.

158 409425/6431140. Creek drains N15E. Sandstone, med-gray, quartzose, fine to medium-grained, light and dark banding due medium-grained quartzose and fine-grained lithic

product. Non-reactive to HCl. Bed: 5/45SE (I). Creek alluvials heavy with magnetite, fine equi-granular to 1 mm, derived from granitic source.

159 410215/6431980. Sandstone, finely laminated, tough. Gray-brown on exposed surfaces, exhibits texture of recrystallized limestone, non-reactive to HCl. Bed: 30/45SE. Jointing: 350/80SW, 5/m.

120 m at 360° m. Conglomerate bed to 1.5 m thickness. Comprises rounded to sub-rounded clasts gray quartzite, vein quartz, siltstone, granite in matrix finely commuted lithic products. Very unstable matrix poorly sorted. Attitude: 30/40SE (I). SE side of conglomerate bed rocks are gray-brown sandstone. On NW side rocks are gneissic, quartz-feldspar-mica, banded. Some feldspar bands 2-3 cm width. Foliation: 50/80NW; 50/85NW. Jointing: 120/65SW, 5/m, open and barren.

160 409835/6433180. Creek, drains (generally) due east. Rock is dark gray to black hornfels alternating with thin (2-3 cm) layers quartz-feldspar. Attitude: 45/60SE; 60/65SE; 85/50SE (I). Creek float comprises quartz-feldspar gneiss, mica schist, yellowish vein quartz, and hornfelsed sediments. Many cobbles exhibit the yellowish FeO-bloom of recently weathered pyrite. Mining peg marked 10,000N/9950E.

184 m at S43E. Site of rotary drill hole, estimate 95-110 m depth (10,033.5N/10,133E), 315 m at -50°. Sample **A319044** from approximate 60% depth. Drill cuttings are medium to dark gray hornfels, very finely foliated. Comprises intergrown quartz and hornblende, the latter black, shiny as slivers interlayered with semi-translucent, oval-shaped quartz. Hornblende slightly bleached, pastel-green where weaves around quartz blebs and fine stringers. Rare FeO spots, yellowish-orange. Panned concentrate mostly fine (0.5-0.75 mm) magnetite, subhedral (at least 1-2 crystal faces), shiny black. Quartz particles clear (glassy), clouded gray, yellowish, pinkish, anhedral, pitted, 0.5-1.5 mm. Hornblende subhedral 0.25-1.5 mm, often finely striated. Trace pyrite, subhedral 0.5-1.0 mm.

258 m at N76E. Rotary drill hole (backfilled) est 110-125 m depth. Sample **A319045**. Rock is hornfels medium gray, finely matted quartz 35%, hornblende 50% and magnetite. Some quartz grains (0.75-1.0 mm), light cloudy yellowish,

rounded with fine white (quartz "powder") rinds (0.05 mm). Amphibole dark gray to black, often exhibit greenish edges (chloritic alteration), gently woven about quartz grains and stringers. Some feldspar, subhedral, striated. Trace pyrite, anhedral. Layers quartz-feldspar generally salmon-colored due FeO-stained quartz, minute (micron dimension) anhedral pyrite. Panned concentrate comprises subhedral magnetite, pyrite often showing skeletal etching, subhedral to euhedral, about 2-3%. A gray, shiny metallic mineral (0.5-1.0 mm). Outcrop is gray mica schist, well-foliated: 70/85NW. Find prospect monument: MR 1266 dated 12/9/70.

304 m at N52E from Station 160. Walparuta Mine, a copper workings. Vertical shaft down about 6 m, timbered. Linear cut at N45E. Foliation: 45/90. Considerable CuO-staining, appears to be derived from disseminated sulfides. Minor azurite. Another shaft, caved at surface, water level at 5 m depth. CuO-stain best developed on planes of foliation: 40/85SE. Fracture with CuO: 75/90, discontinuous, in places occupied by thin (5 cm) quartz vein. Entire surrounding area staked and gridded.

552 m at S60E from Station 160. Drill site, percussion hole, WP 03, 10447N/10416E, on SW edge of large creek draining 315° m. Very wet hole as indicated by drill sludge. Sample A319046, estimated depth 80-100 m. Outcrop in adjacent creek is gray siltstone, sandy, faint FeO-stain lends yellowish discoloration. Bed: 95/80SW (I). Bedding finely laminated, alternating light and dark gray (2-3 mm). Drill cuttings also exhibit minor yellowish staining from FeO. Hand lens examination reveals finely laminated quartz-feldspar and amphibole layers (0.5-1.0 mm). Amphibole bleached and edges chloritic. Panned concentrate mostly quartz and schist particles. Trace amounts pyrite, anhedral, 0.25-1.0 mm. Rare rhombohedral calcite crystals, good orange-brown limonite pseudomorphs after pyrite, anhedral pyrite attached to white, cloudy quartz. Some pyrite as intergrown masses micron-dimension crystals in clusters to 1.5 mm.

161 411125/6436280. Weekaroo Mine. Principal working appears to have been an inclined shaft: 175 at -55°. Follows a shear to 1.2 m width. Comprises thoroughly comminuted host gneiss. Hanging wall is silicified quartz-feldspar gneiss. Foliation: 70/70SE. Outcrop stands in prominent relief as result silicification. Footwall is thoroughly silicified gneiss over width 2.5-3.5 m width. Supports hematite clots. Quartz

very greasy lustre. Foliation: 65/45SE. Sample A319047 from footwall, silica-flooded gneiss. Locally find mica flakes to 2 cm diameter, often exhibiting light green discoloration (CuO). Several shallow shafts, most down 1.0-2.5 m.

162 410470/6436715. Walter Outalpa Mine. Cu and Au. Within a narrow valley. Creek exposes altered quartz-feldspar gneiss. Area covered by survey grid. At least two lines auger drilling. Southern-most line comprises nine holes, not greater than 2 m depth, 10 m separation, trending 260°. Cuttings are from quartz-mica-feldspar gneiss. Original working a vertical shaft, now caved, estimate 15-18 m depth. Foliation 40/85NW. Mullock includes a quartz breccia with large 2-5 cm) hematite clots. Approx 200 m downstream, another line shallow drill holes trending N80E, 30-35 holes.

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APPENDIX B

RELINQUISHMENT REPORT

GEOCHEMICAL SAMPLING RESULTS

COPPERLINKA AREA - EL 1711
Olary Province, South Australia

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	102080.35.06906	26/09/91	53606	1 OF 3

SAMPLE No.	Au	Au	As	Cu	Pb	Zn	Ag	STATION
A318374	0.013	-	10	5826	55	48	<1.0	Manunda
A318375	>0.100	80.00	70	2020	170	386	5.0	37
A318376	>0.100	0.26	10	50	10	136	<1.0	standard
A318377	>0.100	0.15	40	192	15	88	<1.0	41
A318378	0.012	-	410	28	85	232	1.0	44
A318379	0.018	-	<10	24	55	14	<1.0	48
A318380	0.016	-	10	64	255	24	1.0	51
A318381	0.013	-	20	38	135	128	<1.0	54
A318382	0.011	-	10	34	165	146	<1.0	55
A318383	0.010	-	10	28	145	122	<1.0	56
A318384	0.009	-	<10	54	25	60	<1.0	57
A318385	0.008	-	<10	16	<5	34	<1.0	57
A318386	0.011	-	10	370	35	300	1.0	71
A318387	0.015	-	20	228	5	114	<1.0	71
A318388	0.007	-	10	34	150	122	<1.0	75
A318389	0.008	-	10	56	<5	1062	<1.0	78
A318390	0.022	-	120	480	225	360	1.0	79
A318391	0.007	-	10	22	20	78	<1.0	90
A318392	0.003	-	10	14	10	148	<1.0	standard
A318396	0.007	-	30	88	10	44	<1.0	Dlorah
A318397	0.006	-	20	82	<5	32	<1.0	Dlorah
A318398	0.006	-	30	62	30	104	<1.0	Dlorah

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

AUTHORISED OFFICER D.K. Rowley

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	102080.35.06906	26/09/91	53606	2 OF 3

SAMPLE No.	Au	Au'	As	Cu	Pb	Zn	Ag	STATION
A318399	0.006	-	40	42	20	82	<1.0	Dlorah
A318400	0.006	-	40	122	15	42	<1.0	Dlorah
A318401	0.007	-	50	104	5	36	<1.0	Dlorah
A318402	0.006	-	30	102	<5	16	<1.0	Dlorah
A318403	0.005	-	20	8	<5	10	<1.0	Dlorah
A318404	0.005	-	30	8	5	16	<1.0	Dlorah
A318405	0.006	-	30	8	<5	20	<1.0	Dlorah
A318406	0.006	-	40	16	35	92	<1.0	Dlorah
A318414	0.044	-	100	38	700	120	1.0	standard
A318430	0.030	-	280	58	355	202	<1.0	98
A318431	>0.100	3.09	4170	62	26500	692	69.0	98
A318432	0.010	-	80	8	50	240	<1.0	98
A318433	0.007	-	40	42	50	186	<1.0	standard
QCA318380	-	-	-	58	260	20	1.0	
QCA318400	-	-	-	118	10	38	<1.0	
QCA318420	-	-	-	14	45	40	<1.0	

DETECTION	0.001	0.02	10	2	5	2	1.0
UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM
METHOD	GG334	GG329	GA115	GA140	GA140	GA140	GA140

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

AUTHORISED OFFICER D. K. Rowley

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	102080.35.06978	16/10/91	53607	1 OF 2

TUBE No.	SAMPLE No.	Au	Au	As	Cu	Pb	Zn	Ag	STATION
4	A318440	0.035	–	<10	20	10	52	<1.0	127
5	A318441	0.004	–	10	14	20	46	<1.0	127
6	A318442	>0.100	2.62	10	124	40	84	1.0	Hoopers
7	A318443	>0.100	16.80	50	1024	10	162	2.0	Moneo
8	A318444	0.010	–	270	54	30	48	<1.0	98
9	A318445	>0.100	1.89	20	44	935	3750	1.0	98
10	A318446	>0.100	6.72	190	512	1000	1290	5.0	98
11	A318447	0.035	–	210	84	5000	1205	1.0	98
12	A318448	>0.100	4.36	2460	230	54100	2610	116.0	98
13	A318449	0.014	–	70	16	300	64	1.0	98
14	A318450	>0.100	0.86	6450	1240	7130	1760	4.0	98
15	A318451	0.018	–	250	104	440	248	<1.0	98
16	A318452	0.023	–	260	334	620	1510	3.0	98
17	A318453	>0.100	1.73	20	280	220	2205	1.0	29
18	A318454	>0.100	7.95	3040	128	21400	1210	52.0	98
19	A318455	>0.100	0.21	430	58	250	100	1.0	98
20	A318456	>0.100	10.40	6510	130	9055	3890	27.0	98
21	A318457	>0.100	0.29	3050	12	4150	5745	37.0	98
22	A318458	>0.100	4.50	28400	84	5280	3420	16.0	98
23	A318459	>0.100	63.00	17900	84	12500	1310	34.0	98
24	A318460	>0.100	2.91	3200	6	280	54	1.0	98
25	A318461	>0.100	2.59	6360	34	440	112	2.0	98

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

AUTHORISED OFFICER: D.K. Rowley

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	102080.35.06978	16/10/91	53607	2 OF 2

BE- o.	SAMPLE No.	Au	Au	As	Cu	Pb	Zn	Ag	STATION
1	A318462	>0.100	10.60	5380	476	191800	2090	158.0	98
2	A318463	>0.100	1.00	380	154	2040	72	6.0	98
3	A318464	>0.100	13.60	33000	94	181400	1076	124.0	98
4	A318465	>0.100	0.44	970	54	3400	218	2.0	98
5	A318466	>0.100	0.84	2380	76	1970	1535	3.0	98
6	A318467	0.012	-	50	24	10	58	<1.0	98
7	A318468	0.020	-	80	18	205	78	<1.0	98
8	A318469	0.008	-	90	12	5	54	<1.0	98
9	A318470	>0.100	0.16	320	18	310	830	1.0	98
10	A318471	0.009	-	20	24	10	72	<1.0	98
11	A318472	0.023	-	310	336	950	1900	5.0	98
12	QCA318440	0.039	-	<10	18	5	46	<1.0	
13	QCA318460	>0.100	2.79	2090	8	260	56	1.0	
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	0.001	0.02	10	2	5	2	1.0	
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
25	METHOD	GG334	GG329	GA115	GA140	GA140	GA140	GA140	

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

AUTHORISED OFFICER D.K. Rowley

APPENDIX B

SUMMARY OF GEOCHEMICAL SAMPLING AND ANALYSIS

Copperlinka Area (EL 1711), Olary Province, South Australia

SAMPLE NUMBER	STATION NUMBER	Values in parts per million Au	Ag	As	Cu	Pb	Zn	SAMPLE TYPE/ DESCRIPTION
A319026	129	0.002	<1	15	59	26	76	SS Qtz/mag'te/calc silts sands
A319027	129	0.020	<1	15	108	21	30	RC Cr float, vn qtz, greasy, FeO
A319028	131	0.012	<1	5	11	<3	5	RC Qtz vein, greasy, limonite
A319029	132	0.009	<1	30	74	26	76	SS Qtz/lithics/mag'te sands silts
A319030	133	0.007	<1	15	99	13	18	RC Qtz veins, several, limonitic
A319031	135	0.007	<1	20	56	43	76	SS Qtz/magnetite, calcareous
A319032	136	0.006	<1	20	26	4	556	RC Silstn, diss FeO spots, qtz veins
A319033	136	0.004	<1	5	14	<3	64	RC Sandstn, hornfelsic, pyritic
A319034	138	0.003	<1	10	6	<3	7	RC Ironstn, magnetic, MnO+FeO
A319035	139	0.004	<1	10	20	14	28	SS Qtz/siltstn/magnetite sands
A319036	143	0.004	<1	10	12	5	10	RC Vn qtz, several, greasy, lim'te
A319037	143	0.003	<1	10	48	17	73	SS Qtz/ironstn/magnetite sands
A319038	144	0.002	<1	10	50	22	77	SS Siltstn/ironstn/magnetite
A319039	146	0.004	<1	10	59	30	75	SS Ironstn/lithics/quartz, FeO
A319040	146	0.002	<1	15	49	<3	366	RC Ferruginous breccia, qtz vns
A319041	150	0.002	<1	10	44	15	89	SS Qtz/feldspars/magnetite, FeO
A319042	152	0.003	<1	20	59	23	94	SS Qtz/schist/siltstn/magnetite
A319043	153	0.002	<1	15	40	25	70	SS Qtz sands silts, 15% magnetite
A319044	160	0.001	<1	10	155	<3	44	DC Hornfels, quartz, FeO
A319045	160	0.077	<1	5	443	4	62	DC Qtz/hb/mica schist
A319046	160	0.009	<1	10	15	11	24	DC Qtz/felds/hb schist
A319047	161							RC Qtz/felds/gneiss, siliceous

ABBREVIATIONS: RC - Rockchip; SS - Stream sediment; DC - Drill cuttings