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371001

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PART OF EXPLORATION LICENCE 30/83 'GOVERNOR'

SPENCE RIVER AREA

PROGRESS REPORT ON EXPLORATION ACTIVITY

1ST OCTOBER, 1983 TO 30TH MARCH, 1984.

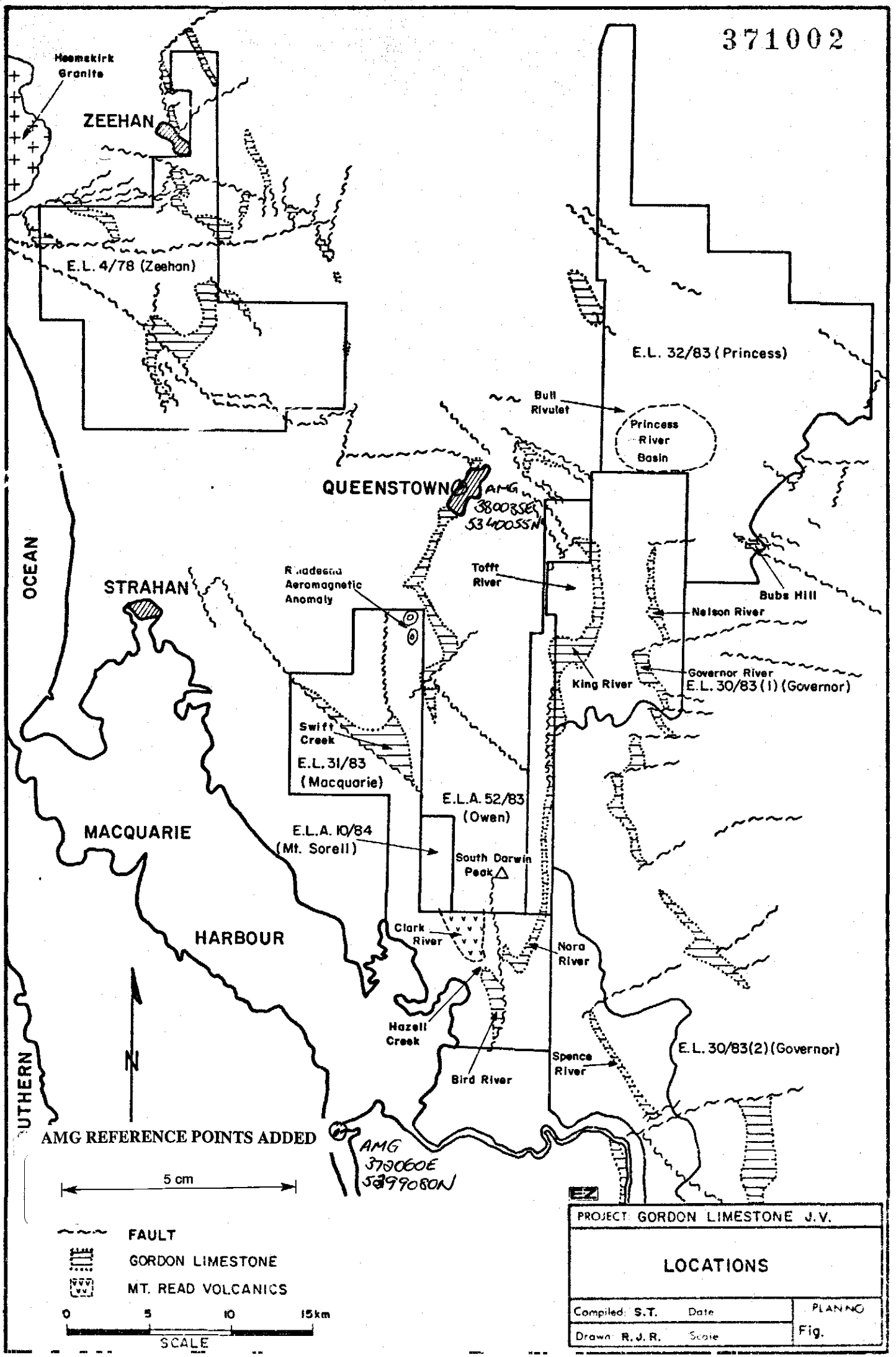
E.Z. REPORT NO. T 187

I.J. MATHISON,
JULY, 1984.

AMG REFERENCE POINTS ADDED

001

371002


Heemskirk Granite
ZEEHAN
E.L. 4/78 (Zeehan)
E.L. 32/83 (Princess)
Bull Rivulet
Princess River Basin
QUEENSTOWN
AMG 380035E 5340055N
OCEAN
STRAHAN
Rhodesia Aeromagnetic Anomaly
Tofft River
Bubs Hill
Nelson River
King River
Governor River
E.L. 30/83 (1) (Governor)
Swift Creek
E.L. 31/83 (Macquarie)
E.L.A. 52/83 (Owen)
E.L.A. 10/84 (Mt. Sorell)
MACQUARIE
HARBOUR
South Darwin Peak
Clark River
Nora River
Hazell Creek
Spence River
Bird River
E.L. 30/83(2) (Governor)
UTHERN
N
AMG REFERENCE POINTS ADDED
AMG 379060E 5299080N
5 cm
FAULT
GORDON LIMESTONE
MT. READ VOLCANICS
0 5 10 15km
SCALE
EZ
PROJECT: GORDON LIMESTONE J.V.
LOCATIONS
Compiled: S.T. Date
Drawn: R.J.R. Scale
PLANNO
Fig.

002

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LIST OF FIGURES AND APPENDICES

1. INTRODUCTION

1.1. Target

On the 1:250,000 Queenstown Geological sheet, a thin strip of Gordon Limestone is mapped along the eastern side of the upper part of the Spence River. This strip is 8km long, 0.5km wide, trends NNW, and is terminated at both ends by ENE trending faults. The aim of 1983-84 exploration was to evaluate the limestone as a potential host of Irish-style lead-zinc deposits.

1.2. Location and Access

The Spence River lies 40km SSE of Queenstown Airport. Although the area is covered by dense rainforest, access into the area is fair. Several helipads and a connecting walking track cut by the H.E.C. as part of the Lower Gordon Project are still in good repair.

1.3. Previous Exploration

No earlier exploration of this area has been reported. There are no old workings and no known mineralisation in the area.

2. E.Z. EXPLORATION OCTOBER, 1983 TO MARCH, 1984

2.1. Work Completed

In February, 1984, an E.Z. field crew of two geologists and two field assistants spent one day in the Spence River area. A total of 19 stream sediment samples, 4 rock samples and 10 panned concentrates were collected.

Rock and stream sediment samples were analysed for Cu, Pb, Zn, Ag, Fe, Mn and Ba by Analabs in Burnie. All elements were determined by A.A.S. techniques.

Panned concentrates were submitted for heavy mineral separation and microscopic identification.

2.2. Results Received

2.2.1. STREAM GEOCHEMISTRY (See Appendix 1 & Fig's SR1, 2 & 3)
Results of stream sediment analyses are listed in Appendix 1 and are summarised below:

Element	Range	Mean	?Anomalous
Cu	<5 - 10	5	-
Pb	<5 - 35	15	-
Zn	5 - 195	40	195
Ag	<0.5 - 0.5	<0.5	-
Fe	350 - 6.75%	-	-
Mn	10 -4250	-	-
Ba	11 - 130	-	-

Only one sample reported a possibly anomalous value with 195 ppm Zn. This sample, 59245, was collected from a very small creek flowing into the Spence River from the east. Copper, lead and Barium results are very low. There is a suspicously good correlation between lead, barium, manganese and iron values. Some analytical interference at these very low concentrations is suspected.

2.2.2. ROCK GEOCHEMISTRY (See Appendix2 and Fig's SR1, 2 & 3)
No rock samples were collected from the southern part of the Spence River area as no exposures were found. Four limestone samples were collected from the northern part. Base metal and barium values from all of these were very low.

2.2.3. PANNED CONCENTRATES - MINERALOGY (See Appendix 3 and Fig. SR 4)

The mineralogy of the panned concentrates suggests three provenances for the stream sediments. Garnet, andalusite, sphene and some tourmaline originate in the Franklin Metamorphics while well rounded rutile, zircon and some tourmaline come from the Owen Conglomerate. Of greater interest are the widespread occurrences of sulphide minerals. These are predominantly pyrite with minor pyrrhotite and possible sphalerite. Sample 60224, with 15% of grains sulphides, appears significant.

2.2.4. GEOLOGY (See Fig. SR5)

Little new geological information was obtained during the reconnaissance programme. However the occurrence of argillaceous limestone in the northern part of Spence River confirms that some of the area mapped as Quaternary Alluvium is underlain by Gordon Limestone. No base metal mineralisation was observed.

3. DISCUSSION AND CONCLUSIONS

Field mapping has confirmed the occurrence of Gordon Limestone in the Spence River area. While the occurrence of sulphides in stream sediment samples suggest the limestones may be mineralised, the low tenor of the stream sediment geochemistry gives no real indications of this. Follow-up of the indirect signs of mineralisation in this area is considered to be of low priority.

4. PROPOSED EXPLORATION PROGRAMME

No formal programme for this area is proposed for the 1984-85 field season.

E.Z. Co. of A'Asia Ltd.,
ROSEBERY, Tasmania

GEOCHEMICAL SAMPLE DATA SHEET

PROJECT: .GORDON.LIMESTONE..
LOCALITY: .SPENCE.RIVER.....
GRID NAME: .....
NOMINAL GRID AZIMUTH: .....

MATERIAL: Stream Sediments.....
SAMPLE METHOD: ..SIEVED...80.mesh...
SAMPLED BY: ..G.B.D.W.S.T.....
DATE: ...Jan.Feb...1984....

SIZE FRACTION ANALYSED: ..-80.mesh.....
ANALYSED BY: ...ANALABS.....
METHOD: A.A.S..Sn.W.by.X.R.F.

SAMPLE NUMBER	SAMPLE LOCATION DATA: GRID LINE NO.	GRID EASTING	local A.M.G. CO-ORDINATES: NORTHING	EASTING	STREAM DATA: Str. Order	Direction of Flow	Width	Active Stream Load	COMPOSITION DATA: Clay	Sand	Rock Frags.	Organic	CONTAM.	Geology	METAL CONTENT (ppm unless specified): Cu	Pb	Zn	Ag	Au	Fe	Mn	Sn
59234							3.0			60	30	10			5	35	85	X		6.75%	4150	130
59236									30	40	25	5			X	X	30	0.5		5400	460	30
59237							3.0			55	15	5			5	35	70	0.5		6.10%	4250	110
59238							0.5		10	75	10	5			5	X	60	X		1.20%	1600	30
59239							3.0			590	10				X	X	20	X		1300	65	25
59241							5.0		20	50	25	5			5	20	40	0.5		2.30%	2850	65
59243							4.0			60	35	5			X	X	15	0.5		1700	65	35
59245							0.5			560	30	5			10	X	195	0.5		8950	170	20
59246							6.0			560	30	5			5	25	45	0.5		1.25%	1350	40
59248							0.5			550	40	5			X	X	5	0.5		350	110	11
59249							5.0			550	40	5			5	20	30	0.5		1.15%	870	45
59251							0.5			550	40	5			X	X	10	0.5		1750	25	30
59252							10.								5	15	30	0.5		1.15%	770	45
60215							1.5			595					X	5	25	X		950	20	20
60216							1.5		10	90					X	5	15	X		1100	25	25
60218							6.0								5	15	30	X		9550	460	40
60220							1.0			590	5				X	X	15	X		9250	150	25
60222							8.0		10	80	10				5	10	30	X		5800	260	35
60223							8.0		10	80	10				5	35	45	X		1.75%	930	50

006

37102

[redacted]

Electrolytic Zinc Co. of A'asia Ltd.
Rosebery, Tas.

ROCK SAMPLE LEDGER

[redacted]CT: [redacted]ON LST [redacted] LOCALITY: [redacted] SPENCE RIVER [redacted]
COLLECTED BY: S.T. DATE: Feb 1984

Sample Number	A.M.G. Co-ordinates (local) N	E	Sample Type	Geological Description	Rock-type (Macroscopic)	Thin or Polished Section: T or P	By	Reference	Rock-type (Microscopic)	Metal Content (p.p.m. unless specified): Cu	Pb	Zn	Ag	Fe	Mn	Ba
60266				Grey LIMESTONE with strong calcite vein-veining (? dol. limestone)	LST					5	5	20	X	1.35%	1100	13
60267				Dark grey argillaceous LIMESTONE	LST					5	5	20	x	2750	190	14
60268				Black argillaceous, carbonaceous ? bituminous LIMESTONE	LST					5	5	20	x	3950	140	62
60269				Dark grey argillaceous, carbonaceous LIMESTONE	LST					5	5	15	x	3150	165	48

371008

007

008

371009

JOHN F. GILFILLAN & ASSOCIATES PTY. LIMITED

MINERAL EXPLORATION AND GEOLOGICAL CONSULTANTS
PETROLOGY IN ASSOCIATION WITH Dr. B.J. BARRON

Commodity Studies
Regional Assessments
Prospect Evaluation
Mineral Exploration
Exploration Management
Mining Geology
Petrology

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Your Ref: E-Z Order No. 900494

Project: Queenstown

MINERALOGICAL EXAMINATION OF FORTY EIGHT SAMPLES OF HEAVY MINERAL CONCENTRATES

Report No: E3/81/255 13th April, 1984.

For: Electrolytic Zinc Company of Australasia Ltd.

J. Barron

Dr. B.J. Barron,
Petrologist.

Sample No. 59235 (Spence River)

Description of Concentrate A dark grey coloured, fine grained sample with rare grains reaching 1 mm across. Sparse, small grains of strongly magnetic magnetite comprise a minor accessory phase.

Thin Section This sample clearly comprises two grain size fractions, the coarsest of which includes grains within the size range 0.5 mm up to more than 2 mm across, and the second includes fine to medium sand sized grains (about 0.15 mm up to 0.40 mm).

The coarse fraction contains very significant rutile ± closely intergrown anatase, and these phases are present as subhedral crystals to subrounded grains which exhibit very distinct polysynthetic twinning characteristics, and vague patchy variations in colour from yellow-brown to red-brown, purple and almost opaque. Partial alteration along cleavage surfaces and rims is to an opaque oxide phase which is most likely ilmenite. These grains account for almost half the total sample represented. Rare larger grains include dense red-brown to almost opaque limonitic oxides and rare lithic fragments of a stained and oxidised patchy carbonate and quartz-bearing type. Several of the yellow-brown, poorly cleaved coarse grains in this fraction may be cassiterite.

The fine to medium grained fraction consists mainly of subrounded to subhedral opaque oxide grains, at least some of which are magnetite, as well as rare subrounded sulphide grains with narrow oxidised rims (these appear to include both pyrite and pyrrhotite). Also abundant but subordinate to the opaque oxides are numerous subrounded to quite well rounded crystals of zircon, fairly common grains of red-brown rutile, blue to brown tourmaline and sphene. See appendix for X-ray diffraction analysis of this sample.

Sample No. 59240 (Spence River)

Description of Concentrate A dark grey coloured concentrate of very fine to fine sand sized grains with rare grains up to 1 mm across. The sample is not magnetic.

Thin Section This sample comprises relatively few grains which include a grain size variation within the range 0.06 mm up to more than 1 mm (very fine sand to coarse sand size). Most of the subrounded to rather irregular shaped grains are translucent red-brown to almost opaque limonitic oxides (including hematite), with almost equally abundant subrounded opaque grains comprising largely dark grey oxides (most likely of titaniferous magnetite composition since the concentrate is not significantly magnetic). Rare small grains of rutile are both intergrown with microgranular quartz, and are present as fairly angular and broken cleavage fragments. Olive green to blue green tourmaline grains are quite common.

Accessory phases include a single well rounded grain of yellow-brown isotropic ?sphalerite, and lithic material including very fine grained wispy sericite-bearing siltstone, red-brown ferric oxide-stained siltstone, as well as microgranular aggregates of quartz, zircon and limonitic oxide staining.

Sample No. 59242 (Spence River)

Description of Concentrate A dark grey to almost black coloured sample comprising grains of fine to medium sand size, as well as sparse larger grains up to 1.5 mm across. The sample is not magnetic.

Thin Section This is a more or less equigranular concentrate comprising grains mainly within the size range 0.16 mm and 0.3 mm, (fine to medium sand size).

59242 (Cont.)

Approximately 60% of the sample consists of subrounded to fairly well rounded opaque to translucent oxide grains. The latter include dense red-brown limonitic oxides and partly weathered (oxidised) opaque grains, as well as a spinel. Rare grains of pyritic sulphides with narrow red-brown oxidised rims are accessory. The opaque oxides include titaniferous types which are partly converted to leucoxene, as well as partly oxidised magnetite. Rutile grains have subrounded to elongate and irregular shapes, and account for approximately 10% of the total number of grains represented in the thin section, while rare subrounded grains of yellow-brown cassiterite are accessory.

The silicate fraction includes abundant small well rounded crystals of zircon, common subedral to subrounded crystals of tourmaline, subhedral to angular to irregular grains of almost colourless garnet, sparse grains of topaz, and numerous crystals and aggregates of quartz (representing lighter fraction contamination of the sample).

Sample No. 59244 (Spence River)

Description of Concentrate A mid-grey coloured concentrate of fine to medium grained particles. Very sparse small grain are distinctly magnetic.

Thin Section This sample exhibits a rather wide variation in grain size from less than 0.1 mm up to more than 2 mm for certain elongate prismatic grains. Opaque grains comprise about 55% to 60% of the total grains represented in thin section, and these generally have subrounded to irregular shapes.

The oxide fraction includes mostly opaque oxides, with subordinate but yet common elongate prismatic red-brown rutile crystals, and rare grains of yellow-brown cassiterite which are partly stained by or altered to patchy opaque oxides.

The silicate fraction includes very abundant patchily pleochroic crystals and crystal fragments of andalusite, as well as abundant small angular and broken pale pink garnet crystals and numerous subhedral crystal fragments of tourmaline. Zircon crystals and very fine

59244 (Cont.)

grained sphene aggregates comprise common accessory phases and rare grains of epidote are present. Small lithic fragments include fine grained equigranular aggregates of garnet and quartz (with patchy sericite), as well as intergrown aggregates of coarse granular andalusite, sericite and ?carbonaceous dust.

Sample No. 59247 (Spence River)

Description of Concentrate A fine grained dark brown to black coloured sample which is more or less equigranular. It is mainly non-magnetic and contains only relatively few magnetic grains.

Thin Section The well sorted grains in this sample have an average grain size of about 0.2 mm and have quite well rounded to subrounded grain shapes. Sparse larger grains up to 1 mm across are irregular to angular and clearly are derived from fairly local source areas.

The oxide fraction predominates, and accounts for about 65% to 70% of the total grains represented in thin section. A small proportion of these are magnetite since they are strongly magnetic but most appear to be ilmenite and/or titanomagnetite. Rare accessory grains of pyrite are present with narrow oxidised red-brown rims. Elongate but stumpy crystals of dark red-brown rutile are very common, while subordinate yellow-brown poorly cleaved cassiterite grains comprise a minor accessory phase. Translucent red-brown grains of limonitic oxides are also accessory.

The silicate fraction, approximately 35% of the total sample, comprises very abundant well rounded grains of zircon, subordinate grains of blue-green, pale yellow-brown and olive green tourmaline, rare grains of garnet, ?andalusite, clinozoisite and partly degraded sphene. Also accessory are sparse angular cleavage fragments of andalusite.

Sample No. 59250 (Spence River)

Description of Concentrate Only traces of a dark grey, mostly non-magnetic concentrate remain, the grains of which have an average size of fine sand. Only rare grains of strongly magnetic magnetite are present.

013

59250 (Cont.)

Thin Section This is a rather even grained concentrate with an average grain size of about 0.15 mm (fine sand size) with sparse larger grains reaching 1.5 mm. Most of the finer detrital grains are quite well rounded, but the subordinate coarser fraction is subrounded to quite angular.

The oxide fraction accounts for approximately 60% of the grains represented in thin section, and these mostly are opaque with only rare grains of magnetite. Scattered grains which are partly altered to white leucoxene have titaniferous compositions (ilmenite) and unaltered grains of ilmenite ± titaniferous magnetite are common. Sparse grains of dark red-brown rutile are present and very rare pyritic sulphides exhibit narrow rims of red-brown limonitic oxides. Still other oxides are translucent red-brown types which are isotropic (possibly chromite). Quite large angular and broken grains of cassiterite are a sparse accessory phase, while more common small rounded to elongate prismatic rutile grains generally are deep red-brown and weakly pleochroic.

The silicate fraction includes common subhedral prismatic to well rounded grains of tourmaline, angular (locally derived) large grains of andalusite and garnet. Well rounded grains of zircon are also common, while sparse accessory silicates include epidote, sphene and minor quartz contamination. Lithic fragments include aggregates of granular to granoblastic recrystallised quartz ± sphene and dense aggregates of fine grained subhedral tourmaline crystals.

Sample No. 60217 (Spence River)

Description of Concentrate A small amount of dark brownish grey fine sand sized concentrate remains in this sample which contains only rare magnetic grains.

Thin Section This sample contains sparse large grains and aggregates reaching almost 2 mm across set amongst an abundant fraction of grains with an average size of about 0.23 mm across (fine sand size). The

coarser material includes angular cleavage fragments and aggregates of andalusite, several grains of which are strongly pleochroic pink to colourless. Also present amongst the coarser grains is accessory garnet, aggregates of fine granular epidote and angular lithic fragments of relatively fine grained plagioclase-bearing amphibolite.

The finer grained fraction includes very abundant quite well rounded opaque oxides which are mainly non-magnetic (see above) and exhibit various degrees of alteration to translucent red-brown ferric oxides. These most likely include titaniferous magnetite. Also present are numerous grains of white leucoxene-altered titaniferous oxides, and rutile. The subordinate silicates of the finer grained fraction include zircon, tourmaline, sparse small grains of andalusite, garnet, and quartz.

Sample No. 60219 (Spence River)

Description of Concentrate A dark grey coloured fine sand sized sample containing abundant dark grey to black oxides which are generally quite well rounded with rare octahedral subhedral crystals. Well rounded clear zircon grains and fewer white and pale green grains are accessory. The sample is not magnetic

Thin Section This sample contains approximately equal major proportions of oxide phases and silicates. The grain size of the sample is rather variable, however, with a continuous range from less than 0.1 mm (very fine sand size) up to more than 1.5 mm (very coarse sand size).

The oxide fraction includes very coarse subrounded grains of red-brown isotropic secondary oxides, including dense ferricrete and banded colloform types, as well as well rounded smaller non-magnetic ?titaniferous opaque oxides, and grains which are largely converted to white leucoxene. This fraction also includes sparse quite angular grains of rutile, and a lithic aggregate comprising several grains of ?cassiterite, set in a large anhedral tourmaline crystal, with several grains of quartz.

60219 (Cont.)

The silicate fraction includes very abundant coarse angular grains and aggregates of andalusite, with sparse anhedral grains of garnet and numerous grains of subhedral prismatic tourmaline. Also present are sparse small, well rounded zircon grains, as well as a single aggregate of scapolite.

Sample No. 60222 (Spence River)

Description of Concentrate A red-brown coloured concentrate containing abundant coarse sand size to granule size particles, as well as a subordinate fine sand size fraction. The sample is not magnetic.

Thin Section The coarse grained fraction of this sample greatly predomintes, and contains particles mainly within the size range 0.6 mm up to 3 mm across. This includes ubiquitous, strongly oxidised grains (mostly red-brown and subordinate yellow-brown limonitic products) of which ferricrete is the most common, enclosing various proportions of small angular quartz chips. Also present are broken grains comprising part of banded colloform vein deposits, minor plant material and highly weathered and degraded fine grained pelitic lithic material.

A very subordinate fine grained fraction which has an average grain size of about 0.25 mm (fine to medium sand size) includes quite abundant subrounded grains of black opaque oxides (non-magnetic titaniferous types), with scattered grains which are almost completely converted to white leucoxene, while elsewhere in the thin section certain opaque grains are partly converted to red-brown isotropic limonitic oxides. Sparse scattered trains of subrounded rutile are present, as well as rare small grains of cassiterite. The silicates of the finer grained fraction include small well rounded grains of zircon, tourmaline and rare grains of quartz.

Sample No. 60224 (Spence River)

Description of Concentrate A dark grey sample comprising mainly fine sand sized to medium sand sized grains. Sparse, very small grains are strongly magnetic.

Thin Section The grains in this heavy mineral concentrate range in size from less than 0.16 mm up to more than 1.5 mm (fine sand size to very coarse sand sized grains). The coarser fraction includes abundant angular cleavage fragments of andalusite, scattered subhedral poikiloblastic garnet crystals, and common subhedral crystals of tourmaline, certain of which are closely intergrown with quartz. Other accessory material includes fine grained quartz-rich arenite with a voluminous matrix largely replaced by dense red-brown hematite,.as well as scattered well rounded grains of ferricrete.

The finer grained fraction includes grains which are generally quite well rounded to subrounded with an average size of about 0.23 mm (fine sand size). These include almost equally abundant opaque to translucent red-brown hematite-altered oxides (including magnetite), and partly oxidised pyritic sulphides. The latter account for approximately 15% of the total number of grains represented in the thin section. Other oxides include titaniferous grains with advanced alteration to white leucoxene, as well as numerous small rounded grains of well cleaved red-brown rutile (including dark brown to bluish purple anatase). Rare small grains of pale yellow-brown ?cassiterite are accessory, as are small well rounded grains of zircon, trace proportions of sphene and a single aggregate of partly degraded pale bluish green actinolitic amphibole.

APPENDIX

An X-ray diffraction analysis of the sample 59235 was necessary to identify accurately the minerals present and to determine the ratio of rutile to cassiterite. This X-ray identification confirms the presence of dominant rutile and zircon, with accessory proportions of anatase, tourmaline and quartz, with traces of cassiterite.

386 000mN
387 000mN
388 000mN
389 000mN
390 000mN
391 000mN
392 000mN
393 000mN
394 000mN

5 308 000mN
5 307 000mN
5 306 000mN
5 305 000mN
5 304 000mN
5 303 000mN
5 302 000mN
5 301 000mN

FRANKLIN-LOWER GORDON
WILD RIVERS
NATIONAL PARK

EL 31/83

EL 30/83

FRANKLIN-LOWER GORDON
WILD RIVERS
NATIONAL PARK

FRANKLIN-LOWER GORDON
WILD RIVERS NATIONAL PARK

RIVER
ROAD
SPENCE
RIVER
RIVER
GORDON RIVER

S 25
S 15
S 30
R 15
R 20
R 20
S 15
S 30
R 20
S 45
TRACK CONTINUES TO PADS 3, 2 & 1
S 30
S 10
PAD 4
Note: Location of walking track and pads approximate only.
S 30
S 5
SPENCE
S 45
S 195
PAD 5
S 75
S 40
S 20
S 60
S 30
S 70
PAD 6
S 85

○ STREAM SEDIMENT SAMPLE.
S 30

□ ROCK CHIP SAMPLE.
R 20

X = below 5 ppm.

Note: All results are ppm.

5 cm

017

371018

Fig. SR 1

ELECTOLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: SPENCE RIVER EL 30/83 ,TAS.

GEOCHEMISTRY

017

Zn

Scale: 1:10 000	Survey: I. MAT.	Revised:
Reference: H.E.C.	Date: 24-3-'84	Ref. No.
Drawn: R. J. R.	Checked: L. W.	AO-529-3001

FRANKLIN-LOWER GORDON

WILD RIVERS

NATIONAL PARK

EL 31/83

EL 30/83

FRANKLIN-LOWER GORDON

WILD RIVERS

NATIONAL PARK

FRANKLIN-LOWER GORDON

WILD RIVERS NATIONAL PARK

FRANKLIN RIVER

GRAD

SPENCE

SPENCE

RIVER

RIVER

GORDON RIVER

TRACK CONTINUES TO PADS 3, 2 & 1

PAD 4

PAD 6

PAD 6

Note: Location of walking track and pads approximate only.

S 5

S 15

R 5

R 5

R 5

S X

S 10

R 5

S 35

S 15

S X

S 20

S X

S 25

S X

S X

S 20

S X

S X

S X

S 35

S 35

386 000 m E

387 000 m E

388 000 m E

389 000 m E

390 000 m E

391 000 m E

392 000 m E

393 000 m E

394 000 m E

5 308 000 m N

5 307 000 m N

5 306 000 m N

5 305 000 m N

5 304 000 m N

5 303 000 m N

5 302 000 m N

5 301 000 m N

O STREAM SEDIMENT SAMPLE. S 20

□ ROCK CHIP SAMPLE. R 5

X = below 5 ppm.

Note: All results are ppm.

5 cm

810

371019

Fig. SR 2

ELECTOLYTIC ZINC CO. OF A'ASIA LTD.

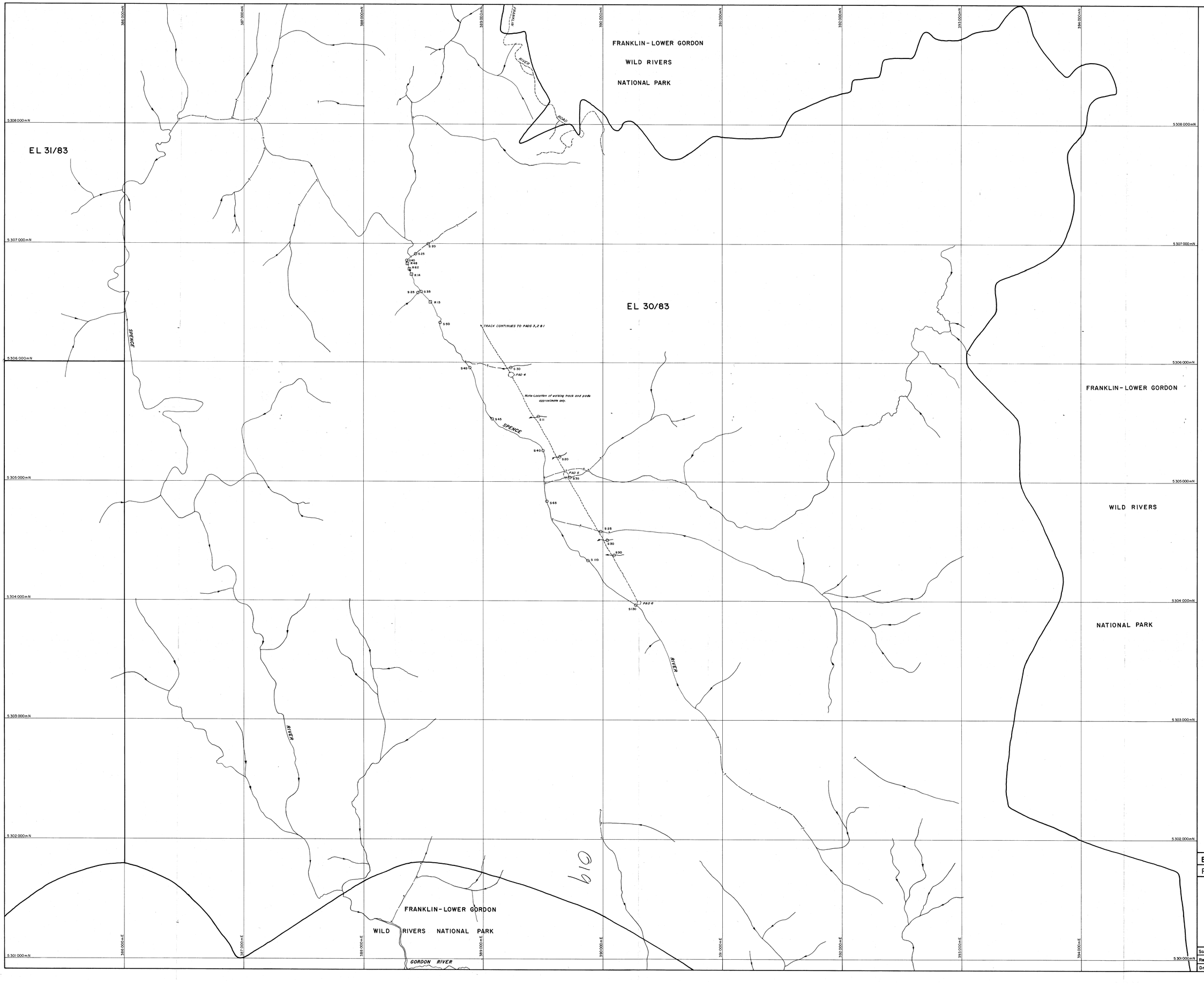
PROJECT: SPENCE RIVER EL 30/83 ,TAS.

GEOCHEMISTRY

018

Pb

Scale: 1:10 000	Survey: I. MAT.	Revised:	
Reference: H.E.C.	Date: 24-3-'84	Ref. No.	AO-529-3002
Drawn: R. J. R.	Checked: L. W.		



371020

Fig. SR 3

ELECTOLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: SPENCE RIVER EL 30/83 ,TAS.

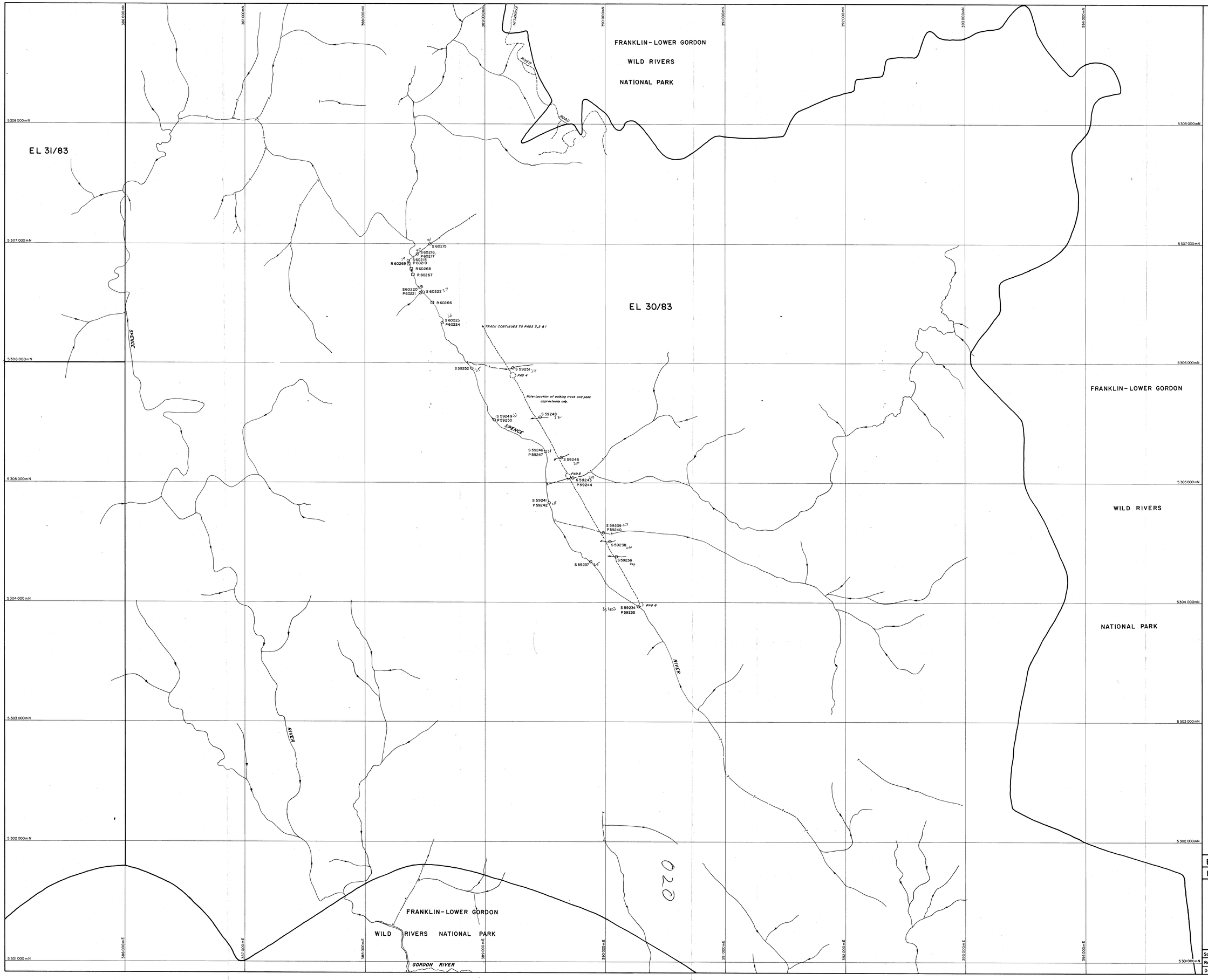
GEOCHEMISTRY

019

Ba

84-2188

Scale: 1:10 000	Survey: I. MAT.	Revised:
Reference: H.E.C.	Date: 24-3-'84	Ref. No. AO-529-3003
Drawn: R.J.R.	Checked: L.W.	



O STREAM SEDIMENT SAMPLE.
SAMPLE N° S 12345

O PANNED CONCENTRATE-STREAM SEDIMENT SAMPLE.
SAMPLE N° P 67890

□ ROCK CHIP SAMPLE.
SAMPLE N° R 34567

Gris 33423-41

5 cm

371021

Fig. SR 4

ELECTOLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: SPENCE RIVER EL 30/83 ,TAS.

SAMPLE LOCATION 020

NUMBERS and TYPES

EL-2/83

Scale: 1:10000	Survey: I. MAT.	Revised:
Reference: H.E.C.	Date: 24-3-'84	Ref. No. AO-529-3000
Drawn: R.J.R.	Checked: L.W.	

EL 31/83

EL 30/83

FRANKLIN-LOWER GORDON WILD RIVERS NATIONAL PARK

FRANKLIN-LOWER GORDON WILD RIVERS NATIONAL PARK

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SPENCE RIVER

GORDON RIVER

ROAD

TRACK CONTINUES TO PASS 3.2 Bl.

New Location of walking track and pads approximate only

RAD 4

RAD 5

RAD 6

qy org LST
dk gy bit LST
dk gy org LST

dk gy org LST cal vng

Qa

S

Og

Oo

pC

021

371022

5 cm

Fig. SR 5

LEGEND

COLOUR

pk - pink	wh - white
br - brown	bk - black
bl - blue	gr - green
gy - grey	yl - yellow
rd - red	or - orange
cr - cream	pl - pale
lt - light	dk - dark

TEXTURE

fg - fine grained	foss - fossiliferous
mg - medium grained	sil - siliceous
cg - coarse grained	mic - micaceous
bxd - brecciated	ferr - ferruginous
clvd - cleaved	int - intense
shrd - sheared	wk - weak
calc - calcareous	v - very
carb - carbonaceous	pb - pebble
lam - laminated	cb - cobble
xbd - cross bedded	fr - trace
th bd - thin bedded	in bd - inter bedded
tk bd - thick bedded	tbcl - tubicolor
vn - veins, veining	fract - fractured

ROCK TYPE

SST - sandstone	SLT - siltstone
LST - limestone	DLST - dolomite
BX - breccia	CGL - conglomerate
SH - shale	BSH - black shale
QZT - quartzite	LIM - ironstone
GRIT - grit	CLY - clay
PUG - pug	GRA - gravel

MINERALOGY or ALTERATION

qz - quartz	py - pyrite
gn - galena	sp - sphalerite
lim - limonite	cp - chalcopyrite
cbd - carbonated	sid - silicified
c - calcite	

ORDER

Colour, Texture, Rock Type, Mineralogy or Alteration, Fossils

e.g.

dk gy mg foss SST or gy calc SH py or pl gy LST sid

TOPOGRAPHICAL

- cut grid lines
- roads
- tracks
- tramways
- power lines
- rivers, creeks
- swampy area
- 090° joint
- 090° joint - vertical
- 090° overturned
- 090° bedding
- 090° bedding - vertical
- quarries

INTERPRETED GEOLOGY

Geology adopted from Queenstown 1:250,000 geological map (Corbett & Brown 1975)

QUATERNARY	Qa	Alluvium.
SILURIAN	S	Shale, siltstone and quartz sandstone.
ORDOVICIAN	Og	Gordon limestone, limestone with minor siltstone.
	Oo	Owen conglomerate, siliceous conglomerate and quartz sandstone.
PRE-CAMBRIAN	pC	Metamorphosed pelitic rocks, quartz mica schist etc.

Geological boundary.

Fault.

ELECTOLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: SPENCE RIVER EL 30/83 ,TAS.

GEOLOGY

021

(INTERP.)

Scale: 1:10000	Survey: 1 MAT	Revised:
Reference: H.E.C.	Date: 28-6-84	Ref. No.
Drawn: R.J.R	Checked:	A0-529-3005

022

E.L. 4/61
E.L. 53/70
E.L. 31/82
E.L. 2/63
E.L. 17/77 (1)
E.L. 5/63 (5)
E.L. 22/74
E.L. 5/63 (4)
E.L. 5/63(3)
Tullabardine dam & power station
E.L. 24/84
E.L. 2/70
E.L. 17/77 (2)
E.L. 5/63 (6)
E.L. 1/62
E.L. 42/83
E.L. 4/73
E.L. 30/79
E.L. 42/71
E.L. 47/71
E.L. 11/76
E.L. 15/76
E.L. 5/83
E.L. 4/78
E.L. 46,49,53/83
E.L. 9/66
E.L. 32/83
E.L. 4/84
E.L. 9/84
E.L. 47,50,54/83
E.L. 31/83
E.L. 48,52/83
E.L. 30/83 (1)
E.L. 10/84
E.L. 35/83
E.L. 30/83 (2)
E.L. 36/83
E.L. 37/83
E.L. 9/74

TULLAH
ROSEBERY
RENISON BELL
WILLIAMSFORD
ZEEHAN
TRIAL HARBOUR
STRAHAN
QUEENSTOWN
GORMANSTON
SOUTHERN OCEAN
MACQUARIE HARBOUR
SOUTHWEST CONSERVATION AREA
CRADLE MOUNTAIN LAKE ST. CLAIR NATIONAL PARK
FRANKLIN-LOWER GORDON WILD RIVERS NATIONAL PARK
TRUCHANAS NATURE RESERVE
PRINCESS RIVER
BUBS HILL
NELSON RIVER
GOVERNOR RIVER
KING RIVER
SWIFT CREEK
HAZEL CREEK
NORA RIVER
SPENCE RIVER
FARM COVE
KELLY BASIN

Lake Will, Lake Andrews, Lake Ellen, Lake McRae, Lake Agnew, Lake James, Lake Windermere
Lake Gaye, Lake Sandra
Lake Selina, Lake Westwood, Lake Julia
Lake Rolleston, Lake Hunter, Lake Tyndall, Lake Dora
Lake Magdala, Lake Martha, Lake Mary, Lake Paul, Lake Peter, Lake Polycarp, Lake Spicer, Lake Patrick, Lake Margaret, Basin Lake, Lake Beatrice
Lake Scott, Lake Ewart
Jetty Lake, Lake Sophie, Lake Cecily, Lake Gertrude, Lake Vera, Lake Marilyn, Lake Magdalen, Lake Whitham, Lake Millicent
Lake Ashwood, Lake Bantick, Lake Garcia, Lake Bellinger
Lake Koonya, Lake Strahan
Cumberland Lake
Hibbs Lagoon

-LEGEND-
Og — GORDON LIMESTONE
AREA OF INTEREST

SCALE 0 1 2 3 4 5 6 7 8 9 10km
5cm
1:250000 SHEET

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED
MINERAL RESOURCES DIVISION

PROJECT: GORDON LIMESTONE
371023

PROSPECT LOCATION 022

Compiled: I.MAT. Date: 2-3-'84 Scale: 1:100,000
AMG: Latitude: Longitude:
Drawn R.J.R. File No: PLAN NO: AO-529-0003