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C.R.A. EXPLORATION PTY. LIMITED

5th December, 1971

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Copies to : D. S. Carruthers  
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From : T. M. Porter

**MICROFILMED**

Geochemical and Geological Investigation of the  
Atlas Leases, E.L. 43/70, Northwest Tasmania

SUMMARY

The six contiguous, north-south trending Atlas Leases were taken out for silver and lead in 1892. They are centred on a band of shales and siltstones which carry thin sporadic zones of gossan, parallel to bedding. These are members of the "Older Precambrian" metamorphics, known as the Keith Beds.

Weathered bedrock soil samples, collected across the gossan zone, delineated anomalous lead-zinc levels of a low tenor over a width of around a hundred and twenty feet. Zinc was less than 500 ppm and lead less than 1000 ppm. One sample returned a lead assay of 3000 ppm, but this is regarded as not being indicative of the interval it represents.

Copper levels were found to be only slightly in excess of background, and no silver result exceeded the 1 ppm limit of detection.

Channel sampling of two adits in the gossan yielded lead and zinc assays of from 400 ppm to 1400 ppm and background copper and silver levels.

The low tenor of base metal levels, limited extent of gossans and the high cost of access suggest that further work on this prospect is not warranted.

### INTRODUCTION

The locality occupied by six contiguous leases, known as the Atlas Leases, which were taken out for lead and silver in 1892, was inspected on 16th and 17th November. These lie in the southeastern corner of E.L. 43/70 held by Mineral Holdings Australia Pty. Ltd. and Tomic Exploration Pty. Ltd.

The exercise was designed to ascertain whether or not the property warranted a detailed investigation.

The almost complete absence of outcrop in the area necessitated bulldozer trenching across the main gossan zone, to gain visual knowledge of its nature, distribution and extent. For this reason bulldozer access had to be provided, totalling some six miles, five of these being through dense "horizontal scrub", underlain by boggy ground. All except the last 4,500 feet, from where it entered the lease areas, was provided at Mintom's expense.

Bedrock was exposed over a distance of some 300 feet in the main workings area by rough trenching. This was mapped and subjected to weathered bedrock soil sampling on a 25 feet spacing. Soil samples were also extracted at the same spacing across the indicated strike of gossanous material, exposed in a creek, 1,500 feet to the southwest.

In addition, further samples were collected at 100 feet separations along the bulldozer access which runs obliquely across the northern leases. This was undertaken in an attempt to locate any extensions of the

gossans, or possible anomalous base metal levels in the northern leases. It is acknowledged that a shorter line at right angles to regional strike, with more closely spaced sampling would have been preferable but, taking into consideration the extreme density of vegetation, this would have required a much longer period of time.

Channel samples over ten feet intervals were extracted from the more gossanous zones of the two open adits in the main workings area.

All samples were prepared in Wynyard and assayed by The Zinc Corporation in Broken Hill.

The work was based on the assumption that, (a) the workings were sunk on the most prospective area, and (b) the positions of the leases were based on observation of gossanous or mineralised material, not guesswork.

### GEOLOGICAL SETTING

#### 1. Regional

The gossanous horizon within the Atlas Leases is a member of the "Older Precambrian" Keith Beds. These comprise muscovite, chlorite and biotite schists, quartz mica schists, micaceous quartzites and quartzites having an overall north-northeast regional strike.

Tertiary basalt cappings overlie these metamorphics in places.

#### 2. Leases Area

Thin bands of poorly cellular gossanous material occur roughly parallel to bedding within sandy siltstone, sandy shale, siltstone and shale in the main workings area.

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A bulldozed trench, perpendicular to strike was centred on the section of the sequence into which adits had been sunk and where visible galena mineralisation is purported to have been seen freely in outcrop. Trenching was terminated to the south in barren shale without any signs of gossanous material. The northern extremity was partly influenced by the topographic unsuitability for further bulldozing, and the fact that signs of gossan had diminished, apparently to the point of insignificance.

The following succession was mapped in this costean (see Plan No. T.786):-

- (a) Grey, well foliated rotten shale, being slightly micaceous in places and in excess of 150 feet in thickness. One 8 feet and two 1 foot thick bands of partially cellular red-brown gossanous material were observed in this interval. Ferruginous bands - not gossanous - are obvious in part.
- (b) Twelve feet, comprising black gossan bands up to 2 feet thick within yellow banded limonitic material.
- (c) A stratigraphic thickness of 20 feet comprising yellow ferruginous siltstone, with bands up to 2 feet thick of grey dolomite enclosing thin black and red-brown gossanous strips. The upper 2 feet is made up of black cellular gossan containing white quartz lenses several inches long and up to half an inch thick.
- (d) Thirty-four feet of beige ferruginous siltstone with some thin, poorly cellular gossanous bands.
- (e) Seventeen feet of quartzose sandy shale.

- (f) The upper 17 feet of the exposed sequence comprises a cream sandy siltstone with several black cellular bands up to a few inches thick.

To the southeast of the main workings, poorly gossanous dolomite is evident in the bed of a creek. Dolomite and red-brown limonitic cellular gossans were found in bulk soil samples taken in this vicinity.

Gossanous, slightly micaceous grey shales with quartz and minor dolomitic lenses and bands parallel to bedding were evident in adit three. Both black and red-brown cellular gossans were noted in the adits, being present within the quartz and dolomite bands, and also in the shale itself.

Bedrock brought up in soil samples along the bulldozer access revealed quartz mica schists, micaceous shales, shales, mica schists, sandy siltstone and micaceous quartzites.

One sample contained muscovite schist with gossanous quartz segregations. Pyritic quartz segregations of this type within quartz mica schists have been noted elsewhere in the Keith Beds.

A sharp aeromagnetic anomaly in an otherwise level magnetic area coincides with the Atlas Leases.

It should be stressed that the boundaries of the "zone carrying gossan bands" illustrated on the attached plan are intuitive, based on the orientations shown, and similarities of lithology.

Tertiary basalt overlies the older rocks and possibly the gossan zone to the south and west of the workings.

### THE GOSSANS

Gossan development, as indicated above, was found to be sporadic, discontinuous and sparse. The broadest individual band observed is only 2 feet thick and lenses out rapidly down-dip.

The adits display similar developments.

Two varieties of gossan are evident, one a black cellular mass, the other, seldom exhibiting a strongly cellular mode and being red-brown in colour. The black variety predominates in the workings and the central section of the trench, and occurs as distinct bands. In contrast, the red-brown material defines less marked zones.

A random sample of each was crushed and submitted for assay. The results are as follows:-

	<u>Pb ppm</u>	<u>Zn ppm</u>	<u>Cu ppm</u>
Red-brown	16300	5100	330
Black	1730	4400	290

No sulphides were observed.

The dolomitic bands yielded no scheelite when exposed to U.V. radiation.

GEOCHEMISTRY

Weathered bedrock soil samples were collected at 25 feet intervals within the costean, and along a line at right angles to strike across the southern occurrence. Sampling at 100 feet intervals and obliquely to strike was executed along the bulldozer access as the most practical means of evaluating the northern leases.

No anomalous base metal levels were detected in the northern leases. Lead, zinc and copper values were found to lie in the range less than 1 ppm to 50 ppm with the exception of a few leads up to 180 ppm and zinc to the vicinity of 120 ppm. Copper levels were in general very low.

Sampling over the southern occurrence revealed marginally anomalous lead and zinc levels over a minimum width of 100 feet, ranging from 100 ppm to 400 ppm zinc and 15 ppm to 300 ppm lead. These are in contrast to indicated backgrounds of around 15 ppm for each.

The northern portion of the costean over some 125 feet yielded lead assays from 100 ppm to 3000 ppm with two consecutive zinc values of 118 ppm and 510 ppm accompanying high lead levels. Copper results were only slightly above background with only one in excess of 100 ppm.

The northernmost sample from the costean included some black gossanous material from a thin band, and hence may not be truly representative of the interval.

All silver values obtained from soil samples were below the 1 ppm limit of detection.

Channel sampling in the gossanous zones of adits one and three yielded no zinc or lead levels in excess of 1500 ppm. Lead ranged from 260 ppm to 1360 ppm and zinc from 470 ppm to 1470 ppm. Copper and silver returned background assays.

KEYWORDS

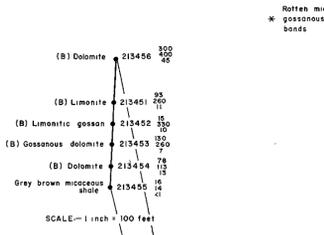
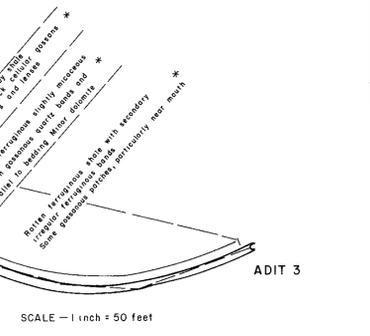
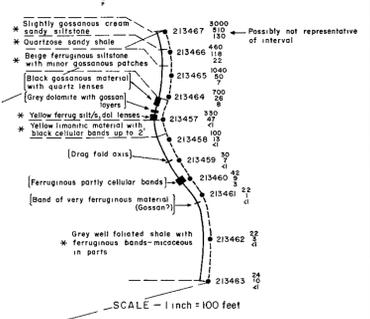
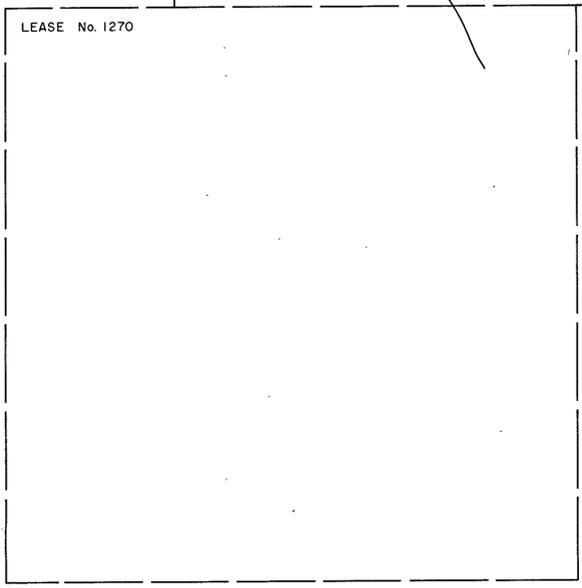
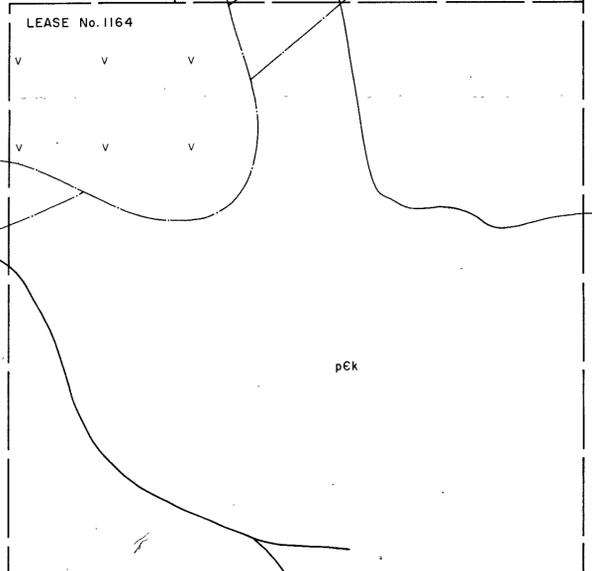
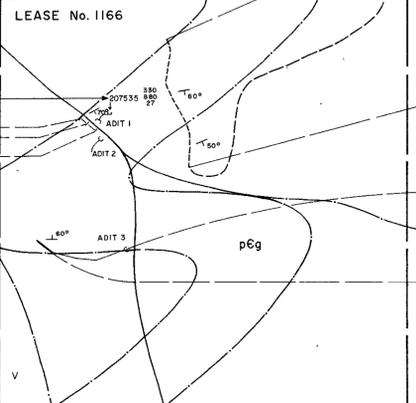
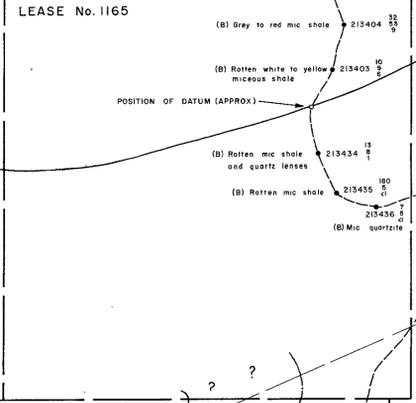
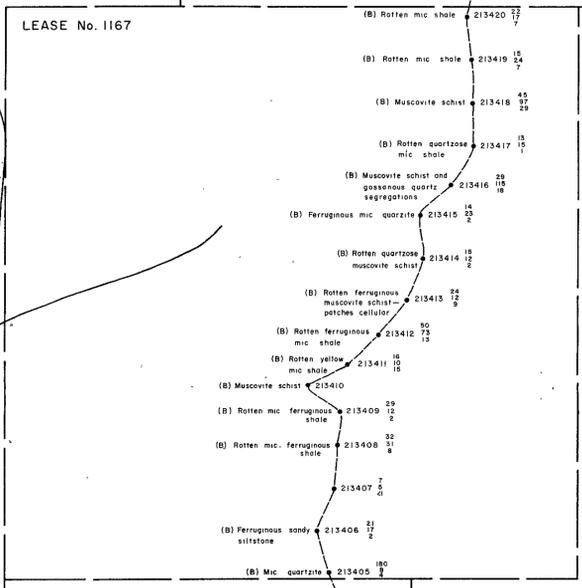
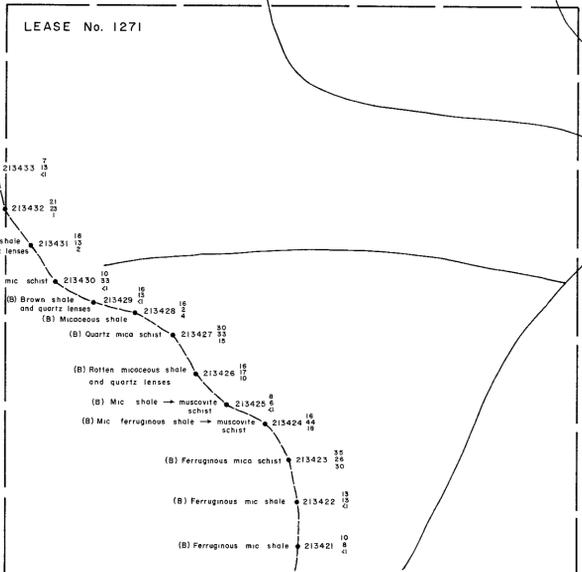
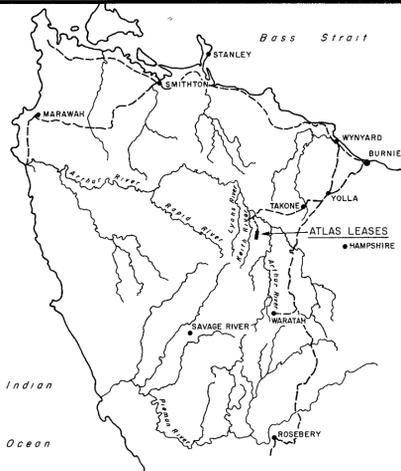
Lead, zinc, copper, silver, shale, schist, Precambrian, stratiform, gossan, geochem. - rock, geochem. - soil.

Locality: Burnie SK55-3 1:250,000 map sheet. - *MISSING*

PLAN

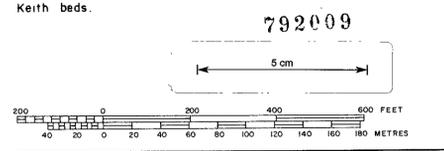
T.786 Atlas Leases - E.L. 43/70 - Northwest 1" = 200'  
Tasmania.

Attach: Geochemical Soil Sampling Ledger (3 sheets).



- LEGEND —
- 1579 213467 Geochemical soil sample locality and number. Values in ppm.
  - Quartzite sandy shale Descriptive interval
  - Minor descriptive interval — description in brackets
  - 207532 Channel sample interval and number.
  - (B) Denotes rock obtained in bedrock soil sample.
  - Geological boundary — inferred.
  - Adit.
  - Lease boundary.
  - Trench
  - Bulldozer access
  - Creek

- TERTIARY V Tertiary basalt
- PRECAMBRIAN pCg Zone carrying gossan bands
- pEk Keith beds.



C. R. A. EXPLORATION PTY LIMITED

ATLAS LEASES — E.L. 43/70

NORTH WEST TASMANIA

GEOLOGICAL-GEOCHEMICAL PLAN

THIS PLAN IS BASED ON MINES DEPT LOCATIONS (APPROX.) AND FORESTRY DEPT MAP TROWUTTA 27D

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T M P DEC 1971 SCALE - 1:2,400 PLAN No T 786



# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

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D.P.O. 13626 2

AREA Atlas Leases

SAMPLE Nos 213428 - 213440  
213451 - 213463

COLLECTED BY [Signature]

ANALYSED BY Zinc Corp. Broken Hill

MAP OR PHOTO REFERENCE Atlas Leases 1" to 200' sheet

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock		Metal content, p. p. m.										Geological observations						
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo		As					
	213428	25	-	10	65	WB	20"	yellow	-	-	✓	20"	16	2	4	4	3											Rock mic. sh.	
	213429	30	-	10	80	WB	18"	"	-	-	✓	15"	16	15	4	3												Rock brown shale + quartz lenses	
	213430	25	-	5	10	60	WB	24"	light brown	-	-	✓	24"	10	33	4	12	8										Rock quartz mica schist.	
	213431	15	-	10	15	60	WB	15"	brown	-	-	✓	15"	18	13	2	5	5										Rock rather sh. + quartz lenses	
	213432	20	-	10	20	50	B	18"	light brown	-	-	✓	24"	21	23	1	10	8										Rock rather mic. sh. + quartz lenses	
	213433	20	-	5	20	55	WB	12"	grey	-	-	✓	12"	7	15	4	7	5										Rock rather mic. sh.	
	213434	15	-	5	10	70	WB	36"	yellow	-	-	✓	36"	13	8	1	3	2										As above + quartz lenses	
	213435	10	-	-	25	65	WB	36"	"	-	-	✓	38"	180	5	4	3	4										Rock rather mic. sh.	
	213436	20	-	40	35	5	WB	36"	white	-	-	✓	40"	7	5	4	1	4										Rock quartz + quartz.	
	213437	25	-	40	30	5	"	15"	"	-	-	✓	20"	4	4	4	1	4										Rock micaceous quartz + quartz.	
	213438	20	-	20	50	10	"	12"	"	-	-	✓	15"	13	4	4	1	4										Rock micaceous quartz.	
	213439		-										1630	5100	330	98	63											Crushed gossan ofc at mouth of adit 1. (Gal. brown)	
	213440		-										730	4400	290	50	70											Crushed black cellular material from trench.	
	213451	20	-	5	5	70	WB	12"	yellow	-	-	✓	12"	93	260	11	12	11											Rock lim.
	213452	15	-	-	5	80	"	12"	"	-	-	✓	12"	150	330	10	14	12											Rock cellular lim.
	213453	15	-	5	5	75	"	24"	light	-	-	✓	24"	130	260	7	10	11											Rock gossanous dolomite
	213454	5	-	-	5	90	WB	12"	"	-	-	✓	12"	78	113	13	20	34											Rock dolomite (gossanous in part).
	213455	40	-	15	20	25	WB	9"	brown	-	-	✓	9"	16	14	4	4	5											Rock brown micaceous sh.
	213456	10	-	5	10	75	WB	15"	light	-	-	✓	24"	300	400	45	42	31											Rock dolomite
	213457	10	-	-	10	80	WB	36"	grey	-	-	✓	-	330	47	4	4	3											ofc banded dol with quartz bands.
	213458	20	-	-	15	65	"	24"	light	-	-	✓	-	100	13	4	4	2											ofc ferrug. slightly goss sh.
	213459	10	-	5	20	65	"	24"	"	-	-	✓	-	30	7	4	1	1											As above.
	213460	10	-	-	20	70	"	36"	"	-	-	✓	-	42	9	3	1	2											ofc rather grey ferrug. sh.
	213461	30	-	-	10	60	"	28"	"	-	-	✓	-	22	1	4	1	4											ofc grey to yellow silt
	213462	5	-	-	10	85	"	36"	light	-	-	✓	-	22	3	4	3	1											ofc grey to red ferrug silt sh.
	213463	5	-	-	10	85	"	20"	grey	-	-	✓	-	24	10	4	1	4											ofc grey sh.

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