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FINAL REPORT

E.L. 2390

"DELMORE DOWNS"

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PP:LRP

24th June 1981

FINAL REPORT - E.L. 2390 DELMORE DOWNS, N.T.

LOCATION:

The E.L is contained within latitude $22^{o}24'$ to $22^{o}27'$ and longitude $134^{o}40'$ and $134^{o}49'$ and embraces an area of 88 square kilometres. It is 240 kilometres N.E. of Alice Springs via the Plenty Highway.

TOPOGRAPHY AND GEOMORPHOLOGY:

Relief is generally low to moderate in areas of Delmore metamorphics and Quarternary deposits but steeply dipping outcrops of Ledan schists provide higher relief in the north and western portions of the lease.
Drainage in the lease area is predominatly to the Bundey River in the south east. However, a superimposed drainage pattern is evident with a flow to the north, and this can be explained by uplift in the region of the MacDonnell Ranges with subsidence to the north of the Alcoota 1:250,000 sheet area when the present day outcrops were buried by younger sediments.

GEOLOGY AND MINING HISTORY:

The Delmore Metamorphics and Ledan schists of Middle Proterozoic age have been intruded by numerous veins of pegmatite and quartz. The origin of these is presumed to be the Upper Proterozoic Ida Granites which outcrop in the western half of the E.L. Relief is low in the southern half of the E.L except where quartz blows and pegmatites outcrop as low conical hills. To the north the metamorphics outcrop in moderate relief and exhibit a complex structure.

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While the older calc-silicate gneiss and epidote quartzites of the Delmore Metamorphic formation adopt a simple attitude striking northwest with indeterminate dip, the Ledan schists which unconformably overly them exhibit a moderate relief with a complex isoclinally folded structure and steep dip angles.

These have been intruded, conformably in the most part, by numerous 'sweat' veins of pegmatite, consisting generally of massive quartz.

Several small mines have been worked at different times for mica and tantalite, but production has been insignificant. The mica workings are at the north western end of the field in an area of moderate relief. The remaining workings are in flat country with extensive areas of soil cover and scattered outcrops.

The mica workings known as Poloni's mine are on the most westerly of a series of large and persistent quartz outcrops. They consist of an open cut of small size and some shallow shafts. The mine has not been worked for many years and most of the workings have fallen in but it does not appear to have been as large as the general run of mines in the Harts Range areas.

About 800 metres east of Poloni's mine, several pegmatite outcrops on the flat have been opened by shallow pits, mainly for tantalite.
Very little work has been done, but it is understood that a little surface tantalite was collected.
The amorphous phosphate griphite has been found near one of these outcrops in black reniform masses.

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Saunder's Mine (now known as Tommy's Show, worked by Tommy Williams of Goofy Bore), is about 800 metres east of the above mentioned workings. It consists of two small open cuts about 2 metres deep. It is claimed that between 1200 and 2000 kg., of tantalite was won from these cuts, although the figure seems high.

In 1956, the Bureau of Mineral Resources conducted a series of tests on outcrops and workings using Geiger Muller counters of the ratemeter type. No radioactivity was observed at Poloni's mine.
On the pegmatite outcrops near the griphite occurrence slight increases in readings were obtained reaching 1½ times back ground in a few places.
In every instance, a high reading was recorded in proximity to a piece of tantalite or griphite. Radioactivity of the griphite is weak, the tantalite is more reactive. No general increase in radioactivity was found that might indicate an increase in the general level of tantalite in the eluvial material.

Readings at Saunder's workings were normal generally except near a vein of bluish quartz in which later assays confirmed the presence of Bismuth and a uranium content of 0.005%. Readings of 5 times back ground were obtained on the dump of the western end of the workings in association with a greenish greisen similar to an anomolous greisen of similar nature at Anningie tin field. An assay of 0.002% uranium was obtained.

...../4

SAMPLING PROGRAM:

Most sampling has been concentrated in the eastern portion of the lease between the north-south fence by Western Watering Point and Saunder's workings. This is a region of quartz blows and outcrops which seem to have pegmatite affinities.
A line of 40 drill holes was first established in a trend of 176^{o} covering 2 kilometres. This was done both to sample a variety of drainage and to see if any belts of Ta shedding pegmatites could be recognised in this complex isoclinally folded region.

Twelve (12) of these samples indicated trace tantalite but over an area too broad for any patterns to be recognised.
A grid of seven lines, each 50 metres apart and each with 5 drill holes 50 metres apart was then established over Saunder's workings. Fifteen (15) scrape samples were also dug to complement and verify the auger samples.

See figure 1 for location and grades of drill hole and scrape samples around Saunder's Show.

Tractor scrape sample sites were then selected about quartz blows and dykes in the area north east of Western Watering Point and along a pegmatite outcrop trending north west from Poloni's Show. Sampling continued using the power auger drilling rig when the bucket tractor became immobile but only trace quantities of tantalite were discovered.

Average grade for each line on site are shown in Table 2, while sample locations are depicted in the accompanying map.

A maddock was subsequently used to obtain samples downslope from pegmatites in the north and west of the lease area, with scrapes made with the now mobile tractor to verify results. These proved to contain little if any tantalite.

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CONCLUSIONS:

1. The tantalite workings are in quartz reefs at the eastern end of the lease area. The quartz may be said to have pegmatite affinities on account of the presence of pegmatite mica around the old tantalite show.

2. Poloni's mica mine, in quartz, is associated with the eastern most of the massive pegmatites to be found on the lease. From here to the west, the pegmatites become more massive and pegmatite veining, where it exists, more dense, while quartz blows and veins become fewer.
   Tantalite presence diminishes with increasing pegmatite presence and it appears to be restricted to the low country intruded by quartz in the east.

3. The regional zoning described above suggest that tantalite mineralization has been concentrated and ultimately carried by late phase hydrothermal silica solutions, differentiated from the granite pegmatite schist association to the west.

4. The area of intense pegmatite to the west of the region is not carrying tantalite while tantalite in the eastern end of the field is restricted to small pods in quartz blows with little eluvial ore available and no alluvial ore.

P.POWELL
GEOLOGIST.

TABLE 1

AVERAGE GRADES FOR EACH LINE OF DRILL HOLES ON SITE.

NO. LINES	NO.DRILL HOLES	AV. GRADE (KG/LCM)
1	40	0 - trace
2	5	0.011
3	5	0.007
4	5	0.013
5	5	0.02
6	5	0.03
7	5	0.01
8	5	0.004
	75	

***TOTAL NUMBER OF SAMPLES = 161. 24 maddock samples were also taken, only one of which showed trace Ta. Pegmatite samples were taken from maddock sample localities.

SITE NUMBER	NO. DRILL HOLES	/	NO. SCRAPE	AV. GRADE (KG/LCM)
1			7	0.031
2			8	0.100
3			5	0.023
4			1	0.0007
5			2	0.0007
6	3		2	0.0003
7			4	0.0002
8	6			0.0025
9	4			-
10	13			0.060
11	6			0.002
12	4			0.011
13	1			0.001
14	6			0.003
15			1	-
16			1	-
17			3	-
18			2	-
19			3	-
20			1	-
21			1	-
22			1	-
23			3	-
	43		43	

*** See above.

TABLE 2 - ASSAY RESULTS:

SAMPLE	Ta_2O_5	Sn	Nb_2O_5	Fe_2O_3	TiO_2	Wt	Grade (kg/m^3)
L2 H1	0.84	0.02	1.10	68.3	9.50	2.5	.006
H2	0.85	0.01	0.75	72.3	7.35	2.1	.006
H3	7.50	0.02	7.20	53.4	11.7	1.4	.032
H4	0.34	0.06	0.26	72.1	9.95	3.1	.003
H5	0.95	0.06	0.78	72.0	10.8	2.8	.006
L3 H1	0.12	0.02	0.09	48.5	6.90	1.2	-
H2	0.53	0.04	0.42	49.1	11.5	0.9	.001
H3	4.40	0.05	6.00	52.5	12.9	1.7	.028
H4	0.83	0.05	0.42	65.6	10.7	2.2	.004
H5	0.56	0.06	0.33	63.2	15.3	2.8	.004
L4 H1	0.21	0.02	0.22	70.9	5.05	2.1	.001
H2	1.90	0.01	2.05	47.6	11.5	4.1	.026
H3	1.90	0.08	3.40	59.7	14.6	2.7	.023
H4	1.70	0.03	0.66	63.7	13.0	3.5	.013
H5	0.71	0.02	0.43	67.7	17.3	3.4	.006
L5 H1	3.10	0.01	1.20	69.8	7.60	4.7	.032
H2	1.90	0.06	1.55	60.7	8.55	2.4	0.13
H3	1.05	0.03	0.43	56.1	16.2	1.1	.002
H4	2.35	0.03	0.59	47.3	14.6	0.7	.003
H5	12.0	0.01	2.05	56.3	13.1	2.3	.052
L6 H1 0 - 6	2.60	0.09	0.87	70.6	8.05	2.4	.013
H1 6 - 8	0.81	0.01	0.15	78.4	4.35	8.2	.012
H2	10.7	0.05	8.60	57.8	7.55	3.5	.108
H3	2.20	0.01	0.38	61.4	18.0	2.7	.011
H4	3.05	0.01	0.29	70.5	7.80	2.4	.013
H5	0.93	0.01	0.18	66.9	8.05	1.1	.001
L7 H1 0 - 6	0.56	0.01	0.16	72.4	10.8	1.9	-
H1 6 - 8	o.57	0.01	0.18	60.6	7.65	0.7	-
H2	3.10	0.01	0.32	43.9	9.90	1.8	.010
H3	0.84	0.01	0.22	72.1	9.40	5.7	.010
H4	0.05	0.02	0.05	67.9	7.45	1.3	-
H5	0.47	0.01	0.08	73.6	6.00	5.0	-

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TABLE 2 (cont)

L8 H1	0.41	0.01	0.24	73.7	7.70	3.6	.005
H2	1.85	0.01	0.72	61.8	11.0	0.8	.005
H3 0 - 6	0.57	0.01	0.25	73.0	9.85	2.4	.005
H3 6-11	1.65	0.01	0.78	71.9	6.80	3.4	.021
H4	1.30	0.01	0.23	70.8	9.85	2.0	.008
H5	0.28	0.02	0.12	70.7	10.6	1.6	-
T SCRAPE 1	2.50	0.02	0.44	73.4	7.40	1.7	.013
2	5.55	0.01	0.63	70.4	13.2	4.3	.074
3	1.70	0.01	0.64	66.3	14.6	1.9	-
4	0.52	0.01	0.40	68.1	9.80	5.9	-
5	0.77	0.01	0.20	70.9	11.6	2.8	-
7	6.65	0.01	3.80	47.1	10.9	7.1	.200
8 *	32.3	0.01	28.4	21.0		0.3	.03
9	1.45	0.01	1.75	77.1	8.60	3.1	.03
11	9.15	0.01	5.65	44.7	8.20	1.2	.05
12	23.8	0.01	47.7	11.8	1.55	4.0	.78
13	19.8	0.01	31.4	21.4	5.40	0.8	-
14	9.10	0.01	8.20	57.6	11.1	1.2	-
15	17.2	0.01	24.2	24.3	3.65	1.0	-
S3 T1	8.10	0.01	3.90	60.5	4.15	2.1	.038
T2	17.6	0.02	4.60	35.2		0.4	.014
T3	13.3	0.01	21.6	32.1	3.45	0.9	.052
T4 *	5.35	0.02	4.35	20.9		0.4	.006
T5	0.36	0.01	0.16	64.5	2.85	4.0	.003
S4 T1	3.10	0.01	2.05	73.3	5.55	2.8	-
S5 T1	0.04	0.01	0.03	78.1	0.94	5.5	-
S6 T1	<0.01	0.01	0.02	46.8	1.90	1.9	-
T2	0.02	0.01	0.01	73.8	2.30	10.2	-
S7 T1	0.02	0.05	0.03	74.0	7.90	1.0	-
T2	<0.01	0.02	0.02	83.5	2.65	0.7	-
T3	<0.01	0.01	0.02	74.3	5.85	8.5	-
T4	0.02	0.01	0.03	74.3	6.75	2.8	-

* INSUFFICIENT SAMPLE FOR THESE TO BE REPEATED.

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TABLE 2:

SAMPLE	Ta_2O_5	Sn	Nb_2O_5	Fe_2O_3	%Ta +Nb	Nett dry wt.	Ta gm	Kg/m^3
S6 H1	0.01	0.01	0.01	71.9	-	1.0		
H2	0.01	0.01	0.02	58.3	-	0.3		
H3	0.02	0.02	0.07	58.8	.09	1.0	.0009	-
S8 H1	0.08	0.01	0.20	51.7	.78	1.4	.392	.065
H2	0.01	0.15	0.15	44.3	.42	1.1	.462	.076
H3	1.05	0.01	1.30	60.7	2.35	0.4	.009	-
H4	0.73	0.01	0.33	65.7	1.06	0.4	.004	-
H5	0.85	0.01	0.34	55.9	1.19	2.5	.029	-
H6 0-3	5.65	0.01	3.45	54.2	9.1	0.6	.05	-
H6 3-11	1.15	0.01	1.50	65.4	2.65	0.2	.005	-
S9 H1	0.01	0.01	0.01	54.7	-	0.3		
H2	0.11	0.01	0.10	49.7	-	0.3		
H3	INSUFFICIENT SAMPLE							
H4	0.01	0.01	0.01	35.2	-	0.4		
S10H1	0.04	0.01	0.09	39.3	0.13	0.2	-	
H2	4.70	0.01	6.30	16.0	11.0	1.1	.121	.02
H3	1.85	0.01	3.80	27.2	5.65	0.5	.028	-
H4	38.0	0.01	7.40	6.50	45.4	8.8	3.99	.66
H5	0.43	0.01	0.78	86.5	1.21	4.0	.048	.008
H6	0.61	0.01	1.00	53.1	1.61	0.4	.006	.001
H7	NO SAMPLE							
H8	0.65	0.03	1.10	63.2	1.75	0.4	.007	.001
H9	1.10	0.02	2.40	65.7	3.5	0.4	.014	.002
H10	1.40	0.01	2.35	55.8	3.75	1.2	.045	.007
H11 3-11	16.9	0.01	5.95	39.1	22.85	0.3	.068	.011
H11 0-3	3.70	0.01	4.85	46.4	8.55	0.5	.042	.007
H12	36.1	0.01	12.5	27.6	48.6	0.6	.29	.048
S10H13	6.25	0.01	1.75	48.9	8.0	0.4	.032	.005
S11H1	1.05	0.01	1.75	78.0	2.80	1.4	.039	.006
H2	0.01	0.01	0.07	77.7	0.08	15.3	.012	.002
H3	0.15	0.01	0.26	69.8	0.41	2.8	.011	.002
H4	0.16	0.04	0.08	54.5	0.24	0.6	.001	-
H5	0.01	0.01	0.02	72.3	0.03	2.2	-	-
H6	0.47	0.01	0.39	75.6	0.86	2.1	.018	.002

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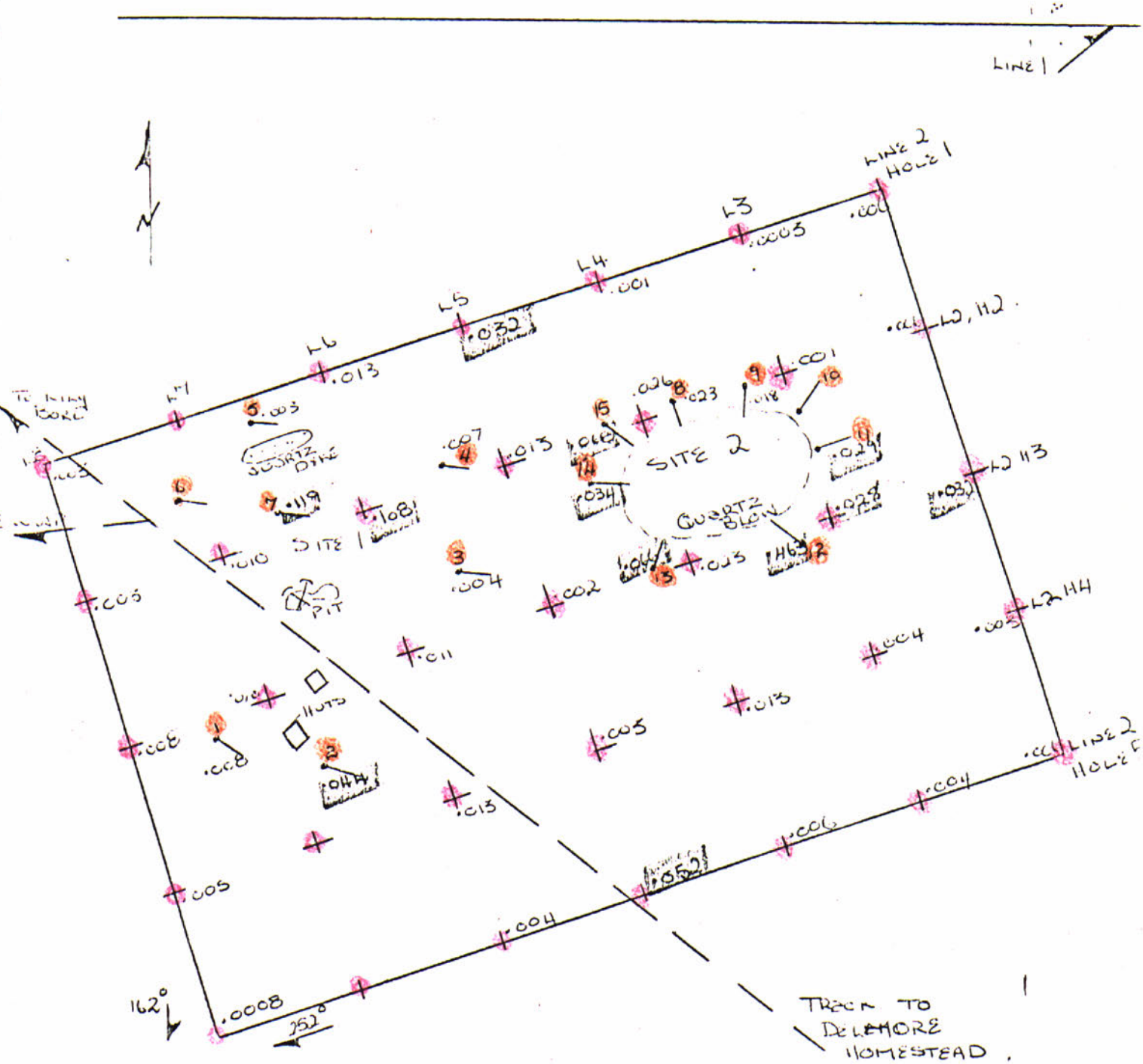
TABLE 2 (cont)

S12	H1	0.36	0.01	0.66	81.6	1.02	4.5	.045	.008
	H2	2.90	0.01	6.30	56.3	9.2	0.8	.073	.012
	H3	0.44	0.01	0.57	59.9	1.01	1.1	.011	.002
	H4	2.60	0.01	5.95	74.9	8.55	1.5	.128	.021
S13	H1	0.12	0.01	0.15	69.1	0.27	2.3	.006	.001
S14	H1	0.10	0.01	0.05	81.6	0.15	10.5	.015	.003
S16		0.11		0.11	70.7	0.22	0.7	.0015	-
S17	P1	0.01		0.06	41.7	0.07	0.8	-	-
17	P2	0.01		0.01	70.1	-	1.2	-	-
	P3	0.03		0.02	51.8	0.05	0.1	-	-
19	P1	INSUFFICIENT SAMPLE					0.1		
	P2	12.2		9.00	27.3	21.2	0.3	.063	.010
	P3	INSUFFICIENT SAMPLE					0.1		
S20		0.14		0.16	71.5	0.30	0.3	.0009	-
M1		0.01		0.02	33.1	-	2.2		
2		0.01		0.03	22.9	-	0.7		
3		0.01		0.01	22.4	-	0.8		
4		0.01		0.01	23.5	-	2.1		
5		0.01		0.02	12.8	-	1.5		
6		0.01		0.01	10.8	-	1.1		
7		0.01		0.03	31.3	-	1.4		
14		2.85		0.28	33.0	3.13	0.2	.006	.001
16		0.01		0.01	12.6	-	2.3		
17		0.59		0.41	43.5	1.0	0.4	.004	
18		0.06		0.06	13.0	0.12	0.5	.0006	-
19		13.7		20.4	12.1	34.1	0.2	.068	.011
20		INSUFFICIENT SAMPLE					0.1		
21		0.02		0.04	28.4	0.06	0.4	-	-
22		INSUFFICIENT SAMPLE					0.2		
23		0.01		0.01	11.2	-	1.2		
24		0.01		0.01	42.5	-	0.2		

FIGURE 1

Sketch of Scrape and Drill Hole Sample Positions.
Saunder's Workings E.L. 2390

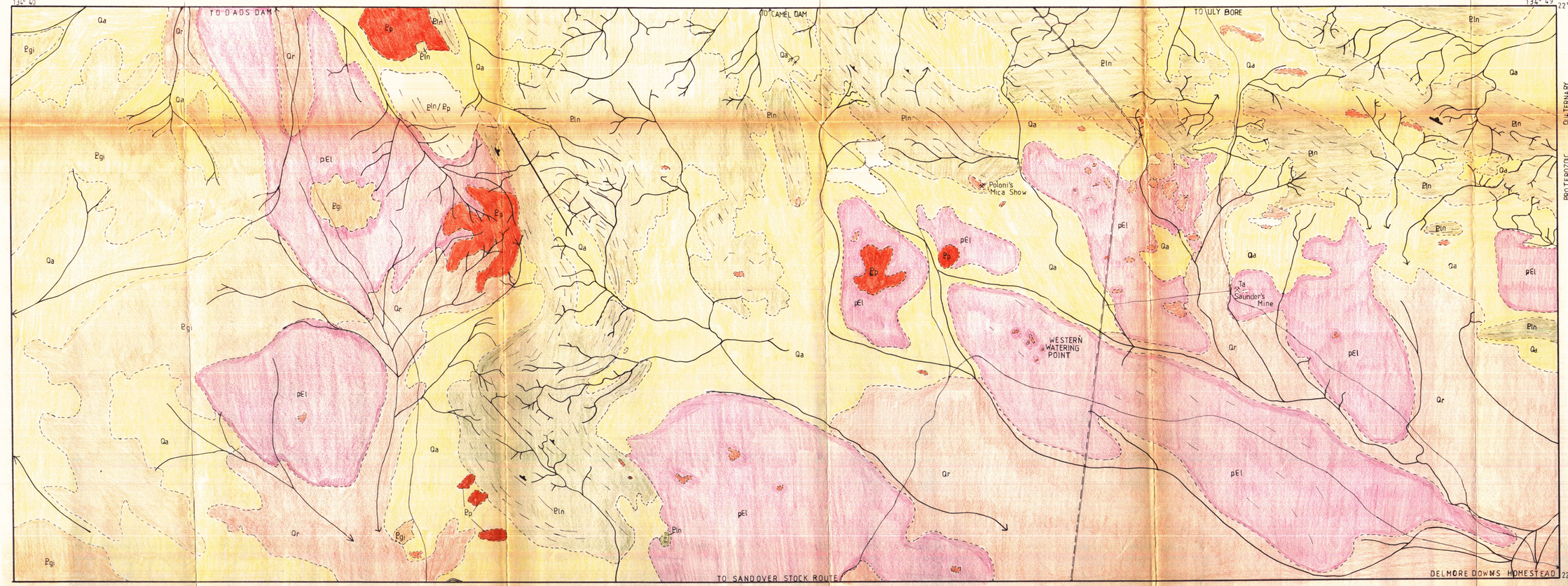


— SCRAPE SAMPLES

+ — DRILL HOLE SAMPLES
GRADES IN KG/LCM.

JAYS EXPLORATION PTY. LTD.

GEOLOGY AND STRUCTURE OF E.L. 2390 'DELMORE DOWNS'



100m 1km 2km

SCALE 1 : 15900 (photo scale)

LEGEND

QUATERNARY

- Qa — Alluvium, Eluvium, Colluvium
- Qr — Red clayey soil and sand

PROTEROZOIC

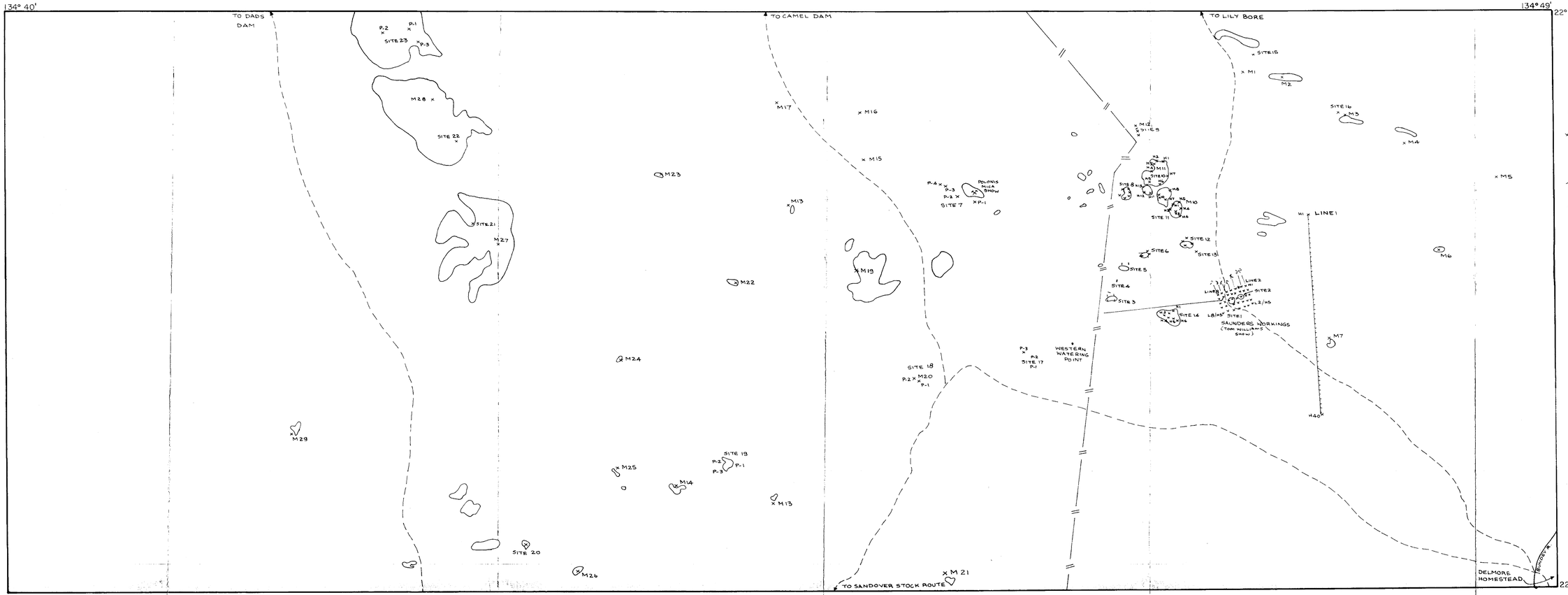
- Pgi — IDA GRANITE - gneissic biotite
- Pp — Massive Pegmatite/Quartz with pegmatite affinities
- Pln — LEDAN SCHIST - micaceous, tourmaline quartzite; metamorphosed conglomerate
- pEl — DELMORE METAMORPHICS - calc-silicate gneiss; epidote quartzite

- Drainage channel
- Track
- Fence
- Trend lines
- Fault
- Foliation strike and dip
- Overturned syncline

N

CAG 4100 AP 0023 (5X)

JAYS EXPLORATION PTY. LTD.
SAMPLE LOCATION E.L. 2390



— LEGEND —

- LINE OF DRILL HOLES.
- DRILL HOLE SAMPLES, SELECTED SITES.
- MADDOCK SAMPLES / PEGMATITE SAMPLES.
- SCRAPE SAMPLES.
- TRACKS.
- FENCELINE.
- PEGMATITE.

SCALE 1 : 15900
(Photoscale)

100m 1Km 2Km

N