W.R. GRACE AUSTRALIA LTD

ANNUAL REPORT

ON

EXPLORATION OF EL 2477

BONN ENERGY INC

YEAR 2

YEAR ENDING 29 DECEMBER 1983

by

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Project Geologist

&

G.W. Patterson, M.A.I.M.M.
Contract Geologist

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CONCLUSIONS AND RECOMMENDATIONS FOR ANOMOLY J25

Work to date indicates that although some significant gold assays were returned from 25m surface grid sampling, gold occurrence is confined to narrow low grade zones with sporadic higher grades in quartz veins. It is however, possible that costean sampling undertaken by pick chip sampling could have under-sampled the harder quartz and silicified material. To check this possibility, re-sampling of the 9900N costean should be undertaken by hand held percussion hammer, large samples would be preferred. Should significant gold values result from the resampling, one drill hole could be sited to intersect the best mineralised zone.

Although the relatively high values encountered in grid sampling on several lines on the western slopes of the ridge probably represent surface accumulation of auriferous quartz from narrow veins, the bulldozer cleaned grid sections on three grid lines should be chip sampled. The sections are:

Line	10200N	9825E - 9880E
Line	10400N	9850E - 9900E
Line	10500N	9850E - 9900E

Since the costean exposures, which were poor at the time of mapping, are now much improved due to early storm rains, remapping of the costeans would be advantageous.

INTRODUCTION

The 1982 grass roots exploration program of aerial reconnaissance prospecting yielded 54 samples. These were from various quartz reefs, most of which proved to be bucky and of no further interest. One series of results however gave moderately anomalous values for gold, arsenic and lead. This area was designated the number J25. This anomaly lies in the Shoobridge Fault on the extreme eastern edge of the EL. A contract geologist, Bill Patterson, was given the task of mapping the anomaly and controlling the sampling program over this area. No grass roots sampling was done in the EL during 1983.

HISTORY

Bonn Energy Corporation of Saskatoon Canada is the licencee of Exploration Licence 2477 of 24 square minutes or 79 square kilometres. Located in the Adelaide River locality of the Northern Territory (Figures 2, 3, 4, 5), the Licence was granted on 30th December 1981 and is now in the second year.

In June, W.R. Grace Australia Ltd and Bonn Energy Corporation entered into an Option Agreement giving W.R. Grace Australia Ltd the sole right to explore the Licence for all minerals. The covenant with the Department of Mines & Energy for exploration expenditure was $14,000.

The Licence area covered the Lower Proterozoic Burrell Creek Formation. This Formation was the exploration target for W.R. Grace Australia Ltd in other licence areas so an exploration program was set up and interlocked with the overall exploration program for initial examination of all the areas (Figure 1).

LOCATION, ACCESS, WATER SUPPLY & TOPOGRAPHY

The Licence area is shaped like an inverted L with the top part ending at the new alignment of the Stuart Highway. It is within a 100 kilometre radius of Darwin and located on Mt Ringwood Pastoral Lease No. 718 (Figure 5).

The most convenient access is from the Stuart Highway approximately 20 kilometres from Adelaide River then by bush track north past Mt. Darwent, along the railway line and north through the flood plains. Alternative access is by bush track from Grove Hill or by station tracks from Mt Ringwood Pastoral Lease No. 718.

The area is predominantly one of low relief with the flood plains of the Howley and Bridge Creeks concealing a major part of the area. A series of ridges along the eastern boundary and low elevation ridges in the northwest corner are covered by open eucalyptus forest. Native sorghum grasses and swamp areas restrict movement in the early part of the dry season.

Several scattered large lagoons and a series of smaller lagoons along Howley and Bridge Creeks provide adequate water until fouled by buffaloes, wild horses and cattle during the later parts of the dry season (Figure 3).

REGIONAL GEOLOGY

The area of EL 2477 is typically low ridges and hills composed of siltstone and greywacke of the Lower Proterozoic Burrell Creek Formation separated by alluvial black soil flats. The Mt Shoobridge Fault, an extensive major fault in this region, cuts through the EL from north to south on its eastern margin. There is major shearing and quartz reef development associated with this fault. Quartz reefs and blows outcrop throughout the region and as such were major targets for exploration.

The beds of the Burrell Creek Formation are broadly folded having steep dips to east and west with a strong north-south cleavage developed. The sediments are mainly fine grained siltstones, some areas showing a distinct red/cream banding and fine to medium grained greywackes.

ANOMALY J25

Anomaly J25 was located and sampled over a length of 1.25 kilometres in 1982. Values were as follows:

Sample No.	As ppm	Au ppm	Pb ppm
J 2	100	0.46	7
J11	600	0.07	94
J12	1400	0.91	390
J13	5.0%	4.32	5100
J14	12.0%	5.09	8000
J51	2100	0.50	2900
J52	3400	2.26	176
J53	500	2.52	360
J54	900	2.17	200

A program of gridding, sampling, costeaning, mapping, and depending on results, drilling was proposed for the anomaly.

Due to the position of the anomaly, very close to the EL boundary, a survey party was engaged to delineate the eastern boundary of the EL. The anomaly was found to be just within EL 2477. At the end of August a survey party from G.H.D. ran a 1.5km baseline along the eastern boundary of the EL to adequately cover the anomaly. This was done by theodolite.

Field assistants then ran crosslines to the west over the anomaly on 100 metre northings and 50 metres centres on eastings. This grid was run by compass and topofil, and gives sufficient accuracy for the initial stages of detailed exploration and is fast and cost efficient. See grid plan map.

The grid was then chip sampled over twenty five metre intervals and two kilograms weight. In all, about 150 samples were taken in the grid and over small structures associated with the gridded areas. See map for sample locations and gold values. Results gave patchy gold values up to 10.2 g/t. Field checking of these locations initially shows that the majority are associated with large areas of scree, eroded from thin silicified zones and quartz veining. There is therefore, an enrichment effect due to tendency when sampling to take chips from quartz rubble, as it dominates down slopes.

Two costeans were dug to hopefully intersect these zones of intense silicification and quartz veining, which in places show visible sulfide mineralization. The costeans were dug on the 9900N line and the 10200N line, and covered a total distance of 250 metres. See map of costean locations and gold values.

The costeans were channel sampled on five metre intervals and five kilograms weight. The results were quite discouraging when compared to the surface values. It is obvious that in the 9900N line the two structures were intersected and gave values of 0.130 g/t and 0.190, 0.480 g/t for the two resistant bands. After much more detailed examination of the trenches, and an early rainstorm to wash the trenches clean, there is much more veining than it appears has been shown by the sample results. It is possible that these are barren quartz veins. It is also possible that the costeans were sampled rapidly and results missed. Even if this is the case, the zone of mineralization is still rather thin and apparently not increasing in width with depth.

Where surface samples gave high values the sections were dozed clear and a quick check seems to indicate that the values are due to scree. There are some thin quartz bands however, and the dozed tracks will need to be sampled to confirm or refute the fact that the high values are totally due to scree.

GEOLOGY

Rocks in the area are Early Proterozoic sediments of the Burrell Creek Formation. Main rock types are fine to medium feldspathic sandstones and massive to well bedded siltstones. There are minor occurrences of pyritic cherts and possibly silicified dolomitic siltstones.

The dominant topographic feature, a north trending ridge about 1.4km long, appears to be controlled by the Mt Shoobridge Fault which B.M.R. mapping (Batchelor - Hayes Creek 1:100,000 Geol. map) shows extending 40km from Mt Shoobridge in the south to Mt Kepler in the north. The J25 prospect is centrally placed between Mt Shoobridge and Mt Kepler.

Mineralization consists of quartz veining, trending generally parallel to the Mt Shoobridge Fault and silicification with accompanying thin gossanous quartz veining and disseminated pyrite. A broad irregular zone of silicification follows the crest of the ridge over an average width of about 50m and encloses some narrow zones of intense silicification and veining. The latter zones consist of two types:

1. Silicified tourmalinised pyritic siltstone, often brecciated. Discordant quartz veining with irregular gossanous patches containing sulphide boxworks and frequently green staining due to the secondary arsenic mineral scorodite.

2. Silicified siltstone and fine sandstone with mainly concordant but some discordant quartz veining. Quartz usually contains tourmaline, varying amounts of limonite after sulphides and green scorodite staining. Much fracturing with development of fine limonite-quartz veinlets. Concordant quartz veins at least partly due to mobilisation of chert and/or silicified dolomite beds.

Type 1 appears to be directly related to the Mt Shoobridge Fault and apart from minor pyrite-arsenopyrite, possibly associated with a little gold, apparently has no economic potential.

Type 2 undoubtedly carries gold in quartz veining, the resistant nature of which probably accounts for relatively high values obtained from grid sampling of outcrop and scree. Although at first sight this type of mineralisation appears confined to the silicification zone straddling the Mt Shoobridge Fault, sampling indicates some significant gold values east of the main zone. The samples (near the baseline just north of 10600N line) were taken over a creek exposure of silicified sediments, the northern and southern continuations of which would be concealed by scree. The zone possibly connects with the tongue of the main zone mapped to the south between lines 10400N and 10500N.

EL 2477

EXPLORATION OPERATING EXPENSES

PERIOD JANUARY - DECEMBER 1983

	$
HELICOPTER	354
ASSAYS	2360
DIAMOND DRILLING	
PERCUSSION DRILLING	
AUGER DRILLING	
TRENCHING	1533
DOZER	
SITE PREPARATION DRILLING	1213
ACCESS GRADING	426
CONTRACT MAP PREPARATION	1387
VEHICLE & CAMP HIRE	2369
FUEL & OIL	244
CAMP SUPPLIES	133
FIELD SUPPLIES	765
GEOLOGICAL CONSULTANT	565
MINING CONSULTANT SUPERVISOR	2418
SECRETARIAL & BOOKKEEPING	913
GEOLOGISTS	4386
FIELD ASSISTANTS	1878
PHOTOGEOLOGY	651
OFFICE SUPPLIES	406
TRAVEL, ACCOMMODATION, MEALS	295
FREIGHT, POSTAGE, BANK CHARGES	40
GRIDDING	1794
FIELD CAMPING & AMENITIES	
OVERSEAS CONSULTANT	7874
AMORTIZATION OPTIONS	
RENT	
PETROLOGY & MINERALOGY	302
SUNDRIES	374
INSURANCE - WORKERS COMPENSATION	517
EL TENEMENT FEES	100
	$33,297

EXPLORATION PROGRAM & EXPENDITURE 1984

Exploration for 1984 will mainly be centred on Anomaly J25. This will involve:

More detailed mapping especially in the costeans and on dozer cleared lines.

Sampling of the dozed lines and areas of the costeans.

More detailed mapping of the overall anomaly.

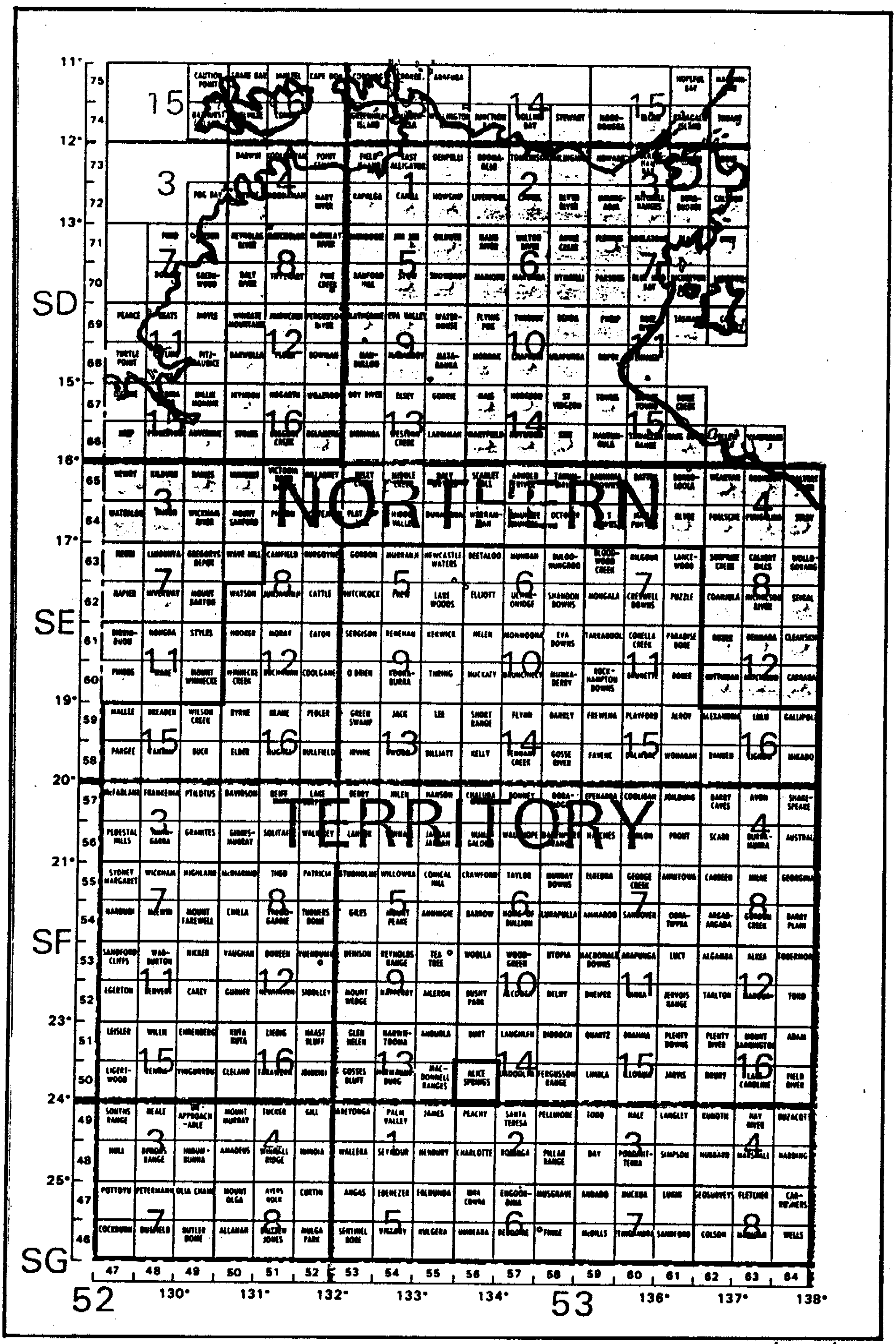
Depending on the results, a drill hole could be located to test the mineralization at depth.

Assaying of all samples taken.

Expected expenditure $8,000.

MAP REFERENCE

1:100,000 SERIES



F / NT / 177

Fig. 1

LOCALITY MAP

NORTHERN TERRITORY

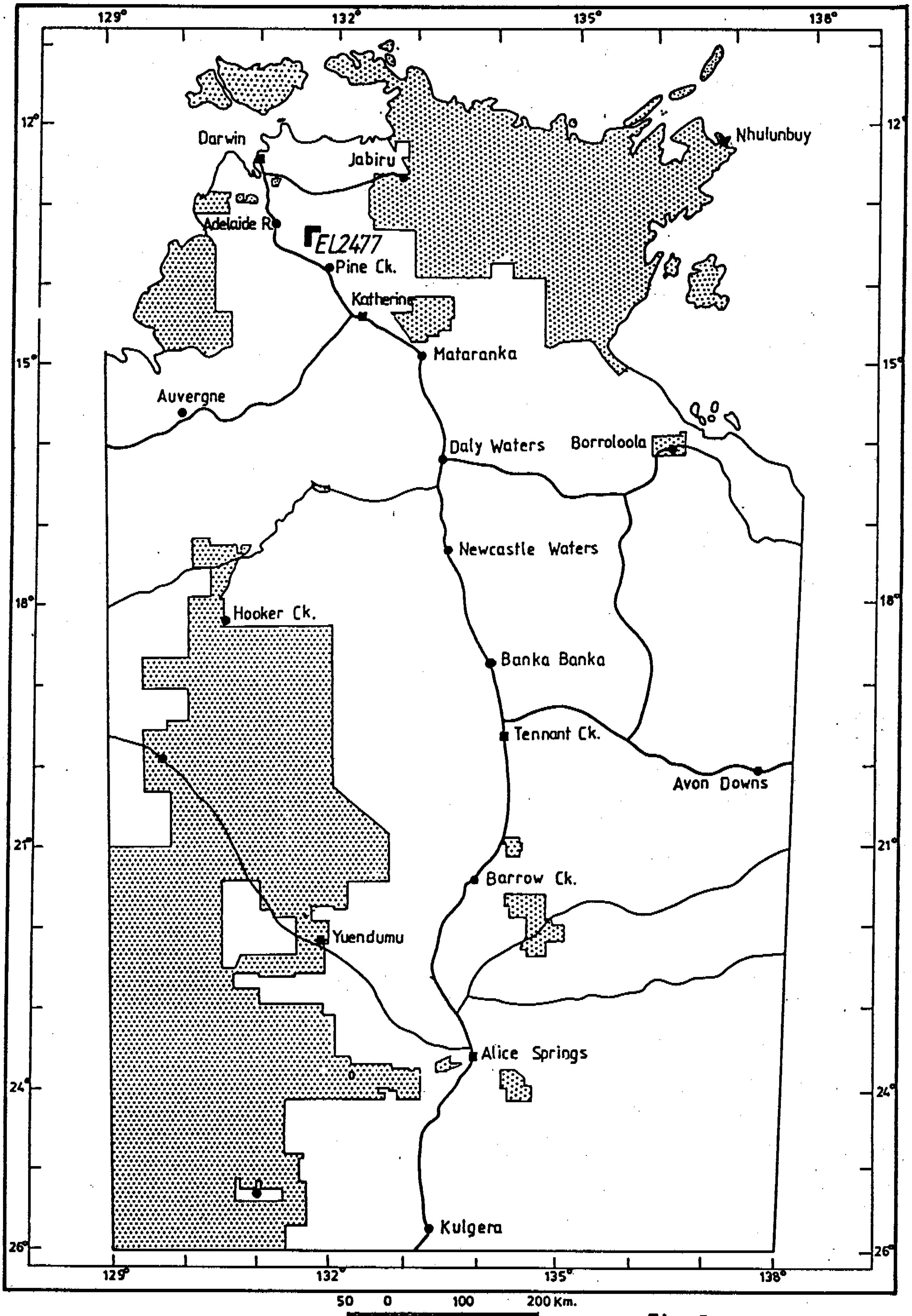
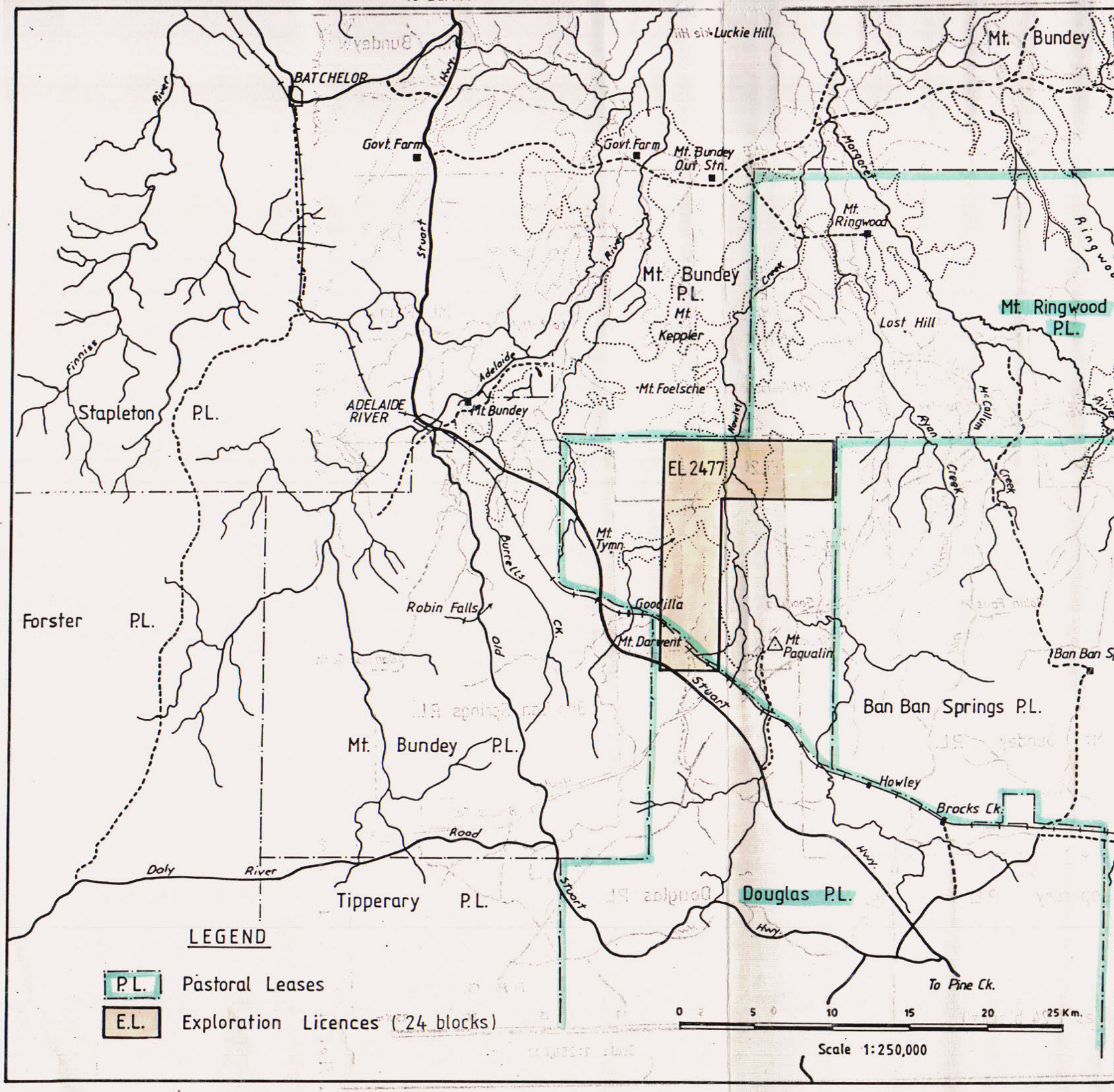


Fig. 2 F/NT/186



W.J. & E.E. FISHER
Mining & Exploration Consultants

W.R.GRACE AUST. LTD.
E.L.2477 - LOCALITY MAP
ADELAIDE RIVER REGION
N.T.

1:250,000 Reference	Pine Ck. SD 52-8	
Consultant W.J.F.	Scale 1:250,000	Report No.
Drawn N.T.E.& M.S.	Date Dec. ,1983	Plan No.F/5171/294

FIG. 3

APPENDIX 1. ASSAY RESULTS.

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999 | 52 Murray Road, Welshpool, W.A. 6106 | Telex AA92560

ANALYTICAL REPORT No. 255.8 14 581

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

W.R.Grace Australia Ltd
P.O.Box 39109
Winnellie
NT 5789

ORDER No.	PROJECT
018	

DATE RECEIVED	RESULTS REQUIRED
15.9.83	

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
	29.9.83	3	169

STATE OF SAMPLES	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
RO	7992-8000A		1	2	3				Pb As	102	102
	12201-22			4	5				Au		013
	12301-23										
	12351-[illegible]										
	12451-67										
	12501-18										

RESULTS TO: As Above

RESULTS TO:

REMARKS

STATE OF SAMPLES	
whole core	WC
split core	SC
cutting	CU
rock	Ro
soil	SO
pulp	PU
water	WA
tissue	TI
stream sediment	SS
heavy mineral	HM

ANALYSIS — PREPARATION			
perchloric acid	A1	cold acid	CA
hydrochloric acid	A2	specific sulphide	SS
nitric acid	A3	other mixed acids	Ma
aqua regia	A4	alkaline attack	AA
nitric-perchloric	A5	volatilization	VO
HF mixture	A6	ignition	IG
HF under pressure	A7	pressed powder (XRF)	PP
fusion	A8	glass fusion (XRF)	GF

ANALYSIS — METHOD	
atomic absorbtion	AAS
x-ray fluorescence	XRF
spectrophotometry	SPEC
colorimetry	COL
chromatography	CHR
titration	TTN
other chemicals means	CHEM
miscellaneous	MISC
fluorescence	FLUOR
inductively coupled plasma	ICP

AUTHORISED OFFICER ______ (signature)

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	1 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	7992	500	0.040	–	60					
2	7993	700	0.185	–	103					
3	7994	400	0.280	–	47					
4	7995	950	0.310	–	119					
5	7996	1400	0.480	–	139					
6	7997	5800	1.08	–	9800					
	7998	1700	2.24	–	660					
8	7999	1200	0.740	–	470					
9	8000	400	1.65	–	155					
10	12201	200	0.025	–	30					
11	12202	50	0.010	–	10					
12	12203	x	0.005	–	16					
13	12204	100	0.045	–	56					
14	12205	50	0.005	–	25					
15	12206	200	0.010	–	43					
16	12207	200	0.030	–	91					
17	12208	200	0.035	–	121					
18	12209	750	0.045	–	72					
19	12210	200	0.060	–	21					
20	12211	650	0.025	–	33					
21	12212	300	0..010	–	18					
22	12213	1300	0.130	–	126					
23	12214	400	0.025	–	51					
24	12215	600	0.020	–	51					
25	12216	1300	0.190	–	660					

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	2 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	12217	1000	0.480	–	137					
2	12218	100	0.040	–	40					
3	12219	100	0.005	–	14					
4	12220	350	0.070	–	72					
5	12221	350	0.065	–	23					
6	12222	50	0.030	–	25					
	12223	50	0.015	–	29					
8	12224	50	0.015	–	36					
9	12225	100	0.050	–	29					
10	12226	50	0.020	–	26					
11	12227	100	0.025	–	56					
12	12228	200	0.060	–	133					
13	12229	200	0.170	–	185					
14	12230	150	0.030	–	91					
15	12231	150	0.020	–	122					
	12232	150	0.180	–	105					
17	12233	200	0.390	–	34					
18	12234	150	0.030	–	11					
19	12235	400	0.130	–	41					
20	12236	350	0.070	–	40					
21	12237	300	0.025	–	12					
22	12238	100	0.005	–	10					
23	12239	50	0.010	–	9					
24	12240	100	0.010	–	8					
25	12241	100	0.005	–	13					

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	3 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	12242	150	0.050	–	11					
2	12243	x	0.025	–	3					
3	12244	x	0.045	–	x					
4	12245	100	0.045	–	9					
5	12246	100	0.530	–	26					
6	12247	100	0.530	–	120					
[illegible]	12248	350	0.170	–	94					
8	12249	100	0.330	–	46					
9	12250	100	0.160	–	25					
10	12251	200	0.090	–	102					
11	12252	100	0.060	–	39					
12	12253	200	5.60	4.00	45					
13	12254	200	0.080	–	31					
14	12255	x	0.005	–	2					
15	12256	250	0.070	–	32					
[illegible]	12257	750	1.01	–	48					
17	12258	1000	0.425	–	36					
18	12259	600	0.135	–	23					
19	12260	700	0.210	–	49					
20	12261	1000	1.80	–	105					
21	122662	550	0.600	–	34					
22	12263	200	0.090	–	96					
23	12264	450	0.115	–	74					
24	12265	150	0.065	–	28					
25	12266	100	0.150	–	25					

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	4 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	12267	600	0.360	–	220					
2	12268	400	0.240	–	66					
3	12269	150	0.005	–	16					
4	12270	250	x	–	3					
5	12271	200	x	–	7					
6	12272	200	0.060	–	30					
7	12301	50	x	–	16					
8	12302	x	0.010	–	11					
9	12303	150	0.290	–	47					
10	12304	50	0.100	–	18					
11	12305	50	0.025	–	4					
12	12306	150	0.005	–	x					
13	12307	100	x	–	1					
14	12308	750	0.120	–	220					
15	12309	400	0.010	–	630					
16	12310	600	0.075	–	860					
17	12311	500	0.405	–	550					
18	12312	1800	0.145	–	2300					
19	12313	1400	0.340	–	500					
20	12314	350	x	–	94					
21	12315	850	x	–	68					
22	12316	300	0.185	–	18					
23	12317	x	0.005	–	12					
24	12318	x	x	–	7					
25	12319	x	x	–	8					

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SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	5 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	12320	x	x	—	13					
2	12321	x	x	—	5					
3	12322	x	x	—	6					
4	12323	x	x	—	17					
5	12324	x	x	—	9					
6	12351	x	0.010	—	8					
7	12352	x	x	—	8					
8	12353	x	x	—	8					
9	12354	x	0.170	—	7					
10	12355	x	0.225	—	7					
11	12356	50	0.005	—	4					
12	12357	300	0.060	—	56					
13	12358	200	0.005	—	77					
14	12359	350	0.005	—	53					
15	12360	1200	0.015	—	88					
16	12361	850	0.120	—	48					
17	12362	500	0.085	—	105					
18	12363	150	0.005	—	34					
19	12364	350	1.05	—	105					
20	12365	1200	0.240	—	1520					
21	12366	3600	0.365	—	1390					
22	123667	7400	0.670	—	5400					
23	12368	1.5%	0.800	—	1160					
24	12369	1800	0.030	—	167					
25	12370	600	x	—	74					

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	6 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	12371	650	0.015	–	82					
2	12372	950	0.005	–	250					
3	12373	50	0.005	–	26					
4	12374	50	0.005	–	21					
5	12375	50	0.005	–	15					
6	12376	X	0.035	–	4					
7	12377	50	X	–	11					
8	12378	X	0.005	–	7					
9	12379	X	0.005	–	8					
10	12380	250	0.005	–	7					
11	12451	400	0.320	–	260					
12	12452	4900	0.275	–	7400					
13	12453	2600	0.710	–	1900					
14	12454	7000	0.640	–	8900					
15	12455	2.8%	10.20	10.80	5800					
[illegible]	12456	1.1%	0.433	–	2300					
17	12457	1.1%	10.20	10.17	4200					
18	12458	2600	0.155	–	1060					
19	12459	6500	3.32	–	5200					
20	12460	150	0.010	–	40					
21	12461	300	0.010	–	129					
22	12462	350	0.215	–	56					
23	12463	450	0.190	–	50					
24	12464	50	0.005	–	16					
25	12465	X	X	–	8					

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 581	3.10.83	018	7 OF 8

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	12466	x	x	–	5					
2	12467	100	x	–	9					
3	12501	850	0.155	–	260					
4	12502	2200	0.100	–	156					
5	12503	1800	0.140	–	128					
6	12504	1300	0.130	–	210					
7	12505	1000	0.105	–	35					
8	12506	600	2.25	–	300					
9	12507	550	0.265	–	200					
10	12508	500	0.175	–	170					
11	12509	500	0.060	–	130					
12	12510	600	0.020	–	28					
13	12511	400	0.020	–	45					
14	12512	600	0.020	–	87					
15	12513	200	0.570	–	8					
16	12514	200	0.700	–	11					
17	12515	150	0.060	–	60					
18	12516	150	0.085	–	57					
19	12517	200	0.010	–	5					
20	12518	150	0.130	–	5					
21										
22										
23										
24										
25										

Results in ppm unless otherwise specified
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X = element concentration is below detection limit
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
J25	255.8 14 599H	7.10.83	0003	1 OF 2

TUBE No.	SAMPLE No.	As	Au	Au	Pb
1	12325	200	0.110	–	20
2	12326	350	0.195	–	124
3	12327	200	0.120	–	114
4	12328	200	2.02	–	36
5	12329	100	0.165	–	16
6	12330	300	0.120	–	65
7	12331	200	0.100	–	76
8	12332	150	5.50	7.67	58
9	12381	1000	0.675	–	25
10	12382	2100	0.155	–	23
11	12383	150	0.030	–	280
12	12384	6100	0.160	–	300
13	12385	2.1%	1.24	–	300
14	12386	4700	0.580	–	1000
15	12387	1100	0.140	–	520
16	12586	x	0.050	–	9
17	12587	50	0.020	–	9
18	12588	100	0.020	–	16
19	12589	150	0.050	–	26
20	12590	50	0.055	–	34
21	12591	100	0.045	–	7
22	12322	x	0.005	–	12
23					
24					
25					

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

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	255.8 14 599A	7.10.83	0003	2 OF 2

TUBE No.	SAMPLE No.	As	Au	Au	Pb					
1	R 12325	150	–	–	23					
2	R 12590	50	–	–	33					
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
[illegible]										
17										
18										
19										
20										
21										
22										
23	DETECTION	50	0.005	5.00	1					
24	DIGESTION	102			102					
25	METHOD	102	313	310	102					

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 [signature]

APPENDIX 2. PETROLOGICAL AND MINERALOGICAL REPORTS.

Central Mineralogical Services

CMS

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. W.J. Fisher
Consultant/Manager
W.R. Grace Aust. (Sales) Ltd.
19, Kirkland Crescent, Kahlin
DARWIN / N.T. 5790

13th October, 1983

REPORT CMS 83/9/14

YOUR REFERENCE: Order No. 251

DATE RECEIVED: 8th September, 1983

SAMPLE NOS.: J 25 - 8 Samples

SUBMITTED BY: W.J. Fisher

WORK REQUESTED: Petrology

for

H.W. Fander, M. Sc.

REPORT CMS 83/9/14

Preliminary Report

A suite of eight samples of oxidised vein material, prefixed J 25, was received for petrological and mineragraphic examination. Representative thin-sections were prepared and examined together with the respective offcuts. In the absence of specific assay data, samples WF 12411 and WF 12414 were selected for mineragraphic examination, with the results to follow in due course. Brief tabulated petrological descriptions are appended.

Preliminary Summary

General features are analogous to the F 17 suite and, by inference, the Bundey 1 oxidised zone materials previously reported. In comparison, the main contrast is the presence of green schorl as a more or less ubiquitous accessory to conspicuous vein and metasomatic components. Significantly, the tourmaline is closely comparable, on the basis of optical characteristics, with that at Bundey 1.

In comparison with the F 17 suite, the veins reflect relatively marked stress effects, essentially consistent with the Bundey 1 veins. The secondary metal salt assemblage is closely comparable with the F 17 suite, but includes in addition traces of pharmacosiderite, beudantite and ?mimetite. Relict textural features indicate the quartz(-schorl) vein-hosted, arsenopyrite-pyrite-rich sulphide assemblage was zoned in part with an alternation of relatively pyritic and arsenopyritic zones. This feature enhances the comparison with the Bundey 1-style veining.

D. Cowan, B. Sc.

ample o.	Classification - Composition	Fabric	Accessories	Comments
25 F 2409 T.S. 7138)	Quartz-Schorl Vein. Quartz with sporadic clots, films, spongy aggregates of fine-grained green schorl.	Stressed to granulated, semi-mylonitised. Weakly banded. Locally reveined with vuggy quartz.	Traces scorodite, beudantite, pharmacosiderite, oxidised ultrafine pyrite. Rare very fine relics arsenopyrite, galena.	Weakly gossanous quartz(-schorl) vein. Degraded sulphides reflect granulation. Beudantite, scorodite partly degraded. Cryptocrystalline pharmacosiderite as late films, cavity fillings.
2410	Gossanous Quartz-Schorl Vein. Quartz with subordinate to minor disseminations, crude lenses of fine-grained green schorl. Frequent films, grading into porous, semi-massive aggregates, of scorodite-mansfieldite.	Banded, stressed to fractured, locally granulated. Arseno-pyrite-pseudomorphous to "colloform" scorodite.	Sporadic late films of cryptocrystalline ?mimetite.	Similarities with 12409, but with relatively conspicuous degraded arsenopyrite. Bulk of scorodite is exotic (introduced), distributed on late intersecting fractures.
2411	Gossanous Vein-Quartz. Quartz with disseminated to spongy, semi-massive, partly degraded/ferruginised scorodite; minor pyrite-pseudomorphous limonite.	Banded, from massive recrystallized quartz to semi-massive scorodite; narrow interzone of oxidised pyrite.	Traces of fine-grained green schorl, partly weathered K-feldspar.	Gossanised, banded vein with thin pyritic/K-feldspathic margin on near-massive arsenopyritic zone.
2412	Gossanous Quartz-Schorl Vein. Quartz with minor bands, lenses fine green schorl, sporadic intraclasts of tourmalinised/silicified pelite. Interspersed bands of semi-massive scorodite.	Banded on centimetric scale, stressed/ partly recrystallized quartz. Grades into quartz-veined/altered pelite.	Traces pyrite-pseudomorphous limonite.	Tourmalinised-silicified pelite veined with marginally intraclastic quartz with a core of fractured to granulated, semi-massive arsenopyrite pseudomorphed by scorodite.
2413	Goassanous Breccia. Vein-quartz with cross-cutting films, minor arsenopyrite-pseudomorphous clots of scorodite, minor schorl, zones, intraclasts of ferruginised, tourmaline-stained pleite.	Medium- to coarse-grained, incipiently stressed quartz; angular clasts, semi-pervasive late scorodite fractures.	Late secondary films, clots of limonite (scorodite-replacive in part).	Moderately tourmalinised quartz (-schorl-arsenopyrite)-veined to brecciated/quartz-healed pelite. Bulk of scorodite is exotic, infills weathering-induced fractures.
2414	Gossanous Vein-Quartz. Quartz with disseminated to semi-massive arsenopyrite-pseudomorphous scorodite, minor fine green schorl, sparse limonitic cavities, pseudomorphs after pyrite.	Stressed to sheared. Semi-banded, locally intraclastic.	Intraclasts of (thoroughly weathered, ferruginised) micro-laminated pelite.	Detail obscured by deformation, weathering effects. Vein crudely zoned with semi-massive arseno-pyritic zones alternating with weakly pyritic and essentially barren zones.
2415	Veined Pelite. Ferruginised pelite (weakly tourmalinised spotted shale/quartzose silty shale) with discordant veins, veinlets of quartz with minor green schorl. Late cross-cutting films of variably degraded scorodite.	Laminated, weakly sheared host rock; high-angle discordant mildly stressed veins.	Traces vein-sericite. Late films of boehmite.	?Cordierite-spotted pelite with discordant unmineralised quartz(-schorl mica) veins, veinlets. Scorodite is exotic, introduced on weathering-induced fractures.
2416 T.S. 7145)	Gossanous Vein-Quartz. Quartz with semi-massive to disseminated arsenopyrite-pseudomorphous mansfieldite.	Medium-grained, semi-banded, moderately stressed.	Minor traces kaolinised feldspar. Traces pyrite-pseudomorphous, cloudy, micro-crystalline jarosite.	Affinities with e.g. 12411; weakly feldspathic, weakly pyritic, arsenopyrite-mineralised quartz vein similarly, but weakly banded.

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. W.J. Fisher
Consultant/Manager
W.R. Grace Aust. Ltd.
P.O. Box 39109
WINNELLIE / N.T. 5789

8th November, 1983

REPORT CMS 83/9/14
Supplement

YOUR REFERENCE:	Order No. 251
DATE RECEIVED:	8th September, 1983
SAMPLE NOS.:	2 Samples
SUBMITTED BY:	W.J. Fisher
WORK REQUESTED:	Mineralogy

for

H.W. Fander, M. Sc.

REPORT CMS 83/9/14

Supplement

This report relates to mineragraphic examination of gossanous material described in respect of non-opaque mineralogy in the initial report. In the absence of specific assay data, polished sections were prepared from a limited number of samples, selected as representative of the gossanous vein and host rock material. Brief mineragraphic notes are attached.

In terms of general features, the mineragraphic aspects confirm the similarity with Bundey 1-style mineralisation. Problematically, no gold was specifically detected and, in this aspect alone, the analogy with Bundey 1 remains more inferred than established.

Absence of detectable gold in the few sections examined cannot be considered a contra-indication, especially in view of the previously noted "spotty" distribution of gold at Bundey 1. Further mineragraphic work on known, specifically Au-anomalous samples may be considered warranted.

D. Cowan, B. Sc.

Additional Notes: Mineragraphic examinations for gold mineralisation are necessarily time-consuming due to the typically extremely low grade, especially when considered in volumetric terms. This factor is partly reflected in the relatively higher charge for this type of investigation.

REPORT CMS 83/9/14
Supplement

WF 12411 (P.S. 47140)

This section is representative of a zone of banded gossanous vein-type quartz. Limonitic boxworks, variably ferruginised scorodite pseudomorphs, and (minor) limonite-lined cavities after arsenopyrite are conspicuous in relatively gossanous zones, but oxidised pyrite, persisting locally as corroded relics, is also common. Close examination revealed no detectable gold.

WF 12414 (P.S. 47143)

The sectioned area comprises mainly scoroditic to limonitic gossan derived from quartz vein-related, disseminated to semi-massive arsenopyrite and with interspersed pyrite-derived limonite. Macroscopic grains of both arsenopyrite and pyrite persist as corroded relics. In common with the WF 12411 section, there is no detectable gold in the area sectioned.

D. Cowan, B. Sc.

ASSAY RESULTS (ppm)

X = Element concentration is below detection limit

No.	Au	As	Pb	No	Au	As	Pb	No.	Au	As	Pb
J 1	x	50	5	J 21	0·05	x	14	J 41			
2	0·46	100	7	22	x	x	9	42			
3	x	x	2	23	x	x	5	43	0·04	x	4
4	0·15	350	15	24	x	x	3	44	x	x	5
5	x	100	2	25	x	x	4	45	x	x	9
6	0·03	x	3	26	x	50	3	46			
7	x	x	3	27	x	150	540	47	x	x	6
8	0·02	x	4	28	x	x	6	48	x	x	54
9	0·02	x	3	29	x	x	2	49	x	x	12
10	x	x	2	30	0·04	x	2	50	x	x	10
11	0·07	600	94	31	x	x	3				
12	0·91	1400	390	32	x	x	7				
13	4·32	5%	5100	33	x	50	17				
14	5·09	12%	8000	34	x	x	11				
15	0·07	300	13	35	x	x	3				
16	0·01	100	4	36	0·01	x	3				
17	0·03	150	12	37	x	x	5				
18	0·11	250	290	38	x	50	3				
19	x	x	6	39	0·02	x	10				
20	0·10	250	290	40	x	x	2				

Geological Reference

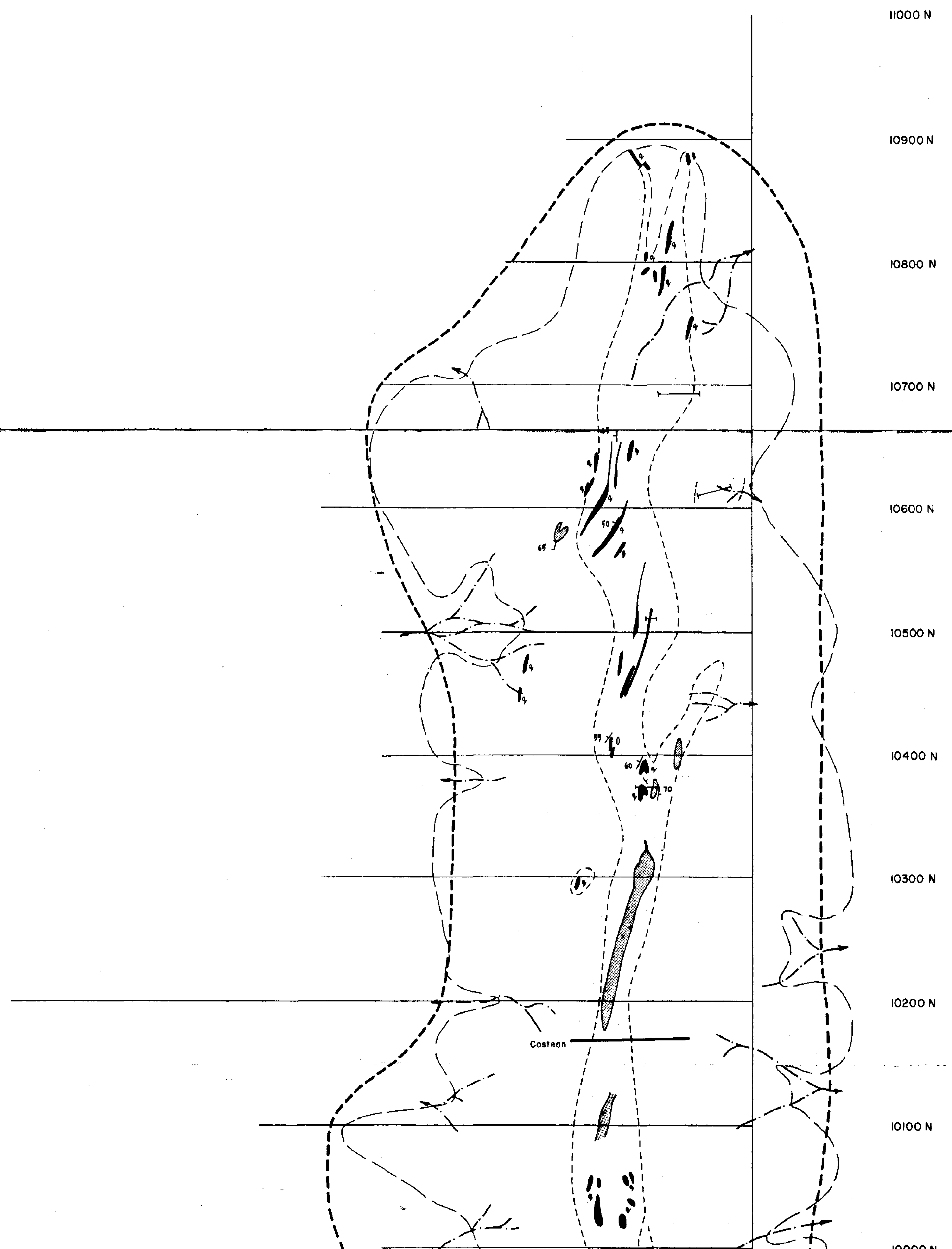
	Qa	Silt, clay, sand, black soil: alluvium
	Qs	Alluvial sand, outwash & colluvial deposits
	Cz	Undifferentiated Cainozoic sediments
	Czs	Quartz sand, clayey soil, quartz vein float
	Czl	Nodular concretionary, pisolitic & vermicular laterites
Zamu Dolerite Fmtn.	Pdz	Basic intrusives; dolerite
Burrell Ck. Fmtn.	Pft	Siltstone, shale, greywacke, quartz pebble conglomerate
Mt. Bonnie Fmtn.	Pso	Reddish-brown siltstone & shale: rare chert nodules & thin beds of banded iron formation
Gerowie Tuff	Psq	Siliceous tuffaceous shale & siltstone; thin beds of banded iron formation
Koolpin Fmtn.	Psk	Shale & siltstone, commonly carbonaceous & pyritic; minor shale with chert or paraquartzite nodules

W.J. & E.E. FISHER
Mining & Exploration Consultants

W.R.GRACE AUST. LTD.
EL 2477 J.V.
Bonn Energy Corporation
GEOLOGICAL MAP
SHOWING SAMPLE LOCATIONS

Pine Ck. SD 52-8		
I.McDonald	1:25,000	
NTE&MS	July, 1982	F/5171/93

CR 84/38



SCALE 1 : 2500

50 0 50 100 150 200 metres

Track	Costean
Drainage	Zone of Silicification
	Zone of intense qtz veining + Silicification
	Limit of outcrop and scree
	Chip sample

W.R. GRACE AUSTRALIA LIMITED

W.J. & E.E. FISHER – Mining & Exploration Consultants

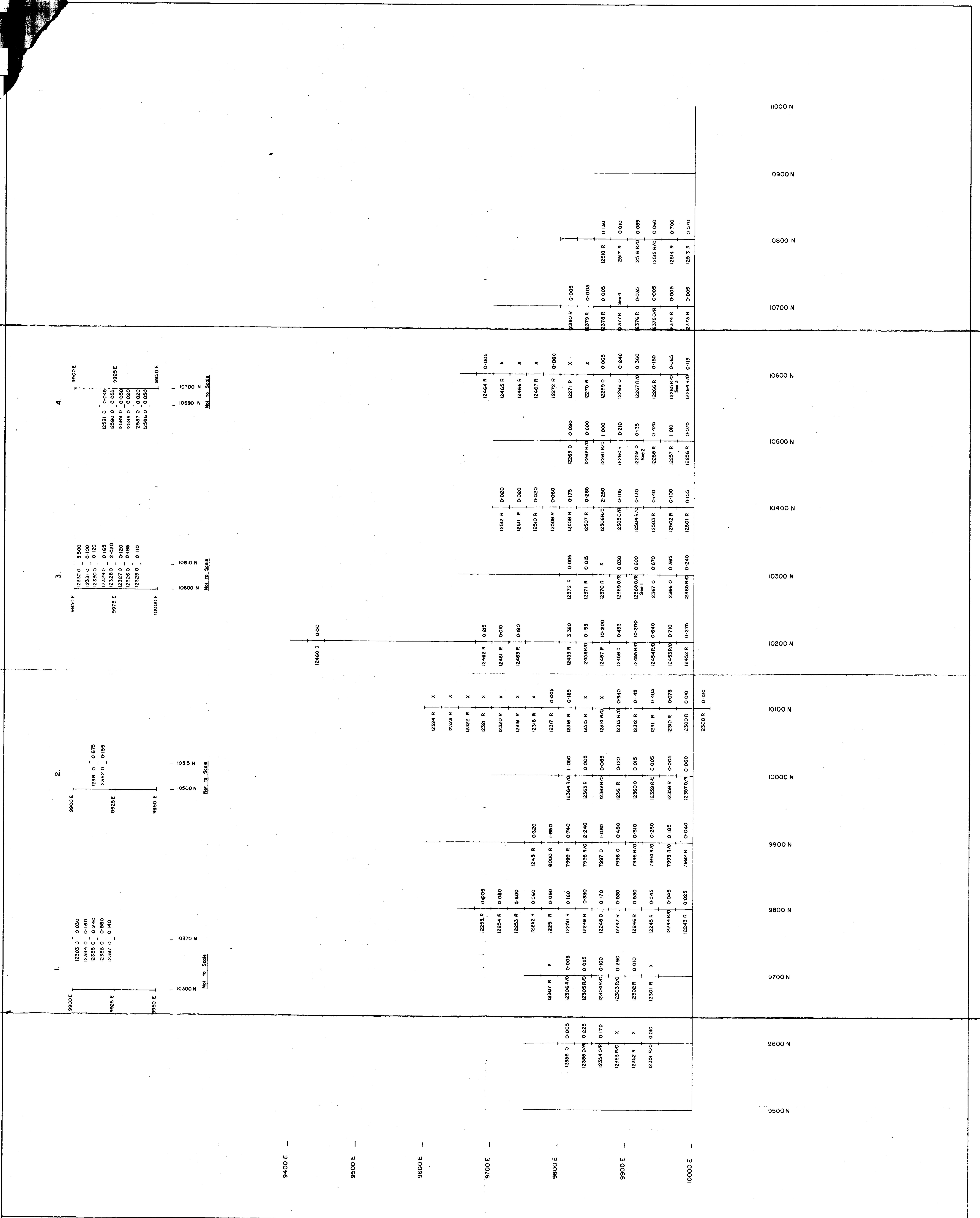
Vert. Scale :	Compiled by : G.W.Patterson	Date : October 1983
Horiz Scale : 1:2500	Drawn by : C.S.D.S.	Nº F/5171/304

E.L. 2477

J25 ANOMALY

Geology

CR 84/38



SCALE 1:2500

50 0 50 100 150 200 metres

SAMPLE NUMBER	SAMPLE TYPE		Au ppm
12345	O	I	0·123

R - Rubble
O - Outcrop
O/R - Outcrop major
R/O - Outcrop minor

W.R. GRACE AUSTRALIA LIMITED

W.J. & E.E. FISHER - Mining & Exploration Consultants

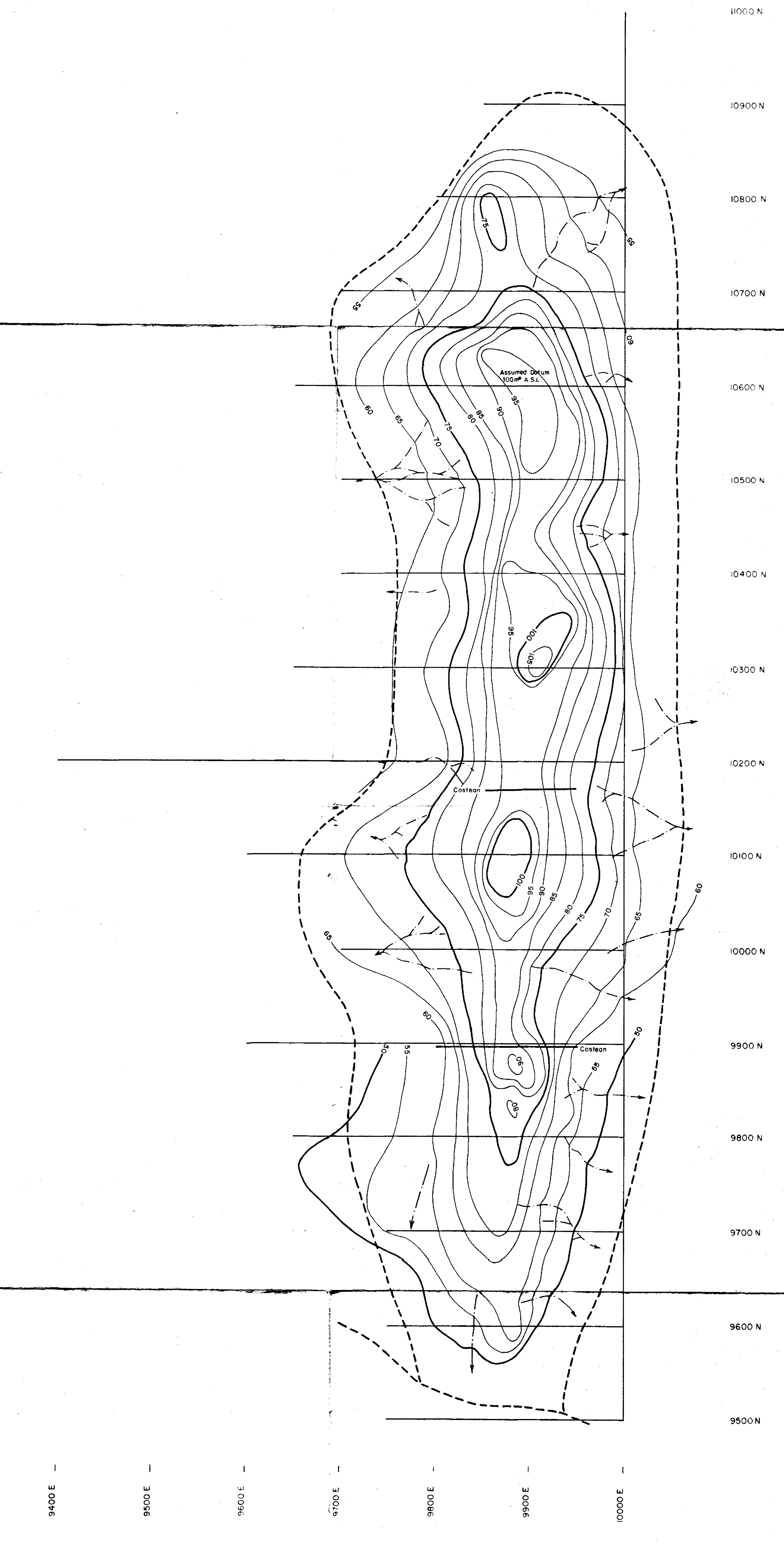
Vert Scale	Compiled by I. McD. & GWF	Date October 1983
Horiz Scale 1:2500	Drawn by C.S.D.	F/5171/307

E.L. 2477

J25 ANOMALY.

Surface Sample locations - Au values

CR 84/38



SCALE 1 : 2500

50 0 50 100 150 200 metres

Based on Plane Table survey

Track
Drainage
Costean
—75— Contours. 5metre interval

W.R. GRACE AUSTRALIA LIMITED

W.J. & E.E. FISHER – Mining & Exploration Consultants

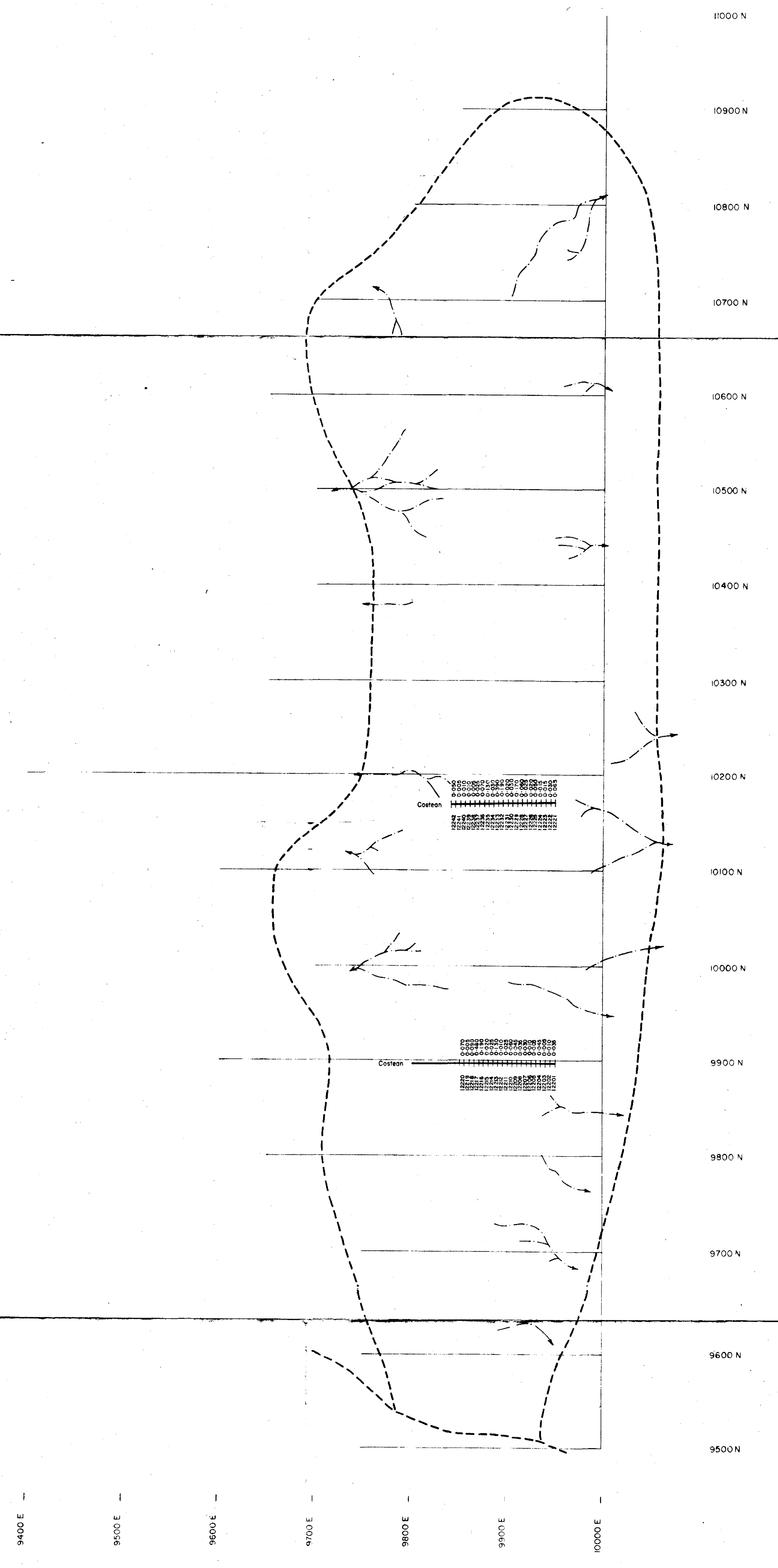
Vert Scale	Compiled by GWP & J.D.	Date October 1983
Horiz Scale 1 : 2500	Drawn by C S D S	Nº F/5171/305

E.L. 2477

J25 ANOMALY

Topographic Map

CR 84/138



SCALE 1:2500

50 0 50 100 150 200 metres

SAMPLE NUMBER | Au ppm

12345 | 0·123

Track

Drainage

Costean

W.R. GRACE AUSTRALIA LIMITED

W.J. & E.E. FISHER – Mining & Exploration Consultants

Vert Scale	Compiled by I. McD. & B.P.	Date October 1983
Horiz Scale 1:2500	Drawn by	F/5171/309

E.L. 2477

J25 ANOMALY

Costean Sample locations — Au values

CR 84/38