

CRA EXPLORATION PTY LIMITED

EL 2500, NAVAL ACTION, N.T.

FINAL REPORT

5th MARCH 1982.

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date : December, 1981.

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CR 82/168

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and Gravel Sample Ledger

## 1. SUMMARY

CRA Exploration Pty Limited carried out a reconnaissance geochemical drainage survey on EL 2500, Naval Action located on the western part of the Napperby N.T. 1:250,000 scale geological map sheet. Moderately anomalous tin, tantalum and niobium values in stream sediments and gravel samples were related to Tertiary sediment on Lower Proterozoic granite gneiss.

Anomalous gold values in sediment and gravel samples were an analytical error.

The EL was recommended for relinquishment.

## 2. INTRODUCTION

EL 2500, Naval Action, N.T. of 208.32 square miles (539.58 square km) was first granted to CRA Exploration Pty Limited (CRAE) on 6th March, 1981.

EL 2500 was located in the western part of the Napperby 1:250,000 scale geological map sheet on the drainage of Cockatoo and Crown Creel

The area was mapped in semi-detail with airphoto interpretation at 1:25,000 scale by BMR from 1971 - 1974 (Denison and Reynolds Range 1:100,000 scale geological map sheets (prelim)). Lower Proterozoic granite gneiss and metasediments were intruded by the Carpentarian Wangala and Ngalurbindi Granite and overlain by extensive Tertiary sediment and Quaternary alluvium. The Adelaidean Central Mount Stuart Beds and Vaughan Springs Quartzite were unconformable on the granite and metasediments in the south eastern corner of the EL.

CRAE carried out a reconnaissance geochemical drainage survey as stage one of a basemetal exploration programme. This report summarises the results of that work.

### 3. CONCLUSIONS

Anomalous tin in stream sediment and gravel samples was related to very low grade accumulations of cassiterite in pediment derived from Lower Proterozoic granite gneiss.

Anomalous gold values reported by Tetchem Laboratories were an analytical error.

### 4. GEOCHEMICAL DRAINAGE SURVEY

CRAE carried out a reconnaissance geochemical drainage survey and collected 35 stream sediment samples. This achieved an initial sample density of one sample per 15.4 square km and reflected the low energy environment and poorly developed drainage.

Each sample consisted of stream sediments sieved to minus 90 mesh (180 um), minus 60 mesh (255um), minus 40 mesh (350um) and plus 40 mesh. Each mesh fraction weighted approximately 100 gm.

The minus 80 mesh fraction was assayed by AMDEL for Pb, Zn, Cu, Co, Ni, Cr, Mo, As, Ag, Au, Mn (AAS) and Sn, W, U (XRF).

#### 4.1. Anomalous tin values

Weakly anomalous tin values were reported in the minus 80 mesh fractions of samples 812476 (55ppm Sn), 812479 (18ppm Sn), 812480 (85ppm Sn), 812481 (50ppm Sn), 812482 (22ppm Sn), 812483 (28ppm Sn), 812484 (16ppm Sn), 812487 (22ppm Sn), 812490 (34ppm Sn), 812491 (16ppm Sn), 812505 (20ppm Sn), 812506, (18ppm Sn), and 812507 (14ppm Sn).

Samples 812476 and 812479 were followed up by sediment sample 827524, which reported no significant tin values however the panned concentrate of gravel sample 823623 reported  $>1\%$  Sn at the same site. Sample 969418, 1.5 km upstream reported 10ppm Sn in minus 80 mesh, 20ppm Sn in minus 40 mesh and 2.11% Sn in a panned concentrate of a gravel sample at the same site. Rock chip sample 969480 of quartz, feldspar, muscovite, tourmaline pegmatite gave no significant values. This drainage system originated outside the western boundary of the EL. The geology was Quaternary and Tertiary alluvium and pediment on weathered granite and it was concluded that the weakly anomalous values reported were related to mildly concentrated cassiterite weathered from granite.

Sample 812480 was followed up by sediment samples 827502 and gravel sample 823602 which reported 32ppm Sn in minus 80 mesh, 11ppm in minus 40 mesh and 1.19% Sn, 371ppm Ta, 431ppm Nb in panned concentrate respectively. Further sediment samples 827504, 827505 and gravel samples 823603 and 823605 collected on branching tributaries 1.5km upstream reported no significant tin values. A further sample 969417 collected immediately below the junction reported 1100ppm Sn in panned concentrate. It was concluded that the weakly anomalous tin values were related to cassiterite being mildly concentrated in alluvium but derived from granite with tin values slightly elevated above background.

Sample 812481 was followed up by sediment sample 827503 and gravel sample 823601 which reported 95ppm Sn in minus 80 mesh, 184ppm Sn in minus 40 mesh and 0.349% Sn in panned concentrate. Sediment samples 827508, 969413 and gravel sample 823609, 969413 upstream reported no significant values in sediment but gave 0.44% Sn in panned concentrate of sample 969413. Similarly to previous samples these values were related to cassiterite weathered from granite and mildly concentrated.

Samples 812482 and 812484 were followed up by sediment samples

827516, 827517, 827521, 827522, gravel samples 823614, 823615, 823620, 823619 and sediment and gravel samples 969426, 969427, 969428, 969499. The only anomalous values were 1920ppm Sn and 3250ppm Sn in the panned concentrate of gravel samples 823620 and 969428. No further work was carried out.

Sample 812483 was followed up by sediment samples 827519, 827520 and gravel samples 823617, 823618. No significant values were reported in the sediment samples but Tetchem reported for gravel sample 823618, 516ppm Ta and 322ppm Nb. Matrix problems were encountered with the XRF tin assay (expected value +1% Sn) but the final result was not reported and the sample was presumed totally consumed. The situation of this drainage was similar to those previously investigated and sample 823618 was not repeated.

Sample 812487 was followed up by sediment samples 827515, 827518, gravel samples 823613, 823616 and sediment and gravel sample 969429. No anomalous tin values were reported.

Sample 812490 was followed up by sediment sample 827514 and gravel sample 823604. Only 1130ppm Sn was reported in the panned concentrate of sample 823604.

Sample 812491 was followed up by sediment samples 827510, 827512, 827513, gravel samples 823607, 823608, 823621 and sediment and gravel sample 969408, 969410, 969411 and 969412. The panned concentrate of gravel sample 823608 reported 3010ppm Sn and sample 823607, 947ppm Sn. Rock chip sample 969482 of quartz feldspar pegmatite reported less than 4ppm Sn. The headwaters of the drainage were in folded Adelaidean sediments unconformable on shales and metasediments of the Lower Proterozoic? Lander Rock Beds however tin values in follow up samples from this area were not sufficiently anomalous to warrant further investigation.

Samples 812505, 812506 and 812507 were located on branching

tributaries of Western Creek at the south western border of the EL. Follow up samples collected were sediment samples 827549, 827553, 827554 and gravel samples 823647, 823650 and 823651. No anomalous values were reported.

#### 4.2 Anomalous Gold values

Initial follow up samples (827 and 823 series) were assayed by Tetchem Laboratories for gold by AAS. Samples 827503, 504, 505, 508, 509, 510, 511, 512, 513, 515, 516, 517, 518, 519, 520, 521, 522, 523, 533, 536, 537 and 827553 reported anomalous gold values ranging from 0.29ppm Au to 2.15ppm Au in the minus 80 mesh fraction but not generally substantiated in the minus 40 mesh fraction. A panned concentrate of gravel sample 823623 reported 1.74ppm Au.

These samples were followed up by sediment and gravel samples in the 969 series and gold was determined by AMDEL by fire assay (20gm). No anomalous values were reported in any of the minus 80 mesh, minus 40 mesh fractions or the panned concentrates.

Analabs, the successor to Tetchem Laboratories informally advised that the 827, 823 series gold results were in error.

No further work was carried out.

W.J. FRASER and B.E. HARVEY

5. REFERENCES

Evans, T.G., 1972, NAPPERBY 1:250,000 Geological Series - Explanatory Notes. Bur. Miner. Resour. Geol Geophys

Stewart, A.J. et Al, 1975 REYNOLDS RANGE, DIVISION 1:100,000 Geological map sheets (Prelim. Ed,) Bur. Miner. Resour. Geol Geophys

6. KEYWORDS

gold, niobium, tantalum, tin, alluvium, gneiss-granite metaseds-undiff, Proterozoic-Lr, assays-geochem, geochem-drainage.

7. LOCALITY

Napperby SF/53-9

8. LIST OF PLANS

<u>Plan No</u>	<u>Title</u>	<u>Scale</u>
NTa 533	Sample Location Plan Geochemical Drainage	1:100,000
NTa 534	Geochemical Drainage Assay results - 80 mesh	1:100,000
NTa 535	Geochemical Drainage Assay results - 40 mesh	1:100,000
NTa 536	Assay results Panned concentrates of gravel samples	1:100,000



APPENDIX I

Geochemical Drainage Sediment and Gravel Sample Ledgers





# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL DRAINAGE SAMPLING LEDGER

D.P.O. No. 21616 (-80)

DATE 2-7-80

SHEET No. \_\_\_\_\_

SAMPLE Nos. 812480-484

COLLECTED BY DBP, WJE

ANALYSED BY ANDEL

PROJECT Arumta

E.L.R. NAVAL ACCION, 2500

MAP OR PHOTO REFERENCE Nagaby Run 2/0290

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																Scint.		Geological Observations		
		Sand	Silt	Clay	Organic	Fines	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn			U	Th	c.p.s.			
R/220 163-103 A3	812480	5	80	15	20	2	65	14	8	5	10	<10	3	10	(85)		2	0.05	75							46	210/200	pegmatitic qtz feldspar mica, qtz feldspar 140 qtz. Pyrox. minor ironstone?
R/220 163-102 A3	812481	10	50	40		2	25	4	12	5	5	<10	3	10	(50)		2	0.05	75							24	210/210	pegmatitic feldspar mica ortho. mica
R/220 163-100 A3	812482	5	90	5		10/15	5	22	12	10	15	<10	6	<10	12		5	0.05	260							8	125	granite sand, vein qtz
R/220 163-101 A3	812483	5	30	65		3	15	24	12	10	10	<10	3	<10	(28)		2	0.05	170							16	180/200	qtz, mica orthoclase feldspar - pegmatitic
R/220 163-102 A3	812484		8	2		15/20	15	10	6	5	10	<10	4	<10	16		1	0.05	85							16	150	granite sand, feg and quartz frag.

**C.R.A. EXPLORATION PTY. LIMITED**  
GEOCHEMICAL DRAINAGE SAMPLING LEDGER

D.P.O. No. 2616 (-80)

DATE 2-7-80

PROJECT ARXANTA

E.L.A. NAVAL ACTION, 2600

SAMPLE Nos. 812485-489

COLLECTED BY WJ, DBH

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE NAPPELAGY RUN 2/0290

ANALYSED BY AMDEL

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scinto. c.p.t.	Geological Observations
		Gravel	Sand	Silt/Clay	Organic	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	U	Th				
R2/280 1624346 A3	812485	30	60	10	10	5	10	14	6	5	5	410	5	410	14		2	4005	110				16	190/180	qtz, orthoclase, mica, pegmatite, +30% qtz, fsp, ironstone.	
R2/280 1624362 P2	812486	10	30	90		30	30	16	8	5	10	410	4	410	50		3	4005	120			14	150	qtz, tourmaline, biotite, base - med. carbonat, Vg, leucogranite, hem. silstone.		
R2/280 1624324 A3	812487		5	95		20	25	22	8	10	10	410	4	15	22		5	0.05	230			14	190/180	granite (plagioclase, feldspar, quartz), qtz, feldspar, gneiss.		
R2/280 1624330 A3	812488		18	2		10	5	16	6	5	5	410	3	410	12		3	0.05	170			6	140	granite sand, frag. leucogranite, leucogneiss, qtz & pegmatite.		
R2/280 1624338 A3	812489		30	20		30/40	30	12	2	5	5	410	<1	10	18		1	4005	80			24	200	granite sand, rare leucogranite, leucogneiss, angular Vg frag.		

PROJECT ARUNTA

E.L.A. NAVAL ACTION, 2500

MAP OR PHOTO REFERENCE NAPPERBY RUN 2/0290

**C.R.A. EXPLORATION PTY. LIMITED**

**GEOCHEMICAL DRAINAGE SAMPLING LEDGER**

SAMPLE No. 812990-992

D.P.O. No. 21616 (-80)

DATE 2-7-80

COLLECTED BY DBH, WJF

SHEET No. \_\_\_\_\_

ANALYSED BY AMDEL

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scint. c.p.s.	Geological Observations
		Gravel	Sand	Silt/Clay	Organic	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	U	Th				
R <sub>2</sub> /280 1624201 JA3	812990 -80 -60 -40 +40	10	80	10			1000	20	8	4	45	5	410	1	15	34		<1	0.05	60				20	160 180	qtzites, jaspillites coarse granitic, fine quartz, orthoclase feldspar pink red quartz (obtained)
R <sub>2</sub> /280 1624219 JA3	824991 -80 -60 -40 +40	10	88	2			10	10	18	10	5	10	410	2	410	16		1	4005	190				24	80 40	qtz, feldspar, fegmatite, granite, qtzite
R <sub>2</sub> /280 1624230 JA3	824992 -80 -60 -40 +40	20	10	10			10	10	14	6	5	5	410	4	410	14		1	4005	95				6	170	qtz, feldspar biotite gneiss v g, pegmatitic (orthoclase mica mica g)









# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL DRAINAGE SAMPLING LEDGER

D.P.O. No. 2616 (-80)

DATE 2-7-80

PROJECT ARUNTA

E.L. A 2500, NIVAL ACTION

SAMPLE Nos. 812502, 507, 511, 512

COLLECTED BY NIT, DBH

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE NAPPARBY Run 1/190, Run 1/192

ANALYSED BY ANDEL

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scrito.		Geological Observations
		Co-ord.	Size	Silt/Clud	Organic	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	U	Th	c.p.a				
R/190 1244110 A3	812502 -20 +10	20	50	30		20	10'	8'	6'	5'	25'	410'	2'	410'	16'			2'	0.05	60'			8'	150'	qtz, feldspar, gneissic frag		
R/190 1244218 A3	812507 -80 -60 +10	8	92	L1		10'	45'	14'	4'	5'	25'	410'	<1'	410'	14'			1'	0.005	75'			10'	160' 170'	granite sand angular qtz gneiss & granite frag.		
R/192 1244203 A3	812511 -80 -60 +10	30	70			30'	45'	28'	14'	5'	5'	410'	<1'	410'	10'			3'	0.05	220'			4'	160' 170'	granite sand -40' ducty dark brown qtz matrix & sp.		
R/192 1244288 A3	812512 -80 -60 +10	30	70			30'	5'	28'	10'	10'	5'	10'	1'	10'	16'			2'	0.10	270'			6'	150' 160'	granite sand, rare Vg float -40' qtz, sp.		

**C.R.A. EXPLORATION PTY. LIMITED**  
**GEOCHEMICAL DRAINAGE SAMPLING LEDGER**

D.P.O. No. 2616 (100)

DATE 2-7-80

PROJECT ARUNTA

E.L.A. 2500 NAVAR ACTION

SAMPLE No. 812513-517

COLLECTED BY D.H. WJF

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE NAPPALBY Run 1/196,

Run 1/192

ANALYSED BY AMDEL

A.M.G. Grid Co-ords	Sample Number	Section				Sample Flow Width	Metal Content, p.p.m.																Scavo. c.p.a.	Geological Observations	
		Core	Soil	Silt	Clay		Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	U	Th				
R/192 1674133	812513 A3	5	95	58	25	3	5'	20'	10'	10'	5'	10'	2	10'	10'	2	1005	250					4'	180/200	gty sand +90 gty, some Agor
R/196 1674133	812514 A3	25	75	300	200/300	25	18'	8'	10'	10'	10'	2	10'	6'	2	1005	180					4'	130	fine v gty & ferrug gty	
R/196 1674133	812515 A3	20	80	100	100	5	22'	14'	10'	10'	10'	2	10'	12'	2	1005	170					4'	150	Nil float	
R/196 1674133	812516 A3	20	80	100	100	10	24'	16'	10'	5'	10'	2	10'	10'	2	005	95					6'	125/130	NIL float +90 Dusty br gty sand	
R/196 1604180	812517 A3	2	95	20	20	10	30'	10'	5'	5'	10'	2	10'	10'	2	1005	180					4'	160/170	gty sand Agor	

**C.R.A. EXPLORATION PTY. LIMITED**  
**GEOCHEMICAL DRAINAGE SAMPLING LEDGER**

D.P.O. No. 21616 (80)

DATE 2-7-80

SHEET No. \_\_\_\_\_

PROJECT ARUNTA

E.L.A. 2500 NAVAL ACTION

SAMPLE Nos. 812518 - 521

COLLECTED BY DBH, WJF

ANALYSED BY AMDEL

MAP OR PHOTO REFERENCE MAPPERBY Run 1/196 R8/238

A M G Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																U	Th	Scavo. c.p.s	Geological Observations
		Type	Grain	Size	Color	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mn	W	Sn	As	Ag	Au	Mn							
R/196 16/1286 A3	812518	2	48			20	5'	26'	8'	10'	5'	<10	<1	<10	10		2'	0.005	210					6	160 180	qtz sand sized	
R/196 16/1428 A3	812519	20	80			40	10'	40'	16'	10'	10'	10'	<1	40	12		3'	0.005	220					6	125 130	No float sand is qtz, feldspar, ferrug qtz & clear qtz	
R/196 16/1419 A3	812520	25	15	2		10	10'	14'	14'	5'	5'	40	<1	40	14		1'	0.005	85				8	220 BANK 115/120 RIVER	qtz feldspar muscovite sand 40' qtz, feldspar, minor tourmaline, minor musc		
R/196 16/1427 A3	812521	5	80	15		140	15'	22'	14'	5'	5'	40	4	10	14		1'	0.005	120				12	230 250	qtz, orthoclase feldspar +90' qtz, feldspar		







**C.R.A. EXPLORATION PTY. LIMITED**  
GEOCHEMICAL DRAINAGE SAMPLING LEDGER

-80# -40#  
D.P.O. No. 21538, 39  
DATE 23-5-81

PROJECT Nawel Action

E.L. 2500

SAMPLE Nos. 827517 - 827521

COLLECTED BY W.S.F., B.E.H.

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE Napperby Run 2 Photos 0920, 0922

ANALYSED BY Tetchon

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scinto.			Geological Observations	
		Flow	Size	Subst.	Other	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn				U	Th	c.p.s.			
	827517	8	11	1	fb	21-30	24.5-0.5	4	16	5	8	6	13	2	10	<4	<1	1.8	70						7	11	160	mainly braided bed v.g. feld, tourmaline peg, musc., granite sand	
	-50				fb																								
	+40				fb			2	9	6	11	4	124	<1	5	7	<1	0.5	45						6	9			
	827518	<5%	10%	10%	rb	10	5m	12	16	7	9	9	12	<1	10	4	<1	0.5	200						8	45	160	Float: S.A.-S.R. Meta gtzite, Qtz-feld-musc - P-granite. No outcrop. Sheet flow regime.	
	-50				rb																								
	+40				rb			5	15	14	11	8	117	<1	8	4	<1	0.10	155						4	11			
	827519	<5%	10%	10%	rb	10	2m	11	15	5	8	7	8	1	9	6	<1	0.24	106						15	76	190	Float: S.A. Grit - Qtz, Feld, Meta seds, Black altered mica-bearing rock, Qtz Feld mica P-granite. No outcrop. Small.	
	-50				rb			15	10	8	14	3	43	<1			<1		100										
	+40				rb			35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	827520	5	95	<1	fb	3m	20.5	5	13	5	6	7	8	3	10	<4	<1	1.5	90						9	44	180	braided channels v.g. feld, granite peg, granite sand	
	-50				fb																								
	+40				fb			10	13	10	12	5	118	<1	9	7	<1	0.2	84						4	10			
	827521	<5%	10%	5%	rb	10m	10m	9	14	6	7	7	7	1	8	<4	<1	0.45	106						8	31	130	Float: S.A. Grit only - Calcite, Qtz Feld Musc Tourmaline P-granite. No outcrop.	
	-50				rb																								
	+40				b			3	12	7	9	6	84	<1	6	6	<1	BLD	60						4	7			





**C.R.A. EXPLORATION PTY. LIMITED**  
GEOCHEMICAL DRAINAGE SAMPLING LEDGER

PROJECT Nawal Action  
E.L. 2500

-80° -40°  
D.P.O. No. 21588, 39  
DATE 23-5-81

SAMPLE Nos. 827533 - 827537

COLLECTED BY B.E.H. W.S.F.

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE Vupperu Run 3 Photo 0050

ANALYSED BY Tetcher

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scinto. c.p.s.	Geological Observations	
		Gravel	S.S.	S.F.	Clay	Flocc	Width	Pb	Zn	Cu	Ni	Co	Cr	Mn	W	Sn	As	Ag	Au	Mn	U	Th					
✓ -60 +40	827533	5	43	2	rb	Md	3 x <sub>3</sub>	10	16	5	7	7	9	2	15	12		<1	0.35	77				11	89	140	Float: SA-SR. Qtz Feld Tour. Pegm, Dolomite Meta-arkose/shale, haematitic shale, Qtz haematite rock
					rb			6	20	11	12	7	122	1	12	6		<1	BLD	99				5	14		Outcrop: Micaceous meta-shale subcrop Schistosity trend 090° Dip 60° N
					b																						
✓ -60 +40	827534	50	50	-	rb	Md	5 x <sub>2</sub>	8	16	5	9	6	8	3	14	4		<1	TR	52				9	71	160	Float: SA-SR. Fissile meta-shale, Qtzitic meta-sed, Haematitic siltstone, Qtz
					b			4	19	11	15	9	55	2	6	5		<1	BLD	85				4	10		Outcrop: see 827533
					rb																						
✓ -60 +40	827535	15	80	5	M	M	5.8 x <sub>1</sub>	6	15	5	7	9	10	3	11	4		<1	IS	74				6	21	170	poly mineral gr - sandy creek float gnl calcrete, v.g. hem. ss, graphite silt/shale meta-arkose, dolomite
					M			5	23	53	16	6	91	1	10	<4		<1	BLD	81				4	11		
					M																						
✓ -60 +40	827536	12	85	8	M	M	5.8 x <sub>0.5</sub>	8	17	6	8	7	11	1	10	8		<1	0.75	104				7	33	160	braided sandy creek float v.g. meta-arkose coarse grts, hem sandy mic silt
					M			27	55	21	11	5	137	4	11	6		<1	0.15	93				4	5		
					M																						
✓ -60 +40	827537	20	80	-	rb	Md	5 x <sub>2</sub>	9	9	6	9	7	10	3	16	9		<1	1.00	69				14	148	170	Float: Micaceous meta-shale, Haematitic siltstone, Qtzitic meta-sed, Qtz
					rb			8	17	16	19	8	65	1	6	6		<1	0.21	75				5	14		No outcrop
					b																						



C.R.A. EXPLORATION PTY. LIMITED

GEOCHEMICAL DRAINAGE SAMPLING LEDGER

GRAVEL SAMPLES

SAMPLE Nos. 823601-609

D.P.O. No. 21547

DATE 27-5-81

COLLECTED BY BH WJF

SHEET No. 1

PROJECT *Asquith Inc.*

E.L. 2500 *MAPAL ACTION*

MAP OR PHOTO REFERENCE

*Mapaly Run 2*

Photo 0920

*Pas. Concentrates*

ANALYSED BY TETCHEAL

A.M.G. Grid	Sample Co-ords	Sample Number	Sediment				Sample		Metal Content, p.p.m.																		Scint. c.p.s	Geological Observations
			T	S	S <sub>2</sub>	S <sub>3</sub>	Flo.	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th			
<i>Geo. 10</i>		827503	823601	5	45	4		Mid	10							36	3940			0.07		75	103				200	Poor trap site: Dry loam type sample Fine to coarse gravel - A. gtz field musc tourmaline granite, gtz; S.A. meta sediment.
		827502	823602	5	73	2		Mid	2							132	191%			0.10		371	431					Poor trap site: Dry loam type sample Fine to coarse gravel A. gtz field musc tourmaline granite; S.A. gtz field
		827504	823605	-	40	60		-	300						11	239			BLD		<4	11				200	brood pool dry ditch no del channels of sand & muscovite banded to 2cm & por. job	
		827514	823604	50	45	5		-	30-700 K1						34	1130			0.10		18	70				230	very large banded away mod. poor gtz transverse, gtz has mud wester channel gtz granite phlog. mud compacted	
		827506	823605	-	40	90		-	200						16	127			BLD		<4	10				210	brood ditch no channels at end	
		827513	823607	-	98	2		Mid	3						17	947			0.05		26	41				140	Poor trap site: Dry loam type sample Grit, gtz, Feld	
		827510	823608	5	73	2		Mid	2						45	3010			BLD		99	114				130	Poor trap site, Dry loam type sample Fine to coarse gravel, Qtzitic st-grit, P-granite, Meta-sed	
		827508	823607	5	43	2		Mid	20						75	312			BLD		38	135				250	Poor site, Dry loam type sample fine to coarse gravel. Qtz field Muscovite-granite Ultr. gtz, Meta-sed, Calcite Mass - hrd	

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL DRAINAGE SAMPLING LEDGER

*GRAVEL SAMPLES*

SAMPLE Nos. *823610 - 618*

D.P.O. No. 21647

DATE 27-5-81

SHEET No 2

PROJECT *Myrtle, N.C.*

E.L. *Naval Station U.2600*

COLLECTED BY *WJF, BH*

MAP OR PHOTO REFERENCE *Myrtle Run 2*

Plate *0920, 0922* Pan Concentrates

ANALYSED BY *TETCHEM*

A.M.G. Grid	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scimo.	Geological Observations
		Gravel	Sand	Silt	Clay	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th		
<i>827507</i>	<i>823610</i>	<i>70</i>	<i>50</i>	<i>&lt;1</i>		<i>12-14</i>	<i>10.5</i>								<i>13</i>	<i>45</i>			<i>0.10</i>		<i>4</i>	<i>24</i>			<i>176</i>	<i>poor site gravel bar gravel flaps silted. calcareous after? dolomite, flint, iron silted mic. ser., graphite silted - stab.</i>
<i>827511</i>	<i>823612</i>	<i>10</i>	<i>82</i>	<i>3</i>		<i>14</i>	<i>10.5</i>								<i>17</i>	<i>134</i>			<i>TR</i>		<i>&lt;4</i>	<i>42</i>			<i>160</i>	<i>poor-mod site granite bar, v. fine gravel + coarse sand beneath meta - a base of gneiss breccia. close to granite / released contact</i>
<i>827515</i>	<i>823613</i>	<i>89</i>	<i>11</i>		<i>10</i>	<i>10</i>	<i>10</i>								<i>12</i>	<i>159</i>			<i>TR</i>		<i>6</i>	<i>14</i>			<i>130</i>	<i>v. poor trap site. Dry loam type sample. Grit - Qtz, Feld, Muscovite.</i>
<i>827516</i>	<i>823614</i>	<i>50</i>	<i>68</i>	<i>2</i>		<i>5-8</i>	<i>10.5</i>								<i>7</i>	<i>92</i>			<i>TR</i>		<i>&lt;4</i>	<i>16</i>			<i>210</i>	<i>poor site coarse gr. sand / gravel bar v.g. pegmatite. All highly angular.</i>
<i>827517</i>	<i>823615</i>	<i>10</i>	<i>&lt;1</i>		<i>10</i>	<i>10</i>	<i>10.5</i>								<i>11</i>	<i>138</i>			<i>0.08</i>		<i>&lt;4</i>	<i>28</i>			<i>160</i>	<i>poor site med-fine gravel bar all angular v.g. silted. Some pegmatite / conglomerate.</i>
<i>827518</i>	<i>823616</i>	<i>90</i>	<i>10</i>		<i>5</i>	<i>5</i>	<i>10</i>								<i>9</i>	<i>23</i>			<i>BLD</i>		<i>&lt;4</i>	<i>14</i>			<i>160</i>	<i>v. poor site. Dry loam type sample. Flood out - silt. S.A. Grit. Meta - quartzite, + P-granite.</i>
<i>827519</i>	<i>823617</i>	<i>90</i>	<i>10</i>		<i>2</i>	<i>2</i>	<i>10</i>								<i>13</i>	<i>161</i>			<i>BLD</i>		<i>9</i>	<i>15</i>			<i>190</i>	<i>v. poor site. Dry loam type sample. Flood out - silt. S.A. Grit. Meta seds. P-granite, Blue altered micaeous rock.</i>
<i>827520</i>	<i>823618</i>	<i>30</i>	<i>70</i>	<i>&lt;1</i>		<i>3</i>	<i>10.5</i>												<i>BLD</i>		<i>516</i>	<i>322</i>			<i>180</i>	<i>poor site v.g. f. blue granite peg all angular. gravel bar nil conglomerate.</i>

PROJECT Aranta Rec  
 E.L. 2500 Naime Action  
 MAP OR PHOTO REFERENCE Napsby Run 2

**C.R.A. EXPLORATION PTY. LIMITED**  
**GEOCHEMICAL DRAINAGE SAMPLING LEDGER**

D.P.O. No. 21547  
 DATE 27-5-81

SAMPLE No. 823619-623  
*Gravel samples*

COLLECTED BY WTF, BH  
 ANALYSED BY TETCHEM

SHEET No. 3

A.M.G. Grid	Sample Number	Sediment				Sample		Metal Content, p.p.m.																			Sctno.	Geological Observations
		T	S	S <sub>1</sub>	S <sub>2</sub>	Flow	Wt%	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th	c.p.i.			
823522	823619	2	98	-		MA	20							17	145				TR		9	29			150	Poor trap site. Dry gravel-bar sample Fine to Med. grit/gravel; Qtz. Fidd. trace. Peg. Qtz. Fidd. trace. P-granite.		
823521	823615	-	100	-		MA	10						15	1920					TR		27	29			130	U. poor trap site. Dry loam type sample Grit, Colocle, Qtz. Fidd. trace. P-granite.		
823512	823621	5	92	2		MA	2						11	509				0.08		10	41			150	Poor trap site. Dry loam type sample Fine to coarse gravel. Meth. pumice and shales.			
823523	823622	5	15	4			30-50 20-30						11	1340				0.10		32	26			130	Med-poor pit. Shales & peg. bar SW bank Stanniferous, coarse-grained v.g. gr. loam peg. shales.			
823524	823623	3	96	1			0-20											1.74		1400	1180			150	Med-poor pit. Stanniferous granite bar orig. of loam - am. v.g. peg. gr. loam. shales.			

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL DRAINAGE SAMPLING LEDGER

D.P.O. No. \_\_\_\_\_

DATE 27-5-81

PROJECT Boonla Dam

E.L. 2120 Naval Station

SAMPLE Nos. 823631 - 823635

COLLECTED BY RH/WJF

SHEET No. 1

MAP OR PHOTO REFERENCE NADDERBY Run 3 0050

PAN CONCENTRATIONS ANALYSED BY TECHEM

A.M.S. Grid	Sample No.	Sediment				Metal Content, p.p.m.																	Scinto.	Geological Observations		
		Gravel	Sand	Silt	Clay	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th			c.p.s.	
827534	823631	50	50	-	-								10	28			IS		44	17					160	Poor trap site, poorly packed gravel bar, Meta shale, Qtzite meta-sed. Haematite siltstone, Qtz.
827533	823632	5	93	2	-								44	1340			TR		104	179					140	Poor trap site, poorly packed gravel trap in main channel shale, Peg. <sup>+</sup> , Dolomite, Qtz haematite rock.
827555	823633	10	37	2	-								16	199			BLD		17	38					170	poor site, loamed g. sh. calcareous nodules, v.g. per. ser. graphite siltstone/shale meta-arkose, dolomite
827556	823634	50	46	4	-								21	362			BLD		12	30					160	poor site, loamed v.g. meta-arkose, coarse grite km ss + mic. silted argill. 5cm deep on clay
827557	823635	20	80	-	-								18	119			TR		11	29					170	Poor site, poorly packed gravel bar. Dry loam sample. Mica meta-shale. Qtzite meta-sed., Qtz. Haematite shale

C.R.A. EXPLORATION PTY. LIMITED

GEOCHEMICAL DRAINAGE SAMPLING LEDGER

GRAVEL SAMPLES

SAMPLE Nos. 823657, 823650, 823651

D.P.O. No. 21547

DATE 27-5-81

SHEET No. 5

PROJECT Agona  
E.L. 200 River Bend

MAP OR PHOTO REFERENCE NAPPEBY

Run 1 0/88 Pan Concentrates

COLLECTED BY NJL, BKH

ANALYSED BY TETCHER

A.M.G. Grid	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Geo. c.p.s.	Geological Observations
		C	S	S&A	Org	Flow	Wt	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th		
<u>Cochin</u>	<u>827547</u>	<u>823651</u>	<u>20</u>	<u>80</u>	<u>4</u>	<u>30-40</u>	<u>71</u>							<u>8</u>	<u>16</u>				<u>BLD</u>	<u>6</u>	<u>14</u>				<u>155</u>	<u>Very porous loaned gravel of fld. silic. shales, musc., some leucogranite leucogranite o/c adjacent gravel.</u>
	<u>827555</u>	<u>823650</u>	<u>5</u>	<u>90</u>	<u>5</u>	<u>5</u>	<u>7</u>							<u>13</u>	<u>67</u>				<u>BLD</u>	<u>&lt;4</u>	<u>14</u>				<u>150</u>	<u>Poor site, Base of spinifer bush in gravel bar. Qtz, Feld, Qtz, Feld mica granitoid, some tourmaline.</u>
	<u>827564</u>	<u>823651</u>	<u>-</u>	<u>75</u>	<u>5</u>	<u>30</u>	<u>21</u>							<u>30</u>	<u>104</u>				<u>BLD</u>	<u>9</u>	<u>17</u>				<u>140</u>	<u>Poor site base of spinifer down on channel. Tourmaline, Qtz, Feld, mica, Perm. granitoid.</u>





# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL DRAINAGE SAMPLING LEDGER

21596 / 21653  
 D.P.O. No. 21597  
 DATE 17-7-81 / 21-7-81

PROJECT IRONED REC

E.L. NANAN ARDEN 2920

SAMPLE Nos. 969411 - 969413

COLLECTED BY B.E.H. W.S.F.

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE Map 292 Run 2 Photo 292

ANALYSED BY AMDEL

A.M.G. Grid Co-ords	Sample Number	Sediment				Sample		Metal Content, p.p.m.																	Scint. c.p.s	Geological Observations		
		0	50	100	150	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th				
R1/212	969411	10	50	10	14	98	12											0.01								140	pegmatite, calc drusy coarse rocks float f.g. coarse quartzite, siliceous quartzite, hematite, horn mic. schists	
	-10						14											<0.1										
	+10																											
	C	66	50	10			980											<0.05		90	130						poor site located gravel bar	
R1/212	969412	5	40	5	11	10	20											0.14								130	Flint: Qtz, Feld, etc. (= hematite)	
	-10																											
	-40						28											<0.1									Mat. trap site - Velocity drop zone on ponded area	
	+10																											
R2/212	969413	20	70	10	14	10	12											<0.05										
	-10						14											0.02		10	30						240	bragade creek, discontinuous in swale float angular f.g., quartzite, pegmatite gms, mig schists, horn mic. sch. of hematite, etc.
	-40																											
	+10																											
	C	50	40	10			0.44											0.02		350	800						poor site located gravel bar well cemented	

char

**C.R.A. EXPLORATION PTY. LIMITED**  
GEOCHEMICAL DRAINAGE SAMPLING LEDGER

21596 / 21653  
D.P.O. No. 21597  
DATE 17-7-81 / 21-7-81

PROJECT ARUNTA REC.

E.L. UNIK ACTION 2500

SAMPLE Nos. 969417 969418

COLLECTED BY B.E.H. W.J.F.

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE Nappery, Run 2, Photo 292

ANALYSED BY AMDEL

A.M.G. Grid Co-ords.	Sample Number	Sediment				Sample		Metal Content, p.p.m.																Scavo. c.p.s	Geological Observations		
		C	S	SH/SL	OR	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U			Th	
R2/292	969417	2	10	3		W	10									18			0.04							300	o/c leuco granite & peg. Flood granite sand and v.g.
	-90															14			<0.1								
	140																										
	G	35	10	5												1100			0.03		35	65					poorly formed clay gravel on granite shell.
R2/292	969418	10	70	20		M	20									10			0.02						150	Float: SA-SR. O/c Feld granite, O/c Feld Musc Taur Peg. r.	
	-90															20			<0.1								Good top site, loosely compacted gravel bar behind rock bar in well defined channel. (O/c Granite)
	140																										
	G	10	20	0												2.11			<0.05		420	300					

**C.R.A. EXPLORATION PTY. LIMITED**  
GEOCHEMICAL DRAINAGE SAMPLING LEDGER

21596 / 21653  
D.P.O. No. 21597  
DATE 17-7-81 / 21-7-81

PROJECT MARLBOROUGH REC.

E.L. MARLBOROUGH 2550

SAMPLE Nos. 989426

COLLECTED BY BEH. W.J.F.

SHEET No. \_\_\_\_\_

MAP OR PHOTO REFERENCE Nappery Run 2 Photo 292

ANALYSED BY AMDEL

A.M.G. Grid Coordinates	Sample Number	Soil			Flow	Width	Metal Content, p.p.m.																			Scinto.	Geological Observations
		Depth	Moisture	Organic			Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th	c.p.s.			

R2/292	989426	2	40	2	LV	10																			6										140	nearby gravel, ceph. granite and veg & soil	
	-50																									12											
	140																																				
	6		10	2																						24											1 part site here - where gravel formed

**C.R.A. EXPLORATION PTY. LIMITED**  
GEOCHEMICAL DRAINAGE SAMPLING LEDGER

21596 / 21653  
D.P.O. No. 21597  
DATE 17-7-81 / 21-7-81

PROJECT ARUNDA BCK.  
E.L. KANPAK ACHAM 2500  
MAP OR PHOTO REFERENCE Happoby Run 2 Photo 292

SAMPLE Nos. 969427 - 969429

COLLECTED BY B.F.H. W.J.F.  
ANALYSED BY AMDEL

SHEET No. \_\_\_\_\_

A.M.G. Grid	Sample Co-ords.	Scamlet				Sample		Metal Content, p.p.m.																	Scavo. c.p.s.	Geological Observations		
		1	2	3	4	Flow	Width	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta	Nb	U	Th				
R2/292	40/27	41	27	3		40	10									16			0.04								135	Meandering sandy creek, flood leucogranite, qtz, feld, musc. poor mod site, dug into scour holes & highly weathered granite bar
	-60															16			<0.1									
	140															46			<0.05		40	34						
	G	40	60	1												26			0.05							170	Flood SA-S2 Qtz, feld, Qtz feld musc granite. Poor trap site	
R2/292	40/28	5	28	10		40	50									22			<0.1									loosely compacted gravel swell in mod channel
	-40															0.325/			0.02		310	120						
	140															16			0.01							160	discontinuous channel on broad swell granite sand	
R2/292	40/29	20	20			40	2									14			<0.1									v. poor site loamed / dug into well cemented coarse sand
	-40																											
	140															140			0.02		<10	22						

**C.R.A. EXPLORATION PTY. LIMITED**  
**GEOCHEMICAL ROCK CHIP SAMPLING LEDGER**

D.P.O. No. 21594  
 DATE 17-7-81

PROJECT PCWID REC  
 E.L. NPVX AR104 2500  
 MAP OR PHOTO REFERENCE Nappety Run 3 Photo 052 Run 2 Photo 292

gr - grab  
 co - composite  
 ch - channel

SAMPLE Nos. 969480, 969499, 969482

COLLECTED BY BEL WJE  
 ANALYSED BY AMDEL

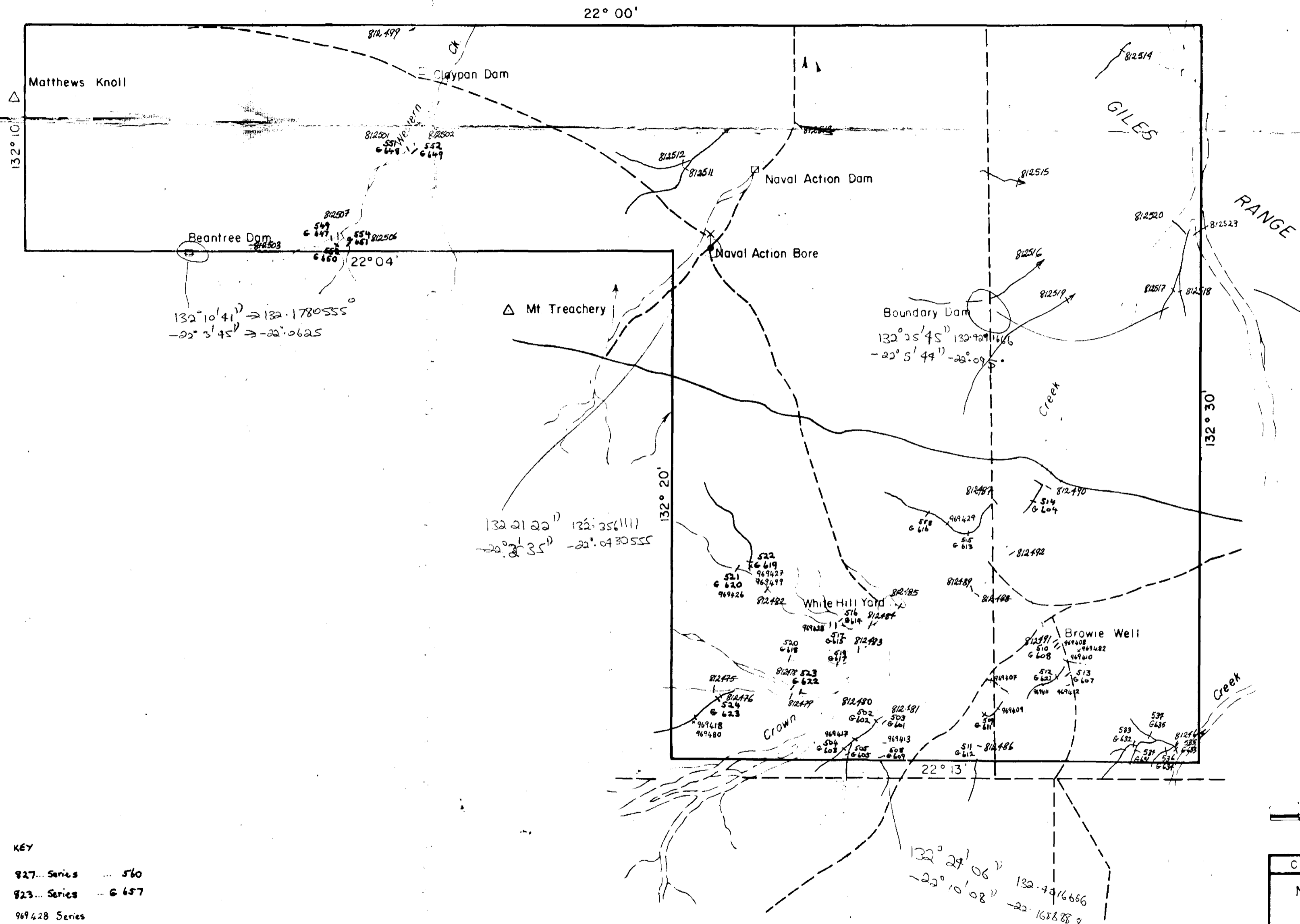
SHEET No. ....

Grid	Sample	Metal Content, p.p.m.																Scint.	Geological Observations
		Co-ordinates	Number	Pb	Zn	Cu	Ni	Co	Cr	Mo	W	Sn	As	Ag	Au	Mn	Ta		

R2/292	969480	6	5	20	10	<5	<5	<10		25	24		<0.05	<10	24		<4	4	230	Old Feld Musc Tour Peas
--------	--------	---	---	----	----	----	----	-----	--	----	----	--	-------	-----	----	--	----	---	-----	-------------------------

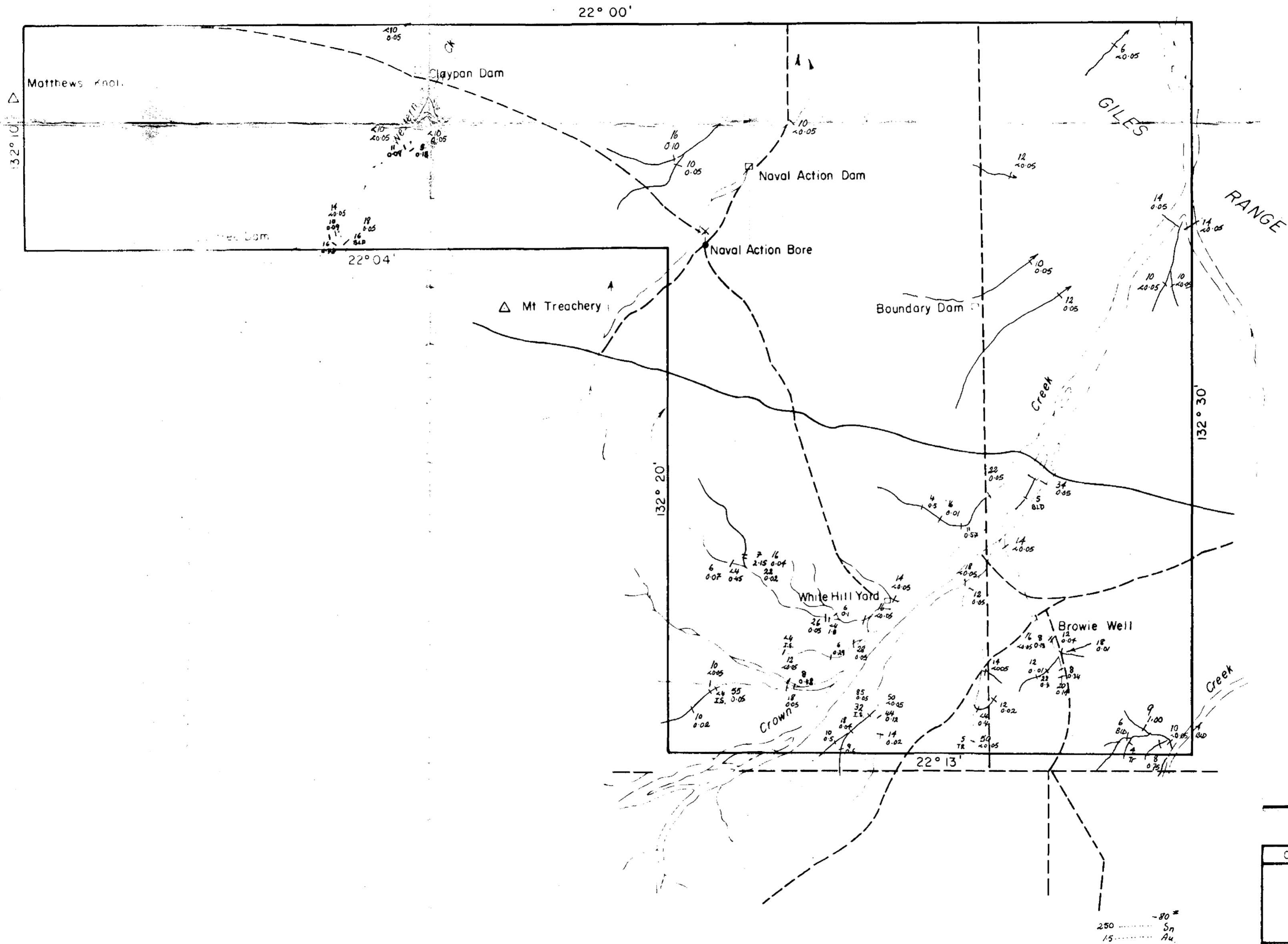
R2/292	969499	6	5	16	8	<5	5	<10		15	<4		0.05	<10	10		<4	36	200	Old Feld Peas - v. poor subcomp in silt bank with gravel waste
--------	--------	---	---	----	---	----	---	-----	--	----	----	--	------	-----	----	--	----	----	-----	--

R2/052	969481	6	5	16	8	5	5	<10		<10	4		0.10	<10	10		<4	18	?	Ferruginous granite grit gravel, old cemented log deposited exposed in stream bed
--------	--------	---	---	----	---	---	---	-----	--	-----	---	--	------	-----	----	--	----	----	---	---



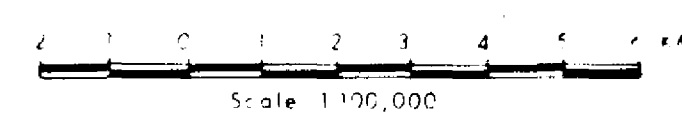
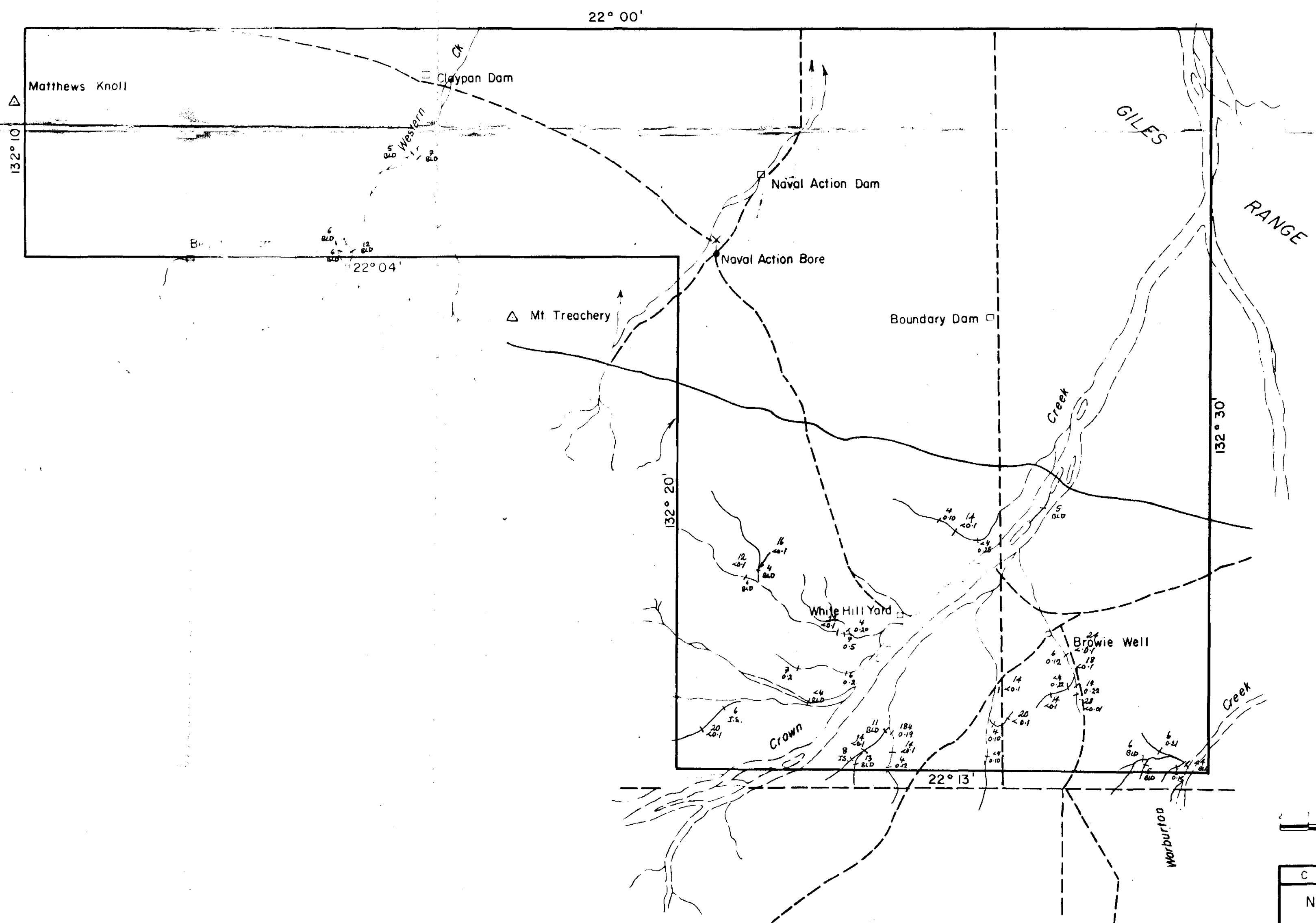
KEY  
 927... Series ... 560  
 923... Series ... 6657  
 969428 Series

C R A EXPLORATION PTY LIMITED		
NAVAL ACTION I ELA 2500		
GEOCHEMICAL DRAINAGE		
SAMPLE LOCATION PLAN		
Reference SF 53-9		
Geologist WJF	Scale 1:100,000	Report No. 11041
Drawn	Date JAN 1982	File No. 533



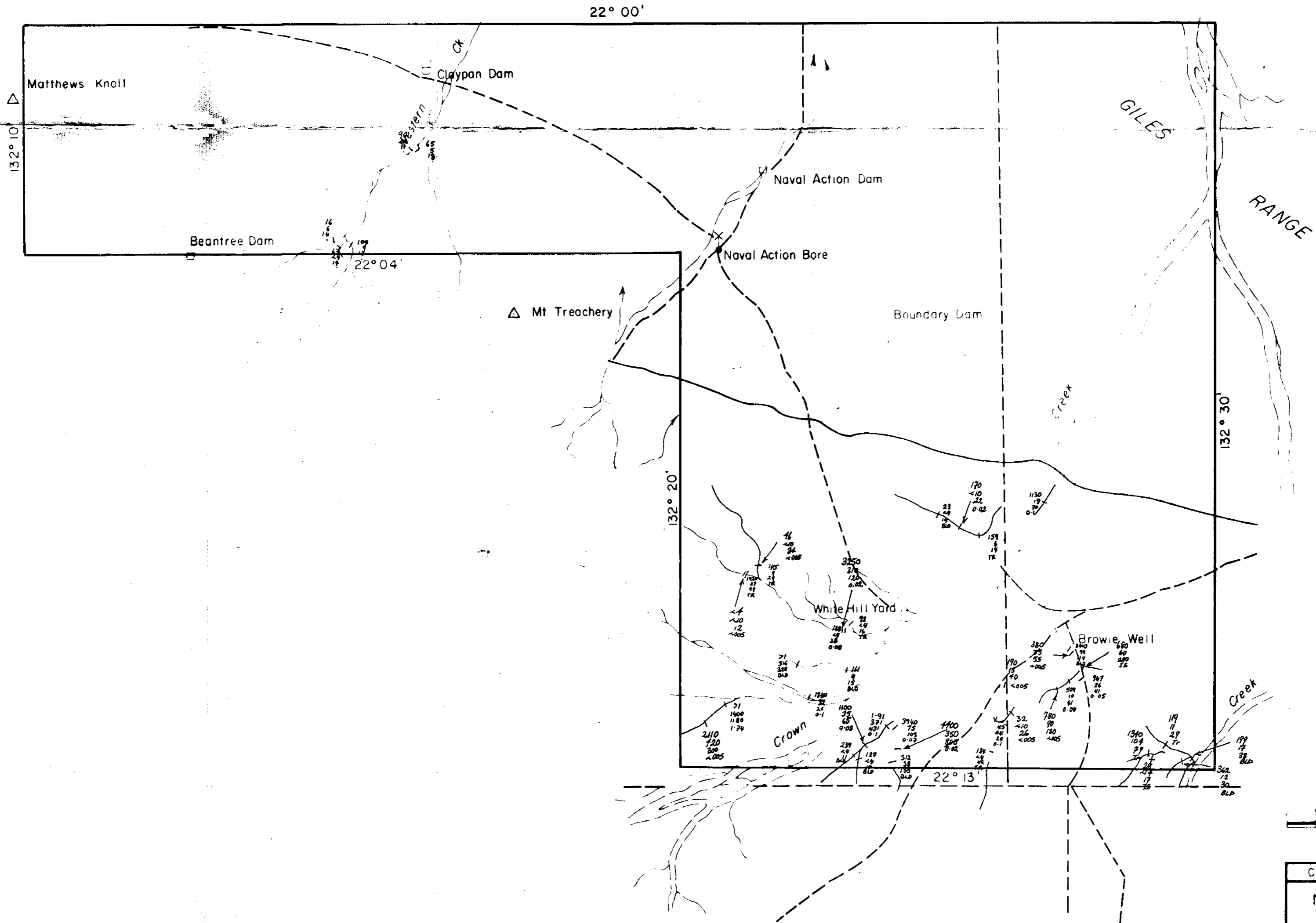
C R A EXPLORATION PTY LIMITED		
NAVAL ACTION I ELA 2500		
GEOCHEMICAL ASSAY RESULTS		
-80# Sn, Au.		
Reference	SF 53 9	
Geologist	WJF	Scale 1:100 000
Drawn	Date JAN 1982	Report No 11041
		Plan No 1534



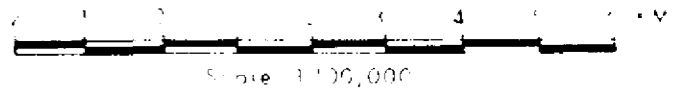


C R A EXPLORATION PTY LIMITED		
NAVAL ACTION I ELA 2500		
GEOCHEMICAL ASSAY RESULTS		
-40 Sn, Au.		
Reference SF 53-9		
Geologist WJF	Scale 1:100,000	Report No 11041
Drawn	Date JAN 1982	Plan No NT 535

-40 Sn  
 80 Au



Pan Conc.  
S<sub>n</sub>  
T<sub>a</sub>  
N<sub>4</sub>  
A<sub>4</sub>



C R A EXPLORATION PTY LIMITED		
NAVAL ACTION I ELA 2500		
ASSAY RESULTS OF PANNED CONCENTRATES OF GRAVEL SAMPLES		
Reference	SF 53 9	
Geologist	WJF	Scale 1:100,000
Drawn	Gate JAN 1982	Report No. 11041
		Page No. 536