ASARCO AUSTRALIA LIMITED

(incorporated in Western Australia)

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By Courier

5 February, 1990.

Mining Registrar
Department of Mines and Energy
Government Centre
Windley Street
TENNANT CREEK NT 0861

Dear Sir,

Attached please find a copy of the following Annual report:

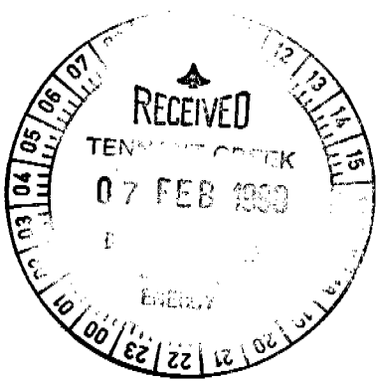
Tennant Creek Project, Black Rock Prospect

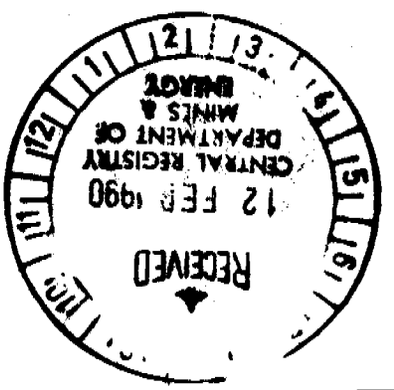
Covering Mineral Claims C414 to 419, 421 to 422, 510 to 513.

Yours faithfully,

A. Peterson

Encs.





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ASARCO AUSTRALIA LTD.

TENNANT CREEK PROJECT

Black Rock Prospect

Mineral Claims C414-419, 421-422, 510-513

1989 Annual Report to
N.T. Department of Mines and Energy

by
A. Peterson
January, 1990

Contents

1. Introduction

This report summarizes the work to date on 12 mineral claims (MCC 414 to 419, 421 to 422, 510 to 513) collectively known as the Black Rock tenements. The claims, which were granted between March and May, 1988, are held by TopEnd Resources NL, but operated by Asarco Australia Ltd. under the terms of a joint venture agreement dated May 23, 1988.

.../2.

2. Location and Access

The Black Rock tenements are located approximately 18 kilometres north east of the Tennant Creek township. The area is easily accessible by way of a well graded track which runs from the Peko bypass road past the relay station and through the tenement block.

3. 1988 Exploration

Reconnaissance over the area showed there was limited exposure but that the Quaternary cover concealed a sequence of massive sandstones and siltstone of the Carraman Formation. The limited exposure indicated a series of low amplitude (<10 metres) folds plunging west at 10 to 30 degrees. Two small (3 to 5 metres long) jasper-hematite bodies crop out north west of the Black Rock workings, one of which has been tested by drilling (results unknown). There is a large amount of quartz and sandstone float and nearly all the area was suitable for lag sampling which was carried out at 200 x 25 metre spacing. A total of 222 samples were collected and analysed for gold (to ppb levels), copper and bismuth. Results were uniformly low except for two single sample anomalies with no correspondingly high bismuth or copper values. One of these (number 408388; 199 ppb gold) was taken from near the road, suggesting probable contamination.

The Black Rock prospect was included in an area flown by Aerodata for magnetics and radiometrics; line spacing was 200 metres and flight height 60 metres. Results from this survey have been processed and interpreted by Aerodata. Two magnetic dipole anomalies (designated A6 and A7) were located within the Black Rock block and several prominent lineaments, spatially associated with historic workings nearby, pass through the area.

.../4.

4. 1989 Exploration

4.1 Geophysics

12.6 line kilometres of ground magnetic survey at 200 x 25 metre spacing was completed during August. The survey gave the same total tenement coverage as the 1989 lag sampling but failed to locate aeromagnetic anomalies A6 and A7.

4.2 RAB drilling

Sixteen holes, RAB 86 to RAB 101, totalling 518 metres (average depth 32.4 metres) were drilled between October 15 and 17. Drill hole locations are shown on Plan 4952.

Holes 86 to 89 were drilled at 50 metres spacing on line 3 800 E to test a spot anomaly of 199 ppb gold located next to a track by the 1988 lag sampling survey. Holes of 19 to 42 metres penetrated one to two metres of aeolian sands at surface and oxidized siltstone/wacke containing 2 to 10% disseminated hematite and rare vein quartz.

Drill holes 90 to 91 tested for alteration and geochemically anomalous zonation surrounding Aerial Magnetic target A6. Although the wide spaced ground magnetic survey failed to locate this strong magnetic dipole with high uranium and thorium counts, a field inspection revealed a 10 metre diameter specular hematite outcrop at approximately 2 565 N, 3 525 E and a smaller outcrop at approximately 2 630 N, 3 525 E. The larger outcrop has been drilled by others at -60 degrees south but the few chips remaining at surface are lacking massive hematite. RAB 90 located at 2 600 N, 3 600 E intersected oxidized siltstone with a chloritic zone between 12 and 30 metres. RAB 91 intersected oxidized wacke with a chloritic zone between 18 and 26 metres.

Grid lines 5 200 E and 5 150 E drilled between 1 900 N and 2 100 N tested a lag sampling spot high of 49 ppb gold located near the expected position of aerial geophysical anomaly A7. A ground magnetic survey failed to locate this target and the RAB drilling over a low rise penetrated no ironstones. Several sets of 30 centimetre thick quartz veins cropping out at surface may be the source of the low level gold.

Assay results from the RAB drilling were disappointing with a maximum gold value of 0.04 ppm and a maximum bismuth value of 5 ppm. Four samples from the drilling on traverse 3 800 E gave copper values of 20 to 64 ppm, i.e. weakly elevated over the regional background values. Log forms showing assay values are included in Appendix 1.

4.3 Reverse Circulation Drilling

A single reverse circulation drill hole (TRC 33) of 51 metre depth was drilled on October 28 (Plan 4952).

.../5.

The hole tested aerial magnetic anomaly A6 which is expressed at surface by outcropping ironstone at approximately 2 565 N, 3 525 E. The hematite body within siltstones has been drilled by others at -60 degrees to 180 degrees but the few chips remaining at surface lack massive hematite. Hole TRC 33 was collared 10 metres south of the outcrop at 60 degrees depression towards an azimuth of 360 degrees and intersected both massive and stringer specular hematite between 10 and 20 metres indicating a southerly dip component to the target body.

Results were unencouraging with maximum values of 0.04 ppm gold, 41 ppm copper, 4 ppm bismuth.

Assay values are shown fully on the geological log for this hole.

.../6.

5. Conclusions

The 1989 exploration programme drill tested the geochemical and geophysical targets located on this tenement block but all holes failed to intersect significant mineralization.

No reasonable drill targets remain untested on these tenements and further work is not warranted.

A. Peterson

RAB GEOLOGICAL & SAMPLE LOG

GRID: BLACK ROCK

LOGGED: AP

DATE: 16/10/89

PAGE 1 OF 1

HOLE NO.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH	SAMPLE NO. 414 398		INTVAL	Au	As	Cu	Bi	
RAB 89	1550N 3800E	0 - 2	orange aeolian sands										
		2 - 3	AA + Fest stained transported overburden										
		3 - 16	ox purple slst/wcke, 01% lim as block fracture coating	slst/wcke	19	414	399	16 - 19m	'02		24	4	
		16 - 19	ox purple slst/wcke, 5% lim on fractures and as 1mm chips, 5% silicified "jasperoidal" chips										
RAB 90	2600N 3600E	0 - 2	sandy overburden with sed and vn qz pebble float										
		2 - 12	ox banded purple brown / cream clayey slst/wcke										
		12 - 30	ox pale green chloritic slst/wcke, friable			414	400	12 - 20m	'02		3	3	
			very rare 2mm vein qz, very rare yellow brown limonite			414	401	20 - 30m	"		6	2	
		30 - 34	purple gray oxidised friable slst (& weak infiltration)	slst	53	414	402	30 - 40m	"		2	4	
RAB 91	2575N 3575E	0 - 2	sandy overburden with sed and vn qz pebble float										
		2 - 18	ox purple brown slst.										
		18 - 26	ox pale green chloritic slst/wcke, soft + brittle chip in powdery sample ^ rare 2mm vn qz			414	403	18 - 26m	'02		4	3	
		26 - 30	ox purple wcke	wcke	83	414	404	26 - 30m	'04		3	3	

08/1987

AB GEOLOGICAL & SAMPLE LOG

GRID: BLACK ROCK

LOGGED: AP

DATE: 17/10/89

HOLE NO.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH	SAMPLE NO. 414	SAMPLE NO. 405	INTVAL	Au	As	Cu	Bi	
RAB 92	2100N 5200E	0 - 2	orange brown sands, iron stained sed and qz float										
		2 - 5	bleached white clay. cmp, qz + sed pebbles	clay									
		5 - 21	ox brown slst/mdst, yellow tim on fractu surfaces chips brittle/soft										
		21 - 24	purple brown ochre, minor qz vns to 1.5cm	ochre	24	414	405	20-24m	<.02		8	3	
RAB 93	2050N 5200E	0 - 2	orange brown sands, iron stained sed and qz float										
		2 - 4	bleached white clay cmp										
		4 - 30	ox brown soft/brittle slst										
		30 - 36	ox purple brown slst	slst	60	414	406	30-36m	.04		3	3	
RAB 94	2000N 5200E	0 - 2	orange brown sands, iron stained sed + qz float										
		2 - 14	pale brown powdery sample + rare friable ox slst.										
		14 - 30	ox brown soft/brittle slst										
		30 - 36	ox brown slst/ochre, brittle	slst/ochre	96	414	407	30-36m	.02		4	4	

AB GEOLOGICAL & SAMPLE LOG

GRID: BLACK ROCK

OGED: AP

DATE: 17/10/89

DLE O.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH	SAMPLE NO.		INTVAL	Au	As	Cu	Bi	
					96	414	407						
AB 5	1950 mN 5200E	0-2	orange sand + iron stained sed float										
RAB 95		2-4	white indurated cap + clays										
		4-20	ox pale brown soft/brittle slst chips in powdery sample										
		20-34	ox gn/brown soft/brittle slst										
		34-36	ox purple grey brittle slst	slst	132	414	408	30-36m	<·02		5	3	
6	1900N 5200E	0-2	pale brown overburden, sed + qz float										
RAB 96		2-8	ox purple brown slst										
		8-24	AA + rare .1cm vn qz										
		24-30	ox chocolate brown brittle slst	slst	162	414	409	20-30m	<·02		8	4	
6 7	2100N 5150E	0-2	orange brown sandy overburden, sed and qz float										
RAB 97		2-5	cream clays, minor white indurated slst										
		5-25	ox purple brown soft/brittle slst										
		25-30	ox purple brown brittle slst	slst	192	414	410	28-30m	<·02		5	3	

AB GEOLOGICAL & SAMPLE LOG

GRID: BLACK ROCK

GGED: AP

DATE: 17/10/89

OLE O.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH	SAMPLE NO.		INTVAL	Au	As	Cu	Bi	
					197	414	410						
AB 8	2050N 5150E	0-1	orange sandy overburden, sed and qz float										
		1-4	ox purple slst + 50% white clay										
		4-10	ox purple brown friable slst										
		10-26	AA chocolate brown										
		26-30	ox purple brown brittle slst	slst	222	414	411	26-30	·02		21	4	
AB 9 RAB 99	2000N 5150E	0-1	orange sandy overburden, sed and qz float										
		1-6	ox orange slst + 40% cream coloured clay										
		6-10	ox purple brown friable slst.										
		10-30	ox chocolate brown soft/brittle slst										
		30-36	ox purple brown brittle slst	slst	258	414	412	30-36	<·02		4	5	
AB 10 RAB 100	1950N 5150E	0-3	white powdery sample + bleached slst chips										
		3-10	pale green powdery sample, rare friable slst? chips										
		10-18	purple-brown friable slst										
		18-20	AA + minor vn qz			414	413	4-10m	<·02		6	5	
		20-26	purple brown friable slst										
		26-30	purple brown brittle slst	slst	291	414	414	30-38m	<·02		5	4	

GEOLOGICAL & SAMPLE LOG

GRID: BLACK ROCK

LOGGED: AP

DATE: 17/10/89

HOLE NO.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH 69'	SAMPLE NO. 414	SAMPLE NO. 415	INTVAL	Au	As	Cu	Bi	
RAB 01	1900N 5150E	0-1	pale brown overburden + qz float										
RAB 01		1-10	ox green brown friable slst in powdery sample										
		10-30	ox brown friable slst in powdery sample										
		30-33	ox brittle purple/brown slst	slst	324	414	415	30-33	6.02		12	4	

B GEOLOGICAL & SAMPLE LOG — GRID: BEACH ROCK

GGED: AP — DATE: 15/10/89 — PAGE 3 OF 4

DLE O.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH	SAMPLE NO.		INTVAL	Au	As	Cu	Bi	
						393	394						
186 RAB 86	1700N 3800E	0-2	orange brown aeolian sands										
		2-4	mixed ox wacke, slst, lim, qz — transported overburden										
		4-7	ox grey-purple friable slst/wacke chips										
		7-9	AA + minor vngz to 4cm + 01% black lim on vn qz										
		9-26	ox grey brittle slst/wacke, 02 to 10% (variable) lim as lmm chips+fracture coating > rare: 2mm vn qz										
		26-34	AA + 03m yellow bands ox chips in bands										
		34-38	AA + minor vn qz										
		38-42	OF grey slst	slst	175	414	395	34-42m	4·02		62	4	
87 RAB 87	1650N 3800E	0-1	orange brown aeolian sands										
		1-3	AA + coarse pebble size transported overburden										
		3-26	purple; pale grey; brown bands of ox slst. variably limonitic ~2-5% as lmm chips and fracture coating			414	396	16-26m	4·02		20	2	
		26-42	ox purple brown wacke <1% lim	slst	217	414	397	34-42m	4·02		8	4	

GEOLOGICAL & SAMPLE LOG

GRID: BLACK ROCK

LOGGED: AP

DATE: 15/10/89
4
16/10/89

PAGE 4 OF 4

HOLE NO.	CO-ORDINATES	FROM TO	GEOLOGICAL DESCRIPTION	PLOTTING SUMMARY	ACC. TOTAL DEPTH	SAMPLE NO.		INTVAL	Au	As	Cu	Bi	
86 8	1600N 3800E	0-3	orange brown aeolian sands		217	414	397						
		3-16	banded ox purple/pale grey wclst										
		16-23	pale grey powdery sample no chips										
		23-24	ox purple slst, 10% Fest, 10% vn qz		244								
		24-27	Highly sil purple siltstone, 5% Fest in white powdery sample	slst		414	398	23-27m	4·02		28	5	

08/1987

ASARCO AUSTRALIA LTD.

RC. DRILLHOLE RECORD

HOLE NO : TRC - 33

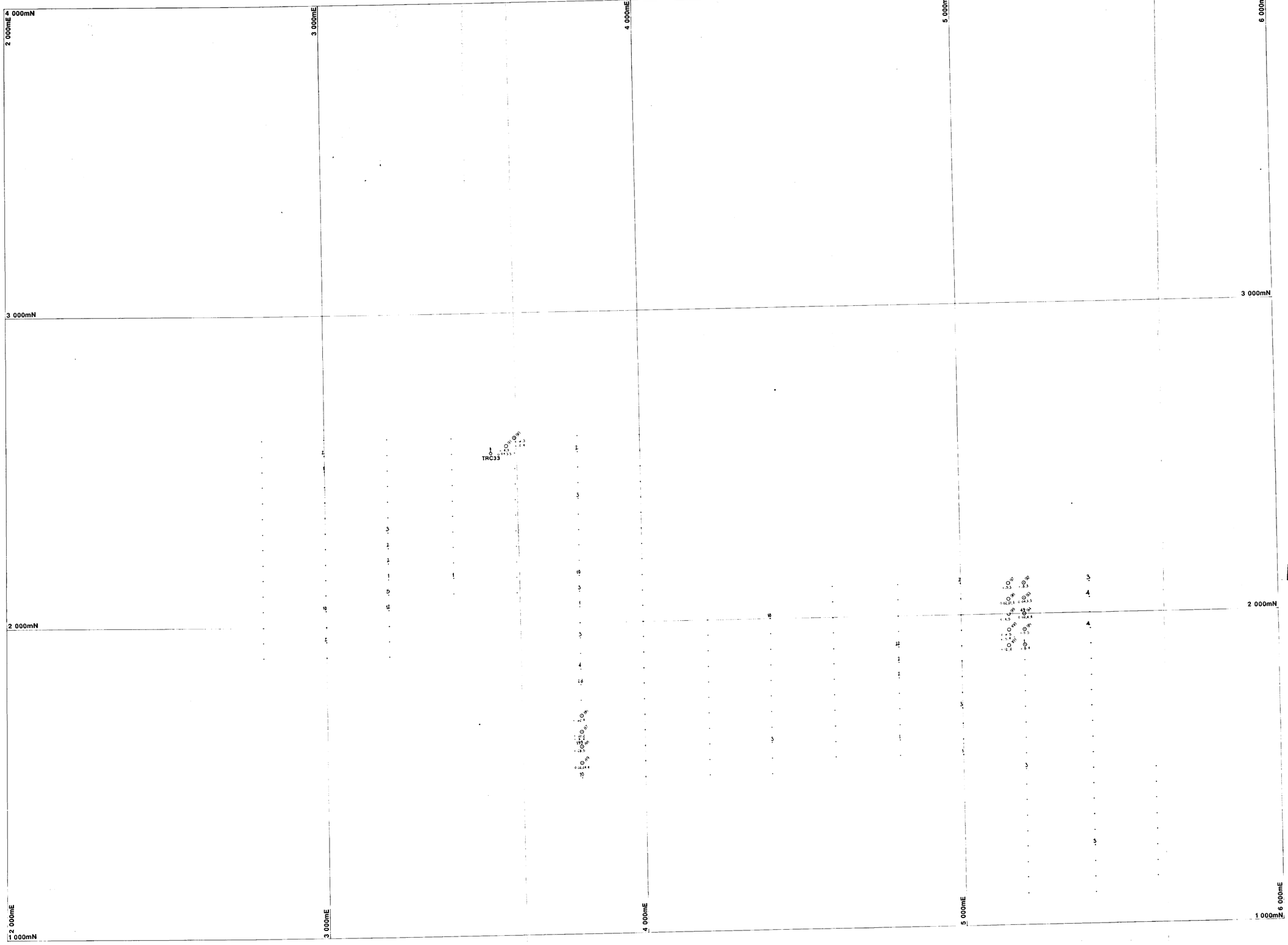
PROJECT : TENNANT CREEK J.V./OPTION : TOP END J.V. ~~ELEVATION~~ : NORTHING : 2555N

TENEMENT: BLACK ROCK ANGLE/AZIM. : -60° / 360° EASTING : 3526E

LOGGED BY : A.P. DATE : 28/10/89 DEPTH : 51m

A WE/OX/FR (1-2)	B Grain (3)	B Texture (5)	D Alteration Si (11)	F Inferred Rock (15-17)	G % Limonite/Sulphide (18-20)	H Vein (21-23)	I Sample / Ch Color (25-26)	J Sample Depth From–To (27-31)	K Sample Nº (32-37)	L Au ppm	M Cu	N Bi	O Mag. Suscept.	Comments
O x	F			SLT			Pu	00–02	414695	<·02	6	4	0·56	+ Hent
O x	F		M	SLT			ob	02–04	96	"	20	3	0·34	+ Hent
O x	F		M	SLT			06	04–06	97	·02	9	1	0·32	50% bleached whi sit chips
O x	F		m	SLT			06	06–08	98	<·02	3	1	0·38	"
O x	F			SLT	10H		C6	08–10	99	"	41	1	1·45	
O x	F			HEM	100		b1	10–12	00	·02	17	<	5·23	specular Hematite
O x	F			H/S	80H	MBQ	66	12–14	701	<·02	24	1	1·36	80:20 Hem;slst + [illegible]
O x	F			SLT	30H	R4Q	C6	14–16	02	"	26	4	0·87	
O x	F			HEM	100		b1	16–18	03	"	5	<	2·62	
D x	F	6		SCT	30H		Re	18–20	04	"	8	2	0.51	
O x	F	6		SCT	20H		Re	20–22	705	"	4	<	0·78	
O x	F			SLT				22–24	06	"	4	<	0·49	
O x	F			SLT				24–26	07	·04	5	<	0·47	
O x	F			SLT				26–28	08	<·02	7	<	0·40	
D x	F			SLT	05H		Re	28–30	09	"	2	<	0·26	Powdery sample
O x	F			SLT				30–32	10	"	2	1	0·20	
O x	F			SCT	0		06	32–34	11	·02	3	1	0·34	
O x	F			SLT				34–36	12	·04	2	<	0·32	
O x	F			SLT				36–38	13	·02	3	2	0·22	
O x	F			SLT				38–40	14	<·02	3	1	0·15	
O x	F			SLT	02H		06	40–42	715	"	1	<	0·25	
O x	F			SLT	02H		06	42–44	16	"	2	1	0·30	
O x	F			SLT	02H		06	44–46	17	"	7	<	0·32	
O x	F			SLT				46–48	18	"	3	<	0·31	
O x	F			SLT				48–50	19	"	2	1	0·26	
O x	F			SCT	02H		06	50–51	20	·02	1	1	0·31	

should have hit vertical [illegible] body at 20m to 40m intersection hit 10-20 ∴ dips S.



CR90/412

Lag Sample

Au,Bi,Cu
Rab Sample

RC Sample

0 50 100 200 300 400m
SCALE

ASARCO AUSTRALIA LTD

TENNANT CREEK

BLACK ROCK

Drill Hole Location

LAG SAMPLING

Au Results ppb

Compiled:		Plan No.
Drawn:		4952
Checked		
Scale: 1:5 000	Date: 1988	