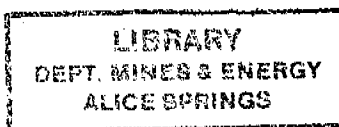


12 June 1991



NOTE TO : FILE

FROM : GEOFF WOAD, *BHA-Utah Minerals International, June 1991*

SOUTHERN GEORGINA BASIN BORE HOLE SAMPLING

Introduction

The 1988 N.T.G.S. explanatory notes for the Elkedra 1:250,000 sheet contains information in Appendix 3 about stratigraphic diamond drill holes cored into the southern part of the Georgina Basin (Fig. 1) in 1986. The sediments intersected are largely Cambrian in age with minor Devonian and Mesozoic units. They consist of conglomerates, sandstones, siltstones, mudstones, calcareous clastic sediments, limestones and evaporites. The drill logs indicate carbonaceous units, silicification and brecciation. The mineral occurrences logged include pyrite, galena, sphalerite, chalcopryite, fluorite and hydrocarbons. The core had never been sampled and analysed for either precious or base metals.

Regional Structure

From Stidolph *et al* (1988), the Early Proterozoic basement (Hatches Creek Group) forms a series of large synclines and anticlines which have a dominantly northwest trend. These folds were refolded about northeasterly axes to produce complex arcuate domes and basins. Numerous large and small faults, some marked by quartz veins, displace the Hatches Creek Group. Several major faults trend northwest across the middle of Elkedra. The dip of the faults is unknown but nearly all have a northeast side down displacement with variable strike slip. Several are associated with prominent arcuate spur faults which curve to the north and northeast. These faults are part of a suite of northwest-trending faults and monoclines which have similar characteristics. The age of this faulting is not known, but those faults that displace the Hatches Creek Group are believed to have formed during the late stages of deformation of the Hatches Creek Group. Some of the faults must also have been reactivated much later, initially in the Early Cambrian when regional tectonism and volcanism occurred. The faults were again activated during the Alice Springs Orogeny at about 300 - 400 Ma (Fig. 2).

Mineralisation Potential and Geochemistry

The occurrence of carbonaceous calcareous clastic sediments with fluorite, fine pyrite and hydrocarbons associated with large reactivated basement

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faults suggests the possibility for Carlin style gold mineralisation (even though there is an absence of acid volcanics or intrusives into the sequence). On this basis the diamond core was sampled by compositing quarter-core over 5 or 10 m and analysing for Au, Pd, Cu, Pb, Zn, Ni, As and Ag. The raw geochemical data are shown in Appendix 1 and the graphic drill logs are shown in Appendix 2. Univariate statistics were performed on the geochemical data and the results are summarised in Table 1.

TABLE 1
UNIVARIATE STATISTICS SUMMARY OF GEOCHEMISTRY

ELEMENT	DETECTION LIMIT (ppm)	95th PERCENTILE (ppm)	99th PERCENTILE (ppm)	HIGHEST VALUE (ppm)	THRESHOLD FROM CUM FREQ PLOT (ppm)
Au	0.01	0.01	0.03	0.04	0.02
PD	0.01	0.01	0.01	0.01	-
Cu	2	27	63	170	70
Pb	5	32	49	214	40
Zn	2	66	296	335	75
As	2	10	31	53	12
Ag	1	1	1	1	-
Ni	5	28	64	133	30

Discussion of the Geochemistry

Carlin style mineralisation is characterised by an association of micron to submicron sized Au with As, Sb, Hg, Tl, Ba, F and in places W, Mo and Sn, but is deficient in base metals (Berger and Bagby, 1991). It was decided that Au and As would be the most appropriate to analyse for Carlin style mineralisation along with Zn, Pb, Cu, Ag, Pd and Ni to test for base metal potential.

In the core analysed only 10 samples out of 228 reported gold values above the detection limit of 10 ppb. The highest of these was 10 m at 40 ppb Au. Only two of the anomalous gold values were also associated with weakly anomalous arsenic values. The weakly anomalous gold is variably associated with calcareous clastic units, dololutites, carbonaceous clastic sediments, calcilutites, some evaporites and traces of pyrite. The majority of the elevated base metals are broadly associated with the carbonaceous calcareous clastic sediments, with Zn and Pb up to 335 ppm and 214 ppm respectively. Some elevated values of Ni were associated with

elevated Zn and Pb values, but also occurred (up to 133 ppm) away from high base metals.

The occurrence of anomalous Cu (170 ppm) occurred in clastic and carbonaceous units within an unnamed late Proterozoic unit rather than in the Cambrian sequence.

No anomalous Pd or Ag was observed.

Conclusion

The weakly anomalous gold and base metals are considered too low to justify any further work within the general vicinity of these bore holes at present.

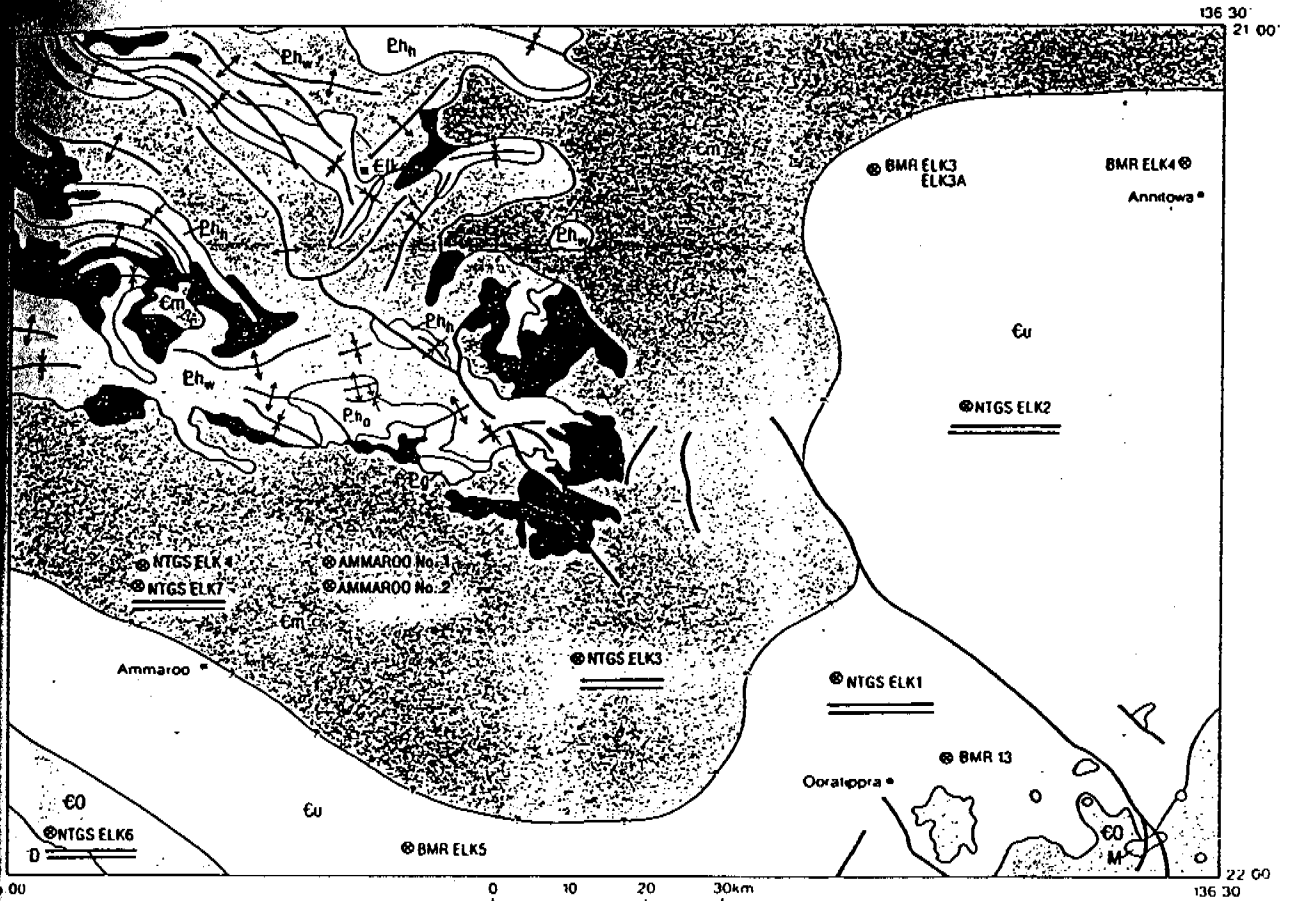
References

- Berger, B.R., and Bagby, W.C., 1991: The geology and origin of Carlin-type gold deposits. In Gold Metallogeny and Exploration, ed. Foster, R.P., Blackie, Glasgow, pp 210 - 248.
- Stidolph, P.A., Bagas, L., Donnellan, N., Walley, A.M., Morris, D.G., and Simons, B., 1988: Elkedra, N.T., 1:250,000 Geological Series. Northern Territory Geological Survey, Explanatory Notes, S.F. 53-7.

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PRE-CAINOZOIC SOLID GEOLOGY

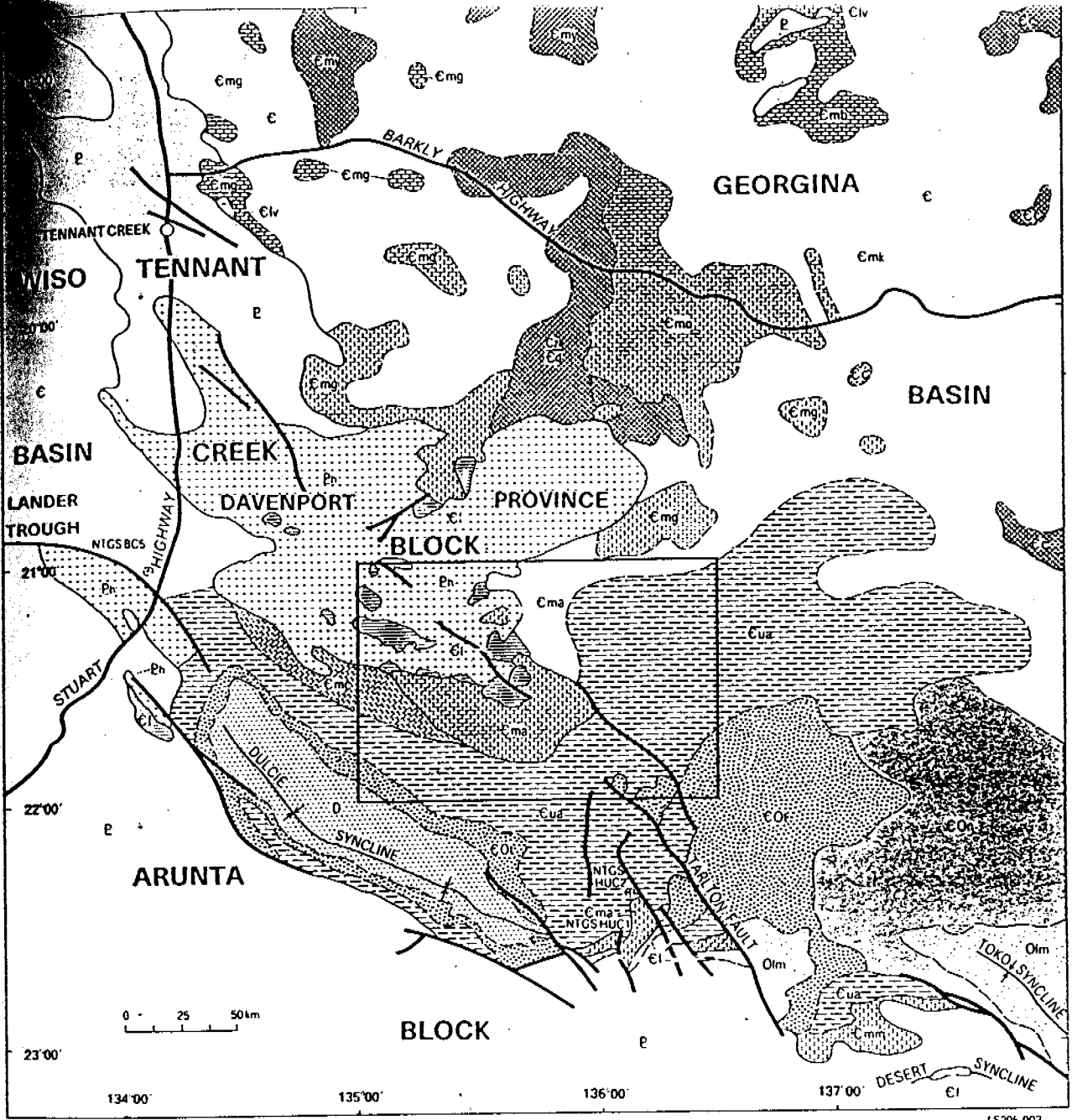


- Geological boundary
- ↕ Anticline
- ⊕ Syncline
- Fault
- ⊙ Stratigraphic drill hole

M	Mesozoic?
GEORGINA BASIN SEQUENCE	
D	Devonian
CO	Cambro-Ordovician
Cu	Middle to Late Cambrian
Cm	Middle Cambrian
Ca	Early Cambrian

TENNANT CREEK BLOCK	
Eg	Granite
Phh	Hanton Subgroup
Phw	Wauchope Subgroup
Pho	Ooradidgee Subgroup

Figure 1. Borehole location plan, Elkedra 1:250000 Sheet notes.



AS205-003

DEVONIAN		Dulcie Sandstone	LOWER CAMBRIAN		Helen Springs Volcanics; Peaker Piker Volcanics
ORDOVICIAN		Kelly Creek Fm., Coolibah Fm., Nora Fm., Carlo Sst, Mithaka Fm., Ethabuka Sst.			Donkey Creek beds, Andagera Fm., Mount Balaurn Fm., Errarra Fm., Adam Shale, Red Heart Dolomite.
CAMBRO-ORDOVICIAN		Tomahawk beds	CAMBRIAN		Camooweal Dolomite
		Ninmaroo Formation			Undifferentiated dolostone (Czk-Camooveal calcrite cover)
UPPER CAMBRIAN		Arrinthunga Formation (includes Meeta beds)			Undifferentiated
		Anthony Lagoon beds	PROTEROZOIC		Hatches Creek Group
		Chabalowe Formation			Undifferentiated
		Burton beds			Cainozoic cover omitted
MIDDLE CAMBRIAN		Ranken Limestone			Fault
		Arthur Creek Formation			Syncline
		Hay River Formation and Marqua Formation			Geological boundary, approximate
		Gum Ridge Formation			stratigraphic drillhole

Figure 2. Regional geology map, From Elkedra 1:250,000 NTGS notes.

APPENDIX 1

Geochemistry for Bore Holes
ELK1, 2, 3, 6, 7, 7A

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1451	3.80	9.00	18	37	24	1	5	20	<u>0.03</u>		0.01
DD1452	9.00	14.00	15	33	13	1	3	20	0.01		0.01
DD1453	14.00	19.00	34	30	20	1	5	20	0.01		0.01
DD1454	19.00	24.00	19	23	18	1	5	11	0.01		0.01
DD1455	24.00	29.10	7	5	10	1	2	6	0.01		0.01
DD1456	29.10	34.80	8	5	9	1	3	5	0.01		0.01
DD1457	34.80	39.80	14	5	13	1	4	10	<u>0.04</u>		0.01
DD1458	39.80	45.10	20	9	9	1	2	10	0.01		0.01
DD1459	45.10	55.31	25	5	12	1	4	11	0.01		0.01
DD1460	55.31	65.15	17	9	9	1	2	6	0.01		0.01
DD1461	65.15	75.25	11	7	6	1	2	5	0.01		0.01
DD1462	75.25	85.15	10	8	5	1	2	5	0.01		0.01
DD1463	85.15	95.65	7	5	7	1	2	5	0.01		0.01
DD1464	95.65	105.50	5	5	6	1	2	5	0.01		0.01
DD1465	105.50	115.45	9	8	7	1	4	5	0.01		0.01
DD1466	115.45	125.10	10	5	7	1	2	5	0.01		0.01
DD1467	125.10	135.52	6	5	5	1	4	5	0.01		0.01
DD1468	135.52	150.00	5	5	5	1	2	5	0.01		0.01

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
D1469	1.80	6.40	22	10	21	1	4	12	0.01		0.01
D1470	6.40	11.10	26	9	14	1	2	21	0.01		0.01
D1471	11.10	15.60	18	5	7	1	2	18	0.01		0.01
D1472	15.60	20.60	4	5	4	1	2	6	0.01		0.01
D1473	20.60	25.30	5	5	5	1	2	6	0.01		0.01
D1474	25.30	30.05	9	5	9	1	2	9	0.01		0.01
D1475	30.05	35.10	4	5	6	1	2	6	0.01		0.01
D1476	35.10	40.10	8	5	10	1	2	8	0.01		0.01
D1477	40.10	45.60	8	5	5	1	2	8	0.01		0.01
D1478	45.60	49.00	8	5	4	1	2	8	0.01		0.01
D1479	49.00	59.50	7	5	5	1	2	7	0.01		0.01
D1480	59.50	69.50	7	5	4	1	2	8	0.01		0.01
D1481	69.50	80.00	11	5	4	1	2	8	0.01		0.01
D1482	80.00	90.00	9	5	4	1	2	6	0.01		0.01
D1483	90.00	100.00	9	5	18	1	2	6	0.01		0.01
D1484	100.00	110.00	10	5	4	1	2	6	0.01		0.01
D1485	110.00	119.48	19	5	6	1	2	12	0.01		0.01
D1486	119.48	129.00	14	5	5	1	2	8	0.01		0.01
D1487	129.00	139.00	11	7	5	1	2	6	0.01		0.01
D1488	139.00	149.78	15	5	15	1	3	8	0.01		0.01
D1489	149.78	159.55	16	5	25	1	2	11	0.01		0.01
D1490	159.55	169.00	10	5	10	1	4	7	0.01		0.01
D1491	169.00	178.50	8	5	9	1	3	6	0.01		0.01
D1492	178.50	188.72	7	5	10	1	4	6	0.02		0.01
D1493	188.72	199.00	7	5	8	1	2	6	0.01		0.01
D1494	199.00	208.43	10	7	9	1	2	7	0.01		0.01
D1495	208.43	218.05	8	5	6	1	2	6	0.01		0.01
D1496	218.05	228.10	5	5	6	1	3	5	0.01		0.01
D1497	228.10	238.20	7	5	6	1	3	5	0.01		0.01
D1498	238.20	248.50	5	5	5	1	2	5	0.01		0.01
D1499	248.50	258.40	7	7	6	1	3	5	0.01		0.01
D1500	258.40	268.45	3	5	5	1	2	5	0.01		0.01
D1501	268.45	279.00	4	5	5	1	5	5	0.01		0.01
D1502	279.00	289.00	3	5	5	1	5	5	0.01		0.01
D1503	289.00	299.34	3	5	5	1	2	5	0.01		0.01
D1504	299.34	309.50	3	6	6	1	3	6	0.01		0.01
D1505	309.50	319.25	2	5	4	1	5	5	0.01		0.01
D1506	319.25	329.30	2	5	4	1	2	5	0.01		0.01
D1507	329.30	340.00	3	5	4	1	2	5	0.01		0.01
D1508	340.00	350.55	4	5	4	1	2	5	0.01		0.01
D1509	350.55	360.35	2	5	3	1	2	5	0.01		0.01
D1510	360.35	370.50	6	7	5	1	5	5	0.01		0.01
D1511	370.50	380.00	18	8	5	1	4	5	0.01		0.01
D1512	380.00	390.03	25	5	6	1	2	6	0.01		0.01
D1513	390.03	400.35	16	12	6	1	2	6	0.01		0.01
D1514	400.35	410.15	7	8	7	1	2	7	0.01		0.01
D1515	410.15	419.70	8	7	8	1	3	8	0.01		0.01
D1516	419.70	430.00	7	10	7	1	4	8	0.01		0.01
D1517	430.00	440.34	10	16	8	1	2	9	0.01		0.01
D1518	440.34	449.80	9	16	7	1	4	13	0.01		0.01
D1519	449.80	460.30	6	17	7	1	2	8	0.01		0.01
D1520	460.30	470.35	4	14	6	1	6	6	0.01		0.01

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1521	470.35	480.30	3	18	5	1	6	6	0.01		0.01
DD1522	480.30	490.35	39	6	5	1	5	5	0.01		0.01
DD1523	490.35	500.15	72	53	5	1	4	6	0.01		0.01
DD1524	500.15	510.00	39	20	5	1	3	6	0.01		0.01
DD1525	510.00	514.90	302	18	6	1	7	8	0.01		0.01

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1526	.00	5.42	8	32	7	1	5	7	0.01		0.01
DD1527	5.42	10.60	15	15	8	1	7	10	0.01		0.01
DD1528	10.60	15.97	27	15	10	1	6	15	0.01		0.01
DD1529	15.97	21.10	19	15	11	1	4	13	0.01		0.01
DD1530	21.10	26.15	21	16	12	1	9	16	0.01		0.01
DD1531	26.15	31.27	14	15	13	1	3	9	0.01		0.01
DD1532	31.27	36.10	9	13	7	1	2	14	0.01		0.01
DD1533	36.10	41.00	11	8	11	1	2	11	0.01		0.01
DD1534	41.00	51.00	11	6	7	1	2	7	0.01		0.01
DD1535	51.00	61.30	60	14	22	1	5	27	0.01		0.01
DD1536	61.30	71.28	11	8	26	1	7	29	0.01		0.01
DD1537	71.28	81.05	9	6	26	1	5	30	0.01		0.01
DD1538	81.05	91.50	<u>102</u>	5	22	1	6	<u>24</u>	0.01		0.01
DD1539	91.50	101.48	<u>240</u>	8	54	1	<u>17</u>	<u>51</u>	<u>0.02</u>		0.01
DD1540	101.48	111.45	<u>282</u>	11	67	1	<u>17</u>	<u>69</u>	0.01		0.01
DD1541	111.45	121.25	<u>204</u>	10	34	1	5	<u>36</u>	<u>0.02</u>		0.01
DD1542	121.25	131.00	8	8	5	1	2	7	0.01		0.01
DD1543	131.00	141.45	4	6	4	1	2	5	0.01		0.01
DD1544	141.45	151.00	6	12	12	1	4	9	0.01		0.01
DD1545	151.00	160.91	13	6	8	1	2	9	0.01		0.01
DD1546	160.91	170.60	10	6	3	1	2	11	0.01		0.01
DD1547	170.60	180.45	15	8	5	1	2	15	0.01		0.01
DD1548	180.45	190.30	12	8	4	1	2	12	0.01		0.01
DD1549	190.30	200.41	16	12	3	1	3	16	0.01		0.01
DD1550	200.41	210.19	13	13	3	1	3	13	0.01		0.01
DD1551	210.19	220.50	30	18	5	1	<u>13</u>	8	<u>0.04</u>	<u>0.04</u>	
DD1552	220.50	230.80	16	10	5	1	2	8	0.01		
DD1553	230.80	239.95	10	10	3	1	2	10	0.01	0.01	
DD1554	239.95	250.09	16	19	4	1	3	17	0.01		
DD1555	250.09	260.61	22	12	3	1	3	26	0.01		
DD1556	260.61	270.40	32	16	4	1	6	31	0.01		
DD1557	270.40	280.53	39	12	3	1	4	29	0.01		
DD1558	280.53	291.00	45	32	<u>170</u>	1	<u>17</u>	27	0.01		

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	P ppm
DD1526	.00	5.42	8	32	7	1	5	7	0.01		0.0
DD1527	5.42	10.60	15	15	8	1	7	10	0.01		0.0
DD1528	10.60	15.97	27	15	10	1	6	15	0.01		0.0
DD1529	15.97	21.10	19	15	11	1	4	13	0.01		0.0
DD1530	21.10	26.15	21	16	12	1	9	16	0.01		0.0
DD1531	26.15	31.27	14	15	13	1	3	9	0.01		0.0
DD1532	31.27	36.10	9	13	7	1	2	14	0.01		0.0
DD1533	36.10	41.00	11	8	11	1	2	11	0.01		0.0
DD1534	41.00	51.00	11	6	7	1	2	7	0.01		0.0
DD1535	51.00	61.30	60	14	22	1	5	27	0.01		0.0
DD1536	61.30	71.28	11	8	26	1	7	29	0.01		0.0
DD1537	71.28	81.05	9	6	26	1	5	<u>30</u>	0.01		0.0
DD1538	81.05	91.50	<u>102</u>	5	22	1	6	<u>24</u>	0.01		0.0
DD1539	91.50	101.48	<u>240</u>	8	54	1	<u>17</u>	<u>51</u>	<u>0.02</u>		0.0
DD1540	101.48	111.45	<u>282</u>	11	67	1	<u>17</u>	<u>69</u>	0.01		0.0
DD1541	111.45	121.25	<u>204</u>	10	34	1	5	<u>36</u>	<u>0.02</u>		0.0
DD1542	121.25	131.00	8	8	5	1	2	7	0.01		0.0
DD1543	131.00	141.45	4	6	4	1	2	5	0.01		0.0
DD1544	141.45	151.00	6	12	12	1	4	9	0.01		0.0
DD1545	151.00	160.91	13	6	8	1	2	9	0.01		0.0
DD1546	160.91	170.60	10	6	3	1	2	11	0.01		0.0
DD1547	170.60	180.45	15	8	5	1	2	15	0.01		0.0
DD1548	180.45	190.30	12	8	4	1	2	12	0.01		0.0
DD1549	190.30	200.41	16	12	3	1	3	16	0.01		0.0
DD1550	200.41	210.19	13	13	3	1	3	13	0.01		0.0
DD1551	210.19	220.50	30	18	5	1	<u>13</u>	8	<u>0.04</u>	<u>0.04</u>	
DD1552	220.50	230.80	16	10	5	1	2	8	0.01		
DD1553	230.80	239.95	10	10	3	1	2	10	0.01	0.01	
DD1554	239.95	250.09	16	19	4	1	3	17	0.01		
DD1555	250.09	260.61	22	12	3	1	3	26	0.01		
DD1556	260.61	270.40	32	16	4	1	6	31	0.01		
DD1557	270.40	280.53	39	12	3	1	4	29	0.01		
DD1558	280.53	291.00	45	32	<u>170</u>	1	<u>17</u>	27	0.01		

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1674	.00	5.00	10	13	8	1	3	8	0.01		
DD1675	5.00	10.00	28	39	15	1	6	14	0.01	0.01	
DD1676	10.00	20.30	16	31	9	1	5	8	0.01		
DD1677	20.30	30.56	32	28	12	1	3	18	0.01		
DD1678	30.56	43.09	26	30	14	1	10	14	0.01		
DD1594	43.09	53.00	45	22	10	1	3	20	0.01		
DD1595	53.00	63.05	<u>75</u>	32	19	1	8	<u>30</u>	0.01		
DD1596	63.05	73.00	38	26	24	1	4	17	0.01		
DD1597	73.00	83.00	39	25	13	1	3	18	0.01		
DD1598	83.00	93.16	35	28	22	1	6	19	0.01		
DD1599	93.16	103.35	20	21	14	1	3	18	0.01		
DD1600	103.35	113.00	33	29	19	1	3	20	0.01		
DD1601	113.00	122.80	35	30	10	1	3	20	0.01	0.01	
DD1602	122.80	132.80	30	24	9	1	5	20	0.01		
DD1603	132.80	143.00	15	28	13	1	4	12	0.01		
DD1604	143.00	153.00	12	34	12	1	7	11	0.01		
DD1605	153.00	162.50	10	13	10	1	5	6	0.01		
DD1606	162.50	173.00	7	22	19	1	5	6	0.01		
DD1607	173.00	182.96	10	13	11	1	4	5	0.01		
DD1608	182.96	192.93	9	7	13	1	7	6	0.01		
DD1609	192.93	203.00	6	11	8	1	6	6	0.01		
DD1610	203.00	212.95	7	13	7	1	4	6	0.01		
DD1611	212.95	224.00	6	9	9	1	6	5	0.01		
DD1612	224.00	233.96	17	14	9	1	8	5	0.01		
DD1613	233.96	243.90	28	37	11	1	10	6	0.01		
DD1614	243.90	254.00	13	13	9	1	7	7	0.01		
DD1615	254.00	264.30	13	12	11	1	4	9	0.01		
DD1616	264.30	274.20	11	12	14	1	6	11	0.01	0.01	
DD1617	274.20	284.99	8	6	9	1	6	7	0.01		
DD1618	284.99	294.98	10	9	10	1	7	6	0.01		
DD1619	294.98	305.00	11	9	7	1	5	6	0.01		
DD1620	305.00	315.35	9	9	14	1	5	8	0.01		
DD1621	315.35	326.00	21	9	28	1	4	13	0.01		
DD1622	326.00	336.00	20	8	9	1	2	12	0.01	0.01	
DD1623	336.00	346.40	23	8	12	1	2	15	0.01		
DD1624	346.40	355.85	15	5	8	1	2	11	0.01		
DD1625	355.85	366.00	18	8	19	1	2	13	0.01		
DD1626	366.00	376.00	14	6	22	1	3	13	0.01		
DD1627	376.00	386.00	17	14	26	1	7	23	0.01		
DD1628	386.00	396.21	18	15	11	1		10	0.01		
DD1629	396.21	406.00	12	9	7	1	<u>53</u>	8	0.01		
DD1630	406.00	415.72	11	9	8	1	<u>13</u>	8	0.01		
DD1631	415.72	425.90	<u>120</u>	12	16	1	<u>12</u>	10	0.01		
DD1632	425.90	435.20	13	11	9	1	4	9	0.01		
DD1633	435.20	445.55	16	8	10	1	3	10	0.01		
DD1634	445.55	455.76	12	7	13	1	4	8	0.01		
DD1635	455.76	465.10	11	8	6	1	3	7	0.01		
DD1636	465.10	475.22	11	12	15	1	<u>37</u>	9	0.01		
DD1637	475.22	485.43	15	8	9	1	<u>13</u>	10	0.01	0.01	
DD1638	485.43	495.78	21	10	12	1	5	11	0.01		
DD1639	495.78	505.05	18	7	14	1	4	10	<u>0.02</u>	<u>0.03</u>	
DD1640	505.05	515.00	20	7	12	1	4	13	0.01		

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PI ppm
DD1641	515.00	524.80	19	8	10	1	4	10	0.01		
DD1642	524.80	534.93	20	10	13	1	6	8	0.01		
DD1643	534.93	544.47	21	7	12	1	3	11	0.01		
DD1644	544.47	554.69	22	6	14	1	2	12	0.01		
DD1645	554.69	563.00	23	5	9	1	2	14	0.01		
DD1646	563.00	573.25	27	7	36	1	3	15	0.01		
DD1647	573.25	583.70	22	7	7	1	2	13	0.01		
DD1648	583.70	593.00	23	7	2	1	2	12	0.01		
DD1649	593.00	603.20	23	7	11	1	7	12	0.02		
DD1650	603.20	613.59	25	5	12	1	6	12	0.01	0.02	
DD1651	613.59	623.55	25	6	23	1	5	13	0.01		
DD1652	623.55	633.59	25	9	41	1	3	13	0.01		
DD1653	633.59	643.85	26	10	8	1	4	18	0.01		
DD1654	643.85	653.18	19	6	10	1	7	13	0.01	0.01	
DD1655	653.18	662.71	20	9	7	1	4	13	0.01		
DD1656	662.71	672.68	20	8	13	1	4	13	0.01		
DD1657	672.68	682.95	25	7	19	1	5	15	0.01		
DD1658	682.95	692.38	35	11	13	1	3	14	0.01		
DD1659	692.38	702.59	27	7	12	1	3	13	0.01		
DD1660	702.59	711.75	29	9	12	1	4	15	0.01		
DD1661	711.75	721.31	25	9	14	1	2	14	0.01		
DD1662	721.31	733.51	21	9	10	1	4	13	0.01		
DD1663	733.51	742.10	17	11	11	1	3	12	0.01		
DD1664	742.10	752.85	14	9	8	1	2	11	0.01		
DD1665	752.85	763.26	19	8	4	1	3	10	0.01		
DD1666	763.26	773.53	19	5	22	1	6	14	0.01		
DD1667	773.53	782.83	14	10	13	1	3	11	0.01	0.01	
DD1668	782.83	793.26	13	5	12	1	3	8	0.01		
DD1669	793.26	802.82	23	6	9	1	8	11	0.01		
DD1670	802.82	812.25	17	8	9	1	4	15	0.01		
DD1671	812.25	822.77	14	21	14	1	5	6	0.01		
DD1672	822.77	832.24	10	6	3	1	3	6	0.01		
DD1673	832.24	845.95	10	24	24	1	10	8	0.01		

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1559	15.00	19.96	29	18	28	1	3	23	0.01		
DD1560	19.96	25.00	45	16	20	1	4	25	0.01		
DD1561	25.00	30.20	71	14	34	1	5	46	0.01		
DD1562	30.20	40.50	43	16	21	1	6	40	0.01		
DD1563	40.50	45.20	34	8	20	1	2	26	0.01		
DD1564	45.20	49.70	33	12	15	1	2	18	0.01		
DD1565	49.70	54.02	35	9	16	1	3	10	0.01		
DD1566	54.02	64.29	19	7	11	1	5	11	0.01		

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1559	15.00	19.96	29	18	28	1	3	23	0.01		
DD1560	19.96	25.00	45	16	20	1	4	25	0.01		
DD1561	25.00	30.20	71	14	34	1	5	46	0.01		
DD1562	30.20	40.50	43	16	21	1	6	40	0.01		
DD1563	40.50	45.20	34	8	20	1	2	26	0.01		
DD1564	45.20	49.70	33	12	15	1	2	18	0.01		
DD1565	49.70	54.02	35	9	16	1	3	10	0.01		
DD1566	54.02	64.29	19	7	11	1	5	11	0.01		

SAMPLE NUMBER	SAMPLE FROM	SAMPLE TO	ZN ppm	PB ppm	CU ppm	AG ppm	AS ppm	NI ppm	AU ppm	AU_R ppm	PD ppm
DD1567	64.29	74.76	24	6	11	1	2	9	0.02		
DD1568	74.76	85.00	24	16	12	1	2	11	0.01		
DD1569	85.00	95.00	21	20	44	1	4	7	0.01		
DD1570	95.00	106.55	21	10	8	1	2	9	0.01		
DD1571	106.55	116.31	26	10	19	1	5	13	0.01		
DD1572	116.31	126.61	21	18	15	1	4	8	0.01		
DD1573	126.61	136.75	36	28	13	1	6	10	0.01		
DD1574	136.75	147.00	59	17	10	1	4	10	0.01		
DD1575	147.00	157.11	17	5	10	1	2	<u>133</u>	0.01		
DD1576	157.11	166.88	16	6	9	1	2	9	0.01		
DD1577	166.88	177.00	15	15	9	1	4	5	0.01		
DD1578	177.00	187.00	11	6	7	1	4	6	0.01		
DD1579	187.00	196.77	13	5	6	1	2	5	0.01		
DD1580	196.77	206.58	12	22	9	1	4	7	0.01		
DD1581	206.58	216.10	9	12	5	1	3	5	0.01	<u>0.02</u>	
DD1582	216.10	225.83	6	5	5	1	2	5	0.01		
DD1583	225.83	236.29	5	5	4	1	2	5	0.01	0.01	
DD1584	236.29	245.56	12	37	6	1	6	7	0.01		
DD1585	245.56	255.30	15	22	9	1	8	8	0.01		
DD1586	255.30	265.69	20	27	10	1	8	10	0.01		
DD1587	265.69	275.81	16	32	8	1	8	11	0.01		
DD1588	275.81	285.21	71	9	6	1	7	6	0.01		
DD1589	285.21	295.40	<u>335</u>	12	6	1	7	6	0.01		
DD1590	295.40	304.86	32	<u>214</u>	18	1	9	9	0.01		
DD1591	304.86	314.71	8	8	49	1	2	6	0.01	0.01	
DD1592	314.71	324.73	25	8	8	1	2	8	0.01		
DD1593	324.73	327.81	57	18	6	1	2	18	0.01		

eds selected.

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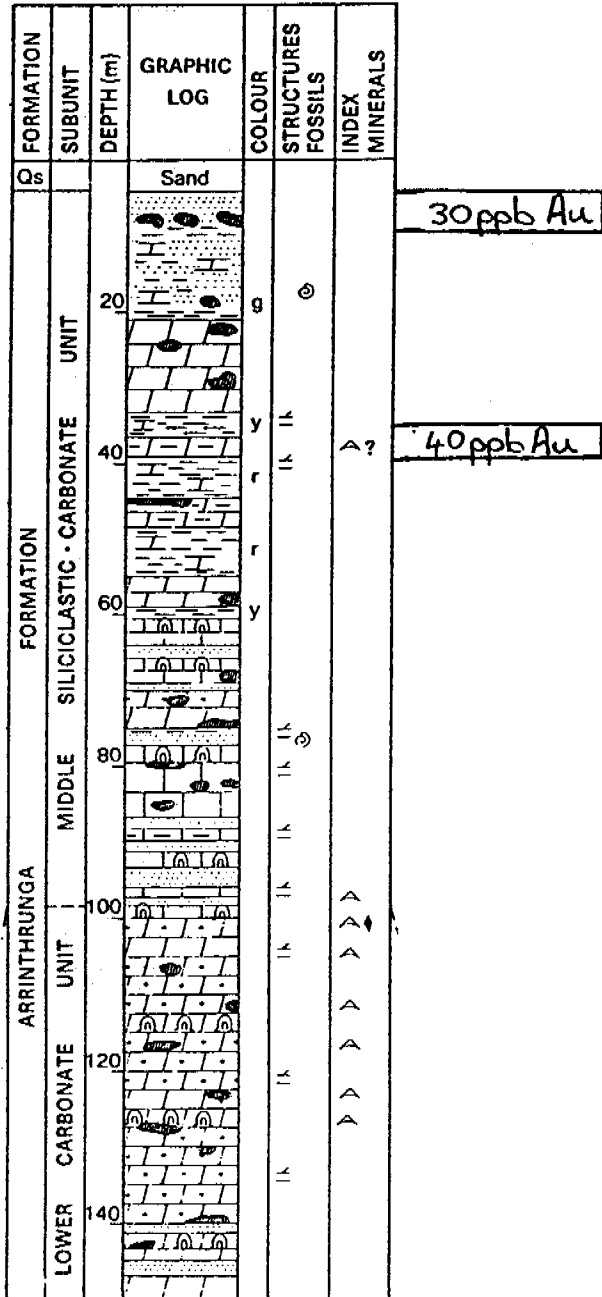
APPENDIX 2

Graphic Bore Hole Logs with Anomalous Geochemistry
ELK1, 2, 3, 6, 7 and 7A

	Dololomite		Dolarenite		Dolorudite		Quartz sandstone		Siltstone, mudstone		Carbonaceous siltstone, mudstone		Quartzite		Calcilutite		Calcareenite		Algal dolostone or limestone		Granule or pebble conglomerate		Cobble or boulder conglomerate		Gypsiferous beds (some anhydrite)		Dacitic volcanics		Granite, gneiss
	Unconformity		Chert, silicified bed		Vugs		Oolites		Dolomitic		Shale laminae		Carbonaceous laminae		Brecciation		Calcareous		Intraclasts		Nodular beds, dolomitic		Clay pellets						
LOUR (siltstone and claystone only)			Olive, greyish green		Greenish black, dark grey		Dusky red, reddish brown		Yellowish orange																				
STRUCTURES			Cross lamination		Ripple marks		Slumping		Desiccation cracks		Burrows																		
FOSFILLS			Bioturbated		Trilobite		Brachiopod		Hyolith		Sponge spicule		Trace fossil																
MINERALS			Gypsum, anhydrite		Glauconite		Pyrite		Fluorite		Chalcopyrite		Sphalerite		Ferruginous		Feldspathic												
	Galena		Zn		Fe		F		t																				

2 Symbols used on stratigraphic sections.

NTGS ELK 1
 Lat 21°45'49"S Long 136°01'23"S
 collar elevation: 328m



30 ppb Au

40 ppb Au

TD 150.00m

NTGS ELK 2
 Lat 21°26'58"S Long 136°10'49"E
 collar elevation: 318m

FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	STRUCTURES	INDEX MINERALS
ARRINTRUNGA	MIDDLE SILICICLASTIC - CARBONATE UNIT	20	[Graphic Log]	r		▲
		40	[Graphic Log]	g	ll	▲
		60	[Graphic Log]	r	ll	▲
		80	[Graphic Log]	r	ll	▲
		100	[Graphic Log]	g	ll	▲
		120	[Graphic Log]	r	ll	▲
		140	[Graphic Log]	r	ll	▲
		160	[Graphic Log]	g	ll	▲
		180	[Graphic Log]	g	ll	▲
		LOWER UNIT				

Log by P.A.S.

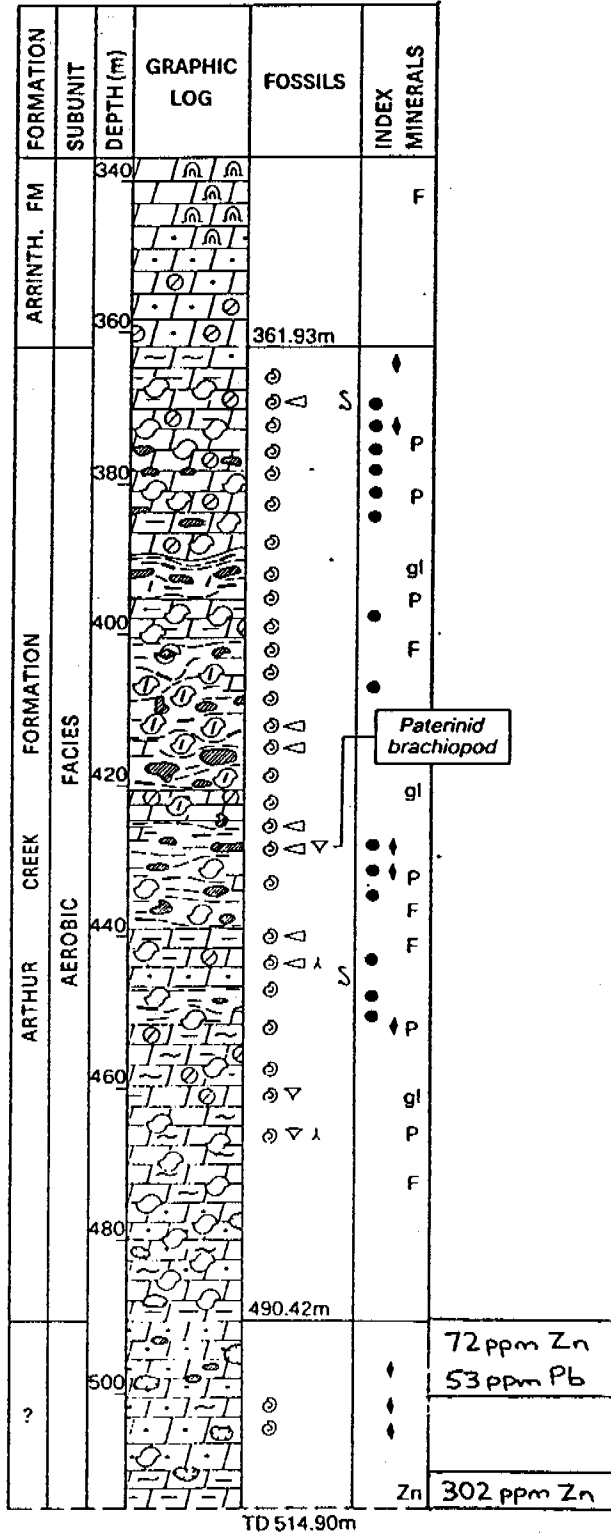
NTGS ELK 2
 (continued)

FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	STRUCTURES	INDEX MINERALS
ARRINTRUNGA	LOWER CARBONATE UNIT	180	[Graphic Log]	g		▲
		200	[Graphic Log]	g	ll	▲
		220	[Graphic Log]	g	ll	▲
		240	[Graphic Log]	g	ll	▲
		260	[Graphic Log]	g	ll	▲
		280	[Graphic Log]	g	ll	▲
		300	[Graphic Log]	g	ll	▲
		320	[Graphic Log]	b		▲
		340	[Graphic Log]	g		▲
		360	[Graphic Log]	g		▲
ARTHUR CX FM		361.92m	[Graphic Log]	g		▲
		380	[Graphic Log]	b		▲

20ppb Au

FOSSILS

NTGS ELK 2

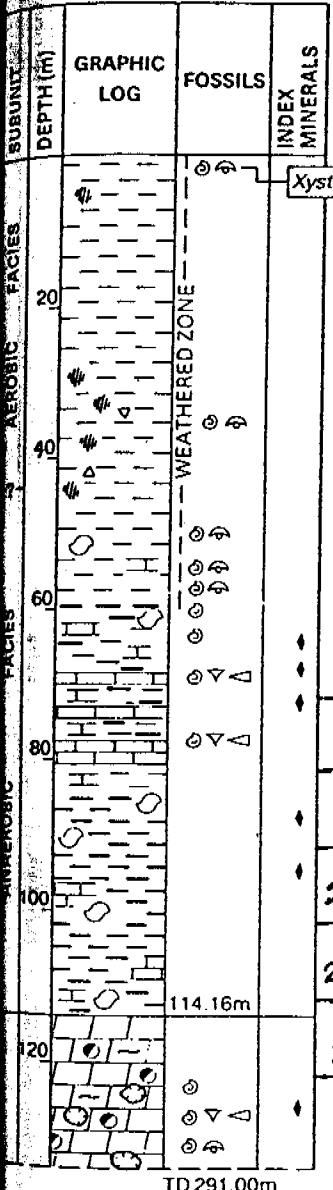


Paterinid brachiopod

Log by P.A.S.

SELK 3
 45°S Long 135°42'25"E
 Elevation: 370m

NTGS ELK 3

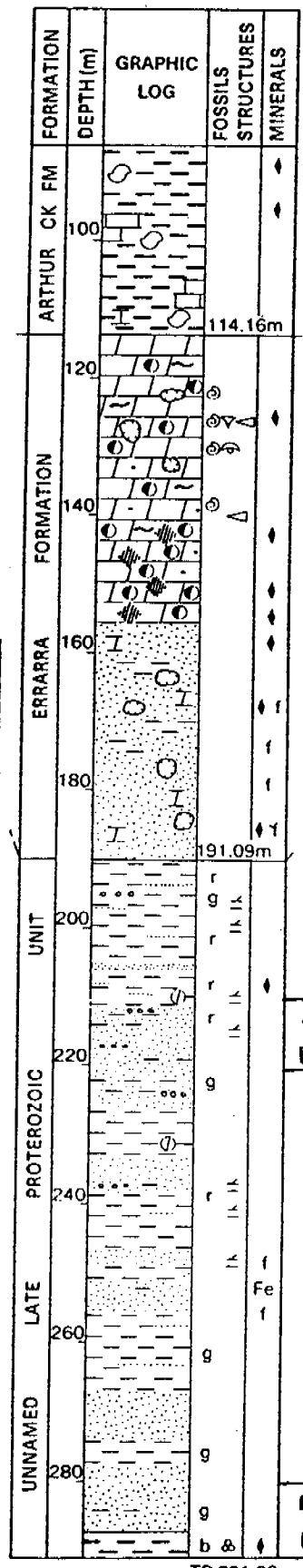


Xystridura sp.

30ppm Ni
102ppm Zn
20ppb Au, 240ppm Zn, 17ppm As, 51ppm Ni
282ppm Zn, 17As, 69ppm Ni
20ppb Au, 36ppm Ni

TD 291.00m

Log by A.M.W., L.B., D.G.M.



40ppb Au
 13ppm As

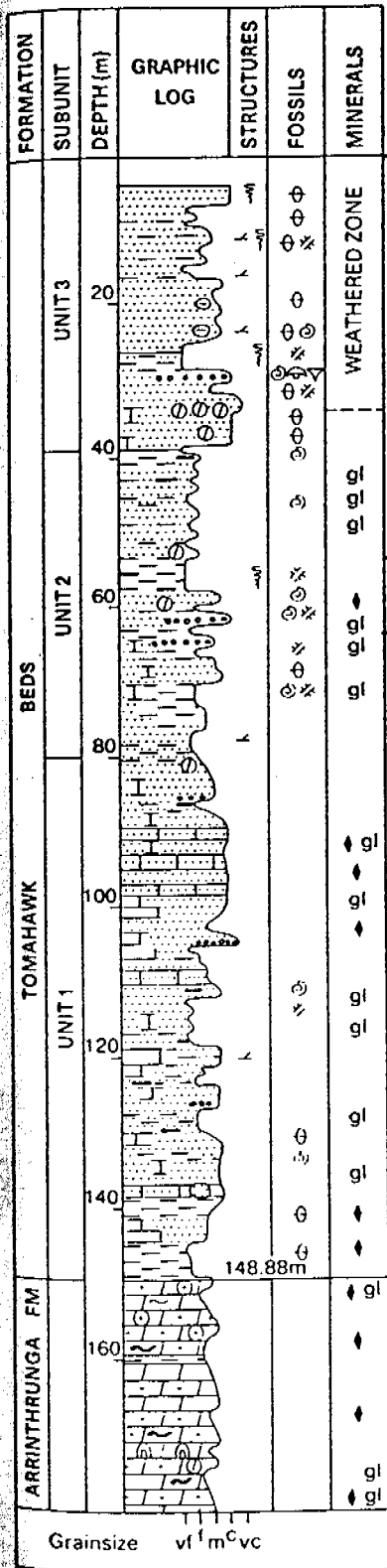
170ppm Cu
 17ppm As

TD 291.00m

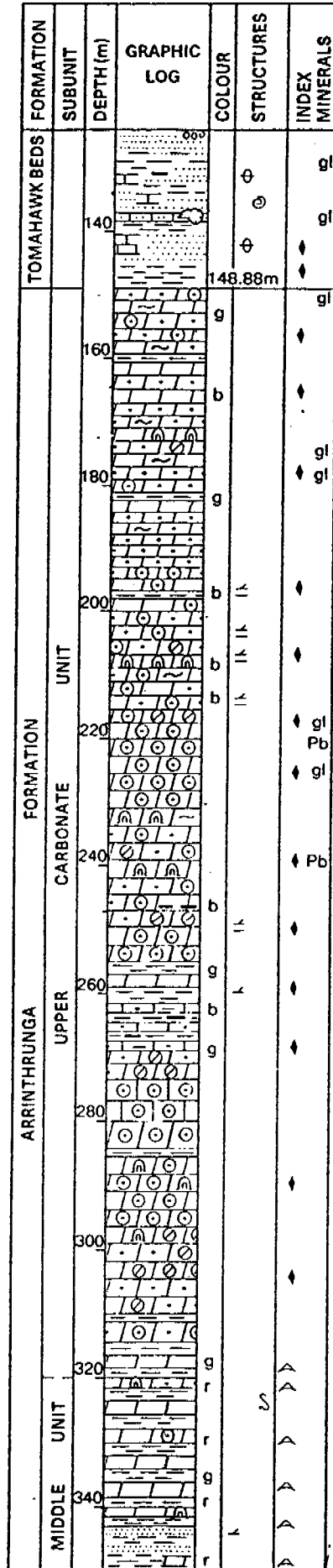
Log by N.D., A.M.W., D.G.M.

NTGS ELK 6

Lat 21°56'15"S Long 135°03'00"E
collar elevation: 415m



NTGS ELK 6



FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	STRUCTURES FOSSILS	INDEX MINERALS
ARRINTRUNGA FORMATION	MIDDLE UNIT	360		g		▷
				r		
				g		▷
				b		▷
				b	⊕	
				b	⊕	
	LOWER CARBONATE UNIT	420		b	⊕	▷
				b	⊕	▷
				s		▷
				b		▷
				b		▷
				b		▷
CHABALOWE FM	UPPER	480		b		▷
				r		▷
				b		▷
				r		▷
				g		▷
	LOWER	500		g		▷
				r		▷
				g		▷
				r		▷
				r		▷

53 ppm As

13 ppm As

120 ppm Zn
12 ppm As

37 ppm As

13 ppm As

25 ppb Au

FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	STRUCTURES	INDEX MINERALS	
ARRINTH. FM	UPPER	520		g			
				r		⊕	
				g		▷	
				r		▷	
				r		▷	
				r		▷	
	FORMATION	UNIT	540		r		
					r		▷
					r		▷
					g		▷
					g		▷
					g		▷
CHABALOWE UPPER	UNIT	560		r			
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE LOWER	UNIT	600		r			
				g		▷	
				g		▷	
				g		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE UPPER	UNIT	620		r			
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE UPPER	UNIT	640		r			
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE UPPER	UNIT	660		r			
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE UPPER	UNIT	680		r			
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE UPPER	UNIT	700		r			
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
				r		▷	
CHABALOWE FM	UPPER	720		r			
		724.70m		b			

20 ppb Au

NTGS ELK 6
(continued)

FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	STRUCTURES	INDEX	MINERALS	
								FORMATION MEMBER
CHABALOWE HAGEN		740		g		▶▶▶		
						▶▶▶	●	
						▶▶▶		
						▶▶▶		
						▶▶▶		
		760			g	Λ S	▶	
					r			
							▶▶▶	
							▶▶▶	
		780			g		▶▶▶	
					r		▶▶▶	
							▶▶▶	
							▶▶▶	●
		800			b	S	▶▶▶	
				r		▶▶▶		
						▶▶▶		
				b		▶▶▶	●	
	820				Λ	▶▶▶		
						▶▶▶		
						▶▶▶		
						▶▶▶		
		839.50m				▶▶▶		
						▶▶▶	Cp	
EARLY PROTÉROZOIC HATCHES CREEK GROUP?								

TD 845.95m

Log by D.G.M.

NTGS ELK 7 and 7A
 Lat 21°39'20"S Long 135°09'20"E
 collar elevation: 398m

FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	STRUCTURES	INDEX MINERALS
CHABALOWE FORMATION	UPPER		No Core			
		20		y		46 ppm Ni
		40		r		40 ppm Ni
		60		r		
		60		r		
		60		r		
		60		r		
		60		r		
		60		r		
		60		r		
CHABALOWE FORMATION	LOWER	80		g		20 ppb Au
		100		r		
		120		g		
		120		g		
		140		g		
		140		g		
		140		g		
		140		g		
		140		g		
		140		g		
		153.48m				133 ppm Ni

Overlap from ELK 7 to ELK 7A

NTGS ELK 7A
 (continued)

FORMATION	SUBUNIT	DEPTH (m)	GRAPHIC LOG	COLOUR	FOSSILS	INDEX MINERALS
CHABALOWE FORMATION	MEMBER	160				
		180		g		Pb
		180		b		
		200				Pb F
		220				
		238.05m		g		
		240		b		
		260		b		P
		260				P
		260				
ARTHURCK FORMATION						
						20 ppb Au

TD 327.81m

