DEPARTMENT OF MINES
SOUTH AUSTRALIA

REPORT ON EXPLORATION DRILLING OF SULPHIDE MINERALISATION AT STURT RIVER DAM SITE

by

W. Johnson
Senior Geologist

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15th November, 1962

DEPARTMENT OF MINES
SOUTH AUSTRALIA

REPORT ON EXPLORATION DRILLING OF SULPHIDE MINERALISATION AT STURT RIVER DAM SITE

INTRODUCTION

In an earlier report[1], drilling to test for extensions of a zinc sulphide lode encountered in the left abutment area of the proposed flood control dam on the Sturt River, was recommended.

This drilling was completed on 2.2.62 and at about the same time some geophysical testing was commenced. With the receipt of the Senior Geophysicist's report on this geophysical work it is appropriate to review the results of drilling, in the light of the information obtained.

GEOLOGY

This has been reviewed in the previous report[1]. The important features are that the metallic sulphides occur in a breccia of sedimentary origin modified by tectonic effects. Recent work by Coats[2] in the Sturt River area has disclosed a possible unconformable or disconformable contact between the Sturt Tillite and the overlying Tapley Hill Slate. At the dam site the mineralisation is definitely in the tillite. Other mineral prospects may be either at the contact or up in the Tapley Hill Slate.

The Sturt dam site breccia apparently occurs at a contact between boulder tillite and laminated, bedded, fine grained fluvioglacial silt and shale.

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[1] JOHNSON, W. 1962. Geological Investigation of Sulphide Mineralisation Near the Tillite/Slate Contact Sturt River Area. DEPT. MINES S.A. MIN. REV. 115 pp.

[2] COATS, R.P. 1962. A Sturtian Unconformity. AUST. JOURN. SCI. (submitted).

DRILLING RESULTS

Logs of the two drill holes and assay results are appended. These show higher than background values of copper, lead, and zinc at various parts of the cores. No economic concentrations of copper, lead or zinc were intersected.

Both holes intersected fluvioglacial shale and siltstone and brecciated tillite. The breccia appears to be in part of tectonic origin and in part of sedimentary origin. It cannot be proved that it is physically connected with the breccia outcropping in the left abutment of the dam site as the drill hole intersections are under alluvium and river gravels.

The drilling has proved that mineralisation, and the geological conditions under which it occurred extends beyond the area in which it was first extended. It has given encouragement for further investigation which at this stage should be purely geophysical.

CONCLUSION AND RECOMMENDATIONS

Drilling results indicate extensions of mineralisation originally encountered in DBH's S.D.O. 3 and 4 and geophysical testing has shown anomalies over the known mineralised breccia and in areas further east.

Mr. Webb's recommendation of no drilling at this stage is supported and it is recommended that his suggested geophysical programme should be expanded to cover the area XYZ outlined on the plan in the copy of his report, accompanying this report.

W. Johnson
Senior Geologist
NON FERROUS METALS SECTION

WJ:AGK
13/11/62

APPENDIX I

DIAMOND DRILLING LOGS

SRE 1

SRE 2

DEPARTMENT OF MINES, ADELAIDE

DIAMOND DRILL LOG

Project STURT CREEK SULPHIDE INV. DM 2111/61

Bore No. SCS 1 Bore Serial No. DD 94/62

Hundred ADELAIDE Section 21 Plan Reference

Co-ordinates R.L. of Collar

Bearing 193 Depressed 60° Driller JENSEN

Date Drilling commenced 9/1/62 Date Drilling completed 23/1/62

LOG

Depth From Ft.	Depth From In.	Depth To Ft.	Depth To In.	Core Recovered Ft.	Core Recovered In.	3" core
0	0	2	4	2	4	Tillite with very small erratics, some weathering along joint planes.
2	4	4	6	2	3	
4	6	9	2	4	8	
9	2	15	0	4	10	
15	0	19	0	4	0	Tillite as above with calcitic and quartz veins in tension cracks carrying sulphides.
19	0	23	6	4	0	
23	6	28	0	5	0	
28	0	30	6	3	0	
30	6	35	2	4	8	
35	2	40	0	4	10	
40	0	44	6	4	6	
44	6	49	3	4	9	From 47' tension veins becoming slightly thicker with heavier sulphides.
49	3	54	0	4	9	
54	0	59	0	4	11	
59	0	62	3	3	2	
62	3	63	6	1	6	Brecciated fine grained tillite cemented by quartz calcite veins with sulphide brecciation - has the appearance of being partly sedimentary in origin and partly tectonic.
63	6	68	6	4	9	
68	6	73	6	4	10	Bedded tillite without erratics - very fine distorted laminations probably affected by slumping - fine to medium grains of sulphide towards the top
73	6	78	3	4	9	
78	3	82	9	4	3	Sparse quartz calcite veins.
82	9	87	4	4	2	
87	4	92	2	5	3	
92	2	97	2	5	0	
97	2	102	2	5	0	Varve like laminations or bedding affected by slumping and brecciation.
102	0	106	9	4	9	

Bore logged by W. JOHNSON

Date 21/2/62

2M—2.57 1706

DEPARTMENT OF MINES, ADELAIDE

DIAMOND DRILL LOG

Project STUART CREEK SULPHIDE INV. DM 211/61

Bore No. SSC 1 Bore Serial No. DD 94/62

Hundred ADELAIDE Section 21 Plan Reference

Co-ordinates R.L. of Collar

Bearing 193 Depressed 50° Driller JENSEN

Date Drilling commenced 9/1/62 Date Drilling completed 22/1/62

LOG

Depth From Ft.	Depth From In.	Depth To Ft.	Depth To In.	Core Recovered Ft.	Core Recovered In.	
						-2-
106	9	111	6	4	9	
111	6	116	6	5	0	
116	6	121	2	4	0	
121	2	126	0	4	10	
126	0	131	2	5	2	Brecciated sulphide from 125' to 126'0".
		131'2"				BOTTOM OF HOLE.

Bore logged by W. JENSEN

Date 21/2/62

2M—2.57 1706

DEPARTMENT OF MINES, ADELAIDE

DIAMOND DRILL LOG

Project STURT CREEK SULPHIDE INV. DM 2111/61

Bore No. SRE 2 Bore Serial No. DD 96/62

Hundred ADELAIDE Section 21 Plan Reference

Co-ordinates R.L. of Collar

Bearing 193 Depressed 50 Driller JENSEN

Date Drilling commenced 26/1/62 Date Drilling completed 2/2/62

LOG

Depth From Ft.	Depth From In.	Depth To Ft.	Depth To In.	Core Recovered Ft.	Core Recovered In.	
0	0	5	0	1	10	Weathered tillite
5	0	7	0	2	3	
7	0	11	6	3	7	From 7'0" weathered only along joint cracks tillite with very sparse more erratic.
11	6	16	0	4	6	
16	0	21	0	5	0	
21	0	25	6	4	6	Dark grey tillite with faint laminations
25	6	27	4	1	10	
27	4	30	0	2	9	Brecciation heavily cemented with quartz calcite probably tectonic.
30	0	32	6	2	6	
32	6	33	5	1	4	
33	5	34	8	1	3	Tillite consisting almost entirely of fine to coarse
34	8	39	0	4	9	comminuted rock fragments, some pebbly erratics,
39	0	44	0	4	10	traces of bedding and lamination showing lumpy.
44	0	48	7	5	0	
48	7	53	7	4	7	From 52' to 64'0" core badly broken along irregular
53	7	58	4	5	0	shear planes.
58	4	63	2	5	6	
63	2	68	0	3	6	
68	0	73	0	4	0	
73	0	78	0	5	0	Tillite with practically no erratic and faint bedding.
						From 64'0" to 75'0" core in small fragments, heavily sheared and crushed probably tectonic brecciation.
78	0	82	6	4	6	Tillite with sparse pebbly erratics.
82	6	87	6	5	0	
87	6	92	4	4	10	Quartz calcite veins with sulphide at 91'8".
92	4	97	4	5	0	
97	4	102	0	4	8	

Bore logged by W. JOHNSON

2M—2.57 1706

Date 21/2/62

DEPARTMENT OF MINES, ADELAIDE

DIAMOND DRILL LOG

Project STURT CREEK SULPHIDE INV. DM 2111/61

Bore No. SRE 2 Bore Serial No. DD 96/62

Hundred ADELAIDE Section 21 Plan Reference

Co-ordinates R.L. of Collar

Bearing 193 Depressed 60° Driller JENSEN

Date Drilling commenced 25/1/62 Date Drilling completed 2/2/62

LOG

Depth From Ft.	Depth From In.	Depth To Ft.	Depth To In.	Core Recovered Ft.	Core Recovered In.	
						-2-
102	0	107	0	5	0	
107	0	111	7	4	7	Vein with sphalerite at 107'6".
111	7	121	2	8	6	
121	2	126	0	4	10	Vein with chalcopyrite? at 123'0".
126	0	131	0	5	0	
		131	0			BOTTOM OF HOLE

Bore logged by W. JOHNSON

Date 21/2/62

2M—2.57 1706

APPENDIX II

CHEMICAL AND SPECTROGRAPHIC ASSAY RESULTS DIAMOND DRILL HOLES SRE 1 & SRE 2

Analyses by Officers Australian Mineral Development Laboratories

DDH S.R.E. 1

REPORT OF ANALYSIS

YOUR REFERENCE: A1136/62-A1152/62

LOCALITY: Sturt Creek Dam Site, Bore S.R.E. 1.

INFORMATION REQUIRED: Analysis.

Mark	Depth (Ag)	Silver (Ag) per long ton	Copper (Cu)	Lead (Pb)	Zinc (Zn)
A1136/62	59 - 60'	Nil	0.01 %	0.02 %	1.40 %
A1137/62	60 - 61'	0 oz. 3.0 dwt.	0.006	0.01	0.50
A1138/62	61 - 62'	0 1.0	0.005	0.01	0.03
A1139/62	62 - 63'	0 1.0	0.003	0.01	N.D.
A1140/62	63 - 64'	0 2.0	0.005	0.02	N.D.
A1141/62	64 - 65'	Nil	0.005	0.01	N.D.
A1142/62	65 - 66'	0 1.0	0.001	0.01	N.D.
A1143/62	66 - 67'	0 2.0	0.003	0.01	N.D.
A1144/62	67 - 68'	Nil	0.006	0.01	N.D.
A1145/62	68 - 69'	Nil	0.006	0.01	N.D.
A1146/62	69 - 70'	0 1.0	0.008	0.01	N.D.
A1147/62	70 - 71'	Nil	0.008	0.01	N.D.
A1148/62	71 - 72'	Nil	0.006	0.01	N.D.
A1149/62	72 - 73'	Nil	0.006	0.01	N.D.
A1150/62	73 - 74'	Nil	0.003	0.01	N.D.
A1151/62	74 - 75'	Nil	0.003	0.01	N.D.
A1152/62	124'10"-126'	Nil	0.004	0.01	N.D.

N.D. = Not detected.

Analysis by: S.A. Alexander & R.B. Oliver.

Officer in Charge Analytical Section: T.R. Frost.

DDH S.R.E. 1

REPORT OF ANALYSIS

YOUR REFERENCE: A 1489/62 - A1545/62
LOCALITY: Sturt Creek Dam Site Bore SRE 1
DATE RECEIVED: 7.3.62
INFORMATION REQUIRED: Spectrographic analysis

Mark	Depth	Cu	Pb	Zn	Co	Ni	As	Cr	V	Sn
A1489/62	2'4"	20	25	1000	10	15	0.1	600	50	* 10
A1490/62	4'6"	30	40	1200	15	15	0.8	300	150	* 10
A1491/62	6'6"	25	25	500	6	10	0.2	200	25	* 10
A1492/62	8'	30	60	600	20	18	0.2	800	100	15
A1493/62	10'	40	30	250	20	20	0.2	1000	100	10
A1494/62	12'	30	40	2000	10	15	0.4	500	100	10
A1495/62	14'	40	30	250	15	15	0.2	1000	150	10
A1496/62	16'	200	40	1000	15	25	0.2	1000	150	* 10
A1497/62	17'6"	40	30	150	12	15	0.3	400	100	15
A1498/62	19'	25	40	80	15	20	0.4	800	150	15
A1499/62	21'6"	40	60	150	20	20	1	800	150	15
A1500/62	23'6"	30	100	2500	12	15	0.8	200	100	* 10
A1501/62	25'	40	350	2500	15	15	0.8	800	100	15
A1502/62	27'	50	1300	3000	10	15	1	800	200	15
A1503/62	28'6"	100	1200	2000	15	18	2	500	200	10
A1504/62	30'6"	50	400	1500	6	10	1.5	400	40	10
A1505/62	32'6"	50	80	150	15	20	1	600	150	15
A1506/62	34'6"	40	150	800	15	15	0.8	600	150	10
A1507/62	36'6"	500	1200	6000	12	10	1.5	800	150	15
A1508/62	38'	250	1500	3000	20	18	1.5	800	200	* 10
A1509/62	40'	100	1200	1200	25	18	1.5	800	100	20
A1510/62	42'	30	40	250	5	12	0.4	400	40	* 20
A1511/62	44'	50	60	1200	15	18	1	800	80	10
A1512/62	46'	25	80	1200	15	15	0.6	800	100	15
A1513/62	48'	30	80	100	18	15	0.6	800	150	20
A1514/62	50'	30	70	300	12	15	0.2	800	100	* 10
A1515/62	52'	40	100	50	12	15	0.4	800	150	10
A1516/62	54'	60	100	700	15	18	0.5	900	200	15
A1517/62	56'	70	150	10000	15	15	1	800	120	15
A1518/62	58'	20	60	150	15	20	1	800	150	10
A1519/62	77'	25	50	100	8	12	1	800	50	* 10
A1520/62	79'	30	40	220	10	18	0.4	1000	80	10
A1521/62	81'	15	70	180	15	15	0.4	1500	40	* 10
A1522/62	83'	25	80	300	10	15	0.5	1000	30	10
A1523/62	85'	25	80	500	15	15	1	1000	40	10
A1524/62	87'	30	100	1200	15	15	1	600	50	* 10
A1525/62	89'	25	80	1000	15	15	1.5	600	80	15

DDH S.R.E. 1 (contd.) Spectrographic Analysis.

Mark	Depth	Cu	Pb	Zn	Co	Ni	Ag	Cr	Y	Sn
A1526/62	91'	40	70	250	10	10	0.8	500	100	15
A1527/62	93'	25	60	180	10	12	0.8	300	80	10
A1528/62	95'	80	2000	1000	10	20	0.8	700	80	10
A1529/62	97'	60	250	600	10	20	0.8	600	150	10
A1530/62	99'	25	60	80	10	12	0.5	600	180	*10
A1531/62	101'	40	70	70	10	12	0.6	400	200	*10
A1532/62	103'	25	100	100	10	10	1	600	150	15
A1533/62	105'	30	120	150	10	12	0.6	500	200	15
A1534/62	107'	30	1500	800	8	12	0.7	600	100	10
A1535/62	109'	80	300	600	15	18	0.7	600	150	15
A1536/62	111'	60	200	300	10	15	0.4	600	200	15
A1537/62	113'	60	300	300	12	15	1	600	200	*10
A1538/62	115'	15	40	300	12	20	5	350	50	10
A1539/62	117'	20	30	150	12	12	0.4	500	80	10
A1540/62	119'	25	50	150	12	15	1	600	100	*10
A1541/62	121'	25	30	150	15	15	0.5	500	100	15
A1542/62	123'	15	30	150	15	15	0.6	800	80	*10
A1543/62	126'	25	30	200	12	12	0.2	700	30	*10
A1544/62	128'	25	70	50	12	15	2.5	800	30	10
A1545/62	130'	20	50	80	12	15	0.3	800	30	10

Results in p.p.m.
* = Not detected - Less than
Spectrographic Analysis by: A.B. Timms.
Officer-in-Charge, Analytical Section: T.R. Frost.

D.D.H. S.R.E. 2

REPORT OF ANALYSIS

YOUR REFERENCE: A1546/62 - A1610/62
LOCALITY: Sturt Creek Dam Site Bore SRE 2
DATE RECEIVED: 7.3.62
INFORMATION REQUIRED: Spectrographic analysis

Mark	Depth	Cu	Pb	Zn	Co	Ni	As	Cr	Y	Sn
A1546/62	2'	15	25	30	10	18	0.8	800	40	20
A1547/62	4'	18	30	50	10	15	0.3	600	50	20
A1548/62	6'	200	2000	4000	20	30	2	800	800	30
A1549/62	8'	20	250	500	12	12	1	500	100	30
A1550/62	10'	10	80	300	12	10	1.5	400	60	20
A1551/62	12'	40	200	800	15	15	1	600	100	30
A1552/62	14'	40	150	250	12	12	1	600	80	30
A1553/62	16'	60	200	500	18	15	1	600	60	30
A1554/62	18'	40	150	300	18	15	1	800	50	30
A1555/62	20'	25	500	300	18	15	1	600	60	30
A1556/62	22'	30	300	500	18	12	1	800	60	20
A1557/62	24'	25	80	200	15	18	1	800	60	20
A1558/62	26'	15	150	200	18	15	1.5	600	100	20
A1559/62	28'	25	180	2000	5	15	0.8	2000	25	30
A1560/62	30'	30	150	700	12	15	1	1000	50	30
A1561/62	32'	300	2300	8000	20	60	2	800	40	20
A1562/62	34'	10	30	50	8	15	0.8	800	40	20
A1563/62	36'	12	60	150	12	15	0.6	2000	25	20
A1564/62	38'	18	50	* 20	15	15	0.8	800	60	20
A1565/62	40'	25	80	200	8	15	1.5	800	40	20
A1566/62	42'	20	100	200	10	18	0.2	800	30	20
A1567/62	44'	18	80	200	12	18	0.2	800	40	30
A1568/62	46'	18	80	200	15	18	0.3	1000	30	20
A1569/62	48'	15	20	30	12	15	0.2	600	40	20
A1570/62	50'	25	30	60	12	18	0.8	500	50	30
A1571/62	52'	15	40	150	10	12	0.3	800	30	20
A1572/62	54'	15	18	30	15	18	0.2	800	60	20
A1573/62	56'	15	15	25	15	20	0.3	800	30	20
A1574/62	58'	25	15	20	15	15	0.2	800	30	30
A1575/62	60'	25	30	25	15	18	1	1000	30	30
A1576/62	62'	25	30	800	15	18	0.3	1000	50	20
A1577/62	64'	15	18	20	10	12	0.4	800	40	20
A1578/62	66'	20	15	25	18	20	0.8	1000	100	30
A1579/62	68'	60	20	250	15	15	1.5	500	80	30
A1580/62	70'	20	20	40	12	15	2.5	800	60	30
A1581/62	72'	18	20	60	20	30	1	600	100	20
A1582/62	74'	15	18	50	18	15	0.8	600	80	30

D.D.H. S.R.E. 2 (Contd.) Spectrographic analysis

Mark	Depth	Cu	Pb	Zn	Co	Ni	Ag	Cr	V	Sc
A1583/62	76'	15	40	250	15	15	0.8	800	60	30
A1584/62	78'	15	25	200	15	15	0.6	800	60	20
A1585/62	80'	20	25	50	15	15	0.8	800	100	30
A1586/62	82'	18	30	150	20	18	0.8	800	80	20
A1587/62	84'	18	15	30	15	15	0.6	800	80	30
A1588/62	86'	15	30	30	15	15	0.5	800	80	20
A1589/62	88'	70	80	60	15	15	1	800	50	30
A1590/62	90'	30	30	400	18	15	1	800	70	20
A1591/62	92'	80	100	**10000	20	18	1	1000	60	20
A1592/62	94'	15	70	200	12	15	1.5	800	80	20
A1593/62	96'	20	200	1500	15	18	1	800	60	20
A1594/62	98'	20	200	1200	12	15	0.8	800	60	30
A1595/62	100'	30	1500	1200	15	20	1.5	800	80	20
A1596/62	102'	25	50	1200	15	12	1	800	80	30
A1597/62	104'	40	60	800	12	18	1	400	60	20
A1598/62	106'	30	80	200	15	18	20	1000	80	30
A1599/62	108'	25	200	1800	15	15	0.8	600	100	20
A1600/62	110'	6000	200	400	15	25	2	800	150	20
A1601/62	112'	30	120	350	15	18	1	800	150	20
A1602/62	114'	25	1200	6000	15	25	1.5	600	150	20
A1603/62	116'	30	120	4000	15	25	8	400	60	20
A1604/62	118'	18	120	600	12	20	0.5	800	100	20
A1605/62	120'	20	60	350	15	25	0.4	300	150	20
A1606/62	122'	15	40	80	12	20	0.3	800	100	20
A1607/62	124'	30	300	1200	10	25	0.8	1000	100	20
A1608/62	126'	100	2000	5000	10	30	0.8	1000	150	20
A1609/62	128'	200	1000	8000	20	100	2.5	800	200	20
A1610/62	130'	400	1200	6000	20	50	2	800	150	20

* = Not Detected - Less than
** = Detected - Greater than
Results in ppm.

Spectrographic analysis by: A.B. Timms
Officer-in-Charge, Analytical Section: T.R. Frost