

810983

## SULTANA SILVER MINES LTD.

## DRILL RECORD—DOLMAGE CAMPBELL &amp; ASSOCIATES LTD

Coord. 1023N  
1180ELength 90 ft.  
Azimuth 328°  
Dip 45°Project Boulder Creek  
Location  
Purpose Explore Silver Vein.Hole No. S 4  
Date 29th - 30th Nov/68  
Logged by P. Coxall.

Core Size B.Q.

## FOOTAGE

## ROCK TYPE

## DESCRIPTION

## CORE LOSS

FROM TO LOST

Pio  
Boulder Creek

Hole No. S 4

FROM	TO	ROCK TYPE
0	18	CASING
18	90	ALTERED GRANODIORITE.

Pale grey to light green, medium grained, mafics (biotite and hornblende) varying from 5-10% kaolinization of feldspars throughout, and some chloritization of mafics.

Fracturing and shearing extensive. Fracture sets predominantly at 30° and 60°, but numerous at intermediate angles. Shears show no preferred orientation, but numerous at 0°-10° and 40°-60°. Ground shattered and weathered at 41' and 50'-53'. Shears between 41' and 53' at 0°-35° to axis generally.

Accessory black, friable 'iron ore' (less than 1%). Fine pyrite throughout, concentrated in fractures (20%). Chalcopyrite also in fractures in ratio 1:3 to pyrite, and in thin random veinlets with pyrite, Esp. from 70'-90'. Minor molybdenite also in fractures (1/2%), and along shears, Esp. along those at 0° to core axis (23 1/2', 40 1/2', 70').

1/2" Quartz stringer at 50° at 82', with massive pyrite, chalcopyrite and fine molybdenite.

2" aphanitic black porphyritic basic Dyke at 60° at 84'.

Core blocky, crumbly in places, becoming more competent at depth.

FROM	TO	LOST
20	30	3"
50	70	9"
84	90	2"

From	To	Width	% Cu.
80	85	5'	.08

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD

Coord. 1023N  
1130E

Elev.  
Core Size B.Q.

Length 96 feet.  
Azimuth 328°  
Dip 45°

Project Boulder Creek  
Location  
Purpose Explore Silver Vein.

Hole No. S 2  
Date 30th Nov. 1st Dec. 68.  
Logged by P. Coxall.

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	22	OVERBURDEN	Cased to 21 feet.			

22	96	ALTERED GRANODIORITE	Pale Grey to light green, medium-grained, mafics (Biotite and Hornblende) 5%-15%, varying. Accessory black, variable, soft lustrous iron ore less than 1%. Kaolinization of feldspars throughout, and some chloritization of mafics.	22	33	12"
			Extensive fracturing and shearing, fracture sets predominantly at 30°, 40° and 50°-60°.	62	67	3"
			Shears often mutually perpendicular, have no preferred orientation. Crushed zones @ 71 1/2'-72 1/2'; 75 1/2', 77 1/2', 85'-88'.	73	85	4"

Extensive fracturing and shearing, fracture sets predominantly at 30°, 40° and 50°-60°.

Shears often mutually perpendicular, have no preferred orientation. Crushed zones @ 71 1/2'-72 1/2'; 75 1/2', 77 1/2', 85'-88'.

Fine pyrite throughout (1%) concentrated in fractures (up to 20%) not in shears. Chalcopyrite also concentrated in fractures, 1.3 quantity of pyrite. Numerous random veinlets of pyrite and chalcopyrite, 1/10" thick (Esp. @ 35'-38'; 53 1/2' - 62'; 74'-75').

Many thin quartz stringers (less than 1"), no preferred orientation, with associated pyrite, chalcopyrite (1%) and fine molybdenite (1/2%) on margins. (Stringers Esp. 28'-34 1/2'; 53 1/2'-54 1/2'; 71 1/2'-83'). Fine molybdenite also in some shears (31 3/4'; 38', 46', 75 1/2', 77 1/2').

Pyrite and chalcopyrite in fractures with very pink, fresh feldspar in immediate vicinity at 52' and 74 1/2'.

Core blocky, crumbly in places.

From	To	Width	ASSAYS			
			Au	Ag	Cu	Mo
50	55	5'	-	-	.23	.025
55	60	5'	-	-	.22	.005
60	65	5'	-	-	.16	.015

Prod

Boulder Creek

Hole No. S 2

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD.

Coord. 1013N  
1080E  
Elev. C.S. + 31'  
Core Size

Length 89 1/2 feet.  
Azimuth: 328°  
Dip 45°  
Project Boulder Creek  
Location  
Purpose Explore Silver Vein.

Hole No. S 1  
Date 5th-10th Dec/68  
Logged by P. Coxall.

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	8 1/2	OVERBURDEN	Casing to 15'.			
8 1/2	44	ALTERED GRANODIORITE	Light greenish-grey, medium-grained, mafics (Biotite and Hornblende) varying from 5-10°. Accessory soft black friable, lustrous mineral (less than 1%) and some pyrite. Kaolinization of feldspars throughout, and some chloritization of mafics. Extensive fracturing, at 30°, 40°, 50°, 60° to core axis, but little shearing. Rusty colouration in fractures to 34' with pyrite and lesser chalcopyrite (3%) crush zone (40'-42') with pyrite leaching and small quartz crystals. Core very blocky, and crumbly in places.	10 14 34	12 28 42	6" 30" 15"
44	47	MINERALIZED VEIN	Milky quartz vein at 25° to core axis, with well crystallized pyrite (25%), and tetrahedrite (3-5%)			
47	53 1/2	ALTERED GRANODIORITE	As above, showing greater kaolinization, and containing many thin (0.025") of pyrite. Very thin molybdenite in shear at 60° at 47'.			
53 1/2	71	MINERALIZED ZONE	Numerous random milky quartz veins with very altered green granodiorite inclusions. Intense mineralization with massive pyrite predominant (crystals up to 1/2"). Chalcopyrite (5%) and grey copper (up to 5%) gives blotchy appearance in places. Grey copper also very finely disseminated. Quartz veins generally 30°-50° to core axis. 57' - Radiating thin blades of grey, longitudinally striated, soft (H=2), brittle mineral of metallic lustre in shear at 30°. Probably stibnite. (60-61 3/4) grey - black quartz-speckled zone of Tetrahedrite (30%-60%), Pyrite (20%) and Chalcopyrite (15%).	59	68	15"

Project

Boulder Creek

Hole No.

S 1

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FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
71	80 3/4	ALTERED GRANODIORITE	As above, crushed zones at: - 70', 74'-74 1/2': Thin veinlets of pyrite and chalcopyrite.	73	78	2"
80 3/4	89 1/2	BASIC DYKE	Greenish-black, slightly altered, fine-grained to aphanitic, phenocrysts of Biotite, inclusions of altered granodiorite and minor random quartz stringers. Intense shearing, generally at 20°-40°. Slight pyrite mineralization 1%.			

ASSAYS

<u>From</u>	<u>To</u>	<u>Width</u>	<u>Au</u>	<u>Ag</u>	<u>Cu</u>	<u>Mo</u>
39	44	5'	.01	0.5	.18	
44	47	3'	.02	5.8	.64	
47	53	6'	.01	Tr	.10	.005
53	60	7'	.01	2.0	.68	
60	62	2'	.03	18.6	9.06	
62	66	4'	.01	0.4	.14	
66	71	5'	.02	1.0	.48	

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD

Coord. 1115 N.  
1040 E.  
Elev. C.S.  
Core Size B.Q.

Length 137 feet  
Azimuth 148°  
Dip 45°

Project Boulder Creek  
Location  
Purpose Explore Silver Vein.

Hole No. S 14  
Date 11th-15th Dec. 68.  
Logged by P. Coxall

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	7 1/2	OVERBURDEN	Casing to 9 Feet.			

7 1/2 137 ALTERED GRANODIORITE Light greenish-grey, medium grained, mafics (Biotite and Hornblende) 5-10%. Accessory 'iron ore' 1%, and minor pyrite. Malinization of Feldspars throughout, and some Chloritization of mafics. Occasional thin, clear quartz stringers, with no preferred orientation, generally associated with chalcopyrite (5-30%), some with only pyrite (10%).

Milky quartz stringer between 75' and 78', with massive pyrite, and 10% tetrahedrite (most of core lost). Milky quartz stringer (0.3") also at 93', with 5% tetrahedrite, chalcopyrite (10%).

(16 1/2') chalcopyrite stringer (1/2") at 40°, trace of Molybdenite and minor Pyrite. Also at 22'.

(112') Stringer of pyrite (0.3") at 50°, thin molybdenite along edges; fractures with 10% chalcopyrite and fine molybdenite (3%) in vicinity. Molybdenite also in some shears.

Extensive shearing and fracturing, major shears 15°-25°. Crush zones at 43'-45'; 52'-53'; 79'-85' (with milky quartz, massive pyrite and molybdenite less than 1%) and at 86'. Fractures generally at 30°, 40°, 50°, 60°.

Core generally competent, blocky and crumbly in places.

From	To	Width	ASSAYS			
			Au	Ag	Cu	Mo
16	23	6'	.01	-	.47	
69	75	6'			.38	
79	85	6'	.01	0.6	.25	
109	115	6'			.09	.05
127	132	5'			.07	.02

Project Boulder Creek  
Hole No. S 14

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
Detailed logging of one box of core from S 14.						
74	75	(ANDESITE?) DIKE	F.g., med. to dark green, massive crystalline with mafics and feldspar (?) to 1 mm. Some fine pyrite. Carbonate coating on fractures with associated chalcopyrite on one. Fractures @ 0°, 20° and 70°. Sample No. 432.			
75	78	VEIN ?	Two 1" piece of core all that was recovered from this section. Both consist of white quartz while one has some pyrite 10% and some tetrahedrite 5-10%. Pyrite as large (to 1/2) cubes (imperfect) some subhedral quartz crystals associated with mineralization. Sample No. 433.			
78	79	DIORITE (?) INCLUSION	Essentially the same as the granodiorite described below but more mafic (40%). Contains some fine pyrite. Med x ln, homogeneous, structureless.			
79	85	VEIN	Mixed white quartz (30-60%) and altered (kaolinized and sheared) granodiorite containing pyrite, tetrahedrite and chalcopyrite. Quartz and sulphide mineralization appears to be open space filling perhaps of tension fracture subsidiary to fault which caused some shearing in granodiorite. Proportion of sulphides generally quite low (1-3%). Feldspars are greenish and some kaolinite is apparent. - No iron stain.			

Project

File No.

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FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
85	100	GRANODIORITE	<p>Light grey speckled (10-20%) with black hornblende and biotite (minor), medium grained (to 1/8"), equi-crystalline, generally structureless except for occasional small quartz stringers @ 45° and higher angles usually with some py, shales occasional tetrahedrite. Very fine pyrite; minor chalcopyrite and perhaps tetrahedrite can be found in many areas of the granodiorite by use of a hand lens. This mineralization appears to be associated with very fine intercrystal fractures. Samples 85-90-434, 90-95-435, 95-100-436</p>			

ASSAYS						
<u>From</u>	<u>To</u>	<u>Width</u>	<u>Ag.</u>	<u>Cu.</u>	<u>Mo.</u>	
74	75	1'	0.19	.04	-	
75	78	3'	1.21	1.70	-	
85	90	5'	0.10	Tr	-	
90	95	5'	0.10	.04	.01	
95	100	5'	0.10	Tr	.01	

Project

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File Sultana Properties

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD.

Coord. 900N  
1400E

Length 267

Project Boulder Creek

Hole No. M 1  
Date 13th - 16th Dec/68

Elev.  
Core Size B.Q.

Azimuth -  
Dip -90°

Location  
Purpose Explore Disseminated zone.

Logged by P. Coxall.

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	5	OVERBURDEN	Casing to 6'			
5	267	GRANODIORITE	Light pinkish-grey, medium grained, becoming slightly porphyritic at depth. Mafics (Biotite and Hornblende) 5-10% with finer grained, pinker patches with less than 5% mafics. Accessory black lustrous 'iron ore' (H=4) 1% and pyrite (1-2%), latter concentrated in random thin stringers, occasionally with arsenopyrite (20%) in fractures. Chalcopyrite in small concentrations (up to 5%) with pyrite some shears and fractures, and occasionally with clear quartz, also disseminated (1%) in places. Fine fractures throughout, numerous at 0°-15°, 20°-40° and 60° to core axis. Shears decreasing towards bottom of hole, predominantly at 30°. Strong shear zones at 30° at 169' and 172'. Slightly pyritic thin, black, fine-grained, basic dykes up to 6" thick, at 193', 200', 262' at 40°-50°. Up to 3% chalcopyrite. Kaolinization in vicinity of shears. Core competent, but blocky over large areas.	22 35	28 41	1' 1'

ASSAYS	
Location	% Cu
106-111	.03
187-192	.15
192-197	.02
197-202	.10
211-216	.03
216-221	.02
221-226	.07
226-231	.03
231-236	.04
236-241	.02
241-246	.04
246-251	.02

% Mo. .02

Project Boulder Creek  
Hole No. M 1

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST

ASSAYS (Cont.)

Locations

% Cu

% Mo

251-256

.02

256-261

.02

261-267

.03

Project Boulder Creek

Hole No.

M 1

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SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD

Coord. 1010N  
1012E  
Elev. C.S. + 40'.  
Core Size B.Q.

Length 68  
Azimuth 335°  
Dip -50°

Project Boulder Creek  
Location  
Purpose Explore Silver Vein.

Hole No. S 6.  
Date 16th - 18th Dec/68  
Logged by P. Coxall.

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	23	OVERBURDEN	Casing to 33'.			
23	68	ALTERED GRANODIORITE	Similar to that found in vicinity of Silver Vein, core very broken up, and extensively sheared below 57', shears at 40°-60°. Minor Pyrite throughout, concentrated in fractures, trace of chalcopyrite in few fractures.	24 33 51	33 38 55	4' 1' 6"

Project Boulder Creek

Hole No. S 6

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD.

Coord. 1013N (approx)  
1080E "

Length 89 1/2  
Azimuth 327°  
Dip -45°

Project Boulder Creek  
Location  
Purpose Explore quartz vein.

Hole No. S 1  
Date Jan. 6th, 1969  
Logged by C.R. Saunders

Elev.  
Core Size B.Q.

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
315	39	OXIDIZED GRANODIORITE	As described in S 14 but with limonite staining on generally tight fractures. Fractures " 0°, 30°, 45°, 80°.			
39	44	(MINERALIZED) ALTERED GRANODIORITE	Somewhat sheared and kaolinized granodiorite, no limonite staining, feldspars are pale grey-green. Contains minor pyrite and perhaps some chalcopyrite.			
44	47	VEIN	Predominantly white quartz with some (10-20%) altered granodiorite. Quartz contains coarsely crystalline pyrite, some chalcopyrite and local tetrahedrite. Tetrahedrite and pyrite occur as irregular masses sporadically within the quartz.			
47	53 1/2	ALTERED (MINERALIZED) GRANODIORITE.	Some sections quite dark and may represent altered inclusions of diorite or quartz diorite or even dike rock. Essentially the same as 39-44.			
53 1/2	71	VEIN ZONE	As 44-47 but with some inclusions as 47-53 1/2. Some of sulphide mineralization is very coarse, pyrite crystals to 1" and crystalline tetrahedrite visible.			
71	79	GRANODIORITE	Fresh except for first two feet near vein where there is some kaolinization. F. to medium grained, equi-granular, 1/8", homogeneous, competent. Contains very little mineralization except for local sparse specks of pyrite.			

Project Boulder Creek

Hole No. S 1

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD.

Coord. 1002E  
1146N

Length 451 ft.  
Azimuth 147°  
Dip 45°

Project Boulder Creek  
Location Silver Tip # 6 M.C.  
Purpose Intersect vein and disseminated mineralization

Hole No. S-15  
Date June 18, 1969  
Logged by P.J. Street.

Core Size BQ

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	7	OVERBURDEN	Casing placed to 11 feet.			
7	35	GRANODIORITE	<p>Medium to finely crystalline, rusty-weathering near surface. Slightly porphyritic.</p> <p><u>Composition:-</u> 15-20% quartz, 20% mafic minerals (biotite predominant), 15-20% pink orthoclase, 45-50% plagioclase.</p> <p><u>Mineralization:-</u> pyrite and minor chalcopryite, finely crystalline where disseminated near fractures, or more coarsely crystalline as surface coatings or fillings within fractures. Probably less than 1% of total.</p> <p><u>Fractures:-</u> most are quartz - filled, narrow, occasionally rusty, or slightly sheared. Chlorite common on shear surfaces. No consistent orientation. Core rubby at 33 feet and 34-35 feet.</p> <p><u>Alteration:-</u> slight kaolinization associated with shearing near contact with andesite; otherwise most granodiorite is unaltered.</p>	7	35	0-1%
35	84	ANDESITE	<p>Porphyritic, with very finely-crystalline to aphanitic ground-mass, and small phenocrysts of pink and white feldspars and hornblende, anhedral; medium to dark grey.</p> <p><u>Mineralization:-</u> as in granodiorite, sulphides concentrated near fractures or as fracture fillings; but very sparsely disseminated throughout. Pyrite with minor chalcopryite, traces of molybdenite and possibly tetrahedrite on a few fracture surfaces.</p> <p><u>Fractures:-</u> mostly at 35-45° to core axis, occasional irregular longitudinal fractures up to 1 foot long; generally some quartz in the fractures. Minor shearing with a little gouge at 52 feet, 76 feet.</p> <p><u>Alteration:-</u> white feldspar phenocrysts commonly kaolinized and soft, pink feldspar less so. Otherwise no conspicuous alteration near fractures.</p>	35	84	NIL
35	84	ANDESITE (Cont.)	<p><u>Core :-</u> slightly rubby near 48, 59, 61, 65 and 85 to 88 feet (generally at end of runs). Blocky in a few places.</p>			

Pro

Boulder Creek

Hole No. S-15

Project Boulder Creek Site No. S-15 Page 2

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
84	88	ANDESITE & QUARTZ	<p>Porphyritic andesite as above, with increasing content or irregular blobs of quartz; entire interval rubbly.</p> <p><u>Mineralization:-</u> coarsely-crystalline pyrite with some chalcopyrite and traces of tetrahedrite. Sulphides not over 3% of total.</p>	84	88	NIL
88	139 1/2	VEIN ZONE IN ANDESITE	<p>Porphyritic andesite as above, with 10-20% vein quartz, luggy and anhedral in places. No quartz between 96 and 97 1/2 feet, but strong hydrothermal alteration of andesite.</p> <p><u>Mineralization:-</u> sulphides possibly 20-5% of total; predominantly very coarsely crystallized pyrite, some crystal up to 1 inch square. Very little chalcopyrite, but appreciable very finely crystallized tetrahedrite and molybdenite. Tetrahedrite in very fine spots or patches, or gimming pyrite; molybdenite more commonly along sheared fracture surfaces. Possibly also appreciable macrogranular tetrahedrite.</p> <p><u>Core:-</u> rubbly around 88-90 feet, at 125 and 126 feet, and around 136 1/2 and 138 1/2 feet.</p>	88	93	5%
139 1/2	146 1/2	ANDESITE & QUARTZ	<p>Porphyritic andesite as in 84-88 feet, with minor quartz stringers and no coarse mineralization. Strong hydrothermal alteration and some chlorite on shear surfaces.</p> <p><u>Core:-</u> slightly rubbly at 140 and 141 feet.</p>	93	139 1/2	NIL
146 1/2	148 1/2	ANDESITE, ALTERED	<p>Porphyritic andesite, altered and slightly sheared, recemented with vein quartz (less than 5% quartz).</p> <p><u>Mineralization:-</u> Very finely crystallized tetrahedrite at 146 1/2, elsewhere only finely crystallized pyrite.</p> <p><u>Core:-</u> rubbly and friable at 146 1/2 feet and from 148 to 148 1/2 feet.</p>	146 1/2	148 1/2	NIL
148 1/2	160 1/2	ANDESITE	<p>Porphyritic andesite as in 35-84 feet, moderately altered in places.</p> <p><u>Mineralization:-</u> Very narrow quartz veinlets common, and quartz stringers 1/2 inch to 1 inch thick at 150 1/2, 152 and 153 feet. Coarse pyrite and traces of tetrahedrite in these stringers.</p> <p><u>Fractures:-</u> numerous, at 35-65° to core axis; many of them slightly sheared, with development of chlorite.</p>	148 1/2	160 1/2	NIL

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
160	160 1/2		(Oblique contact of andesite and granodiorite; contact sharp).			
160	375 1/2	GRANODIORITE	<p>As in 7-35 feet above; composition the same.</p> <p><u>Alteration:-</u> fairly strong hydrothermal alteration (kaolinization of feldspars) from 195 to 199, moderate from 203 to 205, 214 1/2 to 215, 217 to 218, 261 to 263 (including 6 inch inclusion of andesite), 267 to 270, and 275 to 284 feet (intermittent). Pink alteration (potash-felspathization?) for 4-5 inches either side of fracture containing solid pink feldspar at 286 feet and also (less strongly) from 288 to 289 feet. Bleaching and kaolinization of wall-rock for 1-2 inches either side of very finely crystallized vein quartz at 316 to 316 1/2 feet. Kaolinization (rock 20 ft. and friable in places) at 325 to 329 feet, 336 1/2 feet (3-4 inches), 358 to 359 1/2 feet (adjacent to sheared irregular longitudinal veinlet), and 363 to 367 feet (along multiple fine longitudinal fractures). Potash - felspathization adjacent to narrow veinlet at 358 feet.</p> <p><u>Mineralization:-</u> at 165 1/2 feet: 1/4 inch quartz veinlet, pyrite in centre, molybdenite at edges;</p> <p>160-195 feet: disseminated pyrite with minor chalcopyrite (ratio approx. 5:1), with traces of molybdenite, sulphides less than 1% of total.</p> <p>195-196 feet : shear plane and narrow veinlet, both 30° to core axis, with strong molybdenite and some pyrite and chalcopyrite.</p> <p>196-231 feet : sparse disseminated pyrite, chalcopyrite ratio possibly 3:1; total sulphides less than 1%.</p> <p>231- 233 feet : traces of molybdenite in rubbly quartz veinlets.</p> <p>233-375 1/2 feet : sparse mineralization (less than 1%) as in 196-231 feet; with exception of:-</p> <p>239 1/2 - 241 1/2 feet: longitudinal veinlet, 1/4 inch wide, with strong chalcopyrite and molybdenite.</p> <p>250 1/2 feet: minor very finely crystallized hematite with chalcopyrite and pyrite.</p> <p>267 1/2-269 1/2, 272-274 1/2 feet: some extremely fine-grained disseminated tetrahedrite.</p> <p>295 1/2 feet: quartz veinlet 1 inch wide with coarse pyrite.</p> <p>306 feet: minor coarse chalcopyrite along fracture.</p> <p>326 feet: traces of tetrahedrite.</p> <p>333 feet: traces of tetrahedrite or molybdenite on fine fracture.</p> <p>349 feet: 1 inch quartz vein with strong pyrite and chalcopyrite, also some tetrahedrite.</p>	160	375 1/2	NIL

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FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
160	375 1/2	(continued).	<p>356 feet: strong pyr. and chalcopyrite on fracture surface, and up to 2% disseminated from 356 to 358 feet.</p> <p>Core, fracturing etc.:-                      165-171 feet: several sheared fractures at 35-45° to core axis, rubbly and friable, with chlorite.                      178 1/2 feet: slightly blocky.                      231 to 233, 239 to 239 1/2 feet: rubbly.                      272, 280 to 282 feet: blocky (along irregular longitudinal shear-plane from 280-282 feet).                      312, 336 1/2, 359 1/2 to 360 feet: minor shearing on planes 35-65° core axis. Smearing of sulphides indicates that some of these shears are post-mineralization.</p>			
375 1/2	412	ANDESITE	<p>Porphyritic andesite as in 35-84 feet and 148 1/2-160 1/2 feet.</p> <p>Mineralization:-                      generally very sparse, with coarsely-crystallized pyrite and chalcopyrite on a few fracture surfaces.</p> <p>Core fracturing, etc.,:-                      blocky from 375-383, 385-386, 388-391, 394-395 1/2, 396-397 feet (also rubbly at end of a run), and around 404 1/2 feet.</p> <p>Alteration:-                      396 to 397 feet: kaolinization, and strong bleaching for 1/4 inch either side of minor mineralized fracture at 397 feet.</p>	375 1/2	412	NIL
412	451	GRANODIORITE	<p>As in 7-35 feet and 160-375 1/2 feet above; composition the same. Mostly unaltered.</p> <p>Mineralization:-                      generally sparse, with occasional coarser sulphides on fracture surfaces, as at: 433 feet (coarse chalcopyrite), 437 feet (some pyrite), 441 (very coarse pyrite in 1/2 inch quartz veinlet), and 443 1/2 (pyrite and chalcopyrite). Less than 1% of total.</p>	412	451	NIL
451			End of hole.			

CORE LOSS

FROM TO LOST

Project, Boulder Creek

No. S-15

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FOOTAGE		ROCK TYPE	DESCRIPTION	Au	Ag	Cu	Mo	CORE LOSS		
FROM	TO							FROM	TO	LOST
		<u>From</u>	<u>To</u>	<u>Width</u>						
		16	33	17	Tr	Tr	.10	Tr		
		35	45	10	Tr	Tr	.01	Tr		
		55	65	10	Tr	Tr	.02	Tr		
		71	81	10	Tr	Tr	.05	Tr		
		81	88	7	Tr	Tr	.30	Tr		
		88	98 1/2	10 1/2	Tr	Tr	.09	Tr		
		98 1/2	108 1/2	10	Tr	Tr	.05	Tr		
		108 1/2	118 1/2	10	Tr	Tr	.02	Tr		
		118 1/2	128 1/2	10	Tr	Tr	.05	Tr		
		128 1/2	138 1/2	10	Tr	.51	.20	Tr		
		138 1/2	148 1/2	10	Tr	Tr	.05	.04		
		148 1/2	160 1/2	12	Tr	Tr	.02	.01		
		160 1/2	167	6 1/2	Tr	Tr	.07	Tr		
		167	172	5	Tr	Tr	.10	Tr		
		172	193	21	Spec - for 30 metals					
		193	205	12	Tr	Tr	.07	.12		
		205	215	10	Tr	Tr	.05	Tr		
		221 1/2	242	20 1/2	Tr	Tr	.14	.05		
		244	264	20	Tr	Tr	.05	Tr		
		265	275	10	Tr	Tr	.02	Tr		
		285	296	11	Tr	Tr	.07	Tr		
		300	314	14	Tr	Tr	.08	Tr		
		314	330	16	Tr	Tr	.04	Tr		
		332	352	20	Tr	.27	.19	Tr		
		356	376	20	Tr	Tr	.03	Tr		
		380	391	11	Tr	.26	.02	Tr		
		407	412	5	Tr	Tr	.02	Tr		
		412	421	9	Tr	Tr	.05	Tr		
		431	451	20	Tr	Tr	.04	Tr		

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE, CAMPBELL & ASSOCIATES LTD

Coord. 1100E  
1140N

Elev  
Core Size BQ

Length 327'  
Azimuth 147°  
Dip 45°

Project Boulder Creek  
Location Silver Tip # 6 M.C.  
Purpose Intersect vein and disseminated mineralization

Hole No. S-16  
Date June 22nd, 1969.  
Logged by P.J. Street.

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	6	OVERBURDEN	Casing placed to 8 feet.			
6	48	ANDESITE	<p>Porphyritic andesite, dark grey, very fine-grained to aphanitic ground-mass, fine phenocrysts chiefly of biotite and hornblende. Generally unaltered. Lighter grey, with coarser phenocrysts, below 25 feet.</p> <p><u>Mineralization:-</u> generally sparse, less than 1%. Sulphides on fracture surfaces or very finely disseminated in country rock near fractures. Pyrite to chalcopyrite at least 4:1. At 42 feet: two narrow (1/8 inch) veinlets with coarse pyrite and chalcopyrite (2:1).</p> <p><u>Core fractures, etc.:-</u> Numerous fine fractures at 45-60° to core axis, generally cemented with quartz and lined with sulphides. Several irregular longitudinal fractures between 21-27, 28-29, 39-41 and 50-50 1/2 feet, where fracture surface ranges from 0-15° to core axis. Moderate shearing on a few fractures.</p> <p>6-13 feet: lumpy and rusty-weathering. 13-21 feet: mostly blocky, with a few sections up to 6 inches unbroken. 24 1/2-26 feet: blocky. 29 feet: blocky; fractures at 40° to core axis, minor shearing and development of chlorite. 45 feet: 1-2 inches of gouge, light green, and soft, brecciated rock; approx. 1 foot of core lost. Andesite moderately altered below here.</p>	6	13	50-60%
				13	45	5%
				45	47	60%
				47	48	5%
48	63 1/2	GRANODIORITE	Medium crystalline, slightly porphyritic.	48	54	NIL
				54	59	10%
				59	63 1/2	NIL
			<p><u>Composition:-</u> up to 10% quartz, up to 15% biotite and hornblende, 15% orthoclase, 60% plagioclase, possibly 1-1 1/2% sulphides. Colourless except for mafic minerals and some pink orthoclase, but all slightly greenish near contact at 48 feet.</p>			

Boulder Creek

Hole No. S-16

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
48	63 1/2	(continued)	<p><u>Mineralization:-</u> sparse sulphides throughout, rarely as much as 1 1/2%, Pyrite and minor chalcopyrite (4:1) finely disseminated near fractures, or as fracture coatings. Coarse pyrite and chalcopyrite at 60 1/2 feet.</p> <p><u>Fractures etc:-</u></p> <p>51 feet: 1/8 inch calcite on shear surface, 45° to core axis.</p> <p>52-53 feet: shear surface, 0-15° to core axis, chlorite on shear, blocky around 52 1/2 feet.</p> <p>55-55 1/2 feet: shear surface, 25° to core axis.</p> <p>56 1/2 feet: shear at 35°, with calcite.</p> <p>59-60 1/2 feet: blocky and rubbly.</p>			
63 1/2	79	VEIN ZONE IN GRANODIORITE	<p>Country rock is granodiorite as above, but mostly highly altered. Quartz makes up approx. 10% of this interval; is irregular, in places cross-cutting the core in (e.g.) 2 inch veinlets, elsewhere in elongate masses parallel to core axis and adjacent to country rock.</p> <p><u>Mineralization:-</u></p> <p>Mostly pyrite, coarsely-crystallized, 5-6% of total, variable. Only traces of chalcopyrite. Tetrahedrite associated with pyrite at 63 1/2-64 feet, 70 1/2 feet, and elsewhere, but amounting to less than 5% of total sulphides in those intervals.</p> <p><u>Core:-</u></p> <p>finely rubbly, with brecciation and shearing, at 70-70 1/2, 72-72 1/2, 75-76 and 78-79 feet.</p>			
79	327	GRANODIORITE	<p>As in 48-63 1/2 feet above. At 277-277 1/2 feet, inclusion of andesites, distinct boundaries.</p> <p><u>Alteration:-</u></p> <p>118 1/2-120 feet: kaolinization and chlorite throughout.</p> <p>Below 120 feet: feldspars dull, but not soft, and rock greenish.</p> <p>123-124 feet: highly altered, chloritized, crystalline texture observed.</p> <p>128-129 1/2 feet: as in 123-124 feet. Around 215 feet, potash feldspathization along some fractures.</p> <p><u>Mineralization:-</u></p> <p>Sulphides generally less than 1% throughout; concentrated as coatings on fracture surfaces or very finely disseminated near fractures.</p>	79	327	0-1/2%

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
79	327	(Continued).	At 89 1/2 feet: traces of molybdenite on narrow quartz veinlet (at 25° to core axis). Several veinlets intersect here; angle to core axis 25-45°; pyrite and minor chalcopyrite on surfaces.			
			122 feet: traces of molybdenite on shear, 40° to core axis.			
			188 feet: coarse chalcopyrite on 1/2 inch quartz veinlet.			
			215 feet: chalcopyrite with trace of molybdenite in 1 inch quartz veinlet; adjacent country rock altered.			
			225 1/2 feet: 1/8 inch coarse pyrite in 1 inch quartz veinlet.			
			261 feet: 1/4 inch coarse pyrite, adjacent rock altered over 1/2 inch width.			
			313 feet: pyrite and molybdenite in 1/4 inch veinlet. Fine quartz crystals line open 1/4 inch fracture (40-45°) at 313 1/2 feet.			
			Core, fractures etc.:-			
			Numerous fractures through out, generally approx. 45° to core axis, spaced 3 miles to 1 foot; some cemented with quartz.			
			104 1/2 feet: compound fracture at 40° some shearing.			
			115-117 feet: irregular longitudinal fracture with considerable biotite.			
			117 feet: 40° fracture, sheared.			
			119 feet: approx. 2 inches of brecciated, friable material, like fault-gouge.			
			129 1/2-132 feet: irregular longitudinal fracture (0-15° to core axis), sheared, with chlorite.			
			145 1/2 feet: slightly rubbly, with traces of molybdenite.			
			145-177 feet: occasional fractures at approx. 60°.			
			177-177 1/2 feet: fracture at 30°.			
			178 1/2-179 feet: fracture at 10°.			
			180 3/4 - 181 1/2 feet: fracture at 5-10°, with slight shearing and mineralization.			
			183 1/2-184 feet: two intersecting shears at 30° to core axis, with chlorite.			
			189 (approx) feet: two intersecting shears at 20° and 30° to core axis, respectively, with chlorite.			
			194-196 feet, 205-208 feet: longitudinal fractures, 0-5° to core axis, moderate chlorite though not much shearing. Occasional fractures at 30-45°, some with shearing as at:			
			196 1/2, 200, 226, 232 1/2, 233, 235, 235 1/2, and 236 1/2 feet (two intersecting, 45°).			
			237 feet: core rubbly and slightly ground; lowest 6 inches of last run not retained by core barrel, and drilled over.			

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
79	327	(Continued).	Approx. 238 feet: 6 inch irregular fracture, sheared, with chlorite. 291 1/2-293 feet: several fractures at 30°, very little shearing, but some chlorite. Remainder of core to 327 feet is solid and relatively unfractured.			
327			End of hole.			

<u>From</u>	<u>To</u>	<u>Width</u>	<u>Au</u>	<u>Ag</u>	<u>Cu</u>	<u>Mo</u>
37	48	11	Tr	Tr	.21	Tr
48	58	10	Tr	Tr	.03	Tr
63 1/2	67	3 1/2	Tr	1.57	.65	Tr
67	71	4	Tr	3.53	.45	Tr
71	75	4	Tr	Tr	.07	Tr
75	79 1/4	4 1/4	Tr	.73	.14	Tr
79 1/2	89	9 1/2	Tr	Tr	.07	Tr
107	117	10	Tr	Tr	.06	.01
155	165	10	Tr	Tr	.08	Tr
215	225	10	Tr	Tr	.15	Tr
257	267	10	Tr	Tr	.07	Tr
291	302	11	Tr	Tr	.03	Tr

Project

Older Creek

ole No.

S-16

Page

4

SULTANA SILVER MINES LTD.

DRILL RECORD—DOLMAGE CAMPBELL & ASSOCIATES LTD.

Coord. 1148E  
1137N

Length 302'  
Azimuth 147°  
Dip 45°

Project Boulder Creek  
Location Silver Tip # 6 M.C.  
Purpose Intersect vein and dissem'd mineralization.

Hole No. S-17  
Date June 24th, 1969.  
Logged by P.J. Street.

Elev.  
Core Size BQ

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
0	9	OVERBURDEN	Casing placed to 10 feet.			
9	302	GRANODIORITE	<p>Medium crystalline, slightly porphyritic, with moderate to strong hydrothermal alteration in some sections. Composition of fresh granodiorite:- up to 10% quartz, up to 15% biotite and hornblende, 15% orthoclase, 60% plagioclase, possibly 1-1 1/2% sulphides, as in Hole S-16.</p> <p>Rusty - weathering on fractures near surface, with some slightly mineralized quartz in rubbly material of approx. 9-12 feet.</p> <p><u>Alteration:-</u> In places, strong enough to produce soft, fissile or friable, coarsely-crystalline greenstone that appears to grade into fresh granodiorite, interpreted as hydrothermal chloritization and kaolinization of the granodiorite. In isolation, would resemble highly altered, possibly re-crystallized andesite. Altered zones as follows:- 27-28 1/2 feet, 34-60 1/2 feet (with strong mineralization at base), 63-67 feet, 71-79 feet (strong, and sheared between 74-79 feet), 83-83 1/2 feet, 90-99 feet (moderate but uneven alteration, strongest near mineralized shears at 93 1/2-94 ft, 140-150 feet (soft), 150-152 (slight alteration associated with sheared and mineralized zones at approx. 151 and 152 feet), 202-204 and 206-208 feet (ass'd with shearing and close fracturing), 229-232 feet (as 206-208).</p> <p><u>Mineralization:-</u> No distinct vein zone as in Holes S-15 and S-16. Even the strongly altered zone from 34-60 feet has only occasional coarser veinlets of sulphides, which comprise chiefly pyrite with some chalcopyrite and occasional traces of molybdenite or tetrahedrite. A few narrow quartz veinlets contain coarser aggregates of sulphides, but total mineralization probably less than 1%. More conspicuous mineralized fractures, etc., are as follows:- 14 feet: narrow veinlet of ruggy quartz with pyrite and chalcopyrite. 15 1/2 feet: 1 inch quartz veinlet; chalcopyrite and traces molybdenite or tetrahedrite. 18 1/2 feet: fracture (40°) with rusty pyrite, some molyb. and chalcop.</p>	9	12	5%
				12	18	2%
				18	302	0-1/2%

Proj. Boulder Creek

Hole No. S-17

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
9	302	(Continued).	60 1/2-61 1/2 feet: 1 1/2 inch veinlet, 25° to core axis, with approx. 20% quartz, 70% massive pyrite, 5% chalcopyrite, 5% combined molybdenite and tetrahedrite.			
			64 1/2 feet: blob of coarse chalcopyrite with some molybdenite in 1/2 inch quartz veinlet (60° to core).			
			75-79 feet: highly sheared and altered section has only traces of sulphides.			
			93 1/2 feet: 1 inch quartz veinlet (45°) with pyrite, chalcopyrite, traces of molyb., and tetrahedrite.			
			97 feet: 1/2 inch quartz veinlet (35°) with pyrite and chalcopyrite (less than 10% of veinlet).			
			114 feet: fine fracture lined with chalcopyrite only.			
			121 1/2 feet and following: only occasional chalcopyrite on fracture surfaces, almost uniformly pyrite.			
			131 feet: some chalcopyrite with pyrite in 1/2 inch quartz veinlet.			
			141-141 1/2 feet: sheared zone with fine-grained pyrite, minor chalcopyrite and traces of molybdenite.			
			172 feet: some coarse chalcopyrite in 1/4-1/2 inch veinlet (45°)			
			160 1/2, 176 1/2 feet: coarse pyrite in fractures or very narrow veinlets.			
			229 1/2 and 231 feet: veinlets with coarse pyrite.			
			231 to 302 feet: occasional fine fractures with pyrite and minor chalcopyrite.			
			<u>Core, fractures, etc.:-</u>			
			9-12 feet: <u>rubbly and blocky</u> in weathered zone.			
			15-15 1/2, and 18 1/2 feet: <u>blocky</u> .			
			24 1/2-25 feet: <u>shear, 0-20° to core axis, with calcite; blocky.</u>			
			27 feet: <u>rubbly and friable</u> at end of run.			
			28-28 1/2 feet: <u>shear, 35° muddy and friable.</u>			
			34-34 1/2 feet: <u>shear, 35°, blocky, with chlorite.</u>			
			37-40 feet: <u>several low angle shears; blocky; core slightly ground at 40 feet.</u>			
			43-45 feet: <u>longitudinal, irregularly curved shear, with chlorite.</u>			
			48-48 1/2 feet: <u>coarsely blocky.</u>			
			51 1/2 feet: <u>core slightly ground.</u>			
			56 1/2 feet: <u>finely rubbly at end of run, for approx. 6 inches.</u>			
			58 1/2-61 feet: <u>coarsely blocky.</u>			
			62-67 feet: <u>fractures (90°) at 1-2 inch intervals; last 6 inches blocky and rubbly.</u>			
			71-75 feet: <u>coarsely blocky.</u>			
			77, 78 feet: <u>friable altered granodiorite, probably sheared.</u>			
			78 1/2-79 feet: <u>finely blocky or rubbly, at end of run.</u>			

Project Boulder Creek Hole No. S-17 Page 3

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS		
FROM	TO			FROM	TO	LOST
9	302	(continued)	80 1/2-81 1/2 feet: blocky, with irregular fractures from 0°-30° to core axis.			
			83-84 feet: rubbly and blocky (83 feet = end of run).			
			86 1/2-87 feet: rubbly along open ruggy fracture with fine quartz crystals; approx. 1 foot of core lost below 87 feet.	87	96	1'
			Shearing common from 79-98 feet, with some chlorite.			
			98-127 feet: solid, with rare fractures at 45-80°.			
			127-141 feet: numerous fractures at 45-80°, spaced 2 inches to 1 foot, slight shearing on some, with chlorite.			
			141-141 3/4 feet: highly sheared zone with quartz etc, friable and rubbly.			
			141 3/4 - 151 feet: blocky throughout, and also rubbly with some shear gouge at 147, 148 and 151 (shears at 0-25° to core axis).			
			151-156 feet: closely broken, with low-angle shears between 153 1/2-154 feet.			
			156-190 feet: several shears at 20-35° to core axis (at 159, 160, 164, 176 1/2-177, 186-186 1/2, 189 1/2-190 feet); tends to be blocky adjacent to some of these shears.			
			201 1/2-208 feet: blocky, with few exceptions, and finely rubbly from 207-208',			
			208-216 feet: fractures at 45-60°, spaced 2 inches to 1 foot, are 6 inches.			
			216-224 feet: numerous fractures at 35-45°, but core generally solid except at 224 feet (slightly blocky, approx. 3 inches lost).			
			228-229 feet: irregular fracture 0-20°, slightly sheared, some chlorite; (also 230-232 feet).			
			229-230 feet: several shears (35°) spaced 2-3 inches, next to 2 inch quartz veinlet.			
			237-237 1/2 feet: 1/4 inch of gouge along shear (25°).			
			247, 256 and 282 feet: at end or start of runs, blocky, several inches overdrilled at 256 and 282 feet where core lifter malfunctioned.			
			289-290 feet: multiple fractures at 0-10° to core axis; blocky.			
			290-302 feet: core relatively solid.			
			Drilling temporarily suspended, rods left in hole pending resumption of drilling.			

302

Project Suona Silver Mines Ltd. Core No. S-17 Page 4

FOOTAGE		ROCK TYPE	DESCRIPTION	CORE LOSS						
FROM	TO			FROM	TO	LOST				
	<u>From</u>		<u>To</u>	<u>Width</u>	<u>Au</u>	<u>Ag</u>	<u>Cu</u>	<u>Mo</u>		
	27		42	15	Tr	Tr	.15	Tr		
	60 1/2		67	6 1/2	Tr	.72	.30	.13		
	83		94	11	Tr	Tr	.15	Tr		
	112		122 1/2	10 1/2	Tr	Tr	.07	Tr		
	127 1/2		137 1/2	10	Tr	Tr	.10	Tr		
	141		149	8	Tr	Tr	.06	Tr		
	149		158	9	Tr	Tr	.07	Tr		
	171		180	9	Tr	Tr	.05	Tr		
	202		212	10	Tr	Tr	.03	Tr		
	226		236	10	Tr	Tr	.01	Tr		
	247		258	11	Tr	Tr	Tr	Tr		
	272		282	10	Tr	Tr	Tr	Tr		
	291		302	11	Tr	Tr	.07	Tr		