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Kit Carson Mining Dist.



SILVER STAR PROPERTY  
Exploration Report

October 9, 1972  
T. F. Miller



SILVER STAR PROPERTY

Exploration Report

Kit Carson Mining District

Elko County, Nevada

by: Thomas F. Miller  
Resident Geologist  
Sunshine Mining Company  
October 9, 1972



## Silver Star Property Exploration Report

### Summary and Conclusions

After an option agreement was signed with Quantex Corporation of Salt Lake City on March 16, 1972, Sunshine Mining Company commenced to actively explore the Silver Star property located in northeastern Elko County, Nevada.

The exploration consisted of extensive trenching, 4050 of drilling, a limited amount of geo-chemical soil sampling, geological mapping and geological reconnaissance of the district.

Core drilling resulted in good core recovery (90%) of the vein structure; but mineralization of significance was not obtained, of the eleven holes drilled by Sunshine, nine were virtually barren and two had sparse mineralization. Holes drilled next to Quantex discovery holes, failed to intersect any native silver or any other mineral value of economic importance.

Some of the surface trenching did result in some interesting mineral shows, but these could not be correlated too well with the drilling.

The Silver Star structure is very complex and difficult to test and interpret by core drilling because of the extensive faulting, cymoid structures and the later intruded acidic dike which swells in and out both horizontally and vertically. The dike in some areas replaces the entire vein and undoubtedly is a significant factor in mineral control as it probably has isolated some sections of the host quartz and other favorable vein rocks from post dike mineralization.

It is probable that there are small, but significant ore shoots in the vein system somewhat controlled by the above factors. The best way to explore for these would be by drifting in the vein and testing at close intervals; however, the work done by Sunshine has virtually ruled out any significant potential for relatively large or continuous ore bodies. The risk and cost involved along with other factors, to explore the vein by drifting for the smaller possible ore bodies, are not of interest to Sunshine. The Company management, geologists and consulting geologist, Manning Cox, (reports attached) agree the option with Quantex Corporation should be dropped October 15, 1972, mainly because of the disappointing drill hole results in key areas.

A small lead anomaly was outlined by geo-chemical soil sampling. Its possibilities were not tested by drilling.



The diamond drill hole data is listed below, cross sections and logs are found near the end of the report.

<u>Hole</u>	<u>Dip</u>	<u>Bearing</u>	<u>Depth</u>	<u>Silver Star Structure Intersection</u>	<u>True Width</u>	<u>Assay Results</u>
S-1	-40°	S 56 E	191.5'	155' - 180'	20'	Minor Ag & Cu
S-2	-52°	S 50 E	276'	220' - 244'	20'	0.1 Ag, 0.019 Cu
S-3	-50°	S 47 E	317'	245' - 296'	48'	Barren
S-4	-62°	S 45 E	312'	225' - 249'	20'	Minor Ag
S-5	-67°	S 40 E	464'	H.W. 127' - 152'	21'	7" Hi-grade str.
S-6	-60°	S 64 E	284'	353' - 372'	14'	Barren
S-7	-68°	S 62 E	392'	223.5' - 282'	50'	Minor Ag
S-8	-60°	S 55 E	300'	264' - 290'	20'	Barren
S-9	-71°	S 40 E	894'	226.5' - 295'	56'	Minor Ag
S-10	-46°	S 58 E	350'	810' - 849'	13'	Minor Ag & Cu
S-11	-61°	S 45 E	271'	0' - 350'	NA	Minor Ag, Cu, Pb
				196.5' - 250.8'	37'	Barren

#### References

The following reports should be read in conjunction with the report if one desires to know the past history of the property.

The report by Manning Cox, consultant for Sunshine, is brief and states his opinion after Sunshine had completed nine holes on the property.

Taylor A, O and Laub D. C. November 1971  
Geology and Preliminary Exploration Results  
on the Silver Star Property - Elko County, Nevada  
Quantex Corporation.

Cox, Manning W. August 8, 1972  
Consulting opinion for Sunshine after two reviews  
of project with T. F. Miller.



### Core Drilling

The drilling was designed to test the vein close to the three ore grade holes Quantex Corporation drilled in 1971. The objective was to block out several hundred thousand tons of ore grade material in order to justify an underground development program.

The three widely spaced holes drilled by Quantex Corporation suggested that the above objective could be met with five or six holes. Sunshine drilled a total of eleven drill holes of which one was a deep intersection (800' down dip on the vein). Nine holes found the Silver Star vein virtually barren and the remaining two intersected non-ore grade sparse mineralization.

Holes S-6, S-7 and S-8 were drilled close to Quantex hole Q-1, all were barren. In hole S-6 when 290' depth was intersected, the water return came out to hole Q-3. Hole S-8 was surveyed and collared 6' from Q-3 and was drilled on the same bearing and angle. Hole S-10 was drilled down the vein for 350' and would be like a very small inclined drift.

This hole according to the Tropari survey had to come extremely close to Q-1 where 60' of ore grade native silver was intersected again only minor mineralization was intersected with no native silver. Return water came out of Q-1 when 289' intersection was made on hole S-10. Hole Q-1 was also surveyed by Sunshine (See x-section S-10).

The above drilling results were very confusing and one could only conclude that the ore grade mineralization Quantex intersected must be narrowly localized and in very small confined shoots or pods. The fact that they drilled ore with three out of three holes and Sunshine hit virtually nothing with eleven holes in the same areas is amazing.

The large area between S-11 and S-6, about 1900' on the Silver Star structure was not tested by drilling and may hold some potential for ore occurrence.

### General Geology

The rocks in the immediate area of the Silver Star property are Paleozoic in age and consist of shales, sandstones, argillites, limestone and chert. These rocks are part of the western facies of the upper plate of the Roberts Mountain thrust fault. Most of the other minor thrust faults in the area are considered by the author to be bedding thrusts and form an imbricate structure in these series of rocks. The region was later uplifted and at this time considerable faulting and folding occurred which resulted in a rather complex geological sequence to interpret.



The last major faulting in this series of events was probably the cross faulting such as the Silver Star fault. Rocks on either side of the Silver Star fault consist of a soft black carbonaceous graphitic slightly pyritic shale on the hanging wall which resembles the Mississippian Chainman Shale. The footwall consists of relatively hard gray black carbonaceous pyrite shale.

### Silver Star Fault Structure

The Silver Star vein occupies a diagonal slip fault structure occurring in mid paleozoic rocks of the upper Roberts Mountain Thrust plate. The main fault strikes  $45^{\circ}$  to  $55^{\circ}$  E. and dips  $75^{\circ}$  to  $85^{\circ}$  northwest within a vertical range in excess of 800'. The fault forms the footwall of the structure and strikes in a nearly straight line. The fault is strong and appears to be steepening from  $75^{\circ}$  to  $80^{\circ}$  at surface to near vertical at depth (See x-section S-9 drill hole).

The width of the known fault zone averages 25' to 30' for 3200'. In the main open pit near holes Q-1 and Q-2, the fault striations and folds in the silicified shale plunge S.  $35^{\circ}$  W. suggesting this was the possible down dip fault movement. It may also have been a controlling factor in mineral solution movement.

The main structure is cut by numerous secondary faults and some cymoid structures that were somewhat mineralized. Nearly all trenching and core holes across the Silver Star structure have shown it to consist of the various rock types.

1. Crushed vein quartz.
2. Massive vein quartz.
3. Altered shaley beds with minor quartz stringers.
4. Crushed shaley gouge, argillized.
5. Intrusive acidic dikes.

I believe the dike plays a significant role in mineral control; where its presence dominates the vein it probably can be assumed that any economic mineralization will be insignificant or nil. The dike swells in and out quite rapidly, both horizontally and vertically.

### Vein Depositions and Mineralization

In order of vein deposition:

1. Quartz replaced or displaced the gouge and shaley matter along the Silver Star fault fissure.
2. The acidic dikes were intruded into the structure and replaced some of the quartz and other gouge, its force crushed the quartz. Some mineralization came at this time.



3. Later quartz was intruded into the structure. This series brought with it copper and lead and silver mineralization. Most of this quartz which was massive favors the footwall of the structure.

Movement on the Silver Star fault after the above sequence caused numerous slippage in the vein.

Minerals observed in the various trenches and pits on the Silver Star property consists of primary tetrahedrite, galena and an unidentified sulfide similar to tetrahedrite. The secondary minerals were azurite, pyromorphite, malachite, cerrusite anglisite and a host of other unidentified secondary minerals.

#### Trenching

Six new trenches were dug and two previous trenches were cleaned out and deepened with a D8H cat. In all trenches the Silver Star vein structure was well exposed. Trenching proved that the Silver Star structure is at least 3200' long and is probably in excess of one mile.

Some interesting mineralization was found in some of the trenches, which suggested that significant values may be found deeper, but such was not the case in the areas drilled.

Cross-sections and assay data for each trench are included in this report. The trench locations are on the enclosed 1" - 200' scale map by D. A. Avery.

MANNING W. COX

consulting geologist

ox 158

friday harbor, washington

[206] 378-2066

August 8, 1972

Mr. Don Long,  
Sunshine Mining Company,  
Kellogg, Idaho

Quantex Silver  
Nevada

Dear Don:

I reviewed the exploration by Sunshine of the Quantex silver prospect near Contact Nevada and submitted my findings.

Trenching north, south and between the original two vein exposures shows most of the Silver Star structure to be occupied by dykes, and gouge with only a subordinate amount of vein matter. This seems largely to represent the fact that the vein zone is largely in black shales at these points. Relogging Qunatex Holes 1 2 and 3 show that in each case there is 15-20 feet of visibly mineralized quartz vein with tetrahedrite and galena and an equal amount of larger amount of purple stained rock bearing native silver. This latter type of mineralization is obviously secondary.

Sunshines 9 holes are so located as to pretty well preclude their being any ore shoots near the original quantex drilling inasmuch as all nine holes are barren in the main vein zone. Your hole four did encounter a very narrow hanging wall vein with good values.

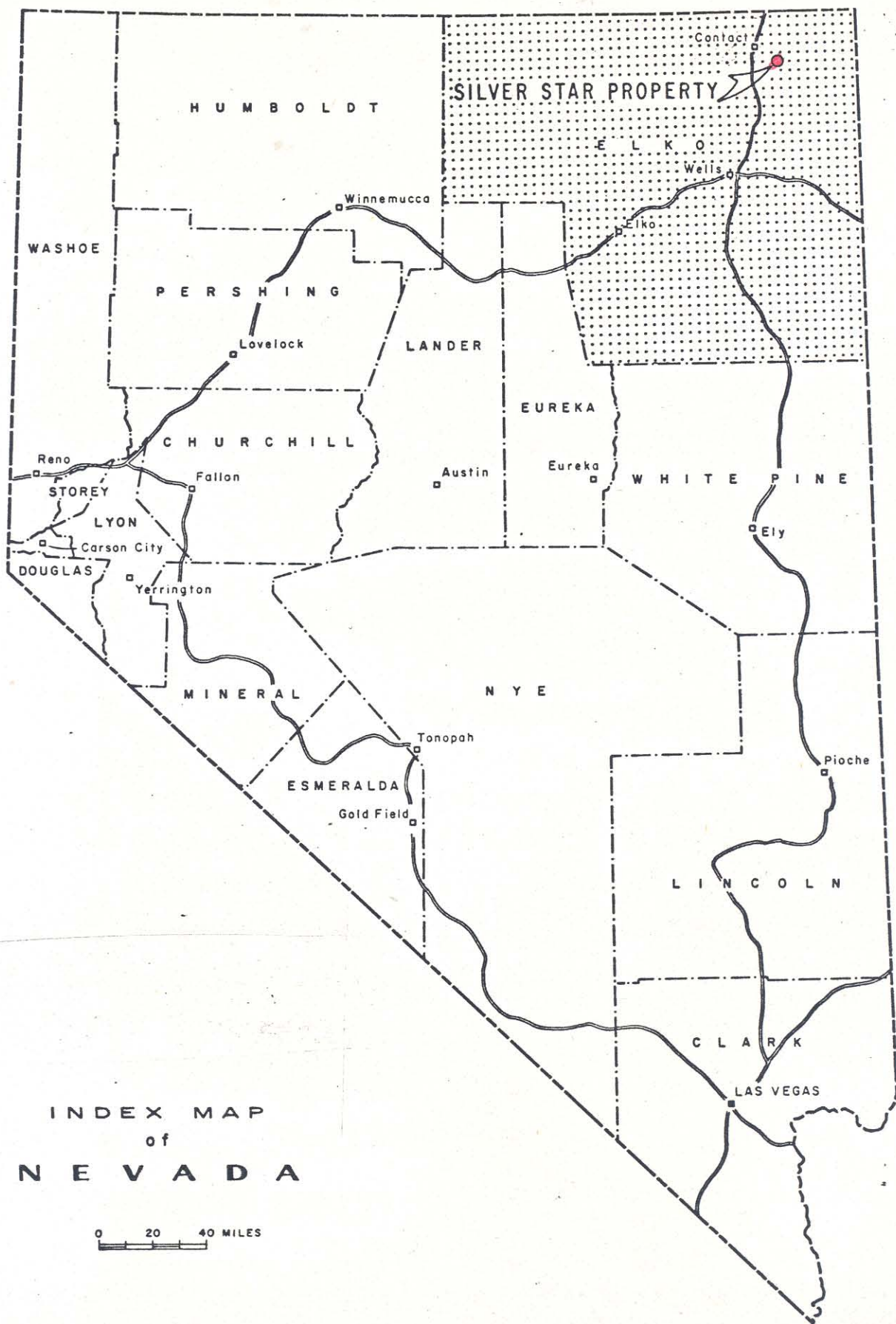
Perhaps the vein zone would be better mineralized in more competent rocks if such exist at depth. Or perhaps we see only the roots of once more extensive mineralization. I do not think it worth further drilling however since it now appears that at least for the upper 1000 feet of vein zone or thereabouts the chances of wide continuous ore have been eliminated.

I do think the lead soil sample anomaly is worth a test and suggest a series of short rotary holes would be in order.

Respectfully submitted,

  
Manning W. Cox





INDEX MAP  
of  
NEVADA

0 20 40 MILES

Hole No. S-1  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started 4/24/72

Mine Silver Star

Departure \_\_\_\_\_

Finished 4/28/72

Location Contact, Nevada

Elevation \_\_\_\_\_

Hole Size NQWL

Depth 191.5'

Logged by G. Phillips Date 5/1/72

Bearing S56E

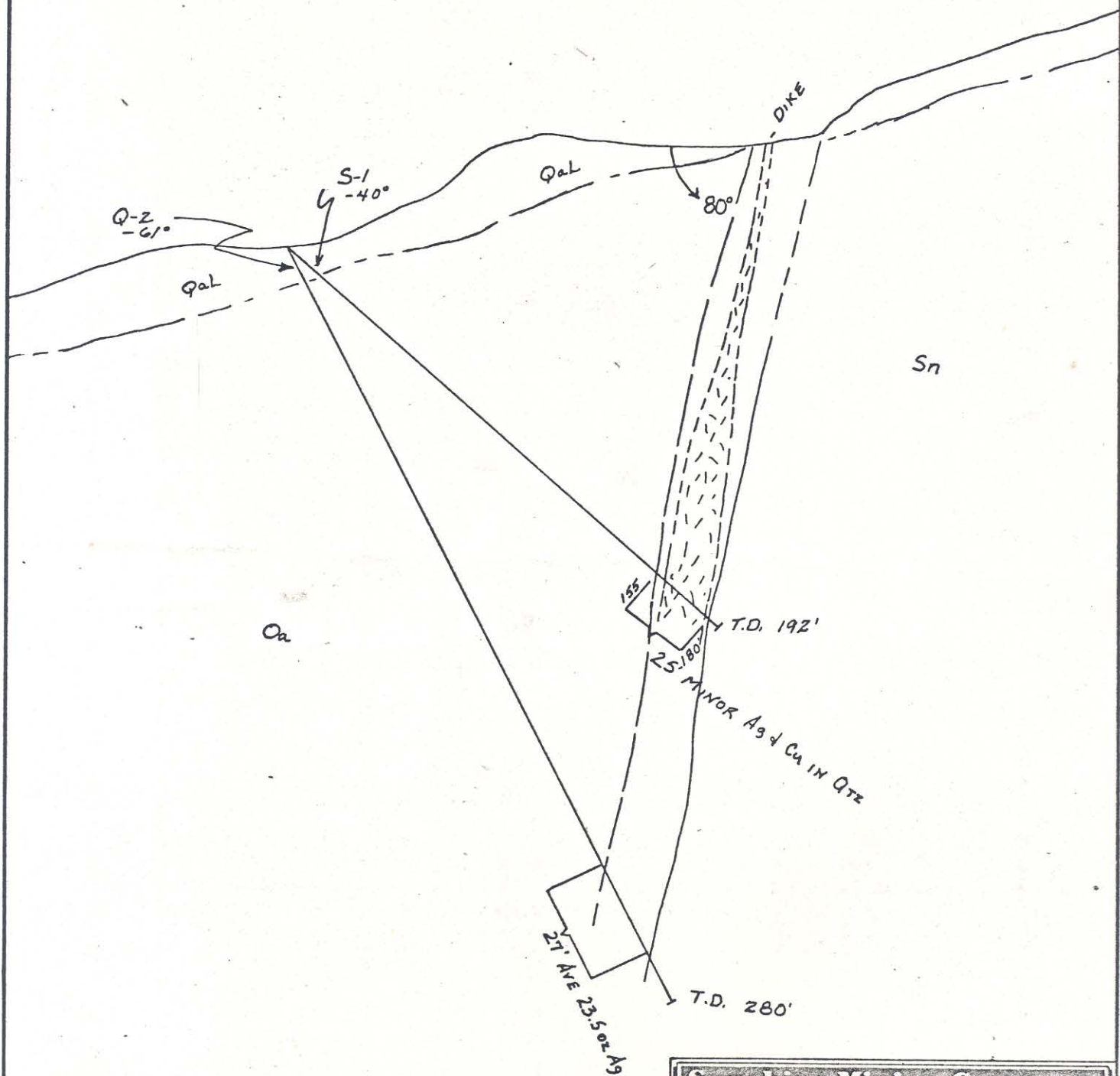
% Core Rec. \_\_\_\_\_

Drilled by Miller and Burchfield

Inclination - 40°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
30	0	Rock Bit to 30'. No Core.							
69	19.5	Mostly mud seams with intbd with blk brn sh. minor Ca Co <sub>3</sub> streaks.							
102.5	16.0	Blk. brn. weath sh. dike 102.5- 103.2							
125	18.0	Med. Gray-Brn. SH.							
141	16.0	Blk. Sh. broken up.							
159	18.0	Dk. Blk. Sh. Part. Broken Up. Brecc Qtz. 155-156.5	9251	155-156.5	1.5	1.5	No	No	0.06
		4.0' Lt. Pale Gry. Apalite dike	9252	156.5-160.5	4.0	4.0	0.6	No	0.02
161.3	2.3	0.8' Qtz. Brecc.	9254	160.5-161.3	0.8	0.8	No	No	0.23
177.5	16.2	Lt. Pale Gry. Apalite Dike	9255	161.3-165.5	4.2	4.2	0.1	No	0.02
			9256	165.5-167.0	1.5	1.5	No	No	0.15
			9257	167-172	5.0	5.0	0.1	No	0.02
			9258	172-175.3	3.3	3.3	0.6	No	0.07
			9259	175.3-177.5	2.1	2.1	0.1	No	0.07
			9260	177.5-180	2.5	2.5	0.4	0.75	0.28
191.5		Blk. Carb. SH., Broken up with minor pyr. XL's 180-101.5	9261	180-185.5	5.5	5.5	No	Tr.	0.00
			9262	185.5-191.5	6.0	6.0	0.2	No	0.00





# **Sunshine Mining Company**

DDH S-1 + Q-2

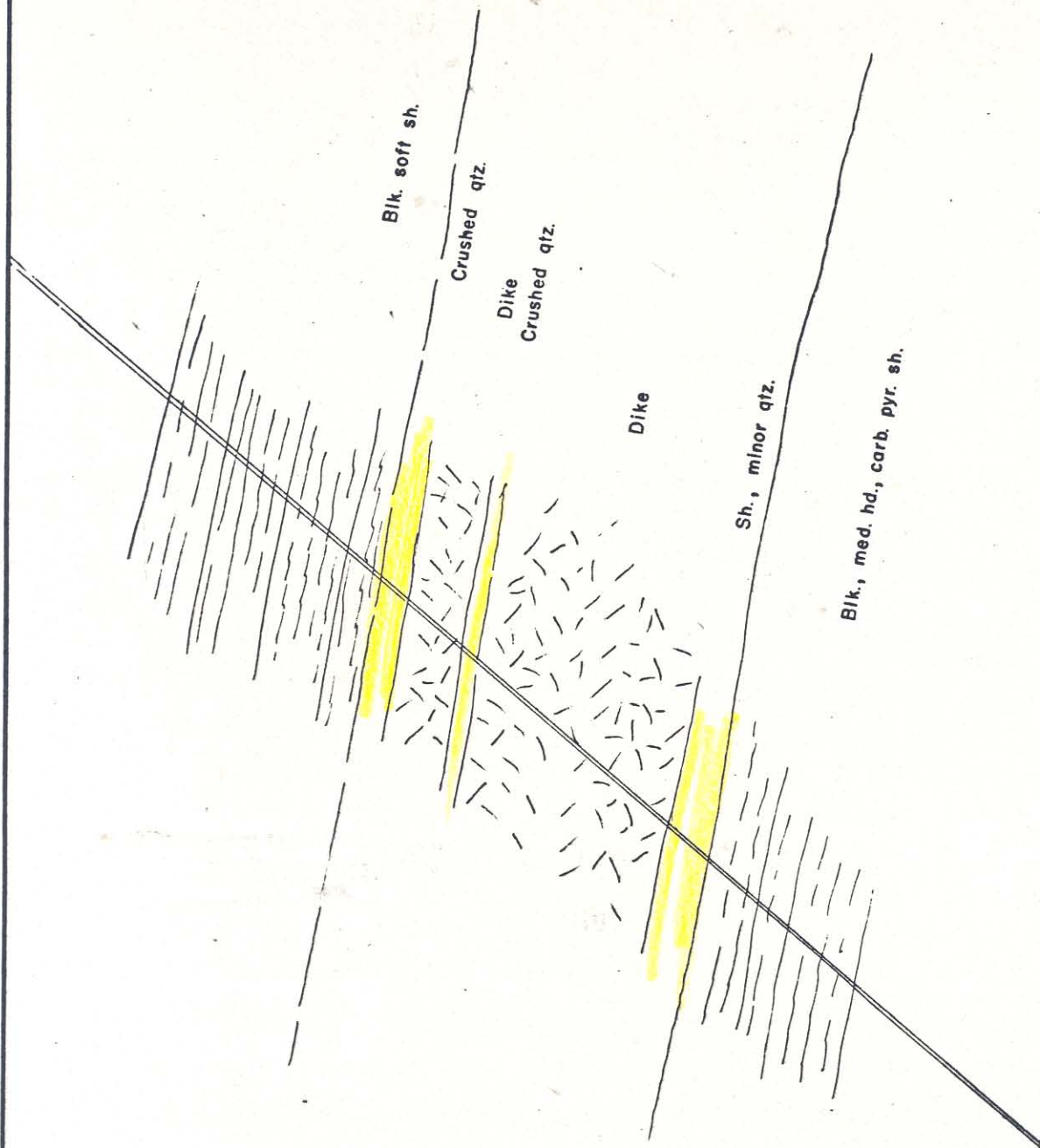
SILVER STAR VEIN

LOOKING N.E.

1" = 50'

5-1-72

T. F. MILLER



Sunshine Mining Company

DDH S-1

SILVER STAR VEIN

LOOKING N.E.

1" = 10'

10-5-72

TFM



Hole No. S-2  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started 5/1/72  
Finished 5/6/72  
Hole Size NQWL  
Depth 276  
% Core Rec. \_\_\_\_\_

Mine Silver Star  
Location Contact, Nevada  
Logged by G. Phillips Date \_\_\_\_\_  
Drilled by Miller, Burchfield, Larios

Departure \_\_\_\_\_

Elevation \_\_\_\_\_

Bearing S 50 E

Inclination -52°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
0 to 9.0		No core RB.							
10.0	0.8	DK Gray SH with qtz. strgr 1/4" wide.							
13.0	0.5	Lt. gry. soft mtl., decomposed with some sericite.							
15.0	2.0	Lt. brn. mud stone.							
17.5	2.2	Weathered blk. sh., soft & crumbly.							
20.8	2.8	Lt. gry. argillite with minor Fe stain.							
27.0	6.5	Blk. weath SH., Brecc with some Fe stain.							
126.8	98.0	Med. gry. hd. zone of qtzite. with Fe stain along fractures. Occas. narrow qtz strgr. (1/2" or less). 0.5' Lt. gry. argillite 33.0 - 33.5 Some blk. brn. SH zones with minor qtz. strgrs.							
129.8	1.4	3.0' Brn. mud seam.							
131.5	1.2	Blk. Sh.	9277	130.5'- 130.6'	0.1	0.1	0.18		0.044
132.5	1.0	Lt. gry. soft crumbly mtl. with some sericite (decomposed aplite dike)	9274	131.5-132.5	1.0	1.0	0.04		0.012
133.6	1.1	Dike mtl.	9275	132.5-133.6	1.1	1.1	0.08		0.006
134.6	1.0	Dike mtl. - lt. pale gry.	9276	133.6-134.6	1.0	1.0	0.16		0.012
137	2.4	Blk. soft broken Sh.							

Hole No. \_\_\_\_\_  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started \_\_\_\_\_  
Finished \_\_\_\_\_  
Hole Size \_\_\_\_\_  
Depth \_\_\_\_\_  
% Core Rec. \_\_\_\_\_

Mine \_\_\_\_\_  
Location \_\_\_\_\_  
Logged by \_\_\_\_\_ Date \_\_\_\_\_  
Drilled by \_\_\_\_\_

Departure \_\_\_\_\_

Elevation \_\_\_\_\_

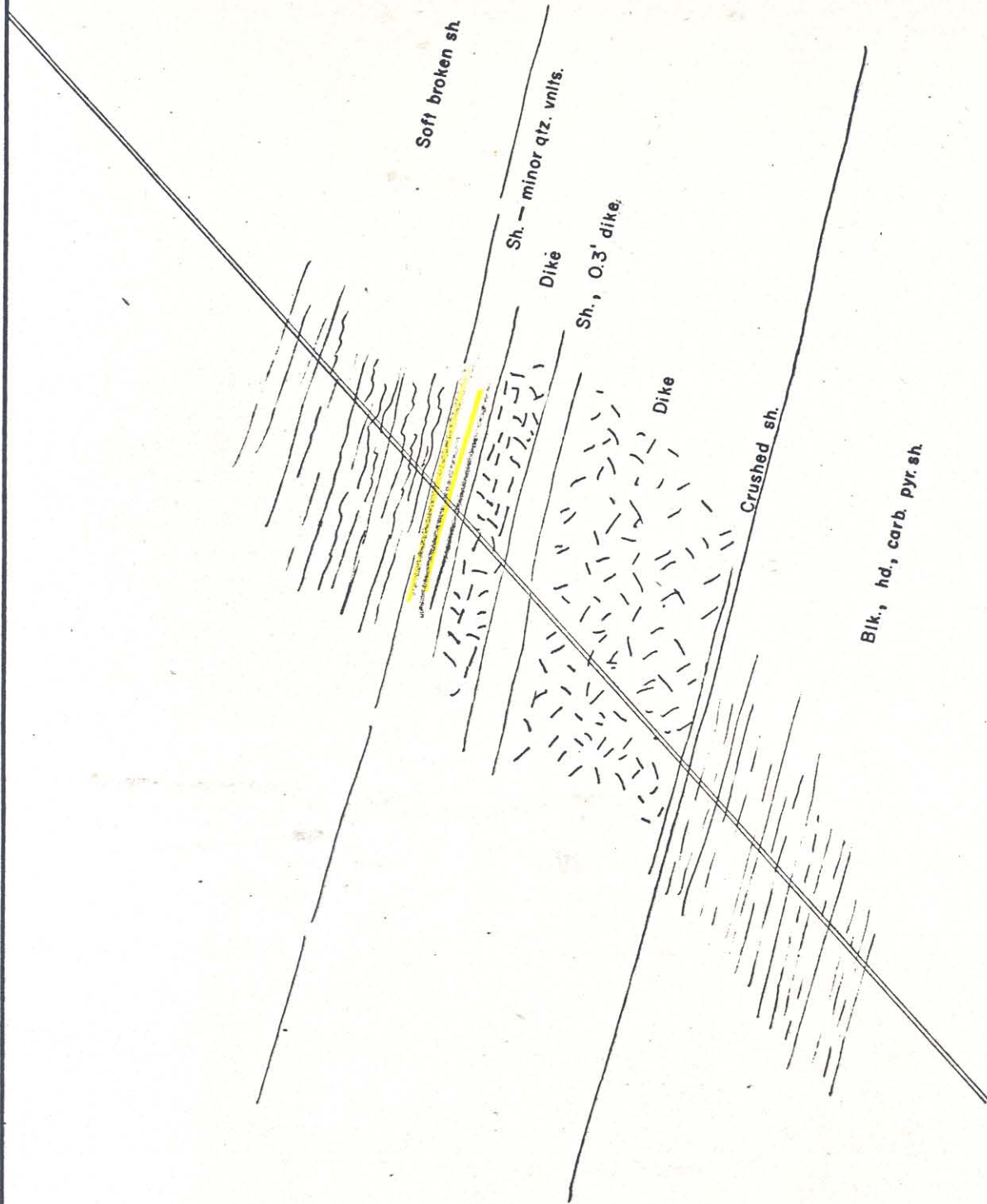
Bearing \_\_\_\_\_

Inclination \_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
222.4	85.0	Blk. crumbly S. H. 1/2" qtz. at 189.5 1/4" qtz. at 190.4 1/2" qtz. at 193.4 194-196.5 core part ground up. 0.2' lt. gry. aplite dike 194.3-194.5 contains hairline streak of native copper. 1/4" qtz. at 200.4'.	9263	194.3-194.5	0.2	0.2	0.2		0.03
			9264	217.4-222.4	5.0	5.0	0.18		0.01
226	3.6	Lt. pale gry. aplite dike with fine gr. pyr. Xls.	9265	222.4-226.0	3.6	3.6	0.2 ZN	0.5	0.00
228	2.0	Blk. soft Sh. 0.3' scattered aplite dike 227-227.3	9266	226-228	2.0	2.0	0.2 ZN	0.10	0.00
243.5	15.5	Lt. pale gry. aplite dike with fine gr. pyr. Xls.	9267	228-231	3.0	3.0	No	No	0.01
			9268	231-236	5.0	5.0	No	No	0.00
			9269	236-241	5.0	5.0	No	No	No
			9270	241-243.5	2.5	2.5	No	No	No
276		Blk. SH. with occass. fine gr. pyr. some soft & broken.	9271	243.5-246	2.5	2.5	0.3	No	0.01
			9272	246-251	5.0	5.0	0.3 AU	0.02	0.00
			9273	251-256	4.0	4.0	0.08		0.00



T-F. MILLER



<b>Sunshine Mining Company</b>		
DDH S-2		
SILVER STAR VEIN		
LOOKING N.E.		
1" = 10'	10/5/72	Tfm



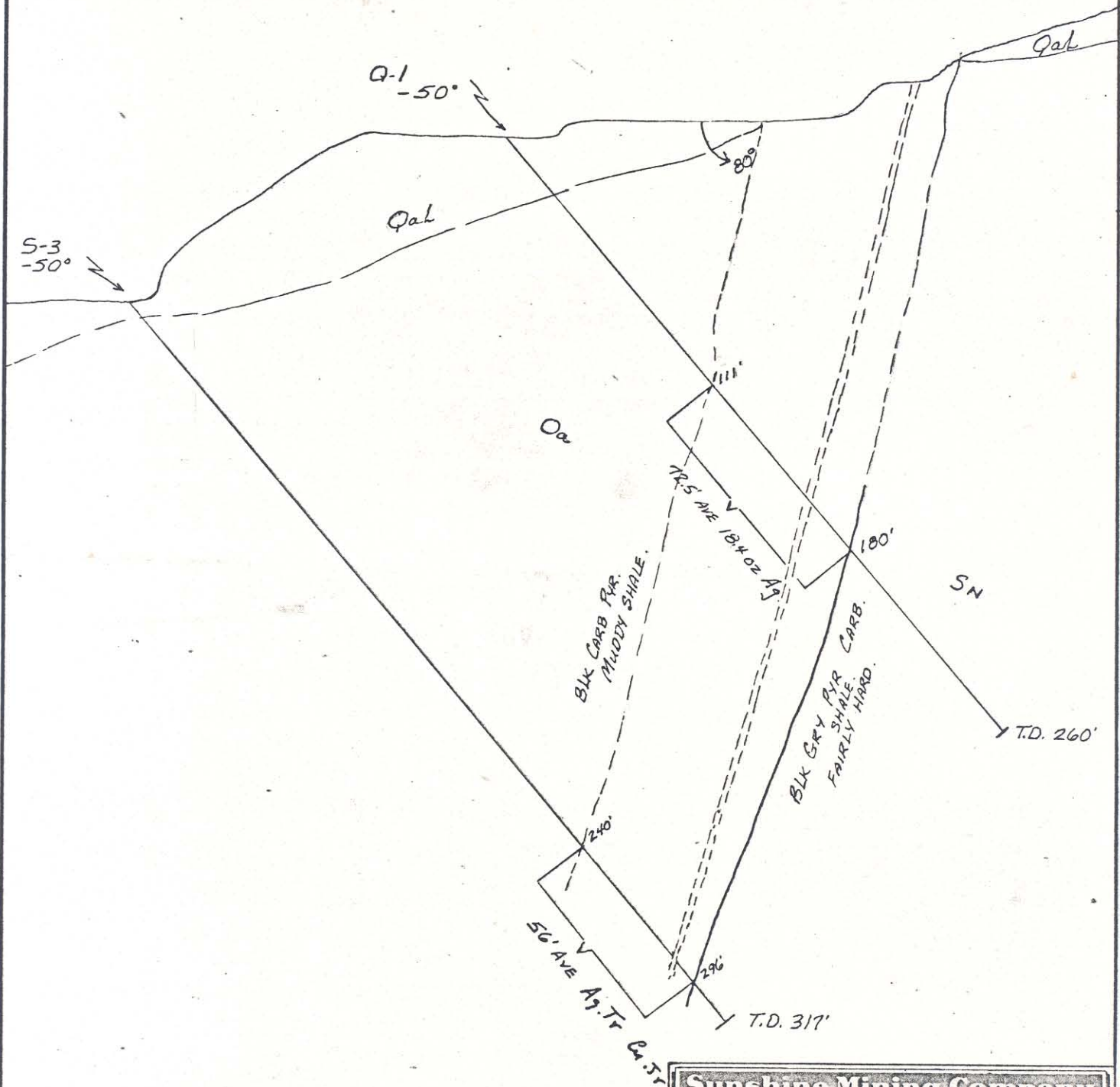
Hole No. S-3  
 Level \_\_\_\_\_  
 Started \_\_\_\_\_  
 Finished 5/16/72  
 Hole Size NQWL  
 Depth 317  
 % Core Rec. \_\_\_\_\_

## DIAMOND DRILL RECORD

Mine Silver Star  
 Location Contact, Nevada  
 Logged by T. F. Miller Date 5/17/72  
 Drilled by Miller, Burchfield, Larios

Latitude \_\_\_\_\_  
 Departure \_\_\_\_\_  
 Elevation \_\_\_\_\_  
 Bearing S 47 E  
 Inclination -50°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
240.5	5.0	Blk. Carb. Pyr. SH.	9237	235.5-240.5	5.0	5.0	0.1	No	No
		Silver Star structure starts at 245	9223	240.5-245.5	4.5	4.5	0.2	No	No
246	1.0	Blk. Carb. Blk. Sh some qtz.	9224	245-246	1.0	1.0	No	No	No
249	3.0	Pred. Qtz. with some argill. mtl.	9225	246-249	3.0	3.0	No	No	No
254.5	5.5	Blk. Carb. Shaley Clay Brecc. abt 20% Qtz. & 5% Pyr. some gouge	9226	249-254.5	5.5	5.5	No	No	No
275	20.5	Blk. Carb. Sh., with minor pyr. some small qtz. veinlets	9227	254.5-260	5.5	5.5	0.1	No	No
			9228	260-265	5.0	5.0	No	No	No
			9229	265-270	5.0	5.0	No	No	No
			9230	270-275	5.0	5.0	No	No	No
285		Argill. blk. shaley rock. Some small qtz. strngs.	9231	275-280	5.0	5.0	No	No	0.00
288	3.0	Highly frct. qtz. some shaley fract.	9233	285-288	3.0	3.0	0.2	No	No
291	3.0	White fined grained apalite dike some carb. stringers	9234	288-291	3.0	3.0	No	No	No
296	5.0	Blk. carb sh. some qtz. stringers with minor pyr.	9235	291-296	5.0	5.0	0.2	0.2	0.09
298.5	2.5	Blk. carb. pyr. sh.	9236	296-298.5	2.5	2.5	0.2	No	No
		F. W. of Silver Star structure.							



**Sunshine Mining Company**

DDH S-3

SILVER STAR VEIN

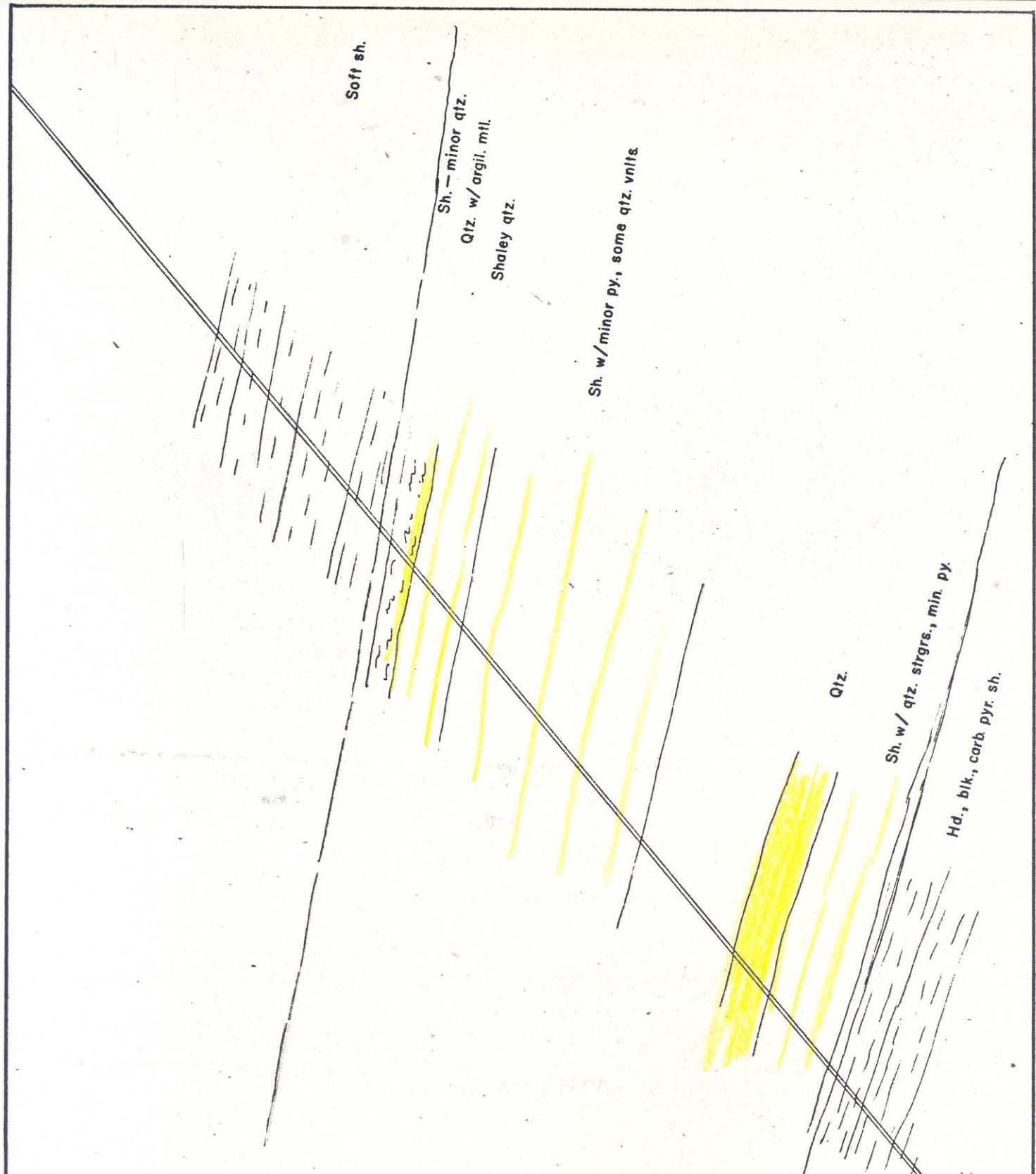
LOOKING N. E.

1" = 50'

6-2-12

T.F. MILLER





<b>Sunshine Mining Company</b>		
<b>DDH S-3</b>		
<b>SILVER STAR VEIN</b>		
<b>LOOKING N.E.</b>		
<b>1" = 10'</b>	<b>10/5/72</b>	

Hole No. S-4  
Level                     

# DIAMOND DRILL RECORD

Latitude                     

Started 5/16/72  
Finished 5/21/72  
Hole Size NQWL  
Depth 312  
% Core Rec.                     

Mine Silver Star  
Location Contact, Nevada  
Logged by R. Forrest Date                       
Drilled by                     

Departure                     

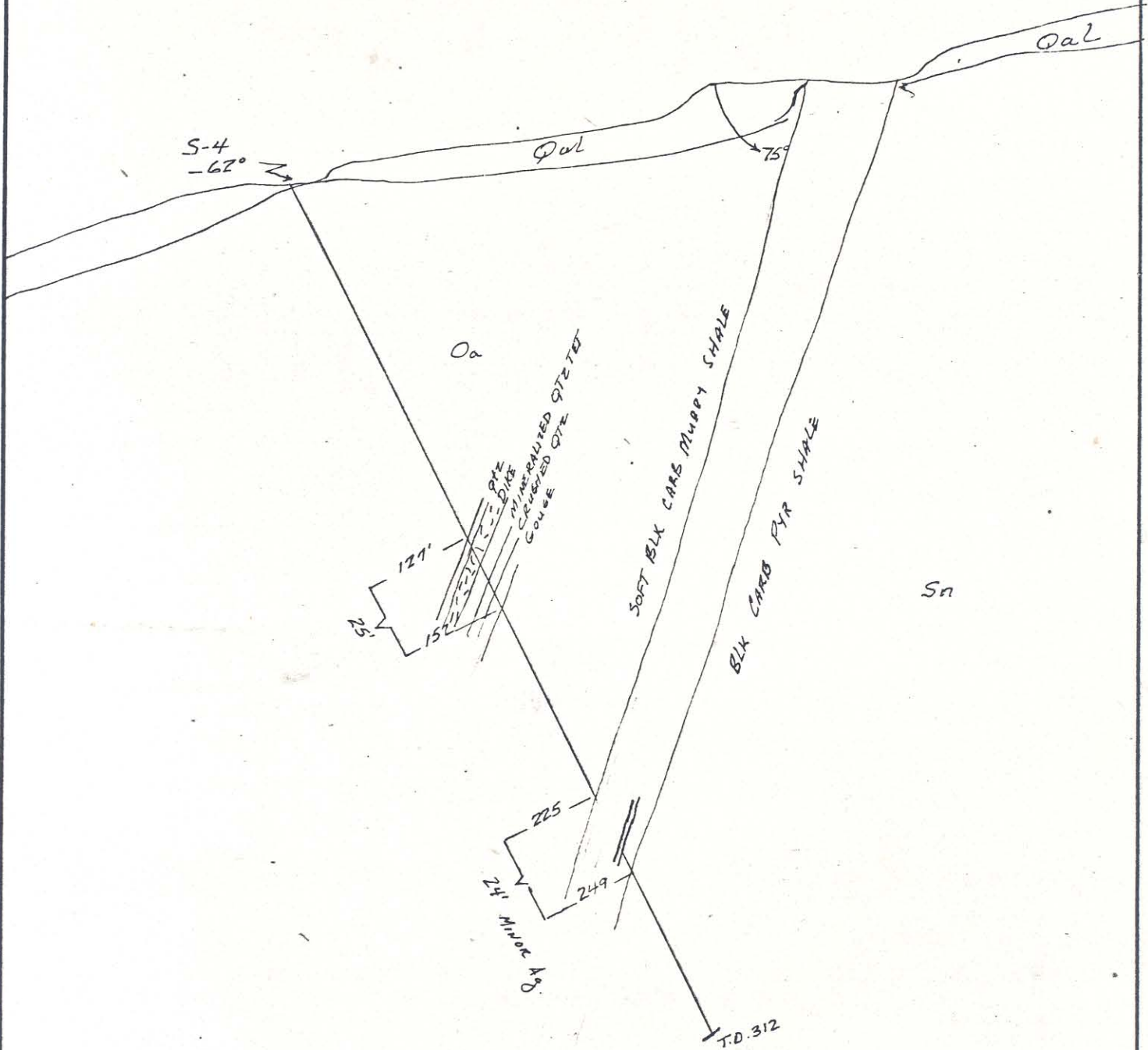
Elevation                     

Bearing S 45 E

Inclination -62°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Spl. Feet	Oz. Ag	% Pb	% Cu
127			9288	127-128	1.0	1.0	No	Tr.	0.2
128	1.0	Qtz. Vein	9287	128-133	5.0	5.0	1.6		
136	8.0	Dike	9286	133-136			No		
140.5	4.5	Qtz. (139 to 139.7) Tet.	9285A 9285B	136-140.5 4" Tetra	4.5	4.5	1.96 76.84	0.2 3.1	0.36 5.6
143.5	3.0	Qtz. & Chert	9284	140.5-143.5	3.0	3.0	No	Tr.	Tr.
146.5	3.0	Qtz. Vein	9283	143.5-146.5	3.0	3.0	No	Tr.	Tr.
152	5.5	Qtz. Vein turns into gouge	9282	146.5-152	5.0	5.0	No	Tr.	Tr.
210									
215	0.4	Silicified Shaley Gouge	9250	210-215	0.4	5.0	No	Tr.	Tr.
220	2.5	Blk. Gouge, Silic.	9249	215-220	2.5	5.0	No	Tr.	Tr.
225	5.0	Blk. Gouge with qtz. veins, silicification	9248	220-225	5.0	5.0	No	Tr.	Tr.
230	5.0	Blk. Gouge slightly silicified	9247	225-230	5.0	5.0	0.6	0.34	Tr.
236	6.0	Blk. gouge w/a few small qtz. seams	9246	230-236	6.0	6.0	No	Tr.	Tr.
241	5.0	Blk. Gouge Qtz. vein	9245 9244	236-241 239-241	5.0 2.0	5.0 2.0	No No	Tr. Tr.	Tr. Tr.
244.5	3.5	Blk. Gouge	9243	241-244.5	3.5	3.5	0.7	0.4	0.26
245.7	1.2	White dike w/blk. gouge	9242	244.5-245.7	1.2	1.2	0.5		0.22
249	3.3	Blk. sh. gouge	9241	245.7-249	3.3	3.3	No		Tr.
254	5.0	F. W. Noh FM	9240	249-254	5.0	5.0	1.4		Tr.
259	5.0	Noh FM Med. to coarse gr. conglom.	9239	254-259	5.0	5.0	No		0.10





**Sunshine Mining Company**

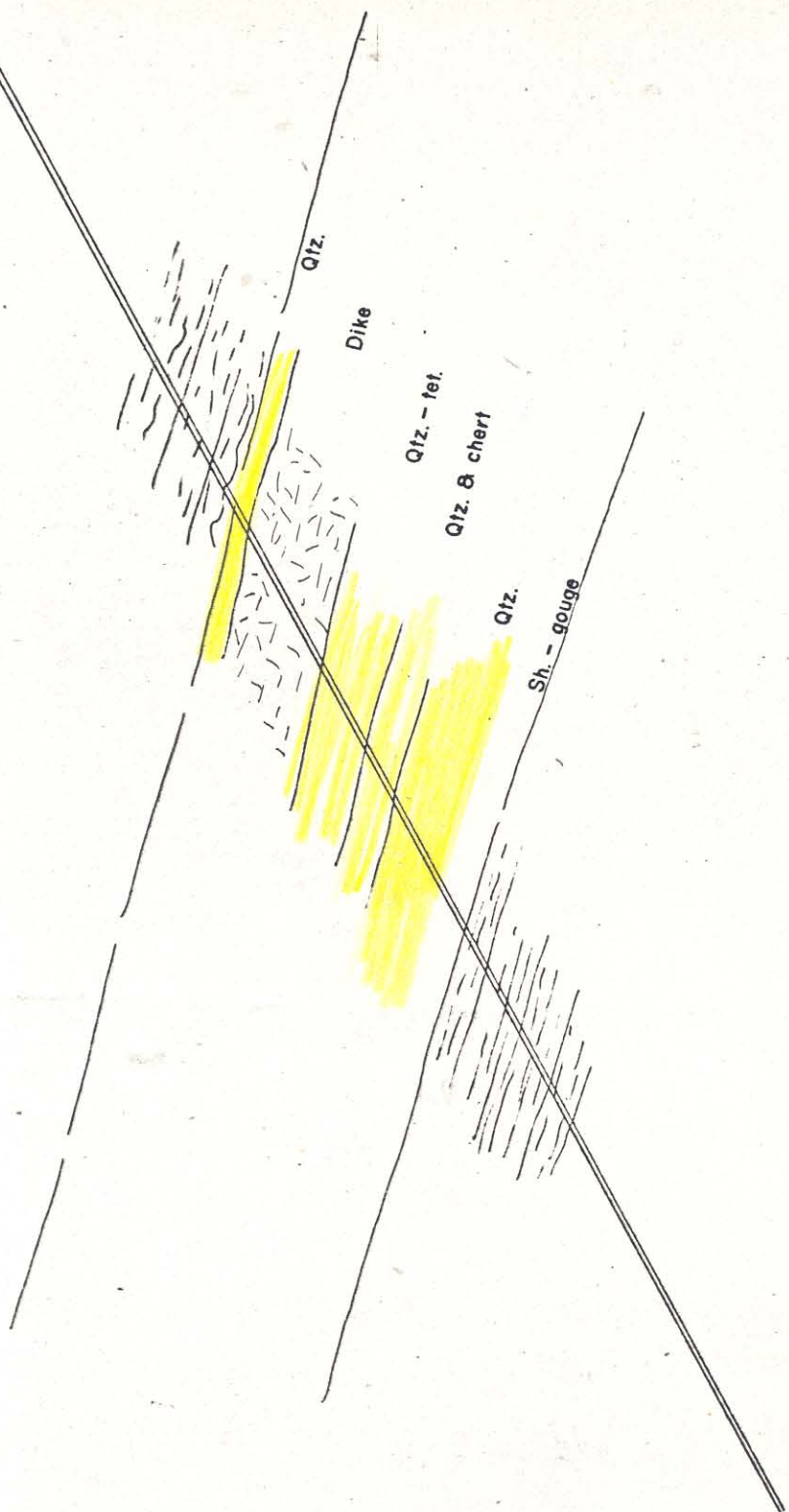
D.D. HOLE S-4

SILVER STAR PROPERTY  
LOOKING N.E.

1" = 50'

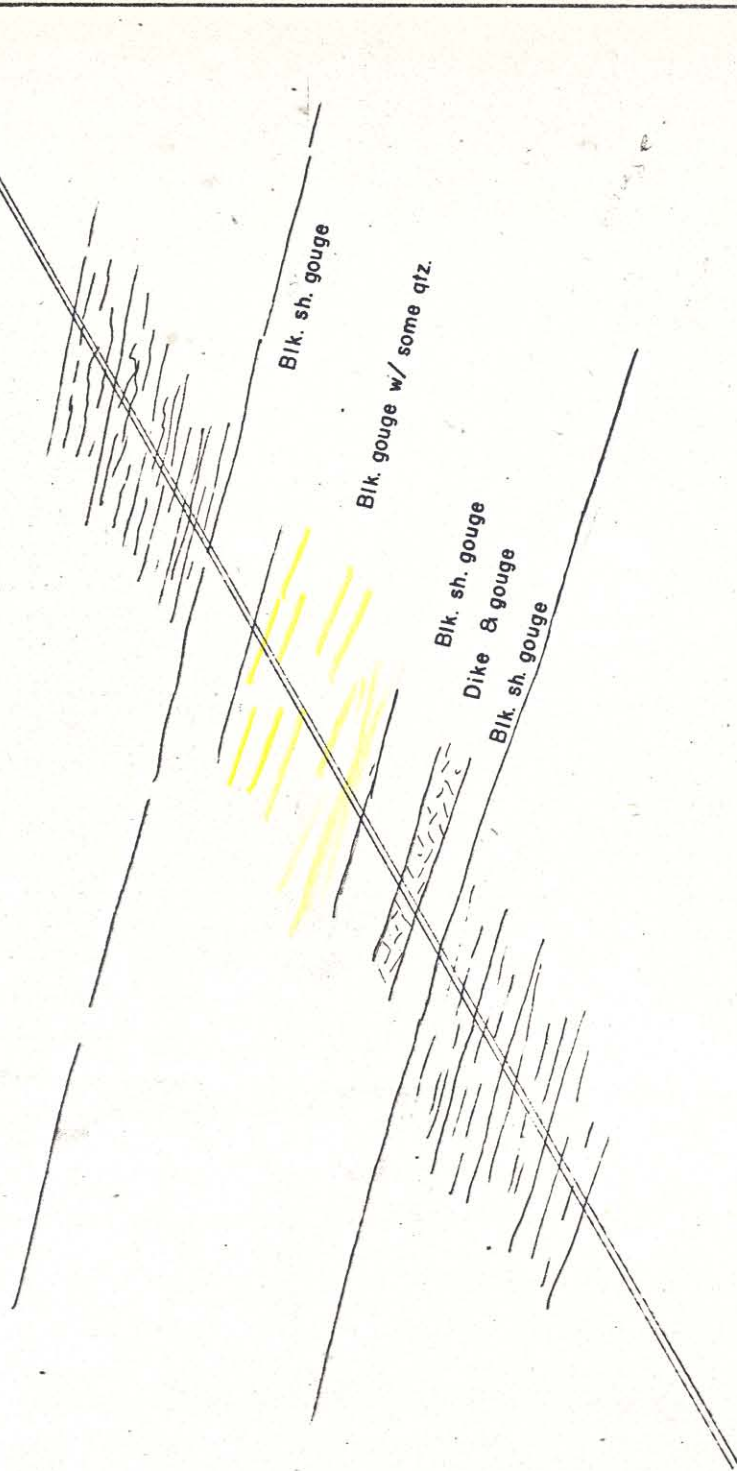
6-2-72

T.F. MILLER



Sunshine Mining Company		
DDH S-4 H.W.		
SILVER	STAR	VEIN
LOOKING N.E.		
1" = 10'	10 / 5 / 72	





**Sunshine Mining Company**

DDH S-4

SILVER STAR VEIN

LOOKING N.E.

1" = 10'

10 / 5 / 72

Hole No. S-5  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started 5/21/72

Mine Silver Star

Departure \_\_\_\_\_

Finished 6/1/72

Location Contact, Nevada

Elevation \_\_\_\_\_

Hole Size NQWL

Depth 464

Logged by R. Forrest Date \_\_\_\_\_

Bearing S40E

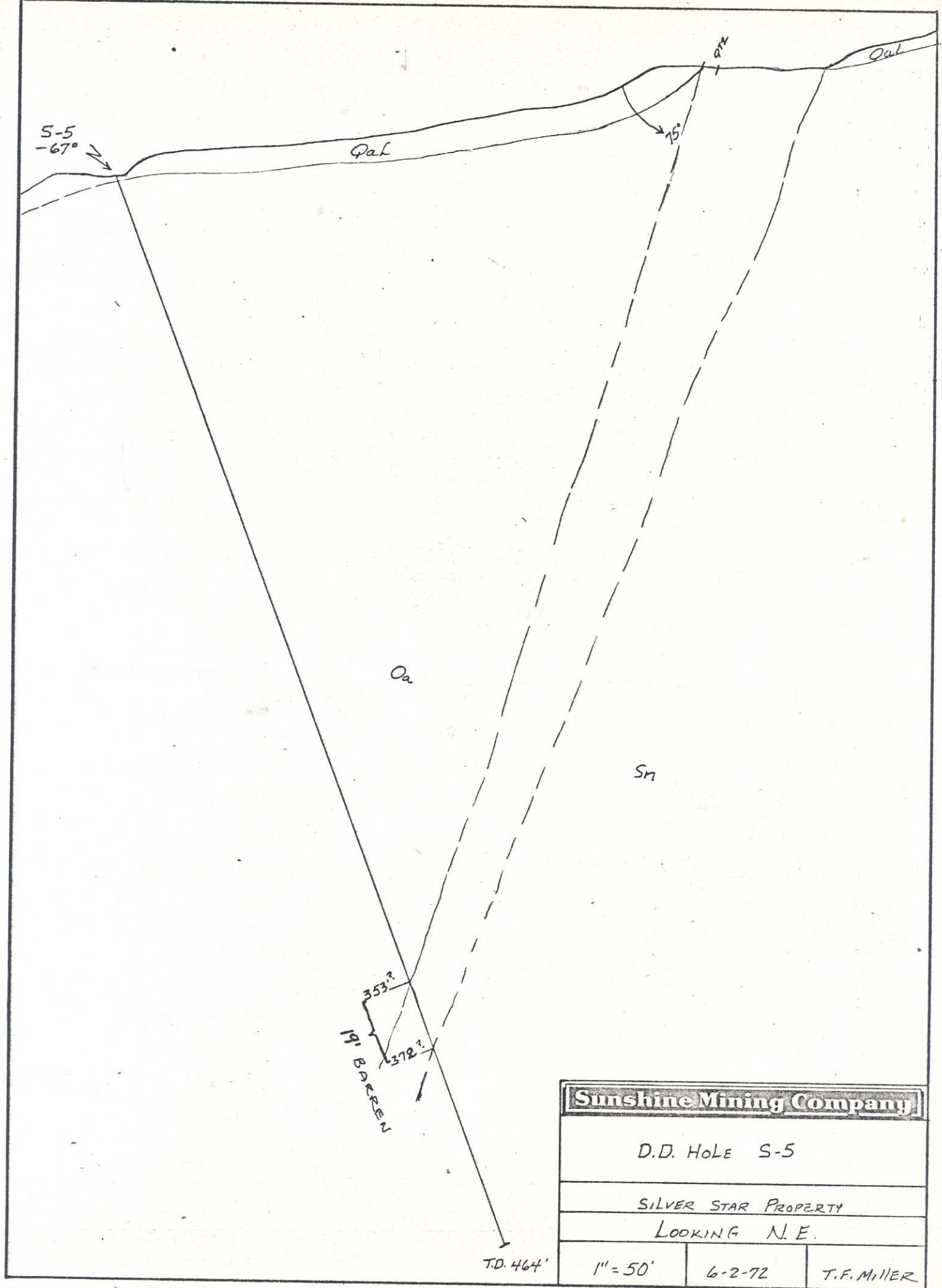
% Core Rec. \_\_\_\_\_

Drilled by Miller, Burchfield, Larios

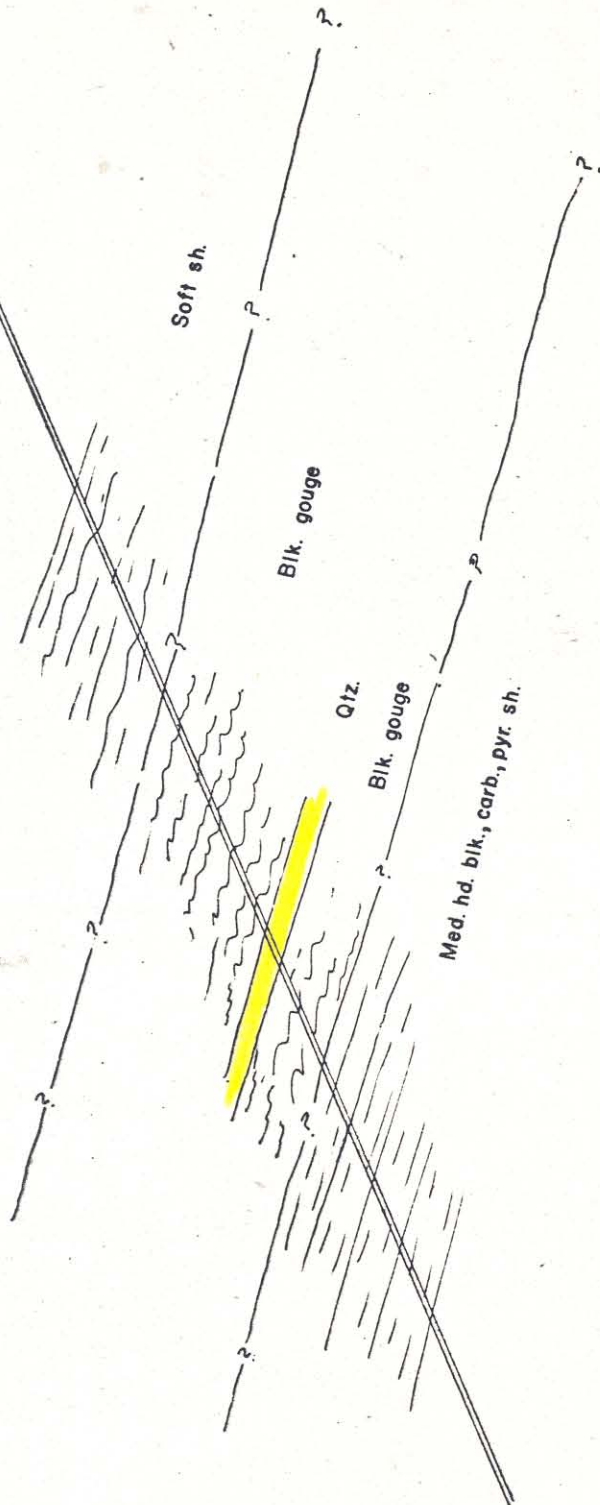
Inclination -67

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
357- 362	5.0	Blk. Gouge	9293	357-362	5.0	5.0	No	Tr.	0.1
367	5.0	Blk. Gouge	9292	362-367	5.0	5.0	No	Tr.	Tr.
369	2.0	Becciated Qtz.	9291	367-369	2.0	2.0	No	Tr.	Tr.
374	5.0	Blk. Shale of NOH FM in F. W.	9290	369-374	5.0	5.0	No		





Sunshine Mining Company			
D.D. HOLE S-5			
SILVER STAR PROPERTY			
LOOKING N.E.			
1" = 50'	6-2-72	T.F. MILLER	



Sunshine Mining Company

DDH S-5

SILVER STAR VEIN

LOOKING N.E.

1" = 10'

10/5/72



Hole No. S-6  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started 6/1/72  
Finished \_\_\_\_\_  
Hole Size NQWL  
Depth 284'  
% Core Rec. \_\_\_\_\_

Mine Silver Star  
Location Contact, Nevada  
Logged by T. F. Miller Date \_\_\_\_\_  
Drilled by Miller, Burchfield, Larios

Departure \_\_\_\_\_

Elevation \_\_\_\_\_

Bearing S64E

Inclination -60°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
0-74	60	Rock bit thru 5-6' of O. B., highly weath. soft muddy sh.							
111	37	Soft muddy broken blk. carb sh.							
112	1	Blk. carb. sh. some crushed qtz.	7979	111-112	1.0	1.0	No		
117.5	5.0	Soft blk. muddy pyr. sh.							
153	35.0	Relatively hd. grey blk. pry. carb. sh. minor calcite seams							
172	19	Soft muddy broken blk. carb, pyr. sh.							
177	5.0	Relatively hd. gry. blk. carb pyr. sh.							
211	34	Soft blk. muddy carb. sh. some sh. is highly leached & porous.							
213	2	Blk. carb. sh. abt. 25% qtz. veinlets. Qtz is crushed minor pyr. in sh.	7980	211-215	4.0	4.0	No		
219.5	6.5	Blk. carb. sh. some qtz. veinlets	7981	215-219	4.0	4.0	No		
223.5	4.0	Blk. carb. sh., some qtz. veinlets. Minor pyr. hd. silic. sh. 222-222.5 Silver star vein starts at 223.5	7982	219-224	5.0	5.0	No		
225.5	2.0	Crushed qtz. with blk. carb. sh-minor pyr.	7983	224-225.7	1.7	1.7	No		
227.5	2.0	Crushed dike with some qtz. very minor pyr.	7984	225.5-227.5	2.0	2.0	No		
237.8	10.3	Crushed qtz. with some streaks of blk. carb. grap. sh.	7985 7986 7987	227.5-232 232-233.5 233.5-237.8	4.5 1.5 4.3	4.5 1.5 4.3	No 0.7 0.6		
244	6.2	White grey dike-very minor pyr.	7988	237.8-344	6.2	6.2	No		

Hole No. \_\_\_\_\_

Level \_\_\_\_\_

Started \_\_\_\_\_

Finished \_\_\_\_\_

Hole Size \_\_\_\_\_

Depth \_\_\_\_\_

% Core Rec. \_\_\_\_\_

**DIAMOND DRILL RECORD**

Mine \_\_\_\_\_

Location \_\_\_\_\_

Logged by \_\_\_\_\_ Date \_\_\_\_\_

Drilled by \_\_\_\_\_

Latitude \_\_\_\_\_

Departure \_\_\_\_\_

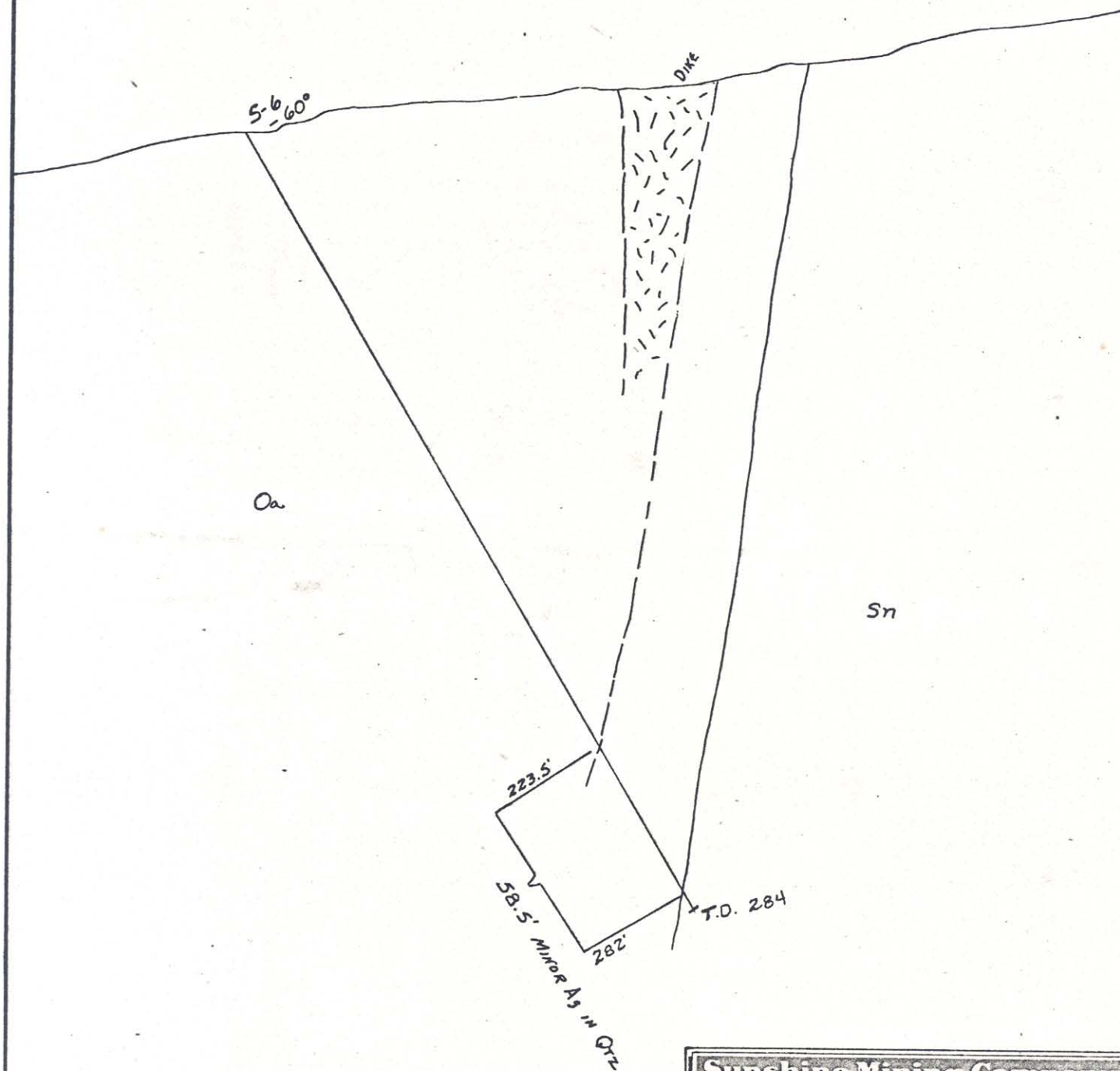
Elevation \_\_\_\_\_

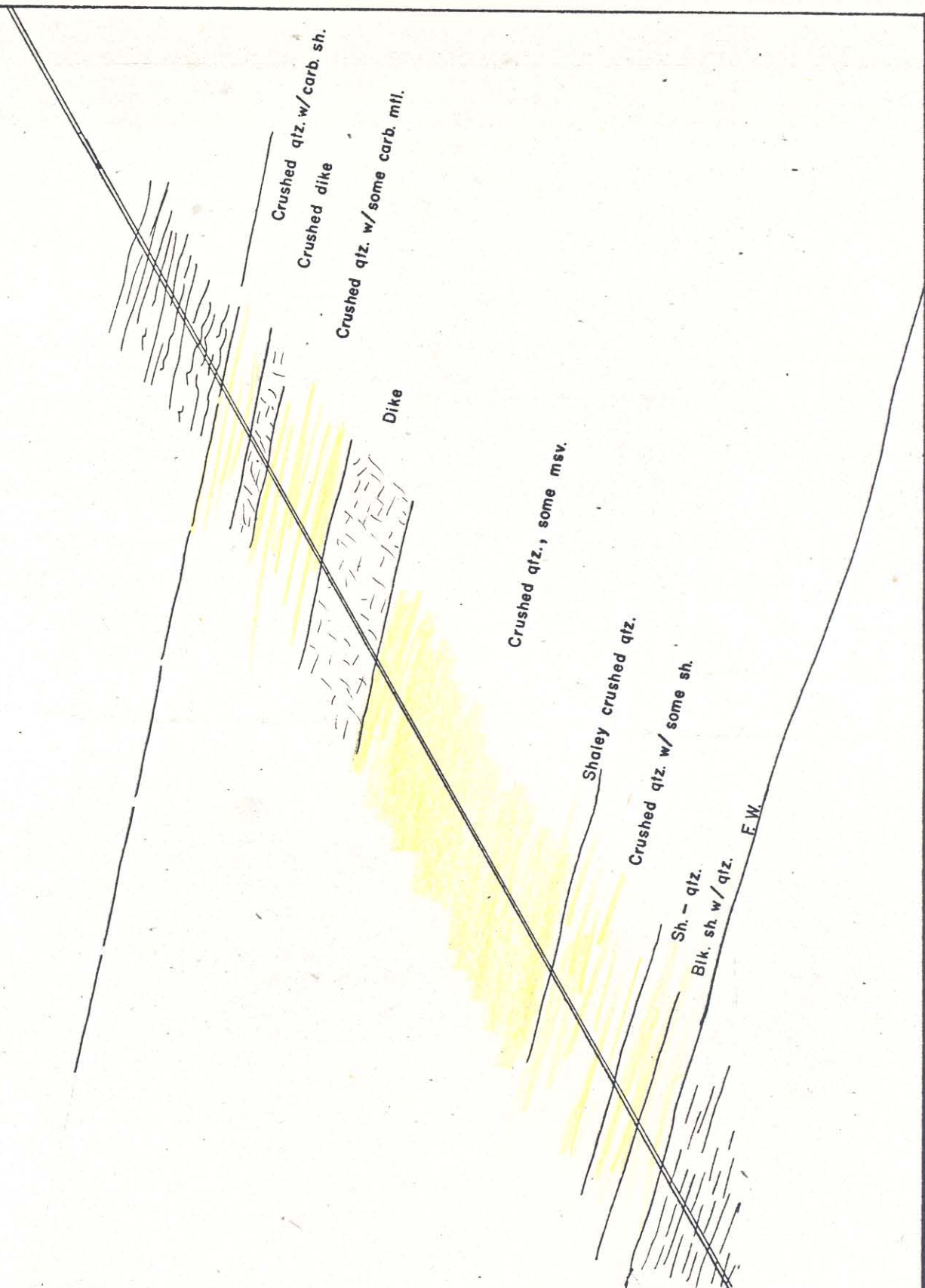
Bearing \_\_\_\_\_

Inclination \_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
267	23	Crushed qtz. some massive qtz. minor qtz. sh streaks	7989	244-247	3.0	3.0	1.1		
			7990	247-250	3.0	3.0	No		
			7991	250-255	5.0	5.0	No		
			7992	255-260	4.3	5.0	No		
			7993	260-265	4.0	5.0	1.2		
			7994	265-267	2.0	2.0	No		
			7995	267-272	5.0	5.0	No		
268	1	Shaley crushed qtz.							
276	8.0	Crushed qtz. with some inter- bedded muddy sh seams. Some crushed like flour.	7996	272-276	4.0	4.0	3.6		
279	3.0	Blk. carb. muddy sh & crushed qtz	7997	276-279	3.0	3.0	No		
282	1.5	Blk. carb. soft muddy sh. Fw 282	7998	279-281	0.5	2.0	No		
			7999	281-282	1.0	1.0	No		
284	2.0	Blk. carb. pyr. rel. hd. sh. F. W. of Silver Star structure.							







Sunshine Mining Company		
DDH S-6		
SILVER STAR VEIN		
LOOKING N.E.		
1" = 10'	10 / 5 / 72	



Hole No. S-7  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started \_\_\_\_\_  
Finished 6/14/72  
Hole Size NQWL  
Depth 309  
% Core Rec. 93%

Mine Silver Star  
Location Contact, Nevada  
Logged by D. Avery Date 6/14/72  
Drilled by Miller, Burchfield, Larios

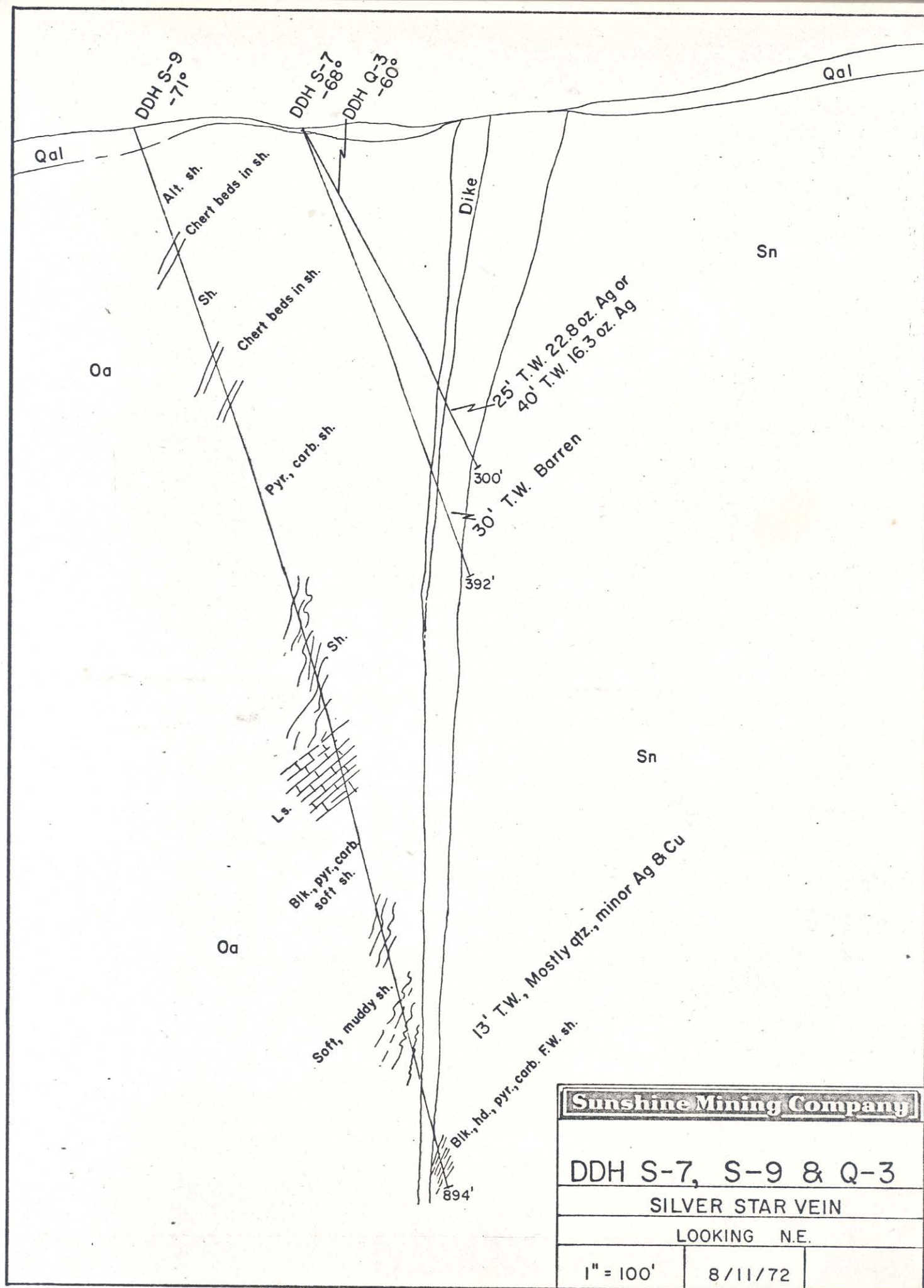
Departure \_\_\_\_\_

Elevation \_\_\_\_\_

Bearing S62E

Inclination -68°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
200-		No core to 200'							
237	27'	Gry. blk. sh. 202-206 soft fract. gouge 38' core 203'-208' HD 206-208.5 silic. sh. w/qtz. vnltts. 207.5'-208.5' 2=1/2 core 208-211 1.5' core 216-221	9518 9517 9516 9515	246-248 248-254 254-259 259-264	2.0 5.0 4.0 4.0	2.0 7.0 4.0 5.0	No No No No		
264	24'	Blk. graph. sh. soft Some soft gry. fr. some qtz.	9514 9519 9520	264-269 269-271 271-274	5.0 2.0 2.5	5.0 2.0 2.5	No No No		
276		Crushed qtz. w/ggy. Blk. sh. barren, few specs. pyr.	9521 9522	274-276 276-280	2.0 4.0	2.0 4.0	No Tr.		
279.5	3.1	Lt. gry. dik, fine pyr. specs.	9523	280-284	4.0	4.0	No		
284	4.2	Gry. qtz. in blk. sh., some sm. vugs	9524	284-285	1.0	1.0	No		
285.5	1.5	Lt. gry. dike							
290		Gry. blk. sh., fr. lamin Some graph. sect., qtz. strgrs.	9525 9526 9527 9528	285-290 289-293 293-298 298-305	4.0 3.5 5.0 6.0	5.0 4.0 5.0 7.0	No No No No		
309	8.0	Blk. graph sh. f. w. sh.	9529	305-309	3.5	4.0	No		



Sunshine Mining Company

DDH S-7, S-9 & Q-3

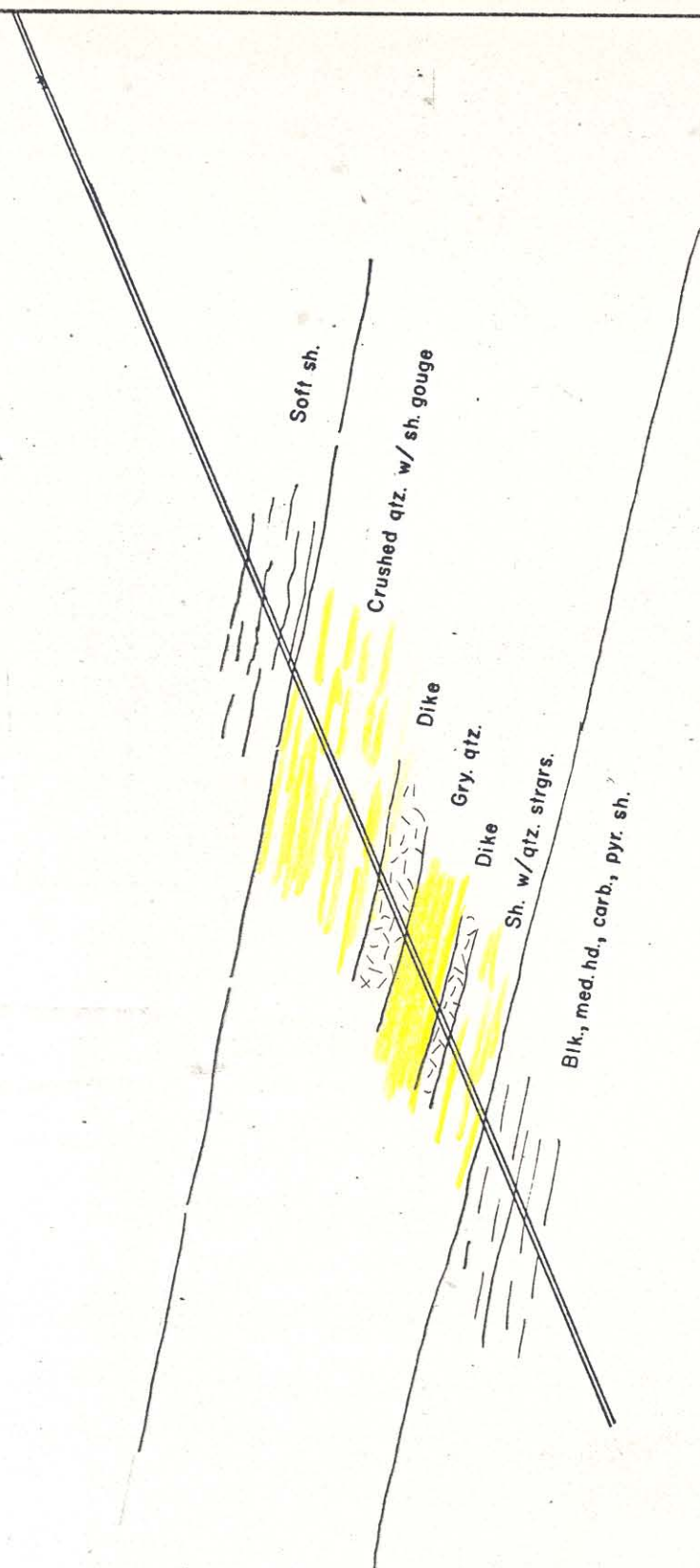
SILVER STAR VEIN

LOOKING N.E.

1" = 100'

8/11/72





Sunshine Mining Company		
DDH S-7		
SILVER STAR VEIN		
LOOKING N.E.		
1" = 10'	10 / 5 / 72	

Hole No. S-8  
Level \_\_\_\_\_

# DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started \_\_\_\_\_  
Finished 6/18/72  
Hole Size NQWL  
Depth \_\_\_\_\_  
% Core Rec. \_\_\_\_\_

Mine Silver Star  
Location Contact, Nevada  
Logged by T. F. Miller Date 6/19/72  
Drilled by Miller & Berg

Departure \_\_\_\_\_

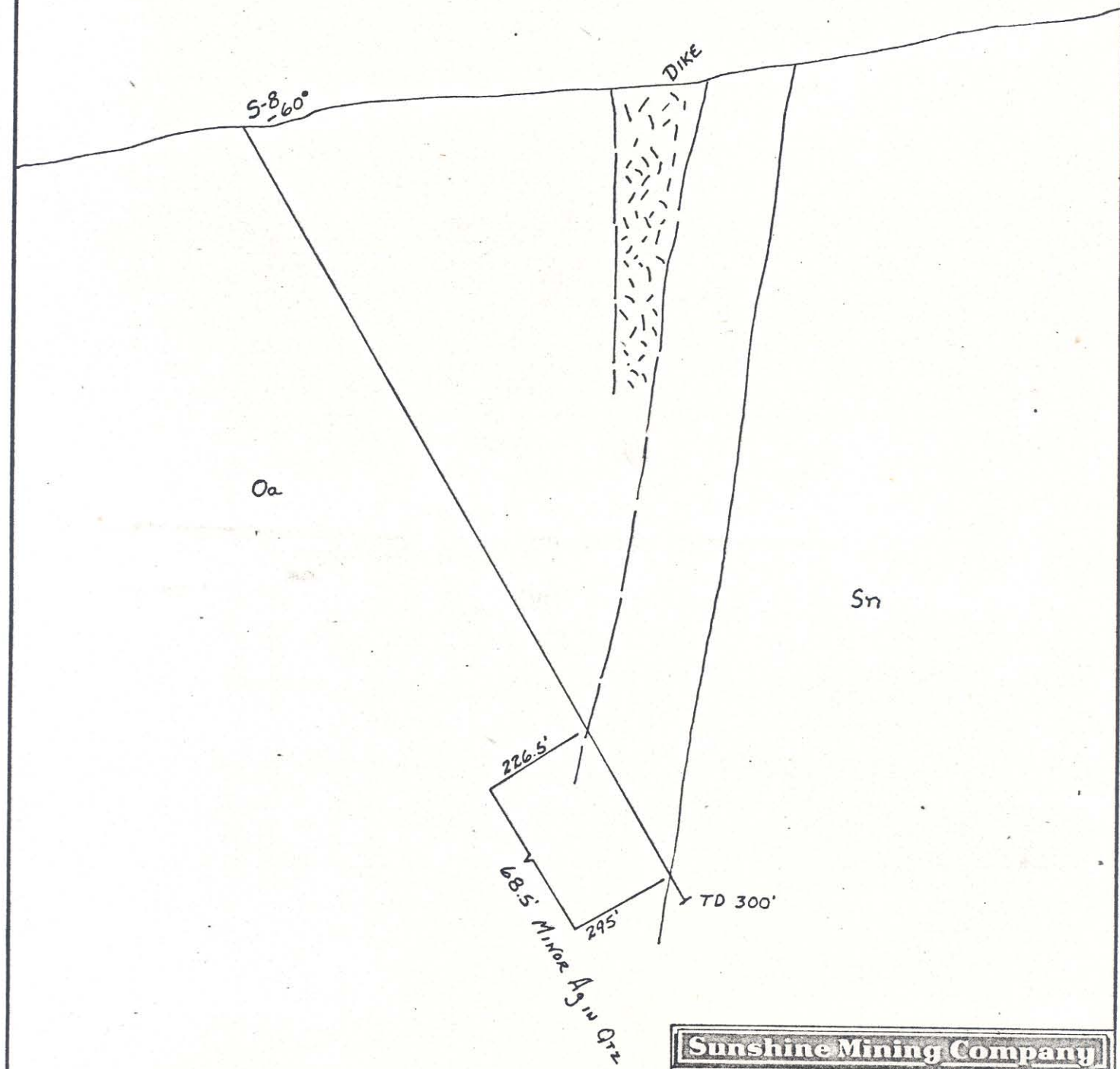
Elevation \_\_\_\_\_

Bearing S 55 E

Inclination - 60°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
215-219	2.5	Blk. carb. sh. - minor pyr.	9351	215-219	2.5	4.0	Tr.		
224	5.0	Blk. carb. sh. - minor pyr.	9352	219-224	1.5	5.0	Tr.		
226.5	2.5	Blk. carb. sh. w/minor pyr. 2-1/4" crushed qtz. strgs. H. W. of vein 226.5 approx.	9353	224-226.5	2.5	2.5	Tr.		
229	2.5	Blk. carb. sh. interbedded w/ crushed qtz.	9354	226.5-229	1.5	2.5	Tr.		
234	5.0	No core recovery 100% Core Loss							
239	5.0	Blk. shaley qtz. A & T 35% qtz. Lost 3.2' Core	9355	234-239	1.8	5.0	Tr.		
241.5	2.5	Crushed qtz.	9356	239-241	1.5	3.0	Tr.		
250	8.5	White fine gr. dike	9357	241-250	6.5	9.0	Tr.		
253	3.0	Crushed & massive qtz.	9358	250-253	3.0	3.0	Tr.		
259	6.0	Qtz. with some blk. carb. sh. strngs.	9359	253-256	3.0	3.0	Tr.		
			9360	256-259	3.0	3.0	Tr.		
271	12.0	Qtz. & crushed qtz.	9361	259-261	2.0	2.0	Tr.		
			9362	261-261.5	0.5	0.5	1.4		
			9363	261.5-266	3.0	4.5	Tr.		
			9364	266-268	1.3	2.0	Tr.		
			9365	268-271	2.0	2.0	1.8		
275	4.0	Blk. carb. crushed sh.	9366	271-275	4.0	4.0	Tr.		
280	5.0	SH & Crushed qtz.	9367	275-280	5.0	5.0	Tr.		
283	3.0	Crushed qtz.	9368	280-286	6.0	6.0	Tr.		
292	9.0	sh w.minor qtz.	9369	286-292	6.0	6.0	No		
295	3.0	Blk. carb. pyr. sh. F. W. of Silver Star structure.	9370	292-295	3.0	3.0	No		





**Sunshine Mining Company**

DDH S-8

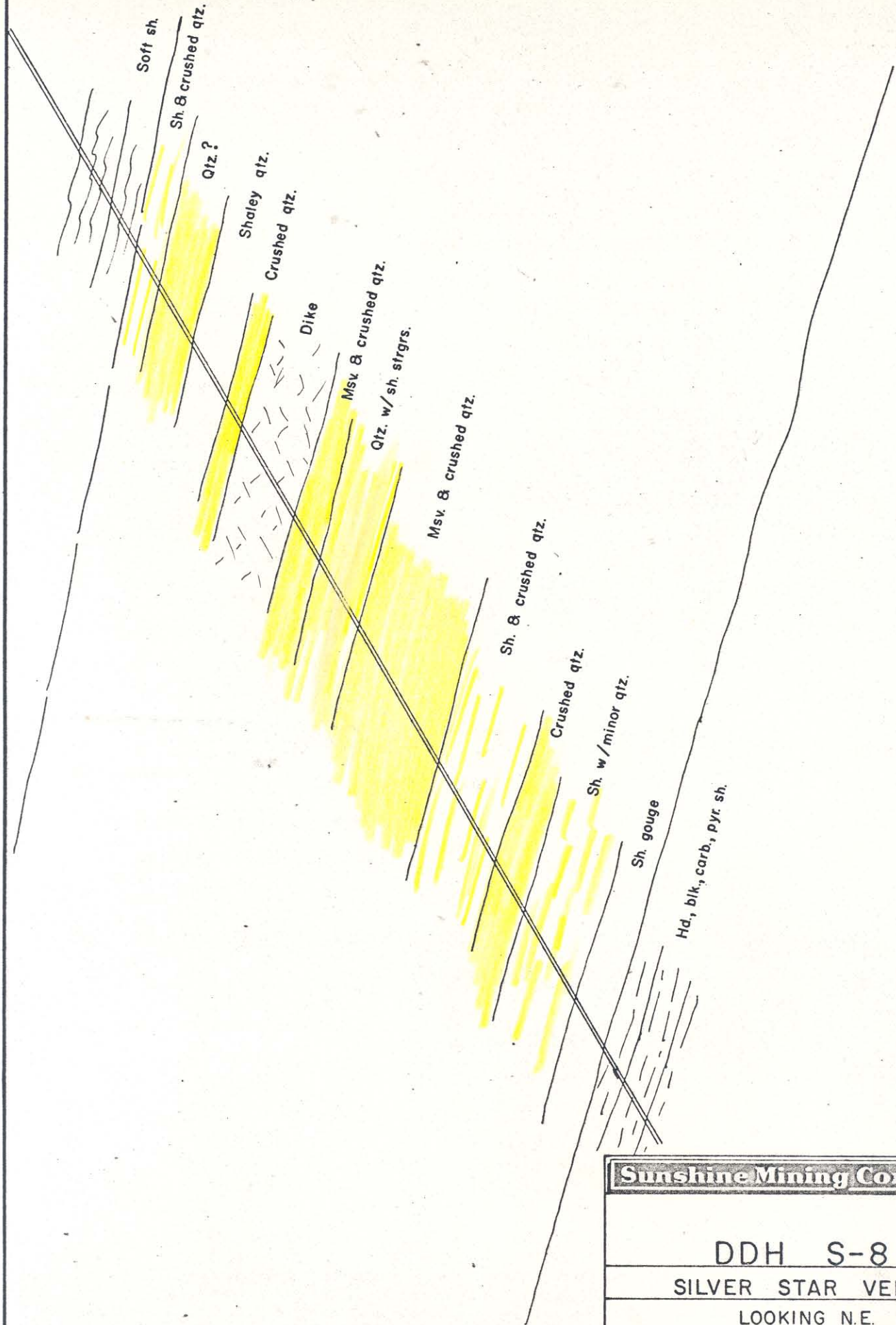
SILVER STAR VEIN

LOOKING N.E.

1" = 50'

10-6-72

T.F. MILLER



Sunshine Mining Company

DDH S-8

SILVER STAR VEIN

LOOKING N.E.

1" = 10'

10 / 5 / 72



Hole No. S-9  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started 6/18/72

Mine Silver Star

Departure \_\_\_\_\_

Finished 7/31/72

Location Contact, Nevada

Elevation \_\_\_\_\_

Hole Size NQWL

Depth 894'

Logged by T. F. Miller Date \_\_\_\_\_

Bearing S 40 E

% Core Rec. 95% Vein

Drilled by Miller & Berg

Inclination -71°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
447		Blk. carb. sh.							
480									
503		Limey sh. broken vuggy ls. 490-500. Bedding cuts core 25°.							
562		Hd. light blue calcls. vuggy in part with H <sub>2</sub> O coures. Bedding cuts core 558-25° 552-40° Some blk. hairline carbon filed fract. in ls. Ls-Sh contact at 562.							
712		Blk. carb. pyr. sh. Bedding cuts core 571-20-25° 589-35° 662-15° 695-20°							
732		Muddy soft blk. carb. sh.							
802		Blk. carb. sh. w/minor pyr.	9001	777.5-782	4.5	4.5	No	No	No
			9002	782-787	5.0	5.0	No	No	No
803	1.0	Blk. soft carb. sh.	9003	787-792	5.0	5.0	No	No	No
			9004	792-797	5.0	5.0	No	No	No
			9005	797-802	5.0	5.0	No	No	No
808.7		Blk. gry. fine gr. qtz. sand w/fine gr. pyr.	9006	802-807	5.0	5.0	No	No	No
			9007	807-812	5.0	5.0	No	No	No
812		Blk. pyr. carb. sh. w/qtz. veinlets Silver Star Vein H. W. 810	9008	812-813	1.0	1.0	No	No	No
812.3	0.3	Qtz. & pyr. sh.							
812.8	0.5	Qtz. vein							

Started \_\_\_\_\_  
Finished \_\_\_\_\_  
Hole Size \_\_\_\_\_  
Depth \_\_\_\_\_  
% Core Rec. \_\_\_\_\_

## DIAMOND DRILL RECORD

Mine \_\_\_\_\_  
Location \_\_\_\_\_  
\_\_\_\_\_  
Logged by \_\_\_\_\_ Date \_\_\_\_\_  
Drilled by \_\_\_\_\_

Latitude\_\_\_\_\_

Departure\_\_\_\_\_

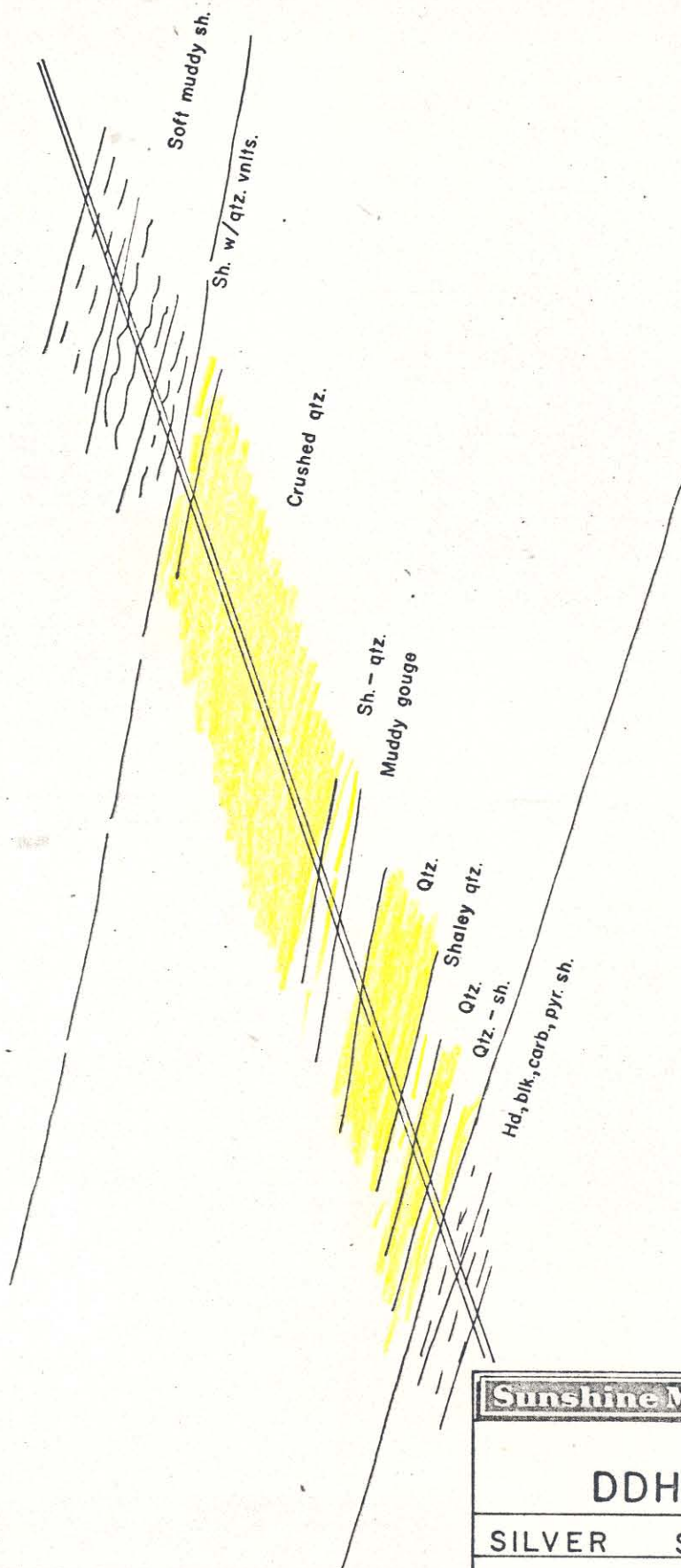
Elevation\_\_\_\_\_

Bearing\_\_\_\_\_

Inclination\_\_\_\_\_

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**Sunshine Mining Company**

**DDH S-9**

**SILVER STAR VEIN**

**LOOKING N.E.**

**1" = 10'**

**10 / 5 / 72**

Hole No. S-10  
Level \_\_\_\_\_

## DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started 8/21/72  
Finished 9/2/72  
Hole Size NQWL  
Depth 350'  
% Core Rec. \_\_\_\_\_

Mine Silver Star  
Location Contact, Nevada  
Logged by T. Miller Date \_\_\_\_\_  
Drilled by Miller, Berg

Departure \_\_\_\_\_

Elevation \_\_\_\_\_

Bearing S 58 W

Inclination - 46°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
		Rock Bit to 30'	56	38-48'			0.02	No	
				48'					
			9530	75-80			No	No	
			9531	80-85			No	No	
			9532	85-90			No	No	
			9533	90-95			No	No	
			9534	95-97.5			No	No	
			6085	97.5-103			No	No	
			6086	103-108		5.0	No	No	
			6087	108-113			No	No	
			6088	113-118			No	No	
			6089	118-123			No	No	
			6090	123-128					
			6091	128-135			3.2	1.6	
210									
215	1.5	Blk. carb. sh. gouge w/minor yll. stain	195	210-215	5.0	5.0	No	0.05	No
			196	215-216			0.1	No	0.012
219		No core recovery	197	216-226.5			0.1	Tr.	No
220	1.0	Sh. gouge with minor qtz.							
225	5.0	220-221 Sh. gouge w/minor qtz.  221-223 crushed qtz.							
226.5	1.2	Crushed qtz. w/graph. & carb. sh. some qtz. veinlets	198	226.5-235			No	No	No
232		No core recovery							



Hole No. \_\_\_\_\_  
Level \_\_\_\_\_

# DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started \_\_\_\_\_  
Finished \_\_\_\_\_  
Hole Size \_\_\_\_\_  
Depth \_\_\_\_\_  
% Core Rec. \_\_\_\_\_

Mine \_\_\_\_\_  
Location \_\_\_\_\_  
Logged by \_\_\_\_\_ Date \_\_\_\_\_  
Drilled by \_\_\_\_\_

Departure \_\_\_\_\_  
Elevation \_\_\_\_\_  
Bearing \_\_\_\_\_  
Inclination \_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
240	63	Cherty cemented silic. sand, w/ numerous qtz. strngs, some secondary yll. stain. 239.5-240 fault gouge-crushed qtz. & carb. sh.	199	235-241			0.2	No	No
243	3.0	Crushed cherty qtz.	200	241-246			0.1		No
257.6	14.3	Dike & alt. dike some carb. sh. & crushed qtz. strngs.	301	246-250			0.1		
			302	250-255			No		
			303	255-257.5			No		0.19
			304	257.5-260			0.3 Sb	0.4 0.19	No
263.8	6.0	Crushed qtz. w/some carb. mt1.	305	260-265			0.5 Sb	0.25 0.24	0.04
264	1.5	Dike	306	265-271			No Sb	0.1 0.14	0.09
271	7.0	Crushed qtz.	307	271-275			0.1		0.03
276	5.0	Dike	184	275-279			No	No	0.10
278	2.0	Crushed Brecc qtz.							
279	1.0	Dike	185	279-285	6.0	6.0	0.36	0.3	0.7
			186	285-287	2.0	2.0	0.28	0.2	0.21
287	8.0	Crushed brecc. qtz. Some mineral at 281 to 287 looks like tet. some wire silver 285.5-287 bull qtz. w/fract. some bornite & tet?  283-285.5 Blk. qtz. gouge	187	287-290	3.0	3.0	1.4	1.45	1.21
			188	290-293	3.0	3.0	1.0	1.6	0.46
			189	293-295	2.0	2.0	0.12	0.4	0.05

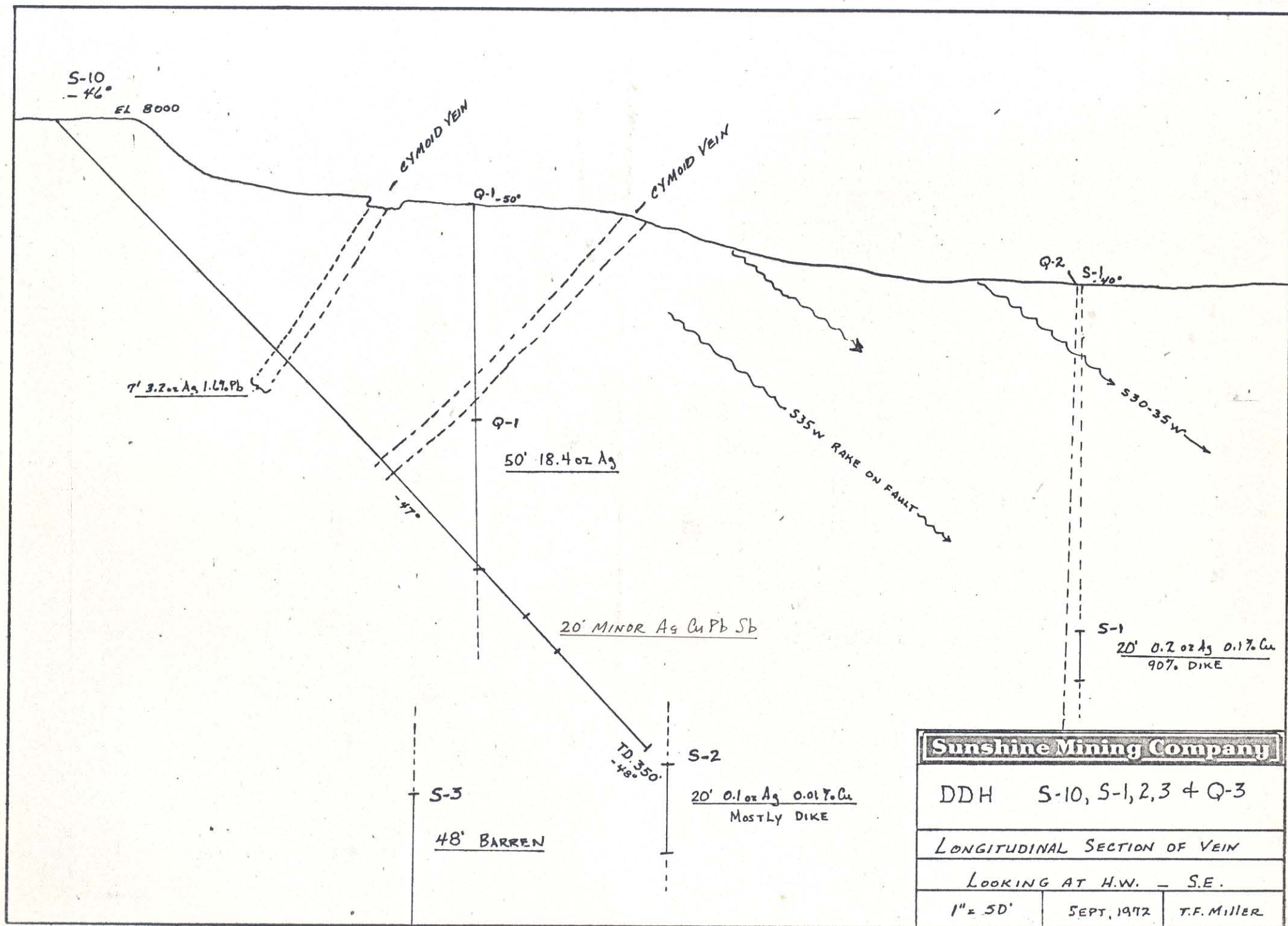
Started \_\_\_\_\_  
 Finished \_\_\_\_\_  
 Hole Size \_\_\_\_\_  
 Depth \_\_\_\_\_  
 % Core Rec. \_\_\_\_\_

Mine \_\_\_\_\_  
Location \_\_\_\_\_  
\_\_\_\_\_  
Logged by \_\_\_\_\_ Date \_\_\_\_\_  
Drilled by \_\_\_\_\_

Inclination\_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
295	8.0	Massive fract. qtz. w/minor graphite seams. Some tet. & bornite	9026	295-300	5.0	5.0	No	0.5	0.069
			308	299.5-305	5.5	5.5	0.5	0.65	0.094
			309	305-310	5.0	5.0	1.1	0.7	0.157
							Zn= 0.95		
							Sb= 0.38		
			310	310-315	5.0	5.0	0.1	0.15	0.018
330	30.0	Blk. soft carb. sh. w/minor pyr.							
350	27.0	332-350 fw. sh. blk. carb. pyr. sh.							
<u>TROPARI SURVEY</u>									
		COLLAR S 58 W - 46°							
		96' S 57 1/2 W - 47°							
		196' S 61 1/2 W - 48°							
		350' S 55 W - 48°							





Hole No. S-11  
Level                     

# DIAMOND DRILL RECORD

Latitude\_\_\_\_\_

Started	8/29/72
Finished	9/14/72
Hole Size	NQWL
Depth	271
% Core Rec.	

Mine Silver Star  
Location Contact, Nevada  
Logged by T. F. Miller Date 9/14/72  
Drilled by Miller, Berg

Departure\_\_\_\_\_

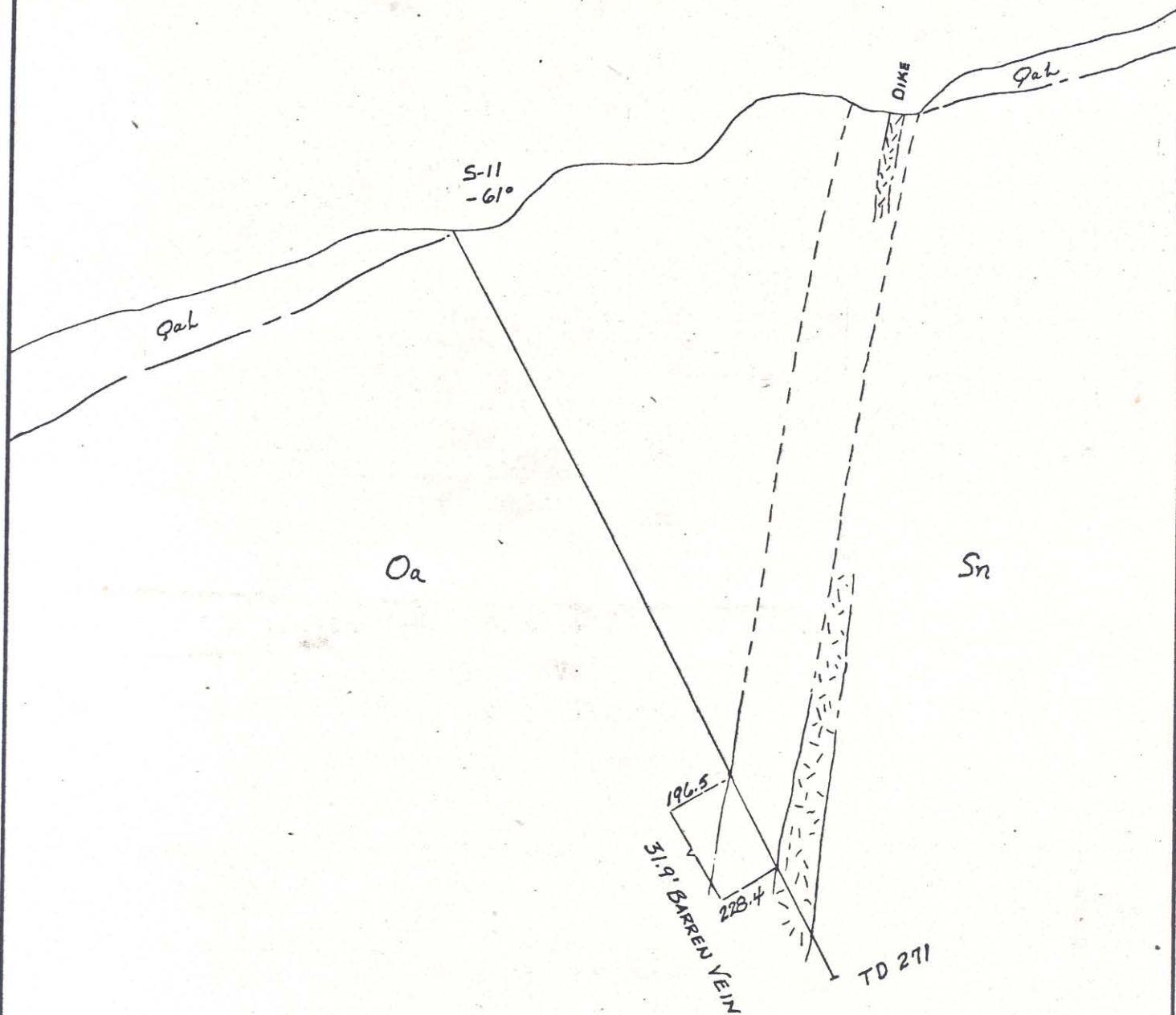
Elevation\_\_\_\_\_

Bearing\_\_\_\_\_

Inclination -61°

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
94		Lt. br. gry. muddy sh.							
147	Good	Br. argill. shaley mudstone. Some calcite strgrs.							
160	Good	Blk. carb. sh.							
182	Good	Blk. carb. soft sh. some argill. mtl.							
196.5	14.0	H. W. of silver Star vein. Med. hd. sh. w/qtz. to 197	9027	196-201	5.0	5.0	No		
201.4	4.5	Sh. w/qtz. and crushed qtz.	9028	201-207	5.0	7.0	No		
202	0.6	Crushed pyr. dike							
202.5	0.5	Shaley qtz.							
204.5	2.0	Crushed & banded qtz. w/some carb. mtl.	9029 9030	207-212 212-217	5.0 5.0	5.0 5.0	No No		
215	9.5	Sh. qtz, crushed qtz, approx 1/2 to 2/3 crushed qtz. Remainder carb. shaley mtl. carb. sh. - minor qtz.							
217	2.0	Carb. sh. minor qtz.	9031	217-222	5.0	5.0	No		
227.5	8.0	Carb. sh. w/minor qtz.	9032	222-226	2.0	4.0	No		
228.4	0.7	Sh. minor qtz.	9033	226-228.5	2.5	2.5	No		
250.7	21	Aplite dike minor pyr.							
251.3	0.6	Crushed qtz.	9034	251-254	3.0	3.0	No		
271	19	Fw Sh. Black gry. carb. pyr. sh.							
		<u>TROPARI SURVEY</u>							
		COLLAR S 55 E - 61°							
		64 S 56 1/2 E - 62°							
		109 - 61°							
		205 S 50 E - 63°							
		252 - 65°							





**Sunshine Mining Company**

DDH S-11

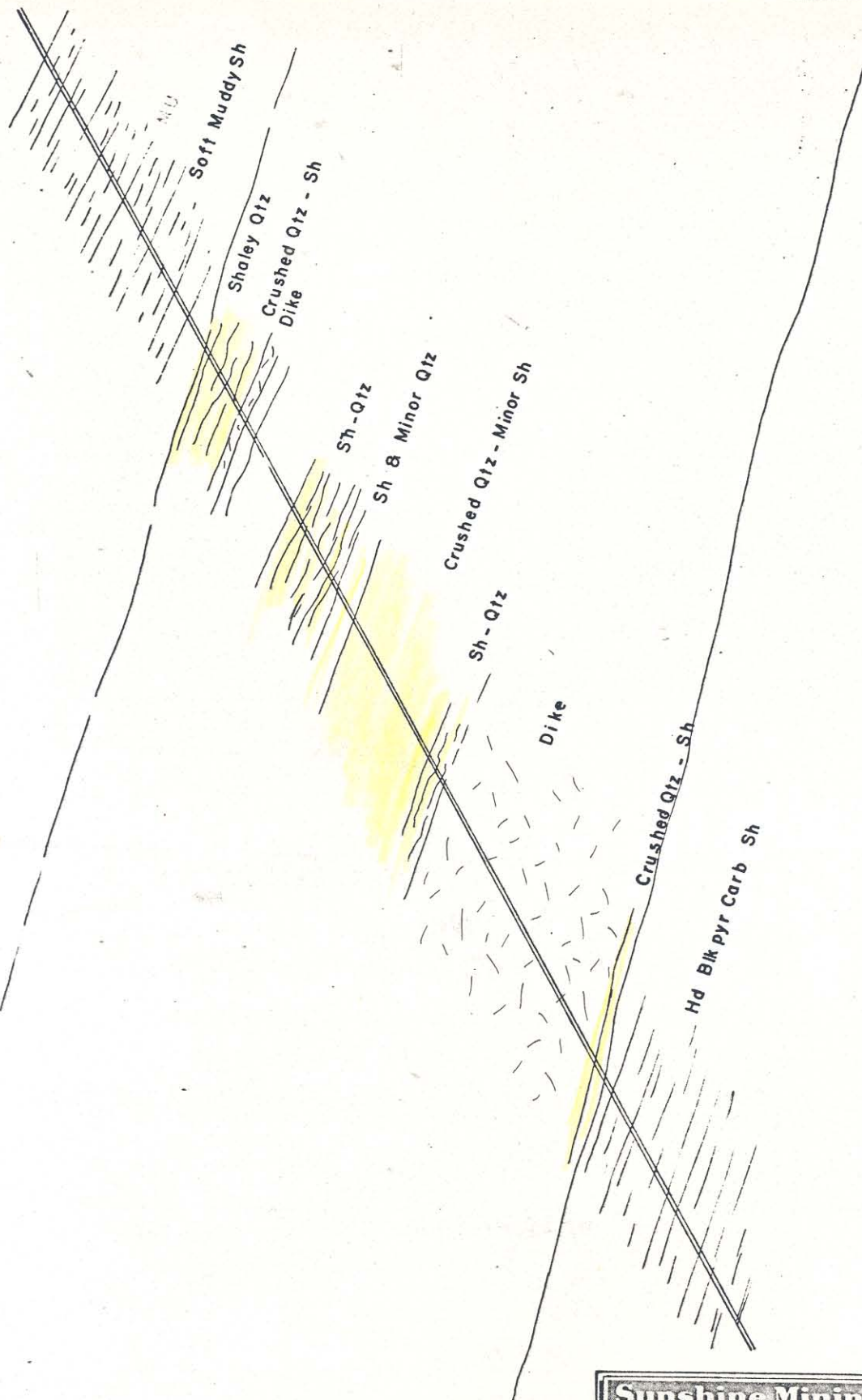
SILVER STAR VEIN

LOOKING N.E.

1" = 50'

10-6-72

T.F. MILLER



**Sunshine Mining Company**

DDH S-II

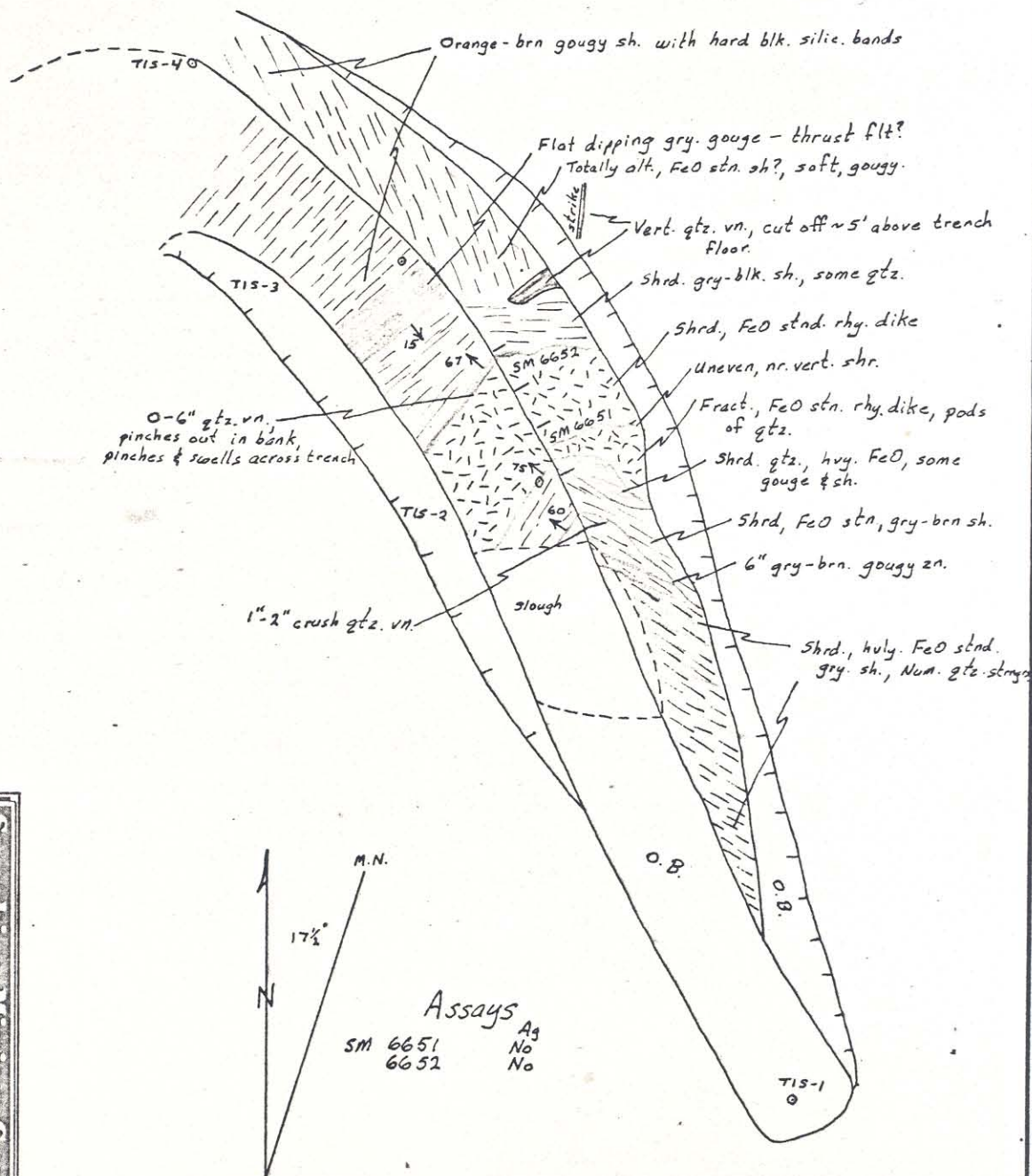
SILVER STAR VEIN

1" = 10'

10-5-72

TFM





Sunshine Mining Company

Silver Star

Trench T15

Gaugy, FeO stn. sh.  
lt. gry. gouge w/ FeO &  
crush gtz.

O.B.

T25-1

~1" gtz. stringers.

Wx. brn. cong. sh., abdt. gyp. on fract., few gtz. vults.

Wx. brn. sh. w/ gtz. vults.

lt. gry. gouge, FeO, crush gtz., some malach. & pyromorph. stn.

FeO stn., gry. brn. sh., stn. nr. blk. in some plcs.

NOTE: VEIN IS  
10' LOWER  
THAN

T25-2

SM 6661

SM 6662

SM 6663

lt. gry. to blk. lamin. sh.,  
tight folds in walls, schistose appear.  
Part w/ more mv. appear.  
Hvy gyp, seams up to 1/2" wide.

Structure contorted, less  
clear uphill to S.E. as  
oxid. incr. nr. surf.

17 1/2°

M.N.

Gry.-blk. cong. sh.  
w/ local hvy. FeO stn

Gaugy xp., shrd. sh.,  
crush gtz., FeO. Some  
pods of gtz. w/ hvy FeO  
ser. narrowing due to flatter FeO.  
Nun. gtz. pods in wall,  
Sample in S.W. wall.

Scat. pods & stringers gtz.

Assays

SM 6661  
6662  
6663

Ag  
No  
No  
Tr

Sunshine Mining Company

Silver Star

Trench T2-5

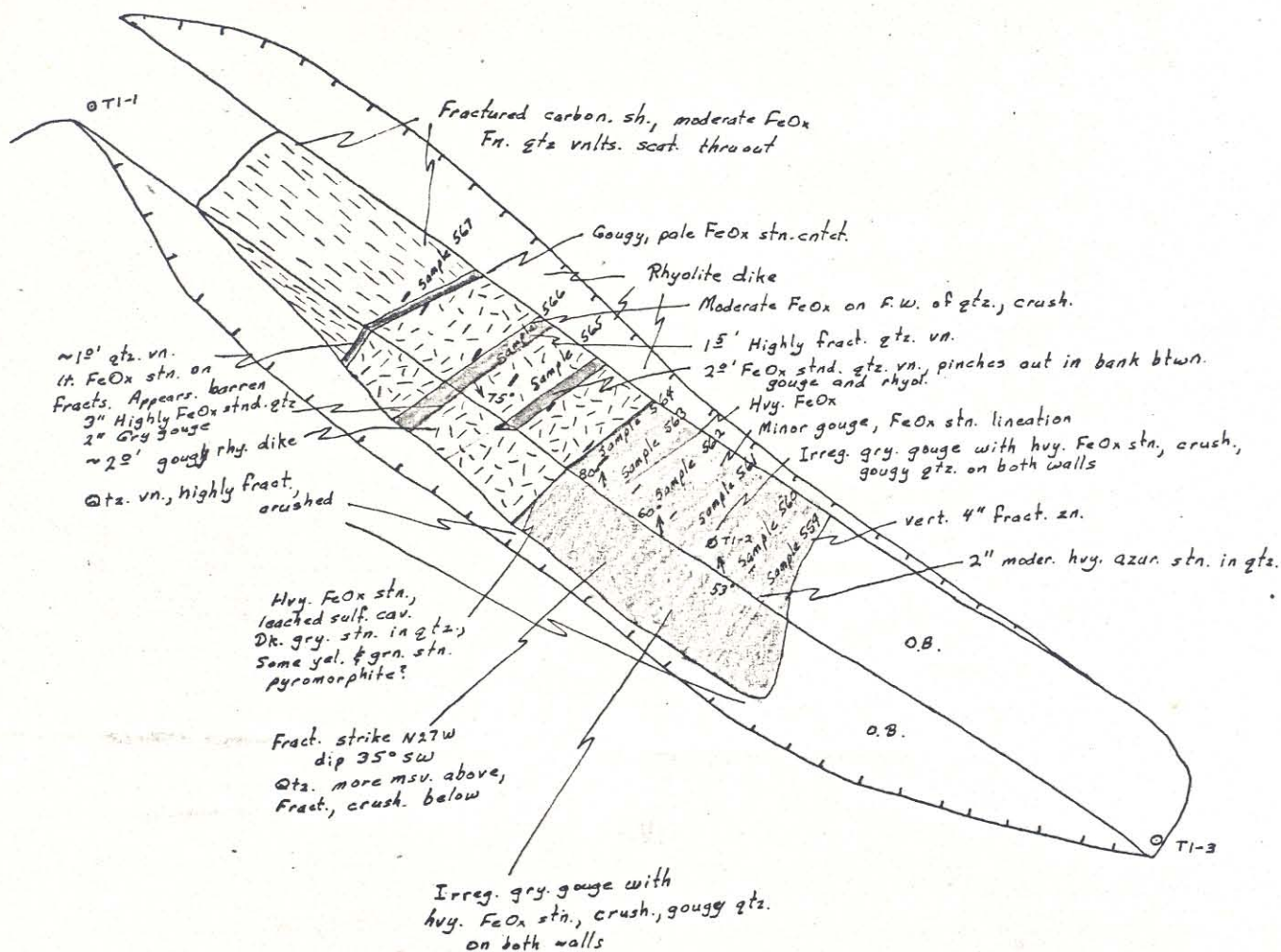
1" = 20'

6/14/72

D.A.

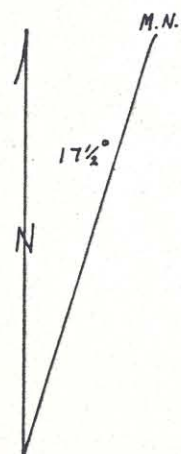
© T25-4



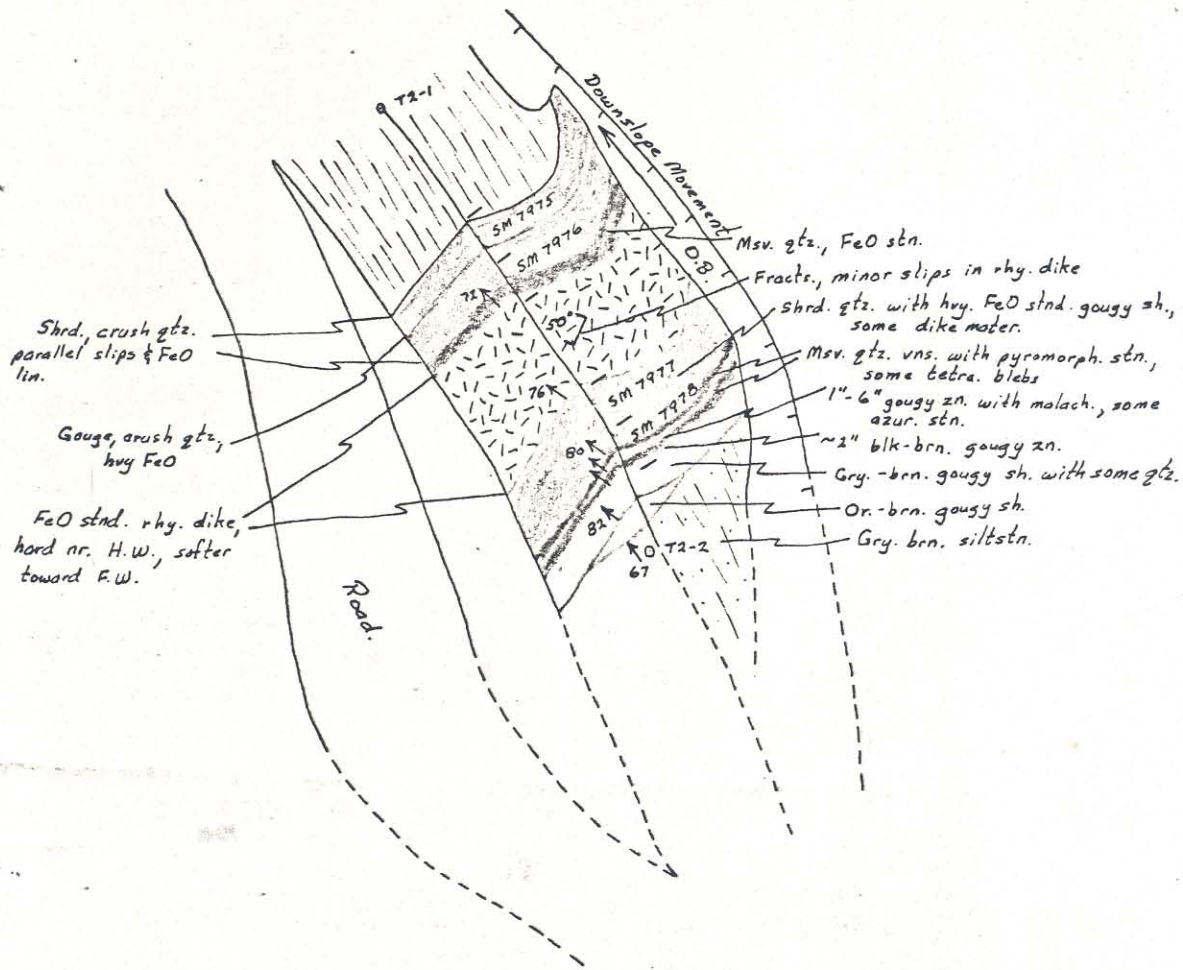


### Assays

	Ag	Pb	Cu
SM 559	10.0	tr	0.38
560	0.5	tr	tr
561	5.1	30	tr
562	1.3	1.0	tr
563	0.6	0.9	tr
564	No	tr	tr
565	No	tr	0.17
566	No	tr	tr
567	No	tr	tr

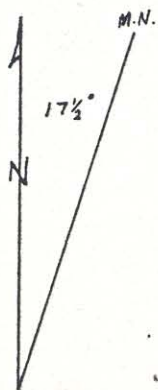


Sunshine Mining Company			
Silver Star			
Trench T-1			
prev. sampled by D.A. & R.F. as West Adit Trench			
1" = 20'	5/31/72	D.A.	



### Assays

	Ag
SM 7975	0.7
7976	0.5
7977	1.4
7978	No



Sunshine Mining Company

Silver Star

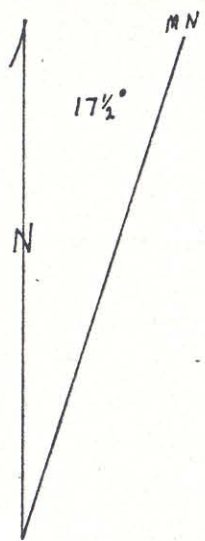
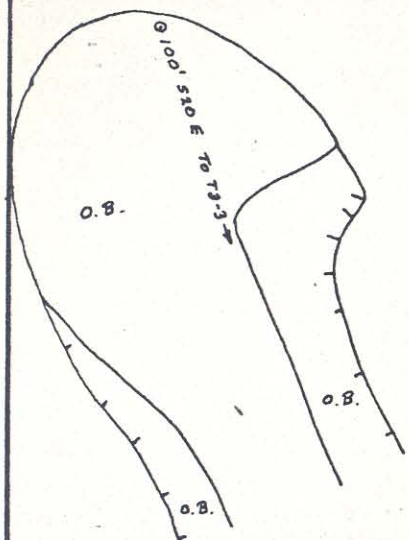
Trench T2

1" = 20'

6/5/72

D.A.





Sh. becomes lighter gray, more limon. stn.

Shrd. blk. sh., qtz. vnlts, hvy. FeOx nr. H.W. More compet, less FeOx away from H.W.

~1' Highly alt. FeOx std. rhy. dike  
Crushed blk. sh. & qtz  
Gauge, crush rhy. dike, qtz, hvy FeOx  
Shrd. qtz., hvy FeOx  
Some rhy. dike?  
Qtz stringers

Cntel. indist., more wx., nearer to surface, more fract.

FeOx stn. rhy. dike  
Irreg. cntel. btwn. qtz. and dike  
Crumbly gray qtz. & FeOx  
Highly shrd. wht. qtz. with gauge & hvy FeOx  
Hair line qtz. stringers.

Leached msr. siltstn.

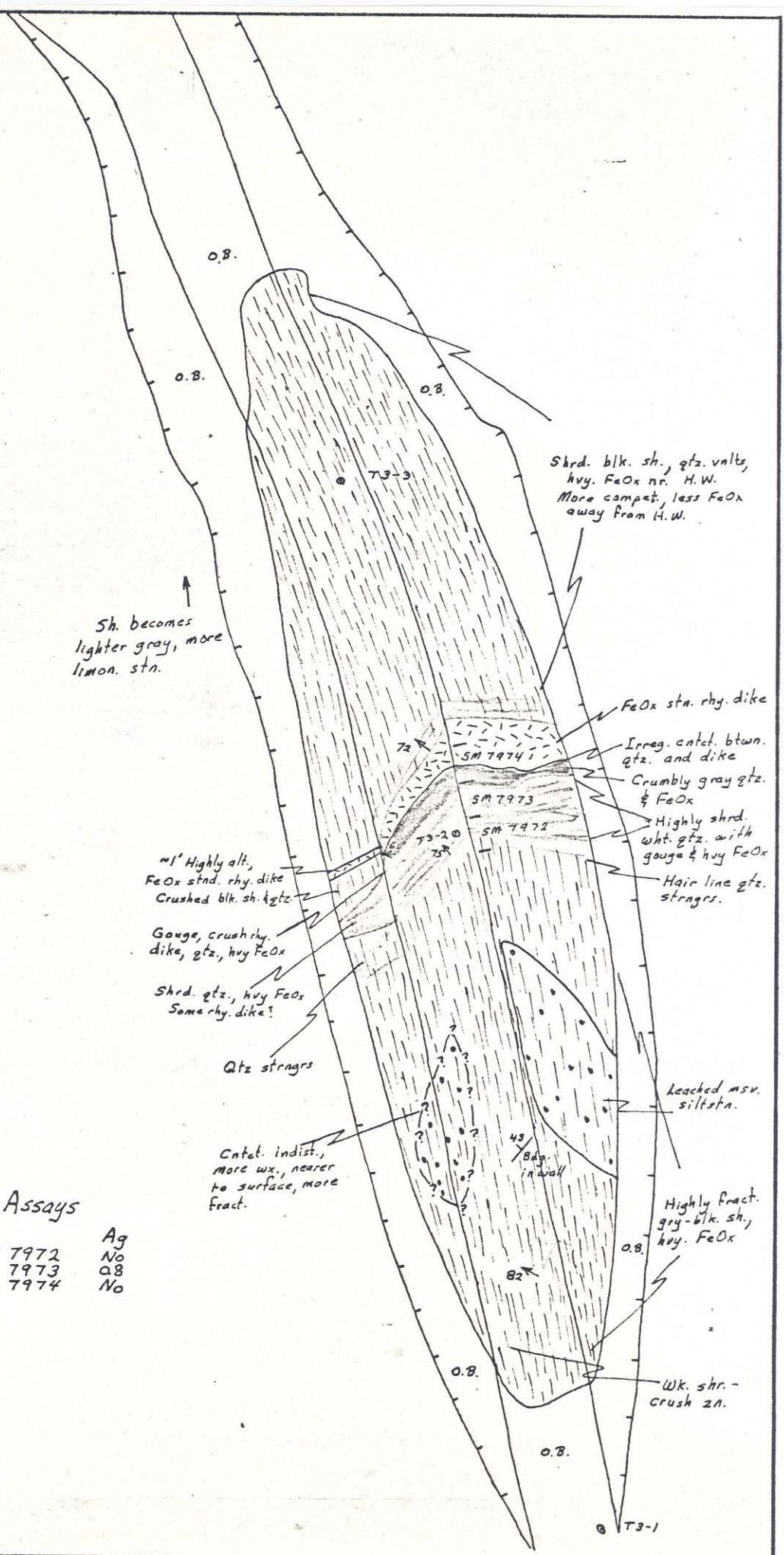
Highly fract. gry-blk. sh., hvy. FeOx

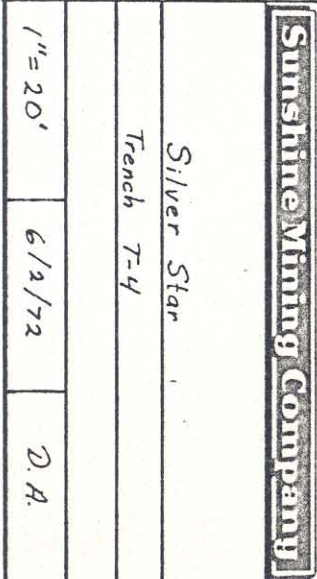
Wk. shr. - crush zn.

### Assays

	Ag
SM 7972	No
7973	Q8
7974	No

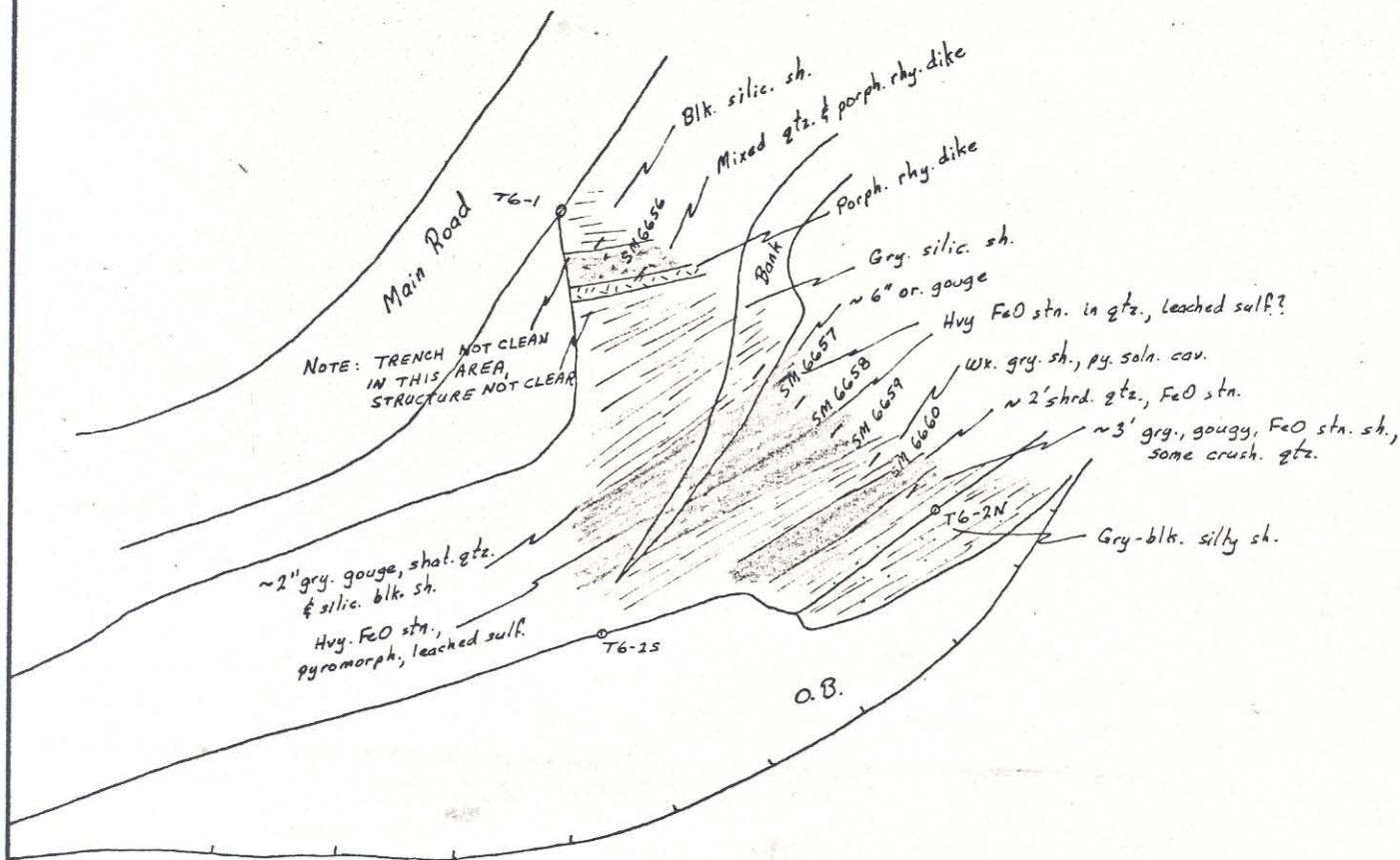
Sunshine Mining Company		
Silver Star		
Trench T-3		
1" = 20'	6/1/72	D.A.





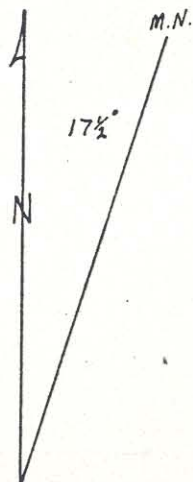






### Assays

SM	Ag
6656	No
6657	No
6658	2.2
6659	No
6660	0.7



Sunshine Mining Company

Silver Star

Trench T-6

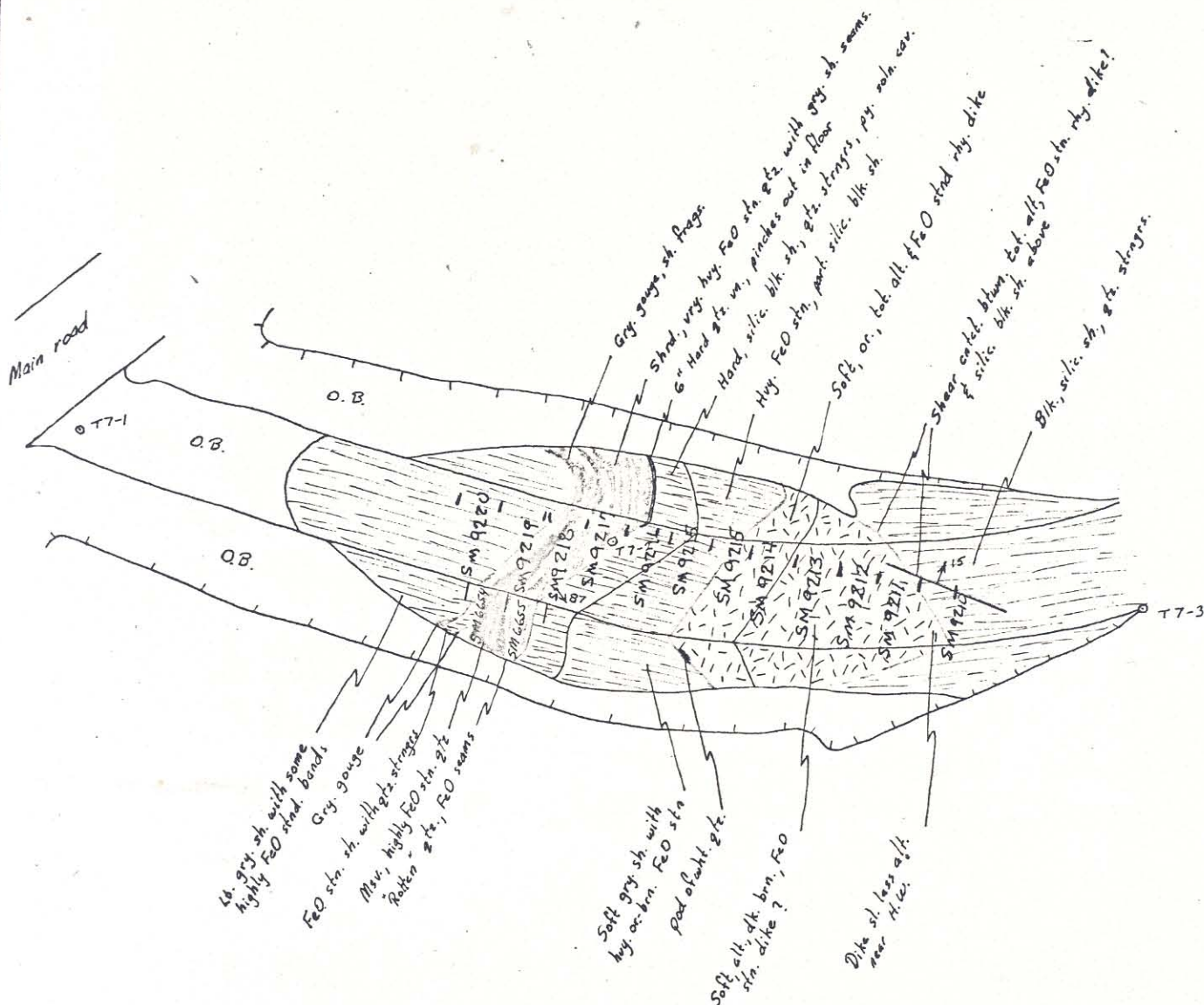
1" = 20'

6/5/72

D.A.



Main road



Sunshine Mining Company

Silver Star

Trench T-7

1" = 20'

6/5/72

D.A.



# Assays

	Ag	Pb	Cu
SM 6654	No		
6655	No		
9210	0.1	0.15	0.012
9211	0.1	0.25	0.012
9212	-	-	-
9213	0.1	-	.006
9214	0.1	0.15	.018
9215	0.1	0.15	.016
9216	-	0.15	.069
9217	-	0.10	.069
9218	-	0.25	.151
9219	0.5	1.15	.069
9220	0.5	1.05	.006
9221	-	-	.006

Blk. silic. sh. bands soft,  
FeO stnd sh, some gtz. stringers,  
py. soln. cav.

TB-3

TB-4

Very high, vertical walls  
on both sides of trench

Gry-brn. sh.

Comp. gry-brn  
Qtz. string.

Gry-brn. gneiss,  
bands FeO, soft, gneiss  
sh.

SM 6653

Bdg. f/br FeO stn.-shr. lin.

Blk. silic. sh.,  
FeO stn.

TB-3

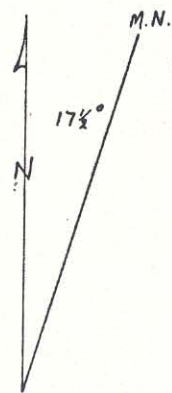
Blk. silic. sh  
with gtz. stringers  
Structure  
narrower consid.

Bdg. f/br FeO stn.-shr. lin.

TB-2

O.B.

Assay  
SM 6653 No Ag



Sunshine Mining Company		
Silver Star		
Trench T-8		
1" = 20'	6/5/72	D.A.



To: David A. Davis

Nevada Bureau of Mines &

Surveying-Engineering

Reno, NV

89557-0088

Rm 311

34/178



MEDIA MAIL



SILVER STAR  
PROPERTY

CONTACT DIST.

ELKO CO.



Cu EXCLUDES  
>120

Page 1 of 6 6000 0002  
Pb EXCLUDES  
>90

CLIENT Sunshine Mining Co.

Pb DATE

Cu  
MEAN = 59 PPM  
S.D. = 21 PPM

Pb  
MEAN = 41 PPM  
S.D. = 16 PPM

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb								
7205-235	SST-1,	1	46	32								1
236		2	40	30								2
237		3	38	28								3
238		4	43	33								4
239		5	44	34								5
240		6	42	34								6
241		7	30	36								7
242		8	44	38								8
243		9	39	43								9
244		10	36	46								10
245		11	41	56								11
246		12	52	57								12
247		13	555	.16%								13
248		14	790	.18%								14
249		15	370	.16%								15
7205-250		16	170	710								16
251		17	90	242								17
252	SST-1,	19	109	190								18
253	L20S+14E,	0	48	41								19
254		25W	36	40								20
255		50W	42	36								21
256		75W	46	33								22
257		100W	52	42								23
258		125W	53	40								24
259		150W	54	36								25
7205-260		175W	49	31								26
261		200W	52	39								27
262		225W	78	40								28
263		250W	81	31								29
264	L20S+14E,	275W	113	60								30
265	L24S,	9.25E	44	51								31
266		9.50E	53	82								32
267		9.75E	44	45								33
268		10.00E	48	50								34
269		10.25E	46	49								35



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb						
7205 - 270	L24S, 10.50E		40	43						1
271	10.75E		43	61						2
272	11.00E		42	42						3
273	11.25E		43	50						4
274	11.50E		43	45						5
275	11.75E		52	53						6
276	12.00E		49	47						7
277	12.25E		44	43						8
278	12.50E		44	40						9
279	12.75E		48	40						10
7205 - 280	L24S, 13.00E		52	41						11
281	L28S, 7.00E		62	69						12
282	7.50E		50	62						13
283	8.00E		38	63						14
284	8.25E		52	121						15
285	8.50E		48	80						16
286	8.75E		44	58						17
287	9.00E		44	55						18
288	9.25E		43	48						19
289	9.50E		48	48						20
7205 - 290	9.75E		41	42						21
291	10.00E		50	71						22
292	10.25E		50	62						23
293	10.50E		44	49						24
294	10.75E		52	66						25
295	11.00E		47	60						26
296	11.25E		45	42						27
297	11.50E		47	60						28
298	L28S, 11.75E		49	38						29
299	L44S, 5.00E		41	31						30
7205 - 300	5.50E		52	39						31
301	6.00E		48	47						32
302	6.25E		44	41						33
303	6.50E		48	36						34
304	6.75E		43	50					35	35



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb	Zn	Ag
305	L44S, 7.00E		38	28		
306	7.25E		38	29		
307	7.50E		38	31		
308	7.75E		42	35		
309	8.00E		40	28		
7205-310	8.25E		42	33		
311	8.50E		43	37		
312	8.75E		40	32		
313	9.00E		42	31		
314	9.25E		41	32		
315	9.50E		43	30		
316	L44S, 9.75E		48	53		
317	L48S, 0.00E		80	620	- 290	1.6
318	0.50E		68	540	- 305	1.6
319	1.00E		66	410	- 280	1.4
7205-320	1.50E		91	505	- 320	1.7
321	2.00E		77	305	- 320	1.8
322	2.50E		80	325	- 315	1.8
323	3.00E		74	260	- 305	1.6
324	3.50E		63	99	-	1.4
325	4.00E		58	57		0.4
326	4.25E		66	56		
327	4.50E		72	49		
328	4.75E		71	41		
329	5.00E		63	43		
7205-330	5.25E		54	35		
331	5.50E		95	45		
332	5.75E		81	38		
333	6.00E		69	41		
334	6.25E		64	59		
335	6.50E		56	44		
336	6.75E		61	38		
337	7.00E		64	42		
338	7.25E		60	41		
339	L48S, 7.50E		55	36		
						35



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb	Zn	Ag
7205-340	L48S, 7.75E		56	39		
341	8.00E		49	33		
342	8.25E		44	28		
343	8.50E		52	45		
344	8.75E		44	33		
345	9.00E		49	35		
346	9.25E		48	31		
347	9.50E		53	49		
348	9.75E		46	34		
349	L48S, 10.00E		47	34		
7205-350	L48S, 1.0W		59	160	-	
351	1.5W		65	118	-	
352	2.0W		57	88	-	
353	2.5W		72	85		
354	3.0W		88	58		
355	3.5W		82	68		
356	4.0W		70	50		
357	4.5W		73	59		
358	5.0W		70	52		
359	5.5W		65	45		
7205-360	L48S, 6.0W		68	44		
361	L53S, 2.25E		107	235		
362	2.50E		99	180		
363	2.75E		94	123		
364	3.00E		91	52		
365	3.25E		81	32		
366	3.50E		72	36		
367	4.00E		51	31		
368	4.75E		51	32		
369	4.50E		54	35		
7205-370	4.75E		62	55		
371	5.00E		72	74		
372	5.75E		68	43		
373	5.50E		73	38		
374	5.75E		80	31		
						35



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb	Ag	
375	L53 S, 6.00E		86	31	~2	1
376	6.25E		92	39		2
377	6.50E		106	51		3
378	6.75E		116	42 -	3.0	4
379	7.00E		105	62		5
7205 - 380	7.25E		94	53		6
381	7.50E		121	73 -	2.8	7
382	7.75E		134	84	3.2	8
383	8.00E		147	37 -	3.0	9
384	8.25E		134	30		10
385	8.50E		114	29 -		11
386	8.75E		112	32		12
387	9.00E		124	34		13
388	9.25E		104	31		14
389	9.50E		94	34	24	15
7205 - 390	9.75E		71	32	1.8	16
391	L53 S, 10.00E		56	37	1.7	17
392	L68 S, 00 E		24	10	1.4	18
393	0.25E		29	15		19
394	0.50E		29	15		20
395	0.75E		21	15		21
396	1.00E		20	13		22
397	1.25E		24	16		23
398	1.50E		46	43		24
399	1.75E		58	25		25
7205 - 400	2.00E		51	24		26
401	2.25E		52	19		27
402	2.50E		54	22		28
403	2.75E		48	17		29
404	3.00E		52	19		30
405	3.25E		47	18		31
406	3.50E		48	20		32
407	3.75E		31	12		33
408	4.00E		55	25		34
409	4.25E		50	16	30	35



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb						
7205-410	L-68S, 4.50E		54	25						
411	4.75E		58	23						
412	5.00E		57	28						
413	5.25E		61	29						
414	5.50E		60	27						
415	5.75E		60	29						
416	6.00E		58	28						
417	6.25E		65	36						
418	6.50E		59	43						
419	6.75E		61	45						
7205-420	7.00E		65	52						1
421	7.25E		73	57						1
422	7.50E		76	58						1
423	7.75E		78	64						1
424	8.00E		66	56						1
425	8.25E		99	67						1
426	8.50E		86	79						1
427	8.75E		96	81						1
428	9.00E		101	89						1
429	9.25E		99	90						20
7205-430	9.50E		113	97						2
431	9.75E		96	100						2
432	10.00E		72	44						2
433	10.25E		56	57						24
434	10.50E		57	35						25
435	10.75E		83	40						26
436	11.00E		94	40						27
437	L68S 11.25E		78	38						28
438	L63S 0.25W		20	19						29
439	0.50W		23	20						30
440	0.75W		21	26						31
7205-441	1.00W		23	29						32
										33
										34
										35



DATE \_\_\_\_\_

[illegible]

DATE \_\_\_\_\_

[illegible]



[illegible]

6000 0002 (1210)

CLIENT Sunshine Mining Co.DATE Rec. May 1, 1972

All determinations are in ppm unless otherwise stated

F&M Lab Number	Customer Sample #	Tube #	Ag	Cu	Pb	Zn	
7205-11	L32S-7.0E		1.2	53	88	211	1
12	7.25E		1.2	53	133	185	2
13	7.5E		1.0	55	124	183	3
14	7.75E		1.2	57	162	181	4
15	8.0E		1.4	55	140	202	5
16	8.25E		0.7	44	75	181	6
17	8.5E		0.7	42	51	169	7
18	8.75E		0.6	40	55	161	8
19	9.25E		1.2	45	73	158	9
7205-20	9.5E		0.5	36	42	140	10
21	9.75E		0.5	34	46	153	11
22	10.0E		1.3	44	61	161	12
23	10.25E		0.4	36	47	145	13
24	10.5E		0.3	31	34	143	14
25	10.75E		0.4	33	32	162	15
26	11.0E		0.3	33	33	169	16
27	11.25E		0.3	33	30	183	17
28	L40S-4.0E		0.5	72	108	240	18
29	4.5E		0.6	61	58	222	19
7205-30	5.0E		0.4	51	53	176	20
31	5.25E		0.6	47	46	209	21
32	5.5E		0.2	40	36	212	22
33	5.75E		0.2	37	29	202	23
34	6.00E		0.5	42	39	183	24
35	6.25E		0.4	37	35	138	25
36	6.50E		0.4	35	41	118	26
37	6.75E		0.5	38	38	126	27
38	7.00E		0.5	46	66	161	28
39	7.25E		0.7	46	50	137	29
7205-40	7.50E		0.9	54	74	213	30
41	7.75E		0.9	59	81	324	31
42	-8.8.25;-8.5E		0.7	50	53	142	32
43	8.75E		0.7	49	46	125	33
44	9.0E		0.7	51	43	114	34
45	9.25E		0.6	48	43	117	35

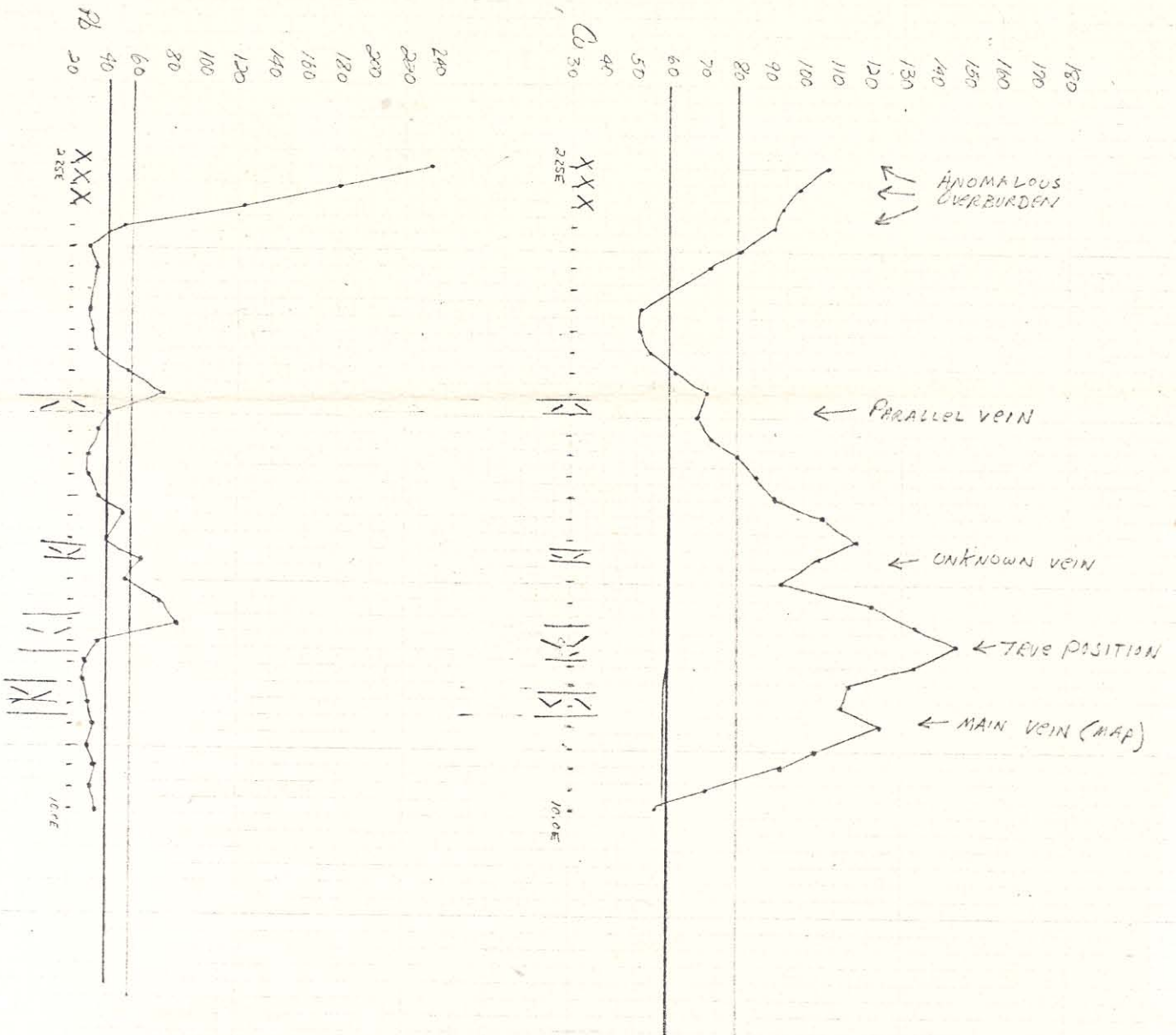


CLIENT Sunshine Mining Co.DATE Rec. May 1, 1972

F&M Lab Number	Customer Sample #	Tube #	Ag	Cu	Pb	Zn	
7205-46	LAOS-9.5E		0.6	48	31	121	1
47	9.75E		1.2	55	33	133	2
48	10.0E		0.6	43	30	117	3
49	LAOS-6.0E		1.3	56	42	206	4
7205-50	6.25E		0.7	50	31	207	5
51	6.5E		0.8	78	29	331	6
52	6.75E		1.9	70	47	880	7
53	7.0E		0.9	120	51	.11%	8
54	7.25E		1.0	111	56	595	9
55	7.5E		1.5	110	110	383	10
56	7.75E		12.7	208	.14%	286	11
57	8.0E		17.1	349	.18%	281	12
58	8.25E		1.8	48	171	140	13
59	8.5E		0.6	30	63	135	14
7205-60	8.75E		0.4	28	48	154	15
61	9.0E		0.4	30	47	198	16
62	9.25E		0.5	31	44	172	17
63	9.50E		0.5	28	34	153	18
64	9.75E		0.3	31	40	144	19
7205-65	10.0E		0.4	36	33	134	20
							21
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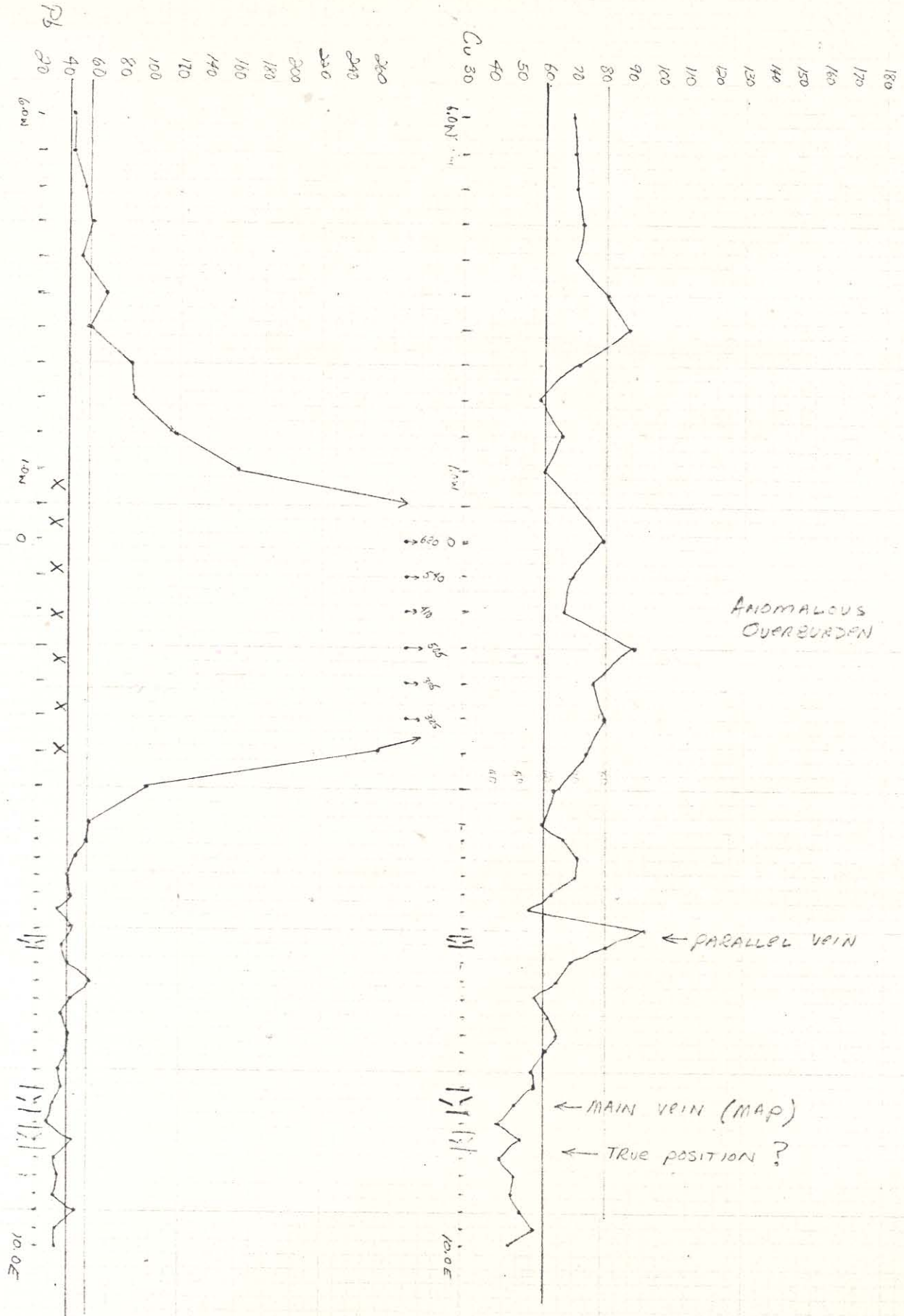
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LINE 535





# LINE 485



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb	Ag	Zn	
305	L44S, 7.00E		38	28	J		1
306	7.25E		38	29			2
307	7.50E		38	31			3
308	7.75E		42	35			4
309	8.00E		40	28			5
305-310	8.75E		42	33			6
311	8.50E		43	37			7
312	8.75E		40	32			8
313	9.00E		42	31			9
314	9.25E		41	32			10
315	9.50E		43	30			11
316	L44S, 9.75E		48	53			12
317	L48S, 0.00E		80	620	1.6	290	13
318	0.50E		68	540	1.6	305	14
319	1.00E		66	410	1.4	280	15
305-370	1.50E		91	505	1.7	320	16
321	2.00E		77	305	1.8	320	17
322	2.50E		80	325	1.8	315	18
323	3.00E		74	260	1.6	305	19
324	3.50E		63	99			20
325	4.00E		58	59			21
326	4.25E		66	56			22
327	4.50E		72	49			23
328	4.75E		71	41			24
329	5.00E		63	43			25
305-330	5.25E		54	35			26
331	5.50E		95	45			27
332	5.75E		81	38			28
333	6.00E		65	41			29
334	6.25E		64	59			30
335	6.50E		56	44			31
336	6.75E		61	38			32
337	7.00E		64	42			33
338	7.25E		60	41			34
339	L48S, 7.50E		55	36			35



CLIENT Sunshine Mining Co.

DATE \_\_\_\_\_

F&M Lab Number	Customer Sample #	Tube #	Cu	Pb							
7205-340	L48S, 7.75E		56	39							
341	8.00E		49	33							2
342	8.25E		44	28							3
343	8.50E		52	45							4
344	8.75E		44	33							5
345	9.00E		49	35							6
346	9.25E		48	31							7
347	9.50E		53	49							8
348	9.75E		46	34							9
349	L48S, 10.00E		47	34							10
7205-350	L48S, 1.0W		59	160							11
351	1.5W		65	118							12
352	2.0W		57	88							13
353	2.5W		72	85							14
354	3.0W		88	58							15
355	3.5W		82	68							16
356	4.0W		70	50							17
357	4.5W		73	50							18
358	5.0W		70	52							19
359	5.5W		69	45							20
7205-360	L48S, 6.0W		62	44							21
361	L53S, 2.25E		107	235							22
362	2.50E		99	180							23
363	2.75E		94	123							24
364	3.00E		91	52							25
365	3.25E		81	32							26
366	3.50E		72	36							27
367	4.00E		51	31							28
368	4.25E		51	32							29
369	4.50E		54	35							30
7205-370	4.75E		62	55							31
371	5.00E		72	74							32
372	5.25E		69	43							33
373	5.50E		73	38							34
374	5.75E		80	31							35





# Foundation & Materials Consultants, Inc.

839 Front Street, Helena, Montana 59601

Phone 406/442-0880

Edward A. Nurse, P. E., President



## Certificate of Analysis

Client: Sunshine Mining Co.  
P. O. Box 1080  
Kellogg, Idaho 83837

Project No: 5366-01-01  
Submitted By: R.A. Forrest  
Received:  
Invoice No: 227-72  
Re: Geochem

ATTN: R. A. Forrest

F&M Lab Number	Customer Sample #	ppm Cu	ppm Mo	ppm Pb	ppm Zn	ppm Ag	ppm Au
3526	1251	L445	3.0 E	39			1
3527	1252		2.5	48			2
3528	1253		2	53			3
3529	1254		1.5	50			4
3530	1255		1.0	66			5
3531	1256		.5	116			6
3532	1257		0	235			7
3533	1258		.5 W	210			8
3534	1259		1.0 W	117			9
3535	1260		1.5	92			10
3536	1261		2.0	62			11
3537	1262		<del>3.0</del> 2.5	56			12
3538	1263		<del>3.5</del> 3.0	48			13
3539	1264		<del>4.0</del> 3.5	42			14
3540	1265		<del>4.5</del> 4.0	46			15
3541	1266		<del>5.0</del> 4.5	43			16
3542	1267	L445	<del>5.5</del> 5.0 W	41			17
3543	1268	L425	<del>5.5</del> 5.0 W	58			18
3544	1269		<del>5.5</del> 5.0	40			19
3545	1270		<del>5.0</del> 4.5	29			20
3546	1271		<del>5.5</del> 4.0	34			21

James A. Brainard, Chief Chemist  
Warren R. Hood, Chemist



FOUNDATION & MATERIALS CONSULTANTS, INC.  
839 Front St. - Helena, Mt. - Phone 406-442-0880

CLIENT \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

F&M Lab Number	Customer Sample #	ppm Cu	ppm Mo	ppm Pb	ppm Zn	ppm Ag	ppm Au
3547	1272	L42S	3.5 W	24			1
3548	1273		3	22			2
3549	1274		2.5	23			3
3550	1275		2	27			4
3551	1276		1.5	30			5
3552	1277		1.0	38			6
3553	1278		.5 W	55			7
3554	1279		0	98 -			8
3555	1280		.5 E	169 -			9
3556	1281		1.0	200 -			10
3557	1282		1.5	220 -			11
3558	1283		2.0	210 -			12
3559	1284		2.5	185 -			13
3560	1285		3.0	92 -			14
3561	1286		3.5	62 -			15
3562	1287		4.0	66 -			16
3563	1288		4.5 E	44			17
3564	1289	L44S	4.5 E	28			18
3565	1290		4.0 W	41			19
3566	1291	L44S	3.5	42			20
3567	1292	L50S	4.0 E	39			21
3568	1293		3.5 E	44			22
3569	1294		3.0	42			23
3570	1295		2.5	53			24
3571	1296		2.0	161 -			25
3572	1297		1.5	177 -			26
3573	1298		1.0	116 -			27
3574	1299		0.5 E	123 -			28
3575	1300		0	194 -			29
3576	1301		.5 W	164 -			30
3577	1302		1 W	126 -			31
3578	1303		1.5	127 -			32
3579	1304		2.0	119 -			33
3580	1305		2.5	110 -			34
3581	1306		3.0	104 -			35



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839 Front St. - Helena, Mt. - Phone 406-442-0880

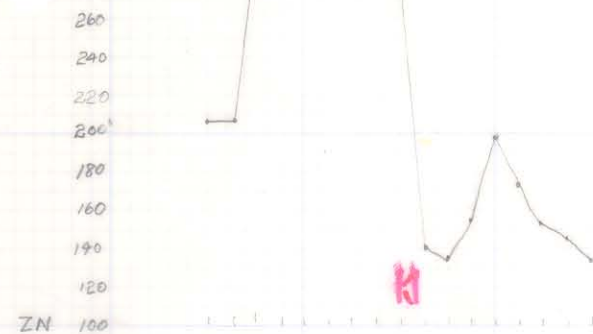
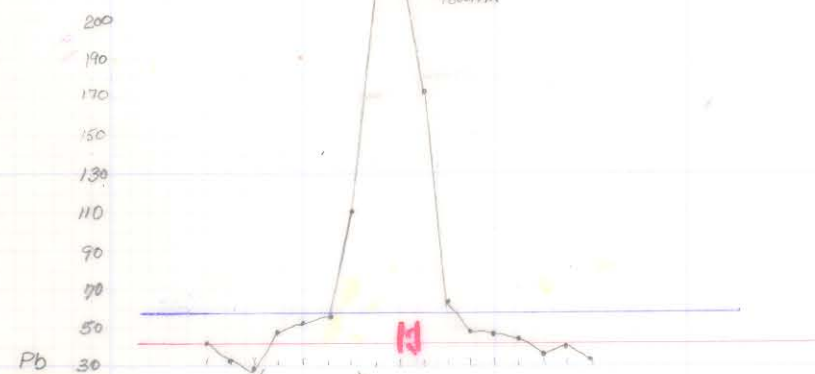
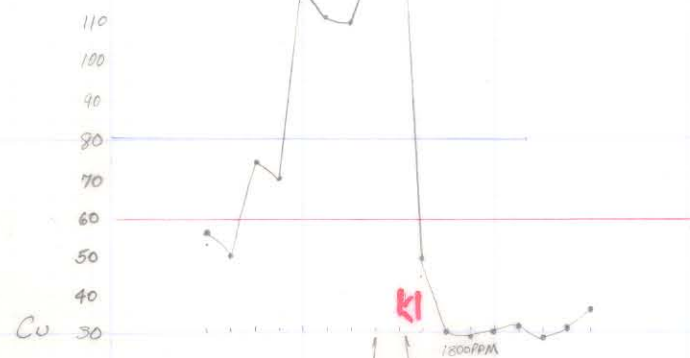
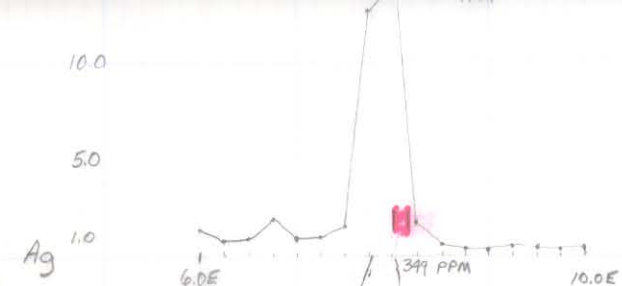
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MAIN  
VEIN

6000 0002 (1210)

LINC 685

Cu

140  
130  
120  
110  
100  
90  
80  
70  
60  
50  
40  
30  
20



unknown vein ?

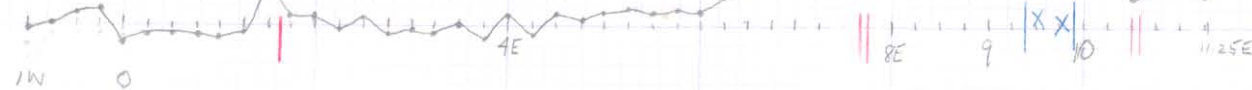
unknown vein ?

MAIN VEIN

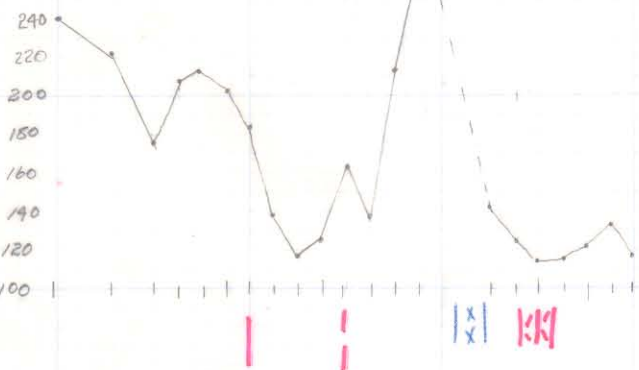
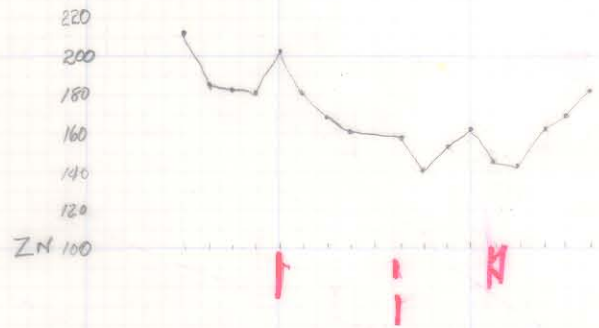
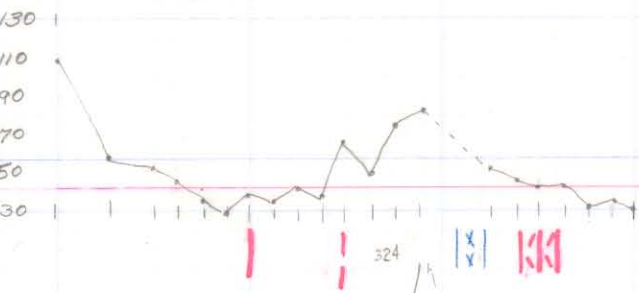
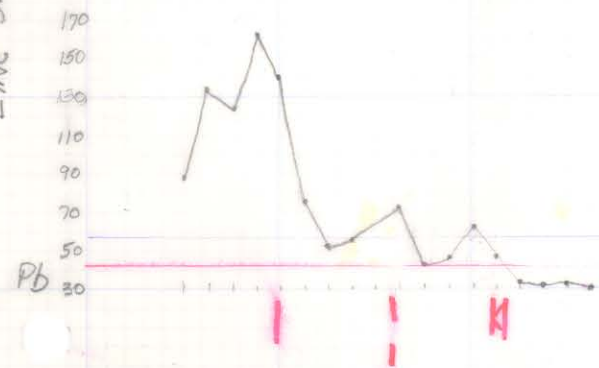
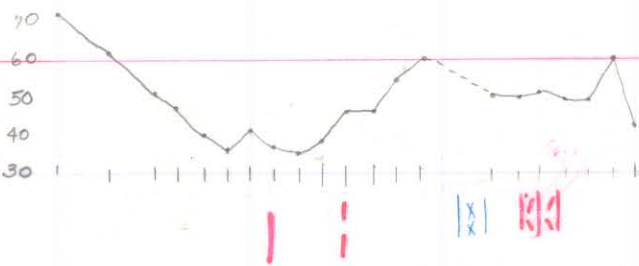
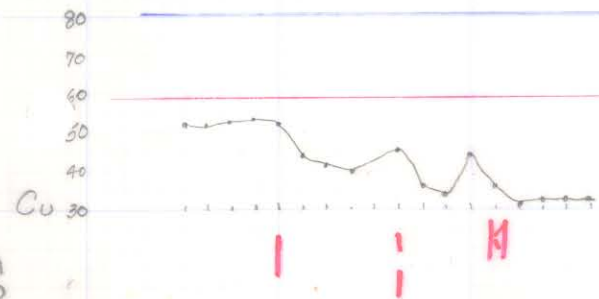
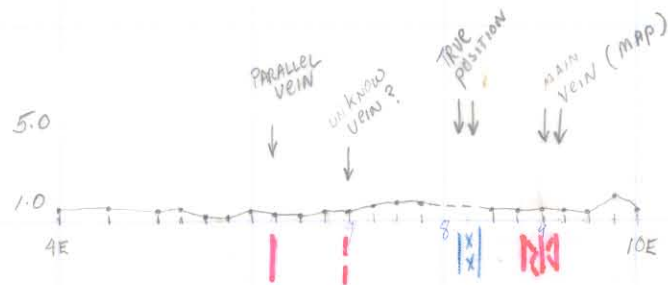
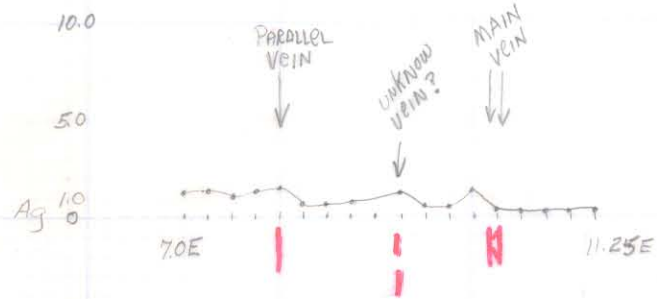
SMALL VEIN IN CUT (MAP)

Pb

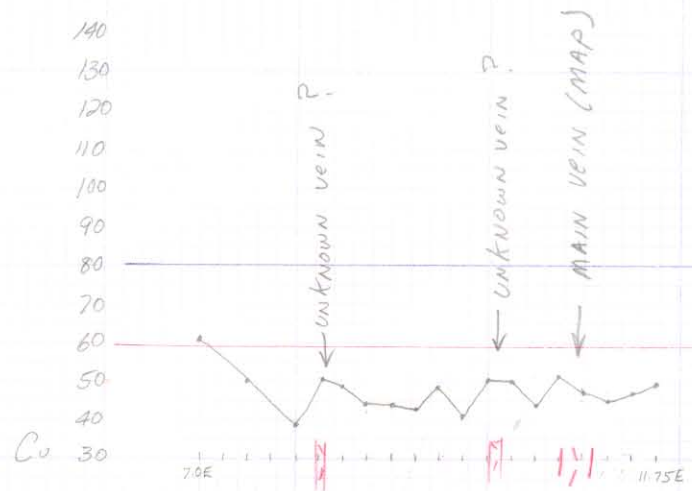
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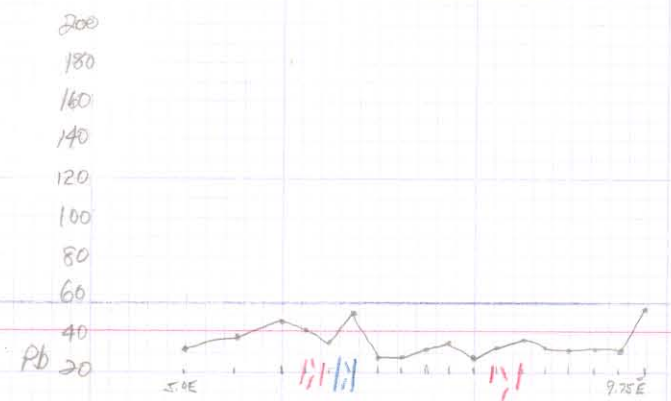
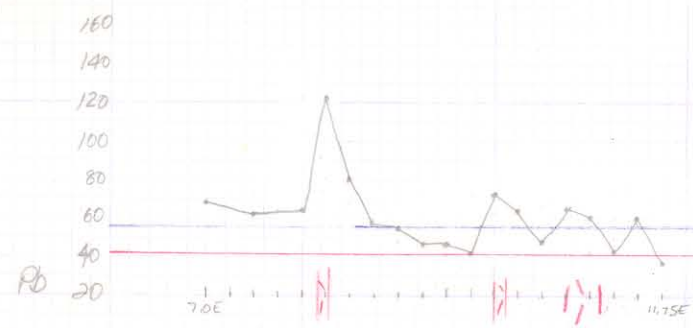
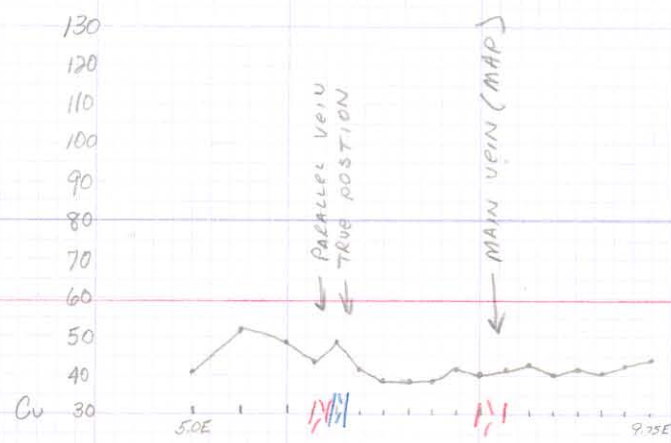




LINE 28 S



LINE 44 S

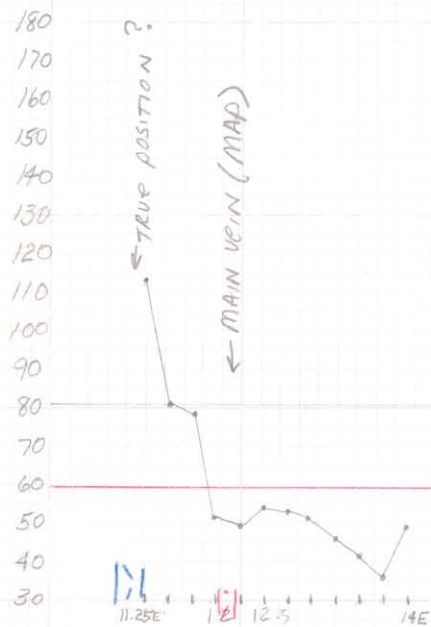




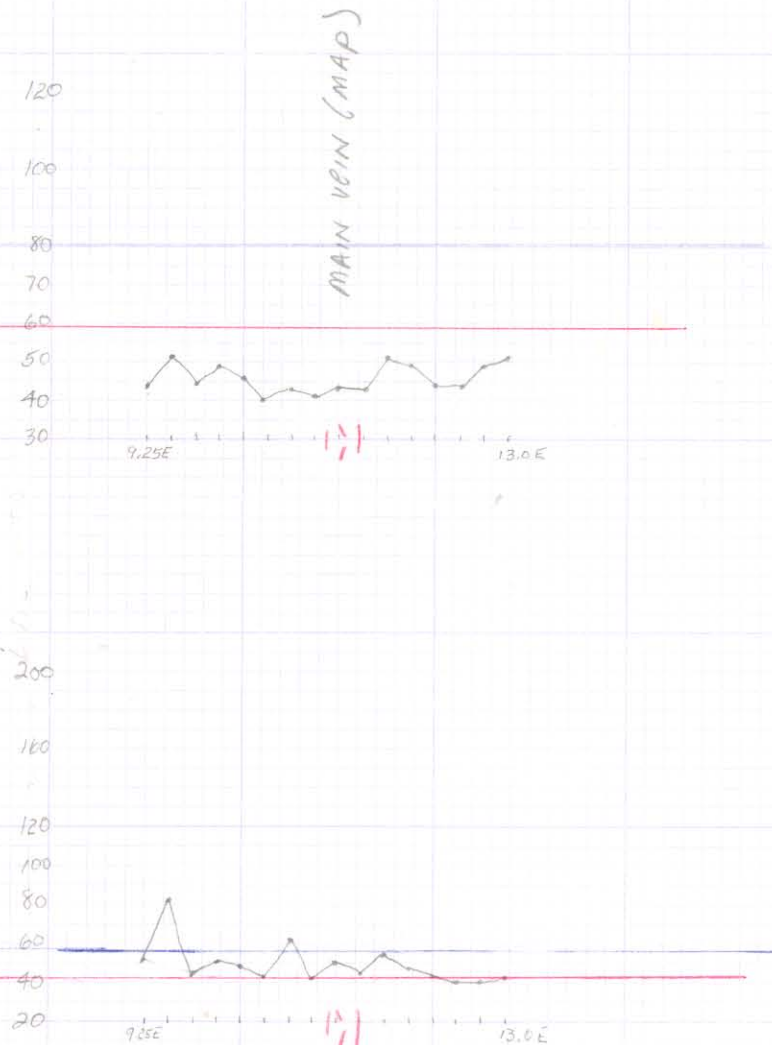
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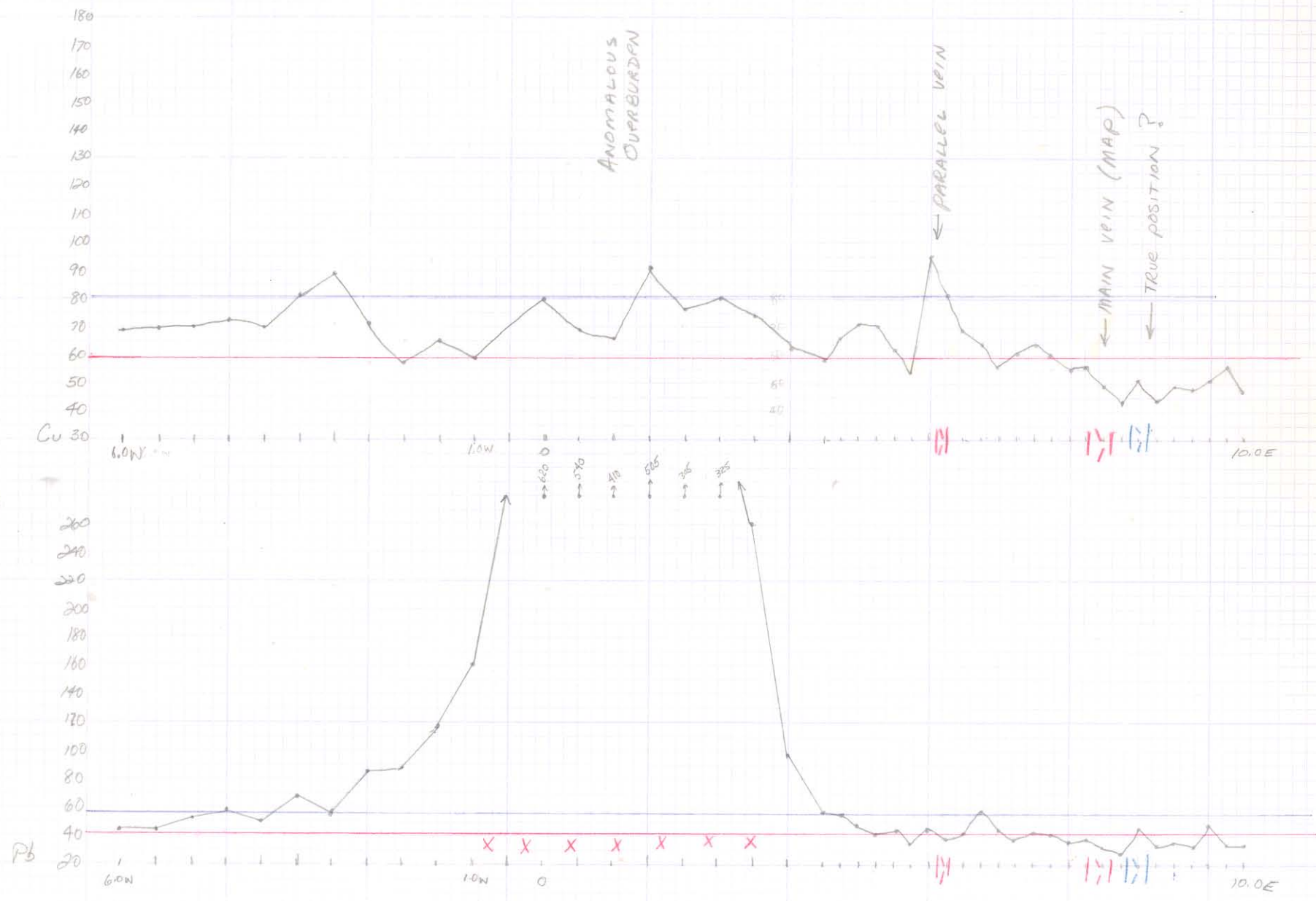


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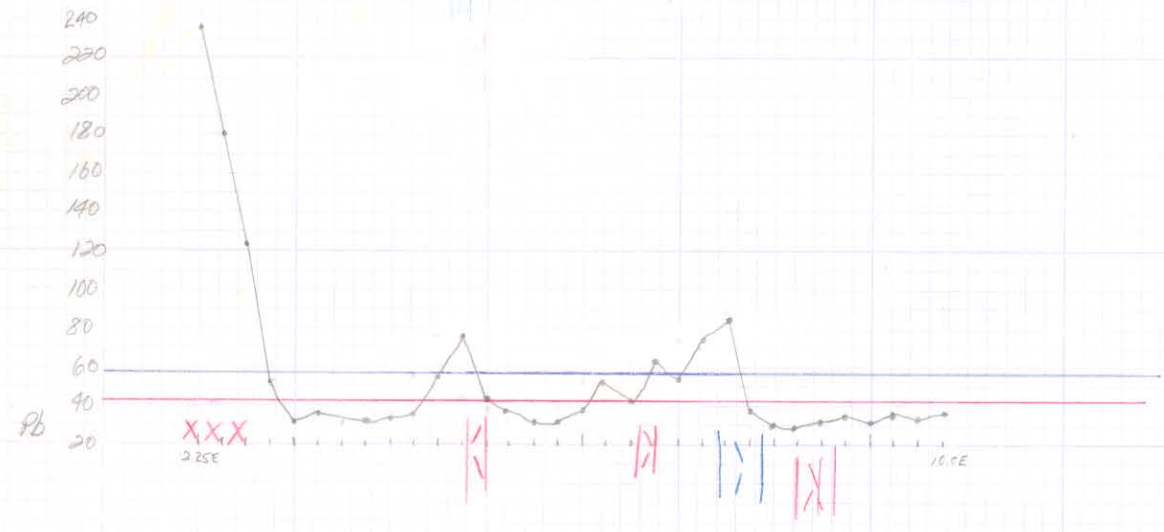
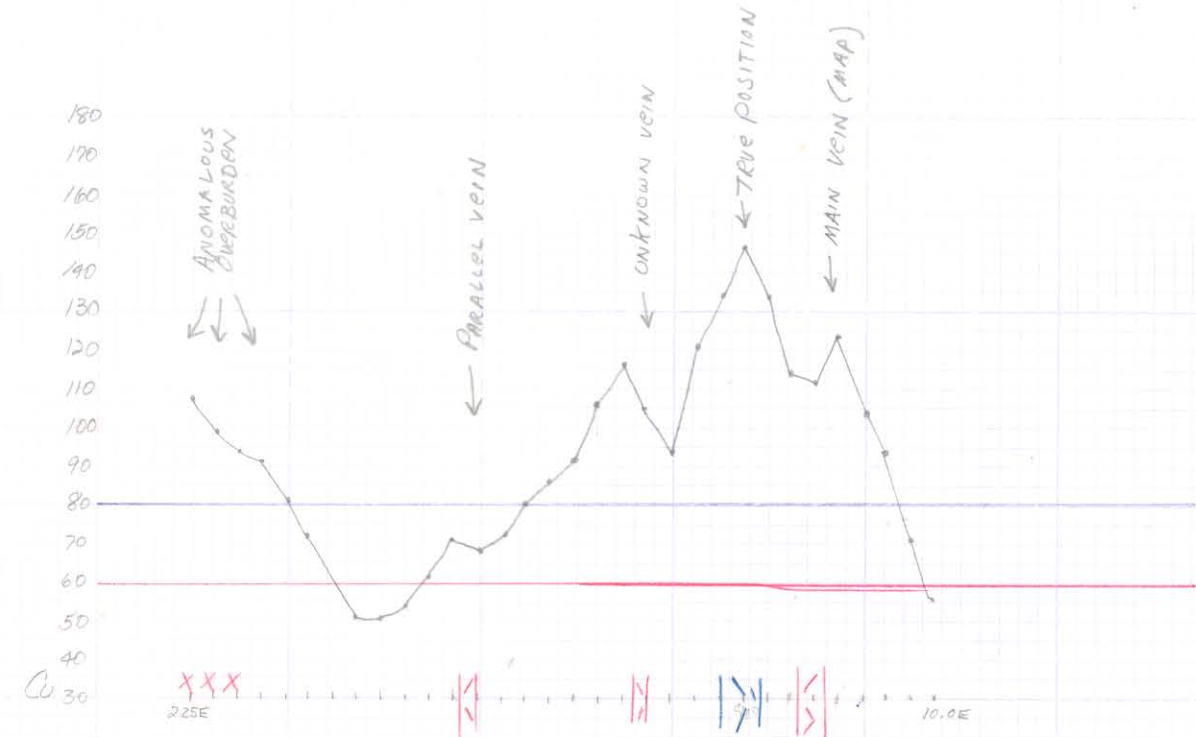
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LINE 535



6000 0002 (1210)

**AIM**  
**INC.**

AGRICULTURAL & INDUSTRIAL MINERALS, INC./ OFFICES & LABORATORY 2419 PULGAS AVENUE  
E. PALO ALTO, CALIF. 94303  
U.S.A.

REPORT ON  
EXAMINATION OF CORE HOLE TP-3

SILVER STAR MINE  
ELKO COUNTY, NEVADA

Sidney S. Alderman, Jr.

November 4, 1968

TELEPHONE  
(415) 325-2151/325-0081



# REPORT ON EXAMINATION OF CORE HOLE TP-3,

## SILVER STAR MINE

### ELKO COUNTY, NEVADA

#### INTRODUCTION:

At the request of the owners, Mr. Jule Larios and Mr. George Detweiler of Twin Falls, Idaho, the writer briefly examined the Silver Star Mine property and logged the core of diamond drill hole TP-3 on October 31, and November 1, 1968.

Exposures of the Silver Star vein in two principal open cuts were examined and the position and elevation of the drill hole in relation to the vein outcrop were checked.

The property is located in the SE 1/4 NE 1/4 section 5, T43N, R65E in the Kit Carson Mining District about 12 miles southwest of the town of Contact in Elko County, Nevada.

The writer's examination was limited to a study of the core of hole TP-3 and the adjacent vein exposures. No attempt was made to study the regional geology or to evaluate the overall potential of the property.

#### SURFACE GEOLOGY:

Figure 1 is a brunton and tape map of the area immediately adjacent to the diamond drill hole, including the open pit.

The Silver Star vein is well exposed in the pit area. It consists of a complex fault zone 15 to 20 feet wide striking N55°E. A slickensided and polished shear plane is exposed on the southeast wall of the pit and in the collar of the short adit, dipping 75-80° northwest. Another strong plane of movement is exposed 15 feet to the northwest, parallel in strike but dipping vertically to 85° southeast. The material between the two principal breaks consists of gouge, brecciated vein material and masses of crushed wall rock. Quartz vein material carrying secondary copper and lead minerals is exposed erratically within the fault zone. From surface evidence alone, it is not possible to predict the general dip of the fault zone. The dip could range from 75° northwest to 85° southeast, depending on which plane of movement is predominant.

The wall rock on both walls of the fault consists of contorted, thin bedded, limonite stained shale or siltstone.

INTERPRETATION OF DRILLING RESULTS:

A detailed descriptive core log and a graphic log are submitted with this report. Figure 2 is a vertical section showing two possible interpretations of the drill hole.

No vein material similar to the exposure in the open pit was recovered in the drill core. No mineralization of any kind, except for fine pyrite and barren quartz veinlets was recovered. There are two alternative explanations of this situation:

1. The vein, at the drill hole intercept has degenerated into a zone of unmineralized gouge which was not recovered or was only partially recovered in the drill core.

A zone of crushed and gougy shale was encountered at 449.5' to 453' if this represents the fault zone, a dip of 78° northwest would be indicated, which agrees quite closely with the observed dip of one of the principal shear zones on the surface.

2. If the vein is vertical or dips southeast to any extent, it would have been missed by the drill hole, as shown on figure 2.

The absence of any mineralized vein material in the drill core under a surface exposure 15 feet wide, and the lack of a significant change in wall rock to explain a sudden degeneration of the structure leads me to favor the second interpretation.

RECOMMENDATIONS:

The dip of the vein and continuity of the mineralization could be best established by drilling a 400 foot core hole at an inclination of -45° from the same location. The upper 250 feet of the hole could be drilled with a rotary bit, coring only the lower 150 feet.

*Sidney S. Alderman, Jr.*

Sidney S. Alderman, Jr.  
AIM Inc.

November 4, 1968



AIM INC.  
AGRICULTURAL & INDUSTRIAL MINERALS

SUBJECT SILVER STAR MINE  
KIT CARSON DISTRICT, ELKO COUNTY NEVADA

AIM No. 134  
Sheet of  
By S.S.A. Date Nov. 4, 1968

MAP SHOWING OPEN PIT AND DIAMOND DRILL HOLE

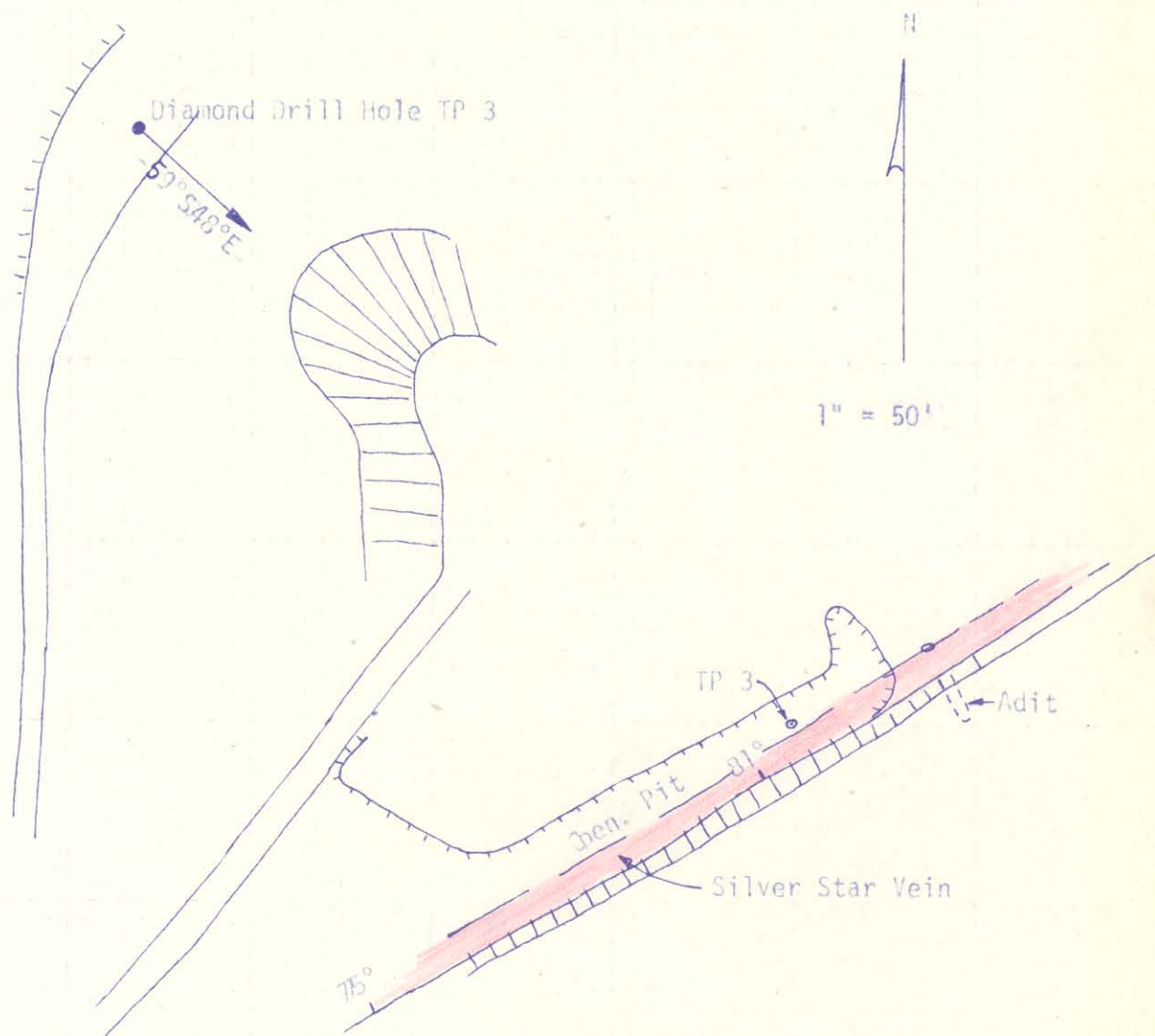


Figure 1

AIM INC.  
AGRICULTURAL & INDUSTRIAL MINERALS

SUBJECT SILVER STAR MINE

KIT CARSON DISTRICT, ELKO COUNTY, NEVADA

AIM No. 134

Sheet      of     

By S.S.A. Date Nov. 4, 1968

VERTICAL SECTION THROUGH DIAMOND DRILL HOLE AND OPEN PIT

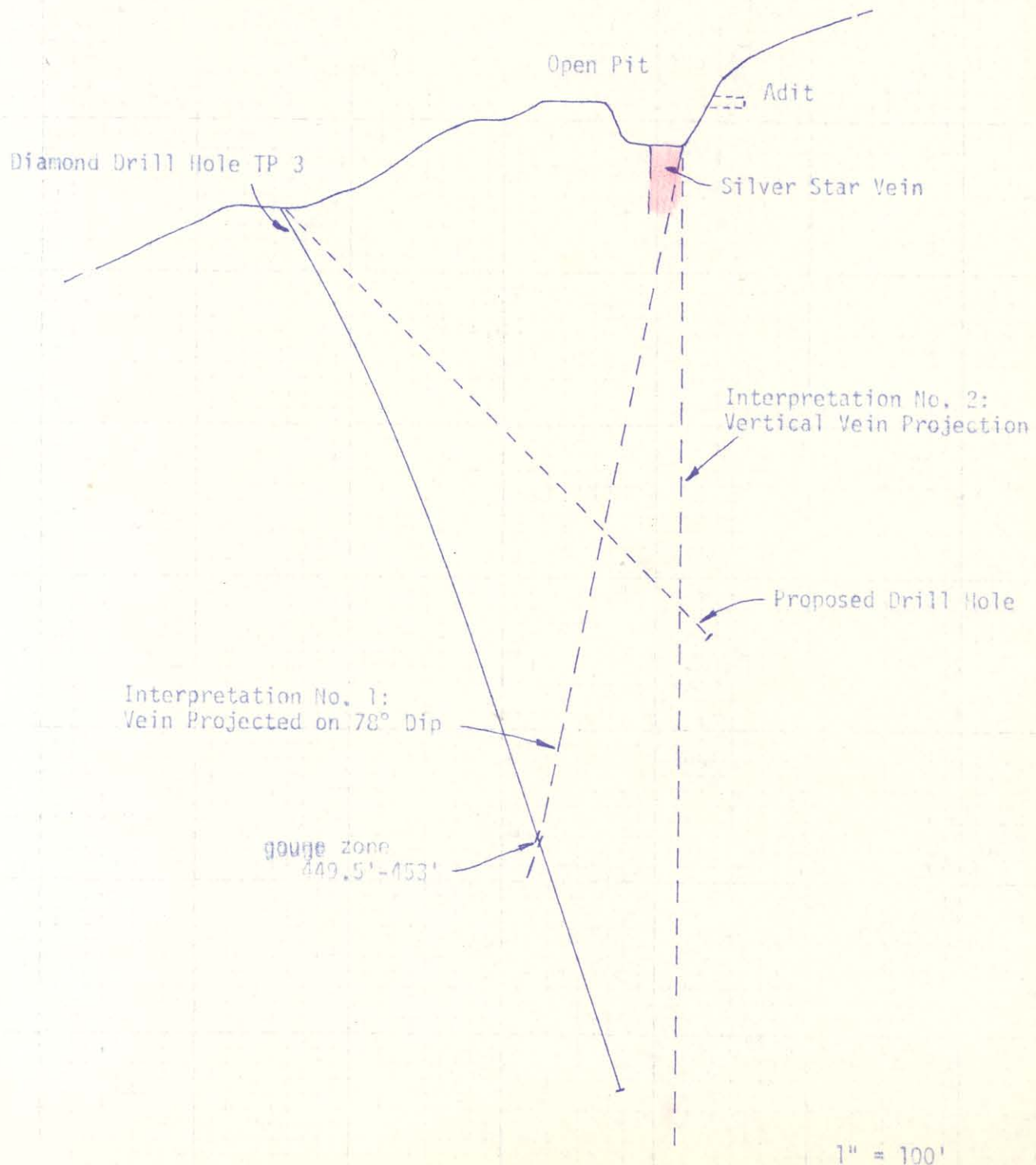


Figure 2



DESCRIPTIVE CORE LOG OF DIAMOND  
DRILL HOLE TP-3, SILVER STAR  
MINE, ELKO COUNTY, NEVADA

LOCATION: 244' N 48° W from stake in open pit marked "TP-3".

COLLAR ELEVATION: 40' below elevation of stake "TP-3".

BEARING AT COLLAR: S 48° E

INCLINATION: At collar - 59°  
At 400' - 72°  
At 500' - 70°  
At 600' - 70°

TOTAL DEPTH: 627'

LOGGED BY: S. S. Alderman, Jr.  
October 31, 1968

FROM	TO	RECOVERED	%REC.	DESCRIPTION
0	31	0	0	No recovery
31.0	56.0	21.0	84	<u>Sandstone</u> , light gray, fine grained, silty, well cemented. Massive, thick bedded. Abundant quartz veinlets and limonitic seams. Bedding angle 25° to core axis. Core broken 43'-45', 50'-52.5', 53'-56', 2' core loss 53'-56'.
56.0	68.0	7.0	58	<u>Siltstone</u> , light gray, dense. Bedding angle 40°. Core broken with limonitic seams.
68.0	89.0	19.0	90	<u>Sandstone</u> , fine to silty, light gray. Brecciated and cut by numerous irregular quartz veinlets with small rugs and limonitic pits.
89.0	103.5	10.5	72	<u>Tuff?</u> whitish, dense, massive, fine grained material. Appears to be fine volcanic tuff in hand lens, but may be acidic igneous sill or dike. Scattered weak copper stain.



FROM	TO	RECOVERED	%REC.	DESCRIPTION
103.5	125.0	7.5	35	<u>Mudstone or Shale</u> , tan to dark gray, very soft. Numerous graphitic seams. Bedding angle 70°.
125.0	137.5	8.2	66	<u>Carbonaceous Shale</u> , dark brown to black. Minor limonite. Bedding angle 55°.
137.5	147.3	9.0	92	<u>Limy Siltstone</u> , light gray, brecciated. Scattered quartz veinlets and breccia fillings with minor limonite.
147.3	153.0	2.0	35	<u>Carbonaceous Shale</u> , black, hard.
153.0	155.0	1.0	50	<u>Tuff?</u> White, dense, massive. Minor fine disseminated pyrite.
155.0	160.0	0	0	No recovery.
160.0	164.0	0.6	15	<u>Carbonaceous Shale</u> , dark gray.
164.0	166.0	1.5	75	<u>Tuff?</u> white, dense, with abundant fine disseminated pyrite. Scattered weak copper stain. Contact angle 17° to core axis.

FROM	TO	RECOVERED	%REC.	DESCRIPTION
166.0	171.0	4.0	80	<u>Carbonaceous Shale</u> , black, Minor thin quartz veinlets.
171.0	178.0	6.5	92	<u>Tuff?</u> , white, brecciated, minor scattered weak copper stain. Bedding angle 30°.
178.0	199.0	15.0	71	<u>Carbonaceous Shale</u> , grading to siltstone, slightly limey, black, graphitic. Minor disseminated fine pyrite.
199.0	205.0	0	0	No recovery.
205.0	282.0	64.0	83	<u>Carbonaceous Shale</u> , grading to siltstone, graphitic. Slightly limey. Minor fine pyrite. Bedding angle 50°.
282.0	304.0	17.0	77	<u>Carbonaceous Shale</u> , black, soft, graphitic. Internal crushed and gougy.
304.0	308.1	2.5	61	<u>Tuff?</u> , white, crushed. Very minor fine disseminated pyrite.
308.1	311.0	2.0	69	<u>Gouge</u> , black, carbonaceous.
311.0	324.5	9.5	70	<u>Carbonaceous Shale</u> , black, soft, graphitic. Sheared.



FROM	TO	RECOVERED	%REC.	DESCRIPTION
324.5	391.0	61.5	92	<u>Shale</u> , dark gray, fractured and contorted. Scattered bands and small blebs of very fine pyrite.
391.0	404.0	13.0	100	<u>Shale</u> , dark gray, as above, with 2-5% fine pyrite in seams, blebs, and disseminated. Bedding angle 50° to core axis.
404.0	449.5	42.0	92	<u>Shale</u> , gray to dark gray, hard, siliceous.  Broken core, contorted bedding. Graphitic seams and shear planes. Minor scattered quartz veinlets. Minor scattered fine pyrite. Bedding angle 50°-70°.
449.5	451.0	0.5	100	<u>Shale</u> , crushed and gougy zone with minor fine pyrite.
451.0	452.0	0.5	50	<u>Shale</u> , dark gray, crushed.
452.0	453.0	1.0	100	<u>Shale</u> , crushed and gougy zone with disseminated fine pyrite.
453	456.3	3.0	91	<u>Carbonaceous Shale</u> , dark gray, finely laminated. 2-3% fine pyrite seams and blebs.

FROM	TO	RECOVERED	%REC.	DESCRIPTION
456.3	515.0	55.0	94	Shale, gray to dark gray, medium to thin bedded. Minor fine pyrite blebs and seams. Siltstone interbeds in lower 10 feet. Bedding angle varies from 70°-80°, 25° at 505'.
515.0	536.0	21.0	100	Siltstone, dark gray, banded. Scattered white, barren quartz veinlets. Bedding angle 40° to 90°.
536.0	577.0	39.0	95	Shale, gray to black, banded. Minor fine pyrite. Thin siltstone and fine-grained sandstone interbeds. Bedding angle varies from 50°-90°.
577.0	595.0	14.0	78	Siltstone, dark gray, dense, massive. Minor fine disseminated pyrite.
595.0	613.0	12.0	66	Shale, carbonaceous, black. A few scattered patches fine pyrite. Massive fine pyrite 609.6' to 609.8'.
613.0	614.0	0.4	40	Tuff, white, massive. Disseminated fine pyrite cubes.
614.0	627.0	10.0	77	Shale, dark gray to black, carbonaceous. Patch of massive fine pyrite 621.5'-621.9'.



## MEMORANDUM

To: M. C. Chase

DATE March 6, 1972

FROM R. L. Anderson

SUBJECT Silver Star Claims (Quantex)

### DISCREPANCY

The "Mining Lease" from George H. Detweiler et al to Quantex Corporation lists 98 claims in its "Exhibit A."

Kit 1, Kit 2 and Kit 3 should be deleted inasmuch as they were never filed. Nor do they show on the several claim location maps filed with the Elko County Recorder.

Silver Star Mill Site should be added.

Consequently, the "Quantex Project Agreement" between Quantex and Sunshine should read under "Witnesseth": 95 unpatented lode mining claims and 1 unpatented millsite instead of 96 and 1.

### PROOFS OF LABOR

Whereas the Kit claims 4 thru 23, 25 thru 49, 51 thru 58 and 77 were located as Kit claims, the 1969, 1970 and presumably 1971 Proofs of Labor list these claims as Silver Star Kit. Future "Proofs" should read only "Kit" for these claims.

### DESCRIPTION

An error in description of Silver Star Kit 90 placing it in sections 7 and 18 is probably inconsequential inasmuch as the accompanying map filed with the Recorder shows it in section 4.

R. L. Anderson

RLA/rp

T. 1. 1.

---

T. 1. 2.

$$\begin{array}{r} 16 \\ 127 \end{array}$$
$$\begin{array}{r} 57 \\ 29 \end{array}$$

1217  
13 18

$$\begin{array}{r} 7 \overline{) 8} \\ 18 \overline{) 17} \end{array}$$
$$\begin{array}{r} 819 \\ 17 \overline{) 1716} \end{array}$$

7/28/88

File # 51507

FILED FOR RECORD  
AT REQUEST OF

AT REQUEST OF  
Julius Larios  
JUL 28 - 9 24 AM '70

RECORDED BOOK 128 PAGE 36  
ESTHER N. SKELTON  
ELKO COUNTY RECORDER

Free #1.00

**INDEXED**

SCALE: 1" = 2000'

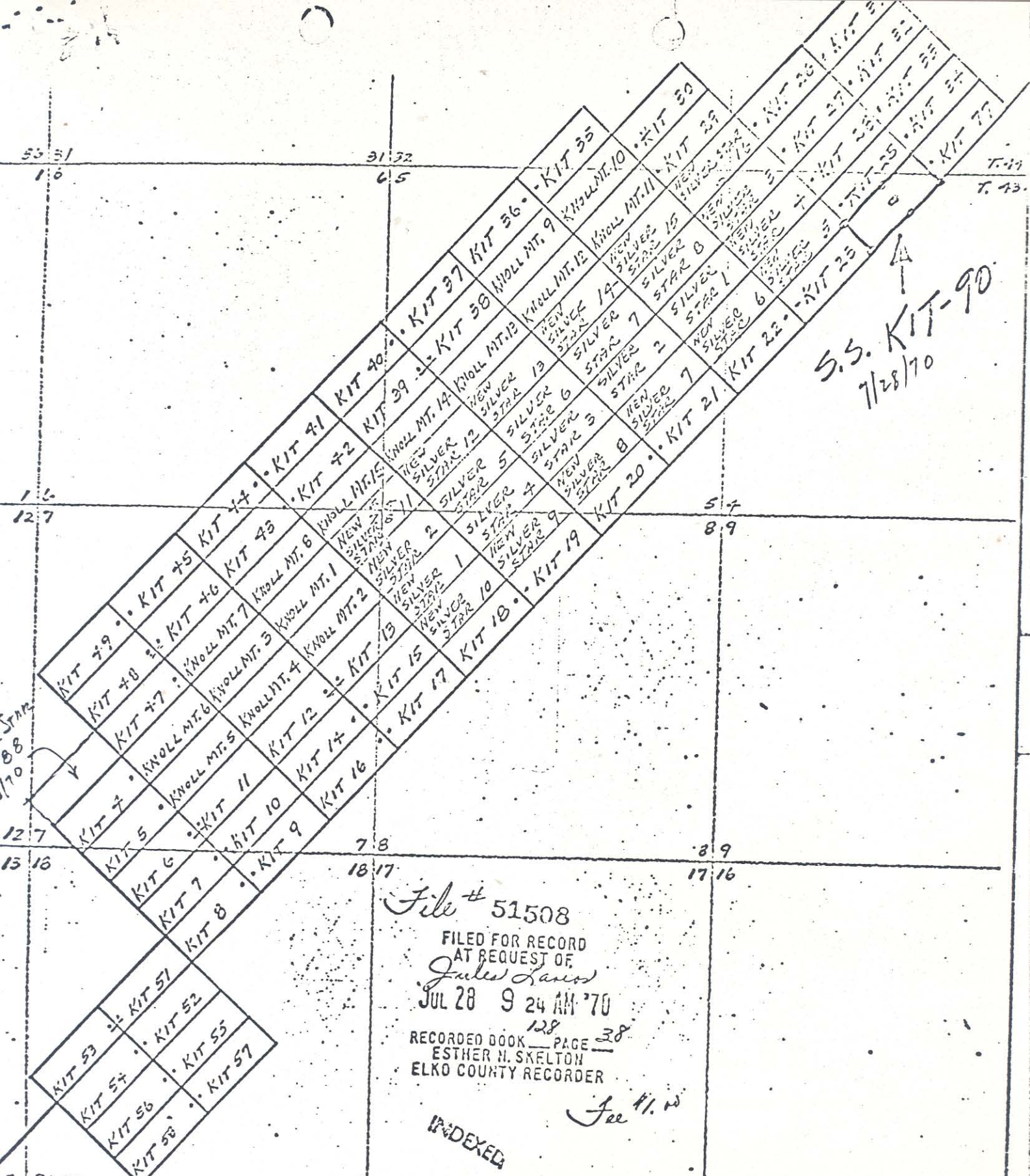
.64 E. | R.65 E.

51507

178

37





S.S. KIT-90  
7/28/70

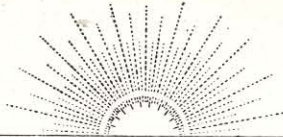
File # 51508  
FILED FOR RECORD  
AT REQUEST OF  
*Jules L. Jones*  
JUL 28 9 24 AM '70  
RECORDED BOOK — PAGE 38  
ESTHER N. SKELTON  
ELKO COUNTY RECORDER

INDEXED

SCALE: 1" = 2000'

E. R. L. S. E.

*Bob Anderson*



**Sunshine Mining Company**

P. O. BOX 1080      PHONE: Area Code 208 784-1257

**Kellogg, Idaho**  
83837

March 3, 1972

Mr. Donald Laub  
Quantex Corporation  
2330 South Main Suite 9  
Salt Lake City, Utah 84115

Dear Don:

Enclosed are the formal agreements for the lease of the Silver Star property from Quantex by the Sunshine Mining Company. As far as we can determine, the agreement that was made between yourselves and Tom Miller has been met with the only additions being, the normal language that Sunshine embodies in all of their agreements.

Hopefully, the agreements can be signed by you and returned to Sunshine to Kellogg for my signature. If not, let me know if I can be of help in any way.

I hope that Sunshine's work in this area will lead to a very profitable result for both of our companies.

Sincerely yours,

*Marvin Chase*  
Marvin C. Chase  
Vice President-  
General Manager

MCC:ce

cc: Tom Miller  
Don Long  
Robert Anderson ✓



Comments

BASIS OF NEW AGREEMENT

Donald C. Laub  
President  
Quantex Corporation  
2230 South Main  
Salt Lake City, Utah 84115

Re: Silver Star Property located in Elko County, Nevada

Dear Mr. Laub:

The Silver Star property consists of 96 unpatented lode mining claims and one unpatented mill site located in Townships 43 and 44 North, Range 65 East MDB & M, Kit Carson Mining District, Elko, Nevada. Quantex Corporation holds a 20 year lease beginning June, 1971, upon said property from Messrs. George and John Detweiler and Jule Larios of Twin Falls, Idaho. The lease calls for a minimum advance royalty of \$25,000.00 per year first payable in December, 1972, or a royalty of 5% of net smelter returns, whichever is greater. For the purpose of this letter it is assumed that this lease and the underlying claim location are in good order and free of encumbrances.

Sunshine Mining Company agrees to explore said property for a six month period beginning April 15, 1972, through October 15, 1972, during which period Sunshine will spend \$50,000 in on site exploration of the Silver Star property and agrees during said period to pay to Quantex as advance royalties the sum of \$2500 per month.

Sunshine shall notify Quantex Corporation on or before October 15 1972, whether it intends to proceed with the option set forth herein.

In partial consideration of such expenditures Quantex Corporation agrees to deliver to Sunshine upon the signing of this <sup>Agreement</sup> letter, 80,000 shares of its common capital stock which Sunshine will take as an investment.

In further consideration of such expenditures Quantex Corporation agrees that Sunshine shall have the option during said six months period to elect to proceed with further exploration and development of the Silver Star Property on the following general conditions:

1. Sunshine will pay the advance royalty of \$25,000 due the owners of the Silver Star property beginning in December, 1972.
2. Sunshine will pay Quantex Corporation as advance royalty the sum of \$2,500 per month for the twelve month period beginning November 15, 1972.
3. Sunshine shall pay Quantex Corporation, as advanced royalties the sum of \$5000 per month for the 24 month period beginning November 15, 1973.
4. In an effort to bring the Silver Star property into production at a rate of not less than 100 tons of crude ore per day, Sunshine will undertake at its sole initial expense an exploration and development program at a rate reasonably intended to spend the sum of \$1.5 million during the three and one-half year period beginning April 1, 1972.

At such time as Sunshine shall have brought the Silver Star property into production and shall have in operation a mill upon the property having a capacity of at least 100 tons of crude ore per day or shall have expended said \$1.5 million, whichever shall occur first, it will have acquired and there will be transferred to it a 60% to 65% interest in said lease held by Quantex and Sunshine's obligations under said exploration and development program shall cease forthwith.

Sunshine's interest shall be 65% during such periods of time as the average monthly price of silver as reported in the Metals Week Magazine, or other recognized journal, shall be \$2.00 per ounce or less. If such price is over \$2.00 per ounce, Sunshine's interest shall be 60%.

5. Sunshine shall be entitled to retain 90% of all net proceeds realized from the Silver Star property until it shall have recovered all its expenditures and disbursements hereunder of whatsoever nature plus interest thereon at the rate of 6% per annum from the date of expenditure together with a working capital fund equal to the cost of operating the property for the most recent three month period.

Thereafter net proceeds shall be divided as the interest of the parties are above outlined.



6. If Sunshine shall have expended \$1.5 million on said exploration and development program as outlined in paragraph 4 above but the property shall not be in production it may maintain its interest in said lease so long as it shall pay the annual minimum royalty due the owners of the Silver Star property. Such payments shall be subject to recovery as hereinbefore outlined.

If Sunshine shall not have placed the Silver Star property into production at the rate of 100 tons of crude ore per day within thirty six months after the expenditure of said \$1.5 million on said exploration and development program then Quantex Corporation shall have the right, at its own expense, to place said property in production and to recover its expenses in so doing from 90% of the net proceeds realized from such operation.

All claims <sup>Acquired</sup> located by either party within one mile of the present boundary of the Silver Star property shall be for the benefit of both parties and shall be subject to the terms of this contract so far as the interest of the parties hereto are concerned.

Notwithstanding any other provision of this letter, Sunshine shall have the right to terminate this agreement at any time on 90 days written notice to Quantex Corporation and its obligations thereunder shall terminate forthwith provided that Sunshine shall have paid all debts which if unpaid would become a lien upon said claims and provided further that unless said notice shall have been given by May 1, Sunshine shall remain liable to perform the assessment work for that year or shall pay to Quantex Corporation the cost thereof at the rate of \$100 per unpatented lode mining claim then subject to the terms of this agreement.

It is understood and agreed that this letter will be superceded

by a formal contract subject to approval of the Directors of  
Sunshine Mining Company, which contract will contain a reasonable  
force majeure clause.

If this agreement is acceptable, please endorse this letter  
with the acceptance of Quantex Corporation and return an executed  
copy to Sunshine.

Very truly yours,

SUNSHINE MINING COMPANY

By \_\_\_\_\_  
Vice-President

APPROVED:  
QUANTEX CORPORATION

By \_\_\_\_\_  
President



EXHIBIT I

MINING LEASE

THIS AGREEMENT, made and entered into this 14<sup>th</sup> day of June, 19 71, A. D., between George H. Detweiler and Ruth Detweiler, his wife; John R. Detweiler and Veronica Detweiler, his wife; Joe E. Roberts and Josephine Roberts, his wife; and Jule Larios and Velma G. Larios, his wife hereinafter called Lessor, whether one or more, and Quantex Corporation, a Utah corporation, hereinafter called Lessee,

W I T N E S S E T H:

1. Lessor in consideration of Ten Dollars (\$10.00) in hand paid, the receipt of which is hereby acknowledged, of the royalties herein provided, and the covenants and agreements of Lessee herein contained, hereby grants, leases and lets exclusively unto Lessee the premises (hereinafter called "leased premises") described in Exhibit "A", attached hereto, including all of the improvements, ore dumps, if any, in and on said leased premises, for the purpose of investigating, prospecting, exploring, drilling, developing, mining, extracting, removing, treating, shipping, selling and disposing of all minerals of whatsoever kind (hereinafter called "leased minerals") found to be upon or underlying said leased premises, together with the right and privilege to make all excavations and openings and to construct and maintain all works, mills, buildings, plants, fixtures, structures, powerhouses, tanks, pipelines canals, ditches, roads, bridges, communication and/or powerlines, tipples, hoists, railroads, housing for the employees of Lessee, and all other equipment and appurtenances necessary or convenient to Lessee's operations on the leased premises and to use so much of the surface of the leased premises as reasonably may be required for the exercise of the rights and privileges herein granted to the Lessee. The rights hereby granted include the lodes and veins of the leased minerals within the lines of any mining claims (patented or unpatented) covered hereby, together with all the dips, spurs and angles

thereof, and all rights, privileges, franchises and appurtenances thereunto appendant, appurtenant, or appertaining or in any wise belonging.

It is understood that if this mining lease covers any unpatented mining claims, then this mining lease as to such unpatented mining claims covers only such minerals as are subject to the mining laws of the United States. Likewise, if Lessor did not acquire title to all of the minerals in any patented land covered by this mining lease, then this mining lease shall as to such patented land cover only such minerals as to which Lessor acquired title.

2. This lease shall be for a term of twenty (20) years from the date hereof unless sooner terminated or surrendered as hereinafter set out.

3. All work performed by the Lessee upon or within the leased premises shall be done in accordance with good mining practice with due regard to the safety, development, and preservation of the same as a workable mine.

4. Lessee shall allow the Lessor and its agents, at their sole risk and expense, from time to time, to enter upon and into all parts of the leased premises for the purposes of inspection at such reasonable times as shall not interfere with the regular operations of the leased premises. It is understood and agreed that the Lessee does not assume any responsibility for the safety of the Lessor or the agents of Lessor when and while upon the leased premises for such purposes.

5. Lessee shall not mix any ores or minerals mined hereunder from the leased premises with the ores, minerals or products therefrom derived from any other property.

6. Lessor shall pay all Federal, State and County taxes of any kind assessed against Lessor on account of receipt by Lessor of advance royalties and/or royalties provided herein to be paid to Lessor by Lessee. Lessor shall pay all State and County tax assessments upon the leased premises, except as hereinafter otherwise provided.



Lessee shall pay all State and County ad valorem tax assessments upon any and all structures and other improvements, machinery, equipment, tools, supplies and personal property whatsoever placed upon the leased premises by the Lessee. Lessee shall pay State and County ad valorem taxes, if any, as may be assessed upon the leased deposits or the production therefrom according to Lessee's interest in same at the time of the assessment. Lessor shall pay such ad valorem taxes on the royalty interest of Lessor in the said leased deposits or the production therefrom. In the event the ad valorem taxes on said royalty interest are included with the assessment against Lessee, then Lessee may pay such assessments and be reimbursed by Lessor for Lessor's proportion upon receipt of billing from Lessee.

7. Commencing eighteen months from the date this mining lease is signed and on the first day of each calendar year thereafter Lessee agrees to pay to Lessor as an advance royalty for the ensuing calendar year the sum of Twenty Five Thousand Dollars (\$25,000.00). All advance royalties paid hereunder to Lessor shall apply toward or be credited on any actual royalties payable or to become payable on production as provided in Paragraph 8 below. It is understood that if Lessee shall have surrendered this mining lease as to all of the premises covered hereby prior to the date any such advance royalty payment is due or if this mining lease has otherwise been terminated for any reason, Lessee shall be relieved of the obligation to make any further advance royalty payments from and after such surrender or termination. In the event of the expiration or other termination of this lease for any reason, the Lessor shall be under no liability or obligation whatsoever to the Lessee with respect to any unused credit or credits.

8. Lessee agrees to pay to Lessor, a 5% royalty on net smelter returns on all ores and minerals mined, shipped and sold from the leased premises, as defined below:

As to any shipment of ores and minerals sold in their as-mined and unprocessed state, the term "net mill or smelter or mint returns" as used herein shall mean the amount

received from such purchase for the ore or minerals sold ( ), the value thereof less all smelter, mill or mint treatment, refining, and handling charges including assays and sampling charges and any penalties and any transportation charges). Where such ores or minerals are sold other than f.o.b. said leased premises, in the computation of royalties there shall be deducted from the amount received from the purchaser the costs of transportation of such ores or minerals from the said leased premises to the point of sale, to the extent that such transportation costs shall not have been paid by the purchaser and deducted in the purchaser's settlement.

When the ores or minerals are not sold in their as-mined and unprocessed state but are reduced and refined and the so produced concentrates or minerals are sold, the term "net mill, smelter, or mint returns" as used herein shall mean an amount representing the amount received from such purchaser for the concentrates or minerals so sold (i.e., the value thereof less all smelter, mill or mint treatment, refining, and handling charges including assays and sampling charges and any penalties and any transportation charges) less an amount representing the costs of reducing and refining the ores, including but not limited to any processing or similar taxes prior to such sale of concentrates or minerals produced therefrom and the costs of transporting the ore from the place where mined to the mill or plant where so reduced or refined. Where such concentrates or minerals are sold other than f.o.b. the mill or plant where so reduced or refined, in the computation of royalties there shall also be deducted from the amount received from the purchaser the costs of transportation of such concentrates or minerals from said mill or plant to the point of sale, to the extent that transportation costs shall not have been paid by the purchaser and deducted in the purchaser's settlement; provided, however, that the smelter or mill charges shall be reasonable and in accordance with charges made by custom smelters or mills in the general area to persons other than the Lessor.

9. All of the royalties and advance royalties payable hereunder shall, at the option of the Lessee, be paid directly to the Lessor at the address hereinafter given or may be paid to the credit of the Lessor at: George Detweiler, P.O. Box 349, Twin Falls,  
Idaho 83301.



All of such royalties shall be paid to or to the credit of the Lessor and/or Lessor's assigns jointly as above provided regardless of whether the premises covered by this lease are now or may hereafter be owned in severalty by said Lessor and/or Lessor's assigns.

In the event of overpayment of royalties hereunder, it is agreed and provided that Lessee shall have the right to withhold payment of future advance royalties and royalties accruing hereunder until Lessee has been reimbursed for such overpayment, and such right shall be in addition to all other rights and remedies which Lessee may have to collect such overpayment.

In the event of adverse claim or claims of title affecting any of the premises covered hereby from which any such ore or minerals are mined and sold, Lessee may withhold payment of all royalties computed in relation thereto without any obligation to pay interest on the amount so withheld, until such adverse claim or claims shall be judicially or otherwise fully settled and determined.

Lessee agrees at the time of payment hereunder of royalties to furnish Lessor or deposit with the depository bank hereinabove named, duplicate copies of all mill or other purchaser's receipts and settlement sheets for all shipments as to which royalties are accounted for.

10. Lessee shall have the right at any time and from time to time to execute and deliver in person or by mail to Lessor a release or releases covering all or any portion or portions of the leased premises and thereby surrender and terminate this mining lease as to such portion or portions; thereupon, Lessee shall be relieved from all obligations, express or implied, (except as to royalty payments on production that may be due thereon), thereafter accruing under this mining lease as to the premises so surrendered. Any such surrender shall not become effective until 30 days has elapsed from the date such release is either delivered in person or deposited in the United States Post Office.

11. The rights of either party hereunder may be assigned in whole or in part, divided or undivided, and the provisions hereof shall inure to the benefit of and shall be binding upon the successors in interest, legal representatives and assigns of the respective parties hereto, but no party hereto shall be chargeable with notice of any assignment or conveyance until such party shall have been furnished with written notice thereof and with a duplicate certified or photostat copy of the instrument of assignment or conveyance. No conveyance of assignment by Lessor of all or any part of Lessor's interest in and to the leased premises or in and to the advance royalty or the royalties payable hereunder shall operate to enlarge the rights or increase the obligations of Lessee under this mining lease.

12. Lessor and the authorized agents for Lessor shall at any and all reasonable times be permitted to inspect all books and records, including ore settlement data, of the Lessee relating to the leased premises in order to ascertain the correct amount of royalty due Lessor.

13. All obligations of Lessee hereunder shall be suspended while, but only so long as, Lessee is prevented from complying with such obligations in whole or in part, by abnormally severe weather, explosion, mining casualty, fire, flood, civil or military authorities, insurrection, riots, strikes, lockouts, acts of God, unavoidable accidents, uncontrollable delays in transportation, inability after diligent effort to obtain competent workmen or materials in open market, inadequate facilities for transportation of materials or for disposition of production, inability after diligent effort to obtain a profitable market for any leased minerals produced hereunder, any State or Federal laws, regulations or other matters beyond the reasonable control of the Lessee



whether similar to the matters herein specifically enumerated or not; provided, however, that performance shall be resumed within a reasonable time after such cause has been removed; and provided further that the Lessee shall not be required, against its will, to adjust any labor dispute, or to question the validity of or to refrain from judicially testing the validity of any State or Federal order, regulation, or law.

14. It is understood and agreed that in case of surrender or other termination of this mining lease, any underground timbering supports, shaft linings and other fixtures necessary for the preservation of any mines shall be and remain a part of the realty and become the property of the Lessor. All other property of the Lessee located within or upon the leased premises may be removed from the leased premises within nine (9) months after such termination of this lease or within such extension of time as may be granted by the Lessor; provided, however, Lessor shall have the right for a period of fifteen (15) days after any such surrender or termination to purchase all or any part of the real or personal property which Lessee has on the leased premises by paying to Lessee an amount equal to the market price in effect at that time for such real or personal property.

15. If the leased premises consists of two or more unpatented mining claims which are supposedly continuous, and if Lessor should discover that fractions may exist between any of such unpatented mining claims, and if the area covered by such fractions is not claimed by others and is open to location under the mining laws of the United States, or if additional claims are staked by either Lessee or Lessor that are contiguous to the original claims, then Lessee may locate the same in the name of Lessor and such located claims or fractions in such event shall be subject to all of the terms, provisions and conditions of this mining lease just as if they were described in Exhibit "A".

16. If any of the leased premises consist of any unpatented mining claims, Lessee shall have the right at any time and from time to time to initiate and complete patent proceedings in the name of Lessor as to all or any one of such unpatented mining claims. All expenses incurred in any such patent proceeding shall be wholly borne by Lessee. Any patent issued pursuant to such proceedings shall be issued in the name of Lessor and shall, upon issuance, be subject to the terms and conditions of this lease. Lessor agrees to execute any and all instruments and formalities necessary or desirable in the conduct of any such patent proceedings.

If the leased premises consist of any unpatented mining claims and if, upon survey or resurvey of such mining claims or any of them, it appears that the location of any one or more of said claims on the ground exceed the area which may be included in a mining claim under the mining laws of the United States and the State of Nevada or that said claim or claims as located on the ground do not conform to the descriptions contained in the notices of location or if it appears that it is necessary to amend the location of any one or more of said claims, Lessee shall have the right, in the name of Lessor, to amend the location of said claims, and to do all things necessary to conform the area of said claims to the requirements of the mining laws of the United States and the State of Nevada. All expenses incurred in the amendment of the location of said claims shall be wholly borne by Lessee and all lands included in said mining claims as they may be amended shall be subject to all the terms, provisions and conditions of this mining lease.

17. All notices required or authorized to be given hereunder shall be given or transmitted in person or by registered or certified United States mail or by Western Union Telegram, postage or charges prepaid, and addressed as follows:

Notice to Lessor: George Detweiler  
P.O. Box 349  
Twin Falls, Idaho 83301



Notice to Lessee: Quantex Corporation

2330 South Main, Suite 9

Salt Lake City, Utah 84115

All notices given under any provision hereof shall be deemed given when delivered in person or when deposited in the United States Post Office or with Western Union Telegraph Company with postage or charges prepaid.

18. As to the unpatented mining claims, if any, described in Exhibit "A", Lessor represents and warrants that it is the owner of the entire one hundred percent (100%) interest in and to such unpatented mining claims and that the same are valid and subsisting mining claims and that there are no conflicting or adverse claims to the right to mine and dispose of the leased minerals found upon or within said mining claims and that said mining claims are free and clear of all liens, claims, clouds or encumbrances caused, created or suffered by, through or under Lessor. Lessor agrees to defend the title to said mining claims against the lawful claims and demands of all persons or parties whomsoever claiming by, through or under Lessor.

In the event of failure of Lessor to so defend the title to the leased premises either through neglect or otherwise, Lessee shall have the right, in the name of the Lessor, to conduct such defense, and the expense of such proceedings may be deducted by Lessee from the royalties, advance royalties and any other sum of money hereunder.

Without impairment of Lessee's rights under the warranty, if it should ever be determined that the Lessor owned less than the entire one hundred percent (100%) interest in the leased premises, the advance royalty and the percentage royalty payable hereunder to Lessor shall be reduced in the proportion that the total net acres covered by this mining lease bears to the total gross acres covered by the premises described

in Exhibit "A". Likewise, without impairment of Lessee's rights under the warranty, if it should ever be determined that the Lessor owned less than the entire One Hundred percent (100%) in the leased minerals, the advance royalty and the percentage royalty payable hereunder shall be reduced proportionately.

19. Lessee, in addition to the mining rights and other rights set forth in this mining lease, may hereafter acquire certain mining rights from others than Lessor in and to lands in the vicinity of or adjacent to the leased premises. For the consideration stated herein, Lessor hereby grants, to Lessee the additional right and privilege of holding and using the leased premises so long as this mining lease is in full force and effect for the purpose of conducting operations on such other land. Such right and privilege shall include the use of the surface of the leased premises and the right at all times to use any and all mine shafts, and workings, underground passageways, roads, equipment and other improvements placed, constructed, or installed in, under or on the leased premises by Lessee in connection with the conduct of its operations, either on the leased premises or on nearby or adjacent lands. The rights accorded Lessee include the full right of ingress and egress to and from said leased premises and the right to stockpile on and to transport or remove over, through and across the leased premises any ores, minerals or materials which may be mined from or used in the mining of such other land.

20. In the event Lessor considers that Lessee has not complied with any of the obligations imposed upon Lessee hereunder and the performance of which is not suspended under the other provisions of this mining lease, Lessor shall notify Lessee in writing, setting out specifically in what respects Lessee has breached this mining lease. Lessee shall then have thirty (30) days after receipt of said notice within which to meet or commence to meet all or any part of the breaches alleged by Lessor. The service of said notice shall be a condition precedent to the bringing of



any action by Lessor on said mining lease for any cause, and no such action shall be brought until the lapse of thirty (30) days after service of such notice on Lessee. Neither the service of said notice on Lessee nor the doing of any acts by Lessee to meet all or any part of the alleged breaches shall be deemed an admission or presumption that Lessee has failed to perform all of its obligations hereunder. \*

21. Lessee shall save harmless and indemnify Lessor against all claims, demands, suits, judgments, expenses and costs of any and every kind on account of the injury to or death of persons or loss of or damage to property arising in any manner out of or in connection with the operations of Lessee hereunder, except those due to Lessor's negligence, and Lessee shall at Lessee's sole cost and expense defend all such claims, demands, or suits. Lessee agrees to discharge promptly any and all claims or liabilities incurred by it for or on account of labor or materials used in its operations hereunder and shall at all times keep the leased premises free from any liens, charges or encumbrances whatsoever on account of such labor and materials. Lessor shall have the right to execute a notice of ownership and non-liability for liens, work or material furnished to the leased premises and to record such notice.

22. Except as hereinabove specifically provided, Lessee shall have no duty whatsoever, express or implied, to explore, develop, or mine all or any portion of the leased premises.

23. This mining lease and the operations conducted by Lessee hereunder

shall be subject to all applicable Federal and State laws and regulations.

\* The foregoing provisions shall not apply to the failure of Lessee to pay Lessor the advance royalty provided in paragraph 7 and in the event Lessee shall refuse or neglect to pay such advance royalty as and when the same shall become due, Lessor may at its option declare this lease terminated and Lessee shall execute any documents necessary to free the leased property from any claim of Lessee; provided, however, that before such termination, the Lessor must give Lessee 30 days written notice of its intention to terminate this lease and if within said 30-day period, Lessee shall pay Lessor such advance royalties, this lease shall remain in full force and effect, the same as if such default by Lessee had not been made; provided, however, that such remedy for failure to pay such advance royalties shall not be exclusive but shall be cumulative and not in derogation of any remedies or rights Lessor may have in law or equity in connection therewith.

*Handwritten signature and initials*

24. The parties hereto agree that the terms and provisions of this mining  
completely supersede the terms and provisions of that certain letter  
dated June 1, 1971 between Quantex Corporation and Mr. Jule Larios,  
C/o Silver Star Mining Co. and that said letter is of no force and effect.

IN WITNESS WHEREOF, the Lessor hereto has caused this instrument to be  
executed on the date first above written.

George H. Detweiler  
GEORGE H. DETWEILER

Ruth T. Detweiler  
RUTH DETWEILER

Donald C. Lamb  
QUANTEX CORPORATION

John R. Detweiler  
JOHN R. DETWEILER

Jule Larios  
JULE LARIOS

Veronica Detweiler  
VERONICA DETWEILER

Velma G. Larios  
VELMA G. LARIOS

Joe E. Roberts  
by Geo. H. Detweiler  
attorney in fact  
JOE E. ROBERTS  
Josephine Roberts  
by Geo. H. Detweiler  
attorney in fact  
JOSEPHINE ROBERTS



EXHIBIT "A"

(18) ✓  
Silver Star No. 1 through No. 8 inclusive, as recorded in Elko County, Nevada, Recorder's Office, Book 40, Pages 145, 146, 147, 148 and 149. Such claims being contiguous and being those located by John R. and George H. Detweiler of Twin Falls, Idaho, on September 3, 1963, in a northeasterly and southwesterly position along the general course of said lode or vein, in the Kit Carson Mining District, County of Elko, State of Nevada, in Townships 43 and 44 North, Range 65 East, M.D.B. & M.

(16) ✓  
New Silver Star Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16, being contiguous lode mining claims located by John R. and George H. Detweiler of Twin Falls, Idaho, on July 21 and 22, 1966, in a northeasterly and southwesterly direction along the general course of said lode or vein, and situated in the Kit Carson Mining District, County of Elko, State of Nevada, in Townships 43 and 44 North, Range 65 East, M.D.V. & M.; and completely described on the two Group Certificates filed in the Office of the Elko County Recorder in Book 72, Pages 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606 and 607.

(15) ✓  
New Silver Star Nos. 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 and 31, inclusive, located by George H. Detweiler and John R. Detweiler on Knoll Mountain in Township 43 and 44 North, Range 65 East, M.D.B. & M., as described in Location Certificates recorded in Book 133 Official Records, Pages 674 and 676, Elko County Recorder's Office.

1-3 OUT  
(57)  
Kit (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, inclusive; Kit 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, and 49, inclusive; Kit 51, 52, 53, 54, 55, 56, 57, 58 inclusive; and Kit 77, located by George H. Detweiler and John R. Detweiler, Jules Larios and Velma Larios in Sections 4, 5, 6, 7, 8, 18, 32 and 33, Townships 43 and 44 North, Range 65 East, M.D.B. & M., as described in 7 Group Location Certificates recorded in Book 102 Official Records, Pages 279-306, inclusive, Elko County Recorder's Office.

(2)  
Silver Star Kit 88 and Silver Star Kit 90 located by Jules Larios, Velma Larios, George H. Detweiler and John R. Detweiler on Knoll Mountain, Section 7 and 18, Township 43 North, Range 65 East, M.D.B. & M., as described in 2 Location Certificates recorded in Book 128 Official Records, Pages 36-39, inclusive, Elko County Recorder's Office.

(98)  
(3) DELETE KIT 1, 2, 3

(95)  
(1) ADD SILVER STAR MILL SITE

STATE OF IDAHO )

COUNTY OF TWIN FALLS )

: O.s.  
)

On this 14 day of June, 1971, before me  
Ivan B. Johnson, notary public, personally appeared George H.  
Detweiler and Ruth Detweiler, his wife, known to me to be the persons whose names  
are subscribed to the within instrument and acknowledged to me that they executed the  
same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official  
seal the day and year in this certificate first above written.

MY COMMISSION EXPIRES

AUGUST 14, 1972

I. B. Johnson, Notary Public

Ivan B. Johnson  
Notary Public

Residing at Twin Falls, Idaho

My commission expires:  
\_\_\_\_\_

STATE OF IDAHO )

COUNTY OF TWIN FALLS )

: ss.  
)

On this 14 day of June, 1971, before me  
\_\_\_\_\_, notary public, personally appeared John R.  
Detweiler and Veronica Detweiler, his wife, known to me to be the persons whose  
names are subscribed to the within instrument and acknowledged to me that they  
executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official  
seal the day and year in this certificate first above written.

MY COMMISSION EXPIRES

AUGUST 14, 1972

I. B. Johnson, Notary Public

Ivan B. Johnson  
Notary Public

Residing at Twin Falls, Idaho

My commission expires:  
\_\_\_\_\_



STATE OF IDAHO )  
 : ss.  
COUNTY OF TWIN FALLS )

On this 14 day of June, 1971, before me  
Ivan B. Johnson, notary public, personally appeared Joe E. Roberts  
and Josephine Roberts, his wife, known to me to be the persons whose names are  
subscribed to the within instrument and acknowledged to me that they executed the  
same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official  
seal the day and year in this certificate first above written.

MY COMMISSION EXPIRES  
AUGUST 14, 1972  
I. B. Johnson, Notary Public

Ivan B. Johnson  
Notary Public  
Residing at Twin Falls, Ida.

My commission expires:  
\_\_\_\_\_

STATE OF IDAHO )  
 : ss.  
COUNTY OF TWIN FALLS )

On this 14 day of June, 1971, before me  
\_\_\_\_\_, notary public, personally appeared Jule Larios  
and Velma G. Larios, his wife, known to me to be the persons whose names are  
subscribed to the within instrument and acknowledged to me that they executed the  
same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official  
seal the day and year in this certificate first above written.

MY COMMISSION EXPIRES  
AUGUST 14, 1972  
I. B. Johnson, Notary Public  
My commission expires:  
\_\_\_\_\_

Ivan B. Johnson  
Notary Public  
Residing at Twin Falls, Ida.

STATE OF UTAH )

: ss.

COUNTY OF SALT LAKE )

On the 9<sup>th</sup> day of JUNE, 1971, personally appeared before me Donald C. Laub, who being duly sworn did say that he is an officer of Quantex Corporation and that said instrument was signed in behalf of said corporation by resolution of its Board of Directors, and said Donald C. Laub acknowledged to me that said corporation executed the same.

Given under my hand and seal this 9<sup>th</sup> day of JUNE, 1971.

Mylan S. Papulak  
Notary Public, residing at: SLC, UTAH

My commission expires:

5-8-72



AIM INC.  
AGRICULTURAL & INDUSTRIAL MINERALS

6060 0002 (1210)

SUBJECT SILVER STAR MINE

MIT CARSON DISTRICT, ELKO COUNTY, NEVADA

AIM No. 134

Sheet        of       

By        Date       

VERTICAL SECTION THROUGH DIAMOND DRILL HOLE AND OPEN PIT.

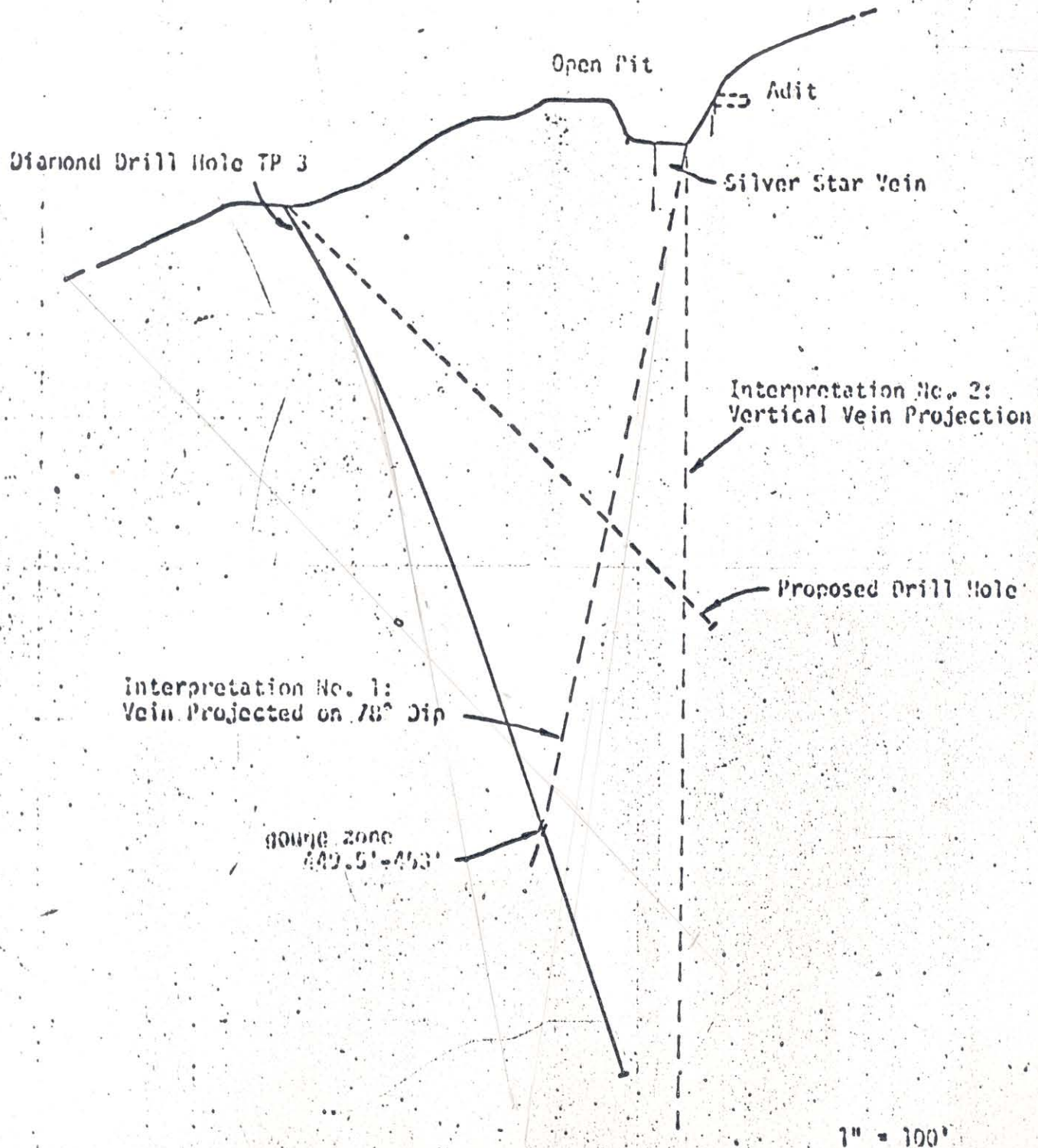


Figure 2

	ag	cu
782 DH 3 120' - 200'	0.52	0.081
783 DH 3 110' - 120'	0.16	0.006
784 DH 3 140' - 150'	0.72	0.012
785 DH 8 200' - 281'	0.12	0.006
786 DH 5 20' - 30'	0.06	0.006
787 DH 8 200' - 210'	0.19	0.006
788 DH 4 150' - 160'	0.04	0.006
789 DH 2 410' - 420'	0.08	None
790 DH 1 255' - 265'	0.04	None
791 DH 4 100' - 110'	0.04	None
792 DH 6 160' - 170'	0.06	None
793 DH 5 110' - 117'	0.06	0.006
794 DH 7 110' - 120'	0.10	None
795 DH 7 80' - 90'	0.06	None
796 DH 9 70' - 73'	0.21	0.239
797 DH 6 90' - 100'	0.18	0.006
798 DH 1 core 151' - 152'	0.38	0.025
799 " " 164' - 166'	0.34	0.006
800 " " 214' - 216'	1.52	0.056
801 " " 157' - 159'	0.22	0.006

These are Rotary Holes  
drilled with Air

Diamond Drill Hole  
Bottom of hole 217'

Remarks.....

Charges \$..... 95.00

Glen Williams

Union Assay office  
SCC, Utah

Jules holes - location unknown



A.I.M. INC.  
AGRICULTURAL & INDUSTRIAL MINERALS

SUBJECT SILVER STAR MINE  
KIT CARSON DISTRICT, ELKO COUNTY NEVADA

AIM No. 136  
Sheet        of         
By S.S.A. Date Nov. 4, 1960

MAP SHOWING OPEN PIT AND DIAMOND DRILL HOLE

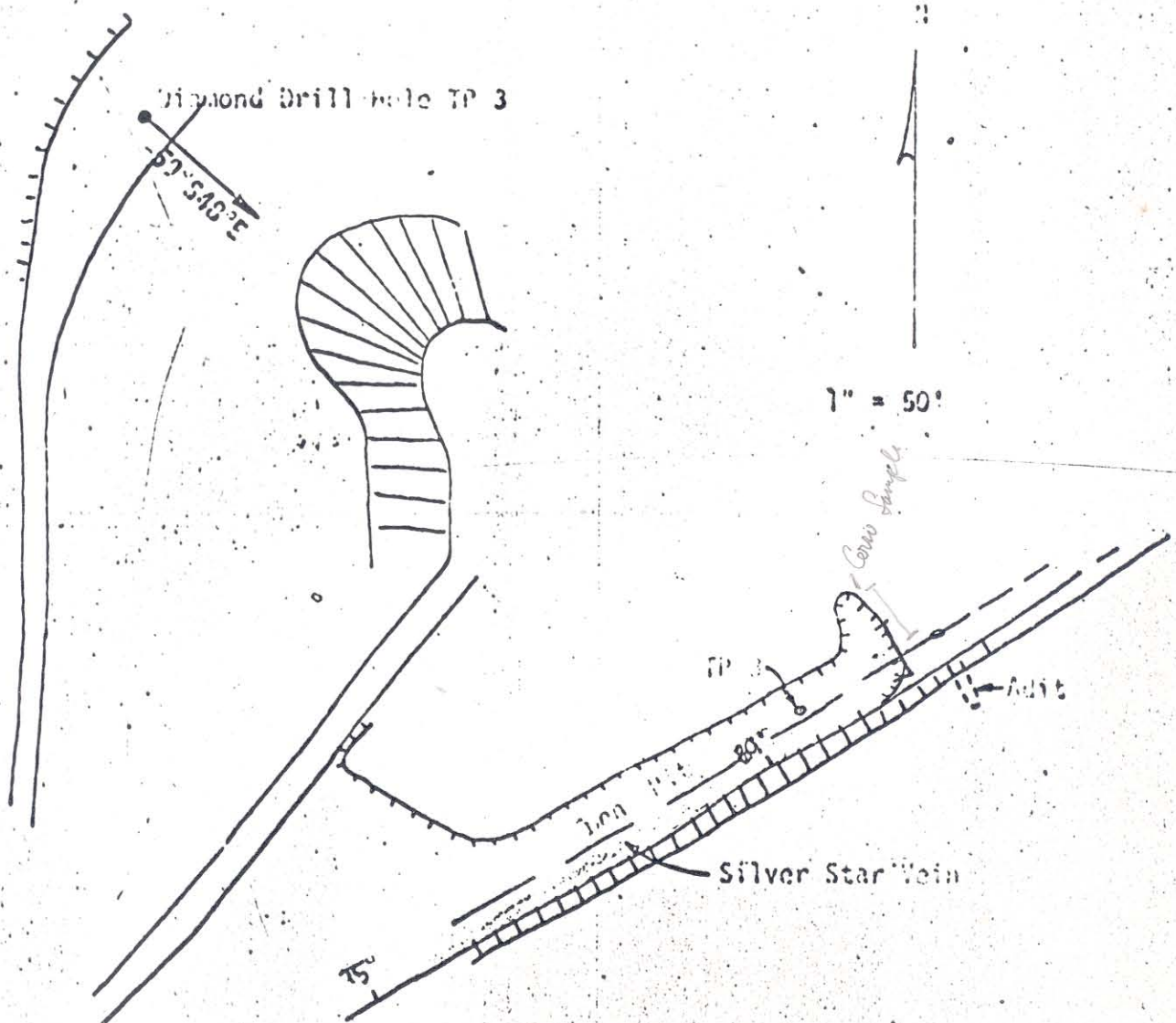


Figure 1

Near Old Cabin by Portal

Hole No. Larios Silver Star #1

Level \_\_\_\_\_

**DIAMOND DRILL RECORD**

Latitude \_\_\_\_\_

Started \_\_\_\_\_

Mine Sunshine Mining Company

Departure \_\_\_\_\_

Finished \_\_\_\_\_

Location Big Creek, Idaho

Elevation \_\_\_\_\_

Hole Size BQDepth 216'Logged by R.A. Forrest Date 4-1972

Bearing \_\_\_\_\_

% Core Rec. \_\_\_\_\_

Drilled by LariosInclination Vertical

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	<del>XXXXXX</del>	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
				CORE RECOVERY					
0-94'		No core							
94-94.5'		Brecciated Qtz w/black gouge seams		70%					
94.5-103'		White argillized Aplite dike material w/1% Dess. Py. Brecciated w/½" blk. gouge seams. Sparse Py blebs @ 97.5'. @ 100' a 6" Brecc. Qtz vein w/blk gouge & very slight Cu stain.		40%					
103-109'		Brecc. Qtz w/blk seams		8%					
109-114'		No core		35%					
114-121'		Highly brecc. Qtz w/blk gouge		35%					
121-132		No core - mud		-					
132-139'		Brecc. Qtz w/blk gouge + sparse Py blebs		5%					
139-144'		No Core		-					
144-145'		Brecc. Qtz as above		50%					
145-149'		Blk carbon shale w/much clay small qtz seam @ 147'		75%					
149-155'		Brecc. qtz w/blk gouge no visible sulfide. Poss. Py Highly fractured.		70%					
155-159		Same as above less qtz more blk shale about 50-50		50%					
159-164		Qtz and blk shale 70-30		40%					
164-170.5'		Qtz w/blk shale about 30% qtz slight Py. slicks on gouge surfaces @ 80° to core up to 3% Py w/Qtz @ 168.5' Py increases to 170'		95%					



Near Old Cabin by Portal

Hole No. Larios Silver Star #1

Level \_\_\_\_\_

**DIAMOND DRILL RECORD**

Latitude \_\_\_\_\_

Started \_\_\_\_\_

Mine \_\_\_\_\_

Departure \_\_\_\_\_

Finished \_\_\_\_\_

Location \_\_\_\_\_

Elevation \_\_\_\_\_

Hole Size \_\_\_\_\_

Depth \_\_\_\_\_

Logged by \_\_\_\_\_

Date \_\_\_\_\_

Bearing \_\_\_\_\_

% Core Rec. \_\_\_\_\_

Drilled by \_\_\_\_\_

Inclination \_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample			Data			
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
				CORE RECOVERY					
170.5-180'		Blk shale w/little Qtz sparse Py blebs 1" qtz vein @ 175' Big qtz vein starts @ 179.5'.		95%					
180-182		60% Qtz 40% blk shale		40%					
182-190		Qtz w/blk shale gouged & brecciated		40%					
190-199		Qtz w/blk shale highly fractured		40%					
199-210'		Brecc Qtz w/blk shale seams, tiny specks of unidentified sulfides @ 201.5' Red streaks of hematite. Much shale in last 2'		65%					
210-213'		Firable blk shale w/much slicken- side development.		60%					
213-216		Qtz w/blk shale 50% Qtz 50% shale		60%					

Hole No. QS - 2

Level \_\_\_\_\_

Started \_\_\_\_\_

Finished \_\_\_\_\_

Hole Size NQ

Depth \_\_\_\_\_

% Core Rec. \_\_\_\_\_

**DIAMOND DRILL RECORD**Mine Sunshine Mining CompanyLocation Big Creek, IdahoLogged by R. A. Forrest Date 4-72Drilled by Quantex

Latitude \_\_\_\_\_

Departure \_\_\_\_\_

Elevation \_\_\_\_\_

Bearing \_\_\_\_\_

Inclination \_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample			Data			
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
Missing Ore Intersection Not A Complete or Detailed Log									
0-43'									
Box 1									
43-46'		Altered blk shale							
46-57'		Tan-Brown mud, highly weathered							
Box 2									
57-59'		Tan colored mud, probably weathered shale							
79-81'		blk shale							
81-89'		No core							
89-93'		Weathered blk shale							
Box 3									
93-99		Weathered blk shale & tan mud							
99-105'		blk shale							
Box 4									
105-115'		blk shale							
Box 5									
115-124		blk shale							
Box 6									
124-132		blk shale							
Box 7									
132-141'		blk shale w/sparse Py							
Box 8									
141-150'		blk shale w/minute Qtz (?) veinlets & 3-5% Py as blebs & veinlets							
Box 9									
151-159'		blk shale w/1/2" 60° Qtz. vein @ 153.5/ and sparse Py + Qtz veinlets							
Box 10									
159-171'		blk shale							
Box 11									
171-180'		blk shale							



Hole No. QS - 2  
 Level \_\_\_\_\_

# DIAMOND DRILL RECORD

Latitude \_\_\_\_\_

Started \_\_\_\_\_  
 Finished \_\_\_\_\_  
 Hole Size \_\_\_\_\_  
 Depth \_\_\_\_\_  
 % Core Rec. \_\_\_\_\_

Mine Sunshine Mining Company  
 Location Big Creek, Idaho  
 Logged by \_\_\_\_\_ Date \_\_\_\_\_  
 Drilled by \_\_\_\_\_

Departure \_\_\_\_\_

Elevation \_\_\_\_\_

Bearing \_\_\_\_\_

Inclination \_\_\_\_\_

Depth Feet	Feet Core	DESCRIPTION	Sample		Data				
			No.	Interval	Core Feet	Sple. Feet	Oz. Ag	% Pb	% Cu
Box 7 132-141'		blk shale w/sparse Py							
Box 8 141-150'		blk shale w/minute Qtz (?) veinlet & 3-5% Py as blebs and veinlets							
Box 9 151-159'		blk shale w/1/2" 60° Qtz vein @ 153.5' and sparse Py + Qtz veinlets							
Box 10 159-171		blk shale							
Box 11 171-180'		blk shale							
Box 12 180-188'		blk shale w/2" Qtz Brecc. @ 181.5'							
Box 13 188-206		blk shale, sparse Py blebs							
Box 19 263-273'		Different Rx, blk non-carbon shale, highly fractured w/1-5% Py as veinlets & blebs 2 - 1" Qtz veinlets							
Box 20 273-282		Same, highly fractured w/60-70° angle many qtz stringers and Py blebs.							
Box 21 282-286		Same, less Py w/Qtz marasite (?)							

# MEMORANDUM

To: Don Long

DATE May 1, 1972

FROM Tom Miller

SUBJECT Contact

## Drilling

Hole S-1 (Sunshine #1) was begun April 24 and completed April 28. It was started and completed NQ. Drilling was done on a two shift basis.

The hole was located at the same elevation as Q-2, but was 5' further SW and was drilled at 40°. (See Sketch #1)

The vein was intersected from 155' to 180' for a true width of 20'. Core recovery was 100% across the vein. The core has been split and will be sent to Union Assay.

Hole S-2 is located 175' N.E. of S-1 and above Hole EM-1. It will be drilled @ 52°. The hole was started May 1; drilled and cased to 5' at the end of day shift.

Drilling was put on a three shift basis May 1. We will now work for ten days straight.

## Trenching

- Two trenches were recently completed; the first S-4 cut the vein 220' N.E. of drill hole Q-1 for a width in excess of 30'. Some copper mineralization occurred on the F.W.

Trench S-5 cut the vein 220' N.E. of the above trench and has an apparent width of 30+'. This trench has not been completed because of cat trouble. (See Sketch #2)

At least five more trenches are planned; one on the N.E. end of the vein, two between Q-2 and Q-3, and two S.W. of Q-3 to test the vein prior to selecting an adit site.

## Silver Star Vein

The vein that has been exposed to date is very impressive. It is strong and has an average estimated width of 30'. Its total known length cut by trenches is 3200' and its estimated length is from 4500 to 5000'.



### Water Well

The well was completed to a depth of 220' on Sunday, April 30. The pump was lowered and the well tested on Mon. Although it does not produce as much as anticipated, it should be sufficient for our needs.

It is estimated that it makes 3000 gallons a day.

### Escrow Agreement

The owners---Sunshine option to purchase agreement was put into escrow in the First Security Bank, Twin Falls, Idaho. Cost \$750.00

### Cost Summary

Thru April 15, 1972	\$15,050.51
April 16, 1972 thru April 30, '72	<u>8,708.00</u>
Total Cost to Date	\$23,758.51

Cost Breakdown for April 16 thru April 30.

### Drill Mobilization

Labor	\$925.00	
Mileage	<u>175.00</u>	
	1100.00	\$1,100.00

### Drill Hole S-1

Labor, fringe & per diem	\$1168.00	
Bits \$.75 ft. at 192 (NQ)	<u>144.00</u>	
Fuel	62.00	
Mud	56.00	
Lumber	72.00	
Starter for International	<u>28.00</u>	
	\$1470.00	1,470.00
192' @ \$7.66 ft. NQ		
Add 1.00 ft. for drill		
	<u>\$8.66</u>	

### General Maintenance

Labor (Leonard Kampii)	200.00
------------------------	--------

### Cat Work

30 hrs. @ \$22.50	675.00
Well and Water	570.00
Generator Rent	80.00

Escrow Agreement

750.00

Supervision & Geological (Total for project)

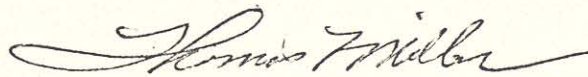
Salary, fringe, per diem

3,863.00

Cost from April 16, thru April 30

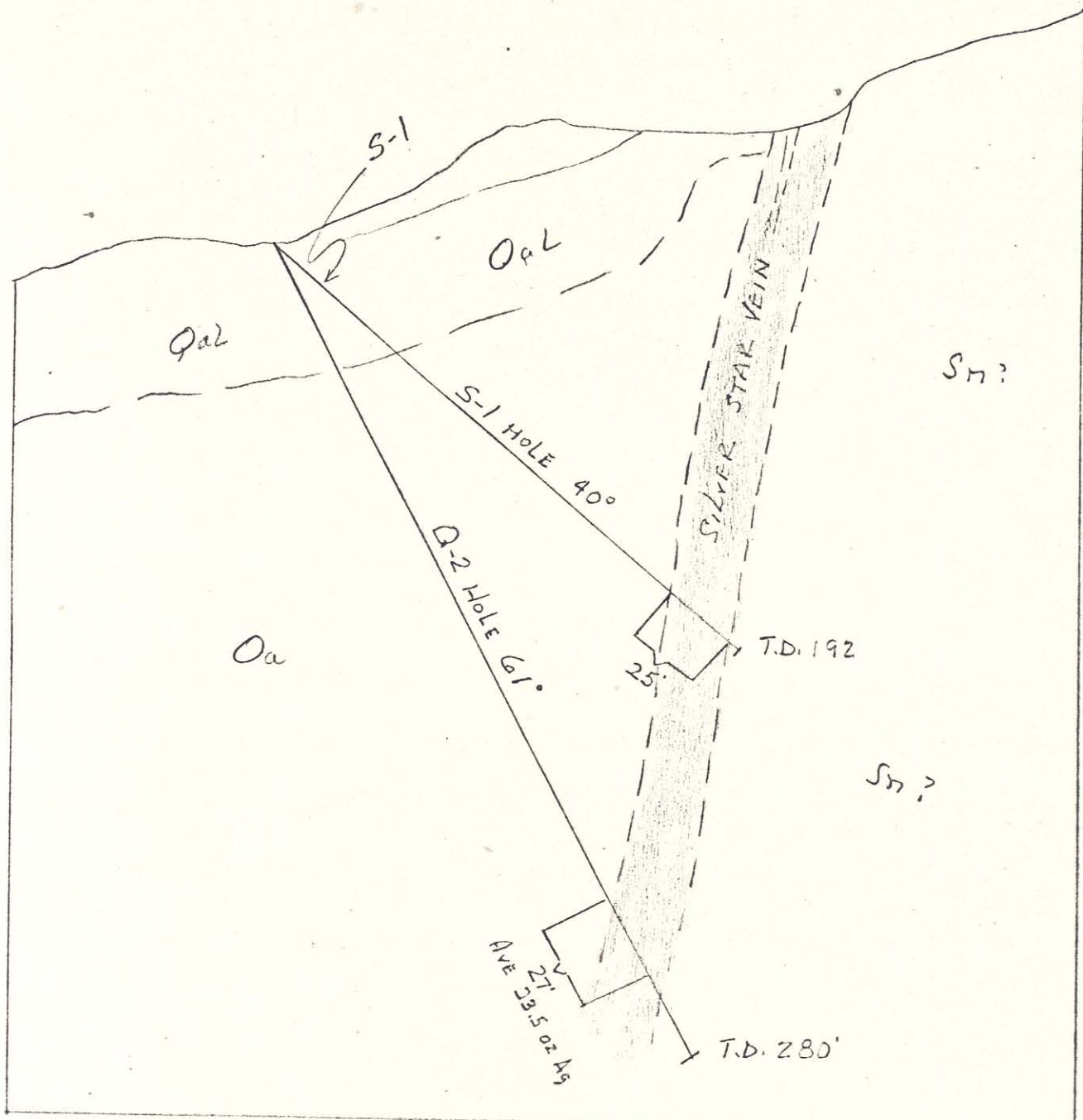
\$8,708.00

Sincerely,

A handwritten signature in cursive script, appearing to read "Thomas F. Miller".

Thomas F. Miller





Sunshine Mining Company

D.D. HOLE S-1

SILVER STAR PROPERTY  
SKETCH #1

5-1-72

T.F. MILLER

silver star  
trench # S-3  
11 x 50'  
4-28-72  
Glen Phillips

Q5-1 Hole

H.W.

MP #3

F.W.

S-3 TRENCH

Vm. mat. consists  
of cementite, etc., Cu. stones,  
& minor silic. stain



MEMO: To File

SUBJECT: Silver Star (Nevada) check samples.

FROM: N. Muncaster

The following are the results of check sampling for silver that was done on Quantex's Silver Star property located in Elko County, Nevada. Drill core pulps that were originally assayed by Union Assay Office by fire assay (?) were reassayed by Skyline Lab using AA. We also had three samples (Quantex # 142, 152, and 171) scanned spectrographically.

HOLE	FOOTAGE	SAMPLE #	ORIGINAL ASSAY	CHECK ASSAY
QS-1	26-36 (10)	136	36 oz. Ag/T	42.9 oz. Ag/T
"	101-104 (3)	137	112.7	138.0
"	104-114 (10)	138	24.0	27.6
"	114-118 (4)	139	39.4	44.9
"	118-125 (7)	140	25.0	28.2
"	125-159 (34)	141	12.0	10.9
"	159-180 (21)	142	33.8	43.0
"	180-184 (4)	23	0.4	0.41
"	184-188.5 (4.5)	24	0.4	0.35
"	188.5-190.5 (2)	25	7.4	7.4
"	190.5-194.5 (4)	26	0.3	0.12
"	194.5-199 (4.5)	27	4.2	3.8
"	199-203 (4)	143	19.8	21.8
"	203-206 (3)	28	11.2	11.5
"	246-247 (1)	144	(?)	0.13
QS-1A	114-123(?) (9)	145	9.4	8.2
"	123-132 (9)	146	6.2	6.5
"	132-155 (23)	147	2.8	2.7
"	155-161 (6)	148	15.0	18.8
"	161-174 (13)	149	21.3	24.2
"	174-180 (6)	150	11.9	11.0
QS-2	105-115 (10)	151	1.34	1.3
"	225-238 (13)	152	18.78	20.0
"	238-244 (6)	153	34.50	43.0
"	244-248 (4)	154	25.30	24.1
"	248-252 (4)	155	18.00	20.8
"	252-254 (2)	156	5.48	5.8

<u>HOLE</u>	<u>FOOTAGE</u>	<u>SAMPLE #</u>	<u>ORIGINAL ASSAY</u>	<u>CHECK ASSAY</u>
QS-3	50-60 (10)	157	0.44 oz. Ag/T	0.088 oz. Ag/T
"	60-79 (19)	158	0.04	0.024
"	79-106 (24)	159	0.06	0.041
"	106-119 (13)	160	0.04	0.029
"	119-127 (8)	161	0.04	0.006
"	127-160 (33)	162	0.02	0.006
"	160-204 (44)	163	0.02	0.024
"	204-220 (16)	164	0.02	0.053
"	220-227 (7)	165	0.08	0.053
"	227-231 (4)	166	30.40	39.0
"	231-237 (6)	167	23.73	28.8
"	237-242 (5)	168	30.50	39.0
"	242-247 (5)	169	8.10	8.4
"	247-250 (3)	170	35.88	41.2
"	250-258 (8)	171	20.32	22.6
"	258-263 (5)	172	18.76	20.6
"	263-271 (8)	173	9.80	9.3
"	271-280 (9)	174	4.52	4.1
"	280-289 (9)	175	8.14	7.6
"	289-300 (11)	176	0.22	0.15

↑  
20.44  
↓

↑  
23.8  
↓

Skyline's assays are generally greater than Union in the higher Ag ranges but check very closely in the lower ranges. Charlie Thompson of Skyline mentioned that his AA method is particularly good below 20 oz./Ton Ag, implying that it is not so good above this. I would, therefore, tend to believe the Union assay for higher Ag values.



DEC 18 REC'D

## SKYLINE LABS, INC.

SPECIALISTS IN GEOCHEMICAL EXPLORATION

12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033 • TEL.: (303) 424-7718

## REPORT OF SPECTROGRAPHIC ANALYSIS

Job No. 96068

December 16, 1971

Mine Finders, Inc.  
8700 West 14th Avenue  
Lakewood, Colorado 80215

Attention: Neil Muncaster

Values reported in parts per million, except where noted otherwise, to the nearest number in the series 1, 1.5, 2, 3, 5, 7 etc. 0-3

0-1-159-180' 0-2(225-238) 250-258

Sample Numbers			
Element	Quantex #142	Quantex #152	Quantex #171
Fe	7%	2%	1%
Ca	.05%	2%	.05%
Mg	.05%	2%	.03%
Ag	1500 (43.80 oz/T)	700 (20.44 oz/T)	700 (20.44 oz/T)
As	700	500	<500
B	20	50	<10
Ba	2000	2000	50
Be	<2	<2	<2
Bi	150	<10	<10
Cd	<50	70	<50
Co	<5	7	<5
Cr	100	300	100
Cu	300	300	150
Ga	<10	10	<10
Ge	<20	<20	<20
La	<20	20	<20
Mn	500	1000	150
Mo	20	30	<2
Nb	<20	20	<20
Ni	20	200	10
Pb	10,000	2000	100
Sb	3000	200	<100
Sc	<10	10	<10
Sn	100	15	<10
Sr	<50	150	<50
Ti	500	2000	200
V	200	700	70
W	<50	<50	<50
Y	10	50	<10
Zn	300	1000	300
Zr	20	100	<20

*Charles E. Thompson*  
Charles E. Thompson  
Chief Chemist

# SKYLINE LABS, INC.

SPECIALISTS IN GEOCHEMICAL EXPLORATION

12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033 • TEL.: (303) 424-7718

## REPORT OF ANALYSIS

Job No. 96068  
December 16, 1971

Mine Finders, Inc.  
8700 West 14th Avenue  
Lakewood, Colorado 80215

Attention: Neil Muncaster

47 Pulp samples

Item	Sample No.	Ag (oz/T)	Item	Sample No.	Ag (oz/T)
1.	Quantex # 23 ✓	.41	25.	Quantex #154	24.1
2.	24 ✓	.35	26.	155	20.8
3.	25 ✓	7.4	27.	156	5.8
4.	26 ✓	.12	28.	157	.088
5.	27 ✓	3.8	29.	158	.024
6.	28 ✓	11.5	30.	159	.041
7.	136 ✓	42.9	31.	160	.029
8.	137 ✓	138.	32.	161	.006
9.	138 ✓	27.6	33.	162	.006
10.	139 ✓	44.9	34.	163	.024
11.	140 ✓	28.2	35.	164	.053
12.	141 ✓	10.9	36.	165	.053
13.	142 ✓	43.0	37.	166	39.0
14.	143 ✓	21.8	38.	167	28.8
15.	144 ✓	.13	39.	168	39.0
16.	145 ✓	8.2	40.	169	8.4
17.	146 ✓	6.5	41.	170	41.2
18.	147 ✓	2.7	42.	171	22.6
19.	148 ✓	18.8	43.	172	20.6
20.	149 ✓	24.2	44.	173	9.3
21.	150 ✓	11.0	45.	174	4.1
22.	151	1.3	46.	175	7.6
23.	152	20.0	47.	Quantex #176	.15
24.	Quantex #153	43.0			

*Charles E. Thompson*  
Charles E. Thompson  
Chief Chemist



# SILVER STAR PROPERTY

Elko County, Nevada

DDH-1 (vert.) 100' NW portal #3 Adit

<u>DEPTH</u>	<u>RECOVERY</u>	<u>DESCRIPTION</u>
0-94	Not cored	
94-94.2	0.2/0.2	Bx, silicified and refractured. Fragments Blk carbonaceous sh w/VF dissem. py, silicified Ls, LGY cht w/qtz veinlets.
94.2-103	4.3/8.8	Dike, wh-LGY. Altered to clay, featureless except for dissem. small pyrite cubes. Locally Bxtd & sheared. Carbon (?) on frac surfaces. One surface gave positive Cu test (chalcocite?). Rare chrysocolla.
103-109	0.5/6.0	2" dike, clay to silt grained silica rock w/carbon (?) on fracs; 2" Bx siliceous Blk shale//silicified LS; 2" Q vein w/cpy.
109-114	No core	
114-119	1.0/5.0	Q vein w/carbon (?) on fracs; frags siliceous Blk sh.
119-126	1.4/7.0	Alt dike/Blk & wh Q vein.
126-132	No core	
132-139	0.5/7.0	Q vein w/carbon frags/Bx dike & siliceous Blk sh w/py.
139-144	No core	
144-149	2.4/5.0	2" Qtz w/graphite frags (?) grades into recemented Bx, Blk sooty siliceous sh (rest of unit).

<u>DEPTH</u>	<u>RECOVERY</u>	<u>DESCRIPTION</u>
149-155	4.0/6.0	Sheared altered dike w/graphite frags and carbon (?) on shears and frac surfaces. Shears // core and at 30°, sparse py.
155-159	2.3/4.0	80% Blk siliceous sh Bx // 20% qtz vein Bx. No visible py.
159-164	1.5/5.0	SAA, 40% sh // 60% qtz vein.
164-167	1.8/3.0	2" qtz, rest very carbonaceous sh Bx. Abund VF py.
167-171	2.0/4.0	Blk sh Bx, sooty.
171-175	3.5/4.0	SAA
175-180	4.0/5.0	SAA, 2" qtz at base.
180-185	2.0/5.0	Siliceous Blk sh w/Q veinlets, Bxtd.
185-190	3.7/5.0	Qtz veinlets in Blk sh/qtz vein Bx. Sampled.
190-194	2.1/4.0	SAA, 20% Blk sh, 80% qtz vein Bx. Sampled.
194-199	2.0/5.0	SAA
199-201	2.0/2.0	70% Blk sh, 30% qtz vein.
201-210	4.6/9.0	2.9 recem qtz Bx, carbon (?) on fracs / 1.7 Blk sh Bx.
210-213	2.3/3.0	Blk sh, slight fizz at base. Bxtd & sheared.
213-216	2.7/3.0	0.6 Blk sh Bx; 2.1 qtz. Bx w/Blk sh frags.
TD 219	No core, twisted off.	





CHEMICAL & MINERALOGICAL SERVICES 3435 SOUTH STATE STREET, SALT LAKE CITY, UTAH 84115, (801) 266-8228

ANALYTICAL REPORT FOR:

*Silver Star claims DDH #1 (near Adit #3)*

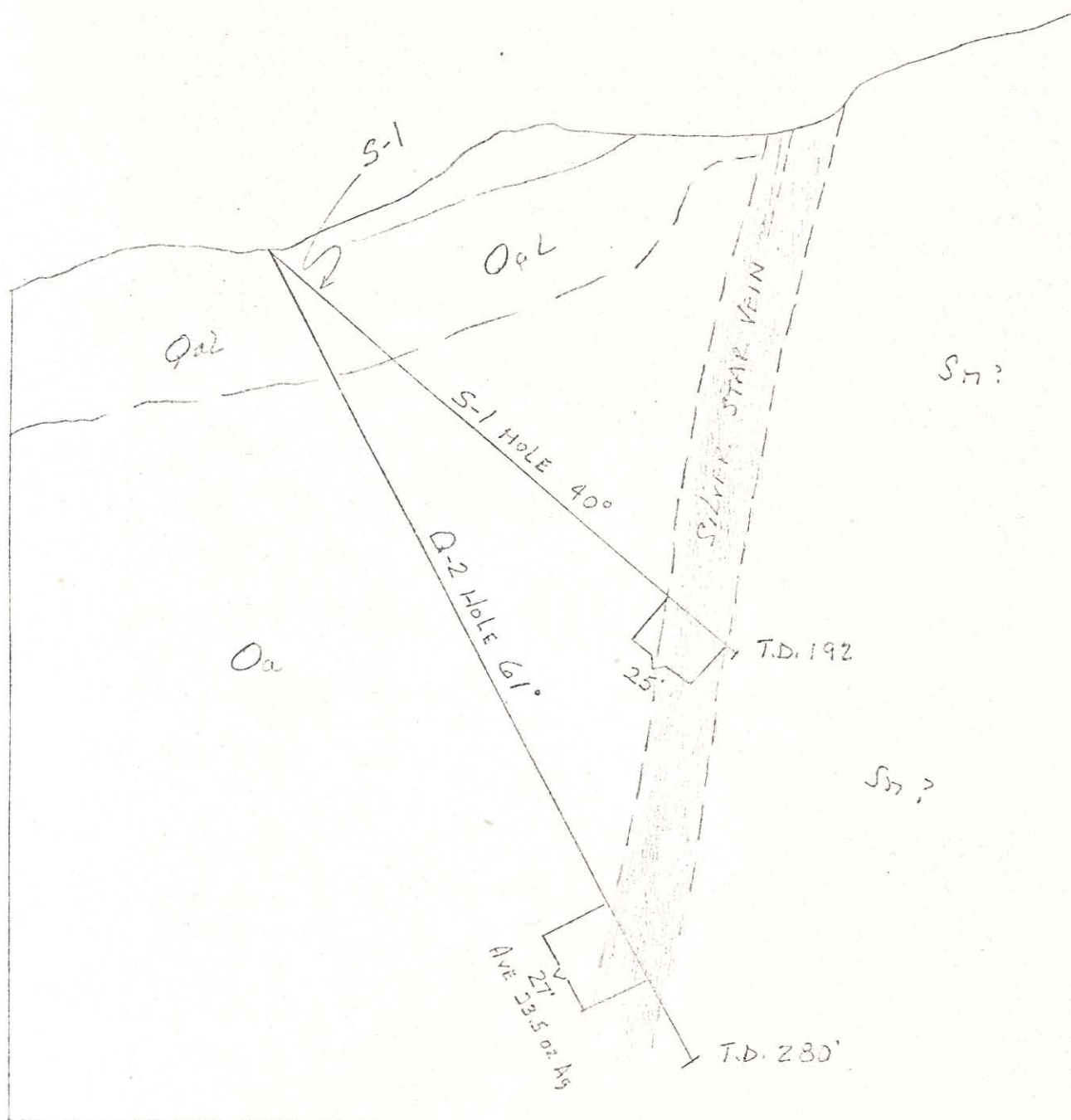
Cerro Corporation	OUR NUMBER 1396
2525 South Main Street	DATE July 31, 1970
Salt Lake City, Utah	CUSTOMER'S ORDER NO.

Hole Interv.	Sample #	Ag oz/ton	Au oz/ton	Cu ppm	Mo ppm	Pb ppm	Zn ppm	U <sub>3</sub> O <sub>8</sub> ppm	V <sub>2</sub> O <sub>5</sub> ppm
4-216	159	1.05	<.001	670		16			
10-214	160	.13	.001	170		35			
7' core									
10-210	161	.97	.001	500		30			
2.6' Gre low 201	162	5.70	.002	4000	< 1	1600			
5' core here 201	163	.25	.001	210		35		225	35
198-201	164	.73	<.001	520		200			10
1' core low 194	165	1.55	<.001	860		400			
0-185	166	1.40	<.001	770		1800	780		5
9-164	167	.15	.001	95		20			
9-155	168	.15	.002	130		60	300		5
32-139	169	.61	.001	270		1500			
9-126	170	1.13	.002	350		8000	1700		3
4-119	171	.65	.002	490		4000	1030		3
3-109	172	.10	.002	65		135			
8-103	173	4.90	.002	4100		1800			
2-88	174	.15	.001	75		25	220	200	3

1.23 419

.08 %

*Ray Broachert*



## Sunshine Mining Company

D.D. Hole S-1

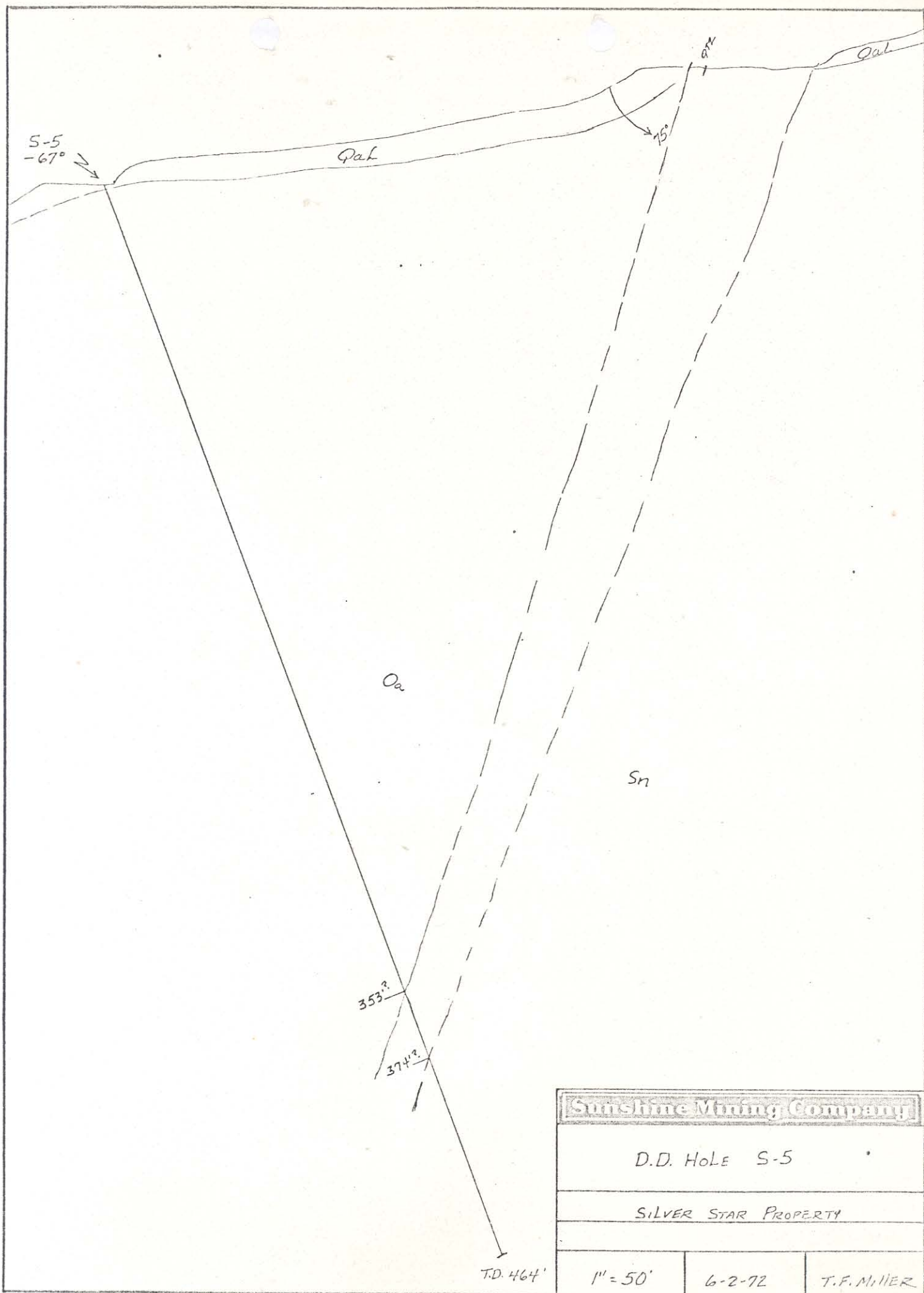
SILVER STAR PROPERTY

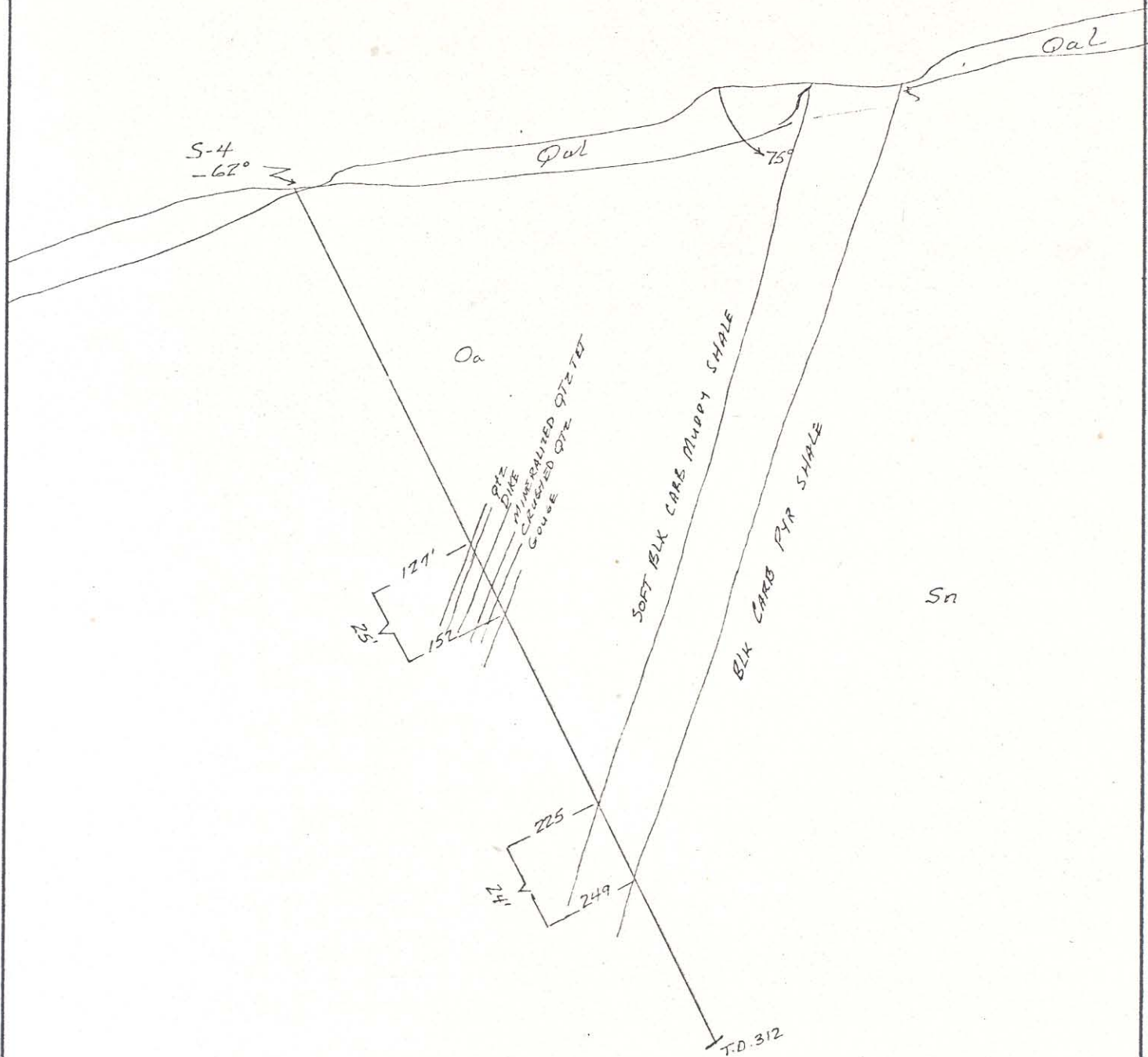
SKETCH #1

5-1-72

T. F. MILLER







Sunshine Mining Company

D.D. HOLE S-4

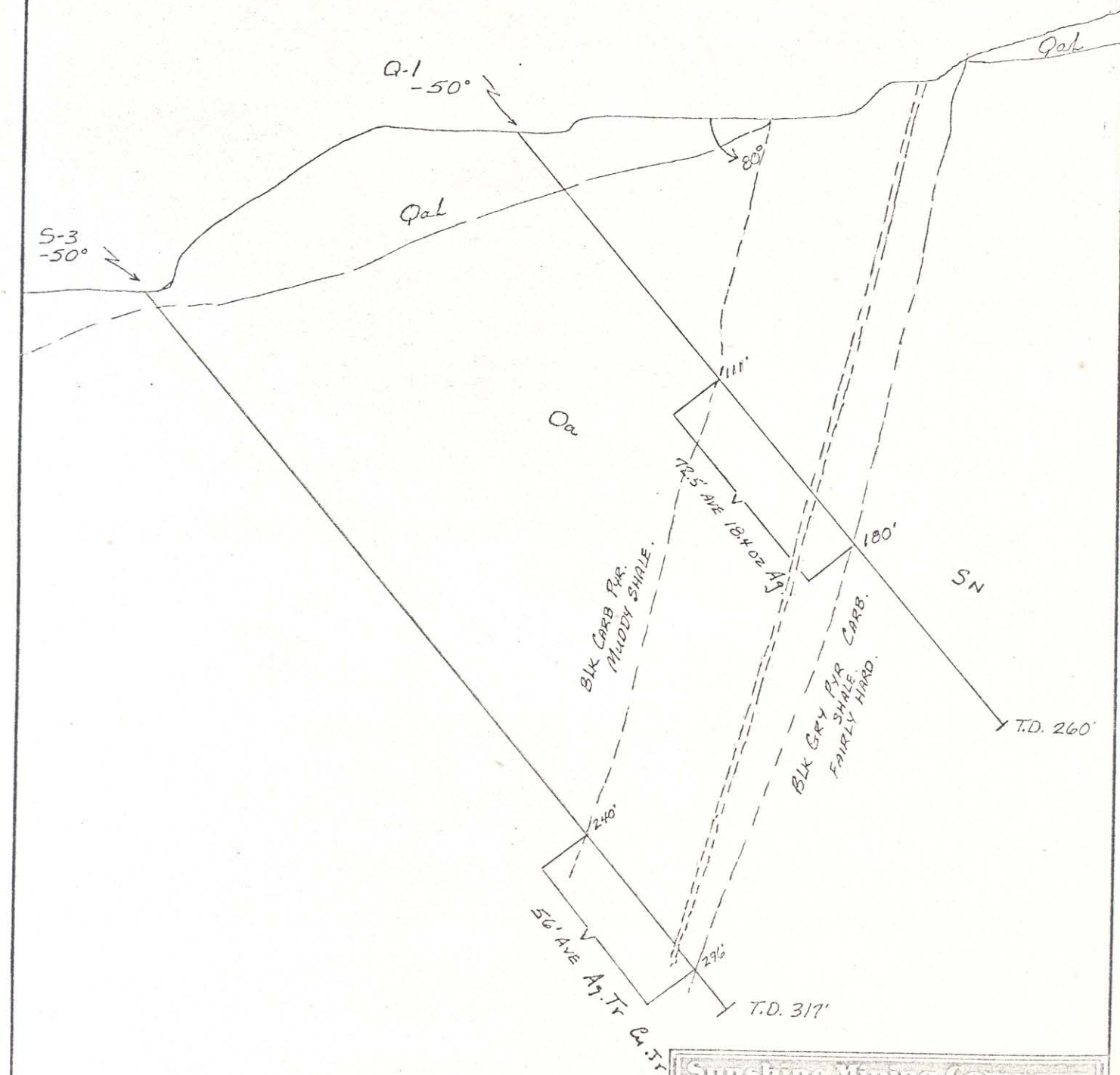
SILVER STAR PROPERTY

1" = 50'

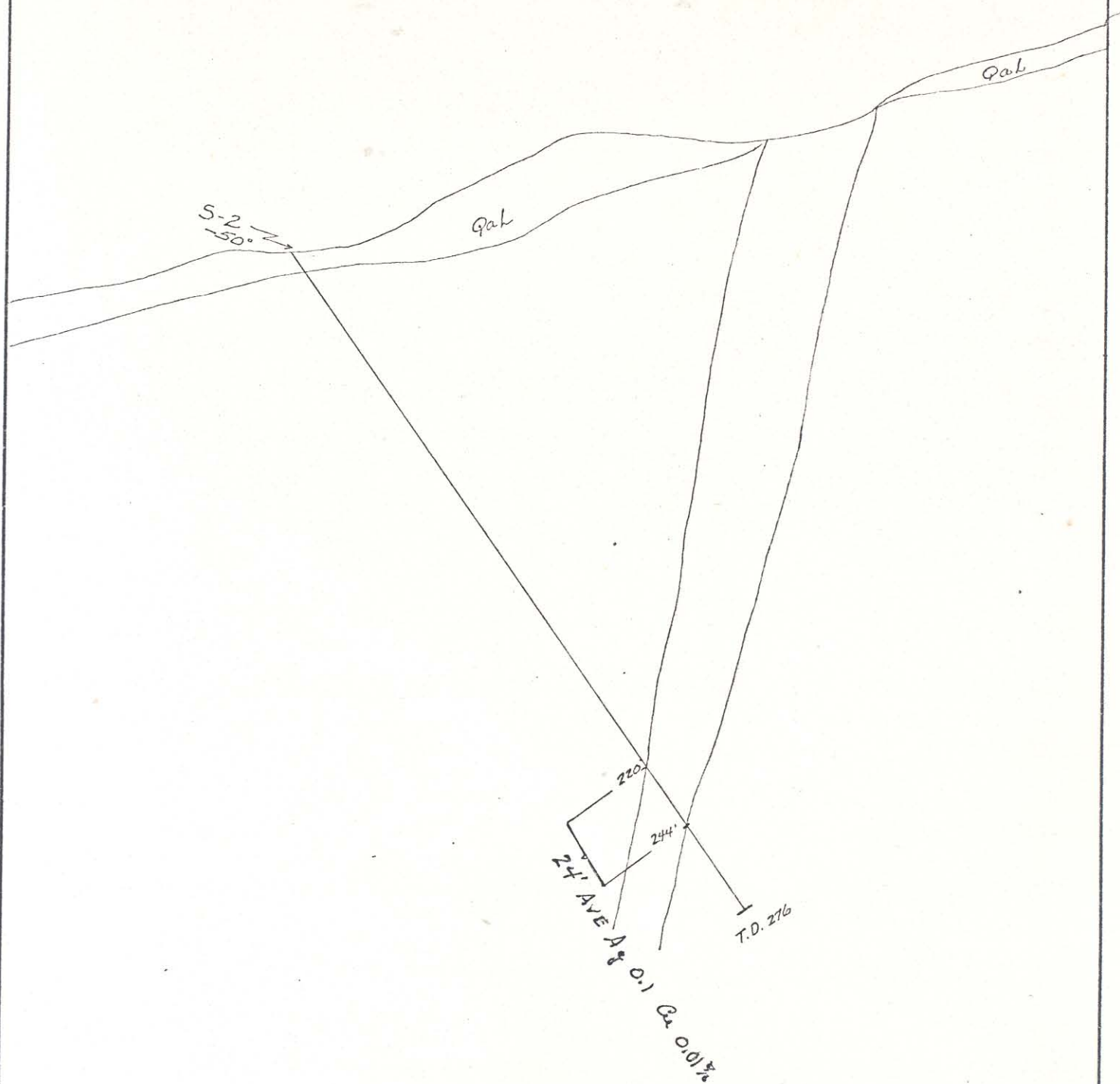
6-2-72

T.F. MILLER





Sunshine Mining Company		
S-3 HOLE		
SILVER STAR VEIN		
1" = 50'	6-2-12	T.F. MILLER

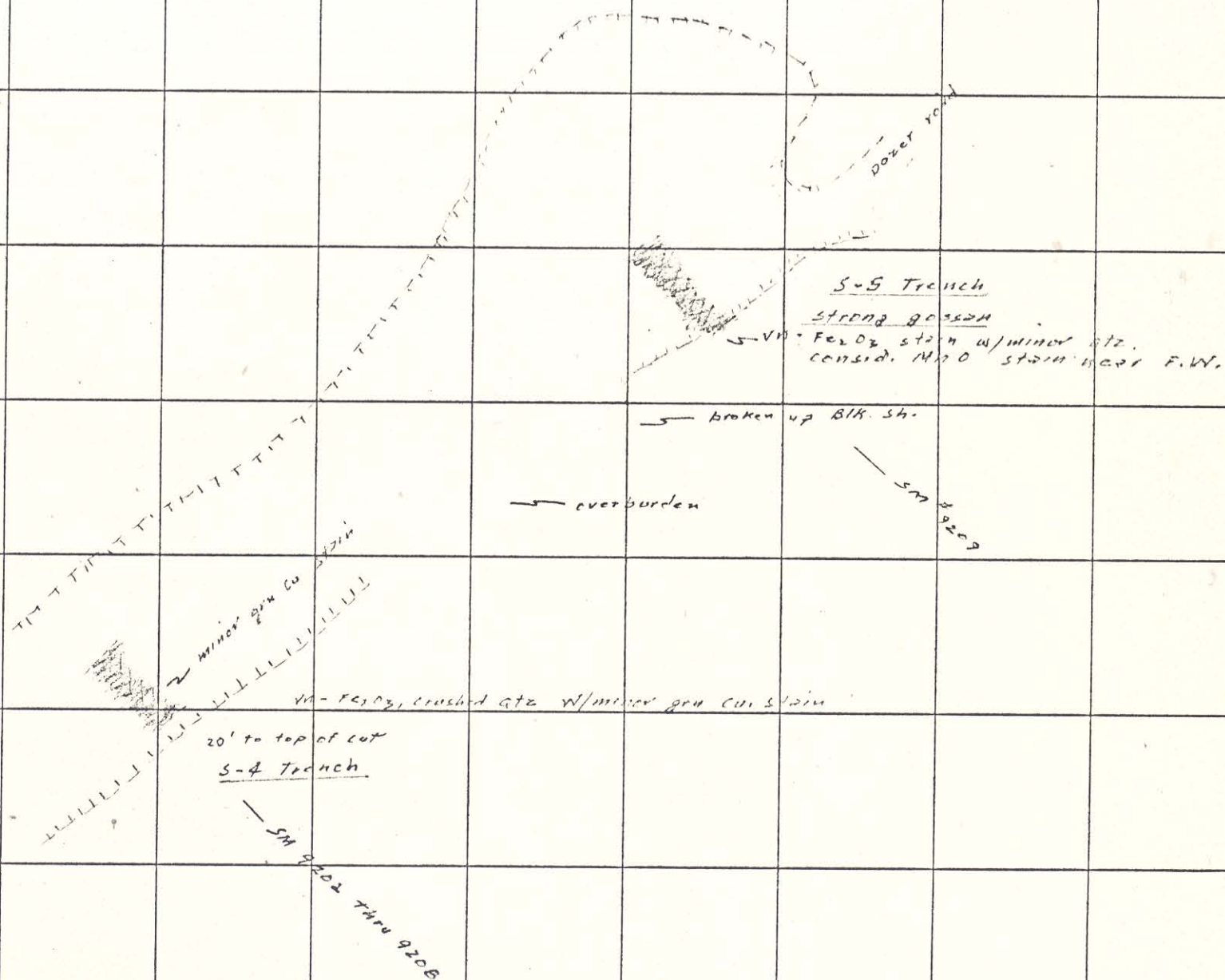


Sunshine Mining Company		
D.D. Hole S-2		
SILVER STAR PROPERTY		
1" = 50'	6-2-72	T-F. MILLER





Silver Star  
Trenches S-4 & S-5  
1" = 50'  
4-28-72  
Glen Phillips



60000002 (1210)



P. O. Box 1080 KELLOGG, IDAHO 83837

June 2, 1972

To: Don Long

From: Tom Miller

### Results to Date

Five holes have been completed, with three under the large trench area (S-1, S-2, and S-3). The other two (S-4 and S-5) were drilled 300' and 450' N.E. of Quantex hole Q-1.

Intersections on holes S-1, S-2, and S-3 did not encounter economic mineralization in the Silver Star Vein. Hole S-4 and S-5 are now being assayed, but it appears they did not intersect anything commercial, although a good H.W. vein was intersected in Hole S-4, which had some argentiiferous tetrahedrite in it.

The drilling to date has gone remarkably well considering the problems we have had. As a group, the drillers have done a good job.

At the present time, Hole S-6 is down 150'. This hole is located 6' S.W. of Hole Q-3 and being drilled at the same angle (60°) to duplicate Q-3.

### S-3

This hole was completed on 5/16 and drilled to a depth of 317'. The hole was drilled approximately 160' down the vein and under hole Q-1. As this hole was not surveyed, projections are only estimated as being accurate.

The vein was intersected with nearly an identical section as was in hole Q-1 above. The vein intersection was from 240' to 296', for a T.W. of 48'. Only slight mineralization was encountered.



#### S-4

This hole was completed on 5/21 and drilled to a depth of 312'. A H.W. vein similar in nature to the Silver Star Vein was intersected in this hole from 127' to 152', for a true width of 21'. Some tetrahedrite in qtz was in the vein.

The main Silver Star Vein was intersected from 225' to 249', for a T.W. of 20'.

#### S-5

This hole was completed on 6/1 and drilled to a depth of 464' at an unsurveyed angle of 67° on a bearing S40E.

The vein was intersected from (approximately) 353' to 374'. Significant mineralization was not apparent.

#### S-6

This hole is located next to hole Q-3 and will be drilled to retest this area. As of June 3, 1 p.m., the hole was 150' deep.

#### Geology

##### Silver Star Vein

Nearly all trenching and holes to date across the vein has shown the vein to consist of the various rock types:

1. Crushed qtz
2. Intrusive dike material (apalite?)
3. Massive qtz
4. Alt leached shaley beds with minor qtz stringers
5. Crushed shaley gouge, argillized

I believe as you have expressed, the dike does play a significant role in the vein, namely where its presence dominates the vein it probably can be assumed that

economic mineralization will be insignificant or nil. It swells in and out quite rapidly, both vertically and horizontally.

In order of vein deposition, I believe (1) the qtz replaced or displaced the gouge and shaley matter along the strong Silver Star Fault fissure;

(2) The apalite dike was intruded into the vein and replaced some of the qtz and other gauge; its force crushed the qtz. Some mineralization came at this time, but not the major silver mineralization;

(3) Later qtz was then intruded into the vein. This series brought with it copper minerals and the minerals of silver. Most massive qtz seen so far favors the Foot-wall.

#### Drill Holes

I have drawn a Longitudinal Vertical Projection of the Silver Star Vein showing drill hole intersections into the vein, possible upper ore shoots, and possible mineralization. I believe Hole S-1 was drilled too far up section and it and Hole S-2 were predominately dike material.

I don't know why mineralization was not intersected in Hole S-3, other than possibly the ore shoots rake to the N.E., as shown in the section. S-4 and S-5 holes were drilled under trenches that showed respectable values; could be considered wild-cat holes.

I believe once we locate an ore shoot, that close-spaced drilling should be done to learn more of the nature of the ore shoot.

It is my opinion that we must eventually drill some deep holes 500 to 800' down-dip to test the vein.

My opinion is the same as Manning Cox expressed in his report of Nov. 30, 1969, namely that "...The width, length and strong mineralization near surface are very favorable and this prospect definitely merits a strong underground test."



We have the drilling down pretty good now and hopefully can get some encouraging intersections, but I also believe that we will not really see the vein until drifting is done on it.

Mapping, Logging, etc.

Dan is going to make a 50 scale map of all the workings to date. Trenches will be mapped on 20 scale. Rich can split and log core.

Cost Summary

Thru May 15, 1972	\$ 33,815.00
May 15 thru 31 May, 1972	11,479.00
	<u>12,329.00</u>
	<del>\$ 45,114.00</del>
	\$ 45,294.00

Cost Breakdown for May 15 thru May 31, 1972

Drill Hole S-3

Labor fringe and per diem	\$ 2,074.00
Bits \$2.00/ft @ 317' NQ	634.00
Fuel	85.00
Mud	220.00
Cement	10.00
Drill \$1.00/ft @ 317'	<u>317.00</u>
	\$ 3,334.00

Total Cost--\$10.60/ft.

Drill Hole S-4

Labor fringe and per diem	\$ 1,482.00
Bits \$1.50/ft @ 312' NQ	468.00
Fuel	50.00
Mud	160.00
Cement	11.00
Drill \$1.00/ft @ 312'	<u>312.00</u>
	\$ 2,483.00

Total Cost--\$8.00/ft.

Drill Hole S-5

Labor Fringe and per diem	\$ 1,616.00
Bits \$2.00/ft @ 464' NQ	928.00
Fuel	70.00
Mud	129.00
Cement	17.00
Drill \$1.00/ft. @ 464'	<u>464.00</u>
	\$ 3,224.00

Total Cost--\$7.00/ft.

General Maintenance--Labor & per diem (L. Kampii)	\$ 200.00
Assays	350.00
Core shed materials	228.00
Trailer Rental, 2 months thru June	180.00
Propane	35.00



Cat Work--Northwest Crane--50 Hrs. @ \$35.00

\$ 1,750.00

Supervision & Geological

Salary fringe and per diem

<sup>850.00</sup>  
~~1,700.00~~

Mileage 2500 @ 15¢

395.00

\$13,885.00

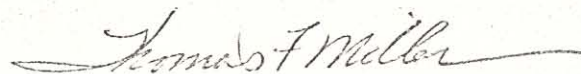
Less adjustment on holes S-1, 2 & 3

1,556.00

~~\$12,329.00~~  
\$11,479.00

Estimated cost June 1 thru June 15--\$11,000

Sincerely,



Thomas F. Miller

## MEMORANDUM

To: D. C. LongDATE June 8, 1972FROM R. A. ForrestSUBJECT Re: Geochemical Sampling on the Silver Star Property.Introduction & Conclusions

A Geochemical survey of the Silver Star claims, initially completed in April 1972, was attempted in order to delineate wide-range vein extensions, locate new parallel structures and point out specific regions along the main vein where higher grade mineralization might be expected. At this time, geochemical analysis appears to be a relatively effective approach to accomplishing these ends. Sufficient encouragement exists to undertake further definitive sampling, assuming that current diamond drilling correlates with the presently known surface expressions. The anomalous areas found during this initial survey both along the main fault and in adjacent positions are undoubtedly worthy of further detailed surface examination with perhaps some limited short diamond drilling if sufficiently warranted.

Mechanics of the Program

The completed program involved the collection of approximately 275 soil samples on eleven lines using a sampling interval of 50' or 25' depending upon the closeness to the main vein. An orientation line (#SST-1) was run initially to determine sampling method, depth of sampling and soil characteristics over known higher grade vein outcrops. It was determined that shallow hand dug hole approximately 6" deep were sufficient to pick up significant mineralization. Soil development is erratic consisting predominately of abundant rock fragments. Deeper pits or Auger holes would not be effective due to this thick Rocky overburden preventing penetration.

Samples from lines 32S, 40S and 60S were tested for Silver, Lead, Zinc and Copper by atomic absorption using hot nitric acid extraction for total metal readings. From these results, lead and copper were selected as perhaps the best pathfinders to economic mineralization. Lead being less soluble remains in the soil near its source and copper due to its direct association with Silver in tetrahedrite and its noticeable occurrence in vein outcrops.

Many factors are known which may possibly affect the correct interpretation of the geochemical results. Deep overburden associated with rapid downslope movement may tend to widely disperse anomalism. As well as giving false transported anomalies quite a distance from their source. To date a direct relationship between known economic mineralization and anomalism has not been adequately defined perhaps leading to false hopes regarding some true anomalies. Geochemistry in the Silver Star area is essentially locating oxidizing primary mineralization rather than the secondary silver enrichment





# MEMORANDUM

To: \_\_\_\_\_

DATE June 8, 1972

FROM \_\_\_\_\_

SUBJECT Re: Geochemical Sampling on the Silver Star Property.

that is being sought. This must be kept in mind during interpretation and exploitation of the anomalies, for it is quite possible that primary ore shoots containing galena and ~~are~~<sup>therefore due to the</sup> exclusion of the majority of secondary silver mineralization.

## Interpretation of Anomalies

Line 20S; A.) No definite location for main vein, Quantex map position perhaps incorrect, assume vein footwall position @ 11.25E to 11.5E may be as wide as up to 12.0E. Anomalous copper content, slightly anomalous lead. Perhaps good indication of silver mineralization; confirmed by assays on Quantex Rotary Drill hole #8 (130- 135' about 7 oz Ag/Ton)

Line 24S: A.) No definite vein location. Map position perhaps correct. B.) Slight lead anomaly on parallel vein @ 9.5E no anomalous copper. Doubtful economic Silver mineralization on either vein.

Line 28S: A.) Main vein map location correct. No copper anomaly, slightly anomalous lead possible but doubtful silver mineralization; confirmation DDH S-5 (blank). B.) 11.0E to 11.25E unknown parallel vein @ 8.25E to 8.5E. No copper, highly anomalous lead. Possible economic value.

Line 32S: A.) Main vein map position correct, very weak expression of Pb-Cu-Zn-Ag, though not significant. Doubtful economic concentrations. Confirmation DDH S-4 (blank) B.) Unknown parallel vein @ 9.25E, slightly anomalous lead, no copper, weak silver and zinc. Doubtful economic importance confirmation DDh S-4 (5' of 7.1 oz Ag or 4" of 78.0 oz Ag) C.) Parallel vein @ 8.0E to 8.25E. Weak silver-zinc, weak copper, highly anomalous lead. Possible economic significance.

Line 40S: A.) Main vein location probably at 7.25E to 8.50E (map incorrect). Missing sample interval but indications of weak silver, moderate copper, anomalous lead and strong zinc. Possible weak economic mineralization. (Difficult to determine). B.) Unknown parallel vein @ 7.0E weak copper, silver and zinc, slightly anomalous lead. Little economic significance. C.) Possible parallel vein @ 6.25E very weak and insignificant.

Line 44S: A.) Main vein map position correct. Very weak, no significant mineralization. B.) Parallel vein @ 5.75E (Map position incorrect ) weak copper and lead. No significant mineralization.

## MEMORANDUM

To: \_\_\_\_\_

DATE June 8, 1972

FROM \_\_\_\_\_

SUBJECT Re: Geochemical Sampling on the Silver Star Property.

Line 48S: A.) Main vein possibly @ 8.5E, weak copper and lead; doubtful economic significance. B.) Parallel vein at 5.75 to 6.50E. Slightly anomalous copper, possibly slightly anomalous lead. May have economic potential. C.) 3.5E to 1.5W large area of highly anomalous lead values, erratic and occasionally slightly anomalous copper. Above average silver and zinc. Difficult to assess but worthy of further work. Strong anomalism continue on to west end of Line 53S.

Line 53S: A.) Main vein @ 8.0E to 8.25E. Map position incorrect. Anomalous lead, highly anomalous copper, high but erratic silver values. Good silver potential. B.) Unknown parallel vein @ 7.0E anomalous copper with slightly anomalous lead. Some silver mineralization possible. C.) Parallel vein @ 5.0 to 5.25E. Anomalous lead, moderate copper. Possibly some weak economic significance. D.) 3.0E to areas west. Highly anomalous lead concentrations. Probably same anomaly as Line 48S #C.

Line 60S: A.) Main vein map location correct. Highly anomalous lead and copper, high silver and zinc values. Good economic potential.

Line 68S: A.) Main vein @ 9.5E to 10.0E. Highly anomalous lead, anomalous copper. Possible economic value. B.) Parallel vein @ 7.75E slightly anomalous lead, moderate copper. Probably of no economic significance. C.) Parallel vein @ 1.75E. Weak lead and copper. Doubtful economic significance.

### Caution Regarding Interpretations

The above interpretations involve quite a large bit of speculation by the author and suggestions regarding economics are, at best, very tentative pending further investigation and proof of character. No positive relation between soil anomalism and economic mineralization has been established. It is also debatable whether the anomalies would sufficiently indicate areas of intensive secondary mineralization quite as well as the eroding primary shoots. Depth penetration by geochem is severely limited as only vein material in outcrop or sub outcrop would show a healthy response. Leakage anomalies from deep mineralization would be difficult to detect in this type of environment, hence was not included within the interpretations. Vein locations given by geochemical response may be somewhat misleading due to the depth of overburden and down-slope soil movement. Actual vein suboutcrops are probably located slightly upslope from their geochem positions. The exact distance can be determined by the angle of slope and the depth of overburden with its estimated creep downhill. Average displacement of anomalies is estimated from 10 to 35 feet uphill from the first significantly anomalous sample on the traverse line.



MEMORANDUM

To: \_\_\_\_\_

DATE June 8, 1972

FROM \_\_\_\_\_

SUBJECT Re: Geochemical Sampling on the Silver Star Property.

Trenching an anomaly must take this into account.

Actual mineral particles in the soil were not found in any traverse line except line SST #1 and perhaps L 60S where a lead mineral may have been included in the soil. This would indicate that the high metal values in the soils would be absorbed onto clay particles directly from solution perhaps leading to widespread anomalism downslope from the outcropping metal zone. This is definitely the case with zinc silver and perhaps copper. Care must be taken to select the highest upslope position of an anomaly for correct delineation of the vein.

Summary of Findings

- I. Primary mineralization is probably being located.
- II. Copper seems more reliable for silver locations.
- III. Parallel veins show some economic potential.
- IV. The main vein between L53S and L 68S may have good potential.
- V. A thrust area to the west of the Silver Star vein may contain good lead metalization.
- VI. Geochemistry may be used to locate vein extensions despite overburden, soil movement, etc.
- VII. Fill-in geochem is necessary to more accurately locate suboutcropping vein hotspots.

Respectfully submitted,



R. A. Forrest

RAF/mc

Chart I

Statistical Data

	<u>Copper</u>	<u>Lead</u>
A. Mean value	59 ppm	41 ppm
B. Standard Deviation	21 ppm	16 ppm
C. Background Threshold	80 ppm	57 ppm
D. Slightly Anomalous	81 ppm - 100 ppm	57 ppm - 73 ppm
Anomalous	101 ppm - 122 ppm	74 ppm - 89 ppm
Highly Anomalous	Over 123 ppm	Over 89 ppm



Box 267  
Oakley, Idaho 83346  
March 6, 1972

To: Don Long

From: Tom Miller

Subj: Silver Star

Don:

I have enclosed a map of the claims owned by Myron Harbaugh and Perry Deford. The claims are known as the Apollo 1A thru 31A. I am in the process of trying to make some sort of a deal on the claims now. Al Osborn may have things fouled up to the point where a reasonable deal would be impossible.

You will note that in Sec. 33, and 34, I have outlined patented land owned by the Salmon River Cattle Assoc. I am going to try and lease this land from them. A letter will be sent to them today. They have a board meeting March 14.

Harbaugh owns additional claims adjoining the Apollos to the west and northwest. I will discuss these claims with him. JACKRABBIT 1-48

#### Water

I would like to meet with the Salmon River Cattle Association to solicit their cooperation in drilling a well for mill and mine water. I have been told they are reasonable people to work with.

A letter was sent to the Nevada Division of Water Resources requesting information on water rights and ground water in our area.

I met with George Detweiler and Jule Larios about an option to buy their claims. They want us to write up the legal document on the agreement. This can wait, as there is some detail to be worked out and the fact it is not so pressing as other matters.

Sincerely,

*Thomas F Miller*  
Tom Miller

MANNING W. COX

consulting geologist

box 158

friday harbor, washington

[206] 378-2066

January 19, 1972

Mr. Don Long,  
Sunshine Mining Company,  
Kellogg, Idaho

Silver Star Prospect  
Contact District, Nevada

Dear Don:

In writing suggestions as to exploration and business negotiations regarding the Silver Star Prospect I assume you have the report by Loeb and Taylor covering the work by Quantex. Perhaps you have not seen my report of 1969 or the reports made to American Exploration Company so I enclose copies.

The mineralization encountered by Quantex in its three drill holes is quite different than that visible at the surface. The pits and adits show strong quartz veining in bleached weathered rock across about 30 feet width, except where link-vein structures join the main strand. The vein and country rock seem quite firm. Surface exposures show iron coloration and some residual sulfide indicating a moderate original sulfide content; there was enough lead to make it a smelter pay metal. Although blue staining is common in both outcrop areas, copper assays were low except for one set of samples that I took in 1969. These samples might be incorrect for they were assayed at a local mill in Sun Valley, but at the time I thought the blue stains most likely copper carbonate and thought the copper assays in the right order of magnitude.

In the Quantex holes the vein matter encountered was thoroughly broken, perhaps in part by poor drilling technique, but even in hole 3 where 95% core recovery is reported, there was little solid core. The country rock west of the vein zone was also intimately broken in the cores while the rock east of the vein zone was hard and the core solid. There was not over 20-30% quartz in the cores of the vein zone and I saw little correlation between visible mineralization and quartz. Native silver and some black sulfide were visible. I did not have assays available when I inspected the core and so do not know the correlation between quartz ribs and values. There is little visible sulfide in the core but the crushed black gougy material that makes up most of it would conceal a lot of fine sulfide. The cores assay much lower in lead than did the surface cuts.

The Quantex holes are properly placed under the two main ore showings. The deepest penetration is roughly 250 feet from the surface. Because there is visual evidence of substantial leaching, and because silver assays are substantially higher than at the surface it seems logical to believe that there must be enrichment. But I cannot tell how much nor what grade might be expected at greater depth.



-2-

Between the Quantex holes there is about 2000 feet in which two trenches and one adit show weathered white dyke and little vein matter, although neither cut exposes the entire vein zone width. Some further trenching would be most helpful in this area.

The Silver Star structure extends both north and south of the area explored by Quantex but no other strong quartz exposures are known. To the south it forms saddles for at least another half mile. To the north it appears to split into at least two strands, which together with some other linking veins from the west side pass onto claims owned by Myron Harbaugh of Gooding, Idaho. Trenching on these Harbaugh claims shows two veins neither of which is of ore grade at the surface but which merit further exposure.

There being as many questions unresolved as there are from the present state of exploration, I think it prudent to place at least one deeper hole under each of the Quantex "ore areas", and two holes between those areas. But I feel as strongly now as I did two years ago that until a tunnel encounters the vein zone at depth, the questions of continuity, ground conditions and adequate sampling will not be answered. To judge from drill cores, a cross-cut from the west wall would encounter bad ground. But the lowest possible drift would be about 100 feet above the intersection of hole Q3, and I do not think this is deep enough. Careful attention must be given in further drilling to west wall rock conditions, and perhaps some trenching to the west would tell you where an adit might be portaled to get at least as deep as the Q3 drill hole vein intercept. I suggest that a drift on the "footwall" or east side of the vein zone would be best with cross-cuts and long holes to explore the full width. If ground conditions required it, such a drift could become a hard rock east wall lateral.

I am not sure that the widths given by Taylor and Loeb are correct because the best guess as to dip I can make is vertical and they use a 70 degree west dip to get true width. Surface work shows an average width of about 30 feet and I would plan underground work with that in mind.

A further program of (1) trenching and drilling about 1600 feet of cored hole, and (2) 2500 feet of underground work will, allowing for contingencies, come to about \$250,000. You might quit after the first step but once committed to the second should plan to go at least that far. If 50% of the strike distance is found to be of ore grade across 20 feet true width and for 200 feet vertically then at 12 cu. ft. per ton there would be 400,000 tons. At a silver price of \$2.00 and a grade of 20 ounces this would probably be ore but a greater tonnage would be required to justify a concentrator and recovery plant. Thus a third stage is required to see the vein at greater depth. For this reason I think you must plan that at least \$500,000 will be required to determine whether Silver Star contains a mineable ore body.



-3-

## BUSINESS TERMS

I would not want to pay Quantex \$80,000 cash and pick up the underlying owners advance royalty payment at the end of 1972 in view of the need for further drilling. Therefore I would offer a commitment of the drilling and trenching with a payment to Quantex if I elected to proceed to underground work. Such a payment would perhaps be \$40,000 at the end of six months. You would then need another year without monthly payments but should pick up the property commitments, and commit yourself to the \$200,000 plus expenditure for underground work. After that a monthly payment to Quantex, should you go ahead, would not be onerous in view of the much larger cost of development and plant construction.

There is no provision for recapture of your investment prior to a 60-40 split. I would insist on recapture from at least 90% of pre-tax profit prior to such a split. For it to be of interest to Sunshine you will be thinking in terms of 300-500 tons per day operation and hence a capital investment of \$2,000,000 to \$3,000,000.

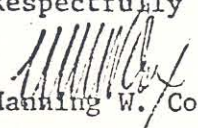
In addition to Silver Star land you will need a water source and tailings disposal area. The most logical area is the State lease land to the west now controlled by a cattleman's association.

Al Osborn has suggested to Don Loeb that the best deal for Quantex would be to seek a capital gain situation and that a merger into Sunshine might be considered. This has some merit but only if you can arrive in advance at a formula for merger at such a time as a mineable ore body is proven. It has a lot of stumbling blocks but might be worked out somewhat along the following lines:

- 1 - Value of Sunshine stock is the market value at the time of merger.
- 2 - Value of the Quantex stock is the asset value when a proven ore body is known plus any other values.
- 3 - The Quantex interest in Silver Star is 40% of the after tax profit of the proven ore at a stated silver price reduced to present worth at an appropriate discount for risk and time.
- 4 - The original owners also agree to take stock.

I think this is at least worth further mention to Loeb during negotiation.

Respectfully submitted,

  
Manning W. Cox



friday harbor, washington

consulting geologist

[206] 378-2066

December 20, 1972

Mr. Don Long,  
Sunshine Mining Company,  
Box 1080, Kellogg, Idaho

Dear Don:

QUANTEX

I worked out some possible economics regarding Quantex as a measure of what various business deals might mean to Sunshine. For what they are worth:

Assumptions:

1,000,000 tons of mineable ore averaging 20 ounces silver with no other economic minerals can be developed. The ore would be mined by open stoping underground methods, probably using cemented hydraulic backfill and trackless haulage at a rate of 500 tons per day for a 300 day year. Allowing some lost time we would have a seven year operating life.

Cost of develop these reserves would be \$500,000. Cost of mine plant and mill to make concentrates treatable at Sunshines proposed silver plant at Big Creek is \$4,000 per daily ton of capacity, or a total of \$2,000,000. Working capital and pre production payments will not exceed \$500,000. All of these costs for simplicity in estimating, will be taken as recoverable thru amortization at a rate of \$3.00 per ton.

Time required to develop reserves will be 18 months. Additional time to build plant will be 18 months. Total time from start to exhaustion of reserves will be 10 years. Again for simplicity, all of the money will be considered to be at risk for an average period of 5 years.

The cost of money and the present value of future earnings will be taken at 6% for the average period of 5 years.

Price of silver will be taken at \$2.00 per ounce during the life of the operation. Economic value of silver fob mine will be taken at 90%. Mill recovery will be taken as 95%.

Cost of mining is estimated at \$12.00 per ton including all indirect costs. Milling is taken at \$3.00 per ton including all indirect costs. Therefore mining plus milling plus amortization totals \$18.00 per ton.

Outcome:

Mine 143,000 tons per year for 7 years.

Produce  $143,000 \times 20 \text{ oz} \times 95\% = 2,700,000$  ounces silver per year



Value of production is  $\$2.00/\text{oz} \times 90\% \times 2,700,000 = \$4,860,000/\text{year}$ .  
Cost of production is  $143,000 \text{ tons} \times \$18.00 = \$2,574,000/\text{year}$ .  
Direct operating profit is  $\$2,286,000/\text{year}$   
Royalty at 5% is  $\$243,000/\text{year}$ . (I do not know what end price,  
is any is on the property and assume there is none.)  
Depletion at 22% is  $\$1,070,000/\text{year}$ .  
Taxable income is  $\$973,000$  and tax rate is taken at 50%.  
Then Net profit is  $\$486,500/\text{year}$ .

Total cash flow after amortization is  $\$1,556,500/\text{year}$ .  
Total new cash generated and subject to some split is  $\$10,895,500$ .

#### Analysis:

With a straight 60/40 split after return of capital without interest Sunshine would receive  $\$6,537,000$  or roughly 2.5 times total initial investment without regard to return of working capital.

But the average sum at risk is  $\$1,500,000$  for 5 years which at 6% interest adds  $\$450,000$  to the sum to be recovered. After such recovery the net return to Sunshine is  $\$6,087,000$ . For an average time in return of 5 years the present value would be  $\$4,261,000$ . The average annual return over the ten years would be about 35% per annum on the money at risk, there being no return on the first three years and an increase rate for the remaining seven.

The return to Quantex on the other hand would be based on no money at risk. The total return would be  $\$4,358,000$ , which would have a discounted worth at the time production starts of  $\$3,050,000$ .

But if Quantex were to absorb the Larios royalty its position decreases by  $\$194,600$  per year (the total royalty less the increased Quantex share of net profit) tot a total of  $\$2,996,000$ . Such a sum has a present worth at the start of production of  $\$2,000,000$ . This is a truer measure of the value of the Quantex interest under a 60/40 operating agreement.

There is no discount for risk in the above estimates. I would consider it proper to raise the discount rate to at least 12% to take into account inherent risk in silver mining, even with a proven ore body. This would cut the Quantex interest present worth to about  $\$1,000,000$  or roughly one dollar per ton of proven 20 ounce ore.

#### Conclusions:

Quantex should not get more than 40% including the Larios royalty. If there is an end price of perhaps  $\$400,000$  on the royalty then the property would be much more attractive to Sunshine. The Quantex interest in a proven ore body as described is not over  $\$1,000,000$  at the start of operations.

Respectfully submitted,

Manning W. Cox



Silver Star  
Trench #5-3  
11 x 50'  
4-28-72  
Glen Phillips

Q5-1 Hole

MP #3

H.W.

F.W.

5-3 Trench

Vm. mat. consists  
of limonite, Qtz, Cu. stain,  
& minor MnO stain



Silver Star  
Trenches S-4 & S-5  
1" = 50'  
4-28-72  
Glen Phillips

DOZER ROAD

S-5 Trench

Strong gossan

S-VH - Fe<sub>2</sub>O<sub>3</sub> stain w/minor Qtz.  
consid. MnO stain near F.V.

— broken up blk. sh.

— overburden

— SM 9209

— minor grn Cu stain

VH - Fe<sub>2</sub>O<sub>3</sub>, crushed Qtz w/minor grn Cu stain

20' to top of cut

S-4 Trench

— SM 9202 thru 9208

MP #3



# MEMORANDUM

To: Don Long

FROM Tom Miller

DATE May 15, 1972

SUBJECT Silver Star Property, Contact, Nevada

## Drilling

Hole S-1: Assay results are complete for hole S-1. While the results are not encouraging, it points out that leaching for the most part is below the depth of this intersection. I would think that the vein is leached from surface to 300' more or less. Because of this deeper intersections will be made.

Hole S-2: This hole was begun May 1 on day shift and completed May 6 on day shift. The hole was drilled to a total depth of 276'. The vein was intersected 220' to 244'. Significant mineralization was not apparent.

Hole S-3: Considerable trouble occurred in collaring this hole. Because of the original difficulty, the drill was moved and a new hole started. Then we had trouble getting the cement to set up.

We later concluded that we probably had some bad cement and maybe the water gave an undesirable chemical reaction. Leonard Justice (Justice Drilling and Cliff Lee, Boyles Brothers) agreed that our conclusions on the cement were right.

As of the 15th, the hole is at 176' and the drilling is going good.

## Trenching

In order to do the necessary trenching, I got another cat--a D8H46A, with hydraulic blade and double hyd rippers for \$35.00/hr. The cat is a good one, as well as the cat skinner.

Trench S-5 was completed and sampled. I will send the results in the next report.

This trench has one of the most impressive gossan zones I have seen anywhere. The vein is 54' wide in the trench, with a true width of approximately 45'.

Another trench 700' NE of S-5, or S-6 was started, but to date is not complete.

#### Equipment

A propane driven 8KW-10KVA generator was purchased for \$1200. Leonard Kampii was impressed with it, as it runs good and starts automatically.

#### General Maintenance

Leonard Kampii did mechanical work, graded the road and kept things in top shape. He is a valuable asset to the project.

#### Cost Summary

Thru April 30, 1972	\$23,758.51
May 1 thru May 15, 1972	<u>10,057.00</u>
Total Cost to date	\$ 33,815.51

Cost breakdown for May 1 thru May 15:

#### Drill Hole S-2

Labor fringe & per diem	\$1600.00
Bits \$1.00/ft @ 276' NQ	276.00
Fuel	78.00
Mud	63.00
Cement	11.00
Pump Bearing	<u>50.00</u>
276' @ \$7.90 ft NQ	\$2178.00
Add <u>1.00</u> ft for drill	
\$8.90	



Drill Hole S-3 (not complete)

Estimate to date

176' @ \$11.50

\$2024.00

General Maintenance

Labor & per diem (L. Kampii)

475.00

Assays

346.00

Pipe 1500' of 1"

378.00

Propane for pump

89.00

Generator purchase

1120.00

Cat Work

Al Osborn 11 hrs @ \$22.50

247.00

Northwest Crane 30 hrs @ \$35.00

1050.00

Supervision and Geological

Salary, fringe, per diem

1700.00

M Mileage 3000 @ \$15


450.00

\$10,057.00

Estimated additional cost thru May 31, 1972 \$10,500

This is high because about 80 hrs. of cat work will be done. This should about  
complete the cat work.

Sincerely,



Thomas F. Miller

Looking NE.

H.W. OXID FRACT FR. SH.

OXID SILIC FE STAINED SH.

OXID LEACHED SILIC  
MUDDY SHALE MINOR  
QTZ

MINOR QTZ BRECC.  
OXIDIZED LEACHED  
MUDY SH.

OXID LEACHED  
FB STAINED SHALEY, QTZ  
+ ARGENTITE.

ALT QTZ BRECC.  
OXID.  
MALACHITE + AZURITE  
SOME KADLIN  
F.W.

3' 0.0 oz Ag 0.15% Pb 0.006% Cu

5' 0.1 oz Ag 0.01% Pb 0.012% Cu

5' 0.6 oz Ag 0.2% Pb 0.037% Cu

5' 0.0 Ag 0.0% Pb 0.081% Cu

5' 0.2 Ag 0.4% Pb 0.056% Cu

5' 0.2 oz Ag 0.5% Pb 0.012% Cu

5' 1.4 oz Ag 1.4% Pb 0.15% Cu

Sunshine Mining Company

TRENCH S-4

SILVER STAR PROPERTY

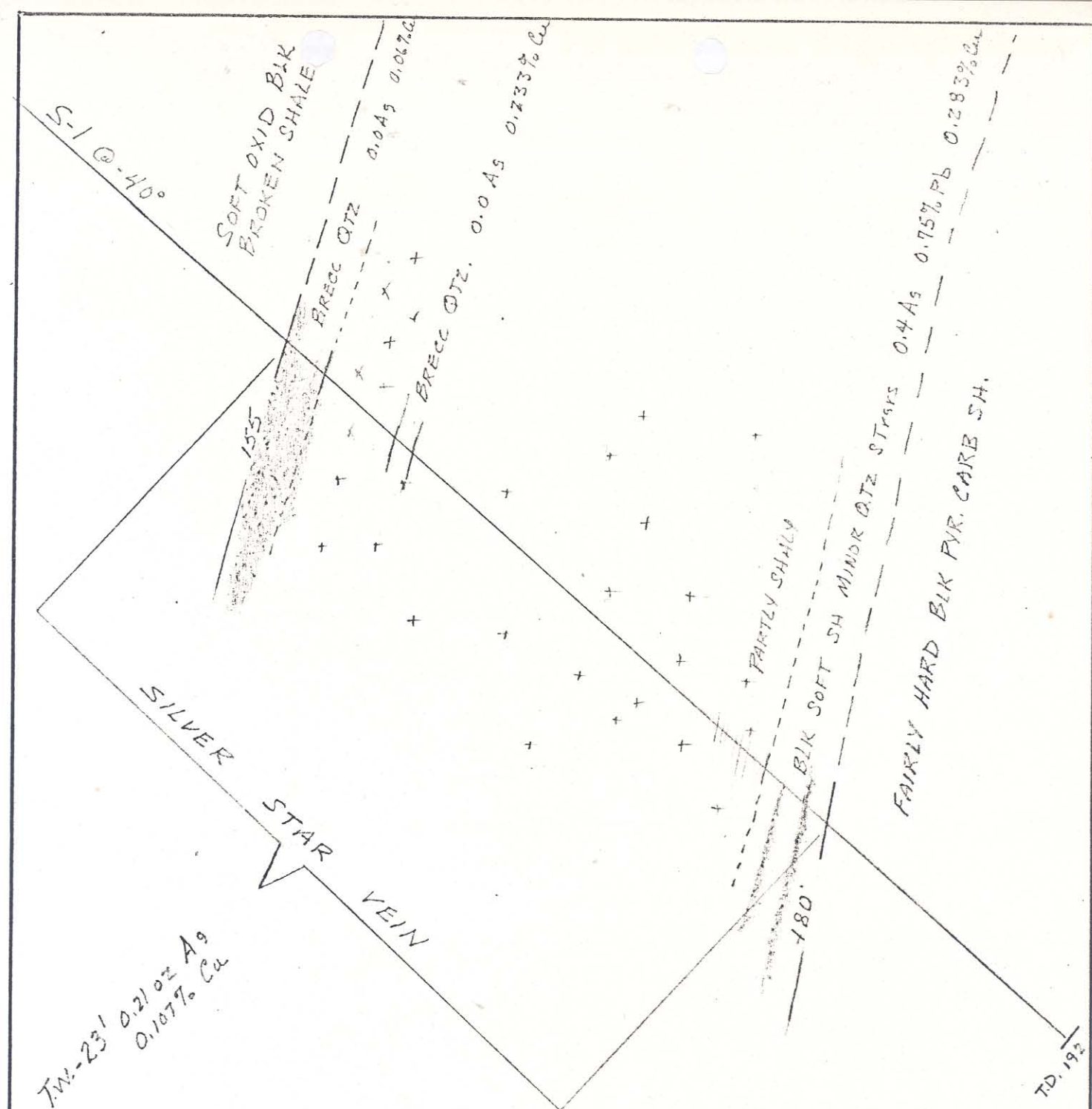
NW-SE X-SECTION

1" = 5'

5-15-72

T.F. MILE

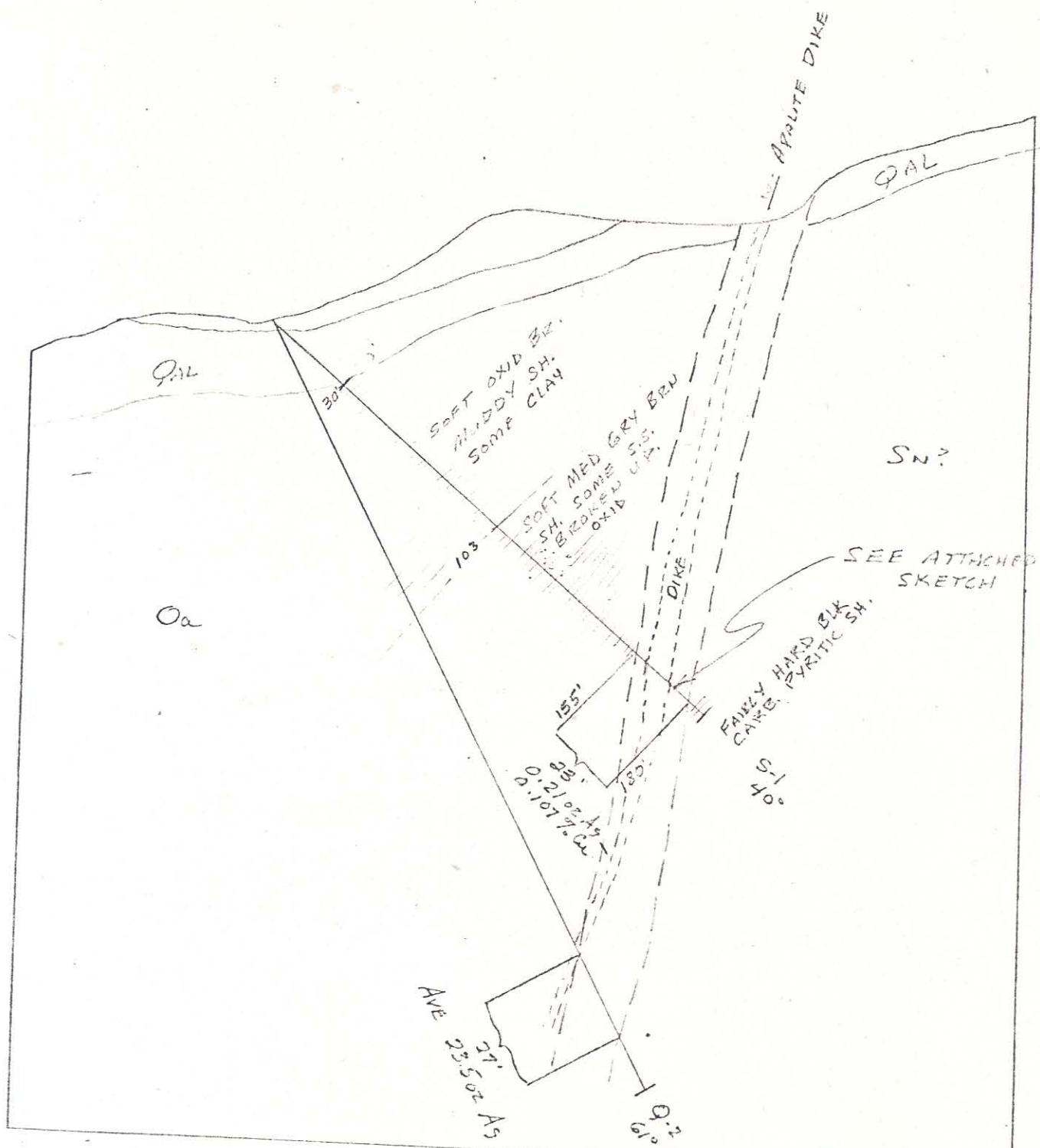




LOOKING N.E.

APALITE DIKE + + +

Sunshine Mining Company		
D.D. Hole S-1		
SILVER STAR PROPERTY		
SKETCH # 2		
1" = 5'	5-15-12	T.F. MILLER



Sunshine Mining Company

D.D. HOLES S-1 & Q-2

SILVER STAR PROPERTY

MOD SKETCH #1

1" = 50'

5/15/72

T.F. MILLER





## MEMORANDUM

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DATE May 15, 1972

FROM Tom Miller

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*Thomas F. Miller*

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MUDDY SHALE MINOR  
QTZ

MINOR QTZ BRECC.  
OXIDIZED LEACHED  
MUDY SH.

OXID LEACHED  
FE STAINED SHALEY, QTZ  
+ ARGILLITE.

ALT QTZ BRECC.  
OXID.  
MALACHITE + AZURITE  
Some KAOLIN  
F.W.

3' 0.0 oz Ag 0.15% Pb 0.006% Cu

5' 0.1 oz Ag 0.01% Pb 0.012% Cu

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5' 0.2 oz Ag 0.5% Pb 0.012% Cu

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Sunshine Mining Company

TRENCH S-4

SILVER STAR PROPERTY

NW-SE X-SECTION

1" = 5'

5-15-72

T.F. MILLER





# Silver Exploration In Contact Area

**CONTACT** — Preparations have been made for a new silver exploration effort at the Silver Queen mining property near Contact.

The work will be done under an exploration and development agreement between Quantex Corp., of Salt Lake City, and Sunshine Mining Co. of Kellogg, Idaho.

Sunshine has moved heavy equipment to the area and expects to be exploring by April 15, according to Donald C. Laub, Quantex president, who made a visit to the property last week. He said bulldozers are now putting a road to the mining property.

The Silver Queen property is nine miles south of Contact and

11 miles east, in the Knoll Creek region.

Laub said the mining property dates back to early silver mining days of Elko County, but most of the original mining was surface work. Last summer, he said, Quantex performed initial diamond drilling at the site. Three core holes of 300 foot depth revealed veins of 20 to 60 foot widths. Silver ore tested 20.4 ounce per ton, he said.

At the current price of silver, Laub said the operation could be profitable providing additional veins are revealed.

Laub said Sunshine will establish a mobile home village at the site with three geologists, two drilling rigs crews and several other equipment operators.

Under the agreement, Sun-

shine has a six-month lease on the property during which it will perform a minimum of \$50,000 in on-site exploration. If the company feels further mining activity is warranted it will have three years in which to spend another \$1.5 million or erect a mill and bring the property into production at the rate of at least 100 tons per day.

This will give Sunshine 60 per cent interest in the Silver Star mine with Quantex retaining a 40 per cent carried working interest in the property.

Under the agreement between Quantex and Sunshine, Sunshine may recover its investment out of first production at the rate of 90 per cent of the net profits until repaid.



### Property Comments

Subsequent to talking to Don Laub, I called Manning Cox, who made a visit to the property last fall. Some of the following are his, as well as my interpretations.

### Mineralization & General Comments

The silver values are fairly evenly distributed throughout the vein and appear to be predominately argentite and native silver, which should be easy to mill by flotation.

The host rock is quartz, argillite and altered limestone. Some of the sections are highly sheared and contain some black shaley carbonaceous material. The wall rock is argillite and may present a mining problem because of its softness.

Cox and I agree that there is something wrong with Hole EM-1. We believe it missed the major structure. It doesn't seem very probable that a structure this strong would disappear at that shallow depth. However, there is a possibility it could be down faulted or a thrust fault may have cut it off at a shallow depth.

Hole EM-1 was drilled  $-59^{\circ}$  S  $48^{\circ}$  E into the vein structure, which strikes  $N45-50^{\circ}$ E. It was surveyed as follows:

400' -  $72^{\circ}$   
500' -  $70^{\circ}$   
600' -  $70^{\circ}$

Holes Q-1, Q-2, and Q-3 were not surveyed, but it is believed they were drilled fairly accurately. This would have to be verified. They hit water in hole Q-3, but none in the other two holes up section.

Mr. Cox recommends that a drift be run in to test the structure and values because drilling can be somewhat unreliable. I would disagree with this at the present and suggest at least 4 or 5 holes be drilled before going underground.

He did mention he thought the report was very accurate and was very much impressed with the property.

Submitted by:



Thomas F. Miller  
Exploration Geologist

## MEMORANDUM

To: D. C. Long

DATE April 20, 1972

FROM R. A. Forrest

SUBJECT Summary of Activities at Silver Star, Elko  
County, Nevada

- I. The Silver Star Property was visited by Dan Avery and myself on March 27th thru April 8th, 1972.
- II. Sufficient evidence exists on the property to warrant the proposed exploration concentrating on a secondary enrichment blanket.
- III. Work completed on the property consisted of:
  - A. Opening up 4 trench exposures on the vein showing a 20 to 30 foot structure.
  - B. Collection of 38 cut samples across the vein in these trenches and in the main pit area.
  - C. Collection of 275 geochem soil samples across the vein on 10 traverses.
  - D. Logging of all non-ore core and old BQ hole near QS-3. (Excludes core of EM-1).
  - E. Talked with A. O. Taylor of Quantex regarding known work and future exploration.
  - F. Recon of vein extension with indifferent results.
  - G. Sampling of rotary drill hole #8 at 5 foot intervals.
- IV. Future geologic work will be directed toward detecting similar oxidized ore shoots along vein extensions by trenching and geochemistry.

  
R. A. Forrest

RAF/rp



## MEMORANDUM

To: D. C. LongDATE April 12, 1972FROM R. A. ForrestSUBJECT Re: Silver Star Project

The Silver Star property, Elko County, Nevada was examined in accompaniment of Dan Avery for a two week period commencing March 17th, 1972 through April 8th, 1972. The object was predominately reconnaissance in nature though some preliminary detailed work was also completed. The property shows sufficient evidence of significant mineralization to warrant the large expenditures of the previously designed exploration program so long as the project is aimed exclusively at a very poorly delineated, but definite, secondary enrichment zone. The following text presents the authors observations and opinions which are at best quite tentative at this time.

Geology

Geology in the immediate vicinity of the Silver Star structure appears quite uncomplicated. Thrusting in adjacent areas, however, destroys the simplicity producing an intricate pattern of folded and faulted sedimentary beds. The Regional Geologic situation was beyond the scope of this investigation but one may refer to Riva's G.S.A. paper as well as previous reports by Quantex for somewhat complete descriptions.

The Silver Star fault zone appears to be a regional, major geologic structure measurable in miles. The zone as shown in numerous trenches and cuts averages between 25 to 30 feet in width and is remarkably straight and continuous along strike for the major part of its exposed strike length. The vein itself can be traced only on the northeast end of the Silver Star claims, however, the fault structure extends well onto the Harbaugh claims way off to the Northeast. However, to the Southwest tracking is much more difficult though the zone is undoubtedly present. Thrust faults may sporadically show up as silicified zones which can be traced for miles. These silicified zones may perhaps contain some precious metal enrichment.

The Silver Star vein is heavily oxidized and does not outcrop over most of its known length. A small area near DDH QS-3 shows the only known natural exposure of the vein. At this locale approximately 15' of blocky, well-fractured milky quartz outcrops on a small knoll with sparse but persistent shows of copper carbonates and antimony oxides. Man-made exposures show the vein consisting of from 0 to 20 feet of well fractured quartz, 2 to 15 feet of white oxidized rhyolite, and variable quantities of wall rock and gouge. Primary mineralization was predominately limited to the quartz areas though the rhyolite may carry small portions of pyrite and chalcopyrite. The vast quantity of mineralization opened up to date has been oxidized giving a wide variety of lead, copper, silver, antimony, arsenic and sulfur secondary derivatives. Primary mineralization, located in distinct shoots, consists

## MEMORANDUM

To: \_\_\_\_\_

DATE April 12, 1972

FROM \_\_\_\_\_

SUBJECT Re: Silver Star Project

of argentiferous galena with lesser quantities of sphalerite, argentite, tetrahedrite and chalcopyrite in a gangue of quartz, carbonate and pyrite. This would suggest an epithermal condition of formation not giving much hope for deep extensions of widespread primary mineralization. The three Quantex Diamond Drill holes indicate that a secondary silver enrichment blanket lies directly below the known exposures of oxidized copper and lead mineralization. Apparently excellent correlation exists between exposed oxide mineralization and the underlying silver enrichment. Surface exploration should focus on delineating these areas of oxidized lead and copper minerals with follow up shallow drilling for a secondary blanket zone. Primary mineralization seemed to have preferred a footwall quartz strand over the majority of the vein structure and seems also to have been involved in post-mineral faulting. Many episodes of movement and perhaps mineralization are recorded by various breccias and gouge zones overlying one another, however the rhyolite appears to have been generally unaffected by heavy gouge and breccia formation associated with the numerous fault movements. Secondary enrichment on the contrary shows a stronger occurrence in the hanging wall of the structure definitely preferring the black, graphitic highly carbonaceous material of the Agort Formation over the not-so-carbonaceous but pyritic footwall Noh formation. Localization of Silver deposition seems controlled more by abundant carbon than proximity to other sulfides such as pyrite. Pyrite may, however, play a minor role in silver deposition within the Noh formation. Secondary silver mineralization consists most obviously of native silver as flecks, rosettes, wires and blebs probably with associated with subsidiary quantities of Acanthite ( $\text{Ag}_2\text{S}$ ), polybasite, ruby silvers etc. Secondary supergene mineralization probably is significant 100 feet below the surface and may extend to hundreds of feet deep. It may be expected that the secondary blanket will very roughly conform to the present topography. In the area of DD-Holes QS-1 & 2 oxidized minerals will be found to depths of approximately 100 feet, beyond which silver mineralization will continue down to approximately 510 feet where the present water table will probably signal a rather rapid decline in silver values. Around DDH QS-3 the water table lies about 160 feet below surface and assuming that this is the lowest the water table has ever been in this area then silver values should decrease from a high at about 180 - 200 feet as depth is obtained. Oxidation also probably extends to the 100-foot depth, or more, and it is not expected that the oxidized material will ever be extractable ore-grade mineralization. Paleo-water table levels above the present level may give tantalizing high grade blankets isolated at various levels below the main pit area. Fracturing hence porosity and permeability will undoubtedly play an important role in the amount and distribution of secondary mineralization below oxidized outcrops. Secondary silver "veins" may be found fanning out



## MEMORANDUM

To: \_\_\_\_\_

DATE April 12, 1972

FROM \_\_\_\_\_

SUBJECT Re: Silver Star Project

from the main structure on any available fracture system with suitable host rocks and the necessary metalized source area. Primary Cymoid structures curving north off the main quartz veins, apparent carrying higher lead concentrations, may be an important source for high grade secondary enrichment. A. O. Taylor of Quantex suggests that the Cymoid veins will link up with a similar trending parallel vein off to the north of the known structure. More parallel veins do seem indicated but no exposures are presently available other than sparse float concentrations. An enechelon series of main veins at wide intervals also seems possible along the full length of the Silver Star structure.

Exploration

Recent exploration by Sunshine has been purely reconnaissance in nature, Generally observing, terrain, geology, trench exposures, etc. Trench channel sampling and geochemical sample collection has been accomplished but returns are not available at this date.

Previous attempts at geophysics by other companies on the Silver Star have met with rather indifferent success. Electromagnetic produced anomalies over heavily faulted areas and the pyritic-graphite zones of the Agort formation but did little to delineate ore-bearing areas. Ground magnetics apparently has little response and aeromagnetism produces no regional or local anomalies except over the Contact granodiorite batholith about 4 miles north. Electrical prospecting techniques are stymied by the abundance of pyrite and graphite in both the foot and hangingwalls of the Silver Star structure. Geophysical prospecting may be effectively eliminated from the Silver Star exploration program.

Geochemical exploration faces some large problems before being effective on delineating Silver Star mineralization. Deep overburden, rapid downslope movement and harsh climatic conditions all trend to hinder simple accurate application of geochemical techniques. To date, sampling has attempted to 1.) penetrate deep into the overburden with little success and 2.) to sample shallow surface debris which may contain rather erratic results. Our present geochemical hopes lie with the shallow surface sampling which could give erroneous results due to pervasive downslope movement. This technique may not delineate the exact vein location but could perhaps give its approximate location within 50 to 75 feet, as well as pointing up hot-spots of weathering, oxide mineralization. Geochemical results have not been obtained at this date. Future geochemical work, assuming it is successful, would rely on line traverses 100 to 200 feet apart with 25-foot sample intervals sampled to a 6" to 8" depth below surface debris. This should sufficiently delineate vein hot-spots with reasonable accuracy.



P. O. Box 1080 KELLOGG, IDAHO 83837

## MEMORANDUM

To: \_\_\_\_\_

DATE April 12, 1972

FROM \_\_\_\_\_

SUBJECT Re: Silver Star Project

Geological exploration not counting diamond drilling or underground development may be rather limited in the Silver Star area due to lack of rock outcrops and virtually no natural vein exposures. A regional geological mapping program is not particularly recommended due to the availability of previous work and the apparent lack of relationship between vein geology and regional thrusting. This, of course, should not exclude regional reconnaissance for similar conditions and mineralization. Local geology would be restricted to detailed investigation of sparse outcrops and comprehensive examination of trenches, pits adits and float concentrations on or adjacent to the vein after a geochemical program is completed. More extensive bulldozer work is warranted across the vein at short regular intervals or even perhaps down the strike of the structure once the vein is definitely located.

Concurrent with the above described projects diamond drilling and eventually underground work will progress on a predetermined independent pattern directed at this early date in an attempt to delineate the limits of mineralization rather than proving or indicating specific tonnages. Wild-cat exploratory drilling on wide vein extensions or other structures will be governed by the results of the suggested geological exploration in conjunction with geochemical expression.

Respectfully submitted,

R. A. Forrest

RAF/mc



HARRY E. SPRINGER  
Inspector of Mines  
Carson City, Nevada  
Telephone 852-7500  
After Office Hours  
Telephone 852-6346



STATE OF NEVADA  
OFFICE OF  
INSPECTOR OF MINES  
CARSON CITY, NEVADA 89701

April 5, 1972

DEPUTY MINE INSPECTOR  
BERNARD YORK  
Fellon-423-3240  
ASSISTANT MINE INSPECTOR  
THOMAS J. GREEN  
Elko-289-4588  
CHIEF ASSISTANT  
ELAINE C. SARNOWSKI

Sunshine Mining Company  
Kellogg, Idaho 83837

Gentlemen:

It has come to my attention that you have started a mining operation.

I am enclosing our Mine Report, Form 3, which Nevada law requires an operator to submit to this office commencing a mining operation of any type in this state. Please complete and return one copy to this office at your earliest convenience.

Under separate cover I am sending you Bulletin number 2, a supply of accident report forms and the "Health and Safety Standards".

Thank you for your cooperation in this matter.

Sincerely,

HARRY E. SPRINGER  
State Inspector of Mines

HES: ecs  
Encl.  
Sep. Cover.



QUANTEX CORPORATION

GEOLOGY AND PRELIMINARY EXPLORATION RESULTS

SILVER STAR PROPERTY

ELKO COUNTY, NEVADA

By

D. C. Laub

A. O. Taylor



## TABLE OF CONTENTS

	Page
<u>Introduction</u> -----	1
<u>Location and Accessibility</u> -----	1
<u>Topography and Climate</u> -----	2
<u>Ownership</u> -----	2
<u>History and Production</u> -----	3
<u>Geology</u> -----	4
<u>Silver Star Fault Structure</u> -----	6
<u>Recent Exploration</u> -----	8
<u>Larios and Detweiler</u> -----	8
<u>Norandex</u> -----	9
J.E.M. Survey -----	9
Geochemistry -----	10
<u>Quantex</u> -----	10
Rotary Drilling -----	10
Core Drilling -----	11
Results -----	12
<u>Ore Reserves</u> -----	14
Measured -----	14
Indicated -----	14
Inferred -----	15
<u>Stripping Possibilities</u> -----	15
<u>Conclusions and Recommendations</u> -----	16

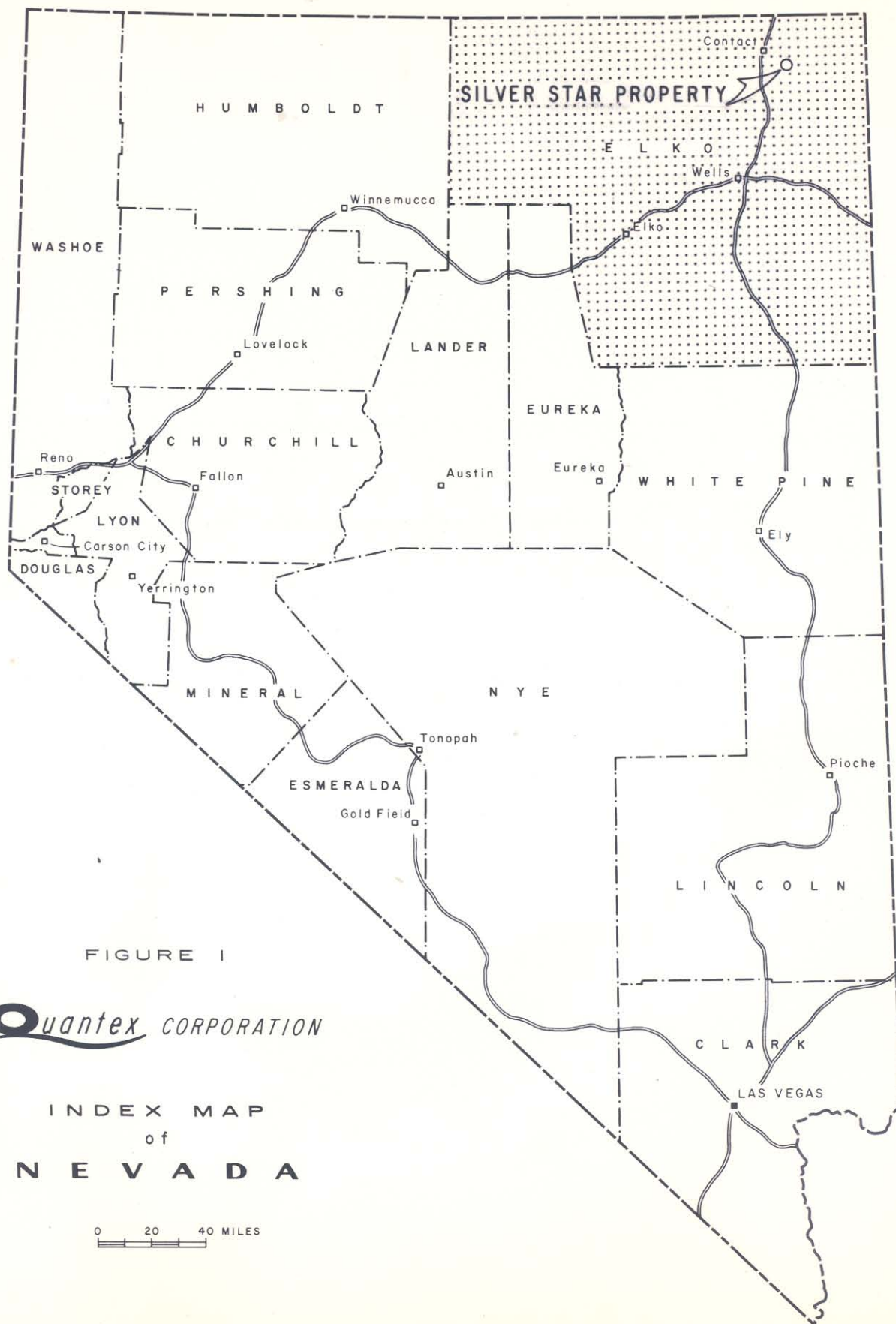


FIGURE 1

**Quantex** CORPORATION

INDEX MAP  
of  
**NEVADA**

0 20 40 MILES



QUANTEX CORPORATION  
GEOLOGY AND PRELIMINARY EXPLORATION RESULTS  
SILVER STAR PROPERTY  
ELKO COUNTY, NEVADA

Introduction

Silver mineralization has been known at the Silver Star property since 1885 when it was known as the Kratz Mine and later as the Silver King Mine, Schrader 1934. Although the mineralized structure extends over a strike length exceeding 4,000 feet with widths ranging from 15 to 35 feet at surface exposures, past exploration attempts have not explored the vein beyond a depth of 50 to 100 feet.

Quantex Corporation acquired a lease on the property in June, 1971 and completed an initial rotary and diamond drilling program during the summer and fall months, the results of which are reported herein.

Location and Accessibility

The Silver Star property consists of 96 unpatented mining claims including one unpatented mill site claim, figure 2. The claims are in Townships 43 and 44 North, Range 65 East, MDB & M, Kit Carson Mining District, Elko County, Nevada, figure 1.

The property can be reached via about 9 miles of county road and two miles of unimproved road by traveling east from U. S. Highway 93 at a point 39 miles north of Wells, Nevada, the nearest town. U. S. Highway 93 is paralleled by the railroad and electric power transmission lines. Salt Lake City, Utah is the nearest regional supply point for mining equipment and supplies.

The claims are on a northwest facing slope in the north central part of the HD Range at elevations of 7,500 to 8,500 feet.

#### Topography and Climate

The HD Range is made up of moderate to steep slopes and drainages breaking off from a north-northeasterly trending undulating ridge that forms the backbone of the range. The range is virtually treeless and vegetation consists of annual and perennial grasses, shrubs and alpine flowers. The area probably receives 15 to 20 inches of moisture annually. No unusual difficulties are expected in obtaining water supplies for mining and milling purposes. Year-around mining operations can be undertaken with no particular problem other than labor and the necessity of plowing drift snow from access roads from time to time in the winter months.

#### Ownership

The Silver Star and other claims (figure 2) are held by location by George and John Detweiler, Jule Larios, et al. of Twin Falls, Idaho. The Elko County records reflect filing of annual assessment work affidavits starting in 1963 and continuing through 1971. Annual assessment work for the year ending September 1, 1972 has been completed. Field inspection shows that the claims are well monumented with round 5 to 6 inch posts. No adverse or conflicting locations have been found.

Quantex Corporation acquired a 20 year mining lease on the Silver Star property in June of 1971. The lease terms require payment of \$25,000.00 per year as minimum advance royalty beginning in December, 1972 or payment of 5% of net smelter returns, whichever is greater.



Master title plats of the Bureau of Land Management (figure 2) show State school selection lands belonging to the Salmon River Cattlemens Association. At this time it is not clear whether the SS land selections conveyed both surface and minerals. In any event, none of the lands in question are in conflict with the known or reasonably projectable extent of the Silver Star mineralized structure. A title company has been employed to examine the granting clauses of the SS selection lands.

#### History and Production

The mineralized structure on the Silver Star property extends over a known length of more than 4,000 feet and has been known since 1885, Schrader, 1934. Past operators are believed to have shipped small amounts of high grade ore from shallow surface shafts and drifts where erosion happened to expose mineralized croppings. The only known recorded production was in 1965 by affiliates of present owners. Three cars of ore totaling 163 tons were shipped from an open cut working above the intercepts of DDH QS-1 and QS-2, Plate 1. Two cars of mine run ore (90 tons) averaged 4 ounces silver, 4% lead and trace gold and copper with a total of less than 1% arsenic and antimony. The third car (sorted, 73 tons) assayed 0.11 ounces gold, 9.6 ounces silver, 11.6% lead and trace copper. All of the ore shipped was oxidized and contained some zinc, antimony and manganese as well as a high insoluble content and iron.

Examination of the available surface exposures in the open cut indicate that the principal oxide lead mineral is pyromorphite with lesser amounts of cerussite and anglesite. Copper is sparingly present as azurite. Silver minerals present may be argentojarosite, cerargyrite and other indefinite oxide minerals such as silver bearing manganese oxides. The residual stockpile from car number

three contained essentially the same amount of silver and lead and much higher copper, suggesting the difficulty of sorting ores mined from the oxide zone.

The net result of past exploration efforts is that less than 5% of the volumetric possible content of the Silver Star mineralized structure was explored within a vertical range of 400 feet and, in fact, all of the effort was devoted to surficial openings less than 100 feet in depth.

### Geology

The HD Range, in its northern portion, is composed of a sequence of Paleozoic eugeosynclinal formations deposited more or less near the axis of the Cordilleran geosyncline. The formations were apparently first mobilized and moved in an allochthonous sequence to the east and southeast in late Devonian or Mississippian time over predominantly carbonate rocks of shelf and near shore facies. Toward the south end of the HD Range, rocks that have been assigned to the Chainman shale of Mississippian age probably belong to the autochthonous shelf sequence, Riva, 1970. North and west of the HD Range a series of formations of Permian age have also been assigned to the autochthon by Riva.

In middle Jurassic time the Contact pluton, which is of batholithic dimensions, invaded rocks of the autochthon and perhaps the allochthon on an east-west axis and produced deposits of copper, silver and gold in fissure veins within the intrusion and in contact metamorphosed rocks around its perimeter, Schrader, 1914, 1934. The pluton has been assigned an age of 150-160 million years by potassium-argon and lead-alpha methods by Coats and others, 1965, both results indicating a middle Jurassic age. The Contact



pluton's nearest exposed contact to the Silver Star structure is about 3 miles to the north.

Riva suggests that all of the already allochthonous rocks in the HD Range were moved southeastward in early Mesozoic time and then moved into their present position during a later and unrelated tectonic episode.

Following the periods of intricate thrust faulting and folding the rocks of the HD Range were folded into a broad northerly plunging anticline trending about N 20 E. Cross faults striking NE and NW appear to have been formed during this period of folding. The Silver Star structure is a prominent representative of NE cross faulting. The age of this period of folding appears to be Tertiary because basal members of the Humboldt formation have been involved in folding with the Paleozoic rocks of the HD Range and have finally been block faulted against Paleozoic rocks by normal faults of basin - range character. In addition, two inconclusive exposures suggest that rocks of Paleozoic age may have been involved in thrust faulting over basal members of the Humboldt formation indicating a Tertiary period of compression, folding and faulting.

For the foregoing reasons the age of silver and base metal mineralization in the Silver Star structure is assigned to the Tertiary.

The Paleozoic rocks in the immediate vicinity of the Silver Star structure are composed of carbonaceous cherts, shales, quartzites, siltstones, sandstones and a few thin, discontinuous beds of dolomitic limestone of Ordovician and Silurian age. From oldest to youngest the formations are the Ordovician Valder and Agort formations and the Silurian Noh formation, plate 1.

The Valder formation contains discontinuous interbeds of altered volcanic rocks composed of siliceous flows and tuffs. All of the Ordovician and Silurian rocks contain disseminated pyrite and pyrite associated with tiny veinlets of quartz and ankerite. The reader is referred to Riva, 1970 for a description of the stratigraphy and age assignments of the Paleozoic rocks in the HD Range.

#### Silver Star Fault Structure

The Silver Star fault structure strikes N 45° to 55° E and dips 70° to 80° northwest within a vertical range of about 300 feet. Where well exposed by past mining operations, the fault zone consists of many strands that cross back and forth from hanging to footwall in braided fashion both in plan and cross section. The width of the fault zone generally varies from 20 to 30 feet but may reach dimensions as large as 65 feet. On the hanging wall in areas of good exposure, cymoid veins curve off from the Silver Star structure in a north to northwesterly direction and dip about 45° northeast. The cymoid veins are well mineralized and contain significantly larger amounts of lead than the Silver Star structure. There is a strong possibility that the cymoid veins rejoin an unexposed and parallel structure still further northwest of the hanging wall of the Silver Star fault zone. Such a structure has never been exposed by surface operations but there is some suggestion of its presence in a few places by mineralized float fragments of quartz and igneous rock.

The Silver Star fault zone is well exposed in only three places:

1. In the open cut near drill holes QS-1 and QS-2.
  2. In surface cuts and a short adit near drill hole QS-3.
  3. In a bulldozer cut near line 64 south.
- The Silver Star structure can be traced northeasterly to a saddle on line 17 south where it is present as a few thin strands of poorly mineralized quartz



and sheared argillite. In between exposures, two old partly caved bulldozer cuts and two electromagnetic crossovers serve to establish the continuity of the Silver Star structure over a length of about 4,700 feet.

The continuity of silver and base metal mineralization within the fault zone is known only in the vicinity of the drill holes and surface cuts. Except in the open cut over drill holes QS-1 and 2, samples taken by others at the surface and in one now inaccessible short adit, range from 1 to 4 ounces silver per ton and minor amounts of lead, zinc, copper, antimony and arsenic. The southwestern 400 feet of the open cut is largely filled but the cars shipped came mainly from this area. A sample taken from the northeast end of the open cut across 22 feet contained 14.5 ounces silver per ton, 22.9% lead and 0.18% copper. The ore minerals in surface exposures are all oxidized except for trace amounts of chalcocite and tetrahedrite and consist of pyromorphite, cerussite, anglesite, azurite and unidentified arsenates and antimonates. Gangue minerals are quartz, pyrite, small amounts of ankerite and rhodochrosite and oxides of iron and manganese.

The sequence of mineralization appears to have been as follows:

1. Early faulting followed by intrusion of acidic igneous dikes (Ta) and deposition of quartz and pyrite.
2. Further faulting and shattering of early quartz followed by deposition of quartz-ankerite veinlets with sulphides of lead, zinc and silver (?) and sulphosalts of lead, antimony, arsenic, copper and silver, and perhaps, native silver.
3. Further faulting and shattering followed by oxidation, leaching and redeposition of native silver, pyrargertite (?) aregentite (?) chalcocite and other unidentified minerals.

Native silver is present in drill holes QS-1, 2 and 3 as small rosettes, wires and plates on fractures and in vugs within approximately 100 feet of the surface in intensely shattered and highly carbonaceous shale, chert and argillite of the Agort formation. It is clear that the silver has been leached and reprecipitated downdip of the Silver Star fault zone. Lead also appears to have been leached and moved to some extent as indicated by the presence of doubly terminated pyromorphite crystals in fractures in drill hole QS-1.

#### Recent Exploration

Larios and Detweiler: Drill Hole EM-1 - Total depth 627' - BX Core-recovery 75% avg.

In 1968 the owners of the Silver Star property, Jule Larios and the Detweilers drilled an inclined diamond drill hole EM-1 (figure 4) hoping to intersect the Silver Star vein at depth. The hole was bottomed at 627 feet in pyritic shales of the Agort formation with no indication of vein material in the core. Consequently, Mr. Sidney S. Alderman of Agricultural and Minerals Inc. was hired to log the core and take a dip survey of the hole. The dip survey indicated the hole started out at  $-59^{\circ}$  and at 400 feet had deviated to  $-72^{\circ}$ . Mr. Alderman's conclusions were "the absence of any mineralized vein material in the drill core under a surface exposure 15 feet wide, and the lack of a significant change in wall rock to explain a sudden degeneration of the structure leads to two possibilities: 1. The vein, at the drill hole intercept has degenerated into a zone of unmineralized gouge which was not recovered in the drill core. 2. The vein is vertical as the dip changes to the southeast at depth, causing the drill hole to miss the structure." Alderman favors the



second interpretation. The first interpretation seems erroneous because Drill Holes QS-1 and QS-2 located 150 feet north and 150 feet south, respectively, of EM-1 encountered ore grade material at depth.

We too favor the second possibility with the addition, that the hole deviated to the northeast parallel to the strike, and this along with additional steepening of dip of the hole resulted in bottoming the hole in the hanging wall of the structure.

Norandex:

On November 1, 1970 the Silver Star property was optioned by Norandex Inc. During the winter months from November to late February a survey grid, a J.E.M. survey, several magnetometer traverses, soil and rock chip geochemistry, trenching and geology were completed by Norandex.

J.E.M. survey:

Preliminary J.E.M. work on the Silver Star property was undertaken by Norandex in August 1970. Four lines approximately perpendicular to the strike of the vein were run. Over the exposed vein slight response was obtained, but immediately to the west, a substantial negative anomaly was encountered (see plate II). The 1:1 ratio of Hi and Lo readings indicated the possibility of a buried zone of massive sulfides.

Consequently, a grid was laid out and nine miles of J.E.M. work was run to better define the anomaly. The anomaly was traced over a length of 8,000 feet but was offset to the east, immediately south of line 48S (plate II).

From dozer cuts and exposures in number three adit, Norandex determined the anomaly was caused by graphitic zones in the Agort formation.

Small amounts of crystalline magnetite were found in the ore stockpile from the pit on the Silver Star No. 1 claim. Consequently, Norandex, using a McPhar M-700 fluxgate magnetometer, ran eight lines over both their J.E.M. anomaly and the known mineralization. Total range of values over the property was less than 250 gammas, with no response over the J.E.M. anomaly or over known mineralization.

Geochemistry:

Eight separate geochemical samples were taken. All samples from each soil profile in the hole were analyzed for trace amounts of silver, copper, lead and zinc. These results suggest that residual soil at the Silver Star is of the thin semi-arid mountain type and is made almost entirely of fragmentally weathered outcrop.

The geochemical samples taken where the vein crops out were anomalous for all values. Extreme variation in soil thickness and frozen ground prevented the use of further soil geochemistry.

The results of Norandex geophysical and geochemical work was inconclusive and neither the geophysical anomalies or the Silver Star vein were drilled. In May 1971, Norandex dropped their option. Shortly thereafter, Quantex Corporation took a mining lease on the property to further explore these possibilities.

Quantex:

Rotary drilling:

In July both rotary and core drilling began on the property. Rotary drilling consisted of 3,100 feet. R.D.H. nos. 4, 5, 6, 7 and 9 were drilled primarily to check our EM 16, and Norandex J.E.M. geophysical anomalies west and northwest of the Silver Star vein (plate I and II). The results of this



drilling indicated the anomalous zones were probably caused by disseminated pyrite in the black shales of the Agort formation. Drill hole R.D.H.-4 with a total depth of 705 feet is the deepest rotary hole on the property.

Rotary drill holes no. 8 and 10 were drilled on the northeast extension of the Silver Star vein where quartz float was exposed in the saddle near line 20S. These holes cut vein material at depth; however, no samples were taken for assay.

#### Core Drilling:

In late June of 1971 three inclined diamond drill hole stations were located along the Silver Star vein. Drill holes QS-1 and 2 were located to intersect the Silver Star vein at moderate depths below the main pit from which 163 tons of ore were shipped in 1965 (plate I).

Drill Hole Q-3, located 2100 feet south of Q-2, was planned to explore the Silver Star vein beneath the mineralized outcrop near the discovery post of the Silver Star No. 3 claim.

The core drilling contract was let to Sprague and Henwood Drilling Company and core drilling began on July 29, 1971 and was completed on October 22, 1971. During this period approximately 900 feet of core drilling was completed using a skid mounted rig with NX wire line core barrel and rods.

Results: The assay results of the core drilling are listed below.

DDH QS-1 (see figure 3)

<u>Interval Assayed</u> (feet)	<u>Thickness</u> (feet)	<u>% Recovery</u>	<u>Au</u> (oz.)	<u>Ag</u> (oz.)	<u>Pb</u> %	<u>Cu</u> %	<u>Zn</u> %
26- 36	10	13	0.02	36.0	2.0	0.138	
101-104	3	70	Tr.	112.7	0.7		
104-114	10	30	Tr.	24.0	0.4		
114-118	4	50	Tr.	39.4	0.7		
118-125	7	70	Tr.	25.0	0.8		
125-159	34	45	Tr.	12.0	0.4	0.012	
159-180	21	45	0.010	33.8	1.4	0.025	

DDH QS-1 deviated and was cemented back to 114 feet and re-drilled.

The results listed below are from the QS-1 called QS-1A to total depth and is included in the average width and thickness of hole QS-1.

DDH QS-1A

<u>Interval Assayed</u> (feet)	<u>Thickness</u> (feet)	<u>% Recovery</u>	<u>Au</u> (oz.)	<u>Ag</u> (oz.)	<u>Pb</u> %	<u>Cu</u> %	<u>Zn</u> %
114-123	9	not available	None	9.4	0.6	None	
123-132	9	--	Tr.	6.2	0.6	None	
132-155	23	--	Tr.	2.8	0.6	0.012	
155-161	6	--	Tr.	15.0	0.6	None	
161-174	13		Tr.	21.3	1.1	0.025	
174-180	6		Tr.	11.9	0.6	0.025	
180-184	4	75	Tr.	0.4	0.05	None	
184-188.5	4.5	100	Tr.	0.4	Tr.		None
188.5-190.5	2.0	100	Tr.	7.4	None		None
190.5-194.5	4.0	100	Tr.	0.3	None		None
194.5-199	4.5	100	Tr.	4.2	None		0.05
199-203	4.0	100	Tr.	19.8	0.8	None	None
203-206	3.0	100	Tr.	11.2	None		0.05

Average grade of hole QS-1 from 101 to 180 = 79 feet of 25.5 oz. Ag.  
Average grade hole QS-1A from 114' to 180' = 66 feet of 9.7 oz. Ag. Average grade of hole QS-1 and 1A is 72.5 feet of 18.4 oz Ag giving a true thickness of 60 feet.



DDH QS-2, 300 feet south of QS-1 (figure 5).

<u>Interval Assayed</u> (feet)	<u>Thickness</u> (feet)	<u>% Recovery</u>	<u>Au</u> (oz.)	<u>Ag</u> (oz.)	<u>Pb</u> %	<u>Cu</u> %	<u>Zn</u> %
105-115	10	not available	--	1.34	0.50	None	
225-238	13	95%	--	18.78	0.50	0.006	
238-244	6	100%	Tr.	34.50	2.0	0.025	
244-248	4	100%	0.30	25.30	4.60		4.1
248-252	4	98%	Tr.	18.0	0.70		
252-254	2	100%	--	5.48	0.50	None	

Average grade of hole QS-2 from 225' - 252' = 27 feet of 23.5 oz. Ag resulting in a true thickness of 20 feet.

DDH QS-3, located 2100 feet south of QS-2 (see figure 6).

<u>Interval Assayed</u> (feet)	<u>Thickness</u> (feet)	<u>% Recovery</u>	<u>Au</u> (oz.)	<u>Ag</u> (oz.)	<u>Pb</u> %	<u>Cu</u> %	<u>Zn</u> %
50- 60	10	not available	0.44	0.44	Tr.		Tr.
60- 79	19	"		0.04	None		None
79-106	27	"		0.06	"		"
106-119	13	"		0.04	"		Tr.
119-127	8	"		0.04	"		None
127-160	33	"		0.02	"		"
160-204	44	"		0.02	"		"
204-220	16	"		0.02	"		"
220-227	7	"		0.08	"		0.2
227-231	4	75	Tr.	30.40	"	None	0.3
231-237	6	80		23.72	"		None
237-242	5	50		30.50	"	0.025	"
242-247	5	100		8.10	"	0.006	"
247-250	3	100		35.88	"	0.012	"
250-258	8	70		20.32	"	0.006	"
258-263	5	90		18.76	"	None	"
263-271	8	85		9.80	Tr.	0.044	0.8
271-280	9	100		4.52	0.30	0.018	0.1
280-289	9	not available		8.14	None	0.012	0.3
289-300	11	"		0.22	None	0.006	None

Average grade of hole from 227' - 263' = 36 feet of 228 oz. Ag or 227-289 = 62 feet of 16.3 oz. Ag resulting in a true thickness of 27 feet and 50 feet respectively.

### Ore Reserves

Ore reserves were calculated in the area of drill holes QS-1 and QS-2 and Cerro Corporation's surface sample no. 154 which assayed 22 feet of 14.5 oz. Ag and 22.9% Pb.

For measured ore the triangular method using the formula

$$\frac{1}{2} B \times H = \text{Area} \quad \frac{\text{Area} \times \text{average thickness}}{13.5 \text{ cu. ft./ton}} = \text{Tons}$$

was used.

Measured:

The factor 13.5 is a constant, representing the number of cubic feet of rock per short ton.

QS-1 - 60 feet of 18.4 oz. Ag Ton  
QS-2 - 20 feet of 23.5 oz. Ag Ton

#154 22 feet of 14.5 oz. Ag Ton  
Average thickness and grade 34 feet of 18.5 oz. Ag.

$$\frac{105' \times 310' \times 34'}{13.5} = 82,000 \text{ tons measured ore}$$

This block is classed as measured reserves since the ore has been sampled on at least three sides.

Indicated:

Assuming the average grade and thickness extends 150 feet north and south of QS-1 and QS-2 and an additional 150 of depth, thence

$$\frac{600' \times 400' \times 34'}{13.5 \text{ cu. ft. Ton}} = 600,000 \text{ tons} - 82,000 \text{ tons} = 518,000 \text{ tons of 18.5 oz. Ag}$$



Inferred:

The inferred reserves are based on several assumptions:

1. That the 2100 feet of strike length between hole Q-2 and Q-3 contains an average vein width of 23.5 feet. 2. That the Silver Star vein is mineralized to a depth of 275 feet. 3. That the grade of ore will average 18.5 oz. Ag per ton. Thence

$$\frac{2100 \times 175 \times 23.5}{13.5} = 625,000 \text{ tons of 18.5 oz. Ag}$$

Measured	82,500 tons of 18.5 oz. Ag per ton
Indicated	518,000 tons of 18.5 oz. Ag per ton
Inferred	<u>625,000</u> tons of 18.5 oz. Ag per ton

Total 1,225,500 tons of 18.5 oz. Ag per ton

The above reserve figures are purely hypothetical and should not be construed to be the final tonnage. Additional drilling will be required both along strike and down dip of the vein to substantiate or refute these figures.

#### Stripping Possibilities

Because of the thickness of ore between hole QS-1 and QS-2 some thought was given to mining open pit methods to the shallow brecciated and oxidized portion of the vein to a depth of 200 feet.

The strip ratio was based on the following assumptions: 1. That the area along strike between line 32S and 40S (plate I) be stripped to a depth of 200 feet. 2. That pit walls have a 62° slope thence a total of 670,000 yards of material would be removed to expose 400,000 tons of ore for a strip ratio of 1.7 yards to 1 ton of ore.



### Conclusions and Recommendations

Phase one of the exploration program on the Silver Star property was completed October 22, 1971 resulting in 3,100 feet of rotary hole and three inclined diamond drill holes on the Silver Star vein comprising 900 feet of core.

The rotary drill cuttings were not assayed but were examined in the field. They tend to support the theory that the E.M. 6 and J.E.M. anomalies present at shallow depths were caused by graphitic zones and disseminated pyrite in the Agort formation.

The core drilling on the Silver Star vein indicate the possibility of a major silver ore body along this structure. The direct results of this drilling has been to define a mineralized structure that may extend for 2400 feet along strike and to a depth of 270 feet with an average thickness of 35 feet. The average grade of ore from drill hole information appears to be about 22 ounces of silver per ton with some values in lead, zinc and antimony.

It is recommended that three additional 300 foot holes be drilled to intersect the vein between QS-2 and QS-3 and an additional three holes be drilled to intersect the vein at depths of about 500 feet in the area of QS-1, 2 and 3. This would require a commitment of about 2500 feet of hole at an estimated direct cost of about \$38,000. If this drilling program is successful the reserves shown in the report would be sufficient to warrant a 300 to 500 ton per day mill on the property.



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6000 0002 (1240)

SUNSHINE MINING COMPANY  
SILVER STAR PROJECT  
STATEMENT OF EXPLORATION EXPENDITURES  
MARCH THROUGH NOVEMBER 1972

Project Management

Salary and Overhead	\$10,420.00	
Expenses	<u>2,648.97</u>	\$ 13,068.97

Geology and Geochemistry		
Salaries and Overhead	\$ 8,281.82	
Expenses	<u>1,633.98</u>	9,915.80

Consultant Geologist Fees		1,077.68
Miscellaneous Geological Expenses		154.05
Management and Geology Vehicles		3,750.00
Assaying and Geochemical Analysis		1,291.70

Legal Fees		1,444.80
Royalty to Quantex Corporation		12,500.00

Miscellaneous Labor and Overhead		3,874.11
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Bulldozer Contracts		
Al Osburn	\$ 2,463.25	
Northwest Crane	4,970.00	
Quantex (Road Restoration)	<u>620.00</u>	8,053.25

Housing (80% Incurred by Diamond Drilling)		
Space Rental	\$ 270.00	
Telephone	580.18	
Trailer Expenses, Depreciation	847.81	
Loss on Sale	<u>1,457.19</u>	3,155.18

Diamond Drilling (3993 feet, NQ)		
Labor	\$17,661.50	
Payroll Overhead	6,658.66	
Subsistence	3,267.96	
Vehicle Mileage	4,700.00	
Miscellaneous Charges	1,215.67	
Material Charges	13,548.44	
Mud and Cement	4,606.82	
Water System	5,479.23	
Capital Assessments:		
D. D. Truck	1,902.00	
Rods	<u>1,927.71</u>	60,967.99

TOTAL EXPENDITURES

Credit - 80,000 shares of Quantex Stock		\$119,253.53
@ \$0.15/share		<u>(12,000.00)</u>

TOTAL COST OF SILVER STAR PROJECT	\$107,253.53
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SILVER STAR PROJECT  
DIAMOND DRILLING COSTS  
3993 Feet NQ Core

<u>DIRECT</u>		<u>INDIRECT</u>	
Labor	\$17,661.50	Vehicle Mileage	\$ 4,700.00
Payroll Overhead	6,658.66	Subsistance	3,267.96
Misc. Charges	1,215.67	Housing	2,524.14
Materials	13,548.44	Mud & Cement	4,606.82
Capital Charges:		Water System	<u>5,479.23</u>
Truck	1,902.00		
Rods	<u>1,927.71</u>		\$20,578.15
	\$42,913.98		\$5.15/foot
	\$10.74/foot		

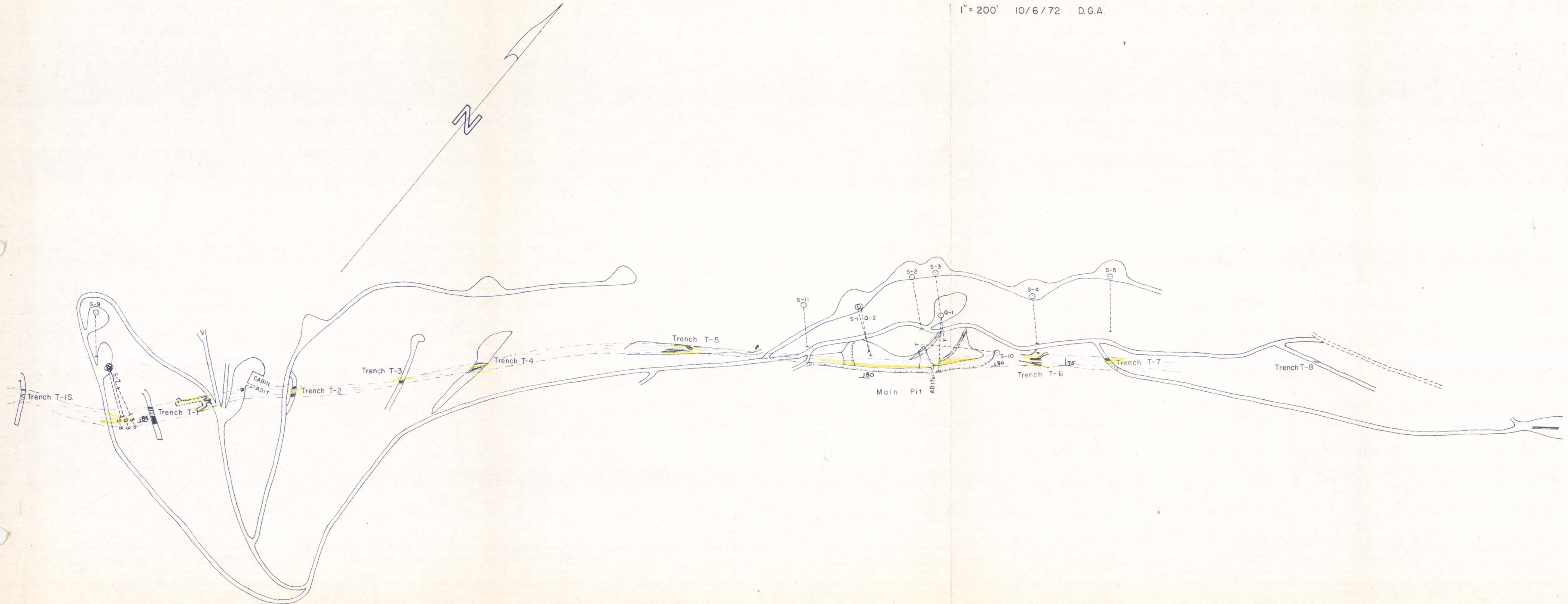
Direct Costs	\$10.74/foot
Indirect Costs	<u>5.15/foot</u>
Total Costs	\$15.89/foot



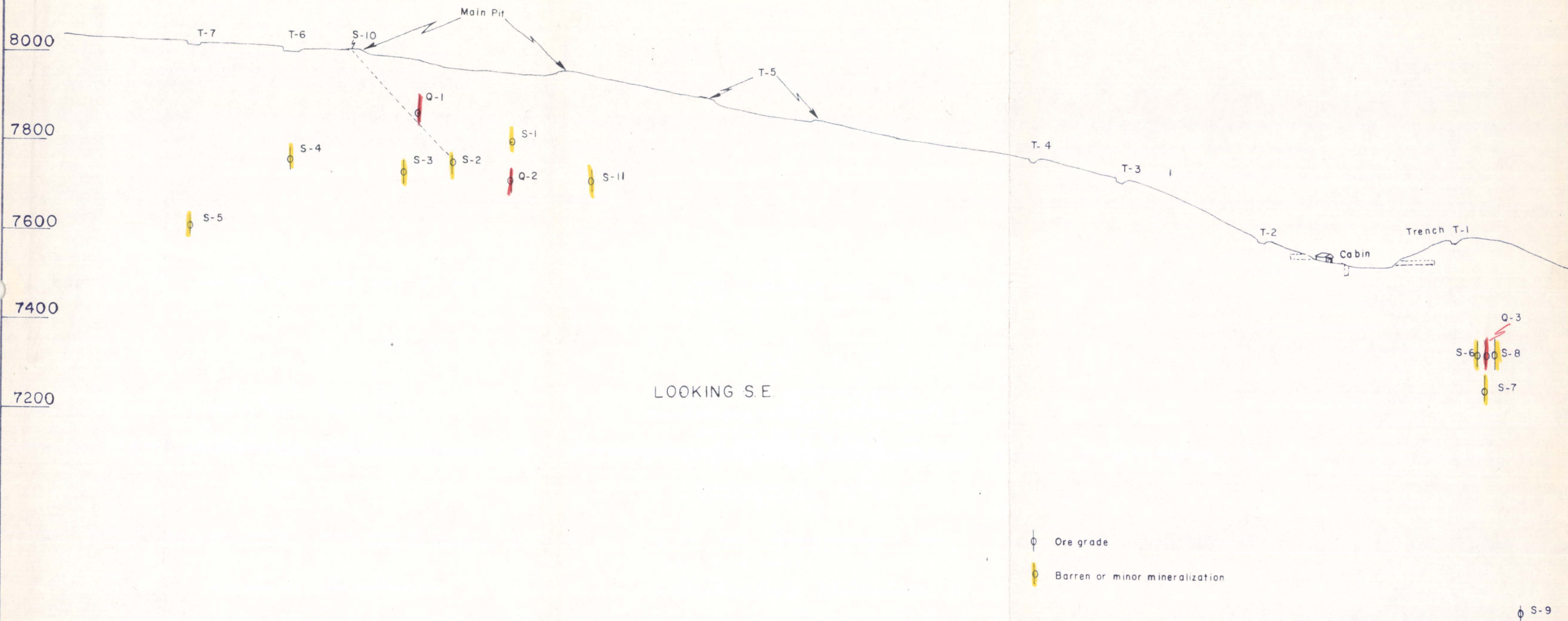
# SILVER STAR PROPERTY

PLAN OF TRENCHING  
& DRILLING

1" = 200' 10/6/72 D.G.A.






**Sunshine Mining Company**

SILVER STAR PROPERTY

LONGITUDINAL SECTION

SHOWING DRILL HOLES

1"=200'

10/8/72

T. F. Miller



36 | 31  
1 | 6  
T.N.S.P. Corner Found  
Marked Rock

31 | 32  
6 | 5

T 44 N. R. 65 E. M.D.B. & M.  
T 43 N. R. 65 E. M.D.B. & M.

New Silver Star Group Number 2, Discription.

A Tract of land located in Sections 32, 33, 4, 5, 6, 7 and 8, T 43 N. R 65 E. and T 44 N. R. 65 E. ELKO County, Nevada.  
The location of The Silver Star Group Number 2 is derived from a Tie to the Corner Common to Sections 1, 6, and 31, 36, T 43 N. R. 65 E. and T 44 N. R. 65 E. M.D.B. and M. bears N. 85° 54' W. 9842 feet from the North West Corner of Silver Star Group Number 1, Claim #8.  
The New Silver Star Group encircles The Silver Star Group No. 1.

Located the North West Corner of Claim #8 and South East Corner of #1, Claim, of The Silver Star Group Number 1, #8 Claim North West Corner is A True point of beginning.  
Thence N. 47° 11' W. 600 feet placing a wooden post with metal tags describing the Claim corner.  
Thence S. 42° 49' W. 7500 feet placing a wooden post with metal tags describing the Claim Centre and Claim Corners every 750 feet.  
Thence S. 47° 11' E. 2400 feet placing a wooden post with metal tags describing Claim Number Corners every 600 feet.  
Thence N. 42° 49' E. 9000 feet placing a wooden post and metal tags describing the Claim Centre and Claim number Corners Every 750 feet.  
Thence N. 47° 11' W. 2400 feet placing a wooden post with metal tags describing the Claim number every 600 feet.  
Thence S. 42° 49' W. 1500 feet placing a wooden post with metal tags describing Claim Centre and Claim every 750 feet.  
Thence S 47° 11' E. 600 feet to the True point of beginning.

Engineers Statement

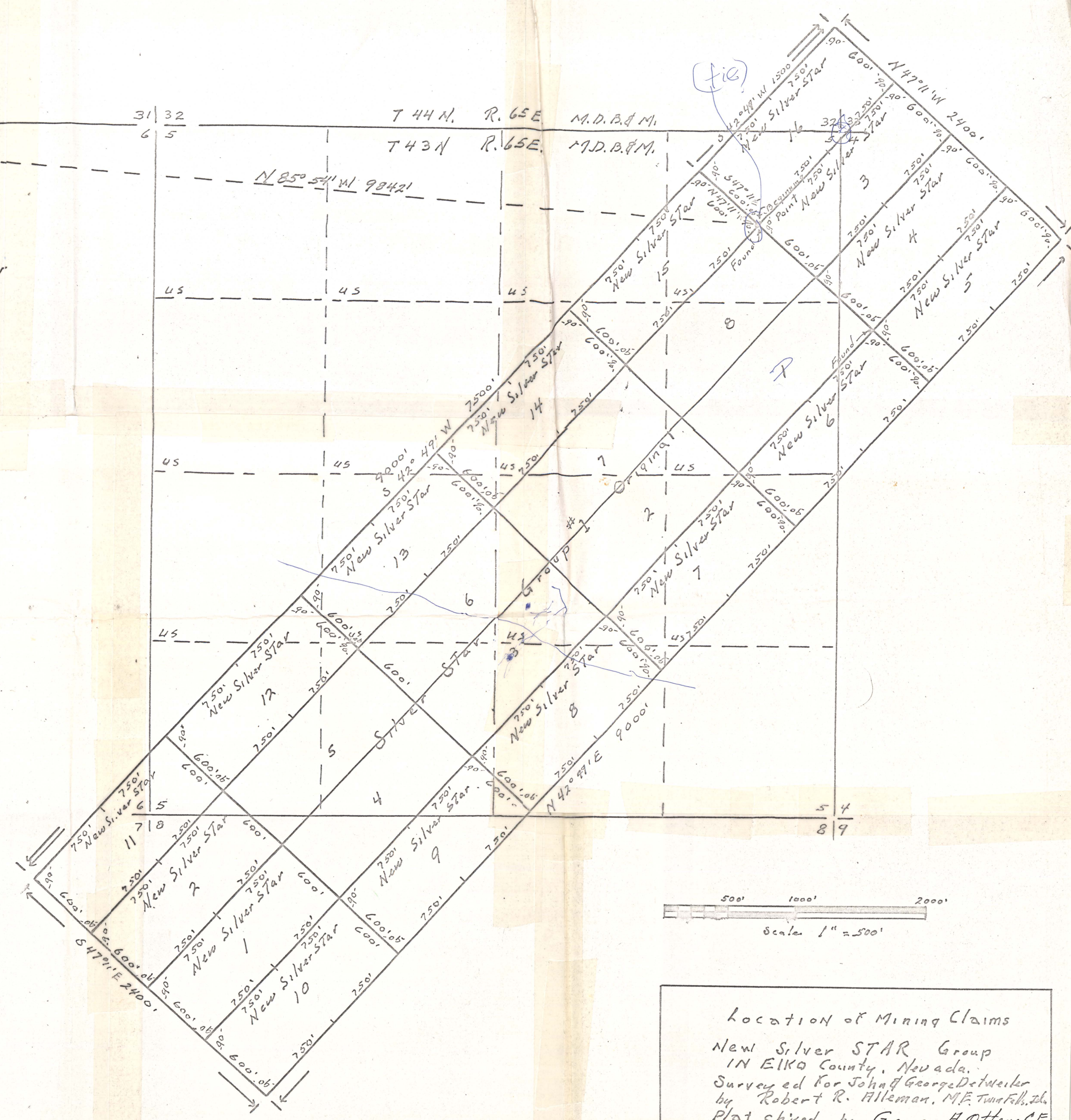
I am the person who caused this Survey to be made for John and George Detweiler.  
I Robert R. Alleman a graduate M.E. personally supervised the field work and platting. It is a true and correct plat as staked out on the ground to the best of my knowledge.

Robert R. Alleman  
659 West Main  
Twin Falls, Idaho.

Sworn and Subscribed to before me, this 27<sup>th</sup> Day of January 1967

Notary Public.

Distances and Angles on this plat were checked by George H. Ottens C.E.



Scale 1" = 500'

Location of Mining Claims  
New Silver STAR Group  
IN ELKO County, Nevada.  
Surveyed for John & George Detweiler  
by Robert R. Alleman, M.E. Twin Falls, Id.  
Plat checked by George H. Ottens C.E.

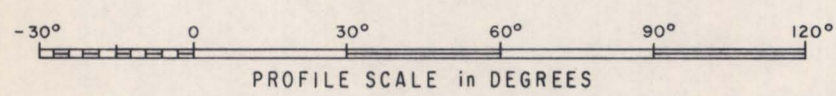


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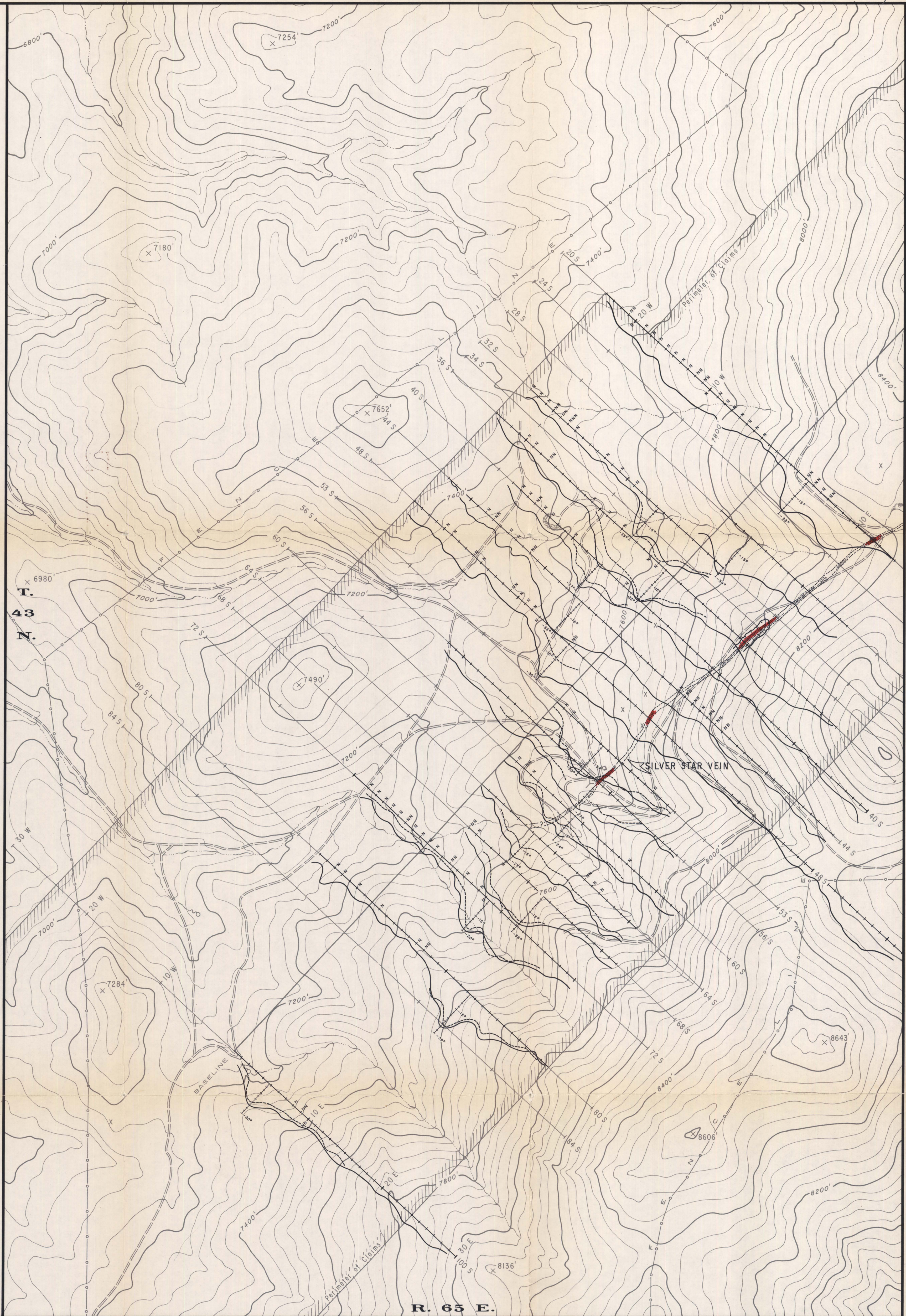
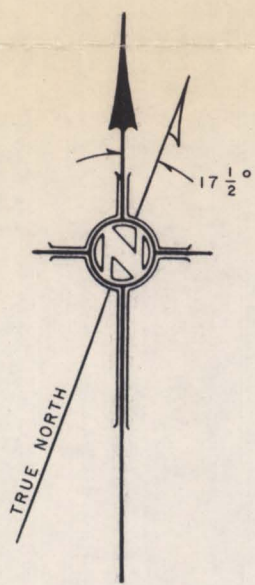
# EXPLANATION

J.E.M. (Crone) DUAL SURVEY - High Frequency  
by NORANDEX INC. (1971)  
J.E.M. (Crone) DUAL SURVEY - Low Frequency  
by NORANDEX INC. (1971)

READINGS - RESULTS in DEGREES  
COIL SPACING - 200 Feet



NOISE LEVELS  
N 5° to 10°  
NN 10° to 15°  
NNN >15°



**Quantex** CORPORATION

## ELECTROMAGNETIC SURVEY SILVER STAR PROPERTY Kit Carson Mining District

ELKO COUNTY

NEVADA

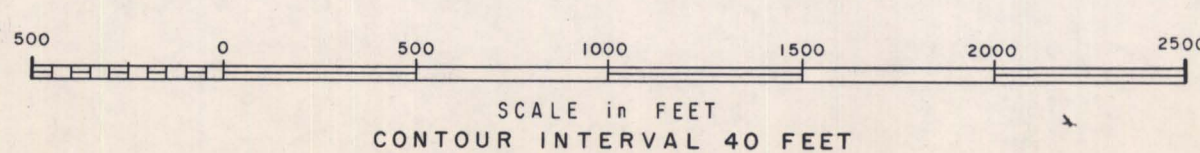


PLATE 2

November, 1971 A.O.T.



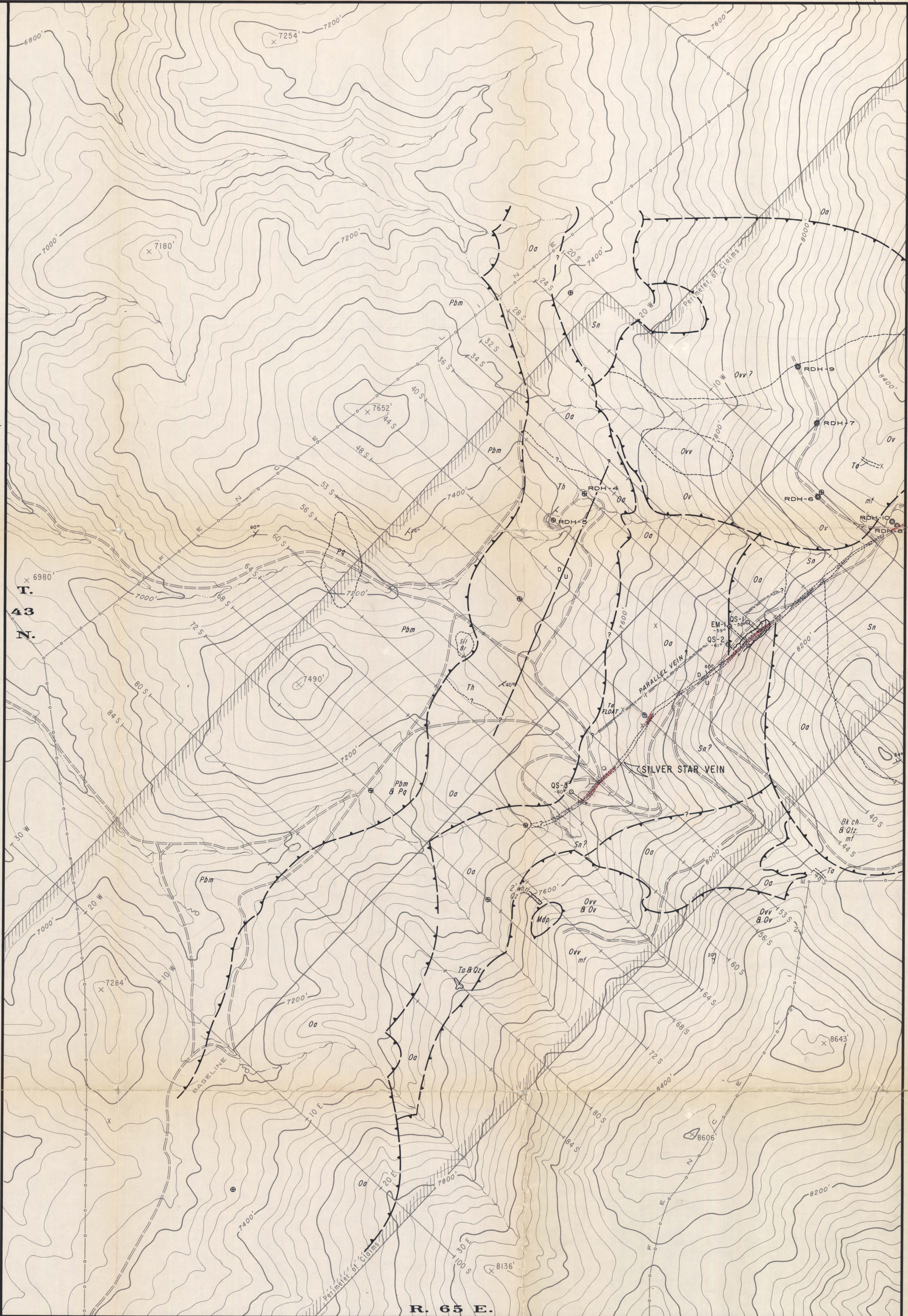
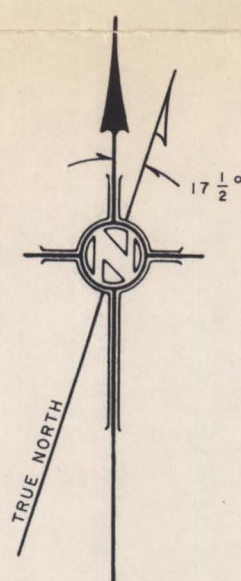
EXPLANATION

ALLOCHTHON	TERTIARY	Th	HUMBOLDT FORMATION
		Ta	ACIDIC DIKES and SILLS
	PERMIAN	UNCONFORMITY	
		Pbm	BUCKSKIN MOUNTAIN FORMATION
	MISSISSIPPIAN	DISCONFORMITY	
		Pq	QUILICI FORMATION
	SILURIAN	UNCONFORMITY	
		Mdp	DIAMOND PEAK FORMATION
	ORDOVICIAN	ANGULAR UNCONFORMITY	
		Sn	NOH FORMATION
		DISCONFORMITY	
		Oa	AGORT FORMATION
		Ov	VALDER FORMATION
		Ovv	Ov, VOLCANICS

mf Mineralized Float

- EMI6 (RonKa) CROSSOVER
- FAULT showing DIP
- THRUST FAULT
- CONTACT
- STRIKE and DIP
- INTERMITTENT STREAM
- UNIMPROVED ROAD
- BULLDOZER CUT

- RDH-4 ROTARY DRILL HOLE
- QS-1 DIAMOND DRILL HOLE



TOPOGRAPHY AND GEOLOGY  
SILVER STAR PROPERTY  
Kit Carson Mining District

ELKO COUNTY

NEVADA

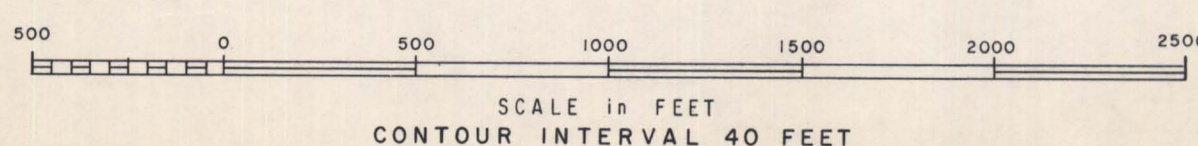
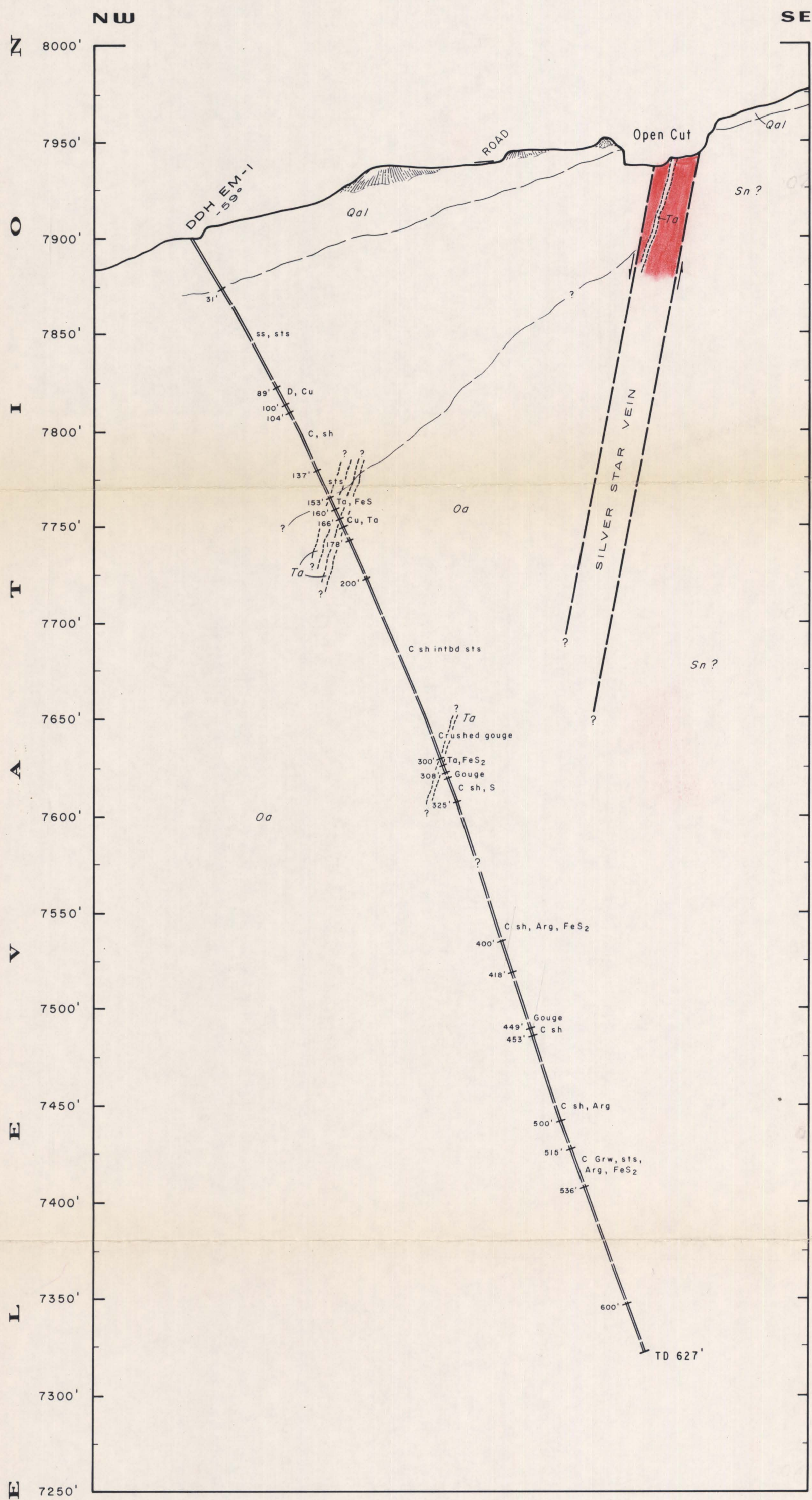


PLATE 1

November, 1971 A.O.T.





- Ta ACIDIC DIKES and SILLS
- Sn NOH FORMATION
- Oa AGORT FORMATION

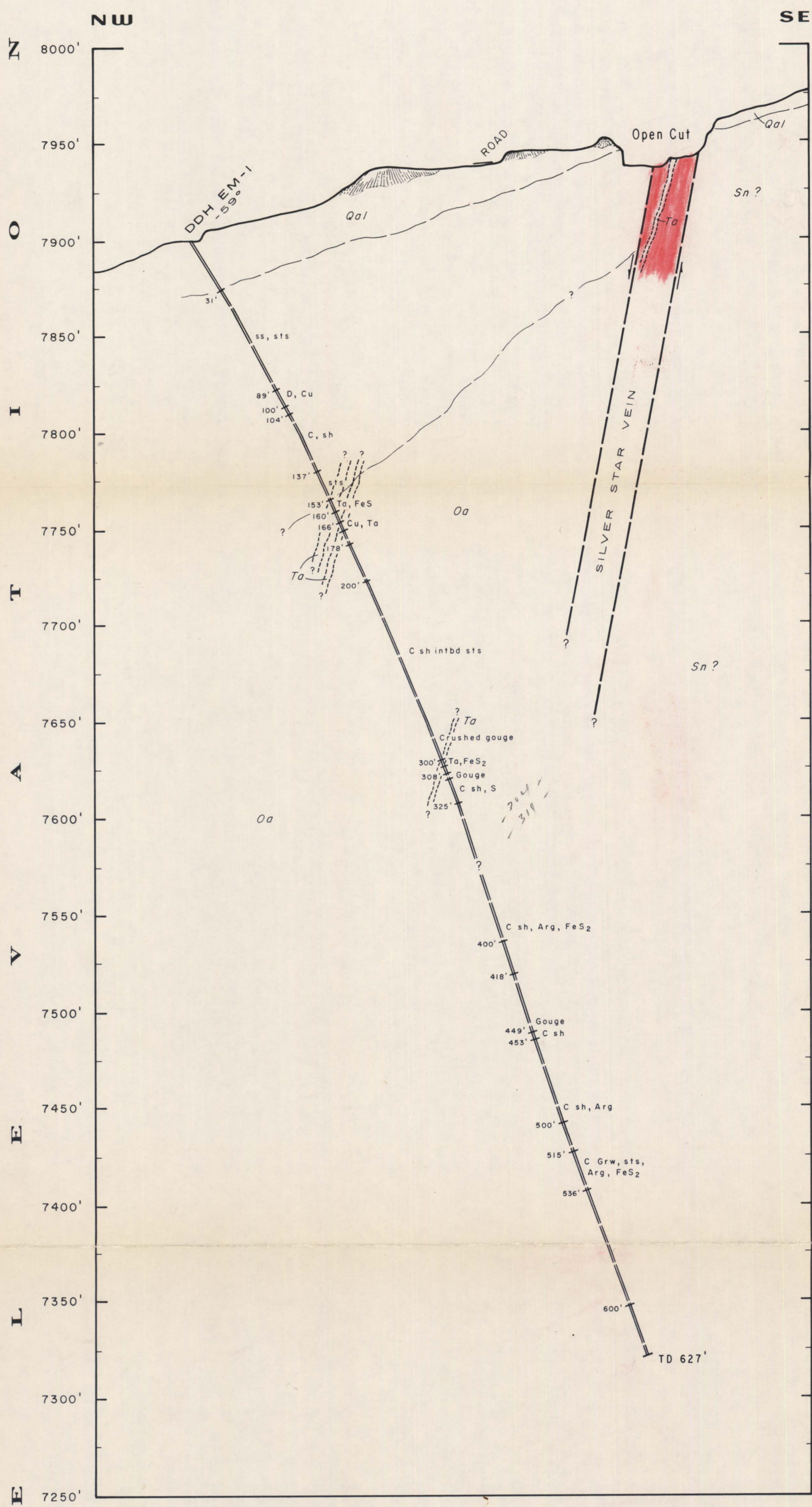
FIGURE 4

**LINE 35+80 SOUTH**  
**DDH EM-1**

**Silver Star Property**  
**ELKO COUNTY NEVADA**







- Ta ACIDIC DIKES and SILLS
- Sn NOH FORMATION
- Oa AGORT FORMATION

FIGURE 4

**LINE 35+80 SOUTH**  
**DDH EM-1**

**Silver Star Property**  
**ELKO COUNTY NEVADA**





6000 0002 (1210)

GRAPHIC CORE LOG HOLE TP 3  
SILVER STAR MINE, ELKO COUNTY, NEVADA

