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MISSOULA PROJECT

The purpose of this project was to explore the Missoula vein at the National 1000 adit level. Over 900 feet above, at the Missoula No. 3 adit level, this vein contains galena and chalcopyrite in a malachite-stained quartz vein; and the new work was directed toward a point directly down-dip from these old showings.

The Missoula crosscut was started from the old face of the main National crosscut, 4600 feet from the portal, on a bearing of North 50° East, and extended to a point about 30 feet north of the Missoula vein, or 5590 feet from the portal. The heading proceeds down-section through hard, massive quartzites in the upper part of the Revett formation. The rocks are quite fresh and strike North 35° to 40° West. Dips are medium-flat, ranging between 35° and 45° Southwest. Other prominent features include strong cross bedding, moderate to strong bedding-plane gouge seams, and narrow quartz stringers parallel to beds. About 5120 feet from the portal a 10 inch barren quartz vein crossing beds was intersected, and this appears to be the Independent vein along which a considerable amount of old work was done to the east on this level.

In the crosscut the Missoula vein shows galena mineralization, to a minor degree, at the footwall of an irregular, partly open shear zone containing weak gouges. Some galena occurs as dissemination in silicified country rock. Quartz is irregular and follows weak shears in the main zone and along branching shears in both walls. Selected specimens from the vein

Geological Report

on

DMA 106-X NATIONAL PROJECT

DAY MINES, INC.

GMC
GARTH M. CROSBY
SENIOR GEOLOGIST

in the crosscut assay 22 ounces of silver per ton and 25 percent lead. No other occurrences of galena were noted during drifting, and in many places only barren shear zone was followed. Strong silicification, and to a lesser degree, sericitization of the wall rocks is common locally, but for the most part the quartzites along the vein are quite fresh. Attitudes of the rocks are little changed from those in the crosscut.

COPPER KING PROJECT

The purpose of this project was to explore the Copper King vein at the National 1000 adit level. Over 350 feet above, in the Copper King No. 3 adit, presently inaccessible, old work had shown lead and copper sulfides near the junction of the National and Sonora faults. A subordinate purpose was accomplished in drifting laterally in the footwall of the National fault between the National and Copper King workings, to allow testing of the structure by drill holes and crosscuts.

The general line of the drive is North55° West, and starts about 4050 feet from the portal. The westward extent of the drive reached to 8990 feet from the portal. Various drifts, crosscuts, and finger raises are in addition to the main line drive, and total perhaps 600 feet. Frequent long holes during the progress of the work aided in the alignment of the drive, and furnished some information about the wall rocks and faults. All of the work, including the diamond drilling, was done in the medium to thin bedded rocks of the lower St. Regis formation. The rocks are well altered, but remnants of the characteristic purple color are common and widely distributed. The regional

attitude of the beds is North 30° West in strike, and about 50° southwest in dip. A few sharp folds were crossed as well as many gentle folds and rolls. Quartz stringers parallel to beds are very common, and at least one such occurrence is notable for its content of sphalerite and galena. It is exposed at about the 5000 foot mark, where quartz stringers mostly parallel to beds are cut for about 200 feet along the drift. Small spots of the lead and zinc sulfides occur irregularly in the quartz stringers, and a hand-picked specimen assayed 1.7 ounces of silver per ton, 0.3 percent lead, 6.3 percent zinc, and 13.0 percent iron. An important feature of the rocks exposed, especially when relatively close to the National or other large faults, is the occurrence of what appears to be chlorite, as paper-thin coatings, along joints and beds. It was noticed that the amount of chlorite increased as the faults were approached.

The National fault was encountered occasionally during the drive toward the target area. In the target area it was crossed twice and drifted along for 125 feet. The structure is characterized by a very heavy, rubbery gouge about one foot thick, and from 5 to 50 feet of shattered, crushed, and sheared rock chiefly at the hanging wall of the gouge. In the drift along the fault galena, pyrite, and chalcopyrite occur disseminated and in discontinuous stringers in silicified rock near the hanging wall of the main gouge seam, but apparently in the fault zone itself. The last few rounds of this heading exposed the Sonora fault zone, and similar mineralization occurs along it. Heavy ground prevented further progress here, and additional lateral work was required to reach the last point at which the structure is

seen. No improvement was noted at this point, and the rock breaking portion of the project was stopped.

In diamond drilling it was established that the mineralization exposed is the same zone worked by the old timers on the Copper King No. 3 level. The weak mineralization exposed by the drift on the National fault and a similar occurrence along the Sonora fault was found to be confined to the very close proximity of the junction of the two structures: Of course, the testing west of the junction is not as complete as that to the east, but in light of the work on the level above it is thought sufficient. Assays in the target area are all shown on the over-lay supplied with the 50-scale maps.

Assays of samples from the bean hole raise, a test hole, and diamond drill core from hole No. 1003 average, across a 55' width, 0.3 ounces of silver per ton, 0.7 percent lead, and 0.1 percent zinc. This zone is shown on the 200 scale map accompanying this report. (The 200 scale map accompanying this report shows the extent of the workings, and the geology.) Other diamond drill holes tested features of the National fault and its splits near the 5000 and 6000 foot points. No important intersections were made, and the project was considered finished.

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1001 | BEARING S 35° W | INCL. Flat | COORDINATES COLLAR 107,678 North, 141,637 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
0-3'	3'0"	1.9'		Quartzite with some interbedded argillite (± 25%). Generally altered to light gray-green color banded with light yellow-green and tan with some dark green chloritic bands. Some remnant purple areas but these are minor and local. Some zones of disseminated, fine grained pyrite, and a black mineral (specularite?). Some areas of quartz veinlets lacing core.	0-35'						
3-5'	2'0"	1.3'				0-5'	--	--	--	3.4	Sludge
5'-5'8	0'8"	0.7'									
5'8 -7'	1'4	1.1'	50°								
7'-8'5	1'5"	0.7'				5'-10'	--	--	--	3.0	
8'5 -10'	1'7"	0.8'	40°								
10'-11'	1'0"	0.9'									
11'-12'	1'0"	1.1'									
12'-12'4"	0'4	0.3'									
12'4"-13'	0'8"	0.6'									
13'-13'6	0'6"	0.5'				10'-15'	--	--	--	3.0	
13'6 -14'10	1'4"	1.1'									
14'10 -16'	1'2"	1.2'									
16'-16'4	0'4"	0.3'		Sheared rock	10'						

cc: Regional
1-13-54

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1001 | BEARING S 35° W | INCL. Flat | COORDINATES COLLAR 107,678 North, 141,697 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
16'4"-18'	1'8"	1.0'									
18'-18'6"	0'6"	0.5'		Small (1), barren quartz stringer at 45° to core	14'	15'-20'	--	--	--	3.5	Sludge
18'6"-20'5"	1'11"	1.0'									
20'5"-22'	1'7"	0.5'									
22'-22'6"	0.6"	0.5'	45°	Small (0.4) barren quartz stringer	15'						
22'6"-23'2"	0'8"	0.4'				20'-25'	--	--	--	3.1	
23'2"-23'7"	0'5"	0.4'									
23'7"-24'4"	0'9"	0.2'									
24'4"-27'	2'8"	0.6'		No core	30'6"-32'6"	25'-30'	--	--	--	3.2	
27'-29'2"	2'2"	0.9'									
29'2"-30'6"	1'4"	0.1'									
30'6"-32'6"	2'0"	--		Soft, clayey to slightly plastic gouge with shearing at 65° to 75° to core. Chlorite and sericite developed on sheares. Quartz,	35'-37'3"	30'-35'	--	--	--	2.5	
32'6"-35'	2'6"	0.2'									
35'-36'	1'0"	0.2'									
36'-37'5"	1'5"	1.4'				35'-40'	--	--	--	2.7	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1001 | BEARING S35° W | INCL. Flat | COORDINATES COLLAR 107,678 North, 141,637 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS					SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
37'5"-41'	3'7"	0.1'		argillite and quartzite chips in the gouge.							
41'-44'	3'0"	0.7'				40'-45'	--	--	--	2.9	Sludge
44'-46'6"	2'6"	0.8'				45'-50'	--	--	--	2.9	"
46'6"-50'	3'6"	0.9'		Altered quartzite with some interbedded argillite (± 10%) beyond 51'. Light greenish gray, with some greenish black chloritic bands, and abundant tan to brown calcareous mottling. Some gouge seams, of which several are very calcareous, and shearing throughout. Quartz with chlorite and some siderite in chips and veinlets throughout.	37'3"-95'						
50'-51'3"	1'3"	0.6'									
51'3"-54'8"	3'5"	1.8'				50'-55'	--	--	--	3.0	"
54'8"-56'9"	2'1"	1.2'				55'-60'	--	--	--	2.9	"
56'9"-60'	3'3"	1.6'									
60'-63'6"	3'6"	0.8'				60'-65'	--	--	--	3.3	"
63'6"-66'	2'6"	0.6'				65'-70'	--	--	--	3.8	"
66'-71'6"	5'6"	1.0'									
71'6"-72'6"	1.0'	1.1'				70'-75'	--	--	--	2.8	"
72'6"-75'	2'6"	1.8'									
75'-76'4"	1'4"	0.5'									

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1001 | BEARING S 35° W | INCL. Flat | COORDINATES COLLAR 107,670 North, 141,637 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS					SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
76'4"-77'8"	1'4"	1.2'				75-80'	--	--	--	2.6	Sludge
77'8"-81'	3'4"	1.1'		Zone of intense alteration and shearing (at 35°-50° to core). Chlorite well developed on partings and disseminated in rock. Quartz blebs and veinlets throughout.	77'-83'	80-85'	--	--	--	2.4	"
81'-82'9"	1'9"	1.3'				85-90'	--	--	--	3.0	"
82'9"-86'	3'3"	1.4'									
86'-87'8"	1'8"	1.2'									
87'8"-89'	1'4"	1.0'									
89'-91'	2'0"	1.6'									
91'-92'	1'0"	1.2'		3" quartz vein with siderite at 65° to core.	90.5'						
92'-93'6"	1'6"	1.1'				90-95'	--	--	--	3.0	"
93'6"-95'	1'6"	1.6'									
95'-100'	5'0"	--		No core	95'-103'	95-100'	--	--	--	2.9	"
100'-103'	3'0"	--				100-107'	--	--	--	2.5	
103'-105'	2'0"	0.1"		Quartz and quartzite chips with some indurated and some clayey gouges.	103-115'	107-115'		--	--	2.4	"
105'-107'6"	2'6"	0.3'				115-120'		--	--	2.4	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1001 | BEARING S 35° W | INCL. Flat | COORDINATES COLLAR 107,673 North, 141,637 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
107'6"-117'7"	10'1"	0.6'	60°								
117'7"-124'	6'5"	2.3'				120-125'		--	--	2.4	Sludge
				Altered light greenish gray quartzite with some inter-	115-167'	125-130'		--	--	2.4	"
124'-131'	7'0"	1.5'		bedded argillite and calcareous argillite. Minor remnant pur-		130-135'		--	--	2.8	"
131'-141'	10'0"	1.5'	70°	ple from 124 to 145', and some local zones of strong brown to		135-140'		--	--	2.3	"
141'-145'8"	4'8"	2.1'	45°	tan banding. Shearing, and some gouges throughout.		140-145'		--	--	6.9	"
145'8"-151'	5'4"	1.2'		Locally sericite well developed, and many zones of pyrite, specularite and chlorite throughout.		145-150'		--	Tr.	3.3	"
151'-156'	5'0"	1.9'		0.4 barren quartz vein at 6° to core	124'	150-155'		--	--	1.6	"
156'-160'6"	4'6	2.7'		"Rusty" quartzite chips with some gouge. (First of EX core. Rust from rods? ?)	141'	155-160'		--	--	3.0	"
160'6"-165'	4'6"	0.7'		Quartzite breccia (?) cemented with quartz and altered with sericite.	151-156'	160-165'		--	--	1.6	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1001 | BEARING S 35° W | INCL. Flat | COORDINATES COLLAR 107,678 North, 141,637 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From	To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
165'	169'	4'0"	2.0'	60°		
169'	173'8"	4'8"	0.3'	60°	Light greenish quartzite with purple banding and interbedded dark purplish gray siliceous argillite. Generally only slightly altered, but locally alteration is intense. Some zones of tan banding, and of disseminated pyrite, specularite, and chlorite. Some chlorite on partings.	167-231'
173'8"	181'5	7'9"	2.6'			
181'5	189'5	8'0"	5.4'	40°		
189'5	195'	5'7"	1.7'			
195'	205'	10'0"	1.5'			
205'	214'6	9'6"	3.3'	45°		
214'6	224'6"	10'0"	8.9'			
224'6"	231'	6'6"	3.3'			

89.9' Recovered (=88.9%)

End of Hole

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
165-170'		--	--	1.4	Sludge
170-175'		--	--	3.1	
175-180'		--	--	1.6	
180-185'		--	--	1.6	
185-190'		--	--	3.0	
190-195'		--	--	1.5	
195-200'		--	--	1.4	
200-205'		--	--	2.3	
205-210'		--	--	2.4	
210-215'		--	--	2.0	
215-220'		--	--	1.5	
220-225'		--	--	2.5	
225-230'		--	--	2.0	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1002 | BEARING N 43° E | INCL. Flat | COORDINATES COLLAR 109,309 North, 139,473 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From	To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe
0	3'	3'0"	1.6'		Altered light gray-green argillite, mottled with tan and light brown. Some remnant purple color in first 28'. Locally fine grained, disseminated pyrite and unidentified black minerals (chlorite and hematite?). Locally well developed chlorite on bedding planes, especially after 28'.	0-46'					
3	8'	5'0"	4.7'	40°							
8	12'	4'0"	4.0'								
12	15'	3'0"	3.0'	50°							
15	18'	3'0"	2.0'								
18	28'	10'0"	4.7'	55°							
28	31'	3'0"	2.8'								
31	32'	1'0"	0.8'	35°?							
32	36'	4'0"	3.4'								
36	42'	6'0"	4.7'	35°							
42	46'	4'0"	2.0'	50°	Brecciated quartz with chlorite, and pyrite, parallel to bedding	28-28½'					
46	51'	5'0"	2.9'								
51	56'	5'0"	2.6'								
56	60'	4'0"	2.3'	45°	Rock relatively fresh. 50%	46-144'	60-70'		--	--	4.9	Sludge

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1002 | BEARING N 49° E | INCL. Flat | COORDINATES COLLAR 109,309 North, 139,473 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
60-66'	6'0"	1.2'		to 80% of rock is purple in color with local steel-gray beds. Local zones of intense alteration, especially noticeable after 91 feet. These altered zones are generally gray-green mottled rock as noted above, and some soft light apple green zones. Some chlorite on partings in altered zones.							
66-67'	1'0"	0.0'				70-80'		--	--	2.9	Sludge
67-73'	6'0"	4.1'									
73-75'	2'0"	2.0'									
75-82'	7'0"	2.8'	50°			80-90'		--	--	2.4	
82-92'	10'0	4.2'									
92-94'	2'0"	0.6'				90-100'		--	--	2.1	
94-99'	5'0"	0.7'				100-110'		--	--	2.7	
99-104'	5'0"	0.7'	15°			110-120'		--	--	3.0	
104-111'	7'0	5.4'	5°								
111-121'	10'0	5.6'		A few small (less than 0.1") quartz veinlets with minor amounts of siderite and chlorite	117-120'	120-130'		--	0.3	3.0	
121-124'	3'0"	3.0'	15°					--	0.3	3.3	
124-130'	6'0"	4.5'				130-140'					
130-140'	10'0"	8.3'	20°								

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1002 | BEARING N 43° E | INCL. Flat | COORDINATES COLLAR 109,309 North, 139,473 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
140-148'	8'0"	4.3'		Generally fresh dark purplish gray siliceous argillite streaked and mottled with tan. Locally altered with well developed chlorite. Bedding contorted locally.	144-199'	140-150'		--	0.2	3.6	Sludge
148-156'	8'0"	2.8'	0°			150-160'		--	0.2	3.0	
156-163'	7'0	5.2'				160-170'		--	Tr.	4.2	
163-173'10"	10'10	5.4'	5°			170-180'		--	--	3.4	
173'10"-185'	11'2"	9.6'									
185'-192'6"	7'6"	6.7'				180-190'		--	--	3.4	
192'6"-200'	7'6"	5.3'	55°?	Interbedded dark gray to dark gray-purple siliceous argillite and greenish gray quartzite. Generally slightly altered with local zones of intense alteration, these being specially prominent beyond 233 feet. Many zones of tan and black mottling throughout.	199-280'	190-200'		--	--	3.4	
200-203'	3'0"	1.1'				200-210'		--	0.45	3.2	
203-205'	2'0"	0.6'				210-220'		--	--	4.1	
205-209'	4'0"	1.1'	5°?			200-209'	--	--	--	2.0	Core
209-219'	10'0"	9.4'				200-225'		--	--	4.1	Sludge
219-225'	6'0	4.7'	15°			225-230'		--	--	3.3	
225-230'10"	5'10	5.0'									
230'10"-236'	5'2"	2.4'				230-235'		--	--	4.1	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1002 | BEARING N 43° E | INCL. Flat | COORDINATES COLLAR 169,309 North, 139,473 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
236-243'	7'0	3.6'		Chlorite well developed locally, and some small (less than 0.1) quartz veinlets throughout.	
243-246'	3'0	2.4'			
246-254'	8'0	2.9'		Bedding often obscure and contorted.	
254-261'	7'0	2.2'			
261-271'	10'0	5.1'			
271-280'	9'0	3.2'		Intensely altered zone, showing mottling and banding of quartz and chlorite, and with irregular blebs of hematite (specularite)	233-237
				Core badly broken. Many chips of sheared rock. Some gouge.	269-271'

168.6' Recovered (=60.2%)

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
235-240'		--	--	3.0	Sludge
240-245'		--	Tr.	3.4	
245-250'		--	--	4.5	
250-255'		--	--	3.2	
255-260'		--	--	4.4	
260-265'		--	0.1	3.9	
265-270'		--	--	4.4	
270-275		--	--	3.6	

End of Hole

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DAY MINES, INC. - DIAMOND DRILL LOG

MINE National PROJECT NO. DMA 106-X LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 BEARING S 57° W INCL. Flat COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

RUN From To	FEET	REC.	OBSERVATIONS BEDS	DESCRIPTIONS	DEPTH	SAMPLES DEPTH	Ag	%Pb	%Zn	%Fe	
0-6'	6'0"	1.9'		Altered, light greenish gray siliceous argillite banded with light yellowish green. Several zones of diss. pyrite and zones of broken core showing quartz and siderite chips.	0-55'	5-10'		--	--	4.6	Sludge
6-11'	5'0"	1.8'				10-15'		--	--	3.2	
11'-13'2"	2'2"	1.1'				15-20'		--	--	3.3	
13'2"-17'4"	4'2"	2.3'				20-25'		--	--	3.3	
17'4"-25'	7'8"	2.6'				25-30'		--	--	3.0	
25'-29'6"	4'6"	1.5'				30-35'		--	--	2.6	
29'6"-31'	1'6"	0.7'				35-40'		--	--	3.3	
31'-35'	4'0"	1.1'				40-45'		--	--	2.2	
35'-40'	5'0"	1.4'	50°?	Core badly broken with gouge near first and shearing throughout. Rock light gray to white quartzite with prominent banding and mottling by white quartz, and fine grained black minerals (pyrite, specularite, chlorite??)	55-59'6"	54.8-60'	--	--	--	1.4	Core
40'-45'9"	5'9"	2.8'				45-50'		--	--	2.0	Sludge
45'9"-54'8"	8'11"	1.5'				60-70'	--	--	--	2.0	Core
54'8"-59'6"	4'10"	0.8'				50-55'		--	--	2.5	Sludge
59'6"-62'6"	3'0"	1.0'				55-60'		--	--	1.4	
62'6"-67'	4'6"	1.2'				60-65'		--	--	2.1	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 19
HOLE NO. 1003 | BEARING S 57° | INCL. Flat | COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From	To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
67'-70'		3'0"	1.2'	72°?		
70'-75'		5'0	4.0'		Light gray to dirty white quartzite, highly silicified and showing dark gray streaks and specks.	59'6 -82'6"
75'-77'		2'0	0.9'			
77'-82'6		5'6	2.4'	35°?	Bedding obscure.	
82'6 -85'		2'6	0.5'		Light gray to gray-purple quartzite, and some interbedded light greenish gray argillite. Generally altered, but less so than before. Some strong disseminated pyrite zones and zones of disseminated fine grained black mineralization (pyrite, specularite, chlorite??)	82'6 -113'
85'-91'		6'0	1.6'			
91'-96'0		5'0	1.9'	35°?		
96'0 -100'		3'4	2.2'			
100'-103'6		3'6	0.9'	40°		

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
65-70'		--	0.1	2.1	Sludge
70-75'		0.2	0.15	2.75	
70-75'	--	0.1	0.15	1.4	Core
75-82'	--	--	--	1.4	
82-85'	0.2	0.75	Tr.	1.3	
75-80'		0.45	0.1	2.65	Sludge
80-85'		--	--	1.9	
85-90'		0.1	--	2.4	
90-95'		--	--	3.3	
95-100'		--	0.1	2.9	
100-105'		--	--	2.8	
105-110'		--	0.1	3.0	
110-115		1.0	--	2.3	
115-120'		0.45	--	1.9	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 | BEARING S 57° W | INCL. Flat | COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
103'6 -106'	2'6	2.4'			
106'-108'	2'0	1.1'		Some small (less than 0.1") quartz veinlets.	
108'-111'	3'0	0.9'			
111'-115'	4'0	1.3'			
115'-122'5	7'5	1.6'		Shattered white quartzite, cemented with dark quartz and chlorite giving an almost crystalline look. Galena disseminated throughout.	115-122'5
122'5 -128'2	5'9	1.4'			
128'2 -136'6	8'4	2.6'			
136'6 -137'6	1'0	0.4'		Light greenish gray to purplish gray, thick bedded, vitreous quartzite, banded and mottled with dark greenish black (chlorite?). Local quartz blebs and some minor zones of disseminated galena.	122'5-154'
137'6 -143'	5'8	4.2'	40°		
143'-147'	4'0	2.0'			
147'-150'	3'0	0.8'			
150'-153'	3'0	1.1'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
120-125'		0.25	--	1.9	Sludge
110-113'	--	0.45	--	1.3	Core
113-118'	0.2	0.65	--	1.7	"
118-123'	--	0.50	--	1.7	"
125-130'		0.2	--	1.65	Sludge
130-135'		--	--	2.65	"
135-140'		--	--	2.0	"
140-145'		--	--	2.65	"
123-128'	--	--	--	1.6	Core
128-135'	--	--	--	1.4	"
135-145'	--	--	--	1.0	"
145-155'	--	--	--	2.5	"
145-150		0.15	--	2.0	Sludge
150-155		--	--	1.9	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 | BEARING S 57° W | INCL. Flat | COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
153'-154'4"	1'4	0.5'			
154'4 -161'10	7'6	1.1'		Light greenish gray to yellowish green altered quartzite. Shattered and sheared with several small gouge streaks. Several zones of medium grained disseminated pyrite, and zones of fine grained black mineralization (pyrite, galena, specularite??). Chlorite well developed locally.	154'-183'
161'10 -164'2	2'4	1.7'			
164'2 -166'3	2'1	1.4'			
166'3 -168'4	2'1	0.7'			
168'4 -174'	5'8	2.0'			
174-176'	2'0	0.5'			
176-182'	6'0	1.7'	45°		
182-191'	9'0	3.0'	55°		
191'-197'10	6'10	1.7'		Slightly altered gray green to purplish gray quartzite with some zones of tan mottling and banding. Some disseminated pyrite, and fine grained black minerals (pyrite,	183'-258'
197'10 -200'	2'2	1.5'			
200'-206'	6'0	2.6'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
155-160'		--	--	2.0	Sludge
160-165'		--	--	3.25	
155-165'	Tr.	--	--	2.3	Core
165-175'	--	--	--	3.0	
175-185'	--	--	--	3.0	
165-170'		0.2	--	1.15	Sludge
170-175'		--	--	2.7	
175-180'		--	--	3.65	
180-185'		--	--	3.8	
185-190'		--	--	4.0	
190-195'		--	--	4.5	
195-200		--	--	3.9	
200-205'		--	--	4.1	
205-210'	-	--	--	4.9	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 | BEARING S 57° W | INCL. Flat | COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
206'-211'	5'0	2.6'		specularite??), but dissemination quite minor.	
211'-219'	8'0	2.4'			
219'-224'	5'0	1.7'	45°		
224'-231'	7'0	2.0'	55°		
231'-236'	5'0	--		No core. Mud reported by drillers.	231'-236'
236'-238'	2'0	1.1'			
238'-242'	4'0	0.8'		Purple to purplish black argillite and siliceous argillite with up to 40% interbedded greenish gray to purplish gray quartzites. Rock in general relatively fresh with local zones of bleaching, banding and mottling. Chlorite common on partings and bedding. Several zones of disseminated pyrite.	250'-378'
242'-246'2	4'2	3.4'	60°		
246'2 -248'	1'10	1.4'			
248'-253'	5'0	1.7'			
253'-256'	3'0	2.3'			
256'-263'	7'0	2.9'			
263'-268'	5'0	1.1'	40°		
268'-276'2	8'2	7.0'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
210-215'		--	--	4.1	Sludge
215-220'		--	--	4.9	
219-224'	--	--	--	4.5	Core
220-225'		--	0.15	4.0	Sludge
225-230'		--	--	4.15	
230-235'		--	--	3.7	
235-240'		--	--	3.75	
240-245'		--	--	4.0	
245-250'		--	--	3.4	
250-255'		--	--	5.4	
255-260'		--	--	4.1	
260-265'		--	--	3.4	
265-270'		--	--	3.9	
270-275'		--	--	3.9	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National PROJECT NO. DMA 106-X LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 BEARING S 57° W INCL. Flat COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
276'2 -277'10"	1'8	0.0'			
277'10 -282'10	5'0	2.6'	35°		
282'10 -288'4	5'6	2.3'			
288'4 -293'4	5'0	2.2'		Zone of intensely bleached and sheared argillite cemented with calcite and quartz.	290-297
293'4 -297'	3'8	0.7'			
297'-301'	4'0	1.0'	35°		
301'-309'	8'0	6.0'			
309'-313'	4'0	1.9'			
313'-321'	8'0	10.1'	30°		
321'-326'	5'0	3.5'			
326'-331'6"	5'6	3.4'	40°		
331'6" -339'	7'6	5.6'			
339'-346'	7'0	4.7'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
275-280'		--	--	3.1	Sludge
280-285'		--	--	4.1	"
285-290'		--	--	3.2	"
290-295'		--	--	3.0	"
295-300'		--	--	2.3	"
300-305'		--	--	2.9	"
305-310'		--	--	3.5	"
310-315'		--	--	4.1	"
315-320'		--	--	3.9	"
320-325'		--	--	4.0	"
325-330'		--	--	2.9	"
330-335		--	--	3.5	"
335-340		--	--	3.0	"
340-345'		--	--	3.7	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National PROJECT NO. DMA 106-X LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 BEARING S 57° W INCL. Flat COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From	To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
					Light greenish gray, altered, shattered and locally	378-395'
346'-	356'	10'0	5.0'	50°	sheared, quartzite. Some gouges recovered. Minor	
356'-	361'	5'0	3.9'		remnant purple coloration seen. Chlorite disseminated in beds and on partings.	
361'-	371'	10'0	8.2'	40°		
371'-	377'	6'0	5.0'			
377'-	381'	4'0	2.7'	45°		
					Light greenish purple to purplish gray quartzite.	395-434'
381'-	389'	8'0	0.8'		Generally quite fresh, but showing local bleaching,	
					banding and mottling. Minor pyrite and chlorite	
389'-	396'	7'0	1.1'		dissemination. Some chlorite on bedding.	
396'-	402'6	6'6	4.2'			
402'6	-406'	3'6	1.7'	45°		
406'-	410'6	4'6	4.5'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
345'-350'		--	--	4.0	Sludge
350'-355'		--	--	4.0	"
355'-360'		--	--	4.3	"
360'-365'		--	--	4.1	"
365'-370'		--	--	3.9	"
370'-375'		--	--	3.0	
375'-380'		--	--	2.5	"
380'-385'		--	--	2.9	"
385'-390'		--	--	2.7	"
390'-395'		--	--	3.6	"
395'-400'		--	--	3.9	"
400'-405'		--	--	2.7	
405'-410'		--	--	3.3	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec.13
HOLE NO. 1033 | BEARING S 87° W | INCL. Flat | COORDINATES COLLAR 109,279 North, 139,439 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
410'6 -417'	6'6	2.4'	45°		
				Clayey gouge	403'
417-424'	7'0	7.0'			
				0.5 quartz stringer with some siderite and pyrite and a few specks of chalcopyrite (?) at 60° to core.	409'
424'-434'	10'0	9.7'	45°		
434'-444'	10'0	6.2'			
444'-452'	8'0	5.8'			
				Relatively fresh purplish gray to grayish green siliceous argillite with some interbedded light yellowish green quartzite. Local zones of alteration and some minor shearing.	434-482'3
452'-461'	9'0	5.4'			
461'-462'	1'0	1.0'			
462'-465'	3'0	2.2'	35°		
465'-468'	3'0	2.2'			
468'-474'	6'0	1.0'			
474'-478'2	4'2	1.3'	40°		

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe	
410'-415'		--	--	2.9	Sledge
415'-420'		--	--	3.0	
420'-425'		--	--	3.9	
425'-430'		--	--	2.9	
430'-435'		--	--	3.3	
435'-440'		--	--	3.2	
440'-445'		--	--	3.7	
445'-450'		--	--	3.3	
450'-455'		--	--	3.7	
455'-460'		--	--	3.5	
460'-465'		--	--	3.3	
465'-470'		--	--	3.2	
470'-475'		--	--	4.5	
475'-480'		--	--	3.9	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1003 | BEARING S 57° W | INCL. Flat | COORDINATES COLLAR 109,279 North, 139,409 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS					SAMPLES				
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe
478'2"-479'	0'10"	0.6'		Sheared siliceous argillite and clayey gouge	451-451'6"					
479'-482'3"	3'3"	2.0'								
		237.1' Recovered (= 49.2%)								
End of Hole										
nbr										

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1004 | BEARING S 66° W | INCL. Flat | COORDINATES COLLAR 109,006 North, 139,467 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
0'-5'	5'0"	2.0'		Altered light greenish-gray to gray argillite with some calcareous beds. Minor amounts of remnant purple throughout. Chlorite well developed on partings and disseminated in rock. Some zones of disseminated fine grained pyrite and black mineral (chlorite? specularite?).	0-60'	5'-10'		--	--	3.7	Sludge
						10'-15'		--	--	4.0	
5'-15'	10'0"	2.1'				15'-20'		--	--	3.5	
						20'-25'		--	--	3.5	
15'-25'	10'0"	0.7'				25'-30'		--	--	3.2	
25'-35'	10'0"	0.5'				30'-35'		--	--	2.8	
35'-40'	5'0"	0.1'				35'-40'		--	--	3.0	
40'-45'	5'0"	1.6'				40'-50'		--	--	3.5	
45'-51'2"	6'2"	1.4'				50'-55'		--	--	3.0	
51'2"-55'6"	4'4"	1.5'				55'-60'		--	--	2.9	
55'6"-60'5"	4'11"	1.6'		Gouge and sheared argillite	14'-16'	60'-65'		--	--	3.1	
60'5"-70'	9'7"	0.3'	25°			65'-70'		--	--	3.3	
				No core. Driller reported mud.	35'-40'	70'-75'		--	--	3.4	
70'-80'	10'0"	2.7'				75'-80'		--	--	3.3	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1004 | BEARING S 66° W | INCL. Flat | COORDINATES COLLAR 109,066 North, 139,467 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
				Light gray-green to purplish gray quartzite with some (20% ±) interbedded purple to purplish green siliceous argillite. Relatively fresh but many zones of strong bleaching and chloritization. Some zones of disseminated black mineralization.	60'-148'	80'-85'		--	--	3.1	Sludge
80'-90'	10'0"	4.2'	40°			85'-90'		--	--	3.5	
						90'-95'		--	--	3.8	
90'-100'	10'0"	5.5'				95'-100'		--	--	4.0	
100'-110'	10'0	3.0'				100'-110'		--	--	3.3	
						110'-115'		--	--	2.8	
110'-120'9"	10'9"	3.5'				115'-120'		--	--	3.7	
120'9"-126'	5'3"	1.7'	40°?			120'-125'		--	--	3.0	
126'-134'5"	8'5"	2.3'				125'-130'		0.1	--	3.3	
134'5"-135'3"	0'10"	0.4'		Sticky gouge.	128'	130'-135'		--	--	3.3	
135'3"-141'1"	8'10"	4.0'				135'-140'		--	--	2.6	
141'1"-147'	2'11"	0.8'		Light gray white quartzite, sheared, "corroded" and silicified. Chlorite well developed.	134'5"-135'3"	140'-145'		--	--	3.8	
147'-148'	1'0"	1.8'	40°			145'-150'		--	--	3.7	
148'-150'	2'0"	1.1'				150'-155'		--	--	4.2	
150'-158'	8'0	2.8'				155'-160'		--	--	5.2	

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1004 | BEARING S 65° W | INCL. Flat | COORDINATES COLLAR 109,006 North, 139,467 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From	To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
					Interbedded purple, siliceous argillite and purplish brown to gray-green quartzite. The quartzite is more abundant before 182', making up to half the core. Rock generally fresh but locally altered and in places shows minor shearing. Minor chlorite developed locally and some zones of fine grained, disseminated black mineralization.	148'-218'6"	160'-165'		--	--	5.9	Sludge
158'-	167'	9'0	3.4'	30°			165'-170'		--	--	4.3	"
167'-	171'	4'0	2.3'				170'-175'		0.1	--	2.5	
171'-	178'3	7'9	2.4				175'-180'		--	--	3.4	"
							175'-180'	--	--	--	2.9	Core
178'3 -	184'	5'9	5.1'	35°			180'-185'	--	--	--	4.2	"
184'-	189'6	5'6	4.4'				180'-185'		0.5	--	4.9	Sludge
189'6 -	193'7"	4'1	3.3'				185'-190'		--	--	3.6	"
193'7 -	198'9"	5'2	1.9'				190'-195'		--	--	3.6	"
198'9 -	201'	2'3	1.4'				195'-200'		--	--	3.2	"
201'-	205'	4'0	4.6'				200'-205'		--	--	4.3	"
205'-	210'	5'0	3.1'				205'-210'		--	--	3.8	"
							210'-215'		--	--	3.3	"
210'-	215'	5'0	3.6'	25°	Zone of strong, fine grained black dissemination.	178'-183'						
215'-	218'6"	3'6"	1.6'									
End of Hole			35.0' Recovered (-38.9%)									

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1005 | BEARING S 04° W | INCL. Flat | COORDINATES COLLAR 109,459 North, 139,269 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS					SAMPLES				
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe
0'-11'	11'0"	1.9'		Altered gray green quartzite and some argillite. Some minor quartz mineralization.	0-4'?					
				Black clayey to muddy gouge containing some quartz chips.	4'?-9'?					
11'-17'	6'0"	1.9'								
17'-20'7"	3'7"	0.7'		Dirty white quartzite. Generally shattered, and containing abundant quartz veinlets, especially from 9 to 12'. Prominently banded and mottled with black.	9'?-20'	15'-20'	Tr.	0.25	Tr.	2.9
20'7"-25'	4'5"	3.2'								
25'-29'	4'0	0.5'		Gray to greenish gray quartzite, with minor remnant purple showing. Prominently banded, mottled and speckled with black and dark green (chlorite?) with chlorite well developed locally. Several strong zones of shearing.	20'-43'	25'-30'		--	--	4.6
						30'-35'		--	--	4.4
						35'-40'		--	--	6.7
29'-40'	11'0"	1.1'								
40'-43'	3'0"	0.5'								

End of Hole 10.0' Recovered (=23.3%)

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 24

HOLE NO. 1096 | BEARING N 34° E | INCL. Flat | COORDINATES COLLAR 107,132 North, 142,328 East

CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
0'-10'	10'-0	2.1'		Altered greenish gray quartzite and greenish to light gray argillite with very little remnant purple showing. Local calcareous beds. Chlorite well developed on partings and some minor disseminated black (chlorite?), and some prominent pyrite zones.	0-110
10'-14'4	4'4	0.4'			
14'4 -24'6	10'4	0.2'			
24'6 -30'2	5'6	0.2'			
30'2 -35'	4'10	0.2'			
35'-43'	0'0	0.1'			
43'-50'	7'0	0.3'			
50'-60'	10'0	0.9'		Strong shearing in argillite with some quartzite beds.	35-43'
60'-70'	10'0	0.6'			
70'-80'	10'0	2.6'	25°?		
80'-81'9	1'9	0.8'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe
5-10'		--	--	2.5
10-15'		--	--	4.7
15'-20'		--	--	2.6
20'-25'		--	--	2.7
25'-30'		--	--	3.5
30'-35'		--	--	3.4
35'-40'		--	--	2.5
40'-45'		--	--	2.6
45'-50'		--	--	3.6
50'-55'		--	--	3.6
55'-60'		--	--	2.2
60'-65'		--	--	2.4
65'-70'		--	--	2.9
70'-75'		--	--	2.6
75'-80'		--	--	2.6

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 24
HOLE NO. 1006 | BEARING N 34° E | INCL. Flat | COORDINATES COLLAR 107,132 North, 142,320 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES				
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe
81'9"-86'	4'3"	1.7'				80'-85'		--	--	2.8
86'-91'	4'0"	1.6'				85'-90'		--	--	3.3
91'-92'10"	1'10"	1.8'				90'-95'		--	--	2.9
92'10"-100'	8'2"	1.3'				95'-100'		--	--	2.3
100'-101'	1'0"	0.6'		Disseminated pyrite zone	116'	100'-105'		--	--	2.4
101'-106'	5'0"	1.9'	35°					--	--	
106'-110'	4'0"	1.2'		Interbedded green to greenish purple quartzite and siliceous argillite with local calcareous beds. Generally altered, but remnant purple bands are common. Local minor zones of tan spotting and streaking, and chlorite is well developed in places. Some disseminated, fine grained pyrite zones throughout.	118-166'	105'-110'		--	--	3.4
110'-113'	3'0"	2.7'	35°?			110'-115'		--	--	2.5
113'-118'	5'0"	2.0'						--	--	
118'-120'	2'0"	1.4'				115'-120'		--	--	2.7
120'-124'	4'0"	2.8'				120'-125'		--	--	2.6
124'-131'10"	7'10"	1.3'				125-130'		--	--	2.7
130'10"-140'5"	8'7"	2.5'				130-135'		--	--	2.8
140'5"-147'	6'7"	2.8'				135-140'		--	--	2.6
147'-149'	2'0"	1.3'				140-145'		--	--	2.3

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 24
HOLE NO. 1006 | BEARING N 34° E | INCL. Flat | COORDINATES COLLAR 107,132 North, 142,328 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES				
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe
149'-150'3"	1'3"	1.0'								
150'3"-154'	3.9"	2.5'				145'-150'		--	--	3.5
154'-154'6"	0'6"	0.3'				150'-155'		--	--	3.4
154'6"-160'	5'6"	0.7'	30°	4" brecciated quartz vein with pyrite, at 30° to core.	140-104½'					
160'-162'5"	2'5"	1.1'				155'-160'		--	--	2.5
162'5"-164'4"	1'11"	1.9'				160'-165'		--	--	3.0
164'4"-166'	1'8"	2.4'		1" quartz vein parallel to bedding	148					
166'-168'6"	2'6"	2.0'								
168'6"-169'10"	1'4"	0.8'		1" quartz vein parallel to bedding	161					
169'10"-172'5"	2'7"	1.7'				165-170'		--	--	2.7
172'5"-177'10"	5'5"	1.6'		Sheared, "dirty" white quartzite, banded and mottled with black and tan. Some disseminated pyrite visible.	166'-171'	170-175'		--	--	1.9
177-10"-178'10"	1.0"	0.5'				175-180'		--	--	1.9
178'10"-181'10"	3'0"	2.6'	30°			180-185'		--	--	1.8
181'10"-183'2"	1'4"	1.3'								

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 24
HOLE NO. 1006 | BEARING N 34° E | INCL. Flat | COORDINATES COLLAR 107,132 North, 142,928 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS

RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH
183'2"-187'	3'10"	1.2'	35°		
187'-194'7"	7'7"	1.8'		Light blue-gray to gray-green quartzite; thin to medium bedded becoming quite massive toward end of hole. Some minor interbedded argillites. Pyrite zones throughout, but all are quite minor. Chlorite developed locally but not intensely so.	171-~~180'~~ 244'
194'7"-198'9"	4'2"	0.6'			
198'9"-203'	14'3"	0.9'			
203'-205'6"	2'6"	0.6'	35°		
205'6"-209'4"	3'10"	1.2'			
209'4"-215'	5'8"	0.7'			
215'-218'	3'0"	1.2'			
218'-220'	2'0"	1.6'			
220'-220'3"	0'3"	0.3'			
220'3"-226'6"	6'3"	4.8'			
226'6"-229'4"	2'10"	1.7'			
229'4"-231'2"	1'10"	1.0'			
231'2"-236'	4'10"	2.8'	30°		
236'-240'9"	4'9"	3.6'			

SAMPLES

DEPTH	Ag	%Pb	%Zn	%Fe
185-190'		--	--	1.9
190-195'		--	--	1.9
195-200'		--	--	2.6
200-205'		--	--	1.8
205-210'		--	--	2.0
210-215'		--	--	1.7
215-220'		--	--	1.7
220-225		--	--	1.7
225-230'		--	--	1.1
230-235'		--	--	1.6
235-240'		--	--	1.8
240-244'		--	--	2.0

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National PROJECT NO. DMA 106-X LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 24
HOLE NO. 1006 BEARING N 34° E INCL. Flat COORDINATES COLLAR 107,132 North, 142,320 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES				
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe
240'9"-244'	3'3"	2.9'								
End of Hole		82.6' Recovered (=33.8%)								

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1007 | BEARING N 39° W | INCL. Flat | COORDINATES COLLAR 107,697 North, 141,650 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
0-9'7"	9'7"	2.0'		Light gray to gray-green banded quartzite and minor interbedded gray-green siliceous argillite.	0-140'	5'-10'		--	--	1.9	Sludge
						10'-15'		--	--	2.0	"
9'7"-18'7"	9'0"	1.1'	40°	Generally altered with almost no bedding visible, but locally there is minor remnant purple. Several zones of prominent tan mottling and banding. Several zones of disseminated pyrite, and zones of well developed chlorite. Some fine grained black dissemination.		15'-20'		--	--	2.0	"
18'7"-25'3"	6'8"	1.8'				20'-25'		--	--	1.9	"
25'3"-28'10"	3'7"	2.6'				25'-30'		--	--	2.6	"
28'10"-29'4"	0'6"	0.5'				30'-35'		--	--	1.8	"
29'4"-34'	4'8"	2.1'				35'-40'		--	--	1.9	"
34'-36'10"	2'10"	1.9'				40'-45'		--	--	1.2	"
36'10"-38'	1'2"	1.2'	45°			45'-50'		--	--	1.2	"
38'-41'8"	3'8"	2.7'				50'-55'		--	--	1.1	"
41'8"-48'4"	6'8"	1.7'				55'-60'		--	--	1.8	"
48'4"-52'4"	4'0"	3.0'	50°?			60'-65'		--	--	2.3	"
52'4"-59'	6'8"	3.2'		Quartz chips	41'8"	65'-70'		--	--	3.9	"
59'-65'7"	6'7"	2.5'	60°			70'-75'		--	--	1.5	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1007 | BEARING N 39° W | INCL. Flat | COORDINATES COLLAR 107,697 North, 141,680 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
65'7"-69'6"	3'11"	1.2'	65°	Dark gray quartzite with disseminated pyrite and fine grained black mineralization (chlorite?, specularite?)	74-76'	75'-80'		--	--	1.6	Sludge
						80'-85'		--	--	2.1	"
69'6"-77'	7'6"	7.2'	55°			74'-76'	--	--	--	2.3	Core
77'-82'	5'0"	4.3'				85'-90'		--	--	2.6	Sludge
82'-89'	7'0"	6.9'	55°			90'-95'		--	--	1.8	"
89'-98'7"	9'7"	9.9'		Disseminated zone. Less intense than 74'-76'	94-97'	95-100'		--	--	2.5	"
98'7"-103'	9'5"	6.5'	65°			100'-105'		--	--	1.7	"
103'-112'	4'0"	1.8'		2" barren quartz vein.	104'	105'-110'		--	--	2.3	"
112'-117'9"	5'9"	1.5'				110'-115'		--	--	2.3	"
				Zone of intense alteration and shearing.	108-113'	115'-120'		--	--	2.4	"
117'9"-126'	8'3"	3.0'				120'-125'		--	--	2.0	"
126'-128'	2'0"	1.1'	55°			125'-130'		--	--	1.6	"
128'-133'	5'0"	1.3'		1" barren quartz vein	128'6"	130'-135'		--	--	1.0	"
133'-140'7"	7'7"	1.5'				135'-140'		--	--	3.4	"
				Light purple, gray and greenish gray interbedded	140-215'	140'-145'		--	--	1.0	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1097 | BEARING N 39° W | INCL. Flat | COORDINATES COLLAR 107,697 North, 141,650 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

RUN From	To	FEET	REC.	BEDS	OBSERVATIONS DESCRIPTIONS	DEPTH	SAMPLES DEPTH	Ag	%Pb	%Zn	%Fe	
140'7"-	149'	8'11"	1.5'		argillite and quartzite.		145'-150'		--	--	1.8	Sludge
149'-	153'1"	8'7"	2.2'	60°	Moderately altered & locally intense alteration. Chlorite generally throughout, locally well developed and accompanied by shearing.		150'-155'		--	--	1.8	"
							155'-160'		--	--	2.7	"
153'8"-	165'	6'11"	1.0'		Some minor zones of fine grained disseminated pyrite and black mineralization.		160'-165'		--	--	1.8	"
							165'-170'		--	--	1.8	"
165'-	175'	10'0"	1.8'				170'-175'		--	--	2.2	"
							175'-180'		--	--	3.0	"
175'-	182'6"	7'6"	1.0'				180'-185'		--	--	2.1	"
182'6"-	189'6"	7'0"	1.1'	60°			185'-190'		--	--	2.3	"
							190'-195'		--	--	3.0	"
189'6"-	199'6"	10'0"	2.8'				195'-200'		--	--	3.2	"
199'6"-	204'1"	4'7"	1.7'				200'-205'		--	--	2.5	"
							205'-210'		--	--	2.9	"
204'1"-	214'7"	10'6"	1.3		Medium bedded to massive quartzite. Light	215-301'	210'-215'		--	--	3.2	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 13
HOLE NO. 1007 | BEARING N 39° W | INCL. Flat | COORDINATES COLLAR 107,697 North, 141,650 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS						SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
214'7"-215'8"	1'1"	0.3'		lavender to light gray-green in color with considerable		215'-220'		--	--	2.2	Sludge
215'8"-223'5"	7'9"	3.0'	55°	amount of distinct purple banding, especially beyond		220'-225'		--	--	1.1	"
223'5"-229'	5'7"	1.1'		240'. Several prominent zones of mottling and		225'-230'		--	--	1.1	"
229'-235'	6'0"	1.2'		streaking with light yellow-tan. Chlorite well developed		230'-235'		--	--	1.8	"
235'-241'5"	6'5"	1.8'		on partings. Several strong zones of disseminated pyrite,		235'-240'		--	--	2.1	"
241'5"-248'	6'7"	2.2'		specularite and a black mineral (?)		240'-245'		--	--	3.7	"
248'-251'	3'0"	1.0'				245'-250'		--	--	2.8	"
251'-257'1"	6'1"	2.8'				250'-255'		--	--	2.0	"
257'1"-265'6"	8'5"	2.6'	55°			255'-260'		--	--	1.9	"
265'6"-268'7"	3'1"	1.6'				260'-265'		--	--	1.5	"
268'7"-274'	5'5"	3.7'				265'-270'		--	--	2.3	"
274'-277'7"	3'7"	0.6'				270'-275'		--	--	3.9	"
277'7"-285'7"	8'0"	1.3'			264'	275'-280'		--	--	2.3	"
285'7"-288'10"	3'3"	0.8'		3" barren quartz vein		280'-285'		--	--	2.3	"

DAY MINES, INC. - DIAMOND DRILL LOG

MINE National | PROJECT NO. DMA 106-X | LOCATION Shoshone County, Idaho; T 48 N, R 5 E, Sec. 33
HOLE NO. 1007 | BEARING N 39° W | INCL. Flat | COORDINATES COLLAR 107,697 North, 141,650 East
CONTRACTOR Idaho Diamond Drill and Contracting Company, Wallace, Idaho.

OBSERVATIONS					SAMPLES					
RUN From To	FEET	REC.	BEDS	DESCRIPTIONS	DEPTH	DEPTH	Ag	%Pb	%Zn	%Fe	
288'10"-294'2"	5'4"	1.8'				285'-290'		--	--	2.4	Sludge
294'2"-298'8"	4'6"	2.0'				290-295'		--	--	2.3	"
298'8"-301'	2'4"	0.8'				295'-300'		--	--	1.9	"
End of Hole		116.6' Recovered (=38.8%)									

Final Report Maps

DAY MINES, INC.
WALLACE, IDAHO

COPY

November 30, 1950

Operating Committee
Defense Minerals Administration
c/o. Bureau of Mines
Washington, D. C.

Gentlemen:

"National Project"
King Area
CDA District, Idaho

Day Mines, Inc. is the owner of a large group of mining claims stretching southeasterly from the vicinity of Burke, Idaho, over the Mullan ridge, a distance of roughly 4 miles. It is a mineralized area with several exploration possibilities. The best one has been designated as the "National Project" and is the subject of this application for financial assistance.

1. The objective is to re-examine the former National mine which produced 170,000 tons (plus?) of milling ore prior to 1920 averaging approximately 3 oz. silver per ton and 1% copper and to explore at greater depth the Copper King veins several thousand feet to the west. These contain values in lead, zinc, copper and silver (possibly although not certainly) in that order of importance.

2. Thorough exploration would take in round figures a maximum of two years time and expenditure of an estimated $300,000. At some additional expense time involved could be reduced substantially.

3. If the exploration is successful more time and money would be required to achieve large scale production.

4. Day Mines, Inc. has now not the financial ability to carry on this exploration campaign along with other similar projects to which it is committed.

5. If the project is approved detailed estimates of the equipment and supplies required can be made. These are very nominal for the primary phase of the exploration program, which involves a total of about $300,000.

6. Manpower requirements would be relatively small, from 4 to 16 men over a two year period.

7. The expected rate of production would be a minimum of 300 tons per day of milling ore, grade unknown. Favorable results could easily double or triple this figure.

Pertinent data are attached. Please call upon us for further particulars.

Yours very truly,

Henry L. Day

Enclosure
Air Mail

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Map - Plan on 1000' scale showing proposed crosscuts and drifts	16

Past Production

There is a definite record of 170,008 tons of milling ore produced at the National mine from 1914 through 1919, estimated to average .005 oz. gold, 2.6 oz. silver, and 0.96% copper. There is reason to believe the bedded deposits were better in grade at the bottom of the mine, so unwatering might reveal material with gross values as follows, using today's metal prices:

.005 oz.	gold	at $35.00	-	$0.17
3.0 oz.	silver	at 90¢	-	2.70
1.0%	copper	at 24½¢	-	4.90
				$7.77

Some corroboration for above grade exists in sample results of E. G. Gnaedinger, mining engineer for the company, when he sampled the 1500 level in 1919. In one place he found an average of about 3 oz. silver and 1% copper across a horizontal width of 140 feet. Details of the sampling cannot be found in the old National records. Without much doubt this is one of the better showings in the mineralized beds of the mine, and it occurs on the lowest level.

No definite information is available with respect to the past production of the Copper King mine. It is believed that several thousand tons were removed from the mine, not commercial at the time but which would represent a fair grade of milling ore at current metal prices for lead, zinc, copper and silver.

Data on Last Known Production at National Mine

November, 1917 - July, 1919

	Dry Tons	Ag. Grade	Cu. Grade
Mill Feed	105,129	3.3 Oz.	1.05%
Concentrates	5,931	43 Oz.	15%

Silver Recovery	74%
Copper "	80%
Ratio of Concentration	17.7 to 1

		Per Ton Milled
Net Smelter Returns (Ag. at $1.02, Cu. at 21.2¢)		$4.58
Less - Ore Breaking*	$1.72	
Development	.71	
Tramming to Mill	.32	
Milling	1.38	4.13
NET OPERATING PROFIT		$0.45

*Includes $5,000 for new equipment.

(Best month was May, 1918, when 7,650 tons were milled averaging 4.1 Oz Ag and 1.46% Cu. Bulk of ore came from 1500 level)

NATIONAL PROJECT

"King Area" - C. D. A. District, Idaho

Item (The item figures appear on the plan map page 16).

1-1'. Reopen National crosscut (main adit on 1000 level) at an elevation of 4013 feet, approximately 4600 feet in length:

Time -- 3 months Cost -- $10,000

2-2'. Extend this 1000 level National crosscut about 1000 feet northerly to intersect Missoula vein, last explored more than 900 feet vertically higher:

Time -- 4 months Cost -- $35,000

3.3'. Drift a total of 1000 feet easterly and westerly along Missoula vein on this 1000 National level:

Time -- 4 months Cost -- $30,000

4. Reclaim old workings of National mine both above and below the 1000 adit level, at least as high as 600 level and as deep as 1500 level which is reached by a 43° inclined shaft:

Time -- 6 months Cost -- $30,000

5-5'. After Item 1 is achieved and simultaneously with items 2 to 4 inclusive, drift 4000 feet westerly on National 1000 level following the vein zone out underneath the present lowest Copper King workings at elevation of 4400 feet, and then raise about 375 feet to connect with latter:

Time -- 20 months Cost -- $175,000

OVERALL TIME TO THIS POINT 23 MONTHS WITH ESTIMATED EXPENDITURE OF $280,000.

If any substantial part of the foregoing exploration program proved successful, greater depth as the next step can be predicted as extremely desirable. It could be obtained by shaft work at one or more points; no estimate of time and

expense for sinking can be made so far in advance. Another possibility exists and that would be to drive a long, lower crosscut. This can be estimated and is set up as a sixth possibility.

6-6'. Rehabilitate Homestake workings at elevation of 3480 feet for main haulage purposes, and then crosscut northerly about 5000 feet to intersect Pilot vein last drifted on slightly more than 700 feet vertically above. No allowance is included for exploring the Pilot vein as the property is not now owned or optioned by Day Mines, Inc. However, conversations have taken place with respect to a working agreement. It would take a 700 foot raise and perhaps 1500 feet of drifting to explore the Pilot vein at this elevation (costs excluded from this estimate).

Next continue the Homestake-Pilot crosscut approximately 4000 feet to intersect the National-Copper King vein system between the principal adits of the latter two properties. An easterly drift of 3000 feet and a raise less than 200 feet in height would be required to connect with present lowest workings in the National Mine. A westerly drift of 1000 feet and a raise of about 500 feet vertically would be necessary to connect with Copper King workings as envisaged by item 5.

Time 50 months* Cost -- $553,000

*At increased expenditure of possibly 10 to 20% this time might be cut nearly in half.

EXHIBIT "A"

Extract from report of Messrs. F. J. Shenon and R. P. Full, consulting geologists August, 194- to Day Mines, Inc., on the King Area.

National and Missoula

The National and Missoula properties are described together because their workings develop the same vein systems. Both properties are owned by Day Mines, Inc. The workings are located in Deadman Gulch, the principal level of the Missoula lying at an altitude 937 feet higher than the long National tunnel. In 1948 it was possible to drive to the portals of both tunnels. The National group formerly consisted of 11 patented claims, 5 unpatented claims, and 160 acres of homestead land. Three unpatented claims--the Homestake, Bismark, and Gertude--were lost by default and much of the homestead land was disposed of. The Missoula property consisted of 10 patented claims. The workings on the Missoula ground include three tunnels, No.'s 1, 2, and 3, and two winzes from No. 3. The No. 1 tunnel is 180 feet long and is 800 feet north and 400 feet higher than No. 2; the No. 2 tunnel is about 1400 feet north of the portal to the No. 3 tunnel and 590 feet higher. The shaft and No. 1 tunnel of the National are located about 250 feet northwest of the Missoula No. 3 portal and about 25 feet higher. The portal to the National tunnel (1,000 level) is 4,700 feet southwest of Missoula No. 3 portal. The National shaft extends from the surface 386 feet to the 400 level and from there an offset shaft goes down to the 1,000 level. A winze was sunk about 500 feet below the 1,000 level to open the 1,200, 1,400, and 1,500 levels all short. The National No. 1 level and shaft and Missoula No. 2 levels are inaccessible but the Missoula No. 3 level is entirely open. The National No. 1 tunnel totals about 1,000 feet of work and the Missoula No. 2 about 2,000 feet, of which 1,200 feet was straight crosscut. The Missoula No. 3 level has a crosscut 2,650 feet long and a total footage of 5,450 feet. The National tunnel (1,000 level) is a straight crosscut 4,800 feet long from which additinnal drifts and

crosscuts totaling over 5,100 feet have been driven. In all, nearly 10,000 feet of work has been done on this level. The 200 level is about 200 feet long; the 400 level about 250 feet; and the 600 level about 600 feet. The National tunnel was caved in 1947, but in 1948 it was opened for 1,360 feet to a cave at the Sonora fault. Near the portal of the tunnel it was necessary to drive 400 feet around the old crosscut, largely because of the danger from backed-up water. Beyond the Sonora fault the geology is from old notes by R. E. Sorenson.

Not much is known about the early history of the National and Missoula. The Missoula property was incorporated in 1901 during the period of early development at the Snowstorm. In 1914 a lease and bond was given to the Snowstorm Mining Company and after spending $36,000 on development, the option was cancelled in 1915. The records available to us indicate that the Missoula property was not productive. The National Copper was incorporated in 1906 and in that year and the following year the shaft was sunk 400 feet and the long adit tunnel was started; in 1912 the National vein was cut at about 4,800 feet from the portal. A 500-ton concentrator was built at McKinnis on the Northern Pacific and a two-mile trolley line was constructed to deliver ore to the concentrator. The mill was operated from two months early in 1914 and again in October 1915. During this period, 4,243 tons of 0.83 percent copper ore carrying 1.99 ounces silver per ton were milled. In August 1917 a crosscut from the shaft at a depth of 535 feet below the main tunnel passed through 35 feet of better grade ore than in the upper workings and in May 1918, a small profit was made from ore with 1½ percent copper and 4 ounces of silver per ton. From November 1917 to July 1919 the mill treated 105,129 tons of ore averaging 1.05 percent copper and 3.27 ounces silver per ton. The 5,931 tons of concentrates produced carried 15 percent copper and 43 ounces silver per ton;

the recovery was 80 percent and 74 percent respectively. In January 1920 it was decided to reopen the mine and continue the 1,000 level crosscut 300 feet further. All work was stopped in March of that year. The record is not entirely clear but a report by John H. Nordquist indicates that the Independent copper Mining and Milling Company, Ltd. leased the National tunnel from the National Copper Mining Company in the late 1920's and extended the tunnel 1,080 feet to the Independent vein and drifted on the vein for about 1,200 feet. The following table gives the total production of the National mine as reported to the U.S. Bureau of Mines:

PRODUCTION OF NATIONAL COPPER COMPANY
(from records of U.S. Bureau of Mines)

Year	Crude Ore Tons	Tons Conc.	Oz. Au	Oz. Ag.	Copper Lbs.
1914	12,000	393	20.00	16,815	150,614
1915	4,427	3	4.23	4,239	34,643
1916	32,000	896	35.00	24,312	336,701
1917	17,107	723	39.57	28,434	243,775
1918	69,540	3,563	223.30	152,441	1,132,450
1919	34,684	2 444	95.77	99,436	714,750
1920					
1921					
1922	250	27	10.80	1,864	9,981
	170,008	8,129	429.17	327,541	2,622,984

Concentrates shipped to Tacoma Smelter.

The National and Missoula workings cut four well-defined veins and several weakly mineralized quartzite bedd. They also cut a number of large faults as shown on the plans and in cross section E-E'. The National and Independence veins have been cut in both the Missoula No. 3 and National tunnels and most of the production came from mineralized quartzite near the junction of the National vein with certain quartzite beds. In the Missoula No. 3 crosscut the National vein

consists of about 3 feet of shattered white quartz with practically no sulfides and with very little or no disseminated sulfide mineralization in the adjacent quartzites. In the shaft, as exposed at the surface, about 250 feet northwest of the Missoula No. 3 portal, about 3 feet of quartz containing considerably disseminated galena is exposed. On the National level the quartzites next to the fault were apparently amenable to mineralization although, as pointed out above, even here the grade was low (about 1 percent copper and 3 ounces of silver per ton). The National vein strikes about N. 70° W. and dips about 80° S.

The Independent vein was followed for 700 feet on the Missoula No. 3 level and for about 1,200 feet on the National level. On the Missoula No. 3 level it is a very strong quartz vein, in most places from 4 to 6 feet wide, and with some scattered galena. It follows along a fairly strong shear. According to John Nordquist, the Independent vein where intersected in the National tunnel was well defined and about 7 feet wide with quartz and iron mixed with fine-grained galena. The strike of this vein is about N. 70° W. and the dip is very steep to the south.

The Missoula vein is exposed for 1,200 feet on the No. 3 tunnel but has not been reached by the Natinnal tunnel. It is the most promising looking vein seen by the writers in the Missoula and National ground. It consists of a well-defined vein with from a few inches to 4 or 5 feet of white quartz, containing in many places some galena and chalcopyrite. For approximately 100 feet both east and west of the winze the quartz contains considerable galena, chalcopyrite and malachite, although none could be classes as good ore. Also in this vicinity the quartzite is spotted with malachite. The Missoula vein strikes about N. 55° W. and dips steeply south. The crosscut north from the vicinity of the winze crosses two quartz veins, both relatively amall. The more southerly is about 8 inches wide, and is composed of white quartz and finely disseminate sulfides and malachite.

It strikes N. 55° W. and dips 50° N. The northerly one is composed of about 2 feet of barren white quartz.

The North Missoula vein was exposed on the Missoula No. 2 level and can be seen on the No. 3 level. It was followed for about 700 feet on the No. 2 level. It is exposed for about 120 feet on the No. 3 level, where it consists of shattered white quartz along a well-defined shear. The quartz is essentially barren of sulfides. This vein strikes from N. 70° - 75° W. and dips steeply south.

The National, Iddependent, Missoula, and North Missoula veins are strong, persistent structures and appear to offer considerable promise for deep development. Generally speaking, these veins cut fairly flat, relatively undisturbed beds, whereas most of the productive veins in the Coeur d'Alene distritt have been found in greatly disturbed areas; also, in the Coeur d'Alene district the majority of the productive veins have contained much siderite. However, in the Canyon Creek area, siderite is much less abundant than elsewhere and, according to published descriptions, quartz is very abundant at the Hecla and Helena-Frisco and siderite occurs in very minor amounts. The strong vein structures and the history of keeping developments in the Coeur d'Alene district lend encouragement to further development of the National and Missoula veins. The most promising looking of these veins, the Missoula vein, was not reached by the National tunnel and it would require a drive of only 600 or 700 feet to reach it. This would mean laying new track and opening up several caves. The ground has caved rather badly at the Sonora fault and caves could be expected at the Snowshoe and National faults and possibly at other places.

EXHIBIT "B"

Extract from report of Messrs. P. J. Shenon and R. J. Full, consulting geologists, August, 1948, to Day Mines, Inc., on the King Area.

Copper King

The Copper King group extends from the head of Deadman Gulch over into Sonora Gulch, and lies immediately west of the National and Missoula groups. The Copper King consists of 18 patented claims and is owned by Day Mines, Inc. The Copper King is explored by three tunnels; the portal to No's 1 and 2 are near the head of Sonora Gulch and the portal to No. 3 is in Deadman Gulch. No's 1 and 2 are inaccessible and No. 3 is only partly open. No information is available on No. 1 level and only incomplete information on No. 2 and on the closed parts of No. 3. No. 1 level is probably a short level as the dump is not large. No. 2 level has a total of about 1,250 feet of work. The No. 3 level consists of a straight crosscut 4,350 feet long from which drifts and subsidiary crosscuts totaling about 1,050 feet have been driven eastward and 3,750 feet westward. The workings on the No. 3 level total about 9,150 feet. The portal to the No. 3 tunnel is 4,800 feet south of No. 2 and about 1,000 feet lower. No. 1 is about 900 feet S. 85° E. from the No. 2 portal and about 400 feet higher.

TheCopper King Mining and Smelting Company was incorporated in 1901 and, as pointed out above, this company did a great deal of development work although the history of the development is not available to us. Work apparently ceased about 1922. F. C. Calkins and the Mines Handbook do not agree on the extent of the ore bodies found in No. 1 and No. 2 tunnels although it is possibly that developments disclosed more ore after Mr. Calkins' visit in 1912. According to the Mines Handbook, the two upper tunnels developed a lead-silver ore body 250 feet long and from two to six feet wide, assaying 20 percent lead, 4 percent zinc, 5 percent copper,

and 5 ounces of silver per ton. Calkins says the principal ore body is a vein striking west-northwest and dipping 40° south which averages about 1 foot in thickness and contains galena, sphalerite, chalcopyrite, and pyrite in a quartz and calcite gangue. Support is given to the higher grades mentioned above by the fact that 5 or 6 tons of ore on the No. 2 dump containing galena, sphalerite, and chalcopyrite is estimated to have a combined sulfide content of 20 to 25 percent. Nothing revealed the size of the vein, although some pieces were 1 foot to 18 inches across. One old map shows the strike of this vein as N. 70° W. but does not show a dip.

The No. 3 tunnel cuts 3 large faults--the Imperial, Sonora, and National, and possibly another that was concealed by tight lagging. Old maps show still another fault that cuts off the low grade ore just west of Sample No. 3586. The Mines Handbook reports that four separate ore bodies were opened on No. 3 level and that about 3,000 tons of ore on the dump contained 4 percent lead, 1 percent copper, and 4.5 ounces silver per ton. It states also that three of the shoots average 3 feet wide and 50 feet long and that the largest shoot is 65 feet wide and 100 feet long. It states further that a raise is up 100 feet on the latter and that in October 1920, 4 feet of ore was cut on a level 200 feet above the lower tunnel. Two of the "ore bodies" appear to be along the Sonora and National faults. Old maps show that the Sonora fault zone, near its junction with the National fault is mineralized across about 19-1/2 feet with stronger mineralization along the foot and hanging walls. Sample No. 3577, across 3 feet on the hanging wall, assayed 8.8 percent lead, 0.2 percent zinc, and 2.3 ounces of silver per ton. The National fault, where cut in the main crosscut, is marked by 2 feet of gouge. Sample No. 3575, across 1.8 feet, assayed 0.4 percent lead, 0.6 percent zinc, 2.0 percent copper, and 0.2 ounces silver. A vein that appears to be a split from the Sonora fault assayed as follows:

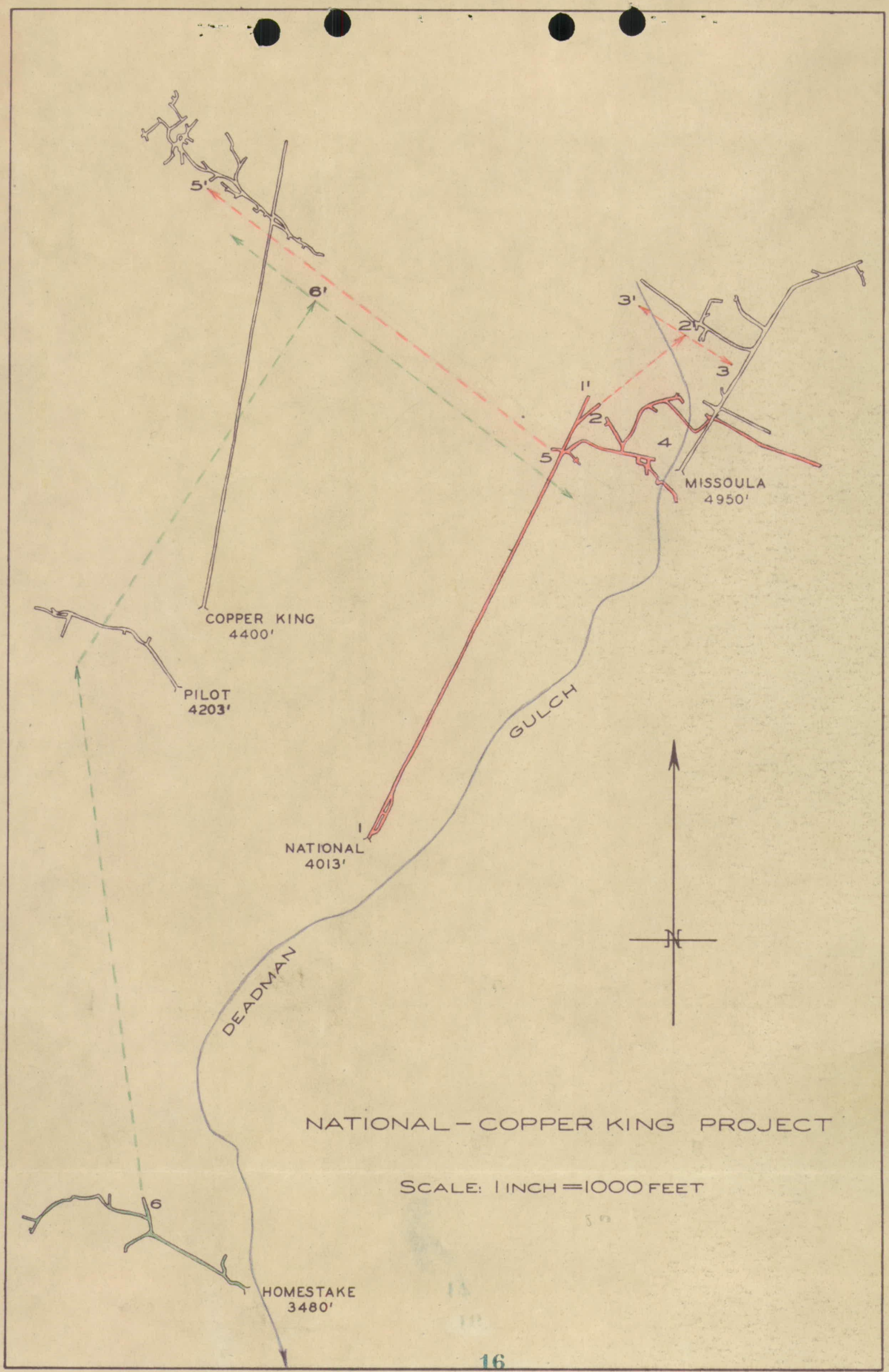
Sample No. 3581 (4.5 feet wide)	7.4 percent lead, 1.0 percent zinc, 4.0 ounces silver.
Sample No. 3582 (0.5 feet wide)	0.1 percent lead, 0.3 percent zinc. 2.0 ounces silver.

The fourth vein, which is more or less parallel with the Sonora fault but about 400 feet southwest of it, assayed as follows:

Sample No. 3583 (2.0 feet wide)	0.5 percent lead, Tr. zinc, 1.3 percent copper 7.2 ounces silver.
Sample No. 3584 (2.5 feet wide)	0.4 percent lead, 0.7 percent zinc. 1.6 percent copper, 2.0 ounces silver.
Sample No. 3585 (4.0 feet wide)	0.4 percent lead, 0.0 percent zinc 1.7 percent copper, 2.3 ounces silver.
Sample No. 3586 (4.0 feet wide)	10.4 percent lead, 10.5 percent zinc 1.6 percent copper, 2.1 ounces silver,

The old maps indicate the sulfides are associated with crushed quartz and quartzite.

The mineralization at the Copper King, as at the National and Missoula properties, is quite impressive and appears to warrant more exploration, particularly deep exploration.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U.S. v. ASARCO

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DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD TEAM, REGION II

FINAL REPORT

Contract Idm-E31

by

E. G. Erickson
Mining Engineer
U. S. Bureau of Mines

Verne C. Fryklund, Jr.
Geologist
U. S. Geological Survey

DAY MINES, INC.
Wallace, Idaho

Docket No.:	DMEA 106
Commodity:	Lead-Zinc-Copper
Contract date:	June 29, 1951
Termination date:	September 30, 1953

NATIONAL MINE
Leland and Hunter Mining District
Shoshone County, Idaho

Spokane, Washington

January 1954

FINAL REPORT

DAY MINES, INC.
National Mine
Leland and Hunter Mining District
Shoshone County, Idaho

Contract Idm-E31

* * * *

INTRODUCTION

This report describes a project conducted by Day Mines, Inc., in cooperation with the Defense Minerals Exploration Administration for the exploration of lead, zinc, and copper at the National, Copper King, and Missoula properties, Shoshone County, Idaho.

Summary

The exploration project was designed to explore the Missoula vein at the elevation of the main level of the National mine; to re-examine the old working area of the National mine to ascertain if portions of the mine contained minable ore; and to explore the Copper King series of veins approximately 400 feet below the existing Copper King workings.

The Missoula vein was reached by extending the National main crosscut 987 feet northeast, and 642 feet of drifting was performed northwest and southeast on the vein. The vein was barren and exploration was discontinued.

The National mine workings above the main adit level were opened, and ventilation and an escapeway were established. Examination of the workings showed no minable ore. High costs of rehabilitation and the fact that the winze was badly caved discouraged rehabilitation of the National mine workings below the main adit level.

The projected position of the Copper King vein system, referred to as the "Target Area," was reached by driving 5,559.5 feet of drifts and crosscuts. The drive was directed for the most part parallel to and north of the National fault because attempts to drift in the fault proved too costly. The National fault was tested at intervals by diamond drill holes.

Exploration of the "Target Area" by drilling, drifting, and crosscutting failed to disclose ore. The single mineralized area is shown on figure 1 and map 1.

Recommendations

No ore was discovered by the exploration project and no certification is recommended, but by terms of the exploration project contract any ore produced from any of the claims included under Article 2 (operator's property rights) of the contract shall be subject to Government royalties as set forth in Article 14 of the contract, whether or not a discovery or development is certified.

Exploration of the Copper King vein system at depth might be worthwhile at some future time, but no further exploration at presently accessible levels can be justified at the present time.

LOCATION AND ACCESSIBILITY

The project site is in the eastern part of the "Greater Coeur d'Alene Mining District" in the Leland and Hunter mining district.

The property is reached by way of a fair forest road leading up Deadman's Gulch from an intersection with U. S. Highway No. 10 near the Golden Hunter mine about 2 miles east of Mullan, Idaho.

The terrain is one of rugged mountainous relief and for the most part covered with moderately heavy vegetation. The climate is severe in the winter and constant snow plowing is needed to keep the road open during the winter months.

PROPERTY

The operator's property rights under Article 2 of the contract consist of 38 patented claims and 24 unpatented claims situated in T. 48 N., R. 5 E. and 6 E., Boise Meridian, Shoshone County, Idaho. They embrace an area of approximately 537 acres of patented ground and approximately 297 acres of unpatented ground.

Claim names are listed below:

National Copper Group:

Claim	Survey No.	Claim	Survey No.
Victor	2245	Nellie	2302
Bull Frog	2245	Mabel May	2246A
Victor No. 2	2242	Little Bert	2724A
Bill No. 1	2242	Mabel May No. 2	2724C
Bill No. 2	2242		

Copper King Group:

Black Cloud	3098	Sunshine	3098
Snow Cloud	3098	Sunshine No. 1	3098
Red Cloud	3098	Sunshine No. 2	3098
Gray Cloud	3098	King Richards	3098
Huckleberry	3098	Berryfield Fraction	3098
Copper Queen	3098	Copper King Fraction	3098
Copper Queen Fraction	3098	Portia	3098
Copper King	3098	King Henry VIII	3098
Blue Streak	3098	Bull Pen	2358
Sunshine Fraction	3098		

Missoula Group:

Slide	2670	Lost Horse	2670
Slide Fraction	2670	Wisconsin Fraction	2670
Wisconsin	2670	Ground Squirrel	2670
Manistee	2670	Olive	2670
Missoula	2670	Rose	2670

Unpatented Claims:

General No. 1	General No. 11
General No. 2	General No. 12
General No. 3	General No. 13
General No. 4	General No. 14
General No. 5	General No. 15
Eisenhower	June
General No. 6	General No. 16
General No. 7	General No. 21
General No. 8	General No. 22
General No. 9	General No. 23
General No. 10	General No. 24
Slide No. 2	April

Mine Workings

The present mine workings are shown on the accompanying map, titled "Composite Level Map of the Copper King-National Area," and consist of three main workings -- National, Missoula, and Copper King.

National Mine

The National workings are the most extensive, comprising a main 1000 level adit, a winze to the 1500 level, a vertical shaft from the surface (elev. 4,976) to the 400 level, a No. 1 tunnel adjacent to the vertical shaft, an offset raise between the 400 and 800 levels, and another offset raise between the 800 level and 1000 level.

On the 1000 level the National vein had been drifted on by previous operations and some minor stoping attempted, a crosscut was run northeast from the National workings to the Independent vein, and extensive drifting was done on this barren quartz vein.

Ore has come from the following levels: No. 1 tunnel level, 200, 400, 600, 800, 1200, 1400, and 1500 levels. Workings below the 1000 level are flooded. The National vein was not explored during the DMEA exploration.

Missoula Property

The Missoula vein was explored by three adit levels -- Missoula No. 1, No. 2, and No. 3 -- and from the National 1000 level south crosscut.

The No. 3 adit portal is located south of the Independent vein at elevation 4,950 feet. This long crosscut cut the Independent and Missoula veins and was extended north beyond the Missoula vein in search of other veins. The Independent vein was drifted on east and west of the No. 3 crosscut, and a winze was sunk from the east drift and an east and west drift was driven off the winze. The Missoula vein was drifted on westerly, off the No. 3 crosscut.

The No. 2 adit portal is located south of the Missoula vein at elevation 5,539 feet. The crosscut cut the Missoula vein, and a drift was driven east and west.

The Missoula No. 1 adit portal is located at elevation 5,939 feet. A relatively small amount of lateral exploration was performed at this site.

The only exploration of the Missoula vein during the DMEA exploration project was performed by extending the National main adit crosscut 987 feet southwesterly to the Missoula vein and drifting easterly and westerly 642 feet. The Independent vein was cut by the new crosscutting but was not considered worthy of exploration.

Copper King property

The property was explored by Copper King No. 3 and No. 2 adit levels at elevations 4,400 feet and 5,400 feet, respectively, and by a long crosscut driven from the 1000 level of the National mine. Copper King No. 1 adit does not show on maps submitted and is assumed to be original or discovery workings of a minor extent. All workings except those from the National 1000 level were in existence prior to the DMEA exploration project.

Most of the previous development was on the No. 3 adit level where drifts and crosscuts and some raising and stoping are reported. All workings are now inaccessible except the first 3,500 feet of the No. 3 level crosscut which was rehabilitated under the exploration project. Rehabilitation of the main workings was not completed because of the high cost due to loose ground and gas condition.

The projected "Target Area" of the Copper King vein system was explored by the exploration project from the 1000 level of the National mine by crosscuts, drifts, long holes, and diamond drill holes.

Accessibility of Workings

The 1000 level of the National mine and all main crosscuts and drifts to other properties or veins are accessible with the exception of a few stub-end openings driven into faulted ground. Most of the lateral workings are untimbered with the exception of workings north west to the Copper King that are in or near the National and Sonora faults.

The Copper King No. 3 adit was rehabilitated for the first 3,500 feet. No work was performed on the No. 1 or No. 2 adits and they are inaccessible.

During the DMEA project, the National vertical shaft (collar elevation 4,976 feet) was rehabilitated which opened the 200 and 400 levels. A travelway was established from the 400 level to the 800 level and from the 800 to 1000 level, which also facilitated ventilation for project work.

All workings connected to the National mine 1000 level are drained by gravity flow through a large drainage ditch. The approximate average flow is 1,200 g.p.m.

Mine Plant

During the life of the exploration project, the operator's modern electrified mine plant adequate for exploration was maintained. There were two main buildings -- one a combination compressor, storeroom, work shop, and office building, and the other a dry house.

A small building housed a pump that forced water to an elevated tank for fire protection. A charging panel and locomotive battery charging station was located underground near the main 1000 level adit portal. When the project was terminated, salvage operations were started to reclaim all salvageable materials and equipment.

THE PROJECT

Geologic Justification

The justification for this project was summarized in a memorandum by S. W. Hobbs, Geological Survey, which accompanied the Field Team report, recommending the application for a DMEA contract. Excerpts from this report are as follows:

"We feel that the National project, while not necessarily the best that could be selected from the many possibilities in the Coeur d'Alene district, is a reasonable one and that the chances for finding significant amounts of ore are within the limits allowed for most exploration projects. It is, therefore, recommended that an exploration loan be seriously considered for this project as outlined in the original application of the Day Mines Company.

"The National project proposal is strictly one of exploration. There is no ore-grade material of minable volume in any of the available workings nor has any been reliably recorded as still existing in the now inaccessible portions of the workings. About 170,000 tons of milling-grade ore was produced prior to 1920 from the National mine, and since the mine closed down at that time, it is assumed that the ore, economic at that time, was mined out.

"A complete evaluation of the chances for success or failure of an exploration project in the National area can be made only with a knowledge of the general characteristics and habit of ore deposits in the Coeur d'Alene district . . . . The following features might be considered as favorable for the occurrence of ore in the area to be explored:

"(1) The Snowstorm mine, a large producer of copper in the period from 1903-1915, lies about 1½ miles southeast of the Missoula tunnel. The disseminated copper ore of the Snowstorm occurs in a bed of medium-grained quartzite of the Revett formation near its contact with the overlying St. Regis formation. The same horizon occurs in the Missoula tunnel where it contains sparsely disseminated chalcopyrite. Available evidence suggests that the ore mined from the National mine also came from the same horizon as that in the Snowstorm, although this portion of the National mine has long been inaccessible and no reliable maps or reports on it exist.

"(2) The various tunnels which crosscut the area of the National project disclose a number of very strong and persistent fractures trending between N. 50° and N. 70° W. These contain quartz and rather widely spread, even though quite small, amounts of galena and chalcopyrite. The persistence of the structures is a significant characteristic.

"(3) The occurrence in the above-mentioned structures of small shoots of ore such as are found in the Missoula tunnel and are reported to occur in the upper workings of the Copper King.

"(4) The general fact that many ore bodies in the Coeur d'Alene district extend to great depth, and many structures similar to those in the area of the National project, have been found to contain significant ore bodies at depth, even though barren at the surface.

"(5) Items 1 and 2 above suggest the existence of two types of ore bodies in the area: (a) those localized in a favorable quartzite bed near the top of the Revett formation and (b) those localized in through-going fractures or veins. Both types should be considered in any exploration program.

"Against these encouraging features are a number of relationships that might tend to minimize the chances for ore deposits in the area to be explored:

"(1) The area is structurally quite simple. The beds are gently dipping for the most part, although they have been displaced by a number of prominent faults. A great number of major ore bodies in the district as a whole are localized in areas of extreme folding and faulting. However, there are notable exceptions to this generalization, one of the outstanding being the Snowstorm mine near the area of the National project.

"(2) There is a lack of extensive alteration or bleaching in the wall rocks of the vein zones. Such bleaching is a prominent characteristic of many of the prominent ore bodies elsewhere in the Coeur d'Alene district--especially in the Silver Belt. However, in this case as in the case of complex structure, there are exceptions to the general rule, and the presence of bleaching is not everywhere a necessary prerequisite for the occurrence of ore. The type of rock and the degree of shearing, etc., has a profound control on the distribution of the bleaching. In many places the factors favorable for profound bleaching were apparently also favorable for ore deposition.

"(3) The stratigraphic horizon that controlled the large ore body in the Snowstorm mine extends as far as the Missoula tunnel area, but from there it swings northward out of the zone to be explored. Its place is taken by a series of fissures that present a type of environment or control for the deposition of ore minerals considerably different from that present in the Snowstorm.

"(4) Veins in the area of the National project have a predominantly quartz gangue in contrast to the high carbonate gangue of many of the local productive veins elsewhere in the district. However, a number of the productive veins in the general vicinity of the area under consideration have a preponderance of quartz over carbonate in the gangue.

"The National project is pure exploration of the type that has been and is being undertaken by the major established mining companies in the Coeur d'Alene district. Enough outstanding successes have resulted from such projects to make the risk attractive. In this case, the Day Mines Company has been working on the National project as much as feasible within the over-all plans for the development of their numerous properties in the district. They don't consider it to be their best bet, but they do think well enough of the chances to have spent well over $60,000 to date on the first step of the project. They are continuing the work with every expectation of completing the job at some time in the future, to be determined by availability of finances and equipment and manpower etc."

Description of the Work

The exploration project started June 29, 1951, and was completed September 30, 1953. Project work was continuous except for the period of August 27 to September 7, 1951, when work was suspended due to a strike.

The program originally proposed included the following five items of work estimated to cost a total of $288,000:

1.	Reopening of National adit and establishing ventilation raises.	$ 10,000.00
2. & 3.	Drifting and crosscutting 2,000 feet to explore Missoula vein from National 1000 level.	73,000.00
4.	Reclaim National mine 600 level to 1500 level.	30,000.00
5.	(a) Rehabilitate Copper King mine	
	(b) Drifting approximately 4,000 feet on National 1000 level toward Copper King mine	
	(c) Raise an estimated 375 feet to connect with old Copper King workings	
	Total cost, Item No. 5	175,000.00

The original program was planned before workings were dewatered. After the main National mine workings had been drained, it was apparent that the entire program of rehabilitation outlined in items 1, 4, and 5 could not be completed with the available funds. The rehabilitation specified in items 1, 4, and 5 which was of secondary importance was cut to the minimum that was considered essential in order to permit concentration on the primary objectives of the program.

The total amount (42,660.90 1/) estimated for rehabilitation outlined in items 1, 4, and 5 was expended with the following results:

Item No. 1. National mine adit was reopened and ventilation established.

Item No. 4. Only the National 1000 level was reclaimed as access to, and travel in, the upper levels was very hazardous.

Item No. 5. First 3,500 feet of Copper King No. 3 adit was rehabilitated.

Reclaiming winze and workings below 1000 level was not attempted because of the obvious high cost.

1/ Monies spent for rehabilitation over this figure were absorbed by Day Mines, Inc. Exact amount not known.

After the Copper King No. 3 adit had been opened for 3,500 feet, conditions ahead indicated that further rehabilitation would be so costly as to jeopardize the completion of the more important objectives of the program.

A total of 1,629 feet of the drifting and crosscutting of the 2,000 feet allowed by items No. 2 and 3 was completed. It was necessary to enlarge and ditch the existing Missoula crosscut to accommodate the large operating equipment required to make an efficient operation possible. The crosscut to the Missoula vein was extended 987 feet and the vein explored by a total of 642 feet of drifting. The drifting was discontinued because of the very small amount of ore minerals found.

By the end of December 1952, work on item Nos. 1, 2, 3, and 4 had been completed, and 4,258 feet of the drive to the Copper King "Target Area" had been completed, with a total expenditure of $281,223.88.

The project was reviewed before January 1, 1953, and a proposal by the operator to amend the contract was recommended by the Field Team and approved by the Washington office of DMEA.

The "prior contract" was superseded by an "amended contract." This accepted the work completed as of December 31, 1953, at its actual cost (estimated to be $288,000) and authorized an additional $60,000 for the following additional work to be performed at an agreed unit cost:

Items 7 and 8.	An estimated 441 feet of line drive and crosscutting at a unit cost of $40/ft.	$ 17,640.00
Item 9.	An estimated 500 feet of drifting @ $42/ft.	21,000.00
Items 10 and 11.	An estimated 4,400 feet of diamond drilling @ $5/ft.	22,000.00
	Total additional work	$ 60,640.00
	Total estimated cost of the project	$348,640.00
	Government's participation - 50 percent	$174,320.00

From January 1, 1953, to September 30, 1953, the date of termination, a total of 4,258 feet of drifting and crosscutting and 1,718 feet of diamond drilling was approved for payment.

GEOLOGY

Regional

The regional geology has been the subject of two Geological Survey publications, Professional Paper 62, and Bulletin 732, and the district is being restudied by the Geological Survey at the present time. There is now available an Open File map, "Geologic map of the Pottsville Quadrangle Northern Idaho" at a scale of 1:24,000, that presents the surface geology of the explored area. The following paragraph briefly summarizes the regional geology:

The country rock of the Coeur d'Alene district consists of slightly metamorphosed sediments of the pre-Cambrian Belt series that have been folded, faulted, and intruded by granitic stocks and dikes of various types. The Belt series in this area has been subdivided into six formations on the basis of lithology. No unconformities have been recognized. From bottom of the series to top, the formations are as follows: Prichard, Burke, Revett, St. Regis, Wallace, and Striped Peak. The total section is at least 23,000 feet thick. The veins in the district generally strike between N. 45° W. and west and usually dip steeply to the southwest. Many of the veins and faults of the district are in zones of rock that are bleached to a color lighter than normal, presumably by hydrothermal solutions that preceded the ore-forming solutions. The exact nature of the bleaching is currently being studied by the U. S. Geological Survey.

Local Geology

The Missoula, National, and Copper King mines lie within an area bounded on the south by the Deadman shear zone and by the Imperial fault on the north. At the portal of the National 1000 level the Deadman shear zone is about 6,000 feet north of the Osburn fault. At the surface are discontinuous exposures of the Wallace, St. Regis, and Revett formations. Structurally, the area is a monocline dipping southwest that is cut by such relatively minor faults as the National, Sonora, and Missoula. Bedding strikes on the surface and underground are variable, ranging from N. 30°-50° W. with dips ranging from 30 to 70 degrees south; the better exposures underground, however, permit recognition of open folding. The strike of the fold axes parallels the general dip of the monocline.

The major underground structural features (see map 1) are the following faults and veins: National fault that strikes N. 52° W. and dips 87 degrees south on the east exposure of the fault, and dips 68 degrees on the west exposure of the fault; the National vein that strikes N. 80° W. and dips 85 degrees south; the Independent vein that strikes N. 60° W. and dips 86 degrees north; the Missoula vein that strikes N. 57° W. and dips 80 degrees south; and the Sonora fault that strikes N. 27° W. and dips from 50 to 60 degrees south. These structures are shown on the accompanying map.

Surface mapping indicated little or no bleaching along faults in the project area (see Hobbs' recommendations); however, underground exploration showed an extensive bleached zone along the National fault. This fact is mentioned because company exploration in the district has been based, in large part, on the presence of bleached zones along many of the major faults of the district. In this case, as well as at the neighboring Atlas and Rock Creek projects, bleached zones have not been associated with ore mineralization.

The bleaching problem is being studied, but it is known that many ore deposits in the district are not associated with bleached rocks and many bleached zones do not contain ore deposits.

The exploration project has added very little to our knowledge of the area's ore deposits and the descriptions of Umpleby and Jones (USGS Bull. 732) still stand as definitive.

The first objective of the exploration project was the reexamination of the old National mine which once produced copper ore.

According to Umpleby and Jones (Bull. 732, p. 117), "The ore-bearing stratum strikes northwest and dips about 45 degrees SW. This stratum is from 40 to 50 feet wide, and the disseminated minerals are rather irregularly distributed through it but on the tunnel level do not extend north of a quartz vein that has a general northwesterly course and vertical dip. (Note: this quartz vein is probably the one called the National vein.) The quartz vein is from a few inches to 4 feet wide, with an average width of 15 inches. It contains chalcopyrite, pyrite, and galena but in itself is of no economic importance. The shoot of disseminated minerals is about 250 feet long on the 1,200 level and about the same length on the 800 level. (Note: on the composite level map submitted as part of the operator's final report the level lengths throughout the mine indicate that 250 feet is about maximum for the length of the disseminated zone.) Most of the ore is a fine-grained gray quartzite dappled with sparsely distributed specks of chalcocite and chalcopyrite. Under the microscope the quartzite is seen to be composed dominantly of subangular quartz grains, but there are also feldspar grains and a few shreds of sericite. Chalcocite and chalcopyrite occur for the most part as interstitially thin filaments, but they also replace the quartz and feldspar grains. The disseminated chalcocite and chalcopyrite was noted on the edges of grains of chalcocite and nowhere is chalcopyrite replaced by chalcocite. (Note: this is a remarkable occurrence if true.) In places, particularly along the footwall of the oreshoot, the quartzite is fractured and here occurs the richest ore, which consists of chalcocite and chalcopyrite. The chalcocite of this ore is clearly a secondary product replacing chalcopyrite. Oxidation extends in places to the 1,200 level on the footwall of the ore body. The ore is of much lower grade than the Snowstorm ore, and only under high prices for copper is profitable extraction possible."

The operator at the time of his application submitted the following production figures from records of the U. S. Bureau of Mines:

Year	Crude ore tons	Tons Conc.	Oz. Au	Oz. Ag	Cu. lbs.
1914	12,000	393	20.00	16,815	150,614
1915	4,427	83	4.23	4,239	34,643
1916	32,000	896	35.00	24,312	336,701
1917	17,107	723	39.57	28,434	243,775
1918	69,540	3,563	223.80	152,441	1,132,480
1919	34,684	2,444	95.77	99,436	714,790
1920					
1921					
1922	250	27	10.80	1,864	9,981
	170,008	8,129	429.17	327,541	2,622,984

These figures indicate that during the active life of the mine the ore averaged slightly more than 1 percent copper and about 2 ounces of silver.

After the National 1000 level was opened, it was discovered that the winze to the lower levels could not be rehabilitated without exhorbitant expense, and as the upper workings were also in bad shape, this phase of the exploration project was stopped.

The second objective of the exploration project was to cut the downward extension of the Missoula vein on the National 1000 level. There has been no production from the Missoula vein.

The Missoula vein is exposed on the Missoula No. 3 level at an elevation of about 4,960 feet, about 950 feet above the National 1000 level. According to Umpleby and Jones (Bull. 732, p. 118) the vein on the Missoula No. 3 level "is from a few inches to 2 feet wide and in places is mineralized with chalcopyrite and galena." This is approximately the description given by Shenon and Full in the original application; they considered the Missoula vein to be the most likely looking structure in the National-Missoula ground.

The Missoula vein as exposed on the National 1000 level by project drifting is a few inches to 2 or 3 feet wide and contains a very minor amount of galena.

The third objective of the exploration project was to drift under the Copper King workings from the National crosscut, following the National fault. There seems to be no recorded production from the Copper King area. Describing what is obviously the Copper King No. 3 workings, Umpleby and Jones (Bull. 732, p. 118) say "The Copper King prospect, northwest of the National, is developed by a tunnel about 5,000 feet long which cuts rocks of the Newland (Wallace)

and St. Regis formations. The principal ore body observed is a northwesterly vein whose average thickness is 1 foot. It contains galena, sphalerite, chalcopyrite, and pyrite in a gangue of quartz and calcite. The wall rocks are slightly mineralized. Another ore body reported to occur south of this vein consists of a band of country rock strongly impregnated with chalcopyrite and galena and is said to be 2 feet wide." The Copper King workings are inaccessible because of a cave at the Sonora fault. Shenon and Full gathered all the information available on the Copper King workings for the operator's application. Their notes are quoted in full below.

Copper King

"The Copper King group extends from the head of Deadman Gulch over into Sonora Gulch, and lies immediately west of the National and Missoula groups. The Copper King consists of 18 patented claims and is owned by Day Mines, Inc. The Copper King is explored by three tunnels; the portal to No's 1 and 2 are near the head of Sonora Gulch and the portal of No. 3 is in Deadman Gulch. No's 1 and 2 are inaccessible and No. 3 is only partly open. No information is available on No. 1 level and only incomplete information on No. 2 and on the closed parts of No. 3. No. 1 level is probably a short level as the dump is not large. No. 2 level has a total of about 1,250 feet of work. The No. 3 level consists of a straight crosscut 4,350 feet long from which drifts and subsidiary crosscuts totaling about 1,050 feet have been driven eastward and 3,750 feet westward. The workings on the No. 3 level total about 9,150 feet. The portal to the No. 3 tunnel is 4,800 feet south of No. 2 and about 1,000 feet lower. No. 1 is about 900 feet S. 85° E. from the No. 2 portal and about 400 feet higher.

"The Copper King Mining and Smelting Company was incorporated in 1901 and, as pointed out above, this company did a great deal of development work although the history of the development is not available to us. Work apparently ceased about 1922. F. C. Calkins and the Mines Handbook do not agree on the extent of the ore bodies found in No. 1 and No. 2 tunnels although it is possible that developments disclosed more ore after Mr. Calkins' visit in 1912. According to the Mines Handbook, the two upper tunnels developed a lead-silver ore body 250 feet long and from two to six feet wide, assaying 20 percent lead, 4 percent zinc, 5 percent copper, and 5 ounces of silver per ton. Calkins says the principal ore body is a vein striking west-northwest and dipping 40° south which averages about 1 foot in thickness and contains galena, sphalerite, chalcopyrite, and pyrite in a quartz and calcite gangue. Support is given to the higher grades mentioned above by the fact that 5 or 6 tons of ore on the No. 2 dump containing galena, sphalerite, and chalcopyrite is estimated to have a combined sulfide content of 20 to 25 percent. Nothing revealed the size of the vein, although some pieces were 1 foot to 18 inches across. One old map shows the strike of this vein as N. 70° W. but does not show a dip.

"The No. 3 tunnel cuts 3 large faults -- the Imperial, Sonora, and National, and possibly another that was concealed by tight lagging. Old maps show still another fault that cuts off the low grade ore just west of Sample No. 3586. The Mines Handbook reports that four separate ore bodies were opened on No. 3 level and that about 3,000 tons of ore on the dump contained 4 percent lead, 1 percent copper, and 4.5 ounces silver per ton. It states also that three of the shoots average 3 feet wide and 50 feet long and that the largest shoot is 65 feet wide and 100 feet long. It states further that a raise is up 100 feet on the latter and that in October 1920, 4 feet of ore was cut on a level 200 feet above the lower tunnel. Two of the 'ore bodies' appear to be along the Sonora and National faults. Old maps show that the Sonora fault zone, near its junction with the National fault is mineralized across about 19-1/2 feet with stronger mineralization along the foot and hanging walls. Sample No. 3577, across 3 feet on the hanging wall, assayed 8.8 percent lead. 0.2 percent zinc, and 2.3 ounces of silver per ton. The National fault, where cut in the main crosscut, is marked by 2 feet of gouge. Sample No. 3575, across 1.8 feet, assayed 0.4 percent lead, 0.6 percent zinc, 2.0 percent copper, and 0.2 ounces silver. A vein that appears to be a split from the Sonora fault assayed as follows:

Sample No. 3581 (4.5 feet wide)	7.4 percent lead 1.0 percent zinc 4.0 ounces silver
Sample No. 3582 (0.5 feet wide)	0.1 percent lead 0.3 percent zinc 2.0 ounces silver

"The fourth vein, which is more or less parallel with the Sonora fault but about 400 feet southwest of it, assayed as follows:

Sample No. 3583 (2.0 feet wide)	0.5 percent lead Tr. zinc 1.3 percent copper 7.2 ounces silver
Sample No. 3584 (2.5 feet wide)	0.4 percent lead 0.7 percent zinc 1.6 percent copper 2.0 ounces silver
Sample No. 3585 (4.0 feet wide)	0.4 percent lead 0.0 percent zinc 1.7 percent copper 2.8 ounces silver
Sample No. 3586 (4.0 feet wide)	10.4 percent lead 10.5 percent zinc 1.6 percent copper 2.1 ounces silver

The old maps indicate the sulfides are associated with crushed quartz and quartzite.

"The mineralization at the Copper King, as at the National and Missoula properties, is quite impressive and appears to warrant more exploration, particularly deep exploration."

No maps showing the location of the cited assays have been furnished by the operator.

Drifting paralleled the National fault except for one crosscut that attempted to cut the Sonora fault. The only ore mineralization encountered was just west of the intersection with the Sonora fault. It was possible to indicate by drifting, short crosscuts, and drilling a mineralized length of 260 feet along the National fault. See map 2, a copy of the operator's sample overlay included with his final report. This is the most important mineralized area discovered in the course of the entire exploration project. Inspection of the assay map (map 2) shows this zone averaged less than 0.5 percent lead, less zinc, and almost no copper. Map 3 shows the geology of this area.

As noted above, the National fault is paralleled by a bleached zone. Also, post-bleaching chlorite has been extensively introduced along minor fractures. Notwithstanding the use of these two criteria in exploration in other parts of the district, they were not indicative of ore mineralization in this mine.

Summary of Factual Data

Item	Units approved	Unit cost	Total approved cost
Drifting	724.0 ft. 1/	$42.00/ft.	$ 30,408.00
Crosscutting	6,464.5 ft. 2/	39.84/ft.	257,518.47
Diamond drilling	1,718.0 ft. 3/	5.00/ft.	8,590.00
Initial rehabilitation	job	job	42,660.90 4/
Total approved cost of project			$339,177.37*
Government's share (50%)			$169,588.68
Total approved amount of contract			348,640.00
Government's share (50%)			174,320.00
Amount unexpended of total contract amount			9,462.63
Amount unexpended of Government's share			4,731.36

1/ Performed at an agreed unit cost of $42/ft.

2/ Includes 642 feet of untimbered drift on Missoula vein and 5,245 feet of crosscutting performed on actual cost basis and 577.5 feet of crosscutting performed at an agreed unit cost of $40/ft.

3/ Performed at an agreed unit cost of $5/ft.

4/ Actual cost.

* Includes credit for items of materials and supplies not expended and for items salvaged on "prior contract."

Comparison of costs of drifting and crosscutting performed on actual cost basis and agreed unit cost

Item	Units (feet)	Total cost	Cost /ft.	% Total cost
1. Drifting and crosscutting, Prior Contract (actual costs)	5,887.0 1/	$234,418.47 4/	$40.00	
2. Drifting and crosscutting, Amended Contract (agreed unit cost)	1,301.5 2/	53,508.00 5/	41.60	
Total drifting and crosscutting	7,188.5 3/	$287,926.47	40.10	85.0
3. Diamond drilling (agreed unit cost)	1,718.0	8,590.00	5.00	2.5
4. Rehabilitation (actual costs)	Job	42,660.90	Job	12.5
Total approved cost of contract		$339,177.37		100.0

1/ 11% timbered

2/ 73% timbered

3/ 22.5% timbered

4/ Net cost less salvage. Salvage reduced unit cost $0.68/ft. Also includes 1,388 feet long-hole drilling and approximately 24,000 cubic feet of excavation for diamond drill and switching stations.

5/ Includes 844 feet of long-hole drilling and 552 cubic feet of excavation for diamond drill and switching stations.

No production was made during the life of the project nor were any items of operating equipment purchased jointly under the contract.

After the "prior contract" was superseded by the "amended contract", which allowed approved items of work to be performed at an agreed unit cost, an inventory was taken of unused materials and supplies and the cost of the items was credited to the project.

Upon completion of the project, items used under "prior contract" having a salvageable value were reclaimed and sold. Net value received for the items was credited to the project. All credits are reflected in the tabulated costs under "Summary of Factual Data."

Discussion of Conclusions

The greatest difficulty encountered driving to the Copper King was bad ground in and near the National and Sonora faults. A total of 1,466 lin. ft. of conventional timber was placed and rock bolts were used wherever slabbing and sloughing occurred in the remaining 4,094 feet of the Copper King exploration. Several times the drift heading had to be abandoned because of heavy ground and a new course taken to avoid excessive high costs.

The operator was very competent; the cost of performing the contract work was not excessive and compares favorably with costs experienced for like work under comparable conditions. The rate of progress was exceptionally good.

The project as a whole was operated efficiently, and the engineering, geologic, and bookkeeping records were well kept. The operator was very cooperative with Government representatives in all administrative details.

Exploration Possibilities

The so-called "National Project" was proposed by Day Mines, Inc., a mining company with years of experience in the Coeur d'Alene district with an established and competent geological department. It was recommended and endorsed by Shenon and Full, a reputable firm of consulting geologists, and was approved after careful review by Survey geologists who had spent several years studying the Coeur d'Alene district. It was recognized by all concerned that the project was boldly conceived exploration with no guarantee of success and therefore it is by no means surprising that the project failed to find a minable ore body. However, the fact that the project found almost nothing of interest except some weakly mineralized structures in the Copper King area indicates that despite a number of outstanding

successes in deep exploration, there is much still to be learned about Coeur d'Alene geology and about the criteria for selecting areas for exploration. It is hoped that work now being done in the district by the Geological Survey will contribute significantly to this end but this work is still some years from completion. Perhaps the most valid conclusion that can be made at this time is that structurally simple areas in the Coeur d'Alene district are not as favorable as the more structurally complicated ones. This was recognized by Hobbs in reviewing the application yet, as he pointed out, important ore bodies have been found in areas of relative structural simplicity.

Nothing has been found in the course of the project that would encourage any further work in this area with the possible exception of exploring at great depth -- 2,000to 5,000 feet below the National 1000 level. This might be done by driving a long crosscut from the Gold Hunter workings. Such exploration will undoubtedly await discovery of deep ore in nearby properties.

Enclosures 3
Distribution:
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LEVEL 1000 MINE National DATE BY

SCALE 1" equals 50' OPERATION Sample Overlay (other than D. D. H.'s)

Map No. 2

Width	Ag	Pb	Zn	Cu	Fe
3.0'	o.4	0.6	0.8	--	1.8
6.0'	0.2	--	--	--	3.1
1.5'	0.5	--	0.3	--	2.9
1.o'	--	--	--	--	6.5
5.0'	--	0.2	--	--	2.3
5.0'	--	0.2	--	--	2.5

Beanhole Samples

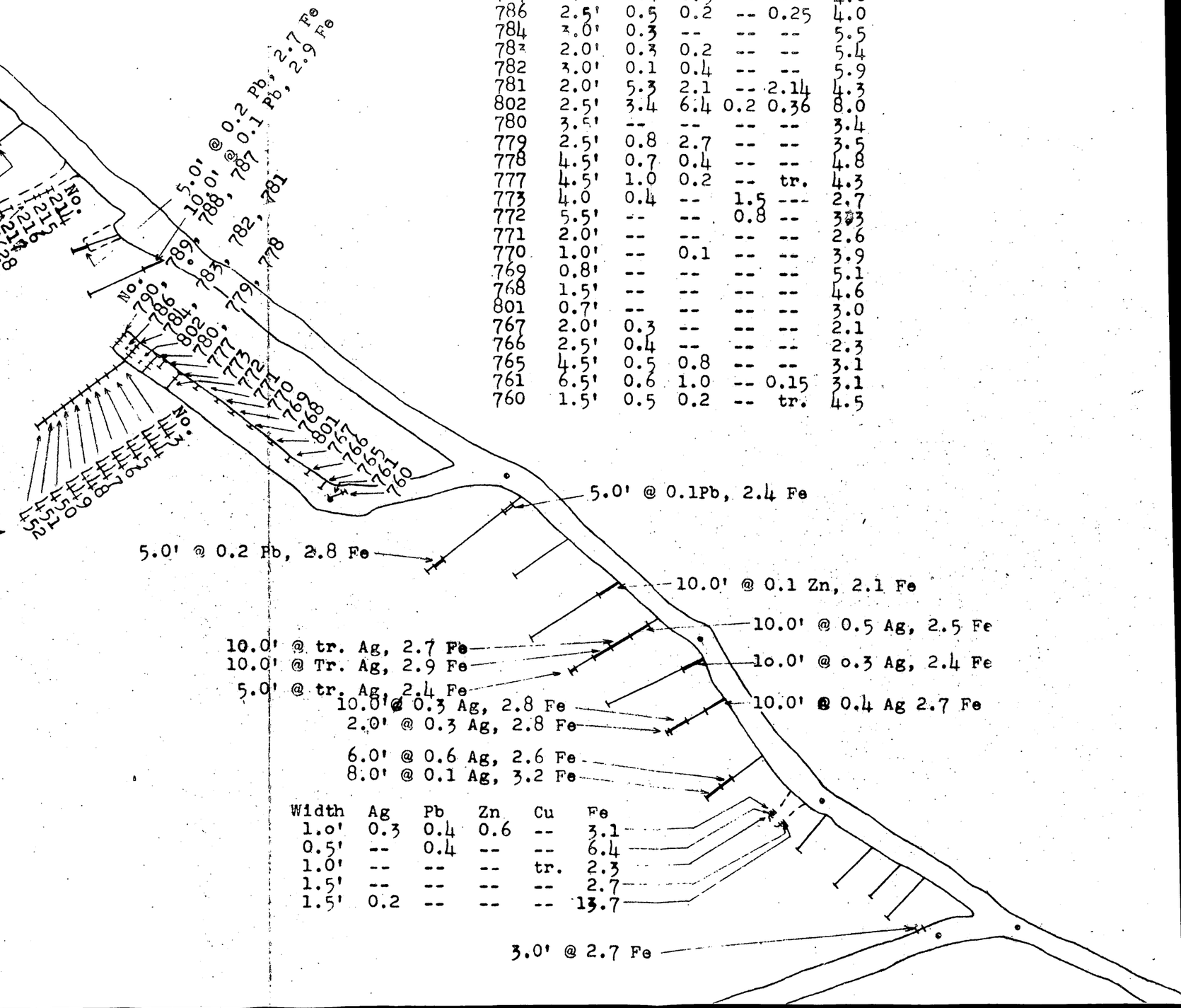
No.	Width	Ag	Pb	Zn	Cu	Fe
214	3.0'	1.3	0.4	0.2	0.15	3.5
215	4.0'	0.6	2.7	0.1	--	4.5
216	2.5'	0.4	1.0	tr.	--	2.6
217	4.0'	0.1	tr.	0.2	--	3.1
8628	5.0'	0.3	1.8	--	--	1.6
8627	10.0'	0.3	1.4	0.1	--	2.6
TH 1	10.0'	0.4	0.8	0.2	--	5.0
TH 2	10.0'	o.3	1.2	0.5	--	1.3
TH 3	10.0'	0.4	1.5	0.1	--	1.7

Longhole Samples

No.	Width	Ag	Pb	Zn	Cu	Fe
443	5.0'	1.0	1.3	--	tr.	7.2
444	5.0'	0.3	0.2	--	--	3.6
445	5.0'	0.4	0.7	--	tr.	3.4
446	5.0'	0.2	0.3	--	--	7.3
447	5.0'	--	--	--	---	2.5
448	5.0'	0.6'	1.1	---	tr.	4.6
449	5.0'	--	0.1	--	--	3.7
450	5.0'	0.4	0.6	--	--	2.8
451	5.0'	0.2	0.5	--	--	1.9
452	6.0'	0.3	0.8	0.2	--	1.8

Drift Samples

No.	Width	Ag	Pb	Zn	Cu	Fe
790	4.0'	0.6	1.4	--	--	4.2
789	2.0'	0.3	--	--	--	3.6
788	3.0'	1.3	--	0.1	--	4.7
787	2.0'	0.4	0.5	--	--	4.0
786	2.5'	0.5	0.2	--	0.25	4.0
784	3.0'	0.3	--	--	--	5.5
783	2.0'	0.3	0.2	--	--	5.4
782	3.0'	0.1	0.4	--	--	5.9
781	2.0'	5.3	2.1	--	2.14	4.3
802	2.5'	3.4	6.4	0.2	0.36	8.0
780	3.5'	--	--	--	--	3.4
779	2.5'	0.8	2.7	--	--	3.5
778	4.5'	0.7	0.4	--	--	4.8
777	4.5'	1.0	0.2	--	tr.	4.3
773	4.0	0.4	--	1.5	---	2.7
772	5.5'	--	--	0.8	--	3.3
771	2.0'	--	--	--	--	2.6
770	1.0'	--	0.1	--	--	3.9
769	0.8'	--	--	--	--	5.1
768	1.5'	--	--	--	--	4.6
801	0.7'	--	--	--	--	3.0
767	2.0'	0.3	--	--	--	2.1
766	2.5'	0.4	--	--	--	2.3
765	4.5'	0.5	0.8	--	--	3.1
761	6.5'	0.6	1.0	--	0.15	3.1
760	1.5'	0.5	0.2	--	tr.	4.5



Width	Ag	Pb	Zn	Cu	Fe
1.o'	0.3	0.4	0.6	--	3.1
0.5'	--	0.4	--	--	6.4
1.0'	--	--	--	tr.	2.3
1.5'	--	--	--	--	2.7
1.5'	0.2	--	--	--	13.7

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March 12,1951

NATIONAL PROJECT

Shoshone County, Idaho

DMA Docket No. 106
Commodity--Lead, Zinc, Copper, Silver
Exploration Loan

Introduction

The application for the National Project is made by the Day Mines, Inc., of Wallace, Idaho, Henry L. Day, President. The area under consideration comprises a part of a large group of claims owned by the Day Company in the eastern part of the Coeur d'Alene mining district, in what is known as the King area. The proposal is a plan to explore more fully the veins and structures that have been partially opened by the Copper King, National, and Missoula tunnels. If successful, the project will develop ore containing lead, zinc, copper, and silver, probably, but not necessarily, in that order of importance. The Day Mines, Inc., is a large, long-established company in the Coeur d'Alene district and is fully capable of doing a competent and efficient job of exploration.

Recommendations

We feel that the National project, while not necessarily the best that could be selected from the many possibilities in the Coeur d'Alene district, is a reasonable one, and that the chances for finding significant amounts of ore are within the limits allowed for most exploration projects. It is, therefore, recommended that an exploration loan be seriously considered for this project as outlined in the original application of the Day Mines Company.

The National project proposal is strictly one of exploration. There is no ore-grade material of minable volume in any of the available workings nor has any been reliably recorded as still existing in the now inaccessible portions of the workings. About 170,000 tons of milling-grade ore was produced prior to 1920 from the National mine, and since the mine closed down at that time, it is assumed that the ore, economic at that time, was mined out.

A complete evaluation of the chances for success or failure of an exploration project in the National area can be made only with a knowledge of the general characteristics and habit of ore deposits in the Coeur d' Alene district. Figures 1 and 1-A attached hereto show the general geological relations of the area around the National project. Figures 2, 3, 4, and 4a illustrate the known geology in the Copper King, National, and Missoula mine workings. The following features might be considered as favorable for the occurrence of ore in the area to be explored:

(1) The Snowstorm mine, a large producer of copper in the period from 1903-1915, lies about $1\frac{1}{2}$ miles southeast of the Missoula tunnel. The disseminated copper ore of the Snowstorm occurs in a bed of medium-grained quartzite of the Revett formation near its contact with the overlying St. Regis formation. The same horizon occurs in the Missoula tunnel where it contains sparsely disseminated chalcopyrite. Available evidence suggests that the ore mined from the National mine also came from the same horizon as that in the Snowstorm, although this portion of the National mine has long been inaccessible and no reliable maps or reports on it exist.

(2) The various tunnels which crosscut the area of the National project disclose a number of very strong and persistent fractures trending between No. 50° and No. 70° W. These contain quartz and rather widely spread, even though quite small, amounts of galena and chalcopyrite. The persistence of the structures is a significant characteristic.

(3) The occurrence in the above-mentioned structures of small shoots of ore such as are found in the Missoula tunnel and are reported to occur in the upper workings of the Copper King.

(4) The general fact that many ore bodies in the Coeur d'Alene district extend to great depth, and many structures similar to those in the area of the National project, have been found to contain significant ore bodies at depth, even though barren at the surface.

(5) Items 1 and 2 above suggest the existence of two types of ore bodies in the area: (a) those localized in a favorable quartzite bed near the top of the Revett formation and (b) those localized in through-going fractures or veins. Both types should be considered in any exploration program.

Against these encouraging features are a number of relationships that might tend to minimize the chances for ore deposits in the area to be explored:

(1) The area is structurally quite simple. (See cross section, Figure 1-A). The beds are gently dipping for the most part, although they have been displaced by a number of prominent faults. A great number of the major ore bodies in the district as a whole are localized in area of extreme folding and faulting. However, there are notable exceptions to this generalization, one of the outstanding being the Snowstorm mine near the area of the National project.

(2) There is a lack of extensive alteration or bleaching in the wall rocks of the vein zones. Such bleaching is a prominent characteristic of many of the prominent ore bodies elsewhere in the Coeur d'Alene district--especially in the silver belt. However, in this case as in the case of complex structure, there are exceptions to the general rule, and the presence of bleaching is not everywhere a necessary prerequisite for the occurrence of ore. The type of rock and the degree of shearing etc., has a profound control on the distribution of the bleaching. In many places the factors favorable for profound bleaching were apparently also favorable for ore deposition.

(3) The stratigraphic horizon that controlled the large ore body in the Snowstorm mine extends as far as the Missoula tunnel area, but from there it swings northward out of the zone to be explored. Its place is taken by a series of fissures that present a type of environment or control for the deposition of ore minerals considerably different from

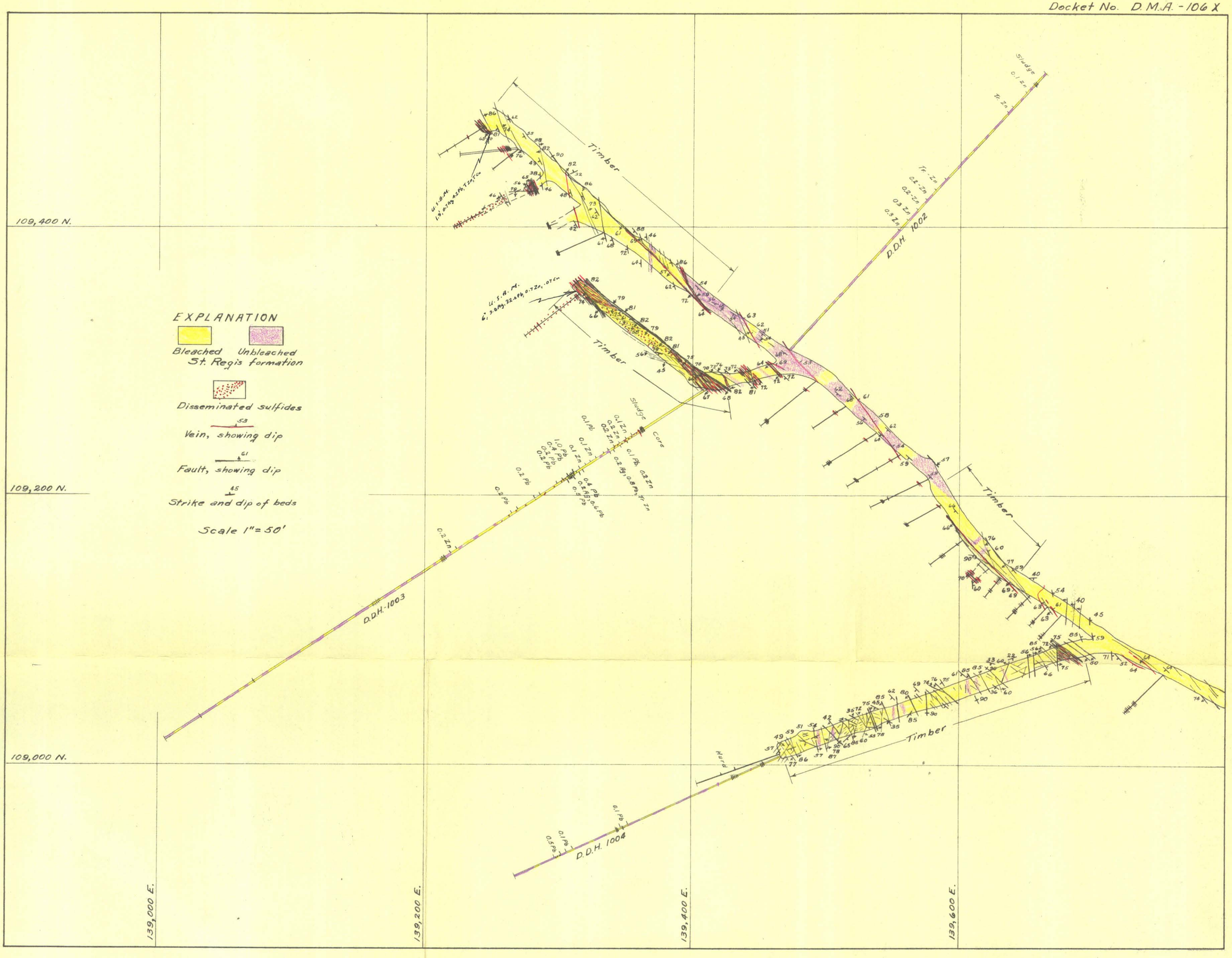
that present in the Snowstorm.

(4) Veins in the area of the National project have a predominently quartz gangue in contrast to the high carbonate gangue of many of the local productive veins elsewhere in the district. However, a number of the productive veins in the general vicinity of the area under consideration have a preponderance of quartz over carbonate in the gange.

The National project is pure exploration of the tupe that has been and is being undertaken by the major established mining companies in the Coeur d'Alene district. Enough outstanding successes have resulted from such projects to make the risk attractive. In this case, the Day Mines Company has been working on the National project as much as feasible within the overall plans for the development of their numerous properties in the district. They don't consider it to be their best bet, but they do think well enough of the chances to have spent well over $60,000 to date on the first step of the project. They are continuing the work with every expectation of completing the job at some time in the future, to be determined by availability of finances and equipment and manpower etc.

Map 3

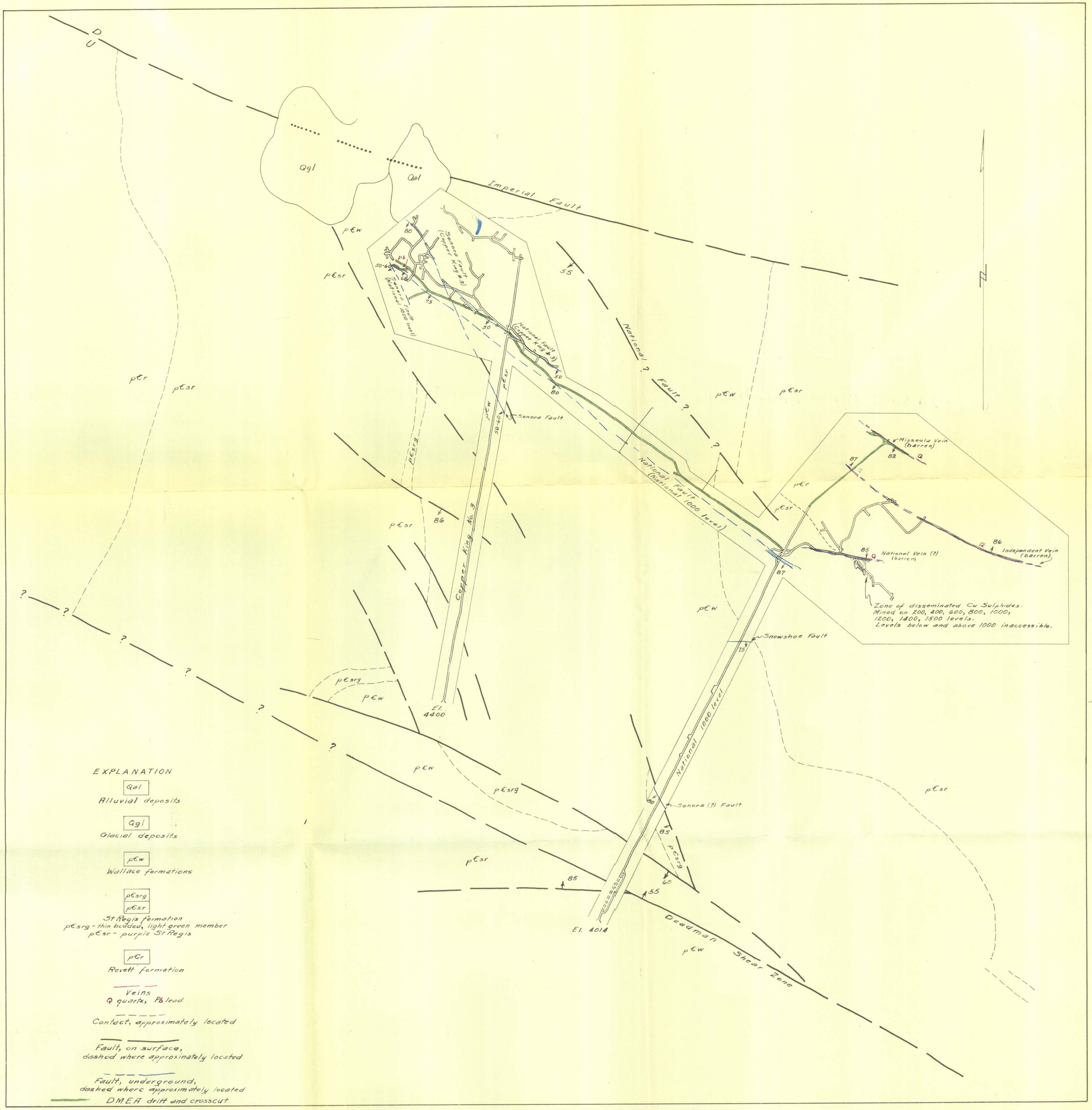
Docket No. D.M.A.-106 X



Geologic Map of Mineralized Area
Copper King Drift, National Mine, 1000 Level
Shoshone County, Idaho

Map No. 1

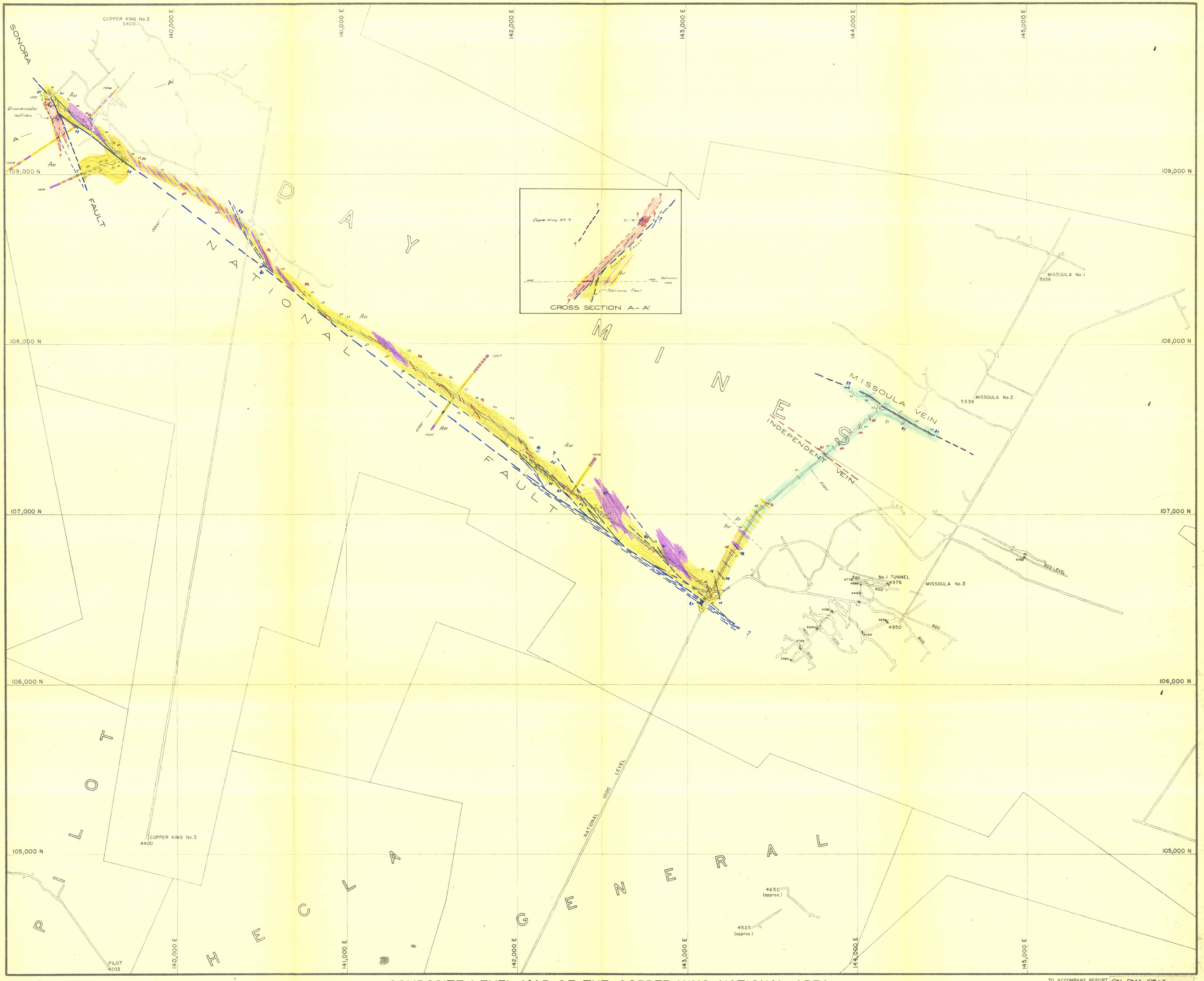
DMA-106X



Geology from Company sources and U.S.G.S.

Map showing Geologic Features of Nationl Mine, 1000 level and Copper King No. 3 adit level

500 0 500 1000 1500 Feet



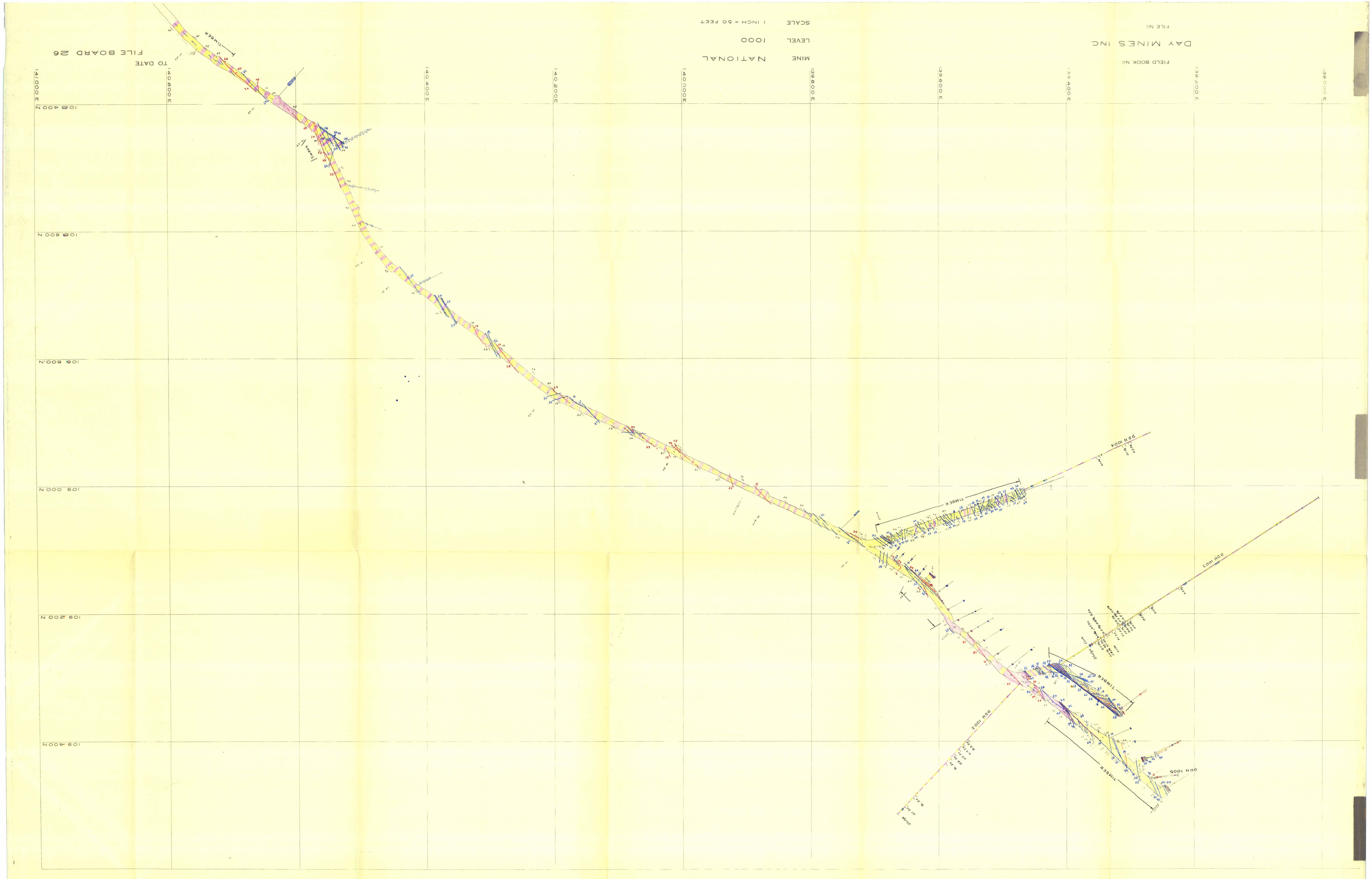
COMPOSITE LEVEL MAP OF THE COPPER KING-NATIONAL AREA

LELANDE AND HUNTER MINING DISTRICTS

SHOSHONE COUNTY, IDAHO

AUGUST 1948 SCALE 1" = 200'

TO ACCOMPANY REPORT ON DMA 106-X
NATIONAL PROJECT
DAY MINES INC.
BY G.M. CROSBY
SR. GEOLOGIST


DAY MINES INC.
FIELD BOOK No
FILE No
MINE NATIONAL
LEVEL 1000
SCALE 1 INCH = 50 FEET
FILE BOARD 26
TO DATE
139 200 E
139 400 E
139 600 E
139 800 E
140 000 E
140 200 E
140 400 E
140 600 E
140 800 E
141 000 E
109 400 N
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TIMBER
DDH 1004
DDH 1003
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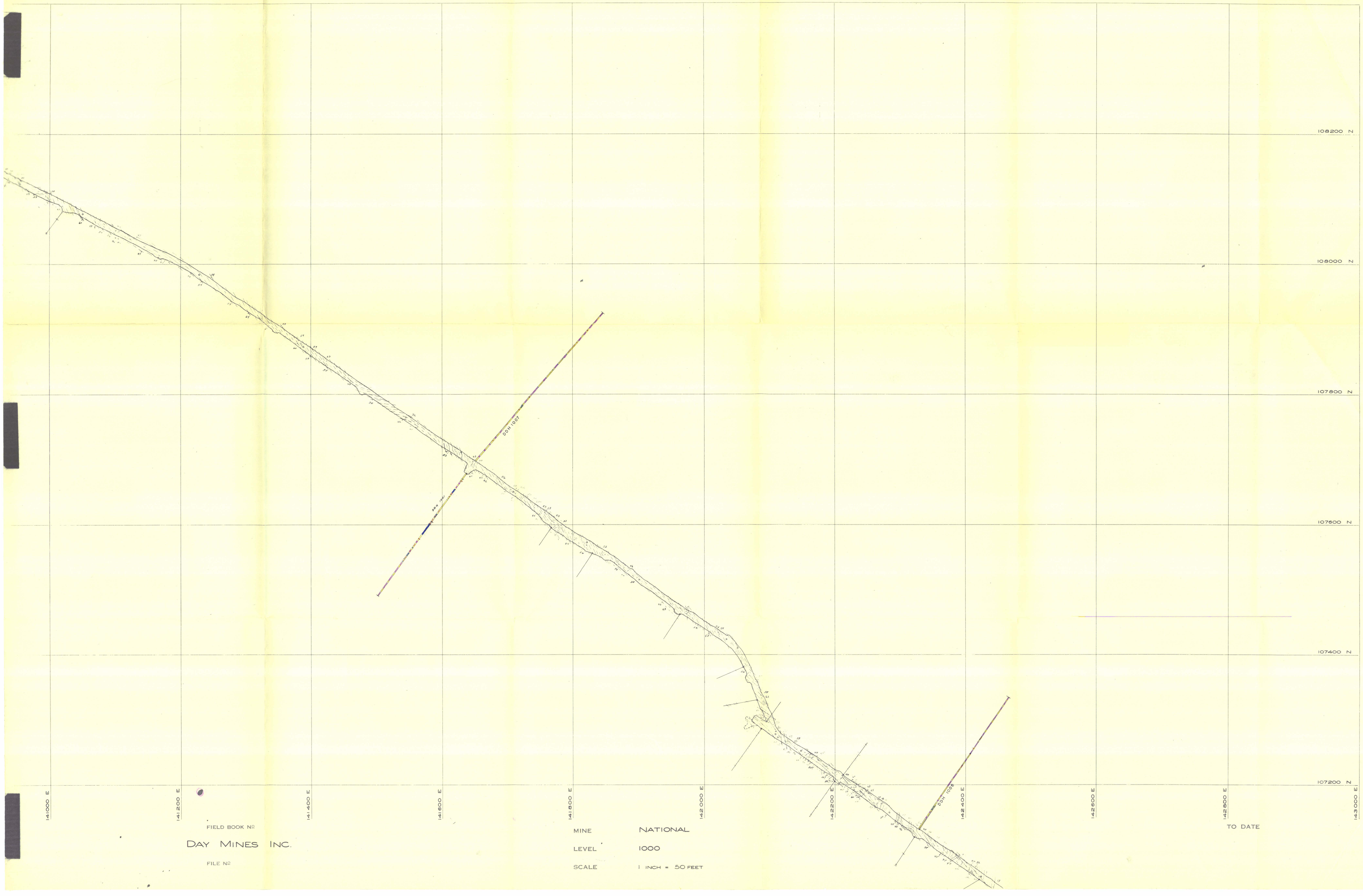

FIELD BOOK Nº

DAY MINES INC.

FILE Nº

MINE NATIONAL

LEVEL 1000

SCALE 1 INCH = 50 FEET