So. 157 Howard Street
Spokane 4, Washington
June 26, 1963

Memorandum

To: Chief, Division of Field Operations

From: Acting Field Officer, Region I

Subject: Examination report
OME-6294 (Uranium)
Triple H & J Mining Company, Inc.
Lost Creek Claims
Pend Oreille County, Washington

INTRODUCTION

The Triple H & J Mining Company, Inc. of Astoria, Oregon, has requested OME assistance to explore for uranium on the Lost Creek claims, Pend Oreille County, Washington.

The applicant proposes to explore for the downward extension of a uranium-bearing zone by driving 300 feet of crosscut 7 by 8 feet in cross section; by diamond drilling from the face of the crosscut 6 holes, 11/16-inch core size, totaling 750 feet; and based on the results of the drilling, by driving an additional 212 feet of crosscut and drift to reach and explore the ore zone. His estimated total cost of this proposal is $36,000, of which the Government's share would be 50 percent, or $18,000.

The property was examined May 16, 1963, in the company of Ben C. Haikkila, his brother, Roy, and his son, Ted. About 3 hours were spent on the property inspecting the portal sites and accessible tunnel workings, and reviewing with the Haikkilas the results of their past work and their proposed contract costs.

In view of the opinions expressed by Atomic Energy Commission personnel and on the basis of available data, a recommendation for denial is probably justified. However, a modified program comprising the driving of 800 feet of crosscut and drift 5 by 7 feet in rock section at an estimated cost of $27,732, of which the Government's share will be $13,866, is suggested for consideration only as a long-shot venture.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Autunite occurs in high grade but discontinuous stringers and pods in fault zones, fractures, and vugs in quartz monzonite of the Kaniksu batholith. A total of 1,600 tons of ore averaging about 0.47 percent U_3O_8 has been shipped from the surface and shallow workings. According to the applicant 725 tons of premium grade ore was mined from a surface open cut and 875 tons of good grade ore was won from 478 feet of drifting. The applicant has drilled at least 11 holes totaling 916 feet to test the downward continuation of the ore zone. He could show neither core nor assays of core or sludge samples from any of the drilling except for a small bottle of quartz-feldspar-muscovite grains said to have come from an unidentified hole and to have assayed 0.2 percent U_3O_8. He stated that he was unable to recover either core or sludge from the ore zone because the latter was too decomposed and broken, and contained open shears, many of which were water courses. Some of the water courses discharged into the drill hole so violently that the drill could barely be held in place and the sludge could not be trapped; in the open shears drill water was lost. That one or the other of these processes would hold throughout the ore zone in each hole drilled is hard to believe, but is probably not impossible.

It is concluded that the property may possibly merit additional exploration; that the applicant has not been successful in his attempts to drill it; that if OME were to insist that drilling be done by a competent contract driller who could conceivably be no more successful, it would be open to severe criticism; and that therefore the only feasible method of exploration for this operator is by tunneling. It is also concluded that although appreciable tonnage of excellent grade material has been produced from the near surface and surface, there is little, if any, direct evidence to indicate whether material or ore grade in minable amounts extends 100 feet below the present workings. The possibility that it does might justify, but only as a long shot, 800 feet of exploratory crosscut and drift. It is suggested, though not recommended too strongly that a modified program comprising 800 feet of crosscutting and drifting be considered as a purely long-shot venture.

LOCATION AND ACCESSIBILITY

The property lies in sec. 30, T. 36 N., R. 43 E., and comprises 11 unpatented lode mining claims recorded at the Recorder's office, Newport, Washington, as follows:

Claim	Quartz Book No.	Page
Lost Creek #1	6	151
#2	6	152
#3	6	153
#4	6	154
#5	6	155
#6	6	156
South Lost Creek #1	8	104
#2	8	107
#3	8	108
#4	8	109
#5	8	110

The property may be reached from the town of Newport, Washington, by proceeding northerly on State Highway 6 for 37 miles to the old townsite of Blueside. Thence turn left on the Kaniksu Forest Service road and follow it for about 7 miles to an iron gate at the campsite. At all forks of the Forest Service road follow the one bearing right. The mine workings are about a half a mile beyond the campsite. State Highway 6 is paved and is kept open the year round; the Forest Service road is gravel surfaced and all but the last mile or so to the campsite is passable most of the year. The final mile was built by the company which is responsible for snow removal during the winter months.

MINE WORKINGS

The original working was a large open cut from which autunite was hand sorted (applicant's Map No. 1). When the overburden at the back of the open cut became too deep, the two upper tunnels were driven along uranium- (autunite) bearing shears. The portals are almost entirely closed by debris and fallen rock which has acted as a dam flooding the workings. About 440 feet and N. 30° E. from the upper tunnels a lower tunnel has been started to cut the uranium-bearing zone at a depth of about 100 feet below the upper workings. The lower tunnel is open and cleaned out to the face; it is 7 by 8 feet in rock section and has been driven 156 feet at a bearing of S. 72° W. According to the applicants there are no other workings except for 11 diamond drill holes 11/16-inch core size.

GEOLOGY

The Lost Creek claims are situated in the southwest corner of the Metalins Quadrangle the geology of which is described by C. F. Park, Jr., and R. S. Cannon, Jr. (U. S. Geol. Survey Prof. Paper 202, 1943).

Personnel of the Spokane office, AEC, visited the property and mapped one of the upper tunnels. The applicant's assay map is copied from the AEC map except that in the assay table the right-hand column should be eU_3O_8 and the left-hand column cU_3O_8. One of the former AEC geologists who did the mapping is presently with the Bureau of Mines, Spokane office, and has furnished much of the following information. For this reason information was not requested from the AEC Grand Junction office. To have the applicant reopen the Upper Tunnels would not provide OME with any additional information.

Rocks exposed in the open cut and the tunnels are those of the Kaniksu batholith, Cretaceous in age. For the most part, they are quartz monzonite with bands of pegmatite or at least material approaching pegmatite in composition and structure.

In the open cut just north of the Upper Tunnels' portal is a pegmatitic band about 2 to 3 feet thick that strikes northwesterly and dips at a low angle to the southwest. Within this band radioactivity is about 10 times background, but the radioactivity drops sharply north of a northwesterly striking fault that seeps considerable water. Some small crystals of autunite were seen in the pegmatite. These could have been deposited recently from the water which continually seeps from the structure.

In the lower tunnel about 75 feet from the portal a 3-foot thick pegmatite dike strikes N. 5° E. and dips 24° westerly. No radioactivity above background was detected. At both locations the pegmatite comprises coarse feldspar and quartz crystals and fairly coarse muscovite.

The quartz monzonite is medium- to coarse-grained to porphyritic. Jointing is irregular but for the most part is steeply dippling. Also in the open cut there is some evidence of flat-dipping faults.

It is suspected that the autunite is a secondary mineral deposited by ground water at the surface and along channelways below the surface but there is no evidence as to the primary source of the uranium nor of the depth to which autunite or other secondary uranium minerals may have been deposited. The applicant insists that he could determine when his drill holes cut ore but there is no material evidence to support his claim. His statement in the

application under 3(g) that "this formation is a flat-like structure dipping 37° South-westerly and 14° North-westerly, lying directly above a sheet-like intrusion etc." was discussed with him for clarification. He apparently means that several of the drill holes cut a "gabbro-type" rock (sill?) that strikes northwesterly and dips southwesterly at about 37°, and that the ore seems to lie above this sill(?). The total lack of drill logs and core made it impossible to check this concept.

ORE RESERVES

The application states of ore reserves ". . . not known beyond present drilling," and gives no estimate based on the drilling.

An AEC report, classified for Official Use Only, dated February 16, 1960, states in part:

"Ore Reserve

AEC 11/1/57:	None	AEC current:	887 at 0.25% (1-1-60)
AEC 11/24/58:	1,033 at 0.25%	Company 11/24/58:	1,000 or 300,000 T

"Total Production to date: 1,293 T at 0.47% (1-1-60)

1958 1,147 at 0.50%

1959 146 at 0.20%

"In a letter dated July 27, 1959, the company states that '1,000 tons of ore were blocked out by drilling' and 'certain knowledge was gained which gives us assurance that this ore zone contains ore reserves of approximately 390,000 tons.' No maps, drill hole data or any data were given to substantiate their reserve figures.

"Company's '1,000 tons of blocked out ore' agrees with our indicated plus inferred. There is no data to support their figure of 300,000 tons of additional ore.

"The operators do not give up easily and will probably mine several hundred more tons. Unless the picture changes, this will be very high cost ore and sustained production is not expected."

In view of the above, a recommendation for denial is probably justified.

SUGGESTED PROJECT

The Haikkilas are "jacks of all trades" being especially good at improvising and repairing machinery, etc. Apparently, they have had little real mining experience and less technical background in either geology or mining engineering. However, they are willing to seek, and in the past have sought, the advice of more qualified men.

They are convinced that more experienced commercial drillers would be no more successful than they have been in collecting core or saving sludge. I am reluctant to suggest that OMR insist on drilling by a contract driller because of the possibility that he might not be more successful. Certainly, it would be pointless to support additional drilling by the applicant. Without preliminary drilling the project becomes such a long shot that I am also reluctant to use the word "recommend" and am substituting therefore the word "suggested."

The lower tunnel has been driven 7 by 8 feet in rock section in order to accommodate a trackless 1-yard Wagner mucking machine. This machine is used because the president of the Wagner Company which makes it is the same R. T. Wagner who is now president of the applicant company. I explained that if a contract were offered, the cost of any tunneling work would be based on a 5 by 7-foot minimum size rock section; that as they were planning to use a trackless mucking machine the cost of track could not be included as that would necessitate a specification requiring track of a minimum size rail; and that probably the best we could do in this regard would be to allow for the cost of a standard mucker such as an Eimco B-12. However, in order to arrive at a fair unit price for a 5- by 7-foot drift I will provide for a B-12 mucker, mine cars, trammer, rail, etc., but no rail requirement should appear in the specifications.

It is suggested that consideration be given to extending the present lower tunnel 420 feet to intersect the ore zone and to drift 380 feet easterly and/or westerly along the zone. If the ore zone is cut before 420 feet of crosscutting has been done, the balance of crosscutting could be applied to drifting, or if the ore zone is not cut within 420 feet and evidence is encountered to justify it, part of the drifting could be applied to crosscutting.

Crosscut and drifts shall be not less than 5 by 7 feet, rock section. Estimated average rate of advance: 5 ft/shift - time required for 800 feet drift and crosscut: 160 days; at 1 shift/day, 22 days/month, say 7.5 months.

COSTS

1. Independent Contracts — None

2. Labor and Supervision

2 miners at $18.18/shift	$36.36
½ engineer-supervisor at $560/mo	12.73
	$49.09
FICA and other insurance 14.2%	6.97
	$56.06

At 5 ft/shift: $11.212 say — $11.21/ft

3. Operating Materials and Supplies (per 5 ft round)

75 lbs powder at $0.30/lb	$22.50
18 caps, electric delay 0-10 at $0.325 ea	5.85
Water line w/fittings, 1"-775 ft at $0.36/ft (less 50% - no salvage)	0.87
Water hose w/fittings, ½"-200 ft at $0.80/ft	1.00
Air line w/fittings, 2"-775 ft at $0.50/ft (less 50% - no salvage)	1.21
Air hose w/fittings, 1"-200 ft at $0.85/ft	1.10
80 gal. diesel fuel at $0.19/gal	15.20
6 gal. gasoline at $0.33	1.98
Oil and grease - 5% of diesel oil	0.76
Ventline, 10"-700 ft at $75/100 (less 50% - no salvage)	1.64
Rail, 20-lb at $1/ft (less 50% - no salvage)	2.50
Ties, 3-3/4 ea at $0.40	1.50
Steel, 1 replaced/300 ft at $16/ft (108 ft/round)	5.76
Bits, 300 ft/bit at $20 (108 ft/round)	7.20
Repair parts and tools at $/ft	5.00
Total	$74.07

at 5 ft/round — $14.81/ft

4. Operating Equipment

Furnished by applicant	Present fair market value	Allowable depreciation/mo.
I.R. Compressor	$2,500.00	$ 41.67
20 KW Diesel power plant	1,500.00	25.00
Jumbo drill unit	6,000.00	100.00
Flyweight pump (for drilling water from source to portal)	500.00	8.33
Piston pump-drilling water, portal to face	75.00	1.25
200 Amp Lincoln welder	500.00	8.33
5,000 CFM blower	250.00	4.17
4x4 Dodge power wagon	500.00	8.33
Dodge 6-wheel power wagon*	750.00	12.50
Wagner 1 yd mucker (new)	3,100.00**	51.67
Mobile trammer	4,000.00***	66.67
Total		$327.92
for 7.5 months		$2,459.40
at 800 ft of drift and crosscut $3.074	say	$3.07/ft

*For fire protection-required by Forest Service
**Mucker cost based on new Eimco 12-B
***Mobile trammer cost based on 5 mine cars at $100 and 1 Mancha trammer at $3,500

5. Rehabilitation and Repairs

4 - 6-volt or 2 - 12-volt battery replacements	$125.00	
Parts for air motor on jumbo drill	150.00	
Total	$275.00	
at 800 ft of drift and crosscut $0.344	say	$0.34/ft

6. New Buildings — None

7. Miscellaneous (to next sheet)

7. Miscellaneous

50 assay determinations for U_3O_8 at $5 ea		$250.00
Consulting geologist and/or mining engineer	16 days at $50	800.00
per diem	16 days at $15	240.00
Total		$1,290.00

Total cost/ft for drifting and crosscutting - items 1 through 5 $29.43/ft

TIMBERING

It is estimated that all the drifting and 20 feet of the crosscut will require timber. Say, 400 feet of timber at 5-foot intervals or 80 sets. Two miners should stand and block 3 sets or 15 ft/shaft per shift - time required 26.6, say 33 days or 1.5 months.

1. Independent Contracts None

2. Labor and Supervision

2 miners at $18.18/shift	$36.36	
½ engineer-supervisor at $560/mo	12.73	
	$49.09	
FICA and other insurance 14.2%	6.97	
	$56.06	
at 15 ft/shift: $3.737	say	$3.74/ft

3. Operating Materials and Supplies

160 posts, 8"x8"x7'	= 5,973 bf	
80 caps, 8"x8"x6'4"	= 2,702 bf	
160 collar braces 4"x4"x4'4"	= 924 bf	
1,000 lagging, 2"x12"x5'6"	= 11,000 bf	
	20,599 bf	
at $70/M:	$1,441.90	
For blocks, wedges, etc., 5% of $1,441.90	72.09	
	$1,513.99	
at 400 ft of timber: $3.785	say	$ 3.79/ft
Gas, oil, fuel, etc.		2.80
		$6.59/ft

4. Operating Equipment

Furnished by applicant	Present fair market value	Allowable depreciation/mo.
20 KW Diesel power	$1,500.00	$25.00
5,000 CFM blower	250.00	4.17
4x4 Dodge power wagon	500.00	8.33
		$37.50
	for 1.5 mos	$56.25

at 400 ft of timber: $0.14/ft

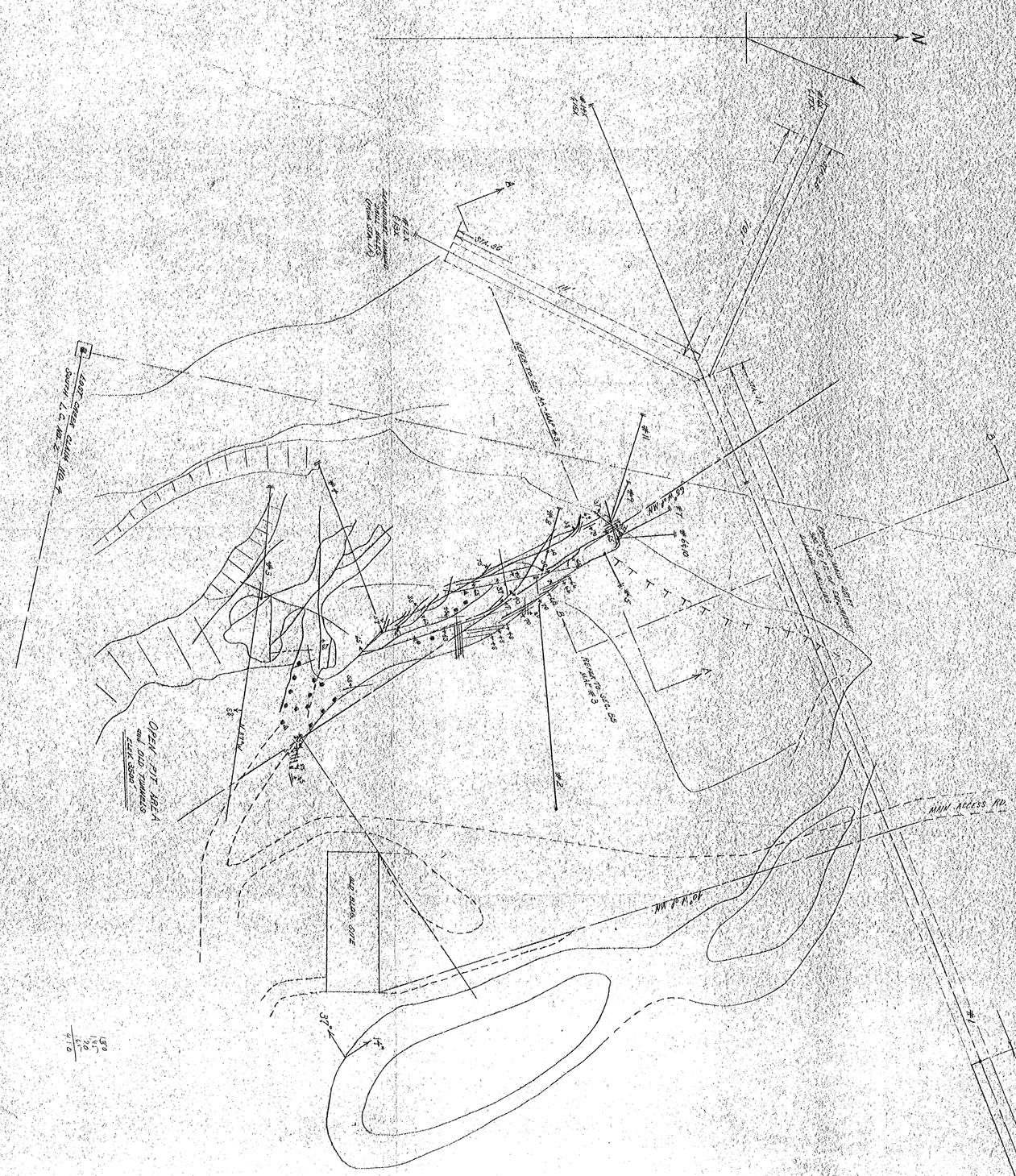
5., 6., and 7. None

Total cost/ft for timbering $10.47/ft

RECAPITULATION

800 ft drift and crosscut at $29.43	$23,544.00
400 ft timber at $10.47	4,188.00
Total Estimated Cost of Project	$27,732.00
Government's participation at 50%	$13,866.00

Distribution:
OME(3)
Docket
MacLaren
SRO



TRIPLE HOT MINING CO. INC.
LOST CREEK MINE, I-2-3-4-5-6
CLAYTON I-2-3-4-5-6 PARK COUNTY, WYOM.
SEC. 28 T.58N. R.98W.
SCALE - 20'

PROPOSED STRUCTURES	DEC., 1967
DRILL PIT	OVERBURDEN REMOVED - 60,000 TON
UNDERGROUND DEVELOPMENT	TRANSMITTER CHAT - 1955
" "	634 FEET - TUNNEL AVE
" "	316 FEET - DIAMOND DRILLING
" "	1641' - PROPOSED WORK ADIT

LEGEND

PROPOSED STRUCTURE DIRE 45° WEST-WESTERLY DIRECTION
" " " 25° WEST
" " " 37° SOUTH-WESTERLY
ALL SIDEBARS (Centre of adit) ELEV. 8000 (Approx.)
CASE DRILL HOLES AND ⊕ - Indicates) DECEM. 1962
TUNNEL TIMBERS NOTED WITH DOTS •

DRILL HOLE HOLES AND DISTANCE DRILLED - (Est.) Approximate - 2054'
(Bit) 37° - 108' (Bit) 45° - 261' (Bit) 45° - 120' (Bit) 55° - 24'
(Bit) 55° - 56' (Bit) 54° - 142' (Bit) 60° - 117' (Bit) 55° - 36'
(Bit) 42° - 56' (For accurate measurements see map 1962)

Exploratory drilling - (Bit) - 1170' holes to be determined
or see actual measurements see map 1962

MAP NO. 1

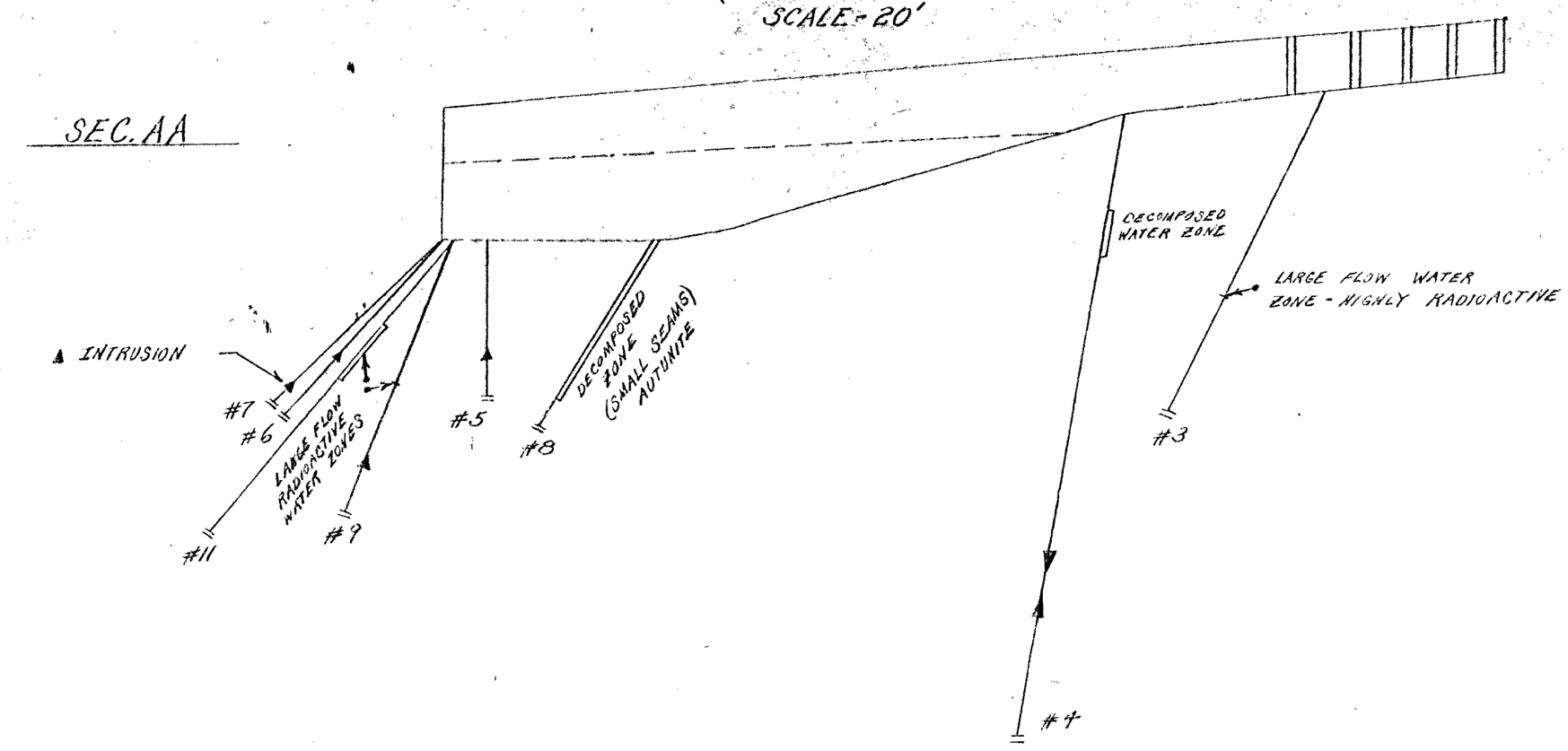
Revised
Revised 2-19-63

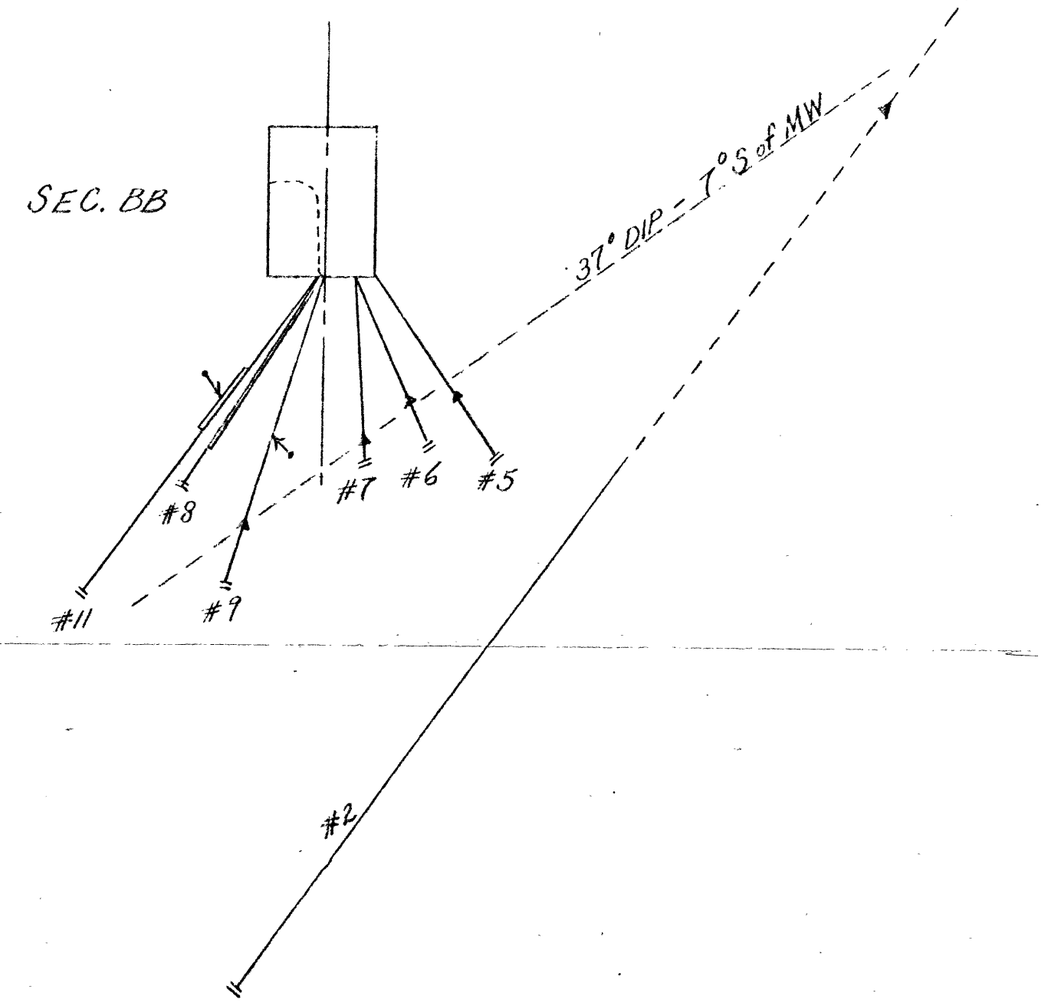
MAP #6

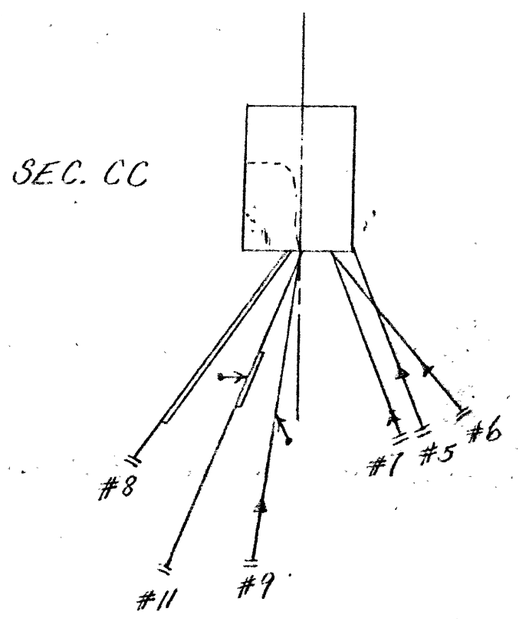
CORE DRILLING

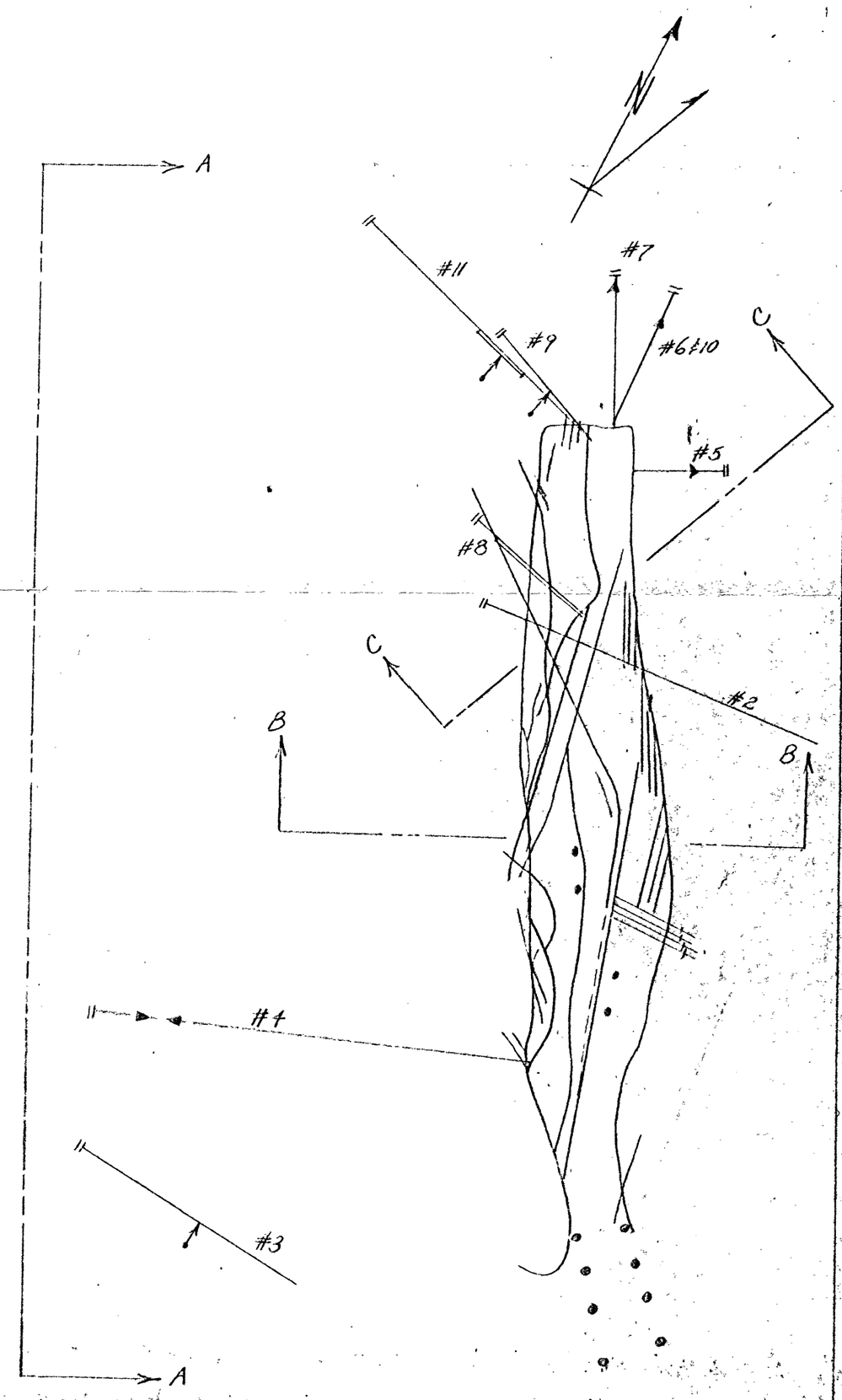
(SECTIONAL VIEWS)

SCALE - 20'









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FEB 28 1963
U S G S.
SPOKANE, WASH.

TRIPLE H&J MINING CO.
LOST CREEK MINE NO. 1
BLUESLIDE, WASH.
SEC. 30 T. 36N. R. 43E.
JAN. 2, 1963
BCH+NBH

Map 2