

*Drilling Results* ✓

800137

MINERAL EVALUATION REPORT

BECKER HAMMER DRILL PROJECT  
DAN CLAIM GROUP

LOWER OTTER CREEK

SURPRISE LAKE AREA

ATLIN GOLD PLACER CAMP

NORTHWESTERN  
BRITISH COLUMBIA

(ATLIN MINING DIVISION)

FOR

GENIE RESOURCES LTD  
C112 - 255 WEST 1st ST.  
N. VANCOUVER, B.C. V7M 3G7

BY

M.D. KIERANS P. Eng.

059 37' North Latitude  
133 23' West Longitude

August 17, 1983

MDK

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BRITISH COLUMBIA

M.D Kierans P. Eng.

August 17, 1983

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## SUMMARY

The Dan Placer Claim Group of about 3000 ha (13 claims and fractions) is located on lower Otter Creek, about 20 km east of Atlin in northwestern British Columbia. Genie Resources Ltd. of Vancouver has agreements with the optioner and owner of the Group to explore and exploit the property.

Atlin gold placer camp, in a glaciated area, has, in general, rich and relatively narrow Tertiary gravel placers, under unfrozen glacial deposits of varying thickness. The known placer deposit of lower Otter Creek is one of such placer deposits located in a Tertiary channel to the east of the present creek bed.

The writer supervised a 4182-foot program (in 57 holes) of Becker hammer drilling between May 22 and August 2 of this year at Dan Group. As a result of that project, which involved the sluicing and panning of over 250 six-foot samples of the drill return material from about 2,000 feet of drill hole or about 25 tons of potential pay material, blocks of proven, probable and possible placer ore have been assigned along the located and presumed sections of the Tertiary channel.

At the Drain Lease Extension Zone or DLE Zone, which is directly upstream or south of an operating placer open pit, the drilling results, previous underground mining production, geological inferences and production information are combined to prove 300,000 C.Y. of pay at 0.10 oz/C.Y. Here additional drilling may add 100,000 C.Y. of pay, which is presently in the probable category. This amounts to 40,000 ounces in proven plus probable category.

At 1702 Zone, located about 1500 m upstream from the the DLE Zone the drill program there in ten holes, indicated 100,000 C.Y. of probable ore at 0.10 oz/C.Y. or 10,000 ounces. Between the drilled area of the DLE block and 1702 Zone the writer believes there is 1.5 million C.Y. at 0.10 grade or about 150,000 ounces. The total proven, probable and possible reserve at Dan Group totals 205,000 ounces.

The continuation of the Becker hammer drilling project for the remainder of the 1983 field season is recommended. This program of about 2,000 additional feet in deep holes should cost about \$200,000. Percussion drilling and seismic surveying systems of exploration of the channel are, in the writer's opinion not likely to either locate or indicate grade of the deposit. Becker hammer drilling, as a result of the drilling to date, should do both.

Dan:                      Atlin:              August 17, 1983:              MDK

MINERAL EVALUATION REPORT  
BECKER HAMMER DRILLING PROJECT, DAN CLAIM GROUP,  
LOWER OTTER CREEK, SURPRISE LAKE AREA,  
ATLIN PLACER GOLD CAMP, BRITISH COLUMBIA.

M. D. Kierans P. Eng.

August 16, 1983

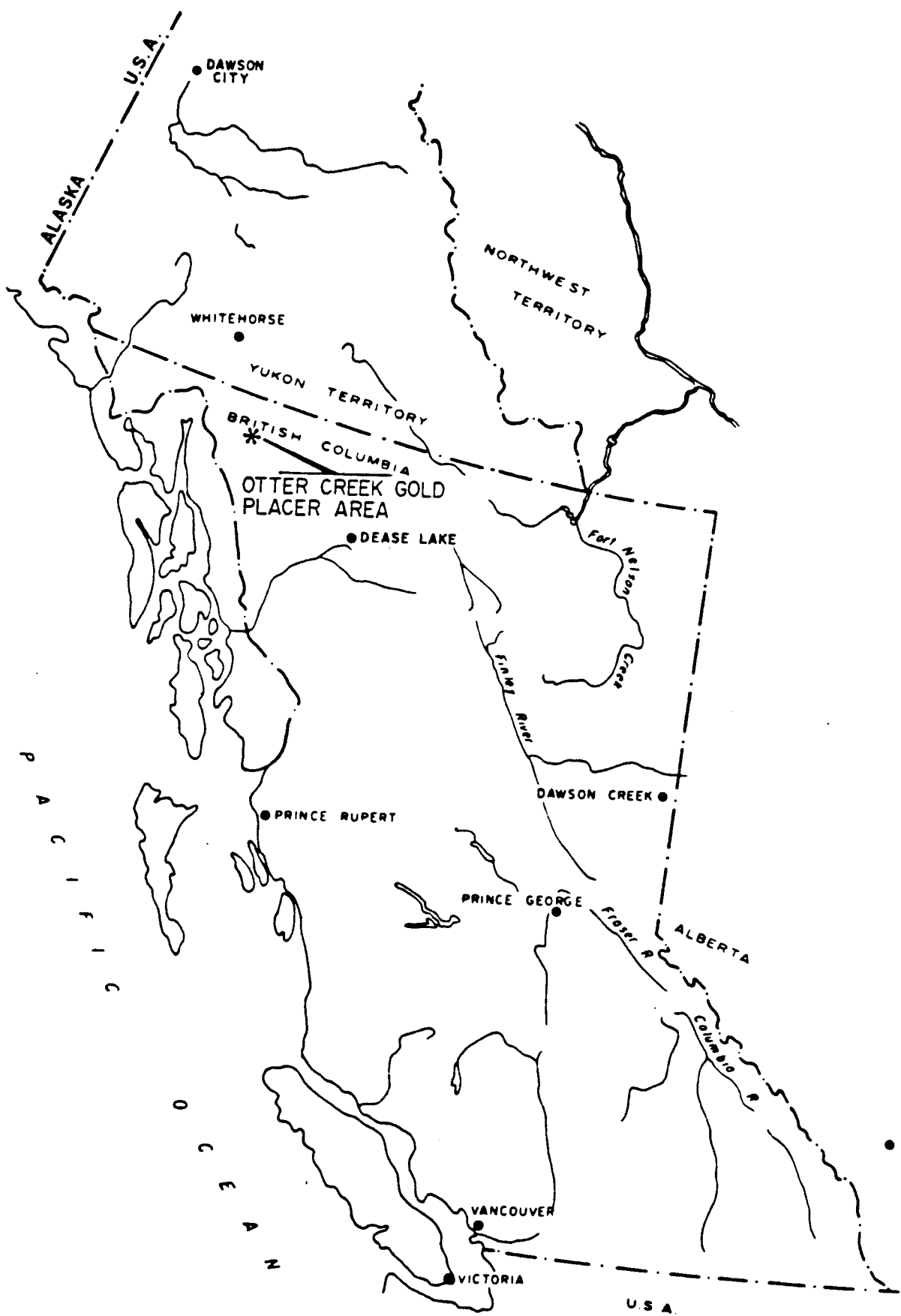
INTRODUCTION

The writer arrived at Atlin on May 22nd, this year, to supervise a Becker Hammer Drill program on the Dan claim Group of placer mineral leases. The drill program began on May 26 and the last hole was drilled on July 24. I returned to Vancouver on August 2nd. Between the last two dates I supervised sluicing and panning of drill hole samples and completed some survey control work on drill hole locations. In all, 57 drill holes were collared. Of these 44 were completed holes. The others were abandoned for various reasons. Please see Table I for detailed footages and timetable of drilling progress. Detailed field logs were maintained for all holes drilled and are on file. These will be typed for the final report on the project which is to be prepared at the end of the field season. This report, though complete so far as the drilling results to date are concerned, should be considered as an interim progress report on the overall placer geology of the subject claims.

The purposes of this report are to present an account of the results of the drill program itself, to offer reserve and grade estimates for the three different zones drilled, and to present a program for continued drilling of the Otter Creek Tertiary channel on the Dan Claim Group. The potential of the property, as discussed in a private report by the writer, dated May 17, 1983, will also be reassessed in view of the drilling results. Certain aspects of the placer geology of the group will be reserved for the final report in the interests of brevity.

In all, 4182.5 feet of Becker drill hole were drilled in the 60 days from beginning to end of the actual drilling program. This works out to about 70 feet per day. The drilling shift amounted to about 10 hours per day. The drill rate was about 7 feet per hour. The above figure is somewhat misleading as the driller took about 5 days off for a "break" in early July, and there were quite a few days of down time due to mechanical and other problems. Also we drilled two deep holes (183.5 and 164.5 feet) in very hard cemented gravel. One hole required blasting of a boulder.

Dan:                      Atlin:              August 17, 1983:              MDK              -1-



### LOCATION MAP

SCALE: 1" = 140 MILES APPROX

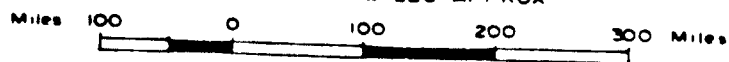
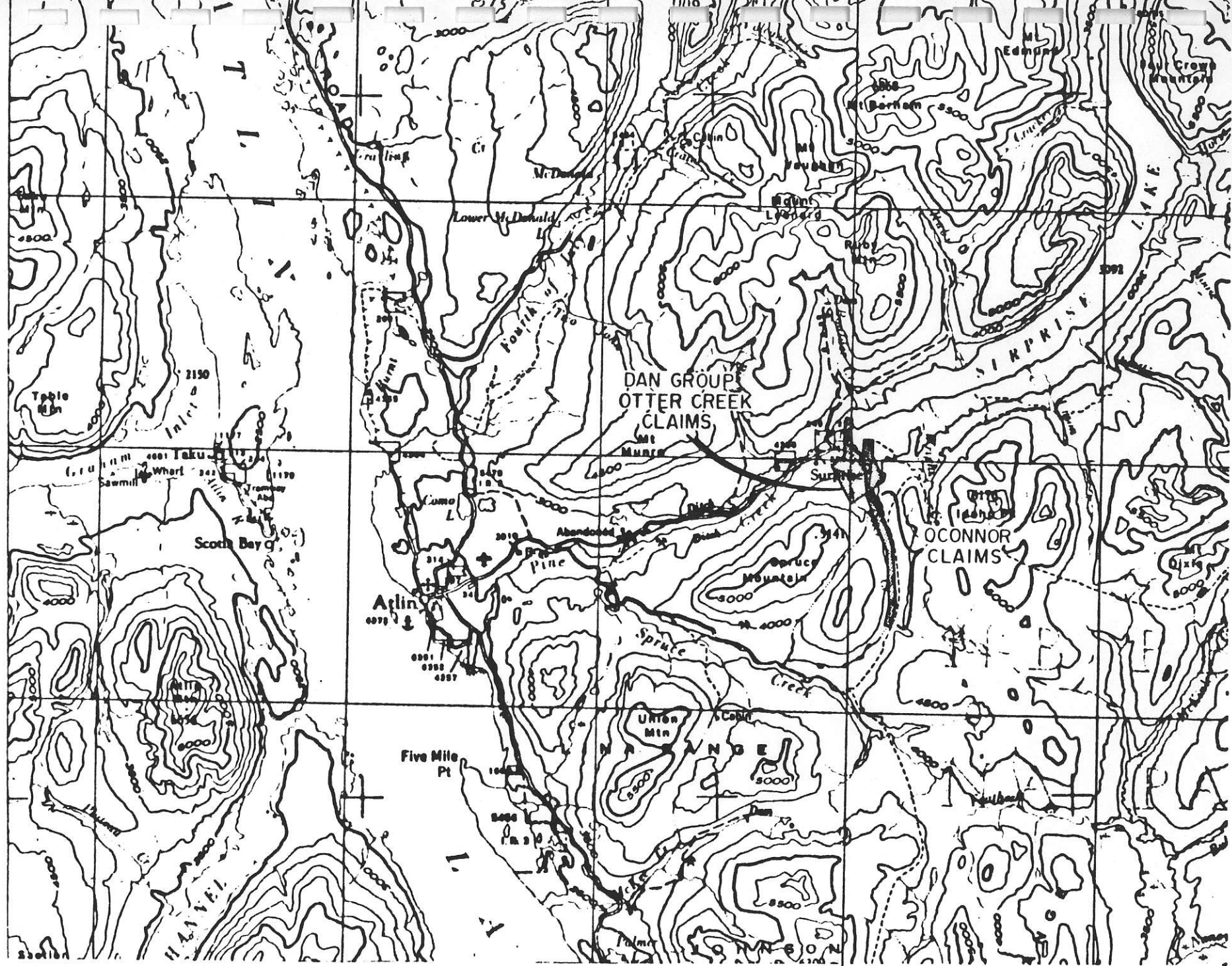


FIGURE 1



TOPO MAP, ATLIN AREA  
SCALE 1:250,000

FIGURE 2



The two deep holes took about five days of the total of 60 days. The completion of the deep holes was quite important for the evaluation of the Becker drilling system for Dan Claim Group. This is because the center of the ancient Tertiary channel will be always well over 150 feet below the existing surface. If the Becker drill were not able to penetrate below 150 feet then that drill system could not serve the purposes of exploration or development drilling at Dan Group. As it turned out I am quite satisfied that the Becker system will work well in future drilling projects at Otter Creek.

#### LOCATION, ACCESS, PHYSIOGRAPHY AND CLIMATE OF ATLIN AREA

The gold placer claim group discussed below is located in the Atlin Mining Division of British Columbia, about 190 km (115 miles) by highway southeast of Whitehorse, Yukon Territory. It is about 20 km eastward by good gravel road from the town of Atlin to the northern edge of the claim group. Please see Figures 1, 2, and 3. Atlin is the only populated center in the area. Most common supplies can be obtained there. The town has a permanent population of about 500 and about 1000 in summer.

The Dan Group can be reached by car or truck but a 4X4 pickup truck is recommended. Rough roads extend along the east and west banks of Otter Creek. The right limit (east) road extends to the old storage damsite. The left limit road (west side of Otter Creek) extends only to Rose Pit. This pit is about 2.5 km south of Surprise Lake. Access by foot is usually easy in summer because the vegetation is not heavy and in places is open and parklike.

The uplands of the Atlin area are the southern part (Teslin Plateau) of the Yukon Plateau which is an extensive area eroded during Tertiary time to near base level. Most of the peaks of the region remained as high as 2500' above the general erosion level. Today over most of the area local relief is about 2500'. This is exceeded at Atlin Lake where maximum relief is about 4000'. Higher mountains east of the town are rounded and bare of vegetation.

The physiographic history of the area is imperfectly understood, in this writer's opinion, and has affected placer gold deposition in ways that have not been satisfactorily explained by government geologists who have studied Atlin placer camp. The complex history of erosion and uplift is further obscured by , possibly, multiple advances and retreats of continental-type and alpine

glaciers.

During an average year measureable precipitation occurs on about 70 days with an average total of about 12 inches. The average temperature in June, the hottest month, is about 51 degrees F. and January, the coldest month, averages 2 degrees F. On the average there are about 200 frost free days per annum. Precipitation is less towards the eastern part of the camp and vegetation more open and parklike. Sluicing can be carried out from about May 20 to about October 1. This will depend to some degree on varying elevations of the different creeks. Normally one should expect a completely adequate supply of washing plant water at Otter Creek. In the lower parts of Otter Creek one could use Surprise Lake water for washing.

#### OWNERSHIP AND PROPERTY

The placer claims and leases of Dan Claim Group are listed in Appendix B. I do not have access to details of the agreements but I have been advised by principals of Genie Resources Ltd, and by Mr. K.A. O'Connor (option holder) that valid option agreements exist between them and the present holder of the mineral rights to the claims and fractions. The details of these agreements are not pertinent to this report.

There are 13 PML's and fractions in Dan Group with an approximate area of 7500 acres or 3000 ha. These claims are shown in reduced form in Figure 3. This plan was prepared by surveyors of the firm of McElhanney Surveying and Engineering Ltd. The map of the property was prepared, following field surveys in May and early June 1983, using transit and EDM equipment. A legal survey of Dan Claim (PML 1782) will be carried out in August and the plan of the survey will be filed with the Surveyor General. This claim adjoins to the south the Drain Lease (PML 1697) which contains the Drain Lease Open Pit Mine, which has been in production for about four years. The Tina claim (the southernmost claim shown in Figure 3) is not part of the group but is under option to Mr. O'Connor from Mrs. T. Connolly of Atlin (present holder of the mineral rights to this claim).

#### DRILLING METHOD

Three drilling methods were considered for the drilling project at Dan Group. The "sonic" drill was rejected because it is known to be slowed and even stopped when penetrating heavy clay formations and also it is a

considerably slower drilling method than the Becker. The Churn Drill would have been a good method but it is very slow and good drillers are not readily available. The Becker drill was used in a program supervised by the writer at Lovett Gulch in the Dawson City area, Y.T. Reserves and grade estimated for that virgin, low-level creek placer deposit, based upon the Becker Drill results, proved (after production) to be accurate within 10% of production grade. The Becker Drill System is outlined in Appendix C. It is a faster system than either the sonic or churn drill system. Speed in obtaining results was important for the overall field program this year.

Because we knew we would need a drill with depth capacity in excess of 150 feet we added a large auxiliary compressor to the truck-mounted compressor system of the Becker Drill. The auxiliary compressor was a large, wheel-mounted Joy compressor of 1200 cfm capacity. The truck-mounted compressor integral to the Becker Drill, was of 600 cfm capacity. Normally, the auxiliary compressor was hooked up to the drill when depth of hole exceeded 60 feet.

Drill sites were prepared using a D8K bulldozer with blade. The auxiliary compressor was moved using a tractor with a special hitch welded to the ripper blade. About 30 pounds of cuttings (average) per foot of hole were recovered during the drill advance. This means that about 50 tonnes of unconsolidated material was bagged during the program. About 2000' of the 4180' drill project was sluiced and panned. The sluice used was a locally-built "live-bottom," "clean-up" sluice box. The sluice riffle box was about six feet long by ten inches wide and the twenty Hungarian riffles pulsated in unison about 60 times per minute driven by a small gasoline engine. A 1 1/2 inch gasoline pump provided sluicing and washing water. The sample material was classified to minus 1/4 inch by a small screen before entering the sluice box.

The samples from the drill were collected below the cyclone in large rubber tubs and bagged every two feet of drill advance. The samples were "air-flushed" every two feet and water-flushed at the hole bottom. Some holes in "pay" sections were water-flushed every two feet. We did not find that this time-consuming procedure was needed in hard, competent material.

We found that we could sluice a six foot sample before packing the riffles. This varied somewhat with clay content of the sample. The higher the clay content, the quicker the packing of the Hungarian riffles. Normally a 200 pound

six-foot sample was reduced by sluicing to about 25 pounds of concentrate. This concentrate was then mechanically panned using a 20" Morfee spiral mechanical panner or "wheel". This final concentrate, usually only a few ounces, was hand panned in a gold pan and the final residue cleaned and the raw gold "colours" or "specks" put in a numbered plastic vial. The gold in the vials was brought by the writer to an assay laboratory for weighing with an electronic scale.

Appendix A shows the detailed results of the sluicing and panning for most of the holes drilled to date. Some holes or parts of some holes of lesser importance than those shown in Appendix A are being processed as this report is being prepared. The work is being done by personnel trained by the writer in these procedures. The results of this later work are not important to the overall assessment of the drill project to date and will be included in the final report to be submitted in the fall.

#### DRILL HOLE CONTROL

Drill sites were selected by the writer to provide cross-sectional information for the two zones drilled during the program. Drilling on the Drain Lease was for a different purpose. The holes drilled there were to provide grade information within the main pit on benches and also to delimit the outer edges or "rim" of the pay gravels.

Drill hole control (vertical and horizontal) was provided by survey points established by the survey firm. From these control points the writer established drill stations by using Brunton compass and tape on open lines. Also picket lines were laid out using compass and tape. The picket lines were usually 200' apart on lines numbered 1 to 4 for the DLE zone and 1 to 3 for the 1702 zone. Please see Figure 3 for zone locations. Four drill sites were surveyed by McElhenney personnel. I used a hand held clinometer for vertical control for many of the holes. All holes in Table 1 are referred to the Surprise Lake water level as zero datum.

In all 40 drill stations were put in using the tractor for building the drill pads and access roads. If more than one drill hole was put down per site (and this was often the case) then the hole was numbered according to the site number and a letter suffix added to denote the new hole. The holes on any one site were about 4 or 5 feet from each other. Such extra holes were needed because of bent pipes, boulders, broken-off bits, etc, in the original hole.

4 Levels in DLE  
3 levels in 1702

TABLE 1  
OTTER CREEK DRILLING PROJECT, ATLIN MINING DISTRICT  
SUMMARY OF BECKER HAMMER DRILL HOLES

HOLE NO.	ZONE	LINE	DATE STARTED	DATE FINISHED	COLLAR ELEV. (FEET)	TOTAL LENGTH (FEET)	REMARKS
SO-83-1	DLE	2	MAY 26, 1983	MAY 26, 1983	214	14	ABANDONED; BENT PIPE.
SO-83-1A	DLE	2	MAY 26, 1983	MAY 26, 1983	214	88	HOLE STOPPED ON POSSIBLE BEDROCK. ✓
SO-83-2	DLE	2	MAY 27, 1983	MAY 28, 1983	214	94	HOLE STOPPED ON POSSIBLE BEDROCK. ✓
SO-83-3	DLE	2	MAY 28, 1983	MAY 28, 1983	229	40	ABANDONED: OIL IN AIR FROM COMPRESSOR.
SO-83-3A	DLE	2	JUNE 7, 1983	JUNE 8, 1983	229	105.5	HOLE STOPPED ON CEMENTED "PAY".
SO-83-3B	DLE	2	JUNE 12, 1983	JUNE 13, 1983	229	50	*THREE HOLES OF UNKNOWN LENGTH, BUT *
SO-83-3C	DLE	2	JUNE 12, 1983	JUNE 13, 1983	229	50	**NOT OVER 70'. EACH HOLE STOPPED *
3G ✓ SO-83-3D	DLE	2	JUNE 12, 1983	JUNE 3, 1983	229	50	*BY DRILLER DUE TO BENT PIPE.
SO-83-4	DLE	2	MAY 29, 1983	MAY 29, 1983	199	46	ABANDONED: BENT PIPES.
SO-83-4A	DLE	1	MAY 30, 1983	MAY 30, 1983	199	74	STOPPED ON POSSIBLE BOULDER.
SO-83-5	DLE	1	MAY 31, 1983	MAY 31, 1983	187	74	BIT BROKE OFF; ABANDONED HOLE
SO-83-5A	DLE	1	MAY 31, 1983	JUNE 1, 1983	187	81.5	HOLE STOPPED ON POSSIBLE BEDROCK. ✓
SO-83-6	DLE	1	JUNE 1, 1983	JUNE 1, 1983	197	92	HOLE STOPPED ON BEDROCK. ✓
SO-83-7	DLE	1	JUNE 3, 1983	JUNE 4, 1983	202	74.5	HOLE STOPPED ON BEDROCK. ✓
SO-83-8	DLE	3	JUNE 4, 1983	JUNE 4, 1983	222	28	HIT BOULDER AT 28'; ABANDONED
SO-83-8A	DLE	3	JUNE 4, 1983	JUNE 5, 1983	222	94	STOPPED HOLE ON BEDROCK OR BOULDER. ✓
SO-83-9	DLE	1	JUNE 5, 1983	JUNE 6, 1983	197	44.5	ABANDONED; BENT BIT
SO-83-9A	DLE	1	JUNE 8, 1983	JUNE 9, 1983	197	106	STOPPED HOLE ON BOULDER.
SO-83-9B	DLE	1	JUNE 28, 1983	JULY 1, 1983	197	164.5	STOPPED IN "PAY"; SPLIT PIPE.

1370.5

TABLE 1 (CONTINUED)

## OTTER CREEK DRILLING PROJECT, ATLIN MINING DISTRICT

## SUMMARY OF BECKER HAMMER DRILL HOLES

HOLE NO.	ZONE	LINE	DATE STARTED	DATE FINISHED	COLLAR ELEV. (FEET)	TOTAL LENGTH (FEET)	REMARKS
SO-83-10	DLE	<u>1</u>	JUNE 9, 1983	JUNE 10, 1983	195	96	STOPPED HOLE ON POSSIBLE BOULDER.
SO-83-11	DLE	2	JUNE 10, 1983	JUNE 11, 1983	241	95.5	STOPPED ON BEDROCK. ✓
SO-83-12	DLE	<u>2</u>	JUNE 11, 1983	JUNE 12, 1983	233	112.5	STOPPED ON BEDROCK OR BOULDER. ✓
SO-83-13	DLE	3	JUNE 14, 1983	JUNE 15, 1983	257	101.5	ABANDONED HOLE IN "PAY" GRAVEL.
SO-83-13A	DLE	3	JULY 2, 1983	JULY 10, 1983	257	183.5	STOPPED ON BEDROCK. ✓
SO-83-14	DLE	3	JUNE 15, 1983	JUNE 16, 1983	259	105.5	STOPPED HOLE IN CEMENTED GRAVEL.
15A SO-83-15	DLE	<u>3</u>	JUNE 16, 1983	JUNE 18, 1983	255	121.5	STOPPED HOLE IN CEMENTED GRAVEL.
SO-83-16	DLE	4	JUNE 19, 1983	JUNE 19, 1983	255	38	ABANDONED HOLE ON BOULDER.
16B SO-83-16A	DLE	4	JUNE 19, 1983	JUNE 20, 1983	255	90.5	ABANDONED HOLE IN GRAVEL. PIPES ALMOST STUCK IN SLOUGHING HOLE.
SO-83-17	DLE	<u>4</u>	JUNE 21, 1983	JUNE 21, 1983	258	96	ABANDONED FOR SAME REASON AS SO-83-16A.
SO-83-18	1702	1	JUNE 22, 1983	JUNE 22, 1983	350 APPROX	28	ABANDONED; BENT PIPE.
SO-83-18A ✓	1702	1	JUNE 22, 1983	JUNE 23, 1983	350	78	ABANDONED; NO ADVANCE.
SO-83-18B	1702	1	JUNE 23, 1983	JUNE 23, 1983	350	22	ABANDONED BENT PIPES.
SO-83-18C	1702	1	JUNE 24, 1983	JUNE 24, 1983	350	99.5	STOPPED ON BEDROCK. ✓
SO-83-19 ✓	1702	1	JUNE 24, 1983	JUNE 25, 1983	350	100.5	STOPPED ON BEDROCK. ✓
SO-83-20	1702	<u>1</u>	JUNE 25, 1983	JUNE 26, 1983	350	79	STOPPED ON BEDROCK. ✓
SO-83-21 ✓	1702	2	JUNE 26, 1983	JUNE 27, 1983	345	86	STOPPED ON BEDROCK. ✓
SO-83-22	1702	2	JUNE 27, 1983	JUNE 27, 1983	345	73	STOPPED ON BEDROCK OR ON BOULDER. ✓

1606.5

TABLE 1 (CONTINUED)

## OTTER CREEK DRILLING PROJECT, ATLIN MINING DISTRICT

## SUMMARY OF BECKER HAMMER DRILL HOLES

HOLE NO.	ZONE	LINE	DATE STARTED	DATE FINISHED	COLLAR ELEV. (FEET)	TOTAL LENGTH (FEET)	REMARKS
SO-83-23	1702	2	JUNE 27, 1983	JUNE 27, 1983	345	98	STOPPED ON BEDROCK. ✓
SO-83-24	1702	2 1/2	JULY 11, 1983	JULY 12, 1983	343	87.6	STOPPED ON BEDROCK. ✓
SO-83-25	1702	3	JULY 14, 1983	JULY 14, 1983	340	36	BIT BROKE OFF IN HOLE.
SO-83-26	1702	3	JULY 13, 1983	JULY 13, 1983	340	74	PLUGGED BIT AT 70' THEN ABANDONED HOLE WHEN BIT BROKE OFF IN HOLE.
SO-83-27	1702	3	JULY 12, 1983	JULY 12, 1983	340	68.5	STOPPED HOLE WHEN LARGE BIT PIECES FOUND IN GOLD PAN.
SO-83-27-1	1702	3	JULY 12, 1983	JULY 12, 1983	340	24	BENT PIPE: ABANDONED.
SO-83-27-2	1702	3	JULY 12, 1983	JULY 12, 1983	340	24	BENT PIPE: ABANDONED.
SO-83-27A	1702	3	JULY 13, 1983	JULY 13, 1983	340	73	STOPPED ON BEDROCK. ✓
SO-83-28	DRAIN	BENCH	JULY 16, 1983	JULY 16, 1983	122	23	STOPPED ON BEDROCK. ✓
SO-83-29	DRAIN	BENCH	JULY 16, 1983	JULY 16, 1983	122	32	ABANDONED: BENT PIPES.
SO-83-30	DRAIN	BENCH	JULY 16, 1983	JULY 17, 1983	122	70	STOPPED ON BEDROCK. ✓
SO-83-30A	DRAIN	BENCH	JULY 17, 1983	JULY 17, 1983	122	30	ABANDONED AFTER REDRILL WITH CROWD-IN BIT AT 30'.
SO-83-31	DRAIN	BENCH	JULY 17, 1983	JULY 17, 1983	122	34	STOPPED ON BEDROCK. ✓
SO-83-32	DRAIN	BENCH	JULY 17, 1983	JULY 18, 1983	122	46	STOPPED IN WX'D BEDROCK. ✓
SO-83-33	DRAIN	BENCH	JULY 18, 1983	JULY 18, 1983	122	19	STOPPED ON BEDROCK. ✓
SO-83-34	DRAIN	W. SIDE	JULY 19, 1983	JULY 19, 1983	181	77	STOPPED ON BEDROCK. ✓
SO-83-35	DRAIN	W. SIDE	JULY 20, 1983	JULY 21, 1983	184	74.5	STOPPED ON BEDROCK. ✓
SO-83-36	DRAIN	W. SIDE	JULY 21, 1983	JULY 22, 1983	140 APPROX	69	STOPPED ON BEDROCK. ✓
SO-83-37	DRAIN	E. SIDE	JULY 23, 1983	JULY 23, 1983	192	66	STOPPED ON BEDROCK. ✓

38'  
40'  
84'

25A  
25B  
25C

1025.10

TABLE 1 (CONTINUED)

## OTTER CREEK DRILLING PROJECT, ATLIN MINING DISTRICT

## SUMMARY OF BECKER HAMMER DRILL HOLES

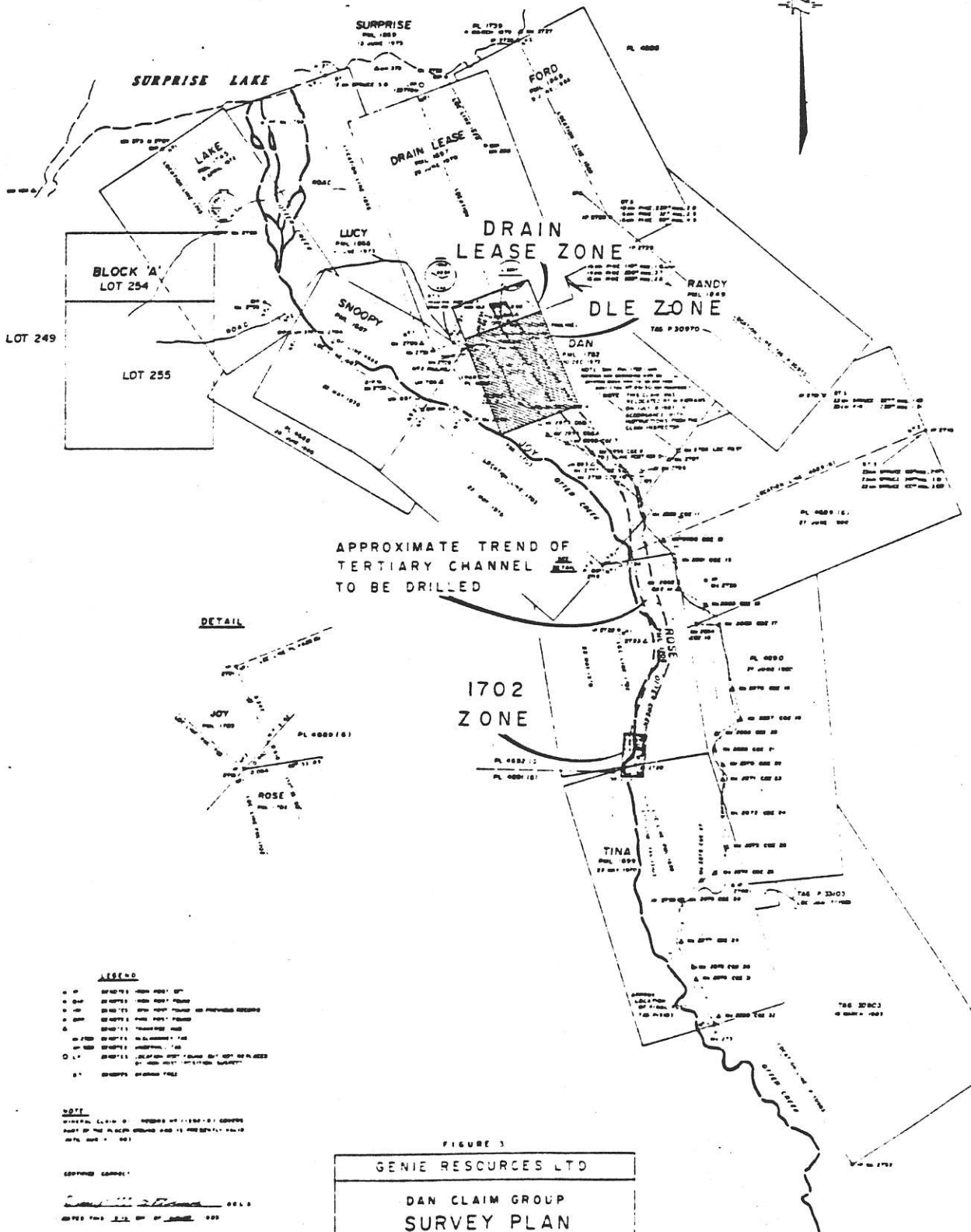
HOLE NO.	ZONE	LINE	DATE STARTED	DATE FINISHED	COLLAR ELEV. (FEET)	TOTAL LENGTH (FEET)	REMARKS
SO-83-38	DRAIN	E. SIDE	JULY 23, 1983	JULY 23, 1983	193	50	STOPPED ON BOULDER.
SO-83-39	DRAIN	BENCH	JULY 24, 1983	JULY 24, 1983	122	41	STOPPED ON BEDROCK. ✓
SO-83-40	DRAIN	BENCH	JULY 24, 1983	JULY 24, 1983	122	65	STOPPED ON BEDROCK. ✓
41A							✓
42							✓
43							✓
44A							✓
45							✓
46A							✓
47							✓
48							✓
55B							✓
56							✓
57A							✓
58							✓
59							✓

1576

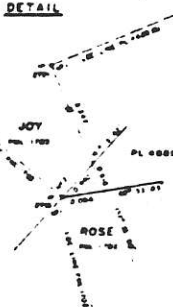


LOCATION LINE SURVEY OF PLACER LEASES  
ON OTTER CREEK, ATLIN MINING DISTRICT.

100 0 200 400  
METRES



APPROXIMATE TREND OF  
TERTIARY CHANNEL  
TO BE DRILLED



**LEGEND**  
 ○ 1/4 SECTION CORNER  
 ● 1/4 SECTION CORNER FOUND BY PREVIOUS RECORDS  
 ○ 1/4 SECTION CORNER FOUND BY PREVIOUS RECORDS  
 ○ 1/4 SECTION CORNER FOUND BY PREVIOUS RECORDS  
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 ○ 1/4 SECTION CORNER FOUND BY PREVIOUS RECORDS

**NOTE**  
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 AUGUST 1993 MJK

**FIGURE 3**  
**GENIE RESOURCES LTD**  
**DAN CLAIM GROUP**  
**SURVEY PLAN**  
**AND DRILLED ZONES**  
**OTTER CREEK, ATLIN PLACER CAMP**  
**ATLIN M.D.**  
**AUGUST 1993 MJK**

REPRODUCED FROM THE ORIGINAL SURVEY PLAN BY  
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 FILE 10000-0 000 71

## RESULTS AND INTERPRETATIONS OF PREVIOUS DRILLING ON DAN GROUP

For details of previous drill programs on the property please see (7), (12) and (18) of the Bibliographic References. My report (May 17, 1983) gives a reasonably complete account of the History of the property based mainly on Sharp's (12) account.

During the years before WWII (1936-1939) a Keystone Churn Drill was used to put down 7 1/2" holes along the presumed course of the ancient Tertiary Channel. Line "A" only about 500 feet from the present actively mined pit, failed to find the southward continuation of the channel as outlined and mined by Underground working. This was because, in my opinion, some of the old holes were stopped on cemented pay and not on bedrock, and also these holes of line "A" were put down to the west of the actual channel as located by this year's drill pattern.

Line 3 "Extra" of only one hole returned an average grade of .02 oz/C.Y. over some 75 feet of hole. This hole is about 600 meters from the southern end of this year's drilling (holes S083-16A and S083-17). Please see Figure (5). This hole is only about 140 meters north of Line #3. Line #3 cross-cuts the present valley transversely within the present Otter Creek valley. The average grade for the drill section was .01 oz/C.Y. Finally, a line of 5 holes and two shafts were put down about 300 meters upstream from Line #3. This was called Line #1. It averaged .02 oz/C.Y. There was also an old shaft (Maluin #1) of about 65' in depth near this line. The shaft on the LL hit bedrock at 16 feet and the other two shafts failed to reach bedrock because of water inflow. Hole S083-18C was spotted to be as close as possible to the plotted location of Hole #5, which was the richest of the line. Line #3 was located near some old hydraulic workings which, according to Dailly (7), produced some 5000 ounces. This pit is called the Rose Pit.

The general interpretation of the old drill results was that the ancient channel was persistent from the Drain Lease workings to, at least, line #1. So far, our results to date, indicate that this interpretation has been the correct one.

### 1983 DRILL PROGRAM

Two zones on Den Claim Group were drilled this year. These are called the Drain Lease Extension or DLE zone and the 1702 Zone. The DLE zone is that zone immediately to

the south or upstream of the old Tertiary channel. It adjoins the southern boundary of Drain Lease. The 1702 zone is located in the present creek valley of Otter Creek and about 1500 meters to the south or upstream from the DLE zone. The Drain Lease zone was within the Drain Lease limits and at the south end of the presently mined open pit.

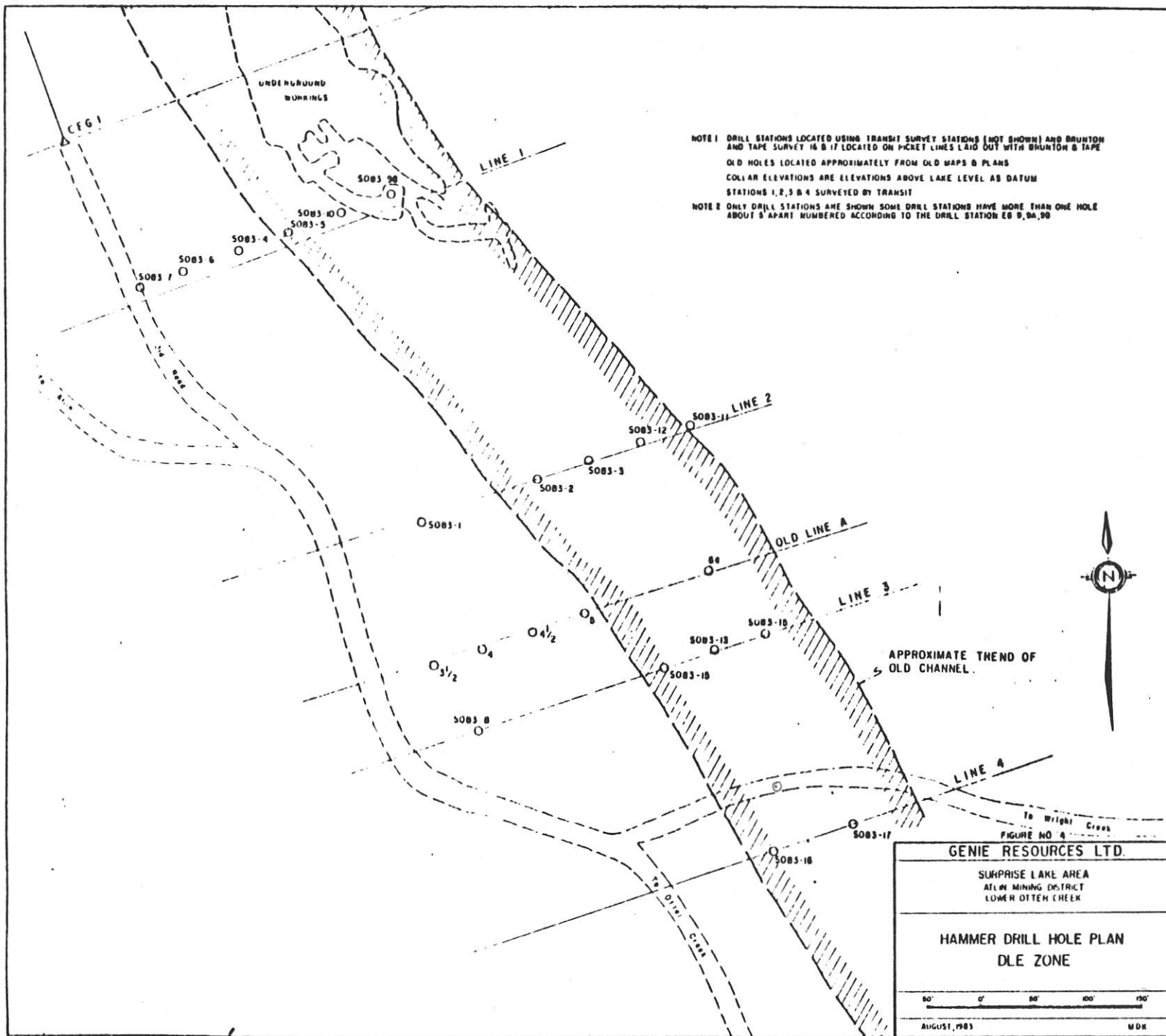
Any method of sampling of placer material should duplicate on small scale the production system planned for the deposit as a whole. We did use a small cement mixer in the early stages of the drill sample processing program. However, we found that the use of this machine, to duplicate the action of a scrubber in a full scale production plant, took too much time. But, in the writer's opinion, the use of a scrubber in production washing plant design is mandatory because of adhesive clay content in the pay gravels. Also a "live bottom" sluice box was used in the sampling process so a "live bottom" or pulsating riffle device will be necessary for the sluice part of the washing plant. Frequent clean-ups will also be needed to prevent riffle packing so a mechanical system of lifting the riffles will be needed for the final washing plant design. Finally, all material sluiced in our sampling system was classified by a screen to minus 1/4" size before sluicing. The washing plant will then have to have a method of classifying pay material to this size for the sluice runs.

#### DLE Zone

In this zone 2,495 feet of hole were put down. Of this amount 2053.5' was completed footage. The remainder (442.5') represents abandoned footage. We did sample almost all of the footage for abandoned holes but did not process this footage (except in a few holes). The above completed footage was in 20 holes and the abandoned footage in 11 short holes.

Line 1, parallel to the Drain/Dan lease boundary was about 170 feet from the boundary. Line 2 (and all the other DLE lines) was also parallel to the boundary and about 400' feet south. Line 3 and Line 4 were about 600' and 800', respectively south of the boundary. Please see Figures 4 and 7 and 7A for plan of holes and sections on the lines.

The grades shown in the final columns of Appendix A are for raw gold and are not adjusted for fineness, which averages about 800 for Otter Creek gold. The weight of gravel used (3500 lbs/C.Y. for DLE zone and 3800 lbs/C.Y. for 1702 zone) in the calculations was determined by weighing a measured small volume of the return material and also a



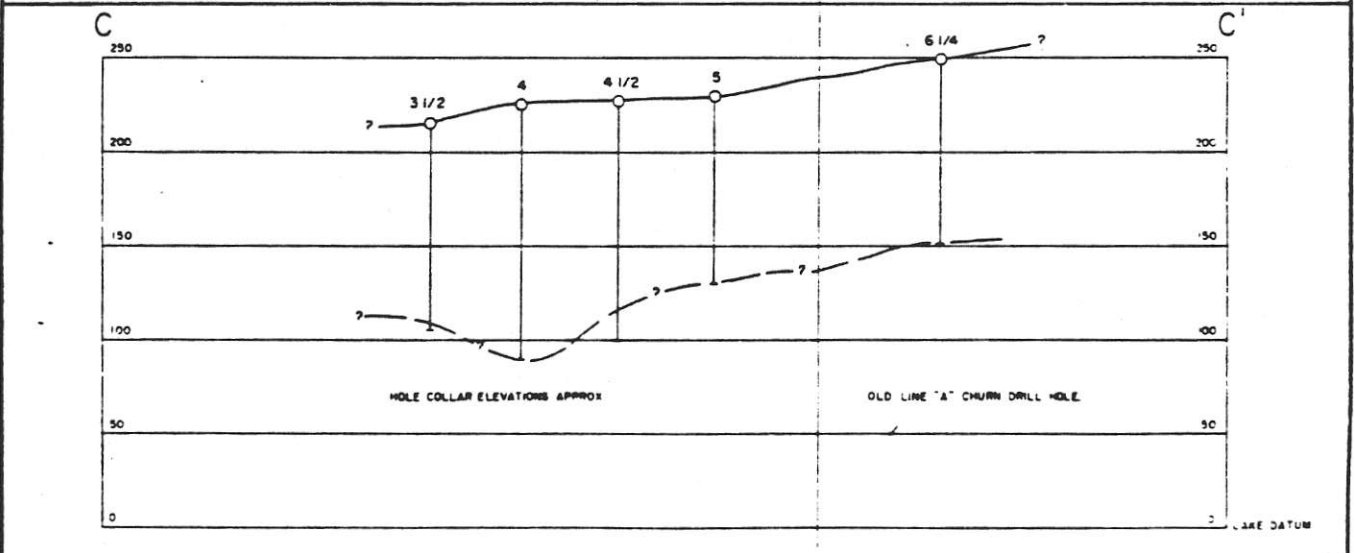
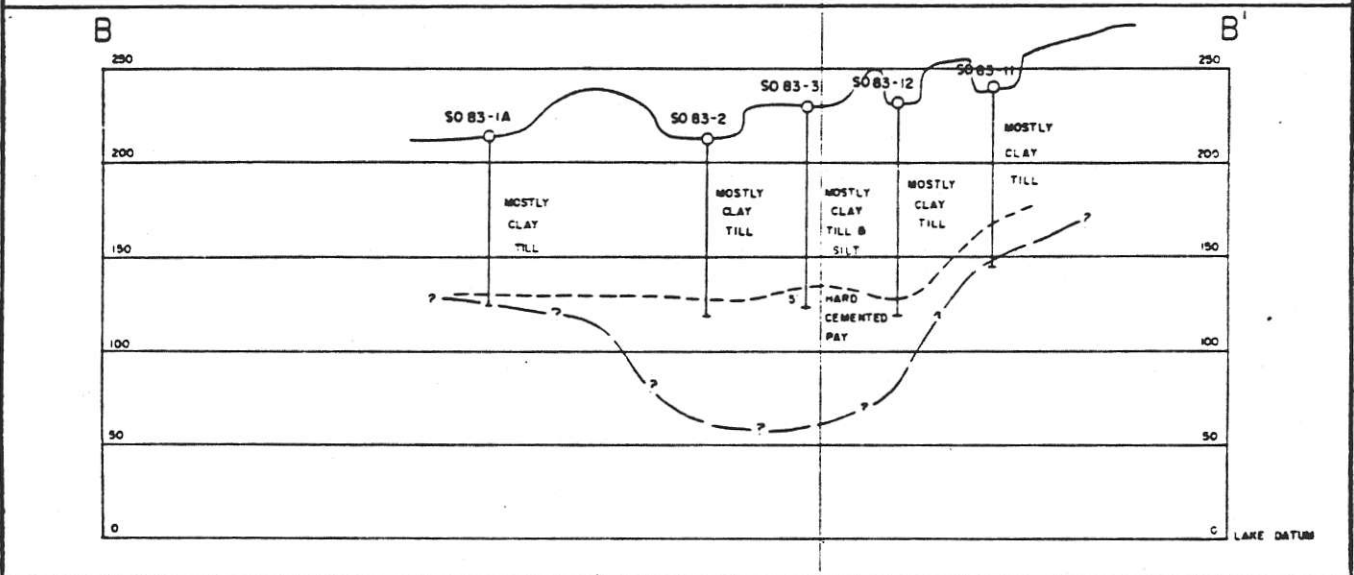
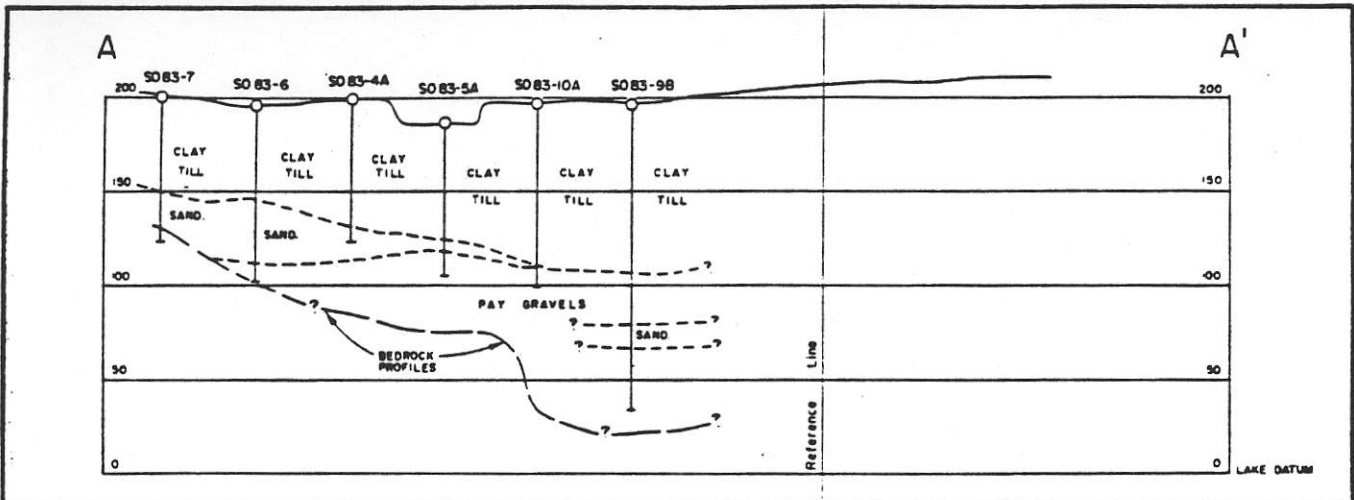


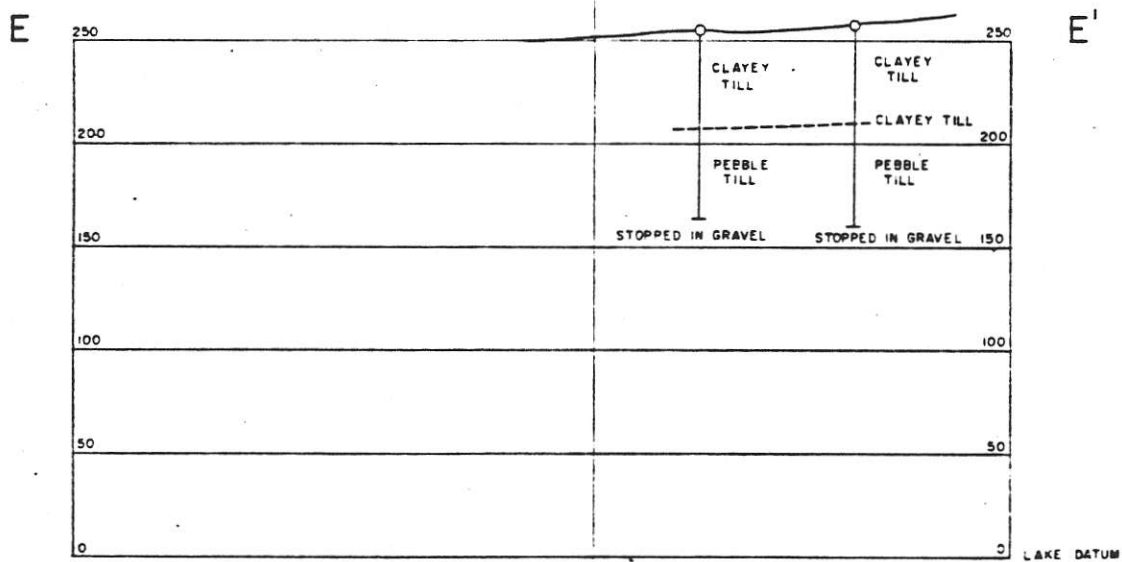
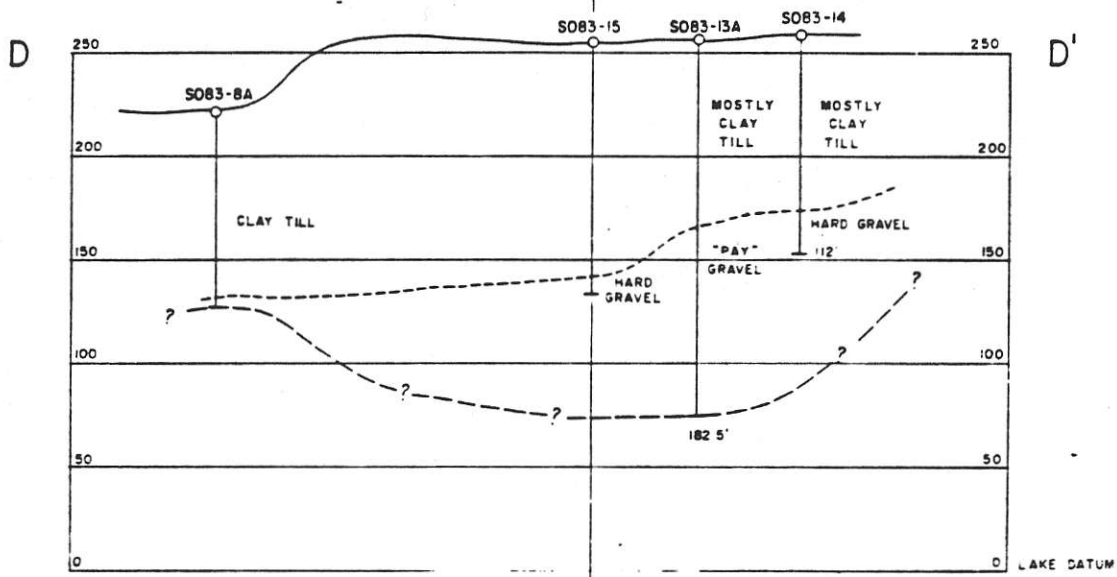
FIGURE 7A

**GENIE RESOURCES LTD.**

DLE ZONE  
DAN GROUP  
DRILL HOLE CROSS-SECTIONS  
LOWER OTTER CREEK  
SPRUCE LAKE, ATLIN M.D., B.C.

0 50 100 150 200  
FEET  
MOR

AUGUST, 1983



REFERENCE LINE

FIGURE 7

GENIE RESOURCES LTD.

DLE ZONE  
DAN GROUP  
DRILL HOLE CROSS-SECTIONS

LOWER OTTER CREEK  
SPRUCE LAKE, ATLIN MD, BC  
LOOKING NORTH

0 50 100 150 200

M.D.K.

AUGUST, 1982

small amount of pay from the pit. In addition we weighed each sample bag. From this we determined an average weight per foot of sample. From the volume of a foot of pipe (using 5.5" as diameter for the crowd-in bit) I determined the corresponding volume. From these figures I determined the weight of a cubic yard of pay material. In addition, I checked the calculated weight against tables in a standard reference book. Because the DLE pay was cemented and very coherent and lacked voids, the weight is higher than normal. Because of the high water content and sandy nature of the 1702 pay it too had a higher weight per C.Y. than normal.

Detailed discussion of the grade of the DLE pay will be deferred to a later section but it should be noted that it will not be possible with existing information to use the triangle system for this zone. It may be possible to use the triangle system for determining an overall grade for the 1702 zone. However, until an average value for all the holes in 1702 zone is determined (and that is not possible at this time) it will not be possible now to determine an overall grade for 1702 deposit based on drilling results.

#### 1702 Zone

Ten drill sites were occupied during this drill project. In all 983 feet were drilled in this zone in 12 holes. Of this footage 108 were in abandoned holes. The remainder was useful footage. Every foot of each hole was bagged and ultimately every foot of each hole will be processed for gold content. Please see Figures 5 and 8 and 8a for locations of the holes and for cross-sectional information. Because this report is being completed to meet a deadline, details of the stratigraphy that were noted in the field logs are omitted from these illustrations.

#### Drain Lease Zone

Fourteen holes were drilled in this zone. The total footage was 704.5 feet. No footage is classed as abandoned. However, hole 38 was not bagged because it was all in clay and was lost when it hit a boulder at fifty feet. In this sense that hole was lost. For locations of the holes and cross-sections please see Figures 6 and 9.

#### PROVEN YARDAGE AND GRADE, DAN GROUP AND DRAIN LEASE

#### DLE Zone

It is obvious from the cross-sectional illustrations

that only a few of the holes reached bedrock within the channel. Nevertheless it is possible to trace the course of the channel in plan. Please see Figure 4. It should be part of the mining plan that the course of the channel be defined before mining. This will require more drill holes to depth. This additional drilling will help in planning a rational extraction plan and also give advance information on grade.

Even with the incomplete drill sections it is possible to arrive at an estimate of the volume of pay gravels within the channel. Using the method of average end areas for the sections shown in Figures 7 and 7A about 300,000 C.Y. of pay gravels is indicated and considered as proven. The area of the channel at the claim boundary is assumed to be the same as the area of Line 1 (Section A-A') which is, at least, 150' wide and 65' thick. On this section especially, additional drilling is badly needed. A positive hole east of 9B would not only assist pit layout but would also add to reserves. On line 2 or section B-B' not one hole reached the central part of the channel. However, it is reasonable to assume from sections to north and south that the shape of the channel here would be about as shown. That is, the area is about 160'X 65'. Section C-C' is for illustrative purposes only because it is a section on old drill holes. Section D-D' is about 250'X70' in area. Simple calculations using the average end area formulae gives about 250,000 C.Y. to 600' from the border. Projecting D-D' section or line 3 section 100' to the south adds over 50,000 C.Y. giving a total pay volume of 300,000 C.Y.

Looking at the block in horizontal plan gives a block with average width of 187'X 67'in thickness. The length of the block is 700'. This block has a volume of about 325,000 C.Y. A volume of 300,000 cubic yards for the pay channel gravels is a conservative estimate. It may well be exceeded. Certainly additional drilling this year would put the above estimate on much firmer footing.

The volume of overburden in the form of glacial till and heavy clay horizons is better defined in the sections and is easier to estimate. The area on the boundary is the same as line 1 and is 300'X 80'. The area on Line 2 is 300'X 100' and on line 3 is about 400'X 100'. Again using the simple average end area formulae to 700' from the boundary gives a total volume of material to be stripped of about 800,000 C.Y. If one adds a side slope volume of about 100,000 C.Y. to the above estimate then the total volume of material to be stripped is about 1,000,000 C.Y.



The stripping ratio is about 3 to 1. For pay material of good grade this is not a bad ratio.

Assigning a grade to the pay material is more difficult than estimating volume because of the coarseness of the gold and because of the nature of the channel. Dailly (7) made a careful study of possible adjustments upward in churn drill hole grades because of the nature of the pay material and the gold content. On page 14 of Dailly's report he notes that "If values were associated with layers of boulders, which is believed to be a usual condition in the creek, drill recoveries undoubtedly undervalue the ground. This condition has been found in many placer deposits." During the drilling program in the pit I was able to examine the pay material in detail in place. The cemented pay horizons in the pit are unsorted to very weakly stratified cobble/boulder tills. The drill return gives the impression of a pebble till but this is false because most cobbles and boulders obviously cannot enter the 5.5" bit. A cobble is defined as a rounded rock fragment larger than 2.5" and smaller than 10". It is therefore larger than a pebble but smaller than a boulder. I agree with Dailly that drill results of any type will undervalue gold content by a considerable amount in such gravels.

On page 19 of (7) Dailly wrote that: "Screen analyses were made of two large samples of drift gold from different levels and of the gold (1960 mg) recovered from hole 5 on line 1. For the drift sample the percent retained on each screen was the same within 1% which is a remarkable coincidence. About 37% of the drift gold was in particles over 72 mg. The drill hole sample was deficient in the larger sizes to such an extent that the indicated correction factor for total weight is about 2 to 1 if the drift sample is to be considered indicative of the entire creek." The drift sample may or not be indicative of the entire creek but it certainly should be indicative of the pay material within 4 or 5 hundred feet from the mined area. The computer generated tables in Appendix A used a correction factor of only 50%. This factor is made up of 35% (instead of Dailly's recommended 100% for coarseness factor) and 7.5% for nugget premiums and 7.5% for gold content in concentrate magnetite which is always amalgamated at Drain Lease and at Boulder Creek, immediately across Surprise Lake from Otter Creek. I believe these upward adjustment factors are conservative.

It has been common practice, in comparing churn drill results with dredging production grade, to find that churn drill holes in the Klondike undervalued gold content of the

gravels by about 100%. At Lovett Gulch I found no large nuggets in the return gold. Almost all colours were under 15 mg in weight. In our drilling at DLE two nuggets of weight about 420 mg and 315 mg were returned. There is little doubt that gold content in drill results and in drifting at Drain and Dan Leases is unusually coarse. Therefore an upward adjustment in drilling grades is necessary. There was no time for this report to prepare a screen analysis histogram for gold returned in drilling. It is hoped that in a later report this will be possible.

The nature of the channel itself will also make grade estimation from drill holes difficult. In the pit there is a sharp S-turn and narrowing of the channel. Associated with this S-turn, according to G. McIntyre, pit operator, were abnormally low grade sections and abnormally high grade sections. Thus if one drilled a hole in a narrow section of the channel and if this narrow section were associated with a curve then one could get an abnormally low grade hole as in hole S083-13A. Therefore it will probably not be possible to calculate channel grade with precision until considerable experience has been obtained by comparing production grades with drill grades as mining proceeds.

A discussion of intersection of holes drilled into the block described above will be helpful in assigning a grade to the pay gravels of the DLE zone Block.

It should be noted that in using the tables of Appendix A that calculations of grade were made to six figure accuracy. The computer is capable of rounding such figures but it is a characteristic of computer mathematics that rounding errors of significance can occur if care is not exercised. By leaving the rounding to the reader there is less chance for computer generated errors. I have done so in the following discussion.

The most significant hole drilled in the block was S083-9B. There is one geological factor which emerged as drilling proceeded. This is, that below a thick 20-40' heavy clay horizon the hard cemented oay was always found. The intersection grade for the section of the hole below the clay band was .108 oz/C.Y. for 76 feet from 88' to 164.5'. It should be noted that there was a split pipe found at the bottom of the string. It was not possible to continue drilling with loss of air pressure so bedrock was not reached in this hole. I also suspect that the low grade at the bottom of the hole and the low weight for the samples is due to this loss of air pressure. When using the Becker drill for deep holes sound pipes must always be used.

It should be noted that the grades for intersections are for raw gold. Fineness at Otter Creek has been determined by Dailly (7) to be about 800. The fineness adjusted grade for this hole is 0.09 oz/C.Y. for 76 feet.

Holes S083-5 and 5A gave intersections below the clay horizon of 0.12 and 0.16 oz/C.Y. for 16 and 13.5 feet respectively only 100 feet to the west of S083-9B.

Assignment of grade based on the drill results only would be misleading. An arithmetic average of all holes drilled in the deposit would not give an accurate idea of the grade. The writer has decided to use the results of Appendix A and the geology of the deposit as known from underground mining and surface open pit mining to assign a grade to the DLE block.

Hole S083-13A penetrated the channel to bedrock. It must have been close to the channel center. However, the average grade is well below 0.01 oz/C.Y. for the pay gravels drilled. There may be two explanations for the low grade. Below 132 feet there is a marked drop-off in recovery as well as grade. This could have been due to a split pipe. A split pipe will not prevent drill advance necessarily but it will prevent recovery of all of the material drilled. It may prevent gold recovery. The other explanation for the poor result is that this simply may have been a low grade section of the channel. ✓

For an overall grade assignment for the 300,000 C.Y. of pay material estimated to be in the DLE block I have used Dailly's grade estimate based on underground mining grades, combined with the grade of our best drill holes. In addition, the fact that the bedrock grade in the center of the channel is known to be very high must be taken into account. Dailly's estimate of the value of the drifted part of the channel was \$1.62 at \$35/oz. or 0.05 oz/C.Y. Our one significant hole (S083-9B) averaged 0.09 oz/C.Y. But other holes S083-5 and 5A gave considerably better grade than that so the overall grade assignment for the block of 0.10 of fine gold is reasonable with present information. *Wow!!*

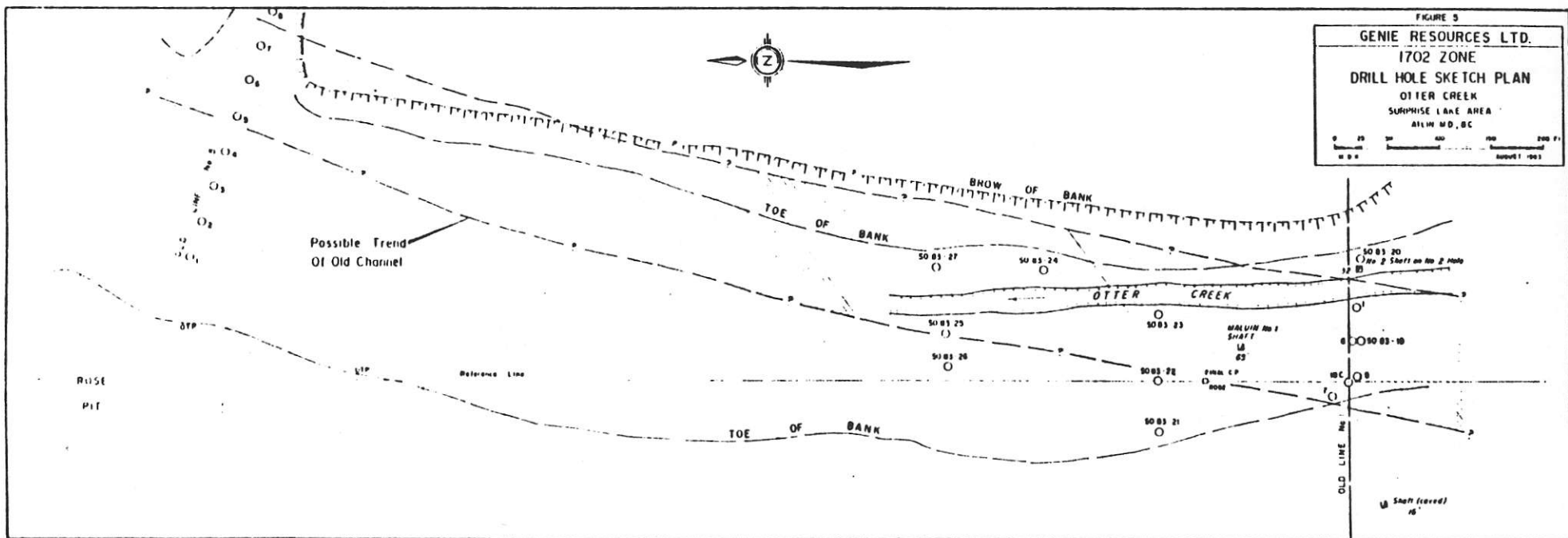
#### 1702 Zone

Though two very encouraging holes were drilled in this zone (S083-18C and S083-23) and some good results were obtained in the upper parts of some of the other holes I do not believe it is possible at this time to offer either a volume or grade estimate of proven ore for this block.

Dan:

Atlin: August 17, 1983:

MDK -12-



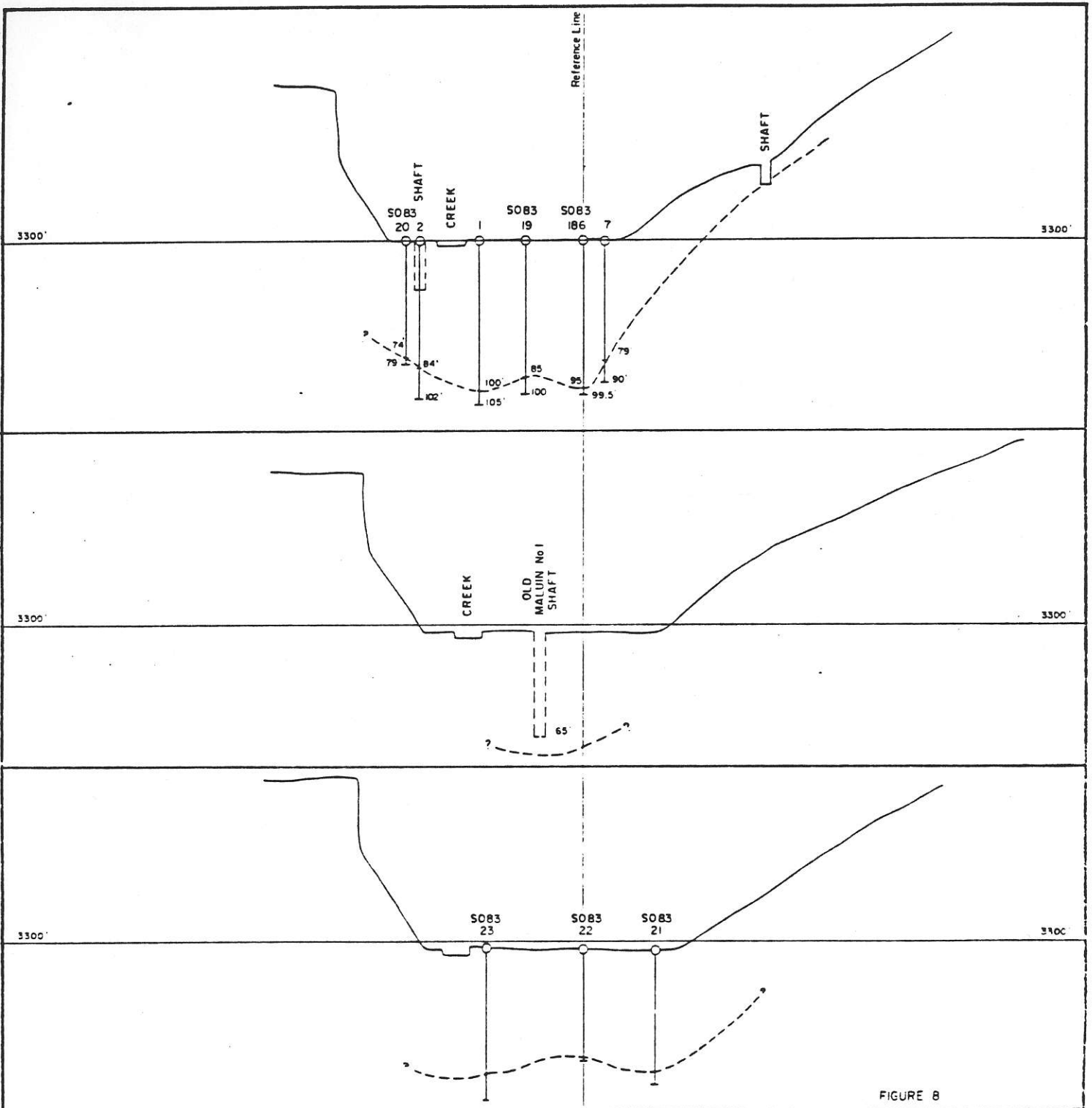


FIGURE 8

GENIE RESOURCES LTD  
 1702 ZONE  
 OTTER CREEK, SURPRISE LAKE AREA  
 CROSS-SECTIONS  
 ON NEW AND OLD DRILL HOLES  
 LOOKING UPSTREAM



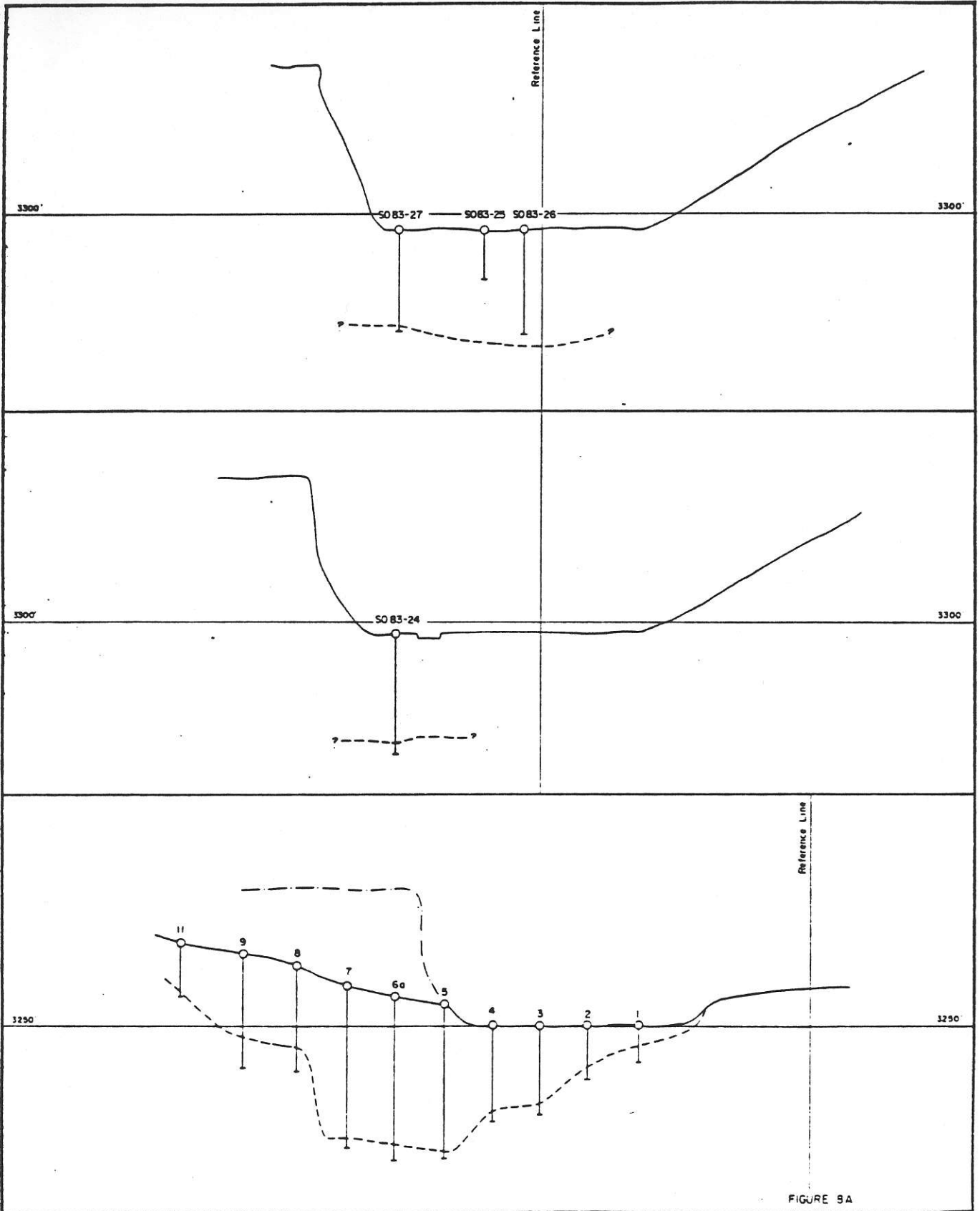


FIGURE 9A

GENIE RESOURCES LTD.

1702 ZONE  
 OTTER CREEK SURPRISE LAKE AREA  
 AT. N. W. B. C.

CROSS-SECTIONS  
 ON NEW AND OLD DRILL HOLES

LOOKING UPSTREAM



M.C.R.

AUG. 57 1983

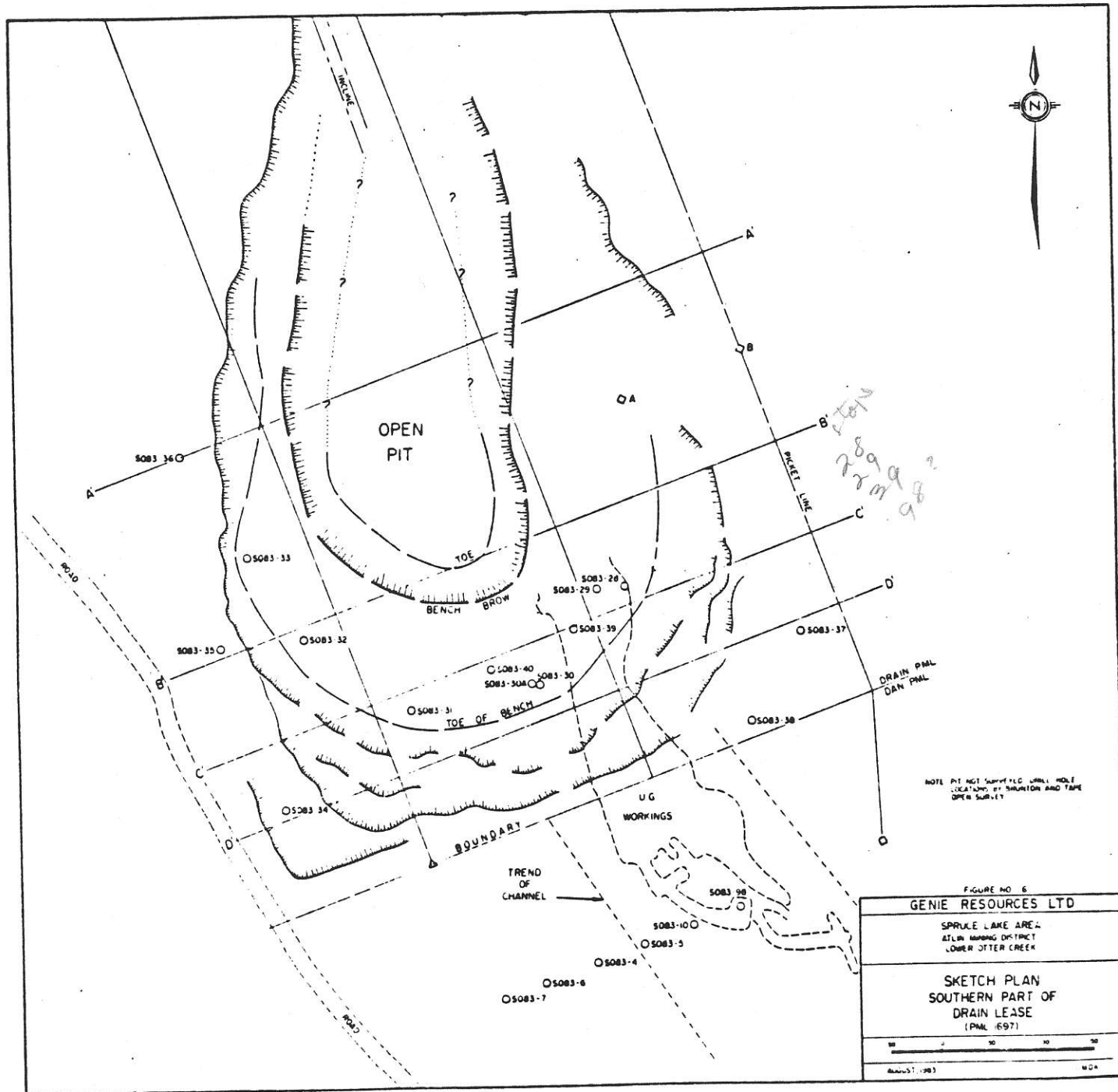
There are three reasons for this conclusion. First, not all the upper parts of the holes have been sluiced at this writing, or the results are not available. It is clear that there is an upper horizon of mineable grade in some of the holes, e.g. S083-18C, S083-20, S083-20, S083-22 and others. Until all the holes have been processed it will not be possible to come up with an overall grade for this upper horizon. Secondly, we have no experience with bulk mining of this area and are unable to compare drill results with mining results as at the DLE zone. Finally, from the results to date and arithmetic averages of all the samples processed to date it is clear that the creek channel results are well below mineable grade. But it is not correct to dismiss this area because of this result.

It would be mistake at this time to say that no proven reserves will ultimately be assigned to the creek or 1702 zone. Until additional information, supplementary to the drilling data, is available it is not possible to assign an overall proven grade to this part of the Tertiary channel.

Geological data on the mode of occurrence of the high grade sections of the best holes is lacking. The first good hole seemed to indicate that there was a normal weathered Tertiary channel not unlike the channel exposure near the Rose Pit. Later holes gave somewhat puzzling results in that there was no yellowish weathered bedrock before the hard bedrock. In fact, the best hole, S083-23 which ran 0.12 oz/C.Y. from 0-98 feet was in a grey weathered shale rock at the bottom.

Also there was no indication of the typical indurated gravels of the DLE zone at all. The values, in both the upper and lower horizons occur in unconsolidated gravels of pebbles and pea gravel size, or weathered bedrock. There is no doubt that the physical channel is the continuation of the DLE Tertiary channel, but the composition of the pay material is quite different.

It may very well be established by additional work at 1702 block that the best method of mining this material is be from underground. The final word on this part of the drill program is that the results to date for proven ore are inconclusive and that at present, all efforts should be concentrated on DLE zone exploitation and exploration. With funds and experience and knowledge gained from work on the northern part of the property it should be possible to eventually exploit the 1702 block.

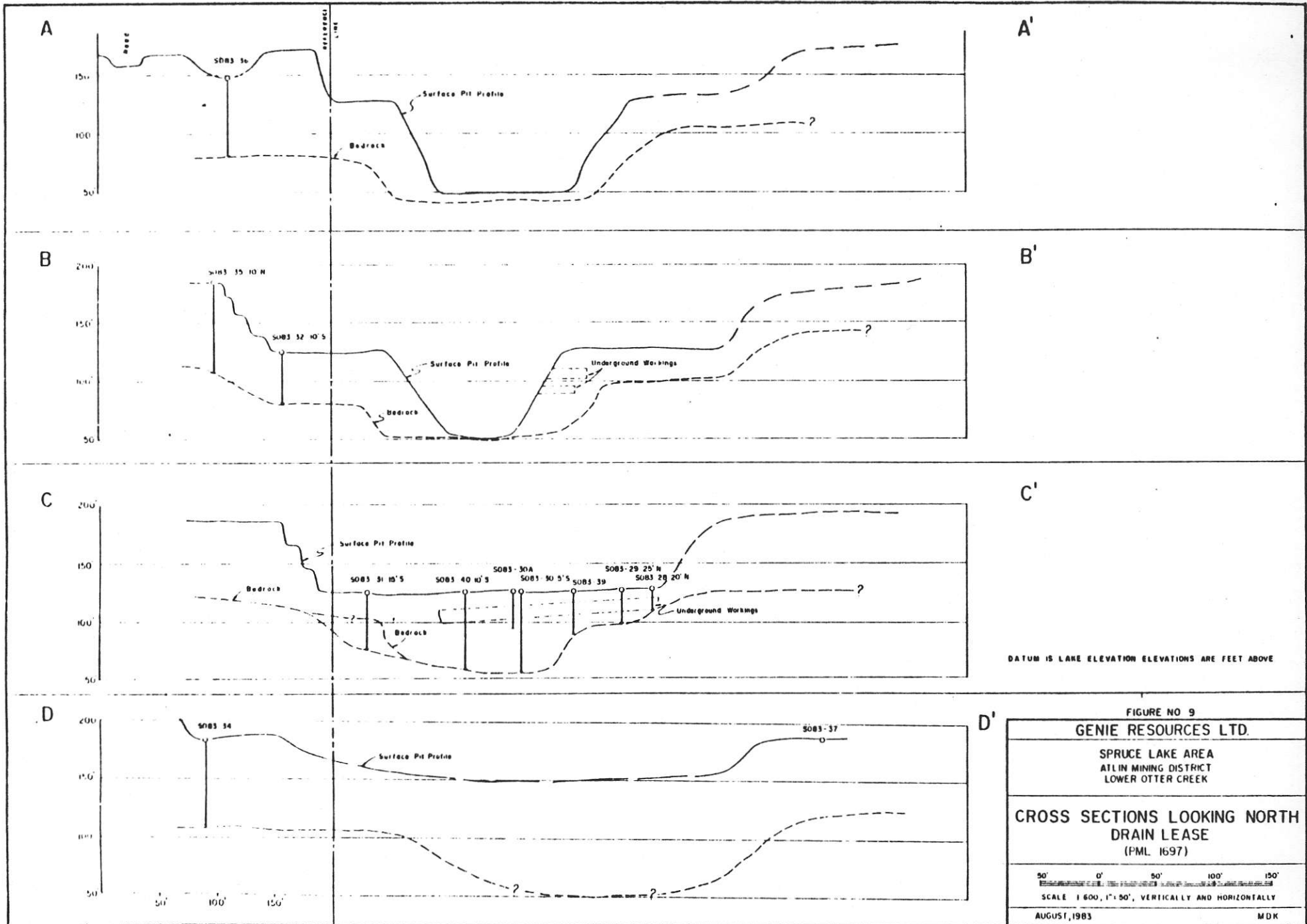


*Handwritten notes:*  
289 m  
982

NOTE: PIT NOT SURVEYED UNTIL HOLE  
LOCATED BY SHANTON AND TAPPE  
OPEN SURVEY

FIGURE NO. 6  
GENIE RESOURCES LTD  
SPRUKLE LAKE AREA  
ALLEN HARBOR DISTRICT  
LOWER OTTER CREEK  
SKETCH PLAN  
SOUTHERN PART OF  
DRAIN LEASE  
(PML 697)  
AUGUST 1983





Please see Figures 5 and 8 and 8A for illustrations of the sections and plans of the drill program for the 1702 Zone. The channel position shown puts part of the channel under the high east bank inaccessible to drilling from the creek valley.

#### Drain Lease

Please see Figures 6 and 9 for a plan and sections for the drill program carried out here. The volume of pay gravels in the pit, using the sections and average end area system, is 135,000 C.Y. This compares with an estimate using horizontal blocks of 140,000 C.Y. This estimate is for the volume of pay to within 100 feet of the claim boundary. The volume of pay gravels within 100 feet of the claim boundary using sections is 55,000 C.Y. The volume using horizontal blocks is calculated at 70,000 C.Y. The average of the two systems is about 60,000 C.Y.

The holes drilled in the pit were, in general, if one looks only at the results of Appendix A, somewhat disappointing. However, the results should be looked at in some detail. If this is done the results tend to confirm the grade assigned to the DLE block.

Hole S083-28 was drilled into a large stope from about 5' down in the hole. It quickly hit weathered bedrock and stopped at 23 feet. This hole was useful to establish rim but not of much use for grade purposes as the gold was probably blown ahead of the bit in the large cavity of the old stope.

Hole S083-29 was in an old stope to 18 feet in the hole. From 18 to 32 the grade, adjusted for factors, is about 0.07. Hole S083-30 was drilled in the center of the channel. Because the upper 30 feet of the hole was in stopes and recovery was minimal I repeated the upper 30 feet using a "crowd-out" bit. If the upper part of S083-30A is used instead of the upper part of S083-30 then the average grade for 70 feet is about 0.04. This was still considered low so I drilled a check hole, S083-40 about 50 feet from hole S083-30. Despite very low recovery for the first 18 feet of the hole in old stopes, the average grade (from Appendix A) for 65 feet in that hole was 0.09 oz/cubic yard.

Hole 31 again hit an old stope in the upper part of the hole. But this hole was in weathered rimrock for most of its length. The grade is low. What this hole really establishes is that bedrock away from channel bottom is barren. Both holes, S083-32 and 33, were also in rimrock.

Holes S083-34 to S083-36 were drilled on the western side of the pit and above it. They established firmly the outer limits of pay and also indicated very clearly that, though there are small amounts of fine gold in the glacial till overlying cemented pay, it is definitely waste material. Hole S083-37 was drilled on the east side of the pit and indicated clearly that gold in mineable amounts is confined to the Tertiary channel. Hole S083-38 hit a boulder at 50 feet while still in the overlying clay horizon. The hole was abandoned. If drilling is resumed at DLE zone this hole should be attempted again.

Finally, Hole S083-39 passed into an old stope, with minimal recovery high up in the hole, and passed out of the stope at about 24 feet. From that point it was in weathered bedrock to 41 feet. At 41 feet the bit hit hard unweathered shale bedrock. This hole (as do other holes) indicates that on the rim the bedrock is barren.

The only significant holes, so far as grade indications are concerned, were S083-30, S083-30A, and S083-40. These holes were on the mining bench above the pay zone. The other holes proved to be on the outer limits of the channel and were useful for planning mining development and pit layout. Of course, they delimited the pay area. It should be noted that in hole layout in the pit we had to stay out of the area of actual mining so as not interfere with operations. This limited somewhat our scope for drilling sites in the pay zone.

Allowing for lost gold in the old stopes, for the limited number of grade tests here and taking into account production experience, a reserve grade of 0.10 of fine gold at Drain Lease pit, is a reasonable estimate.

The owners of the Drain Lease have advised principals of the two companies concerned in the joint venture at Dan Group that they expect to recover 12,000 ounces from the pit. I estimated that 135,000 yards remain in parts of the pit accessible to Drain Lease owners. This means that the grade would be 0.09 oz/cubic yard. I consider that this is a lower limit so far as grade is concerned.

More work could have been done on the statistics of the results but time did not permit. Hopefully, when and if more drilling is done at Drain and DLE zones, these and the additional results will be incorporated in a statistical treatment of the drilling grades.

## PROBABLE AND POSSIBLE YARDAGE AND GRADE AT DAN CLAIM GROUP

### DLE Zone

Because of the limited number of holes to hit bedrock in this zone, within the channel, and on lack of some holes on the channel margins on Lines 1 and 2, the number of cubic yards assigned to proven reserves is minimal. Some indication of this is shown in the assignment of an additional 100,000 cubic yards as probable ore for the DLE block. It should be noted that the sections in the Drain Lease pit show that the pay zone is about 250'X 80' there, whereas I have used considerably smaller dimensions for the proven ore in this block. Grade for this probable ore is assigned at 0.10 oz/cubic yard.

### 1702 Zone

The results of the drilling at this Zone may appear to have been down-graded in the section on Proven ore. In order to counter this apparently negative assessment of 1702 Zone probable ore is assigned here.

Fifty thousand cubic yards are assigned to the upper horizon and 50,000 cubic yards are assigned to the lower or bedrock horizon in 1702 Zone. This is for the drilled area. Dimensions are 20 X 100 x 600 feet for both the lower and upper blocks.

Grade for these zones is estimated to be about 0.05 oz/C.Y. for the upper horizon and 0.15 oz/C.Y. for the lower or bedrock horizon, pending additional drilling and study. A bulk mining sample, possibly a shaft sample, will help to move this probable material into the proven category.

The potential for Dan group in (18) was set at 300,000 ounces. This "category" is now eliminated and the potential for the Tertiary channel on the Dan Group is considered as possible ore.

There are about 2100 feet of channel between the end of the drilled area of DLE block of proven ore and the intersection of the channel with present Otter Creek valley. There are about 60,000 cubic yards per hundred foot of channel in the proven and probable category in the first seven hundred feet of the channel. If this grade and volume of proven and probable ore continues in the channel (and there is no geological reason why it should change very much in the interval) then there are 1.25 million C.Y. of possible ore in this interval. The grade should be about the same as the proven ore grade and the interval should

contain 125,000 ounces of possible material.

There are about 1000 feet between the end of the long possible block above and hole 7 of Line 3 "Extra. See Appendix E. In this interval there should be the extensions of the two horizons found in 1702 probable block. There should be about 300,000 C.Y. in this interval in the two horizons. Grade should be the same as for the probable 1702 block. This interval could contain then about 30,000 ounces.

#### SUMMARY OF RESERVES OF DAN CLAIM GROUP IN C.Y. AND OUNCES

BLOCK	PROVEN	PROBABLE	POSSIBLE	OZ.
DLE	300,000	100,000	---	40000
1702		100,000		10000
DLE 1984			1,250,000	125000
1702 1984			300,000	30000
TOTALS	300,000	200,000	1,550,000	205000

#### CONCLUSIONS

The 1983 program of Becker Hammer Drilling has to date proven that the drill system used can outline and determine grade of the Tertiary Channel. Care must be taken that the program of drilling be under the direct control of the engineer in charge of making the reserve estimate.

The above summary of proven, probable and possible reserves require drilling to determine the trend and grade of the Tertiary channel. We now know from this season's work to date that drill lines about 200 feet apart can follow the Channel. The deep part of the channel can be penetrated to, at least, 180 feet with the Becker drill.

It is not possible to use the drill to determine grade from the few holes that will be drilled in the central part of the channel. Grade must be assigned for the sections of the channel ahead of the production pit face using a combination of past productin records, drill grades, statistical evaluations, and geological judgment.

In the writer's opinion a continuing program of Becker hammer drilling is the best and cheapest system of converting the possible and probable reserves of the above summary tabulation to proven category. Before any production system is decided upon, for both stripping and mining, careful study of all possible systems must be made in order to determine the cheapest and most efficient system.

Dan:                      Atlin:              August 17, 1983:              MDK              -17-

## DRILLING PROPOSAL

Specialized Drilling Services Ltd. of Calgary were the contractors for the drill program supervised by the writer on Dan Group this year. They should continue with a program of drilling the DLE 1984 Block of possible ore this season until freeze-up. Drilling of 1702 block could also continue this year. SDS have indicated that they were willing to carry on this year. The drill is at the Drain Lease and the drillers who worked on the project are available.

Care must be taken that only sound pipe is sent to the project and used. During the project to date we used a drill pipe design which was not entirely appropriate for deep holes. This newer pipe should be ordered for the project as soon as possible and shipped to Atlin.

The drill project should be renewed as soon as possible. The trained sluicing and panning personnel are at present available. It is not known how long they will be available. But it would disrupt the rapid and efficient processing of samples if new personnel had to be trained.

It is hoped that about 2000 feet of drilling, in deeper holes, which are slower, can be drilled this year before sluicing in the open becomes impossible due to ice. We are at present sluicing the samples at Rose Pit on Otter Creek.

All sluicing and panning equipment is in place and start-up of renewed drilling operations is possible within a few days of the decision to go ahead.

A percussion system of drilling would not be appropriate for the hard cemented pay of the DLE zone. In the writer's opinion it would not be possible to distinguish start or stop of the indurated pay section from weathered or hard bedrock from either cuttings or observations of the drilling rate. Even with the advantage of the large return of material from the Becker drill there is some difficulty in determining these interfaces. A test could be made over a known drill line but, in the writer's opinion, the hard cemented pay would respond to seismic surveying of the channel about the same as bedrock. So it is doubtful that a geophysical system would locate the channel.

## MINING PROPOSAL

It is possible that the Drain Lease may be purchased this year by the companies involved in the joint venture on Dan Group. If this is done then care must be taken to

survey the amount of material sluiced by a survey team, using stadia and transit, so that accurate grade estimates are possible. Counting of scraper loads is not reliable in determining accurate grade from production. The production grade can then be compared to drill hole information. This will be of great help in reserve calculation ahead of the pit faces as mining of the channel proceeds.

#### RECOMMENDATIONS

1. The drilling contractors should be contacted and drilling operations at Dan Group should be started as soon as possible in order to take advantage of the short field season remaining this year.

2. Drilling should proceed on a seven-day week basis until about the end of September. After sluicing and panning of all samples is completed and some geological mapping completed by the writer, a comprehensive report on the whole season's work should be completed.

#### COST ESTIMATE

At this writing I do not have available detailed cost break-down for the drilling project to date. The estimate below is, therefore, not detailed.

The detailed cost estimate submitted in my private report of May 17 this year was, I have been informed by the accountants, was not far from budget. This cost was about \$100 per foot for all costs. As a rough estimate of the cost for the recommended program then \$200,000 plus \$10,000 for the final report, will be needed to continue with the drill project at Dan Group at Atlin camp, this season.

Respectfully submitted,



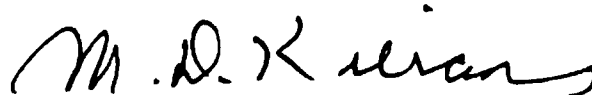
M. D. Kierans P. Eng.

CERTIFICATE

I, Martin D. Kierans, of 1503-1616 Pendrell Street, Vancouver, B.C. do hereby certify that:

1. I am a Geological Engineer.
2. I am a Resident Member of the Association of Professional Engineers of the Province of British Columbia.
3. I am a graduate in Geological Sciences of the University of British Columbia (M.A. 1952) and McGill University (B.Sc. 1949).
4. I have practiced my profession of Geological Engineer and Mine and Exploration Geologist for 30 years.
5. My knowledge of the property discussed in this report is based on short visits in 1982 and a longer two week period in March 1983 when I supervised a surveying and road clearing operation on the subject claim. I also supervised a 60 day Becker hammer drilling project on Dan Group in May, June and July of 1983. It is also based on study of numerous private reports on past exploration, development and mining work on the lower part of Otter Creek (see Bibliographic References), study of relevant government publications and maps and on verbal communications with some local prospectors and placer operators.
6. I have no interest in this or any other property of Genie Resources Ltd. nor in the shares of the Company, nor do I expect any.

DATED August 17, 1983 at Vancouver, British Columbia.



M.D. Kierans P.Eng.



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APPENDIX A

DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ./C.Y.	FACTOR ADJUSTED GRADE OZ./C.Y.
<b>SO-83-1A</b>												
14	24	10	10	N/A	240	17.3	3500	.2522917	.0080986	.0809856		
24	34	10	20	N/A	240	4.6	3500	.0670833	.0021534	.0215337		
34	44	10	30	N/A	240	43.7	3500	.6372917	.0204571	.2045706		
44	54	10	40	N/A	240	.2	3500	.0029167	9.362E-5	9.362E-4		
54	64	10	50	N/A	240	1.8	3500	.0262500	8.426E-4	.0084262		
64	74	10	60	N/A	240	35	3500	.5104167	.0163844	.1638437		
74	84	10	70	N/A	240	71.6	3500	1.044167	.0335177	.3351775		
84	88	4	74	N/A	100	12.8	3500	.448	.0143808	.0575232		
0	88	88	88							.8729969	0	0
64	88	24	24							.5565444	.0231894	.0347840
<b>SO-83-2</b>												
52	56	4	4	DAMP	58	14.2	3500	.8568966	.0275064	.1100255		
56	68	12	16	DAMP	191	.1	3500	.0018325	5.882E-5	7.059E-4		
68	76	8	20	DAMP	192	2.8	3500	.0510417	.0016384	.0131075		
76	86	10	30	DAMP	221	10	3500	.1583710	.0050837	.0508371		
86	94	8	38	DAMP	240	56.4	3500	.8225000	.0264022	.2112180		
86	94	8	8							.211218	.0264022	.0396033
<b>SO-83-3A</b>												
100	102	2	2	DRY	45	.8	3500	.0622222	.0019973	.0039947		
102	104	2	4	DRY	18	.2	3500	.0388889	.0012483	.0024967		
104	106	2	6	DRY	40	.2	3500	.0175	5.618E-4	.0011235		
100	106	6	6							.0076148	.0012691	.0019037
<b>SO-83-4A</b>												
70	74	4	4	DRY	54	6.2	3500	.4018519	.0128994	.0515978	.0128995	.0193492
<b>SO-83-5A</b>												
60	64	4	4	WET	88	.1	3500	.0039773	1.277E-4	5.107E-4		
64	68	4	8	DRY	99	.5	3500	.0176768	5.674E-4	.0022697		
68	72	4	12	DRY	140	421.2	3500	10.53	.338013	1.352052		
72	76	4	16	DRY	104	3	3500	.1009615	.0032409	.0129635		
76	80	4	20	DRY	123	2.9	3500	.0825203	.0026489	.0105956		
80	81.5	1.5	21.5	DRY	62	2.1	3500	.1185484	.0038054	.0057081		
68	81.5	13.5	13.5							1.435697	.1063479	.1595219

17.3 X 3500 = .2522917  
240 X 1000

(31.103 gram = 1 ounce)

(x1.5)

Line 1

Line 1

## DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ./C.Y.	FACTOR ADJUSTED OZ./C.Y.
SO-83-5												
60	64	4	4	WET	87	1.3	3500	.0522989	.0016788	.0067152		
64	68	4	8	DAMP	97	2.4	3500	.0865979	.0027798	.0111192		
68	72	4	12	DRY	104	.9	3500	.0302885	9.723E-4	.0038890		
72	76	4	16	DRY	114	313.2	3500	9.615789	.3086668	1.234667		
60	76	16	16							1.256391	.0785244	.1177866
SO-83-6												
52	58	6	6	DRY	152	1.2	3500	.0276316	8.870E-4	.0053218		
58	64	6	12	DRY	241	.2	3500	.0029046	9.324E-5	5.594E-4		
64	70	6	18	DRY	132	.9	3500	.0238636	7.660E-4	.0045961		
70	76	6	24	DRY	150	2.3	3500	.0536667	.0017227	.0103362		
76	82	6	30	DRY	228	4	3500	.0614035	.0019711	.0118263		
82	86	4	34	DRY	81	1.5	3500	.0648148	.0020806	.0083222		
86	92	6	40	DRY	50	.6	3500	.042	.0013482	.0080892		
52	92	40	40							.0490513	.0012263	.0018394
SO-83-7												
56	62	6	6	DRY	201	.5	3500	.0087065	2.795E-4	.0016769		
62	68	6	12	DRY	184	.1	3500	.0019022	6.106E-5	3.664E-4		
68	72	4	16	DRY	107	1.1	3500	.0359813	.0011550	.0046200		
72	74.5	2.5	18.5	DRY	101	6.2	3500	.2148515	.0068967	.0172418		
56	74.5	18.5	18.5							.0239051	.0012922	.0019382
SO-83-8A												
56	68	12	12	DRY	255	2.1	3500	.0288235	9.252E-4	.0111028		
68	80	12	24	DRY	327	8.4	3500	.0899083	.0028861	.0346327		
80	86	6	30	DRY	167	.3	3500	.0062874	2.018E-4	.0012110		
86	92	6	36	DRY	127	7.7	3500	.2122047	.0068118	.0408706		
92	94	2	38	DRY	66	.8	3500	.0424242	.0013618	.0027236		
56	94	38	38							.0905407	.0023827	.0035740
86	94	8	8							.0435943	.0054493	.0081739
SO-83-9A												
90	93	3	3	DRY	75	4.5	3500	.2100000	.0067410	.0202230		
93	98	5	8	DAMP	106	6	3500	.1981132	.0063594	.0317972		
98	102	4	12	DAMP	96	33.3	3500	1.214062	.0389714	.1558856		
102	106	4	16	DAMP	77	63.2	3500	2.872727	.0922145	.3688582		
106	108	2	18	DAMP	64	34.8	3500	1.903125	.0610903	.1221806		
90	108	18	18							.6989446	.0388303	.0582454

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## DRILL SAMPLE SLICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ./C.Y.	FACTOR ADJUSTED GRADE OZ./C.Y.
SO-83-9B												
82	88	6	6	DRY	108	.2	3500	.0064815	2.081E-4	.0012483		
88	94	6	12	DRY	195	68.1	3500	1.222308	.0392361	.2354165		
94	100	6	18	DRY	122	53.2	3500	1.526230	.0489920	.2939518		
100	107	7	25	DRY	245	85.8	3500	1.225714	.0393454	.2754180		
107	112	5	30	DRY	209	56.1	3500	.9394737	.0301571	.1507855		
112	118	6	36	DRY	137	4.7	3500	.1200730	.0038543	.0231261		
118	124	6	42	DRY	109	25.6	3500	.8220183	.0263868	.1583207		
124	130	6	48	DRY	86	29.5	3500	1.200581	.0385387	.2312320		
130	135.5	5.5	53.5	DRY	234	164.1	3500	2.454487	.0787890	.4333397		
135.5	140	4.5	58	DRY	49	153.7	3500	10.97857	.3524121	1.585855		
140	146	6	64	DRY	53	103.9	3500	6.861321	.2202484	1.321490		
146	154	8	72	DRY	165	123.1	3500	2.611212	.0838199	.6705593		
154	160	6	78	DRY	43	15	3500	1.220930	.0391919	.2351512		
160	166	6	84	DRY	95	2.5	3500	.0921053	.0029566	.0177395		
88	166	78	78							5.632385	.0722101	.1083151
SO-83-10A												
90	96	6	6	DRY	192	1.5	3500	.0273437	8.777E-4	.0052664		
90	96	6	12							.0052664	.0026332	.0036865
SO-83-11												
94	96	2	2	DRY	47	.2	3500	.0148936	4.781E-4	9.562E-4		
94	96	2	2							.0009562	.0004781	7.172E-4
SO-83-12												
104	106	2	2	DRY	58	3.8	3500	.2293103	.0073609	.0147217		
106	108	2	4	DRY	43	.4	3500	.0325581	.0010451	.0020902		
108	112	4	8	DRY	132	.3	3500	.0079545	2.553E-4	.0010214		
112	114	2	10	DRY	36	.6	3500	.0583333	.0018725	.0037450		
104	114	10	20							.0215783	.0021578	.0032367
SO-83-13												
96	101.5	5.5	5.5	DRY	141	72.8	3500	1.807092	.0580077	.3190421		
96	101.5	5.5	5.5							.3190421	.0580077	.0870115
SO-83-14												
100	104	4	4	DRY	113	44.5	3500	1.378319	.0442440	.1769761		
104	106	2	6	DRY	108	8	3500	.2592593	.0083222	.0166444		
100	106	6	6							.1936206	.0322701	.0484051

line 1

line 1

## DRILL SAMPLE SLUICING AND PANNING RESULTS ; OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ/C.Y.	FACTOR ADJUSTED GRADE OZ/C.Y.
SO-83-13A												
92	97	5	5	DRY	195	.1	3500	.0017949	5.762E-5	2.881E-4		
97	102	5	10	DRY	226	58.2	3500	.9013274	.0289326	.1446631		
102	108	6	16	DRY	194	2.6	3500	.0469072	.0015057	.0090343		
108	114	6	22	DRY	132	.1	3500	.0026515	8.511E-5	5.107E-4		
114	120	6	28	DRY	224	.8	3500	.0125	4.013E-4	.0024075		
120	126	6	34	DRY	222	35.5	3500	.5596847	.0179659	.1077953		
126	132	6	40	DRY	162	12.3	3500	.2657407	.0085303	.0511817		
132	138	6	46	DRY	90	.7	3500	.0272222	8.738E-4	.0052430		
138	144	6	52	DRY	93	.1	3500	.0037634	1.208E-4	7.248E-4		
144	150	6	58	DRY	111	.1	3500	.0031532	1.012E-4	6.073E-4		
150	156	6	64	DRY	57	.1	3500	.0061404	1.971E-4	.0011826		
156	162	6	70	DRY	169	.1	3500	.0020710	6.648E-5	3.989E-4		
162	168	6	76	DRY	83	.1	3500	.0042169	1.354E-4	8.122E-4		
168	174	6	82	DRY	114	1.6	3500	.0491228	.0015768	.0094611		
174	180	6	88	DRY	64	.9	3500	.0492188	.0015799	.0094795		
180	183.5	3.5	91.5	DRY	79	2.3	3500	.1018987	.0032709	.0114483		
97	132	35	35							.3155925	.0105198	.0157796
132	183.5	51.5	51.5							.0393577	7.642E-4	.0011463
114	132	18	18							.1613844	.0089658	.0134487
SO-83-15												
98	104	6	6	DRY	185	4.2	3500	.0794595	.0025506	.0153039		
104	112	8	14	DAMP	77	.4	3500	.0181818	5.836E-4	.0046691		
112	118	6	20	DAMP	125	2.8	3500	.0784	.0025166	.0150998		
118	122	4	24	DRY	174	23.2	3500	.4666667	.0149800	.0599200		
98	122	24	24							.0949928	.0039580	.0059371
SO-83-16A												
48	54	6	6	WET	146	.4	3500	.0095890	3.078E-4	.0018468		
54	60	6	12	DRY	214	3.4	3500	.0556075	.0017850	.0107100		
60	66	6	18	DRY	202	1.8	3500	.0311881	.0010011	.0060068		
66	72	6	24	DRY	231	1.6	3500	.0242424	7.782E-4	.0046691		
72	78	6	30	DRY	201	.7	3500	.0121891	3.913E-4	.0023476		
78	84	6	36	DRY	214	1.3	3500	.0212617	6.825E-4	.0040950		
84	90	6	42	DRY	250	.9	3500	.0126	4.045E-4	.0024268		
90	92	2	44	DRY	80	10.7	3500	.468125	.0150268	.0300536		
SO-83-17												
86	92	6	6	DRY	232	.4	3500	.0060345	1.937E-4	.0011622		
92	96	4	10	DRY	140	3.8	3500	.095	.0030495	.012198		

## DRILL SAMPLE SLICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ/C.Y.	FACTOR ADJUSTED OZ/C.Y.
SO-83-18A												
SPECIAL A+B												
SPECIAL 1,2,3.												
38	44	6	6	DRY	101	.6	3500	.0207921	6.674E-4	.0040046		
44	50	6	12	DRY	104	.1	3500	.0033654	1.080E-4	6.482E-4		
50	56	6	18	DRY	185	.5	3500	.0094595	3.036E-4	.0018219		
56	62	6	24	DRY	161	1.4	3500	.0304348	9.770E-4	.0058617		
62	68	6	30	DRY	165	.2	3500	.0042424	1.362E-4	8.171E-4		
68	74	6	36	DRY	206	1.4	3500	.0237864	7.635E-4	.0045813		
74	78	4	40	DRY	270	10.5	3500	.1361111	.0043692	.0174767		
38	78	40	40							.0352114	8.803E-4	.0013204
SO-83-18C												
70	76	6	6	DRY	153	3.9	3500	.0892157	.0028638	.0171829		
76	82	6	12	DRY	223	13	3500	.2040359	.0065496	.0392973		
82	88	6	18	DRY	217	308.8	3500	4.980645	.1598787	.9592723		
88	94	6	24	DRY	242	465.2	3500	6.728099	.2159720	1.295832		
94	100	6	30	DRY	263	8.1	3500	.1077947	.0034602	.0207613		
70	100	30	30							2.332346	.0777449	.1166173
SO-83-19												
78	84	6	6	DRY	115	.3	3500	.0091304	2.931E-4	.0017585		
84	90	6	12	DRY	147	.1	3500	.0023810	7.643E-5	4.586E-4		
90	96	6	18	DRY	276	3	3500	.0380435	.0012212	.0073272		
96	102	6	24	DRY	234	22.3	3500	.3335470	.0107069	.0642412		
78	102	24	24							.0737854	.0030744	.0046116
SO-83-20												
0	10	10	10	DRY	177	.7	3500	.0138418	4.443E-4	.0044432		
10	18	8	18	DRY	125	2.5	3500	.07	.002247	.017976		
18	24	6	24		120	.1	3500	.0029167	9.362E-5	5.617E-4		
24	30	6	30	DAMP	115	4.9	3500	.1491304	.0047871	.0287225		
30	36	6	36	DRY	170	2.1	3500	.0432353	.0013879	.0083271		
36	42	6	42	DAMP	190	9.5	3500	.1750000	.0056175	.0337050		
42	48	6	48	DAMP	160	79.9	3500	1.747813	.0561048	.3366287		
48	52	4	52	DAMP	204	47.3	3500	.8115196	.0260498	.1041991		
52	58	6	58	DRY	164	12.5	3500	.2667683	.0085633	.0513796		
58	64	6	64	DRY	115	1.3	3500	.0395652	.0012700	.0076203		
64	66	2	66		80	.1	3500	.004375	1.404E-4	2.809E-4		
66	70	4	70	DRY	75	.1	3500	.0046667	1.498E-4	5.992E-4		
70	76	6	76	DRY	184	26.3	3500	.5002717	.0160587	.0963523		
76	80	4	80	DRY	259	15.3	3500	.2067568	.0066369	.0265476		
0	80									.7173432	.0089668	.0134502
24	64	40	40							.5705823	.0142646	.0213968

## DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL' TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. %./C.Y.	FEET*GRADE	INTRVL. FACTOR GRADE ADJUSTED OZ/C.Y.
SO-83-21											
68	74	6	6	DRY	289	.1	3500	.0012111	3.888E-5	2.333E-4	
SO-83-22											
0	7	7	7	DRY	24	.1	3500	.0145833	4.681E-4	.0032769	
7	10	3	10		60	.1	3500	.0058333	1.872E-4	5.617E-4	
10	16	6	16	DRY	142	1.4	3500	.0345070	.0011077	.0066461	
16	22	6	22	DRY	77	.1	3500	.0045455	1.459E-4	8.755E-4	
22	28	6	28	DRY	188	.8	3500	.0148936	4.781E-4	.0028685	
28	34	6	34	DRY	174	23.4	3500	.4706897	.0151091	.0906548	
34	40	6	40	DRY	305	90.7	3500	1.040820	.0334103	.2004619	
40	46	6	46	DRY	149	11	3500	.2583893	.0082943	.0497658	
46	54	8	54	DRY	109	7.5	3500	.2408257	.0077305	.0618440	
54	60	6	60	DRY	187	.5	3500	.0093583	3.004E-4	.0018024	
60	66	6	66	DRY	159	2.5	3500	.0550314	.0017665	.0105991	
66	73	7	73	DRY	331	3.7	3500	.0391239	.0012559	.0087911	
0	73	73	73							.4381477	.0060020 .0090030
28	54	26	26							.4027265	.0154895 .0232342
SO-83-23											
0	14	14	14	DRY	110	.1	3800	.0034545	1.109E-4	.0015525	
14	22	8	22	DRY	138	4.4	3800	.1211594	.0038892	.0311137	
22	28	6	28	DRY	149	151.6	3800	3.866309	.1241085	.7446511	
28	34	6	34	DRY	176	52.2	3800	1.127045	.0361782	.2170690	
34	40	6	40	DRY	252	47.6	3800	.7177778	.0230407	.1382440	
40	46	6	46	DRY	189	53.8	3800	1.081693	.0347223	.2083341	
46	52	6	52	DRY	102	43.5	3800	1.620588	.0520209	.3121253	
52	58	6	58	DRY	151	5	3800	.1258278	.0040391	.0242344	
58	64	6	64	DAMP	240	.5	3800	.0079167	2.541E-4	.0015247	
64	70	6	70	DAMP	272	.2	3800	.0027941	8.969E-5	5.381E-4	
70	76	6	76	DAMP	108	.1	3800	.0035185	1.129E-4	6.777E-4	
76	80	4	80	DAMP	114	.1	3800	.0033333	1.070E-4	4.280E-4	
80	86	6	86		120	.1	3800	.0031667	1.016E-4	6.099E-4	
86	92	6	92	DRY	293	1.6	3800	.0207509	6.661E-4	.0039966	
92	98	6	98	DRY	302	2674.3	3800	33.65013	1.080169	6.481016	
0	98	98	98			(F.G+NUG)				8.166115	.0833277 .1249916
0	92	92	92							1.685099	.0183163 .0274744
22	52	30	30							1.620423	.0540141 .0810212



## DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ./C.Y.	FACTOR ADJUSTED GRADE OZ./C.Y.
SO-83-24												
38	44	6	6	DRY	176	1.4	3800	.0302273	9.703E-4	.0058218		
44	50	6	12	DRY	151	.1	3800	.0025166	8.078E-5	4.847E-4		
50	56	6	18	DRY	260	.1	3800	.0014615	4.692E-5	2.815E-4		
56	62	6	24	DRY	203	.1	3800	.0018719	6.009E-5	3.605E-4		
62	68	6	30	DRY	243	1.4	3800	.0218930	7.028E-4	.0042166		
68	74	6	36	DRY	216	.1	3800	.0017593	5.647E-5	3.388E-4		
74	80	6	42	DRY	185	.6	3800	.0123243	3.956E-4	.0023737		
80	82	2	44	DRY	145	12.1	3800	.3171034	.0101790	.0203580		
82	84	2	46	DRY	108	.7	3800	.0246296	7.906E-4	.0015812		
84	88	4	50	DRY	301	4.7	3800	.0593355	.0019047	.0076187		
SO-83-26												
0	14	14	14	DRY	85	1.1	3800	.0491765	.0015786	.0220999		
14	22	8	22	DRY	89	.1	3800	.0042697	1.371E-4	.0010964		
22	28	6	28	DRY	125	.5	3800	.0152	4.879E-4	.0029275		
28	34	6	34	DRY	170	.3	3800	.0067059	2.153E-4	.0012916		
34	40	6	40	DRY	159	24.1	3800	.5759748	.0184888	.1109328		
40	46	6	46	DRY	202	.7	3800	.0131683	4.227E-4	.0025362		
46	52	6	52	DRY	173	5.3	3800	.1164162	.0037370	.0224218		
52	58	6	58	DRY	492	8.1	3800	.0625610	.0020082	.0120492		
58	64	6	64	DRY	183	.8	3800	.0166120	5.332E-4	.0031995		
64	70	6	70	DRY	230	2.9	3800	.0479130	.0015380	.0092281		
70	72	2	72	N/A	N/A	N/A						
72	74	2	2	N/A	N/A	.1						
0	70	70	70							.1877829	.0026826	.0040239
SO-83-27												
34	40	6	6	DRY	177	5.6	3800	.1202260	.0038593	.0231555		
40	46	6	12	DRY	69	10.6	3800	.5837681	.0187390	.1124337		
46	52	6	18	DRY	166	.8	3800	.0183133	5.879E-4	.0035271		
52	58	6	24	DRY	357	45.6	3800	.4853782	.0155806	.0934838		
58	64	6	30	DRY	295	.9	3800	.0115932	3.721E-4	.0022329		
64	70	6	36	DRY	558	.1	3800	6.810E-4	2.186E-5	1.312E-4		
34	70	36	36							.2349642	.0065268	.0097902
SO-83-28												
0	6	6	6	DRY	46	3.5	3500	.2663043	.0085484	.0512902		
6	20	14	20	DRY	103	4.8	3500	.1631068	.0052357	.0733002		
20	23	3	23	DRY	132	9.7	3500	.2571970	.0082560	.0247681		
0	23	23	23							.1493585	.0064938	.0097408

## DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ/C.Y.	FACTOR ADJUSTED GRADE OZ/C.Y.
SO-83-29												
0	6	6	6	DRY	77	1.5	3500	.0681818	.0021886	.0131318		
6	14	8	14	DRY	11	.6	3500	.1909091	.0061282	.0490255		
14	18	4	18		80	.6	3500	.02625	8.426E-4	.0033705		
18	24	6	24	DRY	70	51.6	3500	2.58	.082818	.496908		
24	32	8	32	DRY	269	25.5	3500	.3317844	.0106503	.0852022		
0	32	32	32							.6476380	.0202387	.0303580
SO-83-30												
0	6	6	6	DRY	37	.1	3500	.0094595	3.036E-4	.0018219		
6	12	6	12	DRY	46	1.6	3500	.1217391	.0039078	.0234470		
12	20	8	20		160	1.6	3500	.035	.0011235	.008988		
20	26	6	26	DRY	41	34.5	3500	2.945122	.0945384	.5672305		
26	32	6	32	DRY	137	10.4	3500	.2656934	.0085288	.0511726		
32	38	6	38	DRY	136	13.6	3500	.3500000	.0112350	.0674100		
38	44	6	44	DRY	156	38.9	3500	.8727564	.0280155	.1680929		
44	50	6	50	DRY	146	56.1	3500	1.344863	.0431701	.2590206		
50	56	6	56	DRY	169	13.6	3500	.2816568	.0090412	.0542471		
56	62	6	62	DRY	190	16.7	3500	.3076316	.0098750	.0592498		
62	70	8	70	DRY	343	58.9	3500	.6010204	.0192928	.1543420		
0	70	70	70							1.415022	.0202146	.0303219
20	70	50	50							1.380766	.0276153	.0414230
SO-83-30A												
0	6	6	6	DRY	48	1.7	3500	.1239583	.0039791	.0238744		
6	12	6	12	DRY	48	10.5	3500	.7656250	.0245766	.1474594		
12	18	6	18	DRY	17	4.3	3500	.8852941	.0284179	.1705076		
18	24	6	24	DRY	45	18	3500	1.400000	.0449400	.2696400		
24	30	6	30	DRY	80	16.9	3500	.739375	.0237339	.1424036		
0	30	30	30							.7538850	.0251295	.0376943
SO-83-31												
0	4	4	4	DRY	10	.1	3500	.035	.0011235	.004494		
4	10	6	10	DRY	154	4.3	3500	.0977273	.0031370	.0188223		
10	16	6	16	DRY	107	1.8	3500	.0588785	.0018900	.0113400		
16	22	6	22	DRY	88	4.1	3500	.1630682	.0052345	.0314069		
22	28	6	28	DRY	178	8.4	3500	.1651685	.0053019	.0318115		
28	34	6	34	DRY	242	.71	3500	.0102686	3.296E-4	.0019777		
0	34	34	34							.0998524	.0029368	.0044053

## DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ/C.Y.	FACTOR ADJUSTED GRADE OZ/C.Y.
SO-83-32												
0	4	4	4	DRY	31	.3	3500	.0338710	.0010873	.0043490		
4	10	6	10	DRY	131	4.9	3500	.1309160	.0042024	.0252144		
10	16	6	16	DRY	153	.9	3500	.0205882	6.609E-4	.0039653		
16	22	6	22	DRY	118	6.7	3500	.1987288	.0063792	.0382752		
22	28	6	28	DRY	224	75.8	3500	1.184375	.0380184	.2281106		
28	34	6	34	DRY	267	.5	3500	.0065543	2.104E-4	.0012624		
34	40	6	40	DRY	244	.5	3500	.0071721	2.302E-4	.0013814		
40	46	6	46	DRY	271	N/A						
0	40	40	40							.3025583	.0075640	.0113459
SO-83-33												
0	8	8	8	DRY	140	13.1	3500	.3275	.0105128	.084102		
8	14	6	14	DRY	207	7	3500	.1183575	.0037993	.0227957		
14	19	5	19	DRY	215	.4	3500	.0065116	2.090E-4	.0010451		
0	19	19	19							.1079428	.0056812	.0085218
SO-83-34												
36	42	6	6	DRY	212	.1	3500	.0016509	5.300E-5	3.180E-4		
42	48	6	12	DRY	158	.2	3500	.0044304	1.422E-4	8.533E-4		
48	54	6	18	N/A	184	.2	3500	.0038043	1.221E-4	7.327E-4		
54	60	6	24	N/A	225	.4	3500	.0062222	1.997E-4	.0011984		
60	66	6	30	N/A	206	.2	3500	.0033981	1.091E-4	6.545E-4		
66	72	6	36	N/A	225	.2	3500	.0031111	9.987E-5	5.992E-4		
72	78	6	42	N/A	222	.1	3500	.0015766	5.061E-5	3.036E-4		
0	42	42	42							.0046597	1.109E-4	1.664E-4
SO-83-35												
52	58	6	6	N/A	199	.5	3500	.0087940	2.823E-4	.0016937		
58	64	6	12	N/A	174	4	3500	.0804598	.0025828	.0154966		
64	70	6	18	N/A	193	.1	3500	.0018135	5.821E-5	3.493E-4		
70	76	6	24	N/A	192	3.9	3500	.0710937	.0022821	.0136927		
52	76	24	24							.0312322	.0013013	.0019520
SO-83-36												
60	66	6	6	N/A	148	.1	3500	.0023649	7.591E-5	4.555E-4		
66	69	3	9	N/A	139	.6	3500	.0151079	4.850E-4	.0014549		
60	69	9	9							.0019104	2.123E-4	3.184E-4

## DRILL SAMPLE SLUICING AND PANNING RESULTS : OTTER CREEK DRILLING PROJECT

FROM FEET	TO FEET	INTERVAL FEET	CUMUL'TE INTERVAL	MOISTURE RELATIVE	SAMPLE WEIGHT LBS	GOLD WT. MILLIGMS	WT. OF GRAVEL LBS/C.Y.	ADJUSTED GOLD WT. GRAMS	ADJUSTED GOLD WT. OZ./C.Y.	FEET*GRADE	INTRVL GRADE OZ./C.Y.	FACTOR ADJUSTED OZ./C.Y.
SO-83-37												
54	60	6	6	N/A	134	BLACKSAND		0	0	0		
60	66	6	12	DAMP	134	.2	3500	.0052239	1.677E-4	.0010061		
SO-83-39												
0	16	16	16	N/A	147	7	3500	.1666667	.0053500	.0856000		
					(0-6 + 0-16)							
16	24	8	24	N/A	128	.5	3500	.0136719	4.389E-4	.0035109		
24	30	6	30	N/A	205	1.3	3500	.0221951	7.125E-4	.0042748		
30	36	6	36	N/A	204	.1	3500	.0017157	5.507E-5	3.304E-4		
36	41	5	41	N/A	144	.1	3500	.0024306	7.802E-5	3.901E-4		
0	41	41	41							.0085063	2.075E-4	3.112E-4
SO-83-40												
0	16	16	16	N/A	44	10	3500	.7954545	.0255341	.4085455		
16	22	6	22	N/A	101	137.3	3500	4.757921	.1527293	.9163755		
22	42	20	42	N/A	322	293.6	3500	3.191304	.1024409	2.048817		
THE ABOVE VALUES ARE SUMS OF THE FOLLOWING SAMPLES: 22-28, 28-36, 36-42, AND 20-40(SPECIAL).												
42	48	6	48	N/A	84	36.4	3500	1.516667	.0486850	.2921100		
48	54	6	54	N/A	225	24.6	3500	.3826667	.0122836	.0737016		
54	60	6	60	N/A	185	1.9	3500	.0359459	.0011539	.0069232		
60	65	5	65	N/A	207	.2	3500	.0033816	1.086E-4	5.428E-4		
0	65	65	65							3.747016	.0576464	.0864696
16	42	26	26							2.965193	.1140459	.1710688

APPENDIX B

The Dan Group comprises the following leases:

<u>Lease No.</u>	<u>Name</u>	<u>Expiry Date</u>	<u>Owner</u>
PML 1687	Snoopy	Sept 30/84	100% Connolly Holdings Ltd.
PML 1702	Rose	Sept 30/84	" " " "
PML 1703	Joy	Sept 30/84	" " " "
PML 1745	Lake	Oct 12/84	" " " "
PML 1782	Dan	Oct 12/84	" " " "
PML 1849	Randy	Oct 12/84	" " " "
PML 1866	Lucy	Oct 12/84	" " " "
PML 1867	Pauline	Oct 12/84	" " " "
PML 1868	Ford	Oct 12/84	" " " "
PML 1869	Surprise	Oct 12/84	" " " "
PL 4688	-	Oct 17/84	100% Milmac Mines Limited
PL 4689	-	Oct 17/84	" " " "
PL 4690	-	Oct 17/84	" " " "



# BECKER HAMMER DRILL

## METHOD

A Piledriving Hammer advances a casing of double wall construction. During driving, compressed air is continuously forced down the annulus and returned up the center of the casing. The airstream picks up the soil as it enters through the bit and instantly lifts it to the surface.

Four unique principles of this method boost the performance of the Becker Hammer Drill far beyond that of other drills.

- A. The highly efficient method of driving the casing with a Diesel pile hammer.
- B. The double walled casing, which creates two channels: a down channel for the air, and a return channel for air and soil.
- C. The large center opening which allows soil and rocks to be lifted without prior crushing or grinding.
- D. Drilling the hole and casing it is one and the same operation.

## CHARACTERISTICS

The outstanding characteristic of the Becker Hammer Drill is its ability to penetrate sand, gravel and boulder formations at high speeds.

## SAMPLING

When it comes to overburden sampling, the Becker Hammer Drill presents a very remarkable feature:

The drill provides automatically, as part of the drilling process, a continuous accurate sample of the penetrated formation. The drill, in fact, penetrates the formation by sampling it.

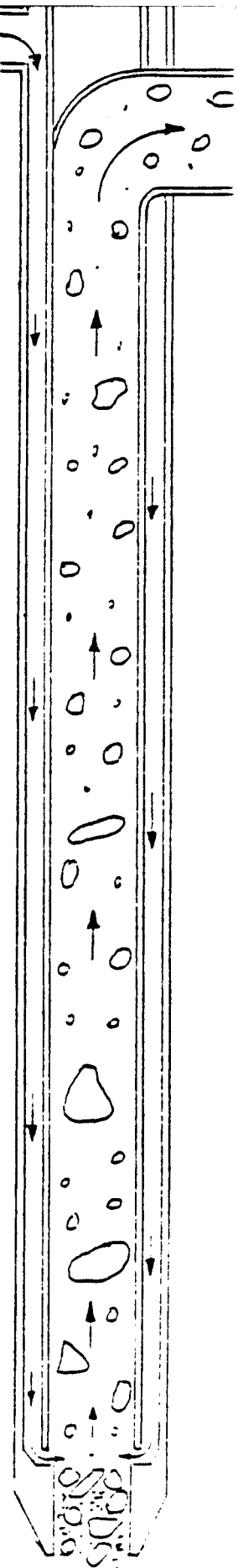
**UNBROKEN SAMPLE:** Advancement of the casing forces the soil in through the bit. The large center opening (3 in. or 4 in.) allows virtually all material to enter the casing unbroken. There is no triconing, grinding, or crushing of the formation. The soil is sampled, rather than drilled.

**UNALTERED SAMPLE:** As the drilling fluid is air rather than water, the sample is unaltered.

**NO CONTAMINATION:** The sample returns inside the casing and is therefore completely uncontaminated.

**CONTINUOUS SAMPLE:** The sample is continuous for the total length of the hole.

Because of the accurate sample, the Becker Hammer Drill has now become the accepted choice for geological sampling such as gravel exploration, borrow material for damsites, mineral exploration, placer exploration, etc.



APPENDIX D  
FORMULAE USED  
IN APPENDIX A

I Column 9=

(Column 8 / Column 6) X Column 7 / 1000

II Column 10=

(Column 9 X 0.0321)

III Column 11=

(Column 3 X Column 10)





APPENDIX E

Utter Creek - Atlas Mining Division - B.C.  
Page #2

NOTES:

Value /u estimated at 0.09¢ per milligram equivalent to \$35.00 per oz. Troy @ 800 fine  
Union drill using 6-7/16" O.D. shoe and 4-7/8" I.D. casing used to 6-22-40.

Keystone 71 drill using 7-1/2" O.D. shoe and 6" I.D. casing used for all other holes.

Elc. Values except lines 1 & 2 calculated using Keystone "27" factor of 136 for 6-7/16" shoe and 100 for 7-1/2" shoe.

Values line 1 & 2 calculated using straight factor of 119.5 for 6-7/16" shoe.

Calculations made by drill engineers.

25 Oct. 1946  
San Francisco  
A. F. D.