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EVALUATION REPORT

on the

**PLACER CLAIMS,
OTTER CREEK
ATLIN MINING DIVISION
ATLIN, B.C.**

for

**MISTRAL RESOURCES LTD.
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by

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November 25, 1987

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INTRODUCTION

At the request of Mr. Bruce Luckman, President of Mistral Resources Ltd., the writer has prepared this Evaluation Report as requested by the Vancouver Stock Exchange. The Exchange, before passing judgment on Mistral's proposed acquisition of the shares of Genie Resources Ltd., rightfully wish to know whether the proposed agreement and subsequent take-over of the Genie Atlin placer deposit by Mistral will be beneficial to the Mistral shareholders.

This report documents and comments on the items that necessarily must be taken into consideration in the evaluation of a property. All items are brought down into integer form for insertion into appropriate formulas. On the basis of constants, calculations are made as to the annual profit or loss. The figures are brought together for insertion in 'Hoskold Formula', the accepted theorem for engineering evaluation of a mining property. For greater credibility, a second approach is also considered. In addition, to provide an element of safety considering the inherent risks of the mining industry, the present net worth is further factored.

The writer presents a brief discussion of the results and its effects on operations of Mistral Resources Ltd. and on the mining claims.

THE CLAIMS

The 21 claims and fractions constituting the placer group in question are contiguous, extending in a north-south configuration over a distance of 1.2 miles (2 kilometers) from the north shore of Surprise Lake along the lower reaches of Otter Creek.

The claim group is located in the Atlin Mining Division of British Columbia and is centered on latitude 59 deg. 37' north and longitude 133 deg. 23' west. Its N.T.S. location is 104N/11W. See figure 2.

The following claims constitute the group:

<u>Number</u>	<u>Expiry Date</u>
PML 1697	OCT. 12/89
PL 1528	OCT. 12/89
PL 1739	OCT. 12/89
PL 2302	OCT. 12/89
PL 4604	OCT. 28/89
PL 4605	OCT. 28/89
PL 4606	OCT. 28/89
PL 4607	OCT. 28/89
PML 1745	OCT. 12/89
PML 1869	OCT. 12/90
PML 1687	SEPT. 30/90
PL 4688	OCT. 17/90
PML 1866	OCT. 12/90
PML 1868	OCT. 12/90
PML 1849	OCT. 12/90
PML 1867	OCT. 12/90
PML 1702	SEPT. 30/91
PML 1703	SEPT. 30/90
PML 1782	OCT. 12/90
PL 4689	OCT. 17/90
PL 4690	OCT. 17/90

THE APPROACH

A mining property has a definite value only by virtue of its ability to produce a profit over a term of years. The money value of that particular mining operation is that sum which the exploitation of the commodity or mineral will return, together with a fair rate of interest, besides paying operating expenses, taxes, etc., the same fair rate of interest on the required working capital and redeeming with a fair rate of interest the capital required for equipment and development.

The net present value as requested by the Vancouver Stock Exchange designates the capital which must be invested immediately to be equivalent to the future income to be received in exchange.

The valuation is complicated by the original agreements that Genie made with investors who are major creditors of Genie and the arrangements which Mistral has made with such creditors as well as by the arrangements made by Mistral to borrow funds for the 1987 mining season. The royalties and method of payment to be paid to these creditors must all be worked into the calculations. There are some intangibles such as "prime rate"; there are some variables such as the gold price. The writer has sought to put these and other similar factors into acceptable figures with no variations (just constants) and with a predisposition in the conservative vein.

Of assistance to the writer is the presence of tables published as tabulated factors for use in calculating compound interest improvements and discounts, and for computing the amounts and present values of various types of annuities, with or without allowance for capital redemption. To be judged then is the writer's approach to specific items.

ITEMS

A. Ore Reserves

On April 14, 1986, the writer presented Genie Resources Ltd. with a report⁽¹⁾ in which was documented the ore reserves of the property. This report was amended October 5, 1986 in which that portion of the ore reserves referred to previously as "proven" was altered to "drill indicated". Although synonymous with "proven" to many engineers, it implies identification through drilling, surface or underground, but not three-sided drifting or proving, of the ore. It is the next best thing to going underground. In placer mining of this era there is no underground, or development, work. Placer miners move directly into a production mode.

The writer identified a total of 1,530,000 yards of pay horizons in the drill indicated and possible category grading 0.052 ounces gold per yard. The grade figure is arrived at through the aggregating and weighing of all the ore intercepts in the 1983 drill program.

The total number of pay horizons has been identified in the channel as being four, namely Suoboda (the highest), Moran, Strand and Bedrock (the lowest). The average thickness of the pay gravels is 10 feet or totalling 35 to 40 feet through the 4 beds.

The internal strip ratio of the working face is approximately 2½ to 1. That is, for every foot of pay horizon in the working pit face, there are 2½ feet of unproductive, or weak, material in the face. Therefore, for the average working pit face there is 35 feet of productive gravels and 90 feet of weak material. In a like manner, the total waste material on the property can be considered to be 2½ times the amount of the ore material, or 3,825,000 yards.

In 1986, Genie produced gold from a pit face at an average grade of 0.012 ounces gold per loose yard while Mistral operating in 1987, through the same wash plant,

had a recovery averaging 0.013 ounces gold per unconsolidated yard⁽³⁾. The new wash plant improved this grade considerably by bringing the grade up to 0.033 ounces gold per yard within a relatively short working period. On the basis of the above figures, the writer has given the weak material a grade of 0.015 ounces gold per yard.

As it is unlikely that selective placer mining similar to that done by placer drift mining in the '30s will be undertaken, a grade must then be attached to the combined waste and ore gravels. The total aggregate yardage is 5,355,000 yards with a weighted grade of 0.026 ounces gold per yard.

The historic fineness of the Atlin gold is 820. Therefore one ounce of placer gold contains 0.82 ounces of gold (82%) and 0.18 ounces of impurities (18%). Usually the largest percentage of impurities is that of silver. The writer has presumed that of the 18%, 11% is silver. This silver recovery, although minor, has been calculated into the revenues.

B. Length of Season

The average length of a placer season in the Atlin area is from May 15th to October 15th or 152 days. Down time of the wash plant varies as to its manufacture and preventative maintenance. The writer has assumed from past experience that 10% will be the average down time per season or 15 days. This leaves an operating season of 137 days. The presence of the old plant does allow for backup thus alleviating the loss in down time.

C. Annual Throughput

On the basis of a 137 day season and using the rated capacity (250 yards) of the new 1987 wash plant at 80% for two shifts totalling 20 hours, the average annual throughput will be 548,000 yards.

If, as stated, the total available yardage on the property is 5,353,000, the productive life of the operation will be 10 years.

D. Price of Commodities

The chief commodity on the Atlin placer claim is gold. It would appear that the gold price per ounce has built a floor barrier of \$450 US. The writer assumes for the purposes of this exercise that the price of gold does not fall below \$425 US for the operational life of the mine, but remains constant at this price. By assuming a conversion factor of 1.30 the price of gold becomes \$552.50 Cdn.

As silver seemingly fluctuates between \$6 and \$7 US price per ounce, the writer, following conversion, has adopted \$9 Cdn per ounce of silver. The amount of silver handled annually at the refinery is not significant.

E. Return on Investment

The return on investment varies with the individual, organization and the type of investment. Length of investment is also a factor of some importance. However, it would appear that a standard return could be said to be 15%.

The writer has approached this rate of return by involving the 15% in two returns. A 4% rate of return is involved in a sinking fund to which payments are made from earnings. This account then is improved at this 4% compound interest rate on the given period of time (10 years). The 11% is the interest rate applied to the balance of the annual earnings for the redemption of the capital.

F. Annual Labour Costs

Placer operations are modestly labour intensive. However, in the case at hand, it is presupposed that Mistral will do all material handling and transportation to the wash plant by means of contractors. This had been the case with Genie in 1986 and Mistral in 1987. The number of company and contractor personnel on the property varied from a low of 15 to a high of 37 during the past year.

To operate the two shifts required at the wash plant, gold recovery room, dining room and supervision, Mistral directly employed 9 people during 1987. The

average rate per hour varied from \$13 to \$15 with time and a half paid beyond the normal 8 hour day.

The writer has increased company operating personnel by 1/3 to 12 and has taken the average wage as \$20 per hour for a two shift, 20 hour working day. The season is considered as the full 152 days as labour will be put to work and paid during the downtime periods.

The annual labour cost is \$729,600.

G. Annual Mining Costs

This figure is derived from two sources - overburden removal and gravel haulage to the wash plant.

The amount of overburden to be removed is calculated from the width of the channel, the length of the placer claims remaining to be mined and the thickness of the overburden removed in previous operations. On claim PL 1782 the thickness is calculated at 100 feet while on its adjoining upstream claim, PL 702, the overburden thins to an average of 70 feet. The adjacent claim which is not in the Genie-Mistral group, PL 1699, is presently being sluiced and the glacial overburden thickness here is in the 50 to 60 foot range.

The writer's calculations returned 2,555,000 yards of overburden to be stripped during the life of the mine. This appears to be on the low side so, to be conservative, the writer has increased it 50% to 3,750,000 yards. At the \$2 per yard removal rate of 1987, this equates to \$7½ million over 10 years or \$750,000 per year.

The mining rate is set by the wash plant production. This is 548,000 yards at \$2 per yard or \$1,100,000 annually.

It is quite possible that a further reduction in stripping and mining rates could be affected. A reduction of 25 cents per yard would effectively reduce the total annual mining and stripping operation by some \$230,000.

H. Royalties

This is a very complicated situation and in the calculations which follow several assumptions have been made. There are several groups involved in the payment schedules either through gold, dollar or stock payouts or various combinations of these.

Stock

Mistral has proposed payments of stock to Genie unitholders, those holding builders liens, outstanding debtors and various parties holding interests in the Atlin placer claims on a post-consolidation (5 to 1) basis. These total 481,325 shares. Similarly, LSH Investments has agreed to convert \$100,000 of its \$2,732,500 loan into 133,333 shares of Mistral. There is also a finder's fee of 208,450 shares proposed. In addition, shareholders holding 5,765,700 shares of Genie will be issued 1,153,140 shares of Mistral (at the consolidation rate). The aggregate amount proposed to be issued by Mistral is 1,976,248 shares.

Dollars

Those holding Builders Liens in addition to accepting a portion in stock, are to be repaid a total of \$360,000 in cash. Vendors of a purchased placer lease (Drain) similarly have accepted stock plus a \$62,500 settlement. Total cash to be paid by Mistral on Genie's behalf is \$422,500.

Raw Gold

The holders of 12 units (at \$50,000 per unit) have agreed to accept payment in gold at the rate of 200 raw ounces per \$50,000. The writer has assumed that the holders of 5 units will agree to accept payment on the same basis. This then will total 3,400 ounces of gold. Calculations show this will be paid out in 3 years. In addition, they are to be paid interest at the rate of prime plus 2% effective January 1, 1988. This is also to be paid out in raw gold at the current price of gold (\$552.50).

The interest on \$850,000 for 3 years at prime (assume 10%) plus 2% interest equates to \$344,165 which at the current payment rate (\$552.50 per ounce) is the equivalent of 623 ounces.

Mistral has stated that 10% of production will be set aside as payment to the unitholders and advises that this has been done with the 1987 production.

With Hallman and his associated companies (LSH Investments Ltd. and 666030 Ontario Limited), Mistral, through Genie, has two contract loans to fulfill.

The first, called the Assumed Obligation, states that the \$2,000,000 principal advanced by 666030 Ontario Limited will be paid by refined gold from 40% of annual production at a price of \$350.88 Cdn. This is met by the delivery of 5,700 ounces of gold.

If we assume that the settlement funds of \$422,500 will be met by payment from the second advance, or 'Loan', then that amount owing to Hallman will be \$2,632,500. Payment of the loan (less \$100,000 converted to shares) is met by the delivery of 7502.6 ounces of refined gold again at a price of \$350.88 Cdn.

In addition, a bonus of 800 ounces of gold is payable to the above.

In addition to receiving gold at \$350.88 Cdn an ounce, Hallman's associated companies will be entitled to interest added on both loans (\$2 million and \$2.6325 million) at prime plus 1½% due and payable on November 1, 1990. Assuming prime to be 10%, this interest effect amounts to: a) \$1,241,036 on the Assumed Obligation and b) \$1,260,441 on the loan for a grand total of \$2,501,477 payable by the end of the 1990 season.

If the gold price difference (\$552.50 less \$350.88) and interest (Assumed Obligation plus Loan) are aggregated along with the 800 ounces of gold bonus, the amount over and above repayment of principal to be received by the Hallman companies is \$5,766,760.

Summation of Royalties

Stock to be paid out = 1,976,248 shares

Dollars to be paid out:

Interest

(which includes payment

of the \$422,500

settlements)

2,501,477

Gold to be paid out:

Unitholders 3,400 ounces

Interest 623

Hallman et al 14,003

18,026 ounces

MATHEMATICS

A. Annual Profit or Loss

Assumption of Constants and Items

Price of gold	\$552.50	Cdn
Annual throughput	548,000	yards
Life of property	10	years
Return on investment	11%	on capital; 4% annual redemption
Royalties:		
Unitholders	10%	
LSH et al	30%*	of balance until unitholders paid then 40% of total

* 2½% of this amount is due Eystar Holdings Ltd., until they receive \$1,000,000 at which time the percentage is due to Hallman.

Amount of gold ounces produced annually at .82 fineness:

=	548,000	x	0.026	x	.82
=	11,683				
less 10% =	<u>1,168</u>				
	10,515				
less 30% =	<u>3,155</u>				
	7,360	ounces gold to company			

Annual Gross Sales = 7,360 x \$552.50	\$ 4,066,400
less labour costs	729,600
less annual mining costs	1,100,000
less annual stripping	<u>510,000</u>
Annual Profit	\$ 1,726,800
Silver Profits = 11,683 x .11 x \$9	<u>11,566</u>
Total Net Profit =	<u>\$ 1,738,366</u>
(prior to taxes)	

At 1,168 ounces annually, the unitholders will be paid by (4,023 divided by 1,168) the 4th year.

At the 4 year period (1988, 1989, 1990 and 1991), Hallman et al will have been paid 13,629 ounces leaving 734 ounces to be paid in the 5th year.

At the 3 year period, the Company will have made and will presumably have paid the interest on the Loan and Assumed Obligation by the redemption date.

At the end of the 4th year, the following gold payments will be outstanding:

Unitholders	Nil	
Hallman et al	<u>734</u>	ounces of gold
	734	ounces of gold

This totals the equivalent of 6.3% of the following years production.

In the 5th year of operation:

Amount of gold	11,683	
less 6.3%	<u>734</u>	(Hallman paid off)
	10,949	
Net profit after deductions	<u>\$ 3,720,000</u>	(prior to taxes)

In the remaining 6 through 10 years of operation:

Amount of gold	11,683	
Annual net profit after deductions	\$ 4,126,800	(prior to taxes)

Profit of 10 year property life:

1st four years	\$ 6,954,000	
5th year	3,720,000	
Year 6 through 10	<u>20,634,000</u>	
Total	\$31,308,000	
less dollar payouts	<u>2,502,000</u>	(interest to Hallman including settlements)
	<u>\$28,806,000</u>	

B. Net Present Value

The normal mine evaluation premise used by engineers is the Hoskold formula developed by H.D. Hoskold in 1877. More than a century later this formula is still in common usage.

The formula is of the two-rate type and presupposes uniform earnings, uniform return on capital and provides for redemption of capital at the expiration of the operating life by annual reinvestment of the balance of the yearly earnings at a safe rate of interest.

$$V_p = \frac{A}{\frac{r}{R^n - 1} + r^1}$$

"In the formula, A represents the yearly profit from the mine. This is an estimated figure of future annual earnings and is, of course, susceptible to more than one interpretation, the interpretations depending upon the engineer who has examined the mine and upon the data which he has collected during his examination. The actual mathematical solution of the formula is an exact problem, and the accuracy of the calculated valuation figure for the mine is, therefore, wholly dependant upon the accuracy of the estimated values for A, n (years life), r (practicable safe return on redemption of capital), and r^1 (speculative rate to purchaser on his capital investment) which are substituted in the formula. The foundation built beneath the formula during the mine examination determines the accuracy of the final figure. The principal estimates involved in the determination of A are reserve tonnage, rate of mining, estimated cost per unit, and expected profit per unit. The length of life of the property is a function of reserve tonnage and rate of mining and determines the value of n, the years of life of the annuity (operation)." (2)

The above equation is most accurate in assessing the basis of determination of the various items. The writer in the foregoing pages has explained his approach to the figures used in the calculations.

In the calculations of net profit there are 3 stages of return. This does not adhere to the theory of uniform earnings therefore a weighted earnings figure must be arrived at. The first four years of operation give a figure of \$6,954,000 while the fifth year figure is \$3,720,000 and the final five years aggregate \$20,634,000. Totalling them, subtracting the cash output and dividing by the life of the property, 10 years, gives an average annual yearly profit of \$2,881,000. Inserting this into the formula and utilizing the present value of redemption annuities tables:

$$\begin{aligned} \text{Net Present Value } V_p &= 2,881,000 \times 5.1735 \\ &= \underline{\underline{\$14,904,900}} \end{aligned}$$

Another approach advocated is that of taking the net profit year by year, discounting them to the present value (at 15% single rate of interest) and totalling the sums to obtain the estimated value of the property⁽⁴⁾.

<u>Year</u>	<u>Estimated Net Profit</u>	<u>Discount Factor</u>	<u>Present Value</u>
1	\$1,738,366	.86957	\$ 1,511,631
2	1,738,366	.75614	1,314,448
3	1,738,366	.65752	1,143,010
4	1,738,366	.57175	993,910
5	3,720,000	.49718	1,849,510
6	4,126,800	.43233	1,784,149
7	4,126,800	.37594	1,551,429
8	4,126,800	.32690	1,349,051
9	4,126,800	.28426	1,173,084
10	4,126,800	.24718	1,020,062
Net Present Value			<u><u>\$13,690,274</u></u>

If the Net Present Value is further factored (20%) to take into consideration the general risks associated with the mining industry, the Net Present Value of the property then falls between \$10 3/4 million and \$11 3/4 million.

DISCUSSION

As with most projections, there are uncertainties. The writer has tried to be conservative in his interpretations in order to give the foundation for the formula some solidity and to achieve more credible results.

Any mining venture is speculative, as the risk factor is highly dependent upon data at hand which in turn is dependent upon finances available and expended to gain the data. There is a point at which further expenditures would gain little information and would, as a consequence, detract from the profit picture, or would diminish the existing capital to be expended on the venture operation.

Data is obtained through exploration, development and production. In placer mining the development stage is normally bypassed. Exploration is primarily directed towards identifying the path of the channel and trying to obtain a "handle" on the grade of the deposit, principally through surface drilling. Data obtained from drilling of placer deposits is normally within speculative bounds and can be treated with some certainty. That data obtained from production is specific and reliable.

On the above premise, the channel that is presently being operated by Mistral, for Genie, has been similarly identified in a working operation just south (up stream) of Mistral's claim PL 1702. This operation, on the present course of Otter Creek, has been in progress the last two summers, 1986 and 1987. Through Mr. Hallman, who receives a royalty from this particular operation, the recovery figures of this deposit have become known. During 1987, the operation ran 89,900 yards through its wash plant for a recovery of 4,789 ounces of gold. This represents a grade of 0.053 ounces gold per yard.

The points made in the above paragraph are 1) the channel, and consequently the workable gravel yardage, continues through the present claims of Mistral (Genie); 2) the grade is obviously higher (200%) than that attributed by the writer to the Mistral (Genie) claims.

One of the weak points, or uncertainties, in the writer's projections, is the annual throughput. Should the daily throughput fall off by 1/3 to 130 yards per hour and the same gold production be required, then the grade of the gravels must be improved from the writer's 0.026 ounces gold per yard by 50% to 0.04 ounces gold per yard. In view of the adjoining operation on Otter Creek, this increase in grade may not be too difficult to obtain. It should be noted that the standby wash plant of Genie's, although demonstrating poor recovery in the past, is available to maintain a consistent throughput.

Of interest is the fact that in 1987 the new wash plant operated for 11 days (end of season) and averaged better than 3,500 yards per day during this breaking-in period. It would seem then that the average daily production of 4,000 yards is within reach.

As the projections stand, Mistral proposes to increase its shareholders by some 1,976,248 shares at a share price of \$0.75 per share (post consolidation price). When the cash to be paid out by Mistral is added to the above, the figure of \$1,904,686 is the payout by Mistral for the new shareholders. Had this amount been invested at the current compound interest rate of 10% for the mine duration of 10 years, it would have returned in excess of \$4.9 million. This compares with the mine return (\$5.2+ million) at the end of three years.

The writer has purposely omitted a section on taxes. It is understood that when taxes are levied, the operation is making money.

The Otter Creek property of Mistral (Genie) shows the potential for good returns if the constants in the projections can be maintained during mine operations. Careful management coupled with consistent production can make the Otter Creek property a worthwhile operation.

Respectfully submitted,

W.G. Hainsworth, P.Eng.

November 25, 1987
Vancouver, B.C.

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- (3) Update Report on the Placer Mining Claims, Otter Creek, Atlin Mining Division, Atlin, B.C. by W.G. Hainsworth, October 30, 1987.
- (4) Mine Economics by S.J. Truscott, 1962.

CERTIFICATE

I, W.G. Hainsworth, P.Eng., of Vancouver, B.C. do hereby certify:

- (1) That I am a Consulting Geologist residing at 836 West 13th Avenue, Vancouver, B.C.
- (2) That I am a graduate of the University of Western Ontario, London, Ontario, Bachelor of Science Degree, Honours Geology.
- (3) That I have practiced my profession for some 35 years.
- (4) That I have been a continuous member of the Association of Professional Engineers of British Columbia since 1965 and am a Professional Geologist registered with the Association of Professional Engineers, Geologists and Geophysicists of Alberta since 1979.
- (5) That I have no financial interest, direct or indirect, in Mistral Resources Ltd., and do not expect to obtain any such interest.
- (6) That the information contained in this report is based on a visit to the Otter Creek property on October 20 and 21, 1987 and perusal of all pertinent information available.
- (7) That consent is herewith given to Mistral Resources Ltd., to use any or all material from this report in information circulars, offerings or shareholders' brochures.

W.G. Hainsworth, P.Eng. (B.C.)
P. Geol. (Alta.)

To accompany:
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