STRUCTURAL GEOLOGY AND GOLD

MAGINO MINE PROJECT

WAWA AREA, ONTARIO

prepared for

Golden Goose Resources Inc.

20 June, 1999

M. Perkins

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1.0 INTRODUCTION

In April of 1997 Pearson, Hofman and Associates Ltd. (PHA) supervised a ten hole diamond drill program on behalf of Golden Goose Resources Inc. (GGR) at the Magino mine property in Finan Township, Ontario. This drill program was a component of a larger overall study managed by PHA to evaluate the potential of the property for a large open pit mining operation centred on the area containing former underground workings.

Drilling was done at a bearing of 180° based on previous mining information and regional fabrics. Some vein intersection indicated some north-south trending structures the appeared to host gold mineralization. In order to increase the structural and geologic information of the deposit approximately 3500 ft^2 was stripped and mapped in July 1997.

Gold is hosted by veins and shear zones, both consisting of two groups, 'north-south' and 'east-west' veins and 'east-west' and 'northeast-southwest' shears. The 'northeast-southwest' shears appear to be continuous for hundred of feet while 'north-south' and 'east-west' veins and shears appear continuous for tens of feet. Continuity down dip was not determined, but data review indicates it may increase.

All the historic data and mine grid are in imperial units, therefore this report quotes units in imperial measure(unless noted) with metric conversions included where appropriate.

1.1 LOCATION, ACCESS AND PHYSIOGRAPHY

The Magino Property is located in the southern half of Finan Township about 50 km northeast of the town of Wawa, Ontario (NTS 42 C/8). Access is via an 18 km all-weather gravel road that turns off Highway 519 just west of the town of Dubreuilville (Figure 1). Dubreuilville is on Highway 519, 44 km east of the junction of Highways 17 and 519. That junction is in turn about 40 km north of Wawa on Highway 17.

A 44 kv power line and a gravel road extends from Goudreau about 7 km west of the property, through the minesite, to Lochalsh about 14 km east of the mine. Goudreau is a siding on the Algoma Central Railway and Lochalsh is a siding on the Canadian Pacific Railway.

The topography in the area is characterized by low ridges and hills of up to 50 metres relief flanked by generally flat areas of glacial outwash, swamps and numerous lakes.

1.2 LAND STATUS

The property consists of 80 claims all within the south half of Finan Township, Sault Saint Marie Mining district, Province of Ontario (Figure 2). The claims consist of patented, leased and staked claims as listed in Table 1. The claims are contiguous, wholly owned by Golden Goose Resources Inc., PO Box 209, Dubreuilville, Ontario, P0S 1B0 (Ministry of Northern Development and Mines Client #174165) and at the time of writing are in good standing.

TABLE 1

LIST of CLAIMS, MAGINO PROPERTY

Patented Claims, Surface and Mining Rights	**Unpatented Claims**
SSM 2048 to 2053 inclusive	SSM 698645 to 698657 inclusive
SSM 2102	SSM 698659 to 698662 inclusive
	SSM 698664 to 698671 inclusive
Leased Claims, Surface and Mining Rights	SSM 711129
SSM 581948 to 581953 inclusive	SSM 711131 to 711135 inclusive
	SSM 809963
Leased Claims, Mining Rights	SSM 809967 to 809972 inclusive
SSM 722481	SSM 827520
SSM 827520	SSM 841257 to 841259 inclusive
	SSM 841270
	SSM 847804 to 847807 inclusive
	SSM 847814
	SSM 884901 to 884904 inclusive
	SSM 1110086
	SSM 1118352
	SSM 1174399 to 1174405 inclusive
	SSM 1174846 to 1174849 inclusive
	SSM 1174854

1.3 PROPERTY HISTORY

Gold was discovered on the property by prospecting in 1917. The mine area was staked and in 1925 shares in the McCarthy Webb Company were offered to the public to assist in developing the property. In 1931 a new company, Algoma Summit Gold Mines was formed and an inclined shaft was sunk to the 100 foot level. Over 116,000 tons was mined intermittently through the 1930's and 8,700 ounces of gold were recovered by 1939, when mining operations were suspended. In 1940 Magino Gold Mines was formed, completed drifting and diamond drilling, but ceased work due to lack of funding and wartime shortages. Other than some surface drilling done in 1942 no further work was done until 1962 when Mr. C. McNellen completed 6 diamond drill holes which intersected gold values beneath the mine workings. In 1981 Rico Copper (1966) Ltd., which later became McNellen Resources Inc., drilled 16 holes. In 1981 McNellen Resources Inc. and Cavendish Investing Ltd. formed a joint venture to pump out the old mine workings, and completed underground mapping, sampling and drilling. Muscocho Explorations Ltd. acquired the Cavendish Investing Ltd. interest in the mine in 1985.

In 1985 and early 1986 Muscocho Explorations Ltd., in joint venture with McNellen Resources Inc., drilled 29 surface holes which, along with previous work, indicated a reserve of 1.9 million tons at 0.25 opt Au. A ramp was started in 1986 and developed levels at the 100 and 200 foot elevations (below and adjacent to the old workings). Mining and the construction of a 400 TPD mill started in 1987 and the first gold bar was poured in June of 1988. From 1988-1992 the Magino mine processed 768,678 tons at a recovered grade of 0.137 opt Au to produce 105,543 ounces Au (697,222 tonnes @ 4.71 g/t Au). From 1988 to sometime in 1989, mining was principally accomplished by shrinkage stoping which produced an average grade of ~0.2 opt Au. In 1989 mill throughput was increased to 640 TPD and production was chiefly from longhole stopes at an average grade of 0.12 opt Au. The reduced mining cost for the longhole stopes was offset by substantial dilution with a resultant increase in the cost per ounce mined. In mid 1992 the mine closed due to high operating costs and the underground workings were allowed to flood. The site has been on a care and maintenance footing since then.

In 1996 Golden Goose Resources Inc. obtained the Magino mine property from Muscocho Explorations Ltd., Flanagan McAdam Resources Inc. and McNellen Resources Inc. In early 1997 a drill core resampling program was completed to determine the reliability of previous drill assay results. Later that year ten holes totalling 2,087.5 metres were drilled to verify the potential of the mine area to host a large tonnage of low grade gold mineralization amenable to open pit mining, determine the distribution of gold mineralization, twin previous holes to determine the repeatability of assay results, and establish a sampling protocol. A stripping program with structural mapping was completed 17 July 1997 to determine the orientation and continuity of gold bearing veins. Samples from drill core and rock samples from the stripped areas were sent to Lakefield Research Laboratories for gravity, column leach, bottle roll and Bond Work Index testing to develop metallurgical mill process flowsheets.

In 1998 two bulk samples, divided into two lithologies, Mafic Volcanic and Granodiorite, made up from the 1997 drill core were sent to Kappes, Cassiday and Associates (KCA) for further metallurgical column leach testing.

1.4 GEOLOGY

The property is located in the Michipicoten greenstone belt of the Wawa subprovince within the Superior geologic province. Felsic volcanic rocks occur just to the south of the property and mafic volcanic rocks occur throughout and to the north of the property (Figure 3). A thin but extensive pyrite-rich iron formation known as the Goudreau Iron Range occurs close to or on the contact between the felsic and mafic volcanics.

The volcanic rocks trend between 070° and 090° in the immediate property area. Locally they have been tightly folded. Intrusive rocks found on the property include granitic rocks from tens of metres up to several kilometers size and a large stock of nepheline syenite that occupies the north part of the claim block. The principal ore host for the Magino mine is the Webb Lake Granodiorite (WLG) which occurs near the southern part of the property and appears to intrude along, and partially cut across, the mafic/felsic contact.

The Webb Lake Granodiorite is a felsic, porphyritic intrusive that is elongate in shape with dimensions of about 2,000 metres by 200 metres in plan with the long axis striking about 070°. It is open to depth and, according to some reports, becomes wider. Contacts are sharp and dip vertically to steeply to the north. The composition of the intrusive is somewhat variable and was subdivided according to modal mineralogy by Muscocho geologists. Whether that variation is due to primary lithological variations of phases of the intrusion, regional metamorphism, hydrothermal alteration, or a combination, is not clear. The mineralogy is primarily quartz (40-50%), plagioclase (25-35%), chlorite (10%), and sericite (10%). (Sullivan, 1987). This unit has been variably classified as a quartz-feldspar porphyry, granodiorite and trondhjemite (Heather & Arias, 1992) but the long-standing use of the term granodiorite by property geologists is most convenient. Locally, hydrothermal alteration results in feldspar destruction and the development of pervasive sericite.

Felsic and mafic dykes are found within the WLG and appear to correlate from section to section. They are interpreted to predate the gold mineralization but their temporal and genetic relationship to gold mineralization is not clear. Until this relationship is determined, they cannot be considered "stratigraphic markers" as they have not been shown to relate to either volcanic stratigraphy or to mineralized zones in the granodiorite.

A 15 metre wide diabase dyke trending about 335° (Mine Diabase) cuts the granodiorite and separates the Northeast Zone of the mine from the Main Zone. This dyke is thought to occupy the plane of an earlier fault that has had sinistral displacement along it. However, the horizontal distance between mineralized zones across this structure exceeds that shown for the displacement of the boundaries of the granodiorite on mine plans. This suggests that if the displacement entirely post-dates mineralization it must be oblique or, alternatively, the zones on either side of the diabase are not related.

Mineralization is found in all lithologies except the diabase. Significant economic mineralization discovered to date is restricted to the eastern end of the WLG. Within this area, the northern and southern margins are host to gold mineralization principally within a sub-unit designated as Unit 2 (Network Granodiorite) which is slightly more sericitic and more altered than the core of the intrusive (designated Unit 2V, Speckled Granodiorite). The mafic minerals in Unit 2 comprise from 7-20% of the rock and form a network texture around the quartz and plagioclase whereas in Unit 2V mafic minerals comprise less than 7% of the rock. Other minor phases of granodiorite are also present (Deevy, 1992).

The 2V unit is considered in most recent reports to be a separate, poorly mineralized phase of the intrusion but level plans clearly demonstrate that it also hosts gold mineralization.

2.0 1997 STRIPPING and STRUCTURAL MAPPING PROGRAM

In April 1997 Golden Goose Resources Inc. completed a 10 hole drilling program in three fences across the mine area to determine the feasibility of open pit mining, establish a sampling protocol, determine repeatability of previous assay results, and obtain samples for metallurgical testing. The results of this testing were used to determine the feasibility of an open pit mine at the Magino Mine. Drill results indicated the presence of apparent north-south trending gold bearing structures and veins. In order to facilitate a greater understanding of gold hosting structures a large trench, called 'Outcrop A' (L33+00E, 28+50N) approximately 3,000 ft^2 was excavated over the core of the deposit. A further 500 ft^2 was excavated north-east and south-west of 'Outcrop A' (Figure 3.)

Excavation was completed by R+R Enterprises with the assistance of B. Jardine.

2.1 STRUCTURAL MAPPING - BRUCE WILSON

A Structural Geologist, Bruce Wilson mapped 'Outcrop A' and reviewed the remaining stripped areas. A detailed report is included in Appendix A. with a summary of the results below:

- two orientations of auriferous veins were determined, "north-south" (striking 350° to 110°, dipping moderately east or west, averaging 000°/-90°), and "east-west" (035° to 105°, dipping moderately north or south, averaging 075°/-86°N) veins;
- two orientation of shears were determined, "east-west (035° to 105°, dipping moderately north or south) and northeast-southwest(070°/-60°N);
- north-south shears may be continuous for 100's of feet;
- north-south veins and east-west veins and shears are generally continuous for only 10's of feet and boudinaged;
- Foliation of the granodiorite strikes between 065° and 075°, dipping between 43° and 58°N in the northeast-southwest shear zones which appear to overprint (younger) the vertically/steeply north foliations found elsewhere;
- motion along the "east-west" fractures/shears appears predominantly strike slip, perhaps with a component of reverse dip slip;
- foliation averages 70° and strike slip component on structures oriented <70° is left-handed, while movement on structures oriented >70° is right-handed;
- folding within the northeast-southwest shear indicated considerable flattening through this structure.

Samples of the 1997 core and a bulk surface sample from 'Outcrop A' (L33+00E, 29+00N) were forwarded to Lakefield Research Laboratory for metallurgical testing. This information is discussed in a separate report.

2.2 PERSONNEL

The 1997 stripping and mapping program was completed under the supervision of J. Reddick, PO Box 579, Porcupine, Ontario, assisted by B. Jardine, PO Box 209, Dubreuilville, Ontario, P0S 1B0, and Bruce C. Wilson, 347 Albert St., Kingston, Ontario.

The author of this report, M. Perkins, PO Box 42, Coboconk, Ontario supervised the 1997 drill program under the direction of J. Reddick and completed this report using information supplied by Golden Goose Resources.

3.0 CONCLUSIONS

Information indicates that there are two foliations defined, dipping moderately north within northeast-southwest strongly foliated bands, and foliations dipping steeply north, vertically to steeply south outside of the previous bands. East-west fracturing represent low angle shear fractures, some of which are probably related to the north dipping foliation. Since east-west fractures curve as they enter the northeast-southwest shears, the shears are younger, at least of some, east west veins and fractures. Thus the north dipping foliation probably post dates and overprints the older near vertical foliation.

Motion along east-west fractures/shears was either strike slip or oblique with a predominant strike slip. North-south fractures appear extensional and although not perpendicular to the two foliations, are probably related to them.

4.0 RECOMMENDATIONS

Further stripping should be undertaken, with detailed grid and sampling continued over the current trenches to detail which structures host gold mineralization.

23 Jun 99

5.0 REFERENCES

Deevy, A.J., 1992; The Making of a Mine, Internal Muscocho Report.

Reddick, J., Pearson, Hofman and Assoc., 1997; Diamond Drill Program, Magino Mine Project, Wawa Area, Ontario, Report Filed for Assessment.

Sullivan, K. S., 1987; A Preliminary Report on the Magino Deposit, Wawa, Ontario.

Perkins, M., 1997; Report on Magino Gold Mine Property, Check Sampling Program, Report Filed for Assessment.

BLM Bharti Engineering Ltd., 1998; Preliminary Feasibility Study for a 2.6 M TPA Open Pit Mine and Leach Plant, Magino Gold Project., Internal Report for Golden Goose Resources Inc.

6.0 CERTIFICATES OF QUALIFICATIONS (attached)

I, **Michael James Perkins**, currently living at PO Box 42, Coboconk Ontario, certify the following:

1. I currently hold two diplomas in Exploration Geology obtained in 1982 and 1983 at Sir Sandford Fleming College.

2. I have completed two years towards a BSc. in Geology at the University of Toronto.

3. I have been employed as an exploration geologist since 1984.

Dated this day of 23 Jun 99

Michael J. Perkins

REDDICK CONSULTING INC.

CERTIFICATE OF QUALIFICATIONS

To Accompany the Report on
The Magino Mine Property of
Golden Goose Resources Ltd.
dated September, 1997.

I, John Richard Reddick, M.Sc., residing at 214 Duke Street, Porcupine, Ontario, do hereby certify that:

1. I am President of Reddick Consulting Inc.

2. I received my M.Sc. in Honours Geology at Queen's University, Kingston, Ontario in 1996 and my B.Sc. Honours Geology degree in 1982. I have been practicing my profession since graduation.

3 I am a Fellow of the Geological Association of Canada (F6740).

4. Reddick Consulting Inc. was retained by Pearson, Hoffman and Associated on behalf of Golden Goose Resources Ltd. to prepare a report the exploration program on the Magino mine property. This report, and the conclusions and recommendations made, are based on examination of records and drill core made during several visits to the property in 1997 and 1998 prior to during and after the drill program of April, 1997.

J Reddick

Timmins, Ontario
June 23, 1999

John Reddick, M.Sc.

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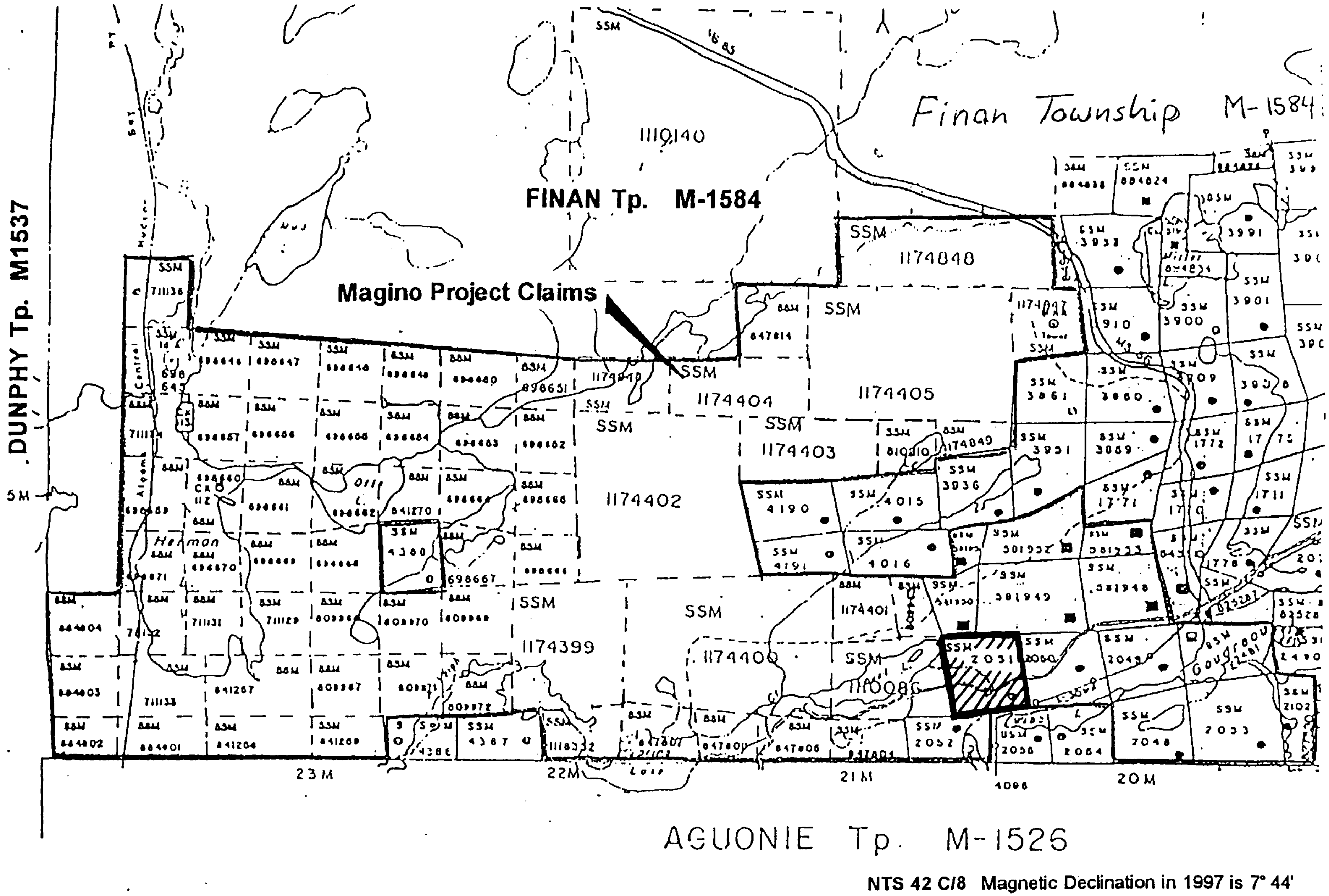


Figure 2: Project Location and Claims

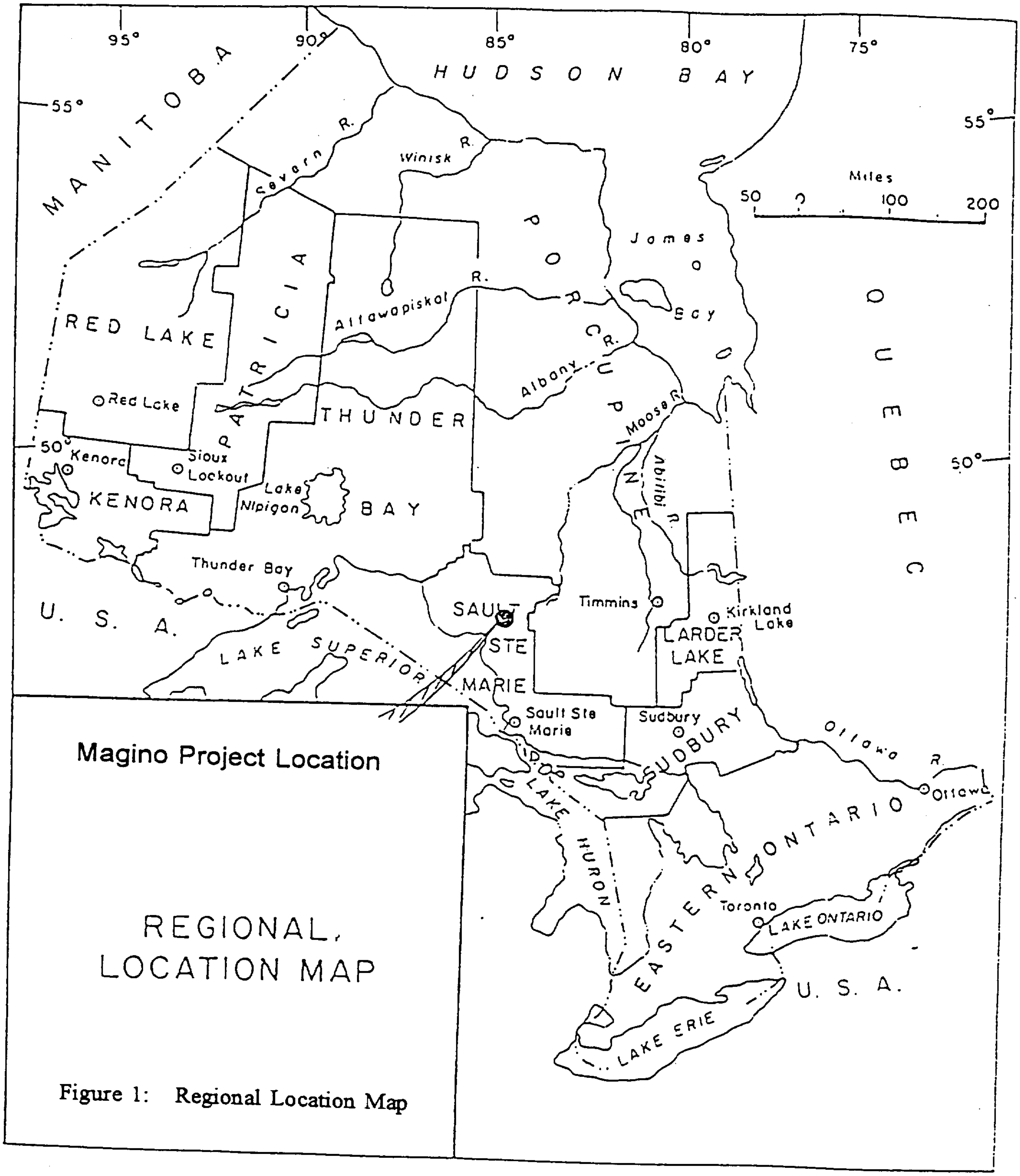
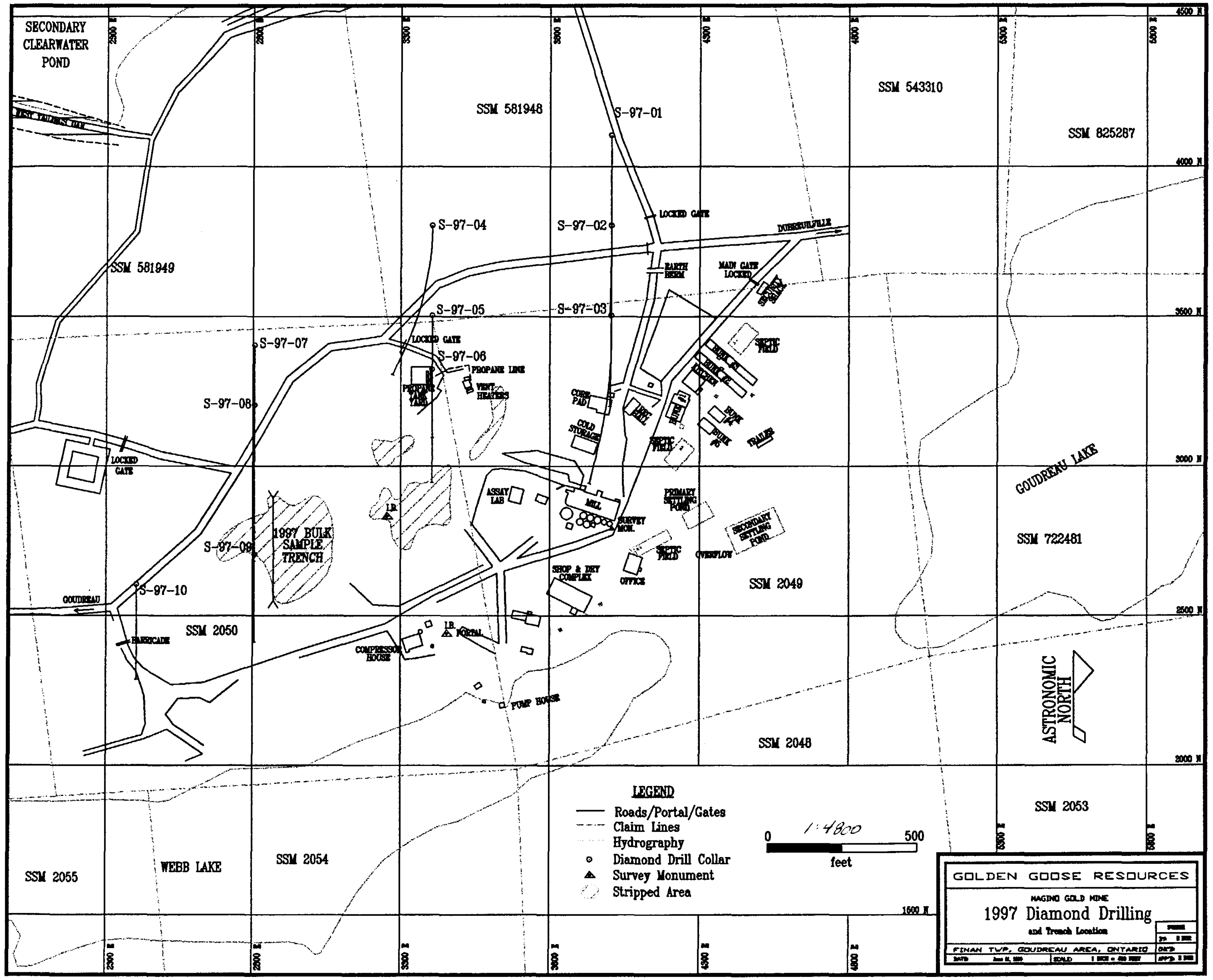


Figure 1: Regional Location Map


SECONDARY CLEARWATER POND
SSM 581948
S-97-01
SSM 543310
SSM 825287
S-97-04
S-97-02
LOCKED GATE
DUBREUILVILLE
SSM 581949
EARTH BERM
MAIN GATE LOCKED
S-97-05
S-97-03
S-97-07
LOCKED GATE
S-97-06
PROPANE LINE
SEPTIC FIELD
VENT HEATERS
CORE PAD
COLD STORAGE
S-97-08
TRAILER
LOCKED GATE
GOUDREAU LAKE
ASSAY LAB
MILL
PRIMARY SETTLING POND
SECONDARY SETTLING POND
SURVEY MON.
SSM 722461
1997 BULK SAMPLE TRENCH
S-97-09
SEPTIC FIELD
OVERFLOW
SHOP & DRY COMPLEX
OFFICE
SSM 2049
GOUDREAU
S-97-10
SSM 2050
BARRICADE
PORTAL
COMPRESSOR HOUSE
PUMP HOUSE
ASTRONOMIC NORTH
SSM 2048
LEGEND
Roads/Portal/Gates
Claim Lines
Hydrography
Diamond Drill Collar
Survey Monument
Stripped Area
0
1:4800
500
feet
SSM 2053
SSM 2055
WEBB LAKE
SSM 2054
GOLDEN GOOSE RESOURCES
MAGINO GOLD MINE
1997 Diamond Drilling
and Trench Location
FINAN TWP, GOUDREAU AREA, ONTARIO

APPENDIX A

Structural Geology and Gold
by Bruce C. Wilson

STRUCTURAL GEOLOGY AND GOLD
on the
MAGINO MINE PROPERTY

Prepared for
Golden Goose Resources Incorporated
Toronto, Ontario

July 18, 1997

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Structural Geologist

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SUMMARY

This report, part of a study to determine the feasibility of an open pit on the Magino Mine property, deals with the orientation and continuity of gold-bearing zones. Detailed and property-scale structural mapping reveals that there is a considerable range of possible orientations for gold-bearing zones. Some zones may be continuous for hundreds of feet, but others may be continuous for only tens of feet.

In the mine, there were two types of gold-bearing zones: veins and shear zones. Surface mapping indicates that there are two groups of veins, "north-south" and "east-west," and two groups of shear zones, "east-west" and "northeast-southwest". North-south veins strike between about 350° and 015°, and east-west veins and shear zones strike between about 035° and 105°. Dips of north-south veins range from moderate to the east to moderate to the west, and dips of east-west veins and shear zones range from moderate to the north to moderate to the south. Northeast-southwest shear zones strike about 070° and dip about 60° to the north.

Northeast-southwest shear zones may be continuous for hundreds of feet, but north-south veins and east-west veins and shear zones may be continuous for only a few tens of feet. Continuity may be better down dip than along strike. On the scale of an open pit, however, gold mineralization *could* be more or less homogeneous.

There are some structural features that clearly contain gold, and some that may contain gold. All of the features should be carefully sampled, but special attention should be given to those that may contain gold.

Due to time restrictions, the current program of mapping and sampling was limited. If it does not produce satisfactory results, a more detailed mapping and sampling program should be undertaken. Before such a program commences, outcrop surfaces should be covered by an accurate surveyed grid. If time and tide allow, more outcrops should be stripped.

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INTRODUCTION

This report

This report is part of a study to determine the feasibility of an open pit on the Magino Mine property. At the heart of the study is the extrapolation of gold values between diamond drill intersections based in part on a knowledge of the orientation and continuity of gold-bearing zones, and the continuity of gold values along them.

To determine orientation and continuity of gold-bearing zones, I have focused on structural geology and gold. Geological features that did not appear to be directly related to the distribution of gold on the scale of an open pit were given a cursory examination and are noted here only briefly. The distribution of gold along gold-bearing zones is being examined in a concurrent sampling program.

I am indebted to John Reddick for sharing his knowledge of the property, and for discussing concepts with me. This report is a synthesis of our observations and conclusions from my point of view.

Previous work, geology, and history

Recent discussions of previous work, regional geology, property geology, mine geology, and the history of the mine are included in reports by BLM Bharti Engineering Inc. (1996) and by R. Bruce Graham and Associates Ltd. (1995).

Mapping procedure

A stripping program completed in 1997 cleaned "old" outcrops and exposed "new" outcrops. I examined stripped outcrops between 2680E and 3640E and between 2540N and 3270N (mine grid). Within this area, some of the outcrops that are shown in previous maps have been buried by mine waste.

A survey completed in 1997 established points on each outcrop, and produced a map of outcrop outlines.

I mapped one outcrop, which I shall call outcrop A, in considerable detail at a scale of one inch to twenty feet, and the rest of the outcrops in much less detail at a scale of one inch to forty feet. The maps are reproduced here at scales one inch to about twenty seven feet, and one inch to about one hundred and fifteen feet.

To facilitate mapping outcrop A, I established a grid on it. The "east-west" base line of the grid trends about 070°, and passes through points 9 and 10 of the survey. Point 9 is at about 0+42.8E, and point 10 is at about 1+42.8E. Baseline points 0+00 and 1+60 E are marked by "Xs" cut into the outcrop with a saw. "North-south" lines are spaced twenty feet apart, and points on those lines are spaced five feet apart. Outcrop A has considerable relief, so the grid is somewhat rough: the "north-south" lines may be only approximately perpendicular to the baseline, and grid points that are far from the baseline may be out by as much as a few feet.

Unfortunately, the map of outcrop outlines proved to be rather crude. I had time to improve the outlines of outcrop A, but not of the rest of the outcrops.

In making a map we project geological features vertically onto a horizontal plane. Where an outcrop has relief, the projection of a dipping planar feature such as a dike, vein, fracture, or shear zone is a curved line. However, if we know that a feature is flat we tend to represent it by a straight line. This becomes a problem when the relief of an outcrop is large relative to its areal extent, as with most of the outcrops including outcrop A.

All things considered, it is best to treat the map of outcrop A as a *sketch map*, and the map of the rest of the outcrops as a *rough sketch map*.

STRUCTURAL OBSERVATIONS

Outcrop A

Outcrop A consists of "granodiorite" (see BLM Bharti Engineering Inc., 1996) cut by a felsic dike and in contact with a mafic rock that may be a xenolith or a dike (Figure 1). All of the rock types are cut by fractures, and the granodiorite and the felsic dike are cut by veins. Some veins appear to contain only quartz, but most appear to contain one or more of quartz, chlorite, tourmaline, and sulphides.

There are two main groups of fractures and veins: in one group the fractures and veins strike roughly north-south, and in the other group the fractures and veins strike roughly east-west. The east-west veins tend to be discontinuous over tens of feet, and most appear to be boudinaged. The north-south veins are generally continuous over tens of feet, and most are more or less undistorted. Some of the north-south veins are continuous with some of the east-west veins, and some of the north-south veins are off-set along east-west fractures.

The granodiorite is medium grained, and in part unfoliated (Photograph 1). It is moderately to strongly foliated within bands up to a few inches wide surrounding some of the east-west fractures, strongly foliated (Photograph 2) within a band up to ten feet wide that strikes northeast-southwest across the outcrop (Figure 1), and moderately foliated within band up to 30 feet wide that surrounds the felsic dike (Figure 1). The foliations are defined by the long axes of inequant mineral grains and aggregates of mineral grains, including chlorite, quartz, and feldspar. The intensities of the foliations are subjective, and are based on the apparent degree of flattening and alignment of the minerals.

The felsic dike is very fine grained. It is unfoliated in some places, and moderately to strongly foliated in other places. The foliation, which is defined by the long axes of sericite, is especially strong within narrow bands that surround some of the east-west fractures.

The mafic rock is fine grained and moderately foliated.

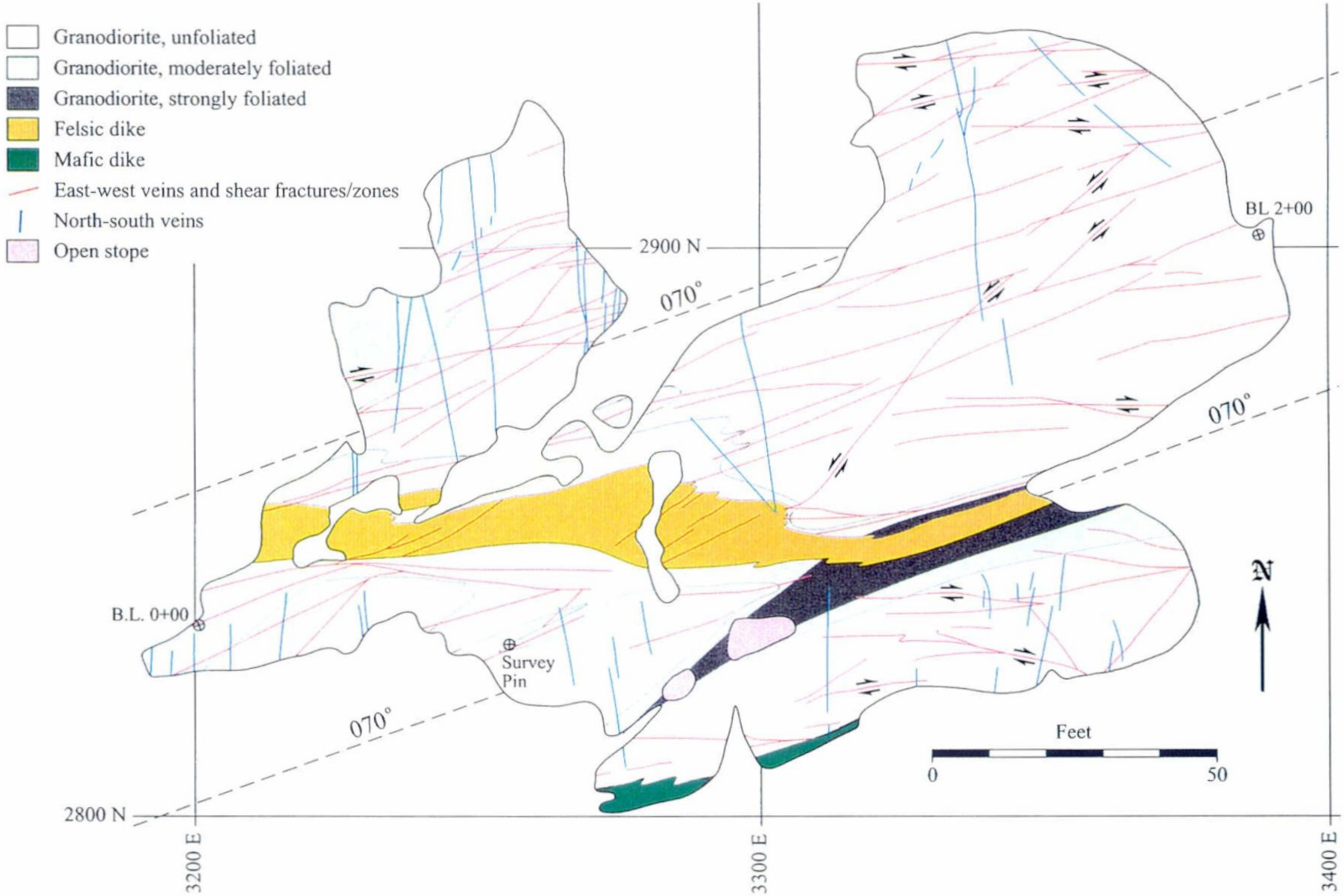

Figure 1. Sketch map of outcrop A.

Apophyses of the felsic dike extend for short distances into the granodiorite. Viewed along strike, the contacts between the dike and the granodiorite repeatedly step to the right (Figure 1). Similar steps occur in the contact between the granodiorite and the mafic rock, and between the unfoliated granodiorite and the very wide band of moderately foliated granodiorite that surrounds the felsic dike.

The northeast-southwest strongly foliated band is cut by north-south and east-west fractures and veins. Some of the east-west fractures and veins curve as they enter the band until they are more or less parallel to the foliation in it.

I measured the orientations of prominent north-south veins and of prominent east-west fractures and veins. Most of the north-south veins strike between 350° and 15° and dip between 47° and 90° to the east or west (Figure 2). Their average strike and dip (determined by contouring) is 000°/90°. Most of the east-west fractures and veins strike between 035° and 105° and dip between 56° and 90° to the north or south (Figure 3). Their average strike and dip is 075°/85.6°N, but there are three peaks in the distribution of their strikes: in the interval from 045° to 049°, in the interval from 070° to 074°, and in the interval from 080° to 084° (Figure 4).

Foliations strike between 065° and 075°. Within the northeast-southwest strongly foliated band the foliation dips between 43° and 58° to the north. Outside of the northeast-southwest strongly foliated band the foliation is more or less vertical, commonly dips steeply to the north, and rarely dips steeply to the south.

Along east-west fractures that strike at considerably more or less than 070°, the foliation may have rotated toward the orientation of the fracture: close to fractures that strike at considerably less than 070° the strike of the foliation may be considerably less than 070°, and close to fractures that strike at considerably more than 070° the strike of the foliation may be considerably more than 070°. Along east-west fractures that strike at about 070° the foliation is not rotated.

Part of the northeast-southwest strongly foliated band is cut by closely spaced fractures that break the outcrop into sheets about an inch thick. The fractures strike parallel to the foliation and dip moderately to the north or steeply to the south. On north dipping fracture surfaces, slickensides defined by quartz or tourmaline aggregates pitch steeply to the west.

The rest of the outcrops

The rest of the outcrops consist of rock types similar to those at outcrop A. All of the outcrops are cut by east-west fractures and veins, and by northeast-southwest strongly foliated bands (Figure 5) that are similar to the northeast-southwest strongly foliated band that cuts outcrop A. Within the northeast-southwest strongly foliated bands the foliation strikes between 060° and 080° and dips between 50° and 84° to the north (Figure 6). The average strike and dip is 071.6°/59.1°N. Outside of the northeast-southwest strongly foliated bands the foliation strikes about 070° and dips more or less vertically.

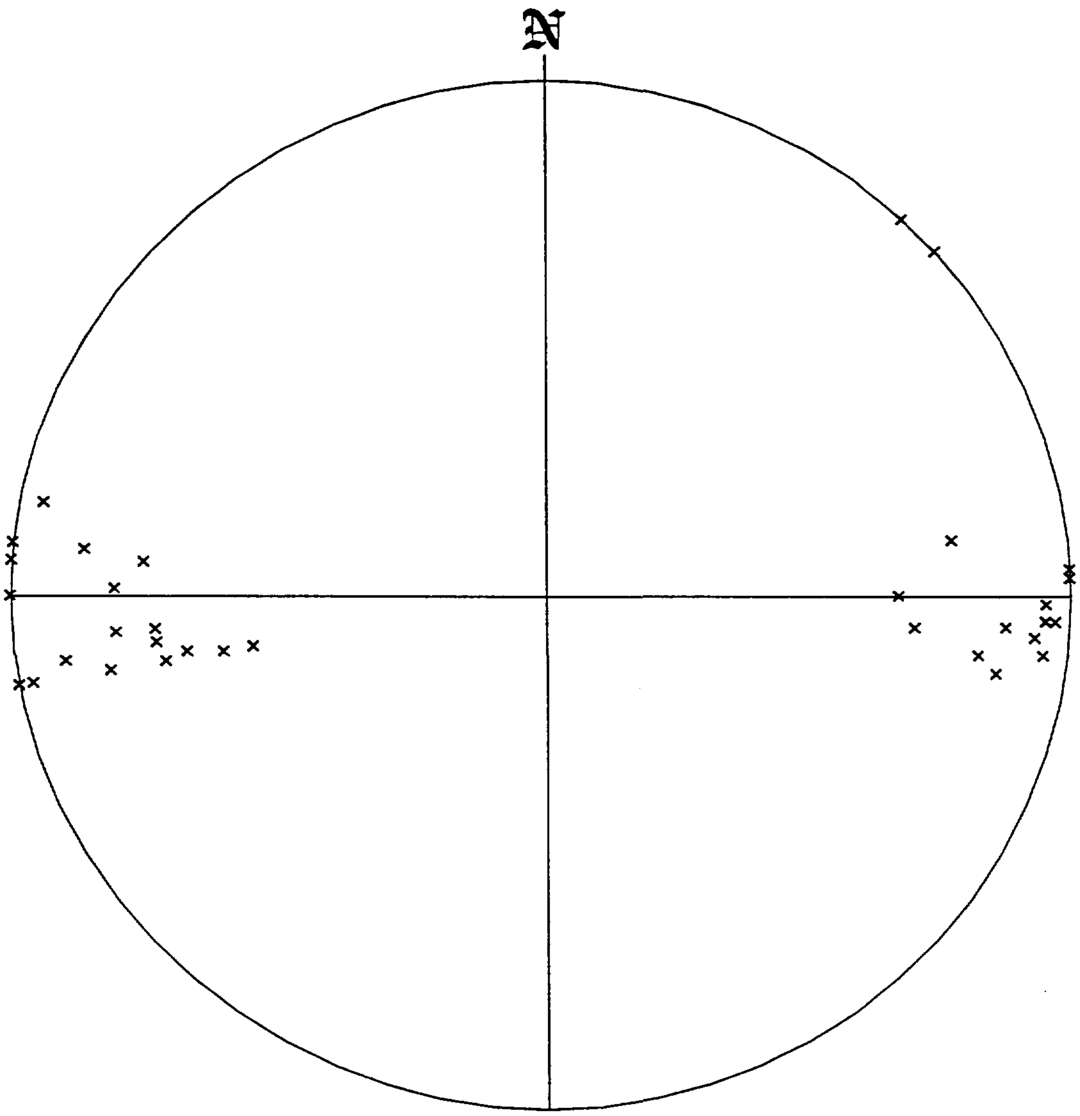

Figure 2. Stereographic projection of poles to north-south veins. The group on the left represents veins that dip to the east, and the group on the right represents veins that dip to the west.

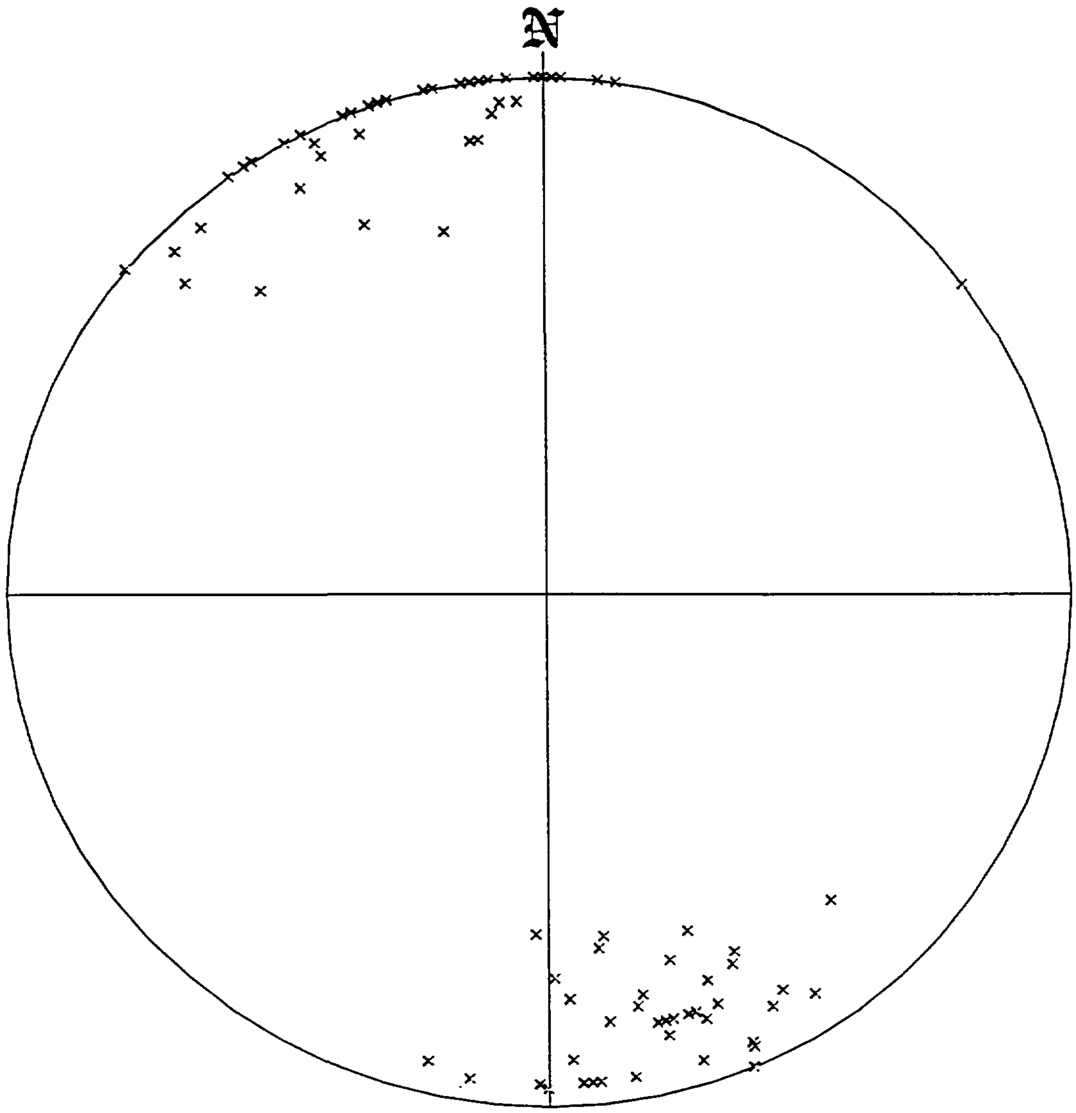

Figure 3. Stereographic projection of poles to east-west fractures and veins. The group on the upper left represents fractures and veins that dip to the south, and the group on the lower right represents veins that dip to the north.

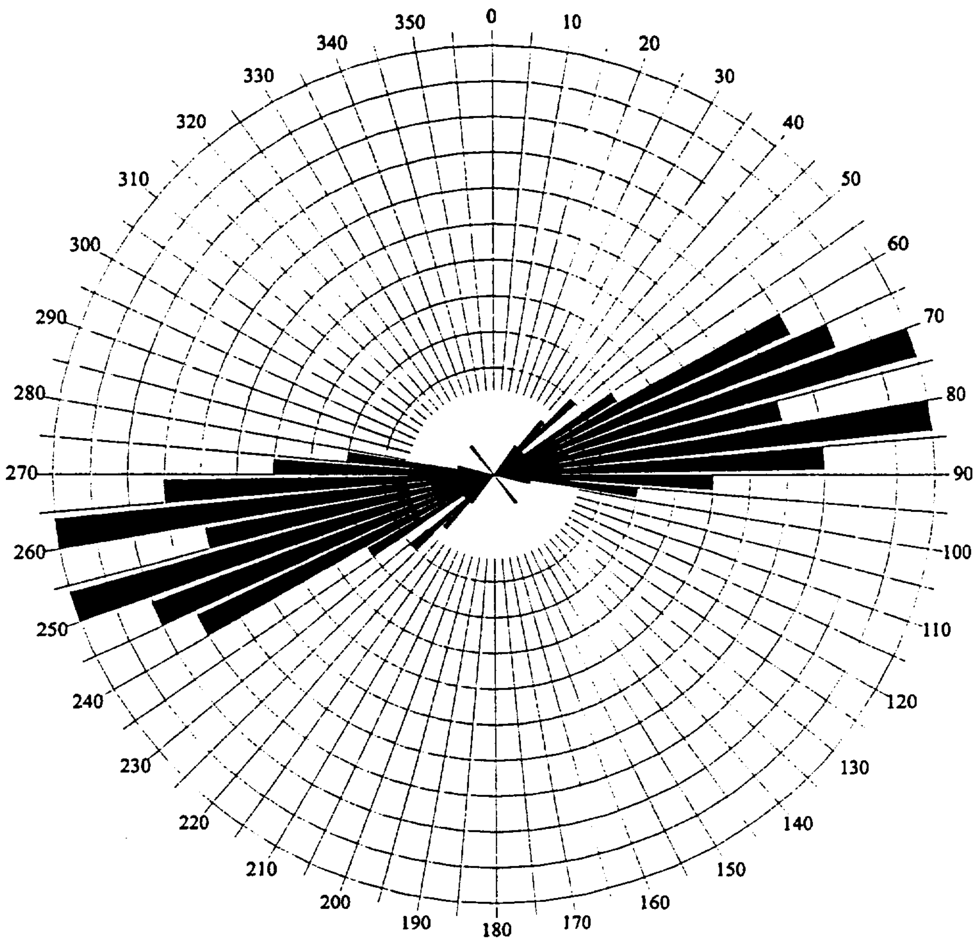

Figure 4. Rose diagram of the strikes of east-west fractures and veins.

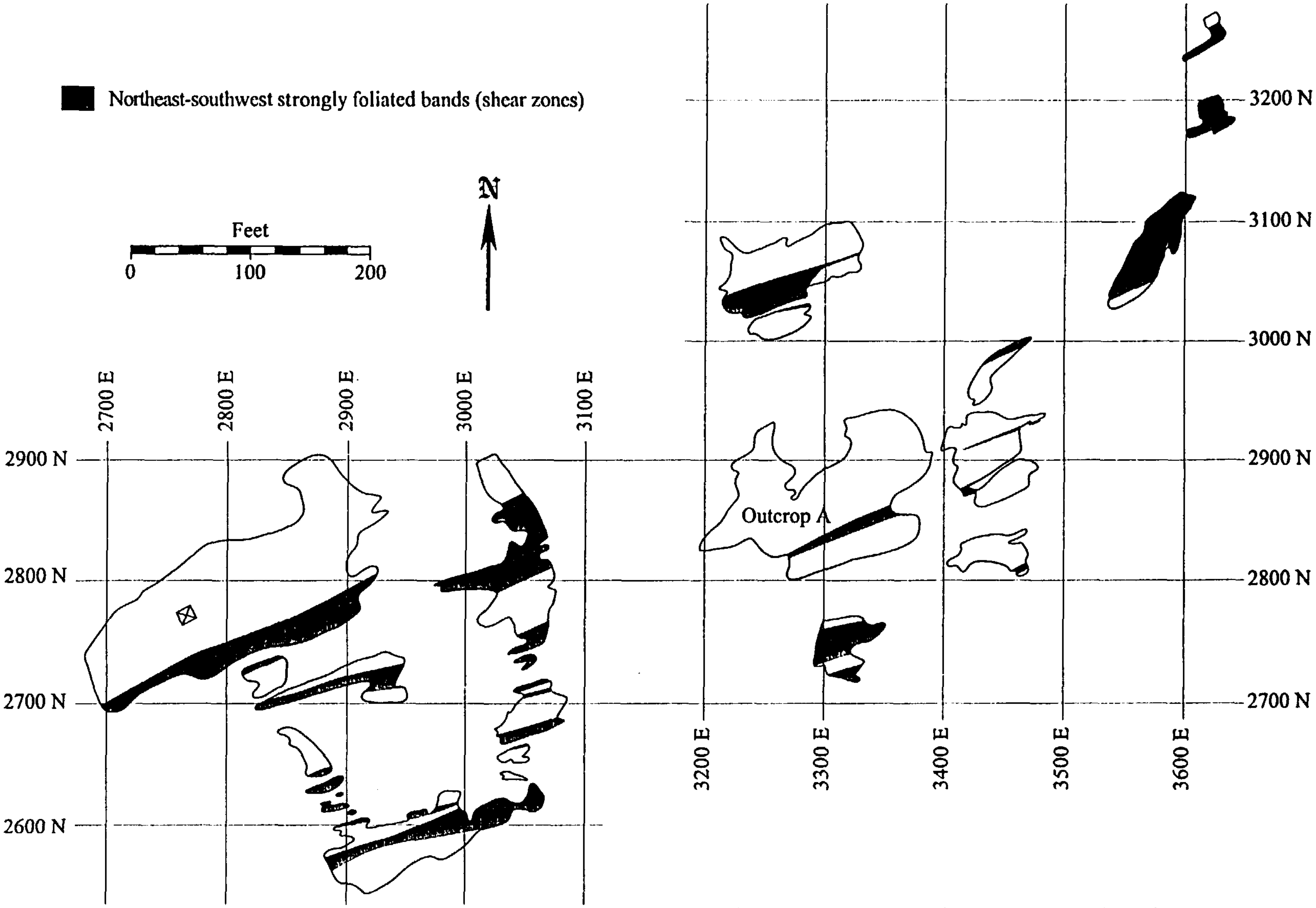

Figure 5. Rough sketch map of the stripped area.

Within one of the northeast-southwest strongly foliated bands, a north-south vein is folded around steeply plunging (?) axes. Within many of the northeast-southwest strongly foliated bands, some of the east-west veins and portions of the foliation are folded around axes that are horizontal or plunge gently to the west (Photograph 3). The folds in the foliation generally have very small amplitudes; they are crenulations.

Portions of the outcrops, both within and outside of northeast-southwest strongly foliated bands, are cut by fractures that strike parallel to the foliation and dip moderately to the north or steeply to the south. On north-dipping surfaces, slickensides defined by quartz or tourmaline aggregates pitch at 90° or steeply to the west (Photograph 3). As at outcrop A, closely spaced fractures break the outcrops into sheets that are about an inch thick.

Level plans and sections

A brief examination of mine level plans and north-south sections revealed that between 3300E and 3500E and between 2900N and 3100N most stopes strike about 115° and dip about 70° and 85° to the north. Farther to the southwest, stopes strike about 070° and dip about 60° to the north.

Chief mine geologist's report

Under "Structure," Anthony J. Deevy (1992), chief mine geologist at the Magino Mine for Muscocho Explorations, wrote:

> The shearing event was followed by a SE/NW compressive phase of deformation, which has resulted in a NE striking low angle (25-50°) north dipping and south dipping set of conjugate thrust faults. Displacement on these faults is in the order of a few feet to 40 feet. The thrusting was accompanied by copious barren white quartz veining.

Under "Mineralization" he wrote:

> The ore shoots strike between Azimuth 70° and 130° and dip between 60° to the north and 80° to the south. They have a vertical plunge. Horizontal to vertical extent of the shoots is in excess of 1:2.5.
>
> There are two types of ore shoots, namely "zones" and "veins". The zones are usually six to 15 feet wide and have a strike length of 80 to 220 feet. They are composed of foliated, bleached and silica flooded granodiorite. The silica is pale grey is colour and the gold content is directly related to the amount of silica present. The zones are sometimes folded which results in mining widths of up to 35 feet. Gold grades usually improve in the noses of these folds.
>
> The "veins" consist of discreet pale grey to pale green, to almost white quartz veins varying in width from a few inches to 18 inches. They have a strike length of several tens of feet to 120 feet. The margins of the veins are chloritized and specks of chlorite are common within the veins.

There is little, if any, wall rock alteration. Gold values are distributed erratically within the veins but are over all [sic] the veins are quite high grade. The vertical extent of the veins is similar to that of the zones and the plunge is also vertical. The veins are sometimes folded and the gold is concentrated in the fold noses.

STRUCTURAL SYNTHESIS

Shear fractures, shear zones, extension fractures, and faults

There are two foliations defined by the long axes of minerals (flattening foliations or schistosities): the foliation that dips moderately to the north within northeast-southwest strongly foliated bands (the "north-dipping foliation"); and the foliation that dips steeply to the north, vertically, or steeply to the south outside of northeast-southwest strongly foliated bands (the "near-vertical foliation").

The east-west fractures are low angle shear fractures. Some of them are undoubtedly related to the near-vertical foliation, and some of them may be related to the north-dipping foliation. Low angle shear fractures form at a low angle, between about 15° and 30°, to a related foliation. Occurring in many areas of Archaean rocks, they were recognized early in this century but are rarely recognized today. (Part of my PhD research, I used to call them high angle shear fractures because they form at a high angle to the greatest compressive stress. Calling them high angle shear fractures favours the theoreticians who dream about them, and calling them low angle shear fractures favours the field geologists who deal with them.)

The moderately to strongly foliated bands that surround the east-west shear fractures, the strongly foliated northeast-southwest bands, and the moderately foliated band that surrounds the felsic dike at outcrop A are shear zones. The wide shear zone that surrounds the felsic dike at outcrop A is related to the narrow east-west shear zones. The fact that east-west fractures curve as they enter the northeast-southwest shear zone at outcrop A indicates that (at least some of) the northeast-southwest shear zones are younger than (at least some of) the east-west shear zones. Thus the north-dipping foliation is (probably) younger than, and overprints, the near-vertical foliation.

Motion along the east-west shear fractures/zones was either strike slip or oblique but predominantly strike slip. If there was a component of dip slip it was reverse. Foliations strike at about 070°, so the strike slip component of east-west shear fractures/zones that strike at less than about 070° should have been left handed and the strike slip component of east-west shear fractures/zones that strike at more than about 070° should have been right handed. On outcrop A, rotated foliations confirm that the strike slip component of some of the east-west shear fractures/zones that strike at less than 070° was left handed, and the strike slip component of some of the east-west shear fractures that strike at more than 070° was right handed (Figure 1).

Many of the east-west shear fractures/zones are more or less parallel to the foliation, so their strike slip component is indeterminate. They either formed at a "normal" low angle to the foliation and then rotated toward it during subsequent flattening, or they formed parallel to or at a very small angle to the foliation. Because many of the foliation parallel east-west shear fractures/zones cut relatively undeformed granodiorite, I believe that they formed parallel to or at a very small angle to the foliation.

At outcrop A, peaks in the distribution of the strikes of the east-west shear fractures/zones occur in the interval from 045° to 049°, in the interval from 070° to 074°, and in the interval from 080° to 084° (Figure 4). Like the rest of the east-west shear fractures/zones that strike at less than about 070°, the east-west shear fractures/zones in the interval from 050° to 054° are left handed. The east-west shear fractures/zones in the interval from 070° to 074° are foliation parallel, and the east-west shear fractures/zones in the interval from 080° to 084° are right handed. Most of the east-west shear fractures/zones strike at more than 060° (Figure 4). Thus most of the east-west shear fractures/zones are foliation parallel or right handed, and only a small portion are left handed.

All of the outcrops are cut on every scale by conjugate (left and right handed) low angle east-west shear fractures/zones (Figure 1 and Photographs 4 and 5). I suspect that there is a more or less equal number of left handed and right handed shear fractures, but the right handed ones are more prominent because they are commonly bordered by a foliated band or occupied by a vein.

The northeast-southwest shear zones appear to be more or less parallel to the north-dipping foliation they contain. Their sense of motion can not be determined from the data that I obtained.

The north-south fractures are probably extension fractures. Although they are not perfectly perpendicular to the two foliations, they are probably related to one or both of them.

The north-dipping and south-dipping fractures that commonly break the outcrops into sheets that are about an inch thick are shear fractures, or faults, that are younger than the northeast-southwest shear zones. These faults are probably Deevy's "conjugate thrust faults." Motion along them was dip slip or oblique but predominantly dip slip. If Deevy is correct then the dip slip component was reverse and where there was a strike slip component it was right handed.

Folds

The folding of a north-south vein around steeply plunging axes (?) within a northeast-southwest shear zone indicates that there was considerable flattening across (at least some of) the northeast-southwest shear zones.

Near-horizontal folds in east-west veins and in foliations within northeast-southwest shear zones could be related to the shear zones, and thus indicative of the sense of motion across them. However, they could instead be indicative of the sense of motion across the fault zones that commonly cut the northeast-southwest shear zones. I suspect that the folds are either a result of motion along the younger fault zones, or a result of late, regional, near-vertical shortening.

Dikes, pervasive alteration, and veins

At outcrop A, the felsic dike strikes about 090°. The steps in its contacts are primary, and indicate that it was emplaced along an en echelon array of right handed low angle shear fractures. Similar steps in the contact of the mafic rock indicate that it is a dike, and that like the felsic dike it was emplaced along an en echelon array of right handed low angle shear fractures.

Some portions of the rocks are unfoliated, and some portions are foliated. Foliated portions probably mark the loci of pervasive alteration (metasomatism): where the rock was altered, minerals recrystallized or deformed to form a planar fabric. Thus the east-west shear zones, the northeast-southwest shear zones, and the shear zone that surrounds the felsic dike at outcrop A mark the loci of pervasive alteration. Steps in the contact of the shear zone that surrounds the felsic dike at outcrop A indicate that hydrothermal fluids moved along en echelon array of right handed low angle shear fractures.

Veins were emplaced along east-west shear fractures/zones and along north-south extension fractures. Most of the east-west veins were emplaced along foliation parallel or right handed east-west shear fractures/zones, and only a small portion were emplaced along left-handed east-west shear fractures/zones. The fact that some of the north-south veins are offset along east-west shear fractures indicates that at least some of the north-south veins formed before at least some of the east-west shear fractures/zones, the fact that some of the north-south veins are continuous with some of the east-west veins indicates that at least some of the north-south veins formed at the same time as at least some of the east-west veins, and the fact that a north-south vein is folded within a northeast-southwest shear zone indicates that at least some of the north-south veins formed before at least some of northeast-southwest shear zones. The fact that most of the north-south veins are undeformed where they cross northeast-southwest shear zones indicates that most of them are younger than those shear zones.

Veins that occur within the northeast-southwest shear zones may be related to those shear zones or to the east-west shear fractures/zones. If the veins are related to the east-west shear fractures/zones, then the veins were "overprinted" by, and thus incorporated into, the northeast-southwest shear zones.

Some of the foliation parallel east-west veins may be the "barren white quartz veining" that, according to Deevy's (1992), accompanied thrusting.

Deformation

Most of the rocks are deformed to some degree. The degree of deformation is related to the degree of foliation, and thus the degree of alteration: unfoliated, unaltered rocks are the least deformed, and strongly foliated, strongly altered rocks are the most deformed.

Deformation likely involved a component of flattening and a component of simple shear. The simple shear was probably predominantly right handed.

The east-west shear zones are related to the east-west shear fractures they contain so they are brittle-ductile shear zones. If the northeast-southwest shear zones are related to the some of the veins they contain, and thus to some of the shear fractures they contain, then they are brittle-ductile shear zones. If the northeast-southwest shear zones are not related to the veins and shear fractures they contain then they are ductile shear zones.

Notes on some previous work on structural geology and gold

According to Arias and Heather (1987), the Magino property lies within the southern domain of the Goudreau Lake Deformation Zone (GLDZ). They suggest that within the southern domain some shear planes may be part of a C' fabric. R. Bruce Graham and Associates (1995) report that "gold mineralization is believed to be directly related to the "C" and "C' " foliation patterns associated with the [Goudreau] deformation zone." I found no evidence for a C' fabric/ foliation on the stripped outcrops.

Arias and Heather (1987) state that "the systematic orientation and senses of shear zones and fractures, and the quartz veins that may occupy them, may be accommodated by a Riedel system of shears." I am confident that the veins and shear zones that occur in the stripped outcrops can be not accommodated by a Riedel system of shears.

GOLD

Types and orientations of gold-bearing zones

According to Deevy (1992), gold was found in "zones" and in "veins." The fact that the zones are composed of "foliated, bleached and silica flooded granodiorite" suggests that the zones are pervasively altered shear zones.

John Reddick (personal communication, 1997), has found visible gold in north-south veins, right handed east-west veins, and foliation parallel east-west veins (Photograph 6). Gold-bearing north-south veins strike approximately 000° and dip moderately to steeply to the east, vertically, or moderately to steeply to the west (Figure 2). If gold only occurs in right handed or foliation parallel east-west veins then gold-bearing east-west veins should strike between about 065° and 105° (Figure 3). However, if gold also occurs in left handed east-west veins then gold-bearing east-west veins should strike between about 035° and 105°. Dips of gold-bearing right handed, foliation parallel, and left handed east-west veins should range from moderately to the north to moderately to the south (Figure 3).

If gold occurs in east-west shear zones then gold-bearing zones should strike between about 065° and 105° and dip moderately or steeply to the north, vertically, or moderately or steeply to the south (Figure 3). If gold occurs in northeast-southwest shear zones then gold-bearing zones should strike about 070° and dip about 60° to the north.

Where mine stopes strike about 115° and dip between 70° and 85° to the north, gold may have occurred in right handed east-west veins or in right handed east-west shear zones. Thus at least some of the gold was found in association with east-west shear fractures/zones. Where stopes strike about 070° and dip about 60° to the north, gold may have occurred in foliation parallel east-west veins, in foliation parallel east-west shear zones, or in northeast-southwest shear zones.

If all of the gold ore was hosted by the same structural feature (for example right handed east-west shear fractures) then changes in stope directions must mean that the structural feature is deformed. However, if gold ore was hosted by different structural features (for example northeast-southwest shear zones and right handed east-west shear fractures) then changes in stope directions may simply mean that different structural features were mined. I found no evidence for deformation of structural features on the scale of stopes. It seems likely, therefore, that gold ore was hosted by different structural features.

Continuity of gold-bearing zones

Northeast-southwest shear zones appear to be continuous along strike for many hundreds of feet, but east-west shear fractures/zones appear to be continuous along strike for only tens of feet. Thus the strike length of stopes appears to be about the same as, or shorter than, the strike length of northeast-southwest shear zones, but longer than the strike length of east-west shear fractures/zones. Where long stopes followed east-west shear fractures/zones, they probably "jumped" from vein to vein.

Deevy's (1992) statement that the "horizontal to vertical extent of the shoots [he does not distinguish between "veins" and "zones"] is in excess of 1:2.5" indicates that the continuity of gold-bearing veins or zones may be better down dip than along strike.

Shear fractures and shear zones occur in all of the outcrops, and at all scales. I suspect that on the scale of an open pit, the distribution of shear fractures and shear zones is more or less homogeneous. On the scale of an open pit, then, the distribution of gold mineralization *could* be more or less homogeneous.

RECOMMENDATIONS

There are some structural features that clearly contain gold, and some that may contain gold. All of the features should be carefully sampled, but special attention should be given to those that may contain gold: left handed east-west veins and shear zones, right handed shear zones, foliation parallel shear zones, and northeast-southwest shear zones.

Due to time restrictions, the current program of structural mapping and sampling was limited. If it does not produce satisfactory results, a more detailed mapping and sampling program should be undertaken. Before such a program commences, outcrop surfaces should be covered by an accurate surveyed grid. If time and tide allow, more outcrops should be stripped.

REFERENCES

Arias, Z. G., and Heather, K. B., 1987
Regional structural geology related to gold mineralization in the Goudreau-Lochalsh area, District of Algoma; *in* R. B. Barlow, M. E. Cherry, A. C. Colvine, Buirkhard O. Dressler, and Owen L. White, editors, Summary of field work and other activities 1987, by the Ontario Geological Survey; Ontario Geological Survey Miscellaneous Paper 136, 429 p.

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Deevy, Anthony J., 1992
Magino, the making of a mine; unpublished report for Muscocho Explorations Ltd. and McNellan Resources Inc., 28 pages.

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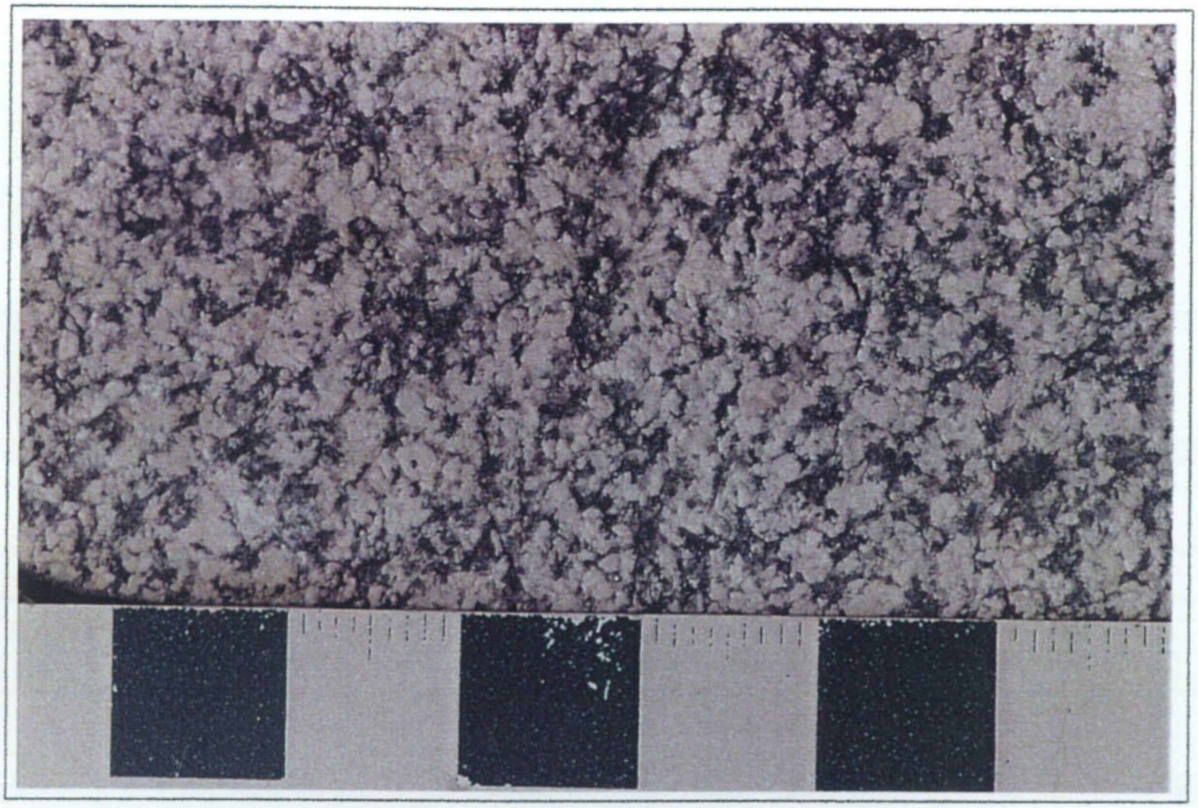
Muscocho Explorations Ltd., Magino Mine, Wawa area, Ontario, summary and review of past work and options for further work; unpublished report for Muscocho Explorations Ltd., 38 pages.

PHOTOGRAPHS

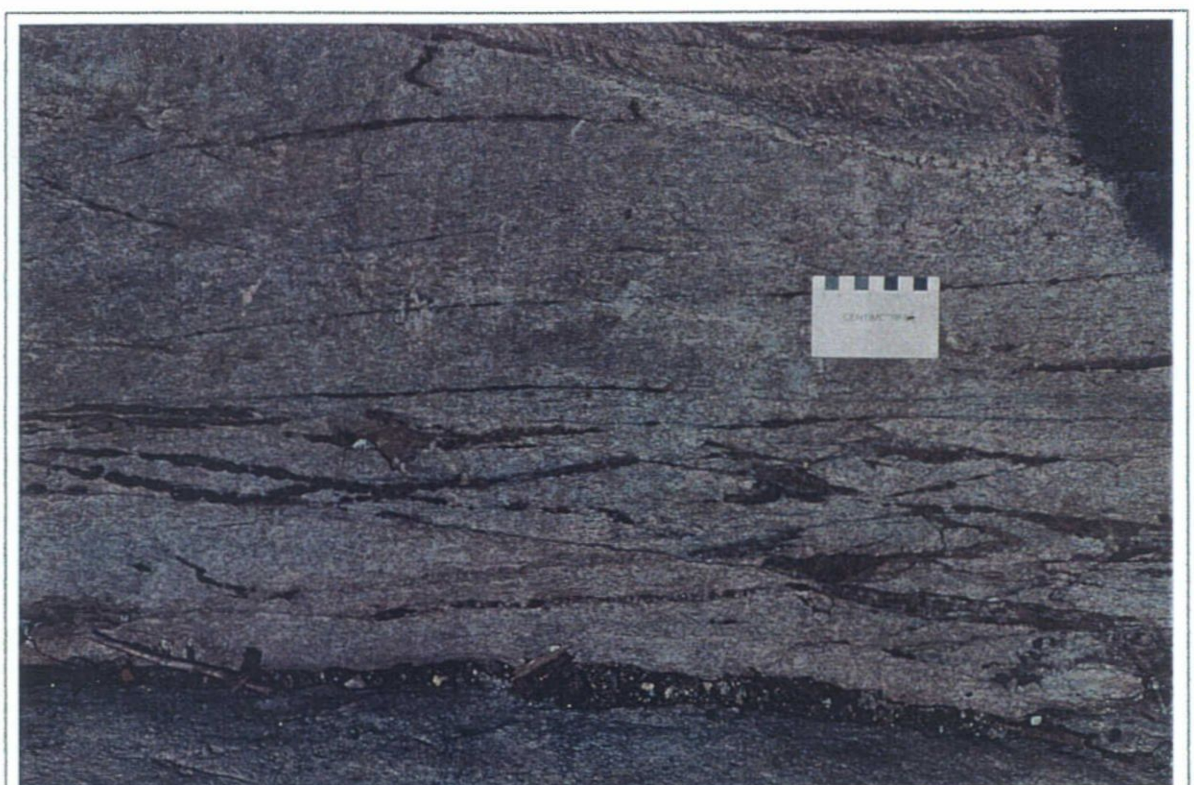
Note: On the scale card, the closely spaced lines are millimeters and the green squares are centimeters.



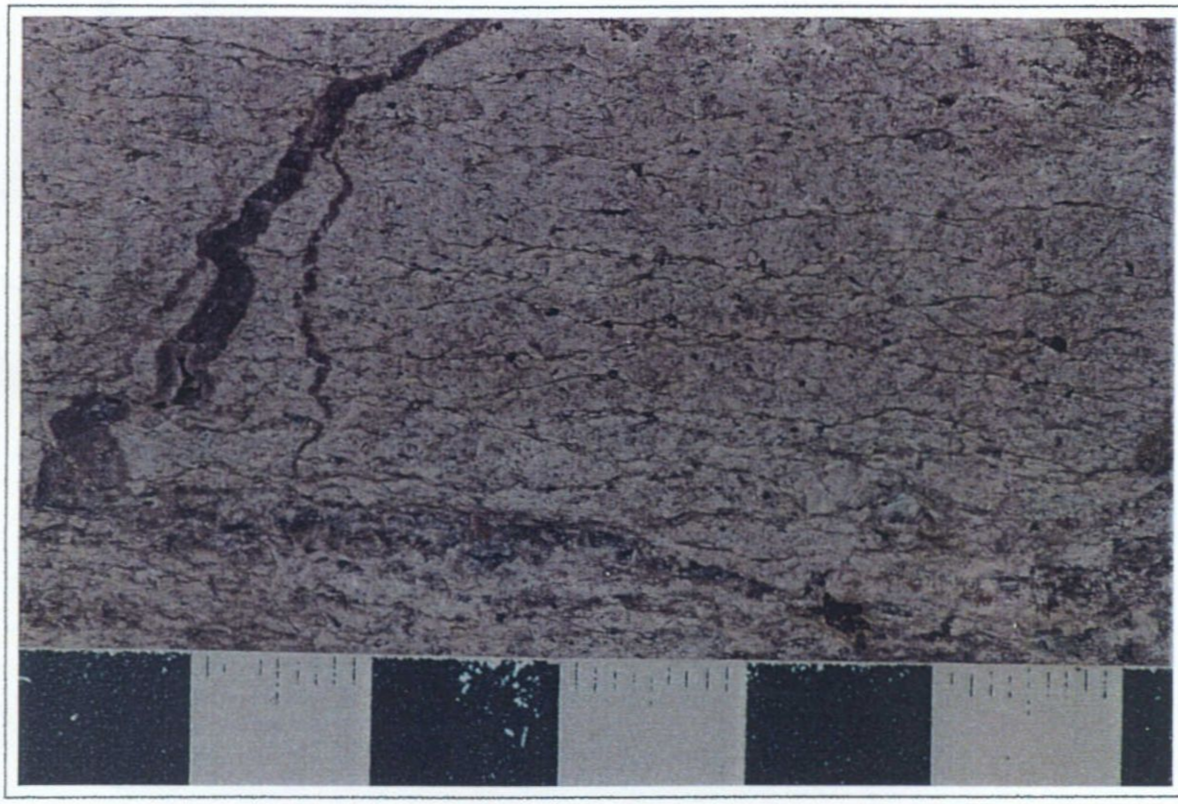
Photograph 1. Unfoliated granodiorite on outcrop A.

Photograph 2. Strongly foliated granodiorite on outcrop A.

Photograph 3. Gently plunging fold axes (crenulation axes) and steeply plunging slickensides on a steeply-north-dipping foliation surface in granodiorite near 3050 E - 2820 N.



Photograph 4. Conjugate low angle shear fractures in strongly foliated granodiorite near 2900 E - 2590 N. The fractures form "diamonds" that are marked by hydrous iron oxides derived from sulphides.



Photograph 5. Conjugate low angle shear fractures in a felsic dike near 3050 E - 2850 N. The fractures form "diamonds" that are marked by sericite.

Photograph 6. Visible gold in a foliation parallel east-west quartz vein on outcrop A. (It's the small, bright, pale yellow speck near the centre of the vein. The scale is the same as photograph 5.)

REPORT OF METALLURGICAL TESTWORK

MAGINO MINE PROJECT

WAWA AREA, ONTARIO

prepared for

Golden Goose Resources Inc.

23 June, 1999

M. Perkins

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APPENDICES

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1.0 INTRODUCTION

In April of 1997 Pearson, Hofman and Associates Ltd. (PHA) supervised a ten hole diamond drill program on behalf of Golden Goose Resources Inc. (GGR) at the Magino mine property in Finan Township, Ontario. This drill program was a component of a larger overall study managed by PHA to evaluate the potential of the property for a large open pit mining operation centred on the area containing former underground workings.

Samples of the 1997 core and a bulk surface sample from a trench at L28+50E were forwarded to Lakefield Research Laboratory for gravity, column leach, bottle roll and Bond Work Index testing. Testing showed that the core ore has an excellent dissolution rate of 97.8% in cyanide solution at a grind of 84% minus 200 mesh. An overall gold recovery of 95.0% is expected but column leach testing indicated heap leaching to be non economical with low recoveries after 35 to 42 days of leaching.

Split samples from these drill holes were forwarded to Kappes... in August, 1998 for metallurgical testing. Samples were taken from two lithologies, Mafic Volcanic and Granodiorite and amalgamated into two bulk samples with average head grades of 0.88, and 0.96 g/mt respectively. Column testing indicate an expected field recovery of 45% Au for the Mafic Volcanics and 51% for Granodiorite ore when crushed to minus 9.5mm. Au recovery increases to 80 and 84% respectively with crushing to minus 1.70mm.

All the historic data and mine grid are in imperial units, therefore this report quotes units in imperial measure(unless noted) with metric conversions included where appropriate.

1.1 LOCATION, ACCESS AND PHYSIOGRAPHY

The Magino Property is located in the southern half of Finan Township about 50 km northeast of the town of Wawa, Ontario (NTS 42 C/8). Access is via an 18 km all-weather gravel road that turns off Highway 519 just west of the town of Dubreuilville (Figure 1). Dubreuilville is on Highway 519, 44 km east of the junction of Highways 17 and 519. That junction is in turn about 40 km north of Wawa on Highway 17.

A 44 kv power line and a gravel road extends from Goudreau about 7 km west of the property, through the minesite, to Lochalsh about 14 km east of the mine. Goudreau is a siding on the Algoma Central Railway and Lochalsh is a siding on the Canadian Pacific Railway.

The topography in the area is characterized by low ridges and hills of up to 50 metres relief flanked by generally flat areas of glacial outwash, swamps and numerous lakes.

1.2 LAND STATUS

The property consists of 80 claims all within the south half of Finan Township, Sault Saint Marie Mining district, Province of Ontario (Figure 2). The claims consist of patented, leased and staked claims as listed in Table 1. The claims are contiguous, wholly owned by Golden Goose Resources Inc., PO Box 209, Dubreuilville, Ontario, P0S 1B0 (Ministry of Northern Development and Mines Client #174165) and at the time of writing are in good standing.

TABLE 1

LIST of CLAIMS, MAGINO PROPERTY

Patented Claims, Surface and Mining Rights
SSM 2048 to 2053 inclusive
SSM 2102

Leased Claims, Surface and Mining Rights
SSM 581948 to 581953 inclusive

Leased Claims, Mining Rights
SSM 722481
SSM 827520

Unpatented Claims
SSM 698645 to 698657 inclusive
SSM 698659 to 698662 inclusive
SSM 698664 to 698671 inclusive
SSM 711129
SSM 711131 to 711135 inclusive
SSM 809963
SSM 809967 to 809972 inclusive
SSM 827520
SSM 841257 to 841259 inclusive
SSM 841270
SSM 847804 to 847807 inclusive
SSM 847814
SSM 884901 to 884904 inclusive
SSM 1110086
SSM 1118352
SSM 1174399 to 1174405 inclusive
SSM 1174846 to 1174849 inclusive
SSM 1174854

1.3 PROPERTY HISTORY

Gold was discovered on the property by prospecting in 1917. The mine area was staked and in 1925 shares in the McCarthy Webb Company were offered to the public to assist in developing the property. In 1931 a new company, Algoma Summit Gold Mines was formed and an inclined shaft was sunk to the 100 foot level. Over 116,000 tons was mined intermittently through the 1930's and 8,700 ounces of gold were recovered by 1939, when mining operations were suspended. In 1940 Magino Gold Mines was formed, completed drifting and diamond drilling, but ceased work due to lack of funding and wartime shortages. Other than some surface drilling done in 1942 no further work was done until 1962 when Mr. C. McNellen completed 6 diamond drill holes which intersected gold values beneath the mine workings. In 1981 Rico Copper (1966) Ltd., which later became McNellen Resources Inc., drilled 16 holes. In 1981 McNellen Resources Inc. and Cavendish Investing Ltd. formed a joint venture to pump out the old mine workings, and completed underground mapping, sampling and drilling. Muscocho Explorations Ltd. acquired the Cavendish Investing Ltd. interest in the mine in 1985.

In 1985 and early 1986 Muscocho Explorations Ltd., in joint venture with McNellen Resources Inc., drilled 29 surface holes which, along with previous work, indicated a reserve of 1.9 million tons at 0.25 opt Au. A ramp was started in 1986 and developed levels at the 100 and 200 foot elevations (below and adjacent to the old workings). Mining and the construction of a 400 TPD mill started in 1987 and the first gold bar was poured in June of 1988. From 1988-1992 the Magino mine processed 768,678 tons at a recovered grade of 0.137 opt Au to produce 105,543 ounces Au (697,222 tonnes @ 4.71 g/t Au). From 1988 to sometime in 1989, mining was principally accomplished by shrinkage stoping which produced an average grade of ~0.2 opt Au. In 1989 mill throughput was increased to 640 TPD and production was chiefly from longhole stopes at an average grade of 0.12 opt Au. The reduced mining cost for the longhole stopes was offset by substantial dilution with a resultant increase in the cost per ounce mined. In mid 1992 the mine closed due to high operating costs and the underground workings were allowed to flood. The site has been on a care and maintenance footing since then.

In 1996 Golden Goose Resources Inc. obtained the Magino mine property from Muscocho Explorations Ltd., Flanagan McAdam Resources Inc. and McNellen Resources Inc. In early 1997 a drill core resampling program was completed to determine the reliability of previous drill assay results. Later that year ten holes totalling 2,087.5 metres were drilled to verify the potential of the mine area to host a large tonnage of low grade gold mineralization amenable to open pit mining, determine the distribution of gold mineralization, twin previous holes to determine the repeatability of assay results, and establish a sampling protocol. A stripping program with structural mapping was completed to determine the orientation and continuity of gold bearing veins. Samples from drill core and rock samples from the stripped areas were sent to Lakefield Research Laboratories for gravity, column leach, bottle roll and Bond Work Index testing to develop metallurgical mill process flowsheets.

In 1998 two bulk samples, divided into two lithologies, Mafic Volcanic and Granodiorite, made up from the 1997 drill core were sent to Kappes, Cassiday and Associates (KCA) for further metallurgical column leach testing.

1.4 GEOLOGY

The property is located in the Michipicoten greenstone belt of the Wawa subprovince within the Superior geologic province. Felsic volcanic rocks occur just to the south of the property and mafic volcanic rocks occur throughout and to the north of the property (Figure 3). A thin but extensive pyrite-rich iron formation known as the Goudreau Iron Range occurs close to or on the contact between the felsic and mafic volcanics.

The volcanic rocks trend between 070° and 090° in the immediate property area. Locally they have been tightly folded. Intrusive rocks found on the property include granitic rocks from tens of metres up to several kilometers size and a large stock of nepheline syenite that occupies the north part of the claim block. The principal ore host for the Magino mine is the Webb Lake Granodiorite (WLG) which occurs near the southern part of the property and appears to intrude along, and partially cut across, the mafic/felsic contact.

The Webb Lake Granodiorite is a felsic, porphyritic intrusive that is elongate in shape with dimensions of about 2,000 metres by 200 metres in plan with the long axis striking about 070°. It is open to depth and, according to some reports, becomes wider. Contacts are sharp and dip vertically to steeply to the north. The composition of the intrusive is somewhat variable and was subdivided according to modal mineralogy by Muscocho geologists. Whether that variation is due to primary lithological variations of phases of the intrusion, regional metamorphism, hydrothermal alteration, or a combination, is not clear. The mineralogy is primarily quartz (40-50%), plagioclase (25-35%), chlorite (10%), and sericite (10%). (Sullivan, 1987). This unit has been variably classified as a quartz-feldspar porphyry, granodiorite and trondhjemite (Heather & Arias, 1992) but the long-standing use of the term granodiorite by property geologists is most convenient. Locally, hydrothermal alteration results in feldspar destruction and the development of pervasive sericite.

Felsic and mafic dykes are found within the WLG and appear to correlate from section to section. They are interpreted to predate the gold mineralization but their temporal and genetic relationship to gold mineralization is not clear. Until this relationship is determined, they cannot be considered "stratigraphic markers" as they have not been shown to relate to either volcanic stratigraphy or to mineralized zones in the granodiorite.

A 15 metre wide diabase dyke trending about 335° (Mine Diabase) cuts the granodiorite and separates the Northeast Zone of the mine from the Main Zone. This dyke is thought to occupy the plane of an earlier fault that has had sinistral displacement along it. However, the horizontal distance between mineralized zones across this structure exceeds that shown for the displacement of the boundaries of the granodiorite on mine plans. This suggests that if the displacement entirely post-dates mineralization it must be oblique or, alternatively, the zones on either side of the diabase are not related.

Mineralization is found in all lithologies except the diabase. Significant economic mineralization discovered to date is restricted to the eastern end of the WLG. Within this area, the northern and southern margins are host to gold mineralization principally within a sub-unit designated as Unit 2 (Network Granodiorite) which is slightly more sericitic and more altered than the core of the intrusive (designated Unit 2V, Speckled Granodiorite). The mafic minerals in Unit 2 comprise from 7-20% of the rock and form a network texture around the quartz and plagioclase whereas in Unit 2V mafic minerals comprise less than 7% of the rock. Other minor phases of granodiorite are also present (Deevy, 1992).

The 2V unit is considered in most recent reports to be a separate, poorly mineralized phase of the intrusion but level plans clearly demonstrate that it also hosts gold mineralization.

2.0 1997/1998 METALLURGICAL PROGRAMS

In April 1997 Golden Goose Resources Inc. completed a 10 hole drilling program in three fences across the mine area to determine the feasibility of open pit mining, establish a sampling protocol, determine repeatability of previous assay results, and obtain samples for metallurgical testing. The results of this testing were used to determine the feasibility of an open pit mine at the Magino Mine.

2.1 LAKEFIELD RESEARCH LABORATORY RESULTS

Samples of the 1997 core and a bulk surface sample from the stripped area on L28+50E were forwarded to Lakefield Research Laboratory, 185 Concession St., Lakefield, Ontario on 17 July 1997. The bulk surface sample was taken from the stripped area on L28+50E from 25+50N to 28+00N (Figure 3). A trench was blasted and a representative granodiorite sample was taken at 2.0 ft. intervals along the trench to produce one bulk sample. Samples from drill hole S97-09 from 19.68 to 406.82 ft inclusive were mixed to produce the bulk core sample. S97-09 lies almost directly under the bulk sample location and assay results for the entire 387.2 ft interval average 0.60 g/t Au. The two bulk samples were prepared by Lakefield Research for gravity, column leach, bottle roll and Bond Work Index testing.

Results are detailed in the report by Lakefield Research Laboratories included in Appendix A and summarized below:

TABLE 2

LAKEFIELD SUMMARY of GRAVITY TESTS

Products	Core	Ore	Composite 1	Surface	Ore	Composite 2
	Weight %	Au g/t	Recovery %	Weight %	Au g/t	Recovery
Mozley Cons	0.016	1636	24.0	0.051	78.1	55.8
Mozley Tails	0.94	41.0	35.5	0.91	17.9	22.6
Knelson Tails	99.05	0.44	40.6	99.04	0.16	21.7

TABLE 3

LAKEFIELD SUMMARY of COLUMN LEACH TESTS

Comp	Size	% Au extraction based on the direct head, after indicated days								
		1	3	7	14	21	28	35	42	Au g/t
1	-12mm	17.3	27.3	36.7	45.8	51.1	55.2	58.4	60.7	0.75
2	-12mm	10.0	19.0	25.5	35.5	40.5	43.6	46.1	47.9	0.84
1	-6mesh	6.9	19.1	29.8	40.2	45.4	50.3	52.9	55.1	0.88
2	-6mesh	6.5	20.7	35.6	52.1	59.7	63.3	66.1	68.1	0.71

TABLE 4

LAKEFIELD SUMMARY of BOTTLE ROLL TESTS

Comp	%-200 mesh	Reagents kg/t		% Au Extraction		Residue Au g/t	Calc Head Au g/t
		NaCN	CaO	24 hrs	48 hrs		
1	84	0.30	0.48	85.0	97.8	0.03	1.34
1	72	0.13	0.46	75.0	92.2	0.08	1.03
1	60	0.13	0.50	71.0	92.6	0.07	0.95
2	84	0.37	0.57	83.0	92.0	0.06	0.75
2	72	0.15	0.48	81.0	95.6	0.04	0.90
2	59	0.14	0.51	77.0	93.4	0.05	0.76

Bottle roll tests show that the core ore has an excellent dissolution rate of 97.8% in cyanide solution at a grind of 84% minus 200 mesh. An overall gold recovery of 95.0% is expected but column leach testing indicated heap leaching to be non economical with low recoveries after 35 to 42 days of leaching. Gravity separation did not lead to higher concentrate grades.

2.2 KAPPES, CASSIDAY and ASSOC. (KCA) RESULTS

In August 1998 several sample intervals from the 1997 drill holes were forwarded to Kappes, Cassiday and Associates, 7950 Security Circle, Reno, Nevada, USA for further column leach metallurgical testing.

The results from this testing are detailed in the KCA report attached in Appendix B, and summarized below:

TABLE 5

KCA FIRE ASSAYS ON HEAD MATERIAL

KCA Sample No.	Magino ID	Average Head Assay Au g/mt	Metallic Head Assay Au g/mt	Metallic Screen Head -22.4 mm Au g/mt	Metallic Screen Head -9.5 mm Au g/mt	Overall Average Head Au g/mt
27088	Mafic Volc	0.88	0.85	0.93	1.64	1.08
27089	Granodiorite	0.96	0.93	1.56	1.82	1.32

TABLE 6

KCA CALCULATED HEAD RESULTS

KCA Sample No.	Magino ID	Bottle Calc Hd -0.150 mm Au g/mt	Bottle Calc Hd -9.5 mm Au g/mt	Column Calc Hd, -22.4 mm Au g/mt	Column Calc Hd, -9.5 mm Au g/mt	Overall Average Calc Head, Au g/mt
27088	Mafic Volc	0.73	0.85	0.94	1.60	1.03
27089	Granodiorite	1.57	1.61	1.72	1.41	1.58

TABLE 7

KCA SUMMARY of BOTTLE LEACH TESTS

KCA Sample No.	KCA Test No.	Magino ID	Crush Size, mm	Calc Head Au g/mt	Average Tail Au g/mt	Metal Extracted % Au	Days Leaching
27088	27116A	Mafic Volc	-0.150	0.73	0.05	93.2	2
27088B	27116C	Mafic Volc	-9.5	0.85	0.54	36.5	4
27089	27116B	Granodiorite	-0.150	1.57	0.05	96.8	2
27089C	27116A	Granodiorite	-9.5	1.61	1.12	30.4	4
		Average	-0.150			95.0	2
		Average	-9.5			33.5	4

TABLE 8

KCA SUMMARY of COLUMN LEACH TESTS

KCA Sample No.	KCA Test No.	Magino ID	Crush Size mm	Days Leached	Calc Head, Au g/mt	Recovery Au g/mt	Recovery %
27088A	27120	Mafic Volc	-22.4	63	0.94	0.35	37.2
27088B	27123	Mafic Volc	-9.5	63	1.60	0.79	49.5
27089B	27126	Granodiorite	-22.4	63	1.72	0.56	32.5
27089C	27129	Granodiorite	-9.5	63	1.41	0.79	56.0
		Average	-22.4	63			34.9
		Average	-9.5	63			52.8

2.3 SAMPLING AND ASSAY PROCEDURES

Core samples of S97-01 to 10 were taken at nominal one metre intervals with continuous sampling in the granodiorite and discontinuous sampling in the volcanics. The sample length was modified where a geological contact was crossed or where visible gold was noted.

For holes S97-01 to S97-03 inclusive, the entire core was submitted for assay for visible gold samples. For the remainder of the holes, the sample intervals were sawn. No preference was given to which part of the core was submitted for assay. Instead, as with the balance of the samples, the core was oriented and cut using the "V" defined by the foliation in the rock. The half of the core if not submitted for assay remains archived in the core boxes on the Magino Site with the sample intervals tagged.

A bulk sample composed of 110 kg. blasted rock was taken from L28+50E; 25+50N to 28+00N. A trench was blasted and a representative granodiorite sample was taken at 2.0 ft. intervals along the trench to produce the bulk sample.

Assay procedures are detailed in Appendices A and B.

2.4 1997 DRILL HOLE INFORMATION

The location of the drilled sections and the drillholes relative to the mine workings is shown on Figure 3. Table 9 summarizes the location and information of the 1997 drill holes using the Magino Mine Grid.

TABLE 9

APRIL 1997 DIAMOND DRILL HOLES

HOLE	NORTHING MINE GRID	EASTING MINE GRID	ELEV.	AZIMUTH	DIP	LENGTH (metres)	LENGTH (FEET)
S-97-01	41+00 N	40+00 E	-20	180	-45	826.8	2,712.8
S-97-02	38+00 N	40+00 E	-10	180	-45	826.8	2,712.8
S-97-03	35+00 N	40+00 E	-1.0	180	-45	787.4	2,583.5
S-97-04	38+00 N	34+00 E	0	180	-55	846.5	2,777.4
S-97-05	35+00 N	34+00 E	-20	180	-50	856.3	2,809.5
S-97-06	33+20 N	34+00 E	0	180	-45	319.9	1,049.6
S-97-07	34+00 N	28+00 E	0	180	-45	826.8	2,712.8
S-97-08	32+00 N	28+00 E	0	180	-45	708.7	2,325.2
S-97-09	27+00 N	28+00 E	0	180	-45	406.8	1,334.7
S-97-10	24+00 N	26+00 E	-7	180	-45	442.9	1.453.2

2.5 PERSONNEL

The 1997 metallurgical program was completed under the supervision of J. Reddick, PO Box 579, Porcupine, Ontario, by Lakefield Research Laboratory, 185 Concession St., Lakefield, Ontario.

The 1998 metallurgical program was completed under the supervision of J. Reddick, PO Box 579, Porcupine, Ontario, and F.W. Nielsen, 20 Adelaide St E., Suite 215, Toronto, Ontario by Kappes, Cassiday and Associates, 7950 Security Circle, Reno, Nevada, USA.

The author of this report, M. Perkins, PO Box 42, Coboconk, Ontario supervised the 1997 drill program under the direction of J. Reddick and completed this report using information supplied by Golden Goose Resources.

3.0 CONCLUSIONS

Lakefield Research Laboratory results from bottle roll tests show that the core ore has an excellent dissolution rate of 97.8% in cyanide solution at a grind of 84% minus 200 mesh. An overall gold recovery of 95.0% is to be expected but column leach testing indicates heap leaching to be non economical with low recoveries after 35 to 42 days of leaching. Gravity separation did not lead to higher concentrate grades.

KCA estimates a calculated recovery of 49.5% from -9.5mm crushed Mafic Volcanic material. KCA discounts 3-5% from lab results when estimating field recoveries so expect field recoveries to average 45%. Calculated recovery for the Granodiorite material crushed to -9.5mm is 56%, or 51% expected field recovery.

Higher gold recovery could be achieved with finer crushing. Recoveries of 80 and 84% were achieved by crushing the Mafic Volcanic and Granodiorite materials respectively to -1.70mm.

4.0 RECOMMENDATIONS

A 20,000 to 50,000 tonne bulk sampling program is recommended to reconcile the grade of the resource to that determined by various phases of drilling, refine the metallurgical procedure, confirm recovery rates and better determine grade distribution.

Further infill drilling should be completed in areas that are currently under sampled.

23 Jun 99

5.0 REFERENCES

Deevy, A.J., 1992; The Making of a Mine, Internal Muscocho Report.

Reddick, J., Pearson, Hofman and Assoc., 1997; Diamond Drill Program, Magino Mine Project, Wawa Area, Ontario, Report Filed for Assessment.

Sullivan, K. S., 1987; A Preliminary Report on the Magino Deposit, Wawa, Ontario.

Perkins, M., 1997; Report on Magino Gold Mine Property, Check Sampling Program, Report Filed for Assessment.

BLM Bharti Engineering Ltd., 1998; Preliminary Feasibility Study for a 2.6 M TPA Open Pit Mine and Leach Plant, Magino Gold Project., Internal Report for Golden Goose Resources Inc.

6.0 CERTIFICATES OF QUALIFICATIONS (attached)

I, **Michael James Perkins**, currently living at PO Box 42, Coboconk Ontario, certify the following:

1. I currently hold two diplomas in Exploration Geology obtained in 1982 and 1983 at Sir Sandford Fleming College.

2. I have completed two years towards a BSc. in Geology at the University of Toronto.

3. I have been employed as an exploration geologist since 1984.

Dated this day of 23 Jun 99

Michael J. Perkins

REDDICK CONSULTING INC.

CERTIFICATE OF QUALIFICATIONS

To Accompany the Report on
The Magino Mine Property of
Golden Goose Resources Ltd.
dated September, 1997.

I, John Richard Reddick, M.Sc., residing at 214 Duke Street, Porcupine, Ontario, do hereby certify that:

1. I am President of Reddick Consulting Inc.

2. I received my M.Sc. in Honours Geology at Queen's University, Kingston, Ontario in 1996 and my B.Sc. Honours Geology degree in 1982. I have been practicing my profession since graduation.

3 I am a Fellow of the Geological Association of Canada (F6740).

4. Reddick Consulting Inc. was retained by Pearson, Hoffman and Associated on behalf of Golden Goose Resources Ltd. to prepare a report the exploration program on the Magino mine property. This report, and the conclusions and recommendations made, are based on examination of records and drill core made during several visits to the property in 1997 and 1998 prior to during and after the drill program of April, 1997.

J Reddick

Timmins, Ontario
June 23, 1999

John Reddick, M.Sc.

P.O. BOX 579, PORCUPINE, ONTARIO P0N 1C0
PHONE 705-235-5352 FAX 705-235-4487

7.0 STATEMENTS OF QUALIFICATIONS

7.1 FREDERICK WILLIAM NIELSEN

I, Frederick William Nielsen of Lot 5 Concession 5, Erin Township, 9129, R.R. #2 Acton, Ontario, Canada L7J 2L6 do hereby certify that:

1. I am a consulting geologist retained by Pearson, Hofman and Associates Ltd.

2. I received a BASc degree in Geology from the University of Western Ontario, London, Ontario in 1973.

3. I am a Fellow of the Geological Association of Canada.

4. I have been practising my profession for over 23 years.

5. I have not received, nor do I expect to receive any interest, directly or indirectly, in Golden Goose Resources Inc. or any of its affiliates.

6. This report, as well as its conclusions and recommendations are based on the examination of available data.

Dated this 22 day of June, 1997.

F. William Nielsen

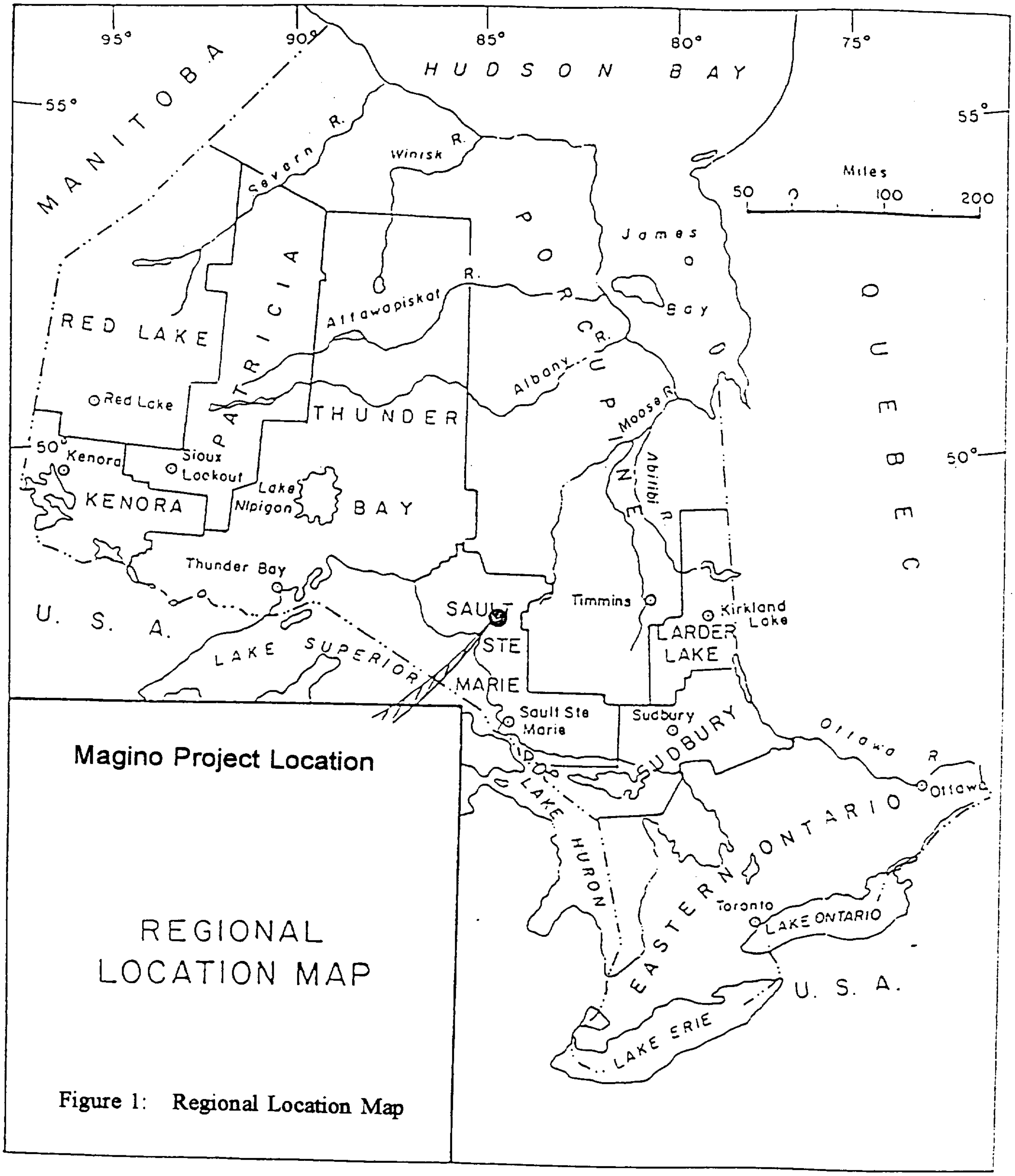


Figure 1: Regional Location Map

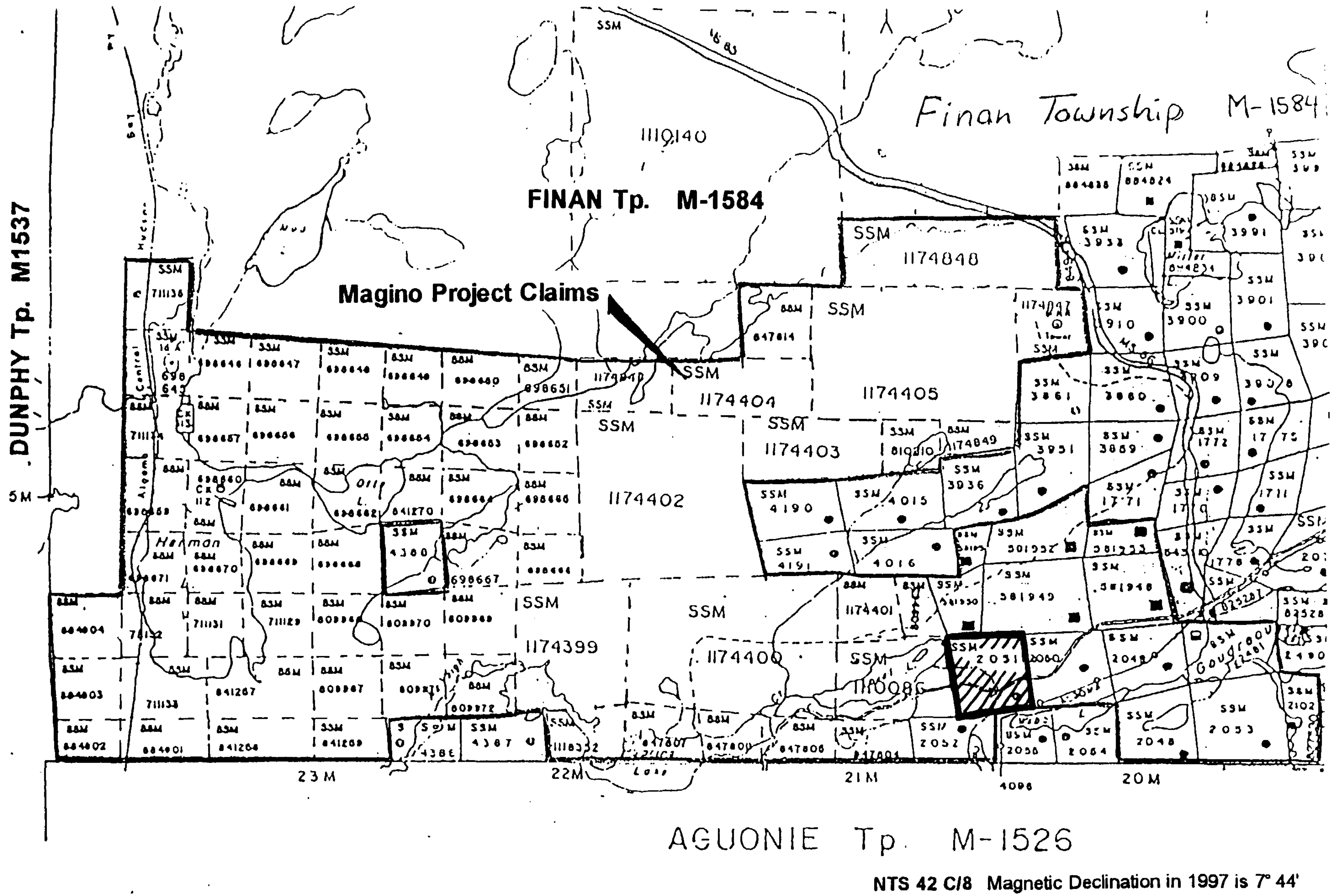
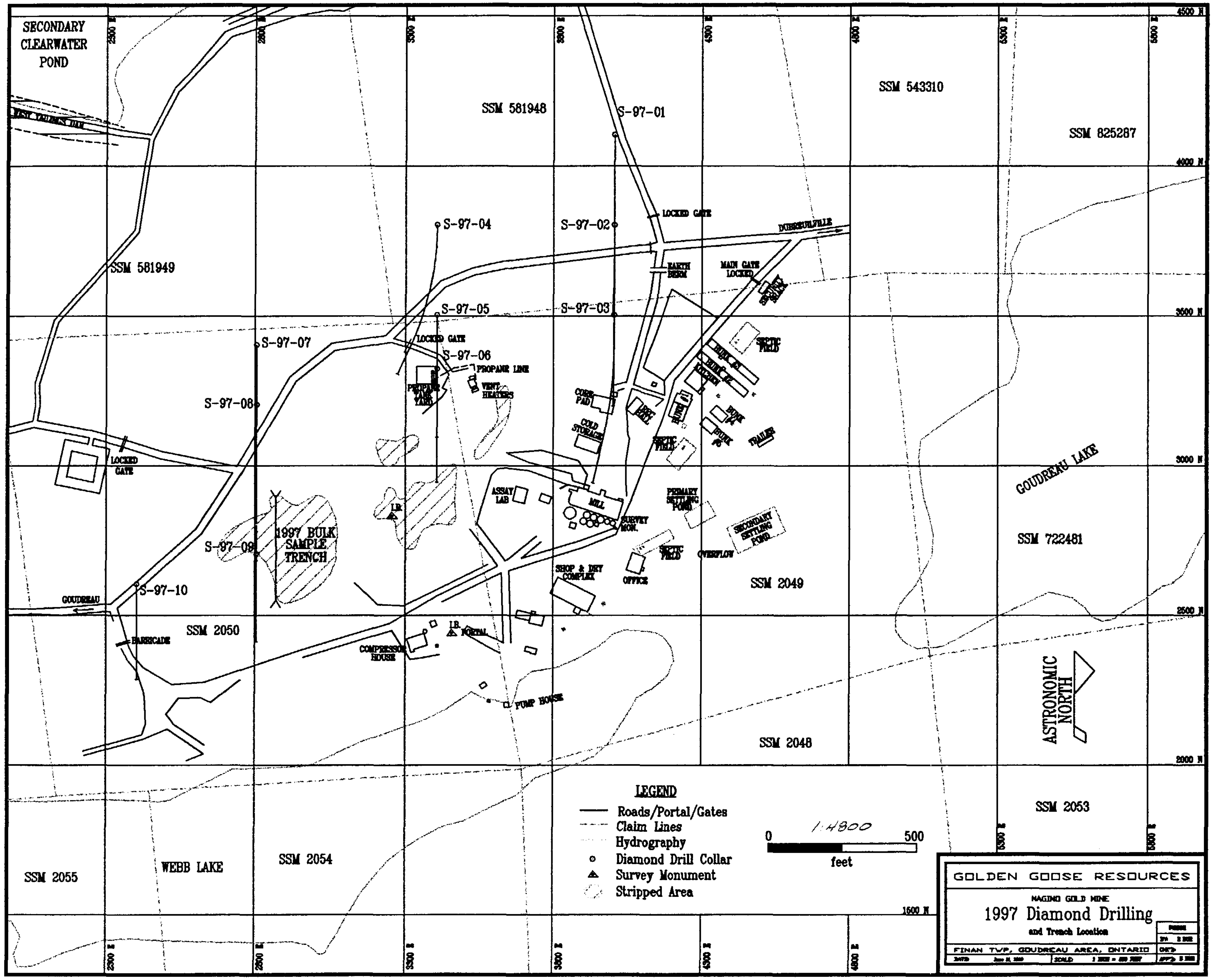


Figure 2: Project Location and Claims



SECONDARY CLEARWATER POND
SSM 581948
S-97-01
SSM 543310
SSM 825287
LOCKED GATE
S-97-04
S-97-02
SSM 581949
S-97-05
S-97-03
S-97-07
LOCKED GATE
S-97-06
PROPANE LINE
S-97-08
LOCKED GATE
ASSAY LAB
MILL
GOUDREAU LAKE
1997 BULK SAMPLE TRENCH
S-97-09
SURVEY MON.
SECONDARY SETTLING POND
SSM 722481
S-97-10
GOUDREAU
SHOP & DRY COMPLEX
OFFICE
OVERFLOW
SSM 2049
SSM 2050
BARRICADE
COMPRESSOR HOUSE
PORTAL
PUMP HOUSE
ASTRONOMIC NORTH
SSM 2048
LEGEND
Roads/Portal/Gates
Claim Lines
Hydrography
Diamond Drill Collar
Survey Monument
Stripped Area
0
1:4800
500
feet
SSM 2053
SSM 2055
WEBB LAKE
SSM 2054
GOLDEN GOOSE RESOURCES
MAGINO GOLD MINE
1997 Diamond Drilling
and Trench Location
FINAN TWP, GOUDREAU AREA, ONTARIO

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An Investigation of
The Recovery of Gold
from Magino project samples
submitted by
Golden Goose Resources Ltd.
per
BLM Bharti Engineering Inc.

Progress Report No. 1

Project No. LR 5148

NOTE:

This report refers to the samples as received.

The practice of this Company in issuing reports of this nature is to require the recipient not to publish the report or any part thereof without the written consent of Lakefield Research Limited.

Lakefield Research Limited
185 Concession Street
Lakefield, Ontario, K0L 2H0
Tel: (705) 652-2000
Fax: (705) 652-6365
October 9, 1997

Introduction

This report summarizes the results of testwork conducted on Magino project samples as requested by Mr. H. Jansen, BLM Bharti Engineering Inc., on behalf of Golden Goose Resources Ltd. The test program involved gravity separation, cyanidation and heap leach testing to investigate the recovery of gold. The results were sent to Mr. Jansen as they became available.

Lakefield Research Limited

I. Jackman, P.Eng.
Senior Project Metallurgist

K.W. Sarbutt, .
Manager - Mineral Processing

Experimental work by: B. Barnum, D. Imeson
Report preparation by: B.J. Scobie

Summary

1. Sample Description

Two samples were received for metallurgical testwork. Composite 1 was a core sample and Composite 2 was from a bulk sample. Pulp and metallics assaying for gold was conducted on two 500 g samples of each composite. The analyses of the two composites are given below.

Table 1: Head Assays

Element	Composite	
	1	2
Au, g/t*	1.37	0.96
Au, g/t**	1.15	0.82
Ag, g/t	<0.5	<0.5
S, %	0.29	0.19

*average of pulp and metallics assays
**average calculated gold head assays (excluding heap leach tests)

Table 2: Gold Assays by Pulp and Metallics

Comp 1 (A)

Product	Weight	Au, g/t	% Dist'n
+ 150 M	30.6	6.13	23.2
- 150 M*	471.5	1.32	76.8
Weighted Average	502.1	**1.61**	100.0
*average of	1.61	1.08	1.27

Comp 2 (A)

Product	Weight	Au, g/t	% Dist'n
+ 150 M	32.4	1.01	13.4
- 150 M*	468.5	0.45	86.6
Weighted Average	500.9	**0.49**	100.0
*average of	0.40	0.32	0.63

Comp 1 (B)

Product	Weight	Au, g/t	% Dist'n
+ 150 M	21.4	3.03	11.5
- 150 M*	479.4	1.04	88.5
Weighted Average	500.8	**1.13**	100.0
*average of	0.94	1.08	1.11

Comp 2 (B)

Product	Weight	Au, g/t	% Dist'n
+ 150 M	10.8	19.4	29.2
- 150 M*	490.8	1.03	70.8
Weighted Average	501.6	**1.43**	100.0
*average of	1.23	0.95	0.92

A separate shipment of core samples was received for bulk density measurements.

2. Bond Work Index

The Bond work index of each composite was determined in a standard Bond ball mill closed circuit grindability test. A 100 mesh closing screen was used. Table 3 contains the results.

Table 3: Bond Work Indices

Composite	Bond Work Index		Feed K_{80}	Product K_{80}
	Imperial	Metric	µm	µm
1	11.5	12.6	1644	110
2	11.7	12.8	1874	113

3. Gravity Separation Testwork

The recovery of gold by gravity separation was investigated. A 50 kg sample of Composite 1 and a 10 kg sample of Composite 2 were the feed for these tests. The samples were ground and fed to a 3 inch Knelson concentrator. The Knelson concentrate was cleaned on a Mozley mineral separator. The Mozley concentrate was assayed entirely and the Mozley tailing was assayed by pulp and metallics. Three assay samples were taken from the Knelson tailing. The results are summarized in Table 4.

Table 4: Gravity Separation Test Results

Test No.	Comp	%-200 mesh	Product	Weight %	Assay Au, g/t	% Distr'n Au
G1	1	72	Mozley Conc	0.016	1636	24.0
			Mozley Tail +150M	0.059	206	11.3
			Mozley Tail -150M	0.88	29.8	24.1
			Knelson Conc	0.95	67.6	59.4
			Knelson Tail	99.05	0.44	40.6
			Head (calc)	100.00	1.08	100.0
G2	2	54	Mozley Conc	0.051	781	55.8
			Mozley Tail +150M	0.28	10.5	4.1
			Mozley Tail -150M	0.63	21.1	18.5
			Knelson Conc	0.96	58.7	78.3
			Knelson Tail	99.04	0.16	21.7
			Head (calc)	100.00	0.72	100.0

The recovery of gold in the Mozley concentrate was 24% from Composite 1 which was considered to be the more representative sample.

4. Cyanidation Testwork

A series of tests was conducted on each composite to examine the effect of fineness of grind on the extraction of gold. The tests were performed in bottles on rolls at 33% solids. The cyanide concentration was maintained periodically throughout the 48 hour leach. A pregnant solution sample was removed after 24 hours to estimate the extraction. The results are presented in Table 5.

Table 5: Cyanidation Results

Test No.	Comp	%-200 mesh	NaCN g/L	Reag. Cons.,kg/t NaCN	Reag. Cons.,kg/t CaO	% Au Extraction 24 h	% Au Extraction 48 h	Residue Au, g/t	Head Au, g/t
CN1	1	84	1.0	0.30	0.48	85	97.8	0.03	1.34
CN3	1	72	0.5	0.13	0.46	75	92.2	0.08	1.03
CN5	1	60	0.5	0.13	0.50	71	92.6	0.07	0.95
CN2	2	84	1.0	0.37	0.57	83	92.0	0.06	0.75
CN4	2	72	0.5	0.15	0.48	81	95.6	0.04	0.90
CN6	2	59	0.5	0.14	0.51	77	93.4	0.05	0.76

The extraction of gold from Composite 2 was similar in all three tests and reflected the variation in the calculated gold head assay. The residue assays were essentially the same. The higher gold recovery in test CN1 conducted on Composite 1 was mostly a reflection of the higher head assay. The residue assay did show a small decrease with the finest grind but further tests would be required to confirm if this was significant. Decreasing the grind from 72% to 60% minus 200 mesh did not affect the residue assay. All residue assays were <0.1 g/t Au. Reducing the cyanide concentration from 1 g/L to 0.5 g/L NaCN reduced the cyanide consumption by more than half.

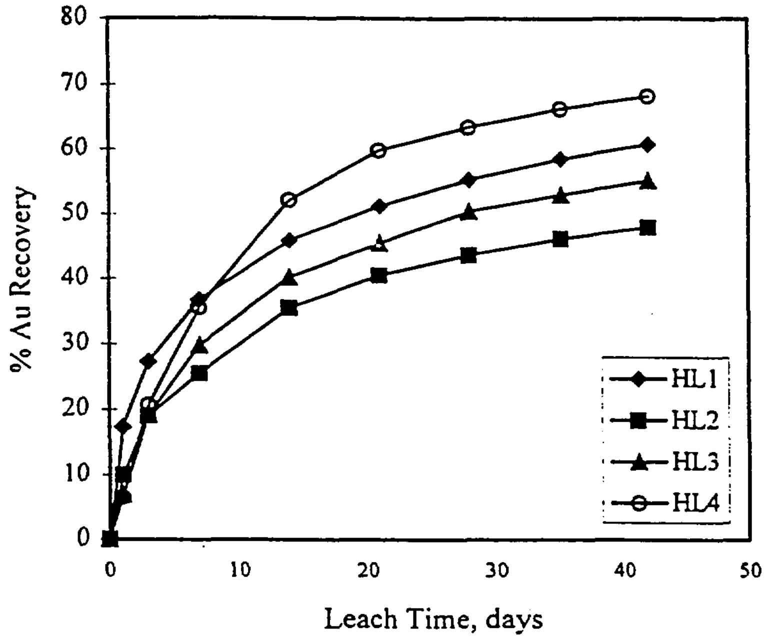
5. Heap Leach Tests

The recovery of gold by heap leaching was also investigated in two tests on each sample. The first test was conducted on ore crushed to minus 12 mm. The second test was conducted on material crushed to minus 6 mesh and agglomerated with 0.5 kg/t CaO and 20 kg/t cement. The agglomerated ore was cured for four days. The tests were carried out in 100 mm columns, recirculating a 1 g/L NaCN, pH 11 solution at a rate of 10 L/h/m^2. The pregnant solution passed through a small carbon column. The carbon was changed periodically and assayed to monitor gold extraction. After 42 days, the columns were drained and washed. The residue was screened into several size fractions and the coarser fractions were crushed to minus 10 mesh. Two assay samples were prepared from each size fraction. The individual assays are reported in the test details. The results are given in Table 6 and Figure 1.

Table 6: Heap Leach Results

Test	Comp	Feed	Reag.Cons.,kg/t		% Au Recovery								Residue	Head
No.		Size	NaCN	CaO	1	3	7	14	21	28	35	42 day	Au, g/t	Au, g/t
HL1	1	-12 mm	1.37	0.46	17.3	27.3	36.7	45.8	51.1	55.2	58.4	60.7	0.28	0.75
HL2	2	-12 mm	1.31	0.53	10.0	19.0	25.5	35.5	40.5	43.6	46.1	47.9	0.42	0.84
HL3	1	-6 mesh	0.98	0.59	6.9	19.1	29.8	40.2	45.4	50.3	52.9	55.1	0.38	0.88
HL4	2	-6 mesh	0.96	0.59	6.5	20.7	35.6	52.1	59.7	63.3	66.1	68.1	0.21	0.71

Figure 1: Leach Time vs Gold Recovery



The results for the two samples were inconsistent with respect to the effect of feed size. The recovery of gold from Composite 1 ranged from 55% to 61%, but the calculated gold head assay was considerably lower than the average calculated gold head assay from the rest of the testwork (1.15 g/t Au). The recovery of gold from Composite 2 varied from 48% to 68%.

6. Bulk Density Determinations

The bulk density of twenty-four core samples was determined using the waxed core method. The results are given in Table 7.

Table 7: Bulk Density Determinations

	Sample	Rock Density	
No.	Description	SG	lbs/ft^3
1	Iron Formation	2.76	172
2	Iron Formation	2.78	173
3	Iron Formation	2.77	173
4	Iron Formation	2.81	175
5	Iron Formation	2.78	174
	Average	**2.78**	**174**
6	Granodiorite	2.69	168
7	Granodiorite	2.73	170
8	Granodiorite	2.69	168
9	Granodiorite	2.70	169
10	Granodiorite	2.71	169
	Average	**2.70**	**169**
11	Intermediate Tuff	2.73	170
12	Intermediate Tuff	2.71	169
13	Intermediate Tuff	2.83	177
14	Intermediate Tuff	2.75	172
15	Intermediate Tuff	2.70	168
	Average	**2.74**	**171**
16	Felsite	2.68	168
17	Felsite	2.68	167
18	Felsite	2.69	168
	Average	**2.69**	**168**
19	Mafic Volcanic	2.74	171
20	Mafic Volcanic	2.79	174
21	Mafic Volcanic	2.77	173
22	Mafic Volcanic	2.76	172
23A	Mafic Volcanic	2.82	176
23B	Mafic Volcanic	2.77	173
	Average	**2.77**	**173**

Sample Preparation

On July 14, 1997, fourteen pails of samples were received at Lakefield Research and given our reference number 9707338. Composite 1 was prepared from the seven pails of core samples. The ore was combined, crushed to minus 12 mm, and riffled in half. From one half, 10 kg was cut out for heap leach testing. The remainder was crushed to minus 6 mesh and samples were removed for work index determination and other heap leach testwork. The remainder was crushed to minus 10 mesh. A head sample (Head A) and 1 kg test charges were prepared. The other half was all crushed to minus 10 mesh. A second head (Head B) and 10 kg tests charges were prepared. Composite 2 was prepared in the same manner with the seven pails of broken rock.

A second shipment was received on July 17, 1997 under reference number LR9707511. This shipment contained 24 core samples for bulk density determination.

Details of Tests

LAKEFIELD RESEARCH

Standard Bond Ball Mill Grindability Test

Project No. 5148 | Product: Minus 6 Mesh | Date: 15-Aug-97

Test No.: Golden Goose Comp 1

Purpose: To determine the ball mill grindability of the sample in terms of a Bond work index number.

Procedure: The equipment and procedure duplicate the Bond method for determining ball mill work indices.

Test Conditions:	Mesh of grind:	100 mesh
	Test feed weight (700 mL):	1377 grams
	Equivalent to : 1967 kg/m^3 at Minus 6 mesh	
	Weight % of the undersize material in the ball mill feed:	30.4 %
	Weight of undersize product for 250% circulating load:	393 grams

Results: Average for last three stages = 395 g : 249 % circulation load

CALCULATION OF A BOND WORK INDEX

$$BWI = \frac{44.5}{P1^{0.23} \times Grp^{0.82} \times \left\{ \frac{10}{\sqrt{P}} - \frac{10}{\sqrt{F}} \right\}}$$

P1 = 100% passing size of the product	150 microns
Grp = Grams per revolution	1.95 grams
P80 = 80% passing size of product	110 microns
F80 = 80% passing size of the feed	1644 microns

BWI = 11.5 (imperial)

BWI = 12.6 (metric)

Grindability Test Data | Project No. 5148 | Test No.: Golden Goose Comp 1

Stage No.	Revs	New Feed (grams)	Undersize In Feed (grams)	Undersize To Be Ground (grams)	U'Size In Product (grams)	Undersize Product Total (grams)	Undersize Product Per Mill Rev (grams)
1	100	1,377	419	-26	533	114	1.14
2	203	533	162	231	526	364	1.79
3	130	526	160	233	419	259	1.99
4	134	419	128	266	383	255	1.91
5	145	383	117	277	395	278	1.92
6	142	395	120	273	408	288	2.03

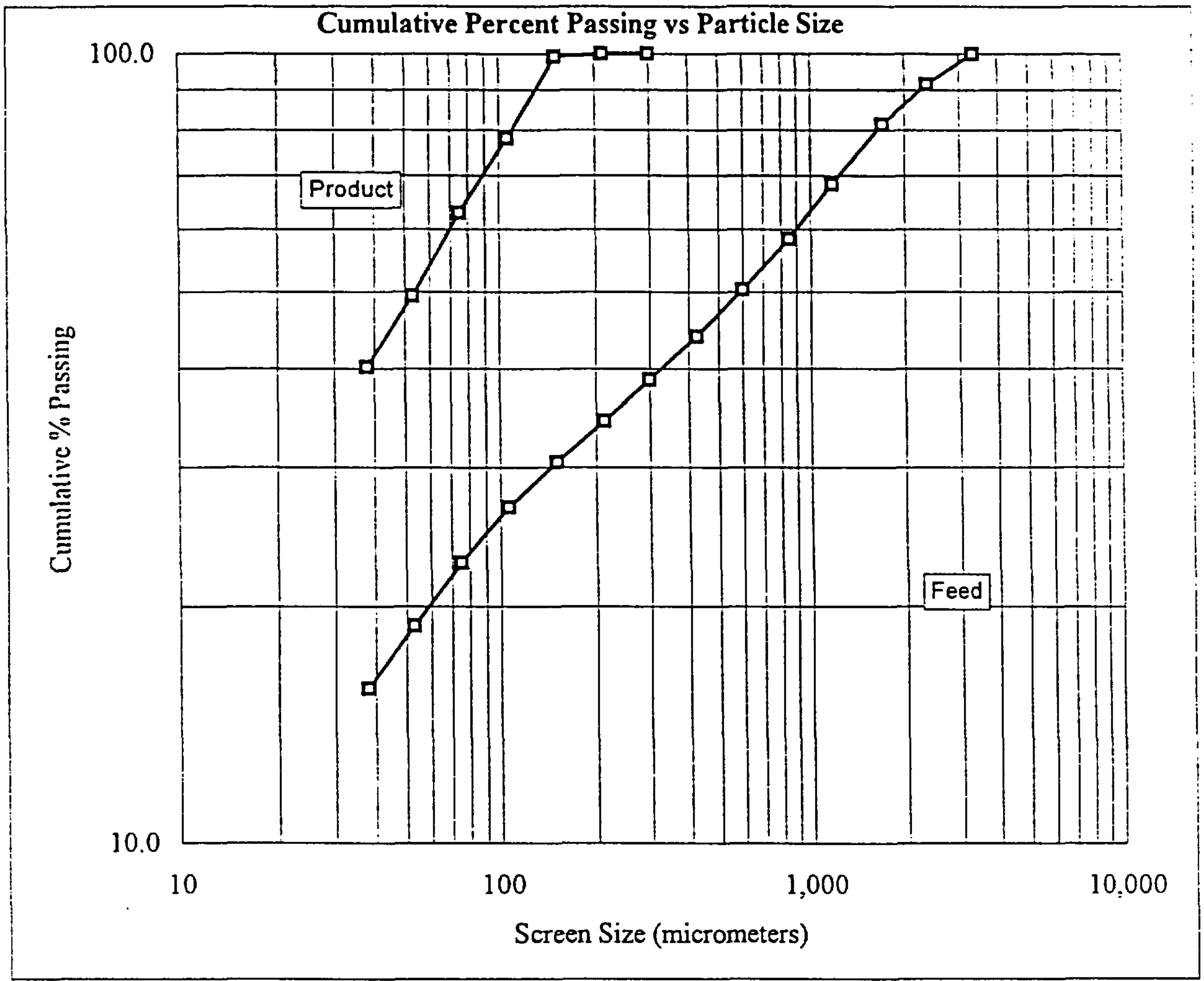
Average for Last Three Stages = 1.95

Feed K80

Size Mesh	Size µm	Weight grams	% Retained Individual	% Retained Cumulative	% Passing Cumulative
6	3,350	0.9	0.2	0.2	99.8
8	2,360	42.2	8.4	8.6	91.4
10	1,700	50.0	10.0	18.6	81.4
14	1,180	65.5	13.1	31.7	68.3
20	850	49.9	10.0	41.7	58.3
28	600	39.6	7.9	49.7	50.3
35	425	32.0	6.4	56.1	43.9
48	300	25.9	5.2	61.2	38.8
65	212	22.2	4.4	65.7	34.3
100	150	19.3	3.9	69.6	30.4
150	106	18.9	3.8	73.3	26.7
200	75	19.9	4.0	77.3	22.7
270	53	19.0	3.8	81.1	18.9
400	38	15.8	3.2	84.3	15.7
Pan	-38	78.5	15.7	100.0	0.0
Total	-	**499.6**	**100.0**	-	-
K80	**1,644**				

Product K80

Size Mesh	Size µm	Weight grams	% Retained Individual	% Retained Cumulative	% Passing Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	1.2	0.8	0.8	99.2
150	106	30.6	21.1	21.9	78.1
200	75	22.0	15.2	37.1	62.9
270	53	19.6	13.5	50.6	49.4
400	38	13.4	9.2	59.9	40.1
Pan	-38	58.2	40.1	100.0	0.0
Total	-	**145.0**	**100.0**	-	-
K80	**110**				


Cumulative Percent Passing vs Particle Size
100.0
10.0
Cumulative % Passing
Product
Feed
10
100
1,000
10,000
Screen Size (micrometers)

LAKEFIELD RESEARCH

Standard Bond Ball Mill Grindability Test

Project No. 5148 Product: Minus 6 Mesh Date: 15-Aug-97

Test No.: Golden Goose Comp 2

Purpose: To determine the ball mill grindability of the sample in terms of a Bond work index number.

Procedure: The equipment and procedure duplicate the Bond method for determining ball mill work indices.

Test Conditions:	Mesh of grind:	100 mesh
	Test feed weight (700 mL):	1337 grams
	Equivalent to : 1910 kg/m^3 at Minus 6 mesh	
	Weight % of the undersize material in the ball mill feed:	30.0 %
	Weight of undersize product for 250% circulating load:	382 grams

Results: Average for last three stages = 385 g : 247 % circulation load

CALCULATION OF A BOND WORK INDEX

$$BWI = \frac{44.5}{P1^{0.23} \times Grp^{0.82} \times \left\{\frac{10}{\sqrt{P}} - \frac{10}{\sqrt{F}}\right\}}$$

P1 = 100% passing size of the product	150 microns
Grp = Grams per revolution	1.92 grams
P80 = 80% passing size of product	113 microns
F80 = 80% passing size of the feed	1874 microns

BWI = 11.7 (imperial)

BWI = 12.8 (metric)

Grindability Test Data　　Project No. 5148　　Test No.: Golden Goose Comp 2

Stage No.	Revs	New Feed (grams)	Undersize In Feed (grams)	Undersize To Be Ground (grams)	U'Size In Product (grams)	Undersize Product Total (grams)	Undersize Product Per Mill Rev (grams)
1	100	1,337	402	-20	527	125	1.25
2	178	527	158	224	471	313	1.76
3	137	471	142	240	399	257	1.88
4	139	399	120	262	383	263	1.89
5	141	383	115	267	382	267	1.89
6	141	382	115	267	391	276	1.96

Average for Last Three Stages = 1.92

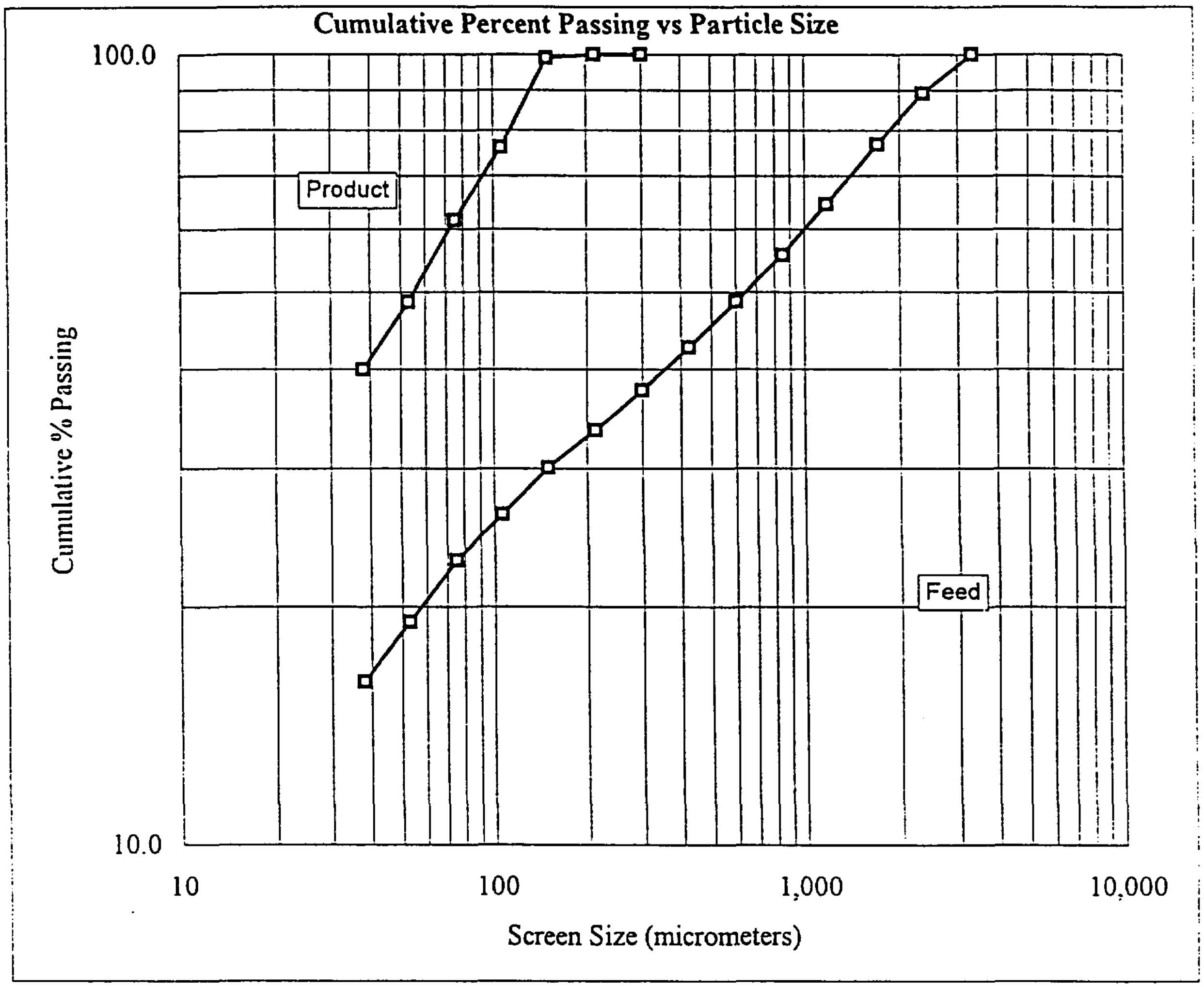
Feed K80

Size Mesh	Size µm	Weight grams	% Retained Individual	% Retained Cumulative	% Passing Cumulative
6	3,350	0.4	0.1	0.1	99.9
8	2,360	54.4	10.9	10.9	89.1
10	1,700	61.4	12.3	23.2	76.8
14	1,180	62.1	12.4	35.6	64.4
20	850	44.0	8.8	44.4	55.6
28	600	34.9	7.0	51.3	48.7
35	425	30.3	6.0	57.4	42.6
48	300	25.1	5.0	62.4	37.6
65	212	20.3	4.1	66.5	33.5
100	150	17.5	3.5	70.0	30.0
150	106	19.2	3.8	73.8	26.2
200	75	16.6	3.3	77.1	22.9
270	53	18.9	3.8	80.9	19.1
400	38	15.4	3.1	83.9	16.1
Pan	-38	80.4	16.1	100.0	0.0
Total	-	**500.9**	**100.0**	-	-
K80	**1,874**				

Product K80

Size Mesh	Size µm	Weight grams	% Retained Individual	% Retained Cumulative	% Passing Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	0.0	0.0	0.0	100.0
100	150	1.6	1.1	1.1	98.9
150	106	31.9	22.7	23.9	76.1
200	75	20.5	14.6	38.5	61.5
270	53	18.1	12.9	51.4	48.6
400	38	12.2	8.7	60.1	39.9
Pan	-38	56.0	39.9	100.0	0.0
Total	-	**140.3**	**100.0**	-	-
K80	**113**				

Project No. 5148 Test No.: Golden Goose Comp 2



Test No: G1 **Project No: 5148** **Technician: DI** **Date: August 14, 1996**

Purpose: To determine the recovery of gold using a Knelson concentrator and Mozley Table.

Procedure: A ground sample of Composite 1 was fed to a 3 inch Knelson Concentrator. The Knelson Concentrate was further upgraded by treatment on a Mozley mineral separator. The entire Mozley Concentrate was assayed for Au and the entire Mozley Tail was assayed for Au by pulp and metallics at 150 mesh. Three separate cuts from the Knelson Tail were taken and each assayed for Au.

Feed: 50 kg minus 10 mesh Composite 1

Grind: 30 minutes / 30 kg @ 65% solids in 30 kg mill and
20 minutes / 20 kg @ 65% solids in 30 kg mill

Metallurgical Results

Products	Weight		Assays, g/t	% Distribution
	grams	%	Au	Au
Mozley Concentrate	7.92	0.016	1636	24.0
Mozley Tailing +150m	29.7	0.059	206	11.3
Mozley Tailing -150m	438.1	0.88	29.8	24.1
Knelson Tailing	49524.3	99.05	0.44	40.6
Head (calculated)	50000	100.0	1.08	100.0

Note: The Knelson Tail assay represents an average from three separate cuts (0.54, 0.35, 0.44).

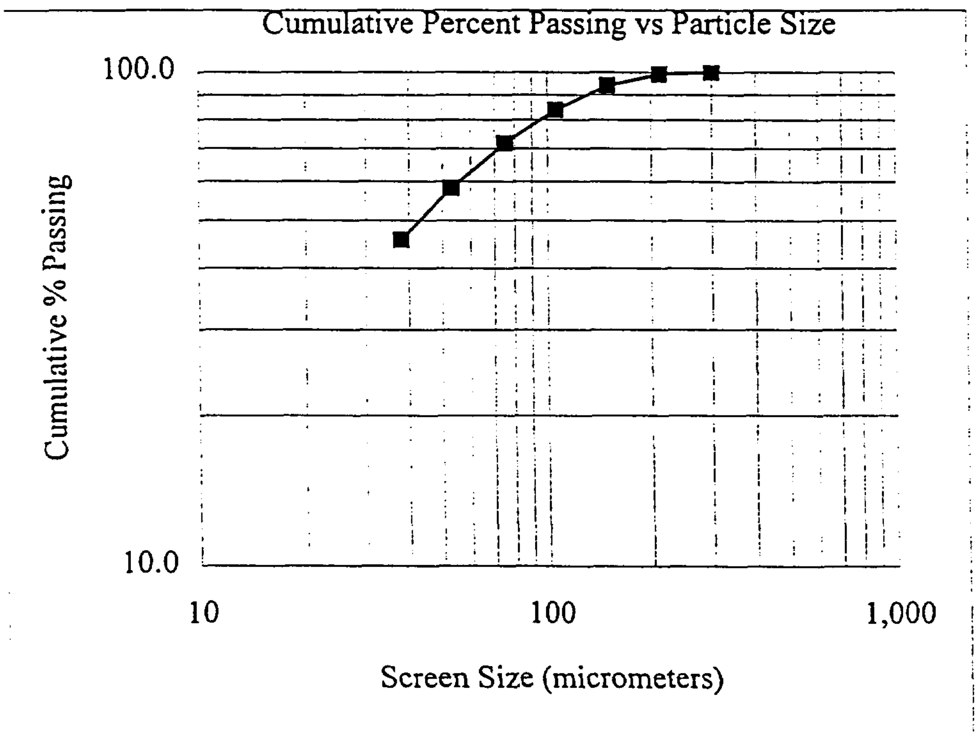
Combined Products	Weight		Assays, g/t	% Distribution
	grams	%	Au	Au
Mozley Tailing	467.8	0.94	41.0	35.5
Knelson Concentrate	475.7	0.95	67.6	59.4

Company | **Lakefield Research** | **LR-5148**

Size Distribution Analysis

Sample: Knelson Tail **Test No.:** G 1

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	1.3	0.9	0.9	99.1
100	150	7.2	5.2	6.1	93.9
150	106	14.1	10.1	16.2	83.8
200	75	16.9	12.1	28.3	71.7
270	53	19.0	13.6	41.9	58.1
400	38	17.4	12.5	54.3	45.7
Pan	-38	63.8	45.7	100.0	0.0
Total	-	**139.7**	**100.0**	-	-
K80	95				



Test No: G2 **Project No: 5148** **Technician: DI** **Date: August 14, 1996**

Purpose: To determine the recovery of gold using a Knelson concentrator and Mozley Table.

Procedure: A ground sample of Composite 2 was fed to a 3 inch Knelson Concentrator. The Knelson Concentrate was further upgraded by treatment on a Mozley mineral separator. The entire Mozley Concentrate was assayed for Au and the entire Mozley Tail was assayed for Au by pulp and metallics at 150 mesh. Three separate cuts from the Knelson Tail were taken and each assayed for Au.

Feed: 10 kg minus 10 mesh Composite 2

Grind: 20 minutes / 10 kg @ 65% solids in 10 kg mill

Metallurgical Results

Products	Weight		Assays, g/t	% Distribution
	grams	%	Au	Au
Mozley Concentrate	5.13	0.051	781	55.8
Mozley Tailing +150m	27.7	0.28	10.5	4.1
Mozley Tailing -150m	63.0	0.63	21.1	18.5
Knelson Tailing	9904.2	99.04	0.16	21.7
Head (calculated)	10000	100.0	0.72	100.0

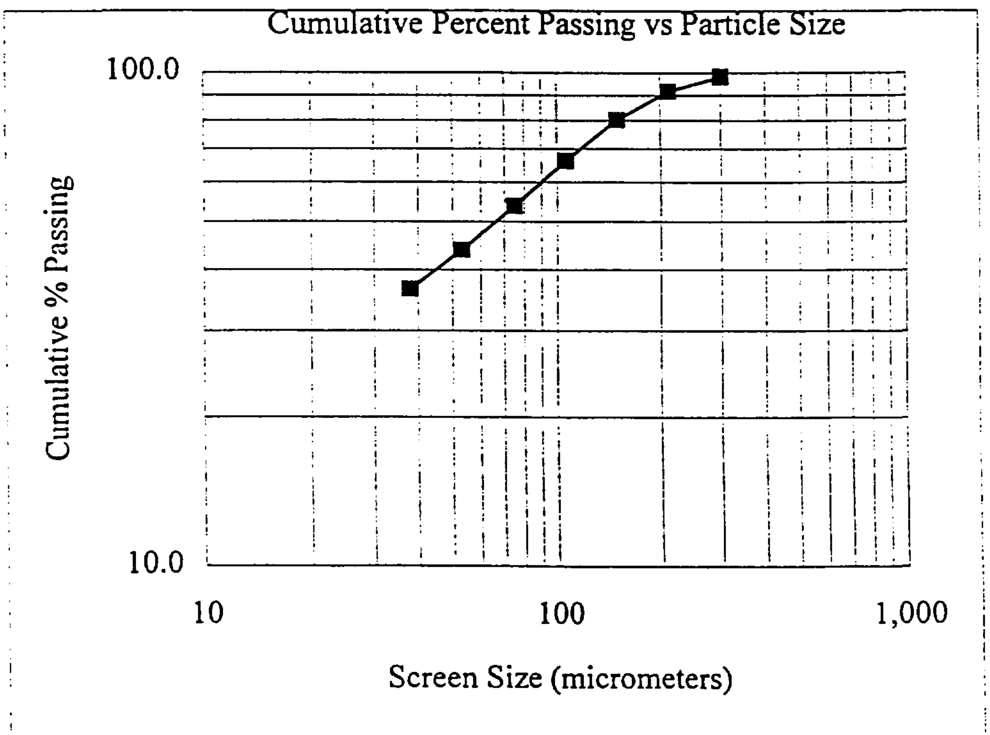
Note: The Knelson Tail assay represents an average from three separate cuts (0.20, 0.12, 0.15).

Combined Products	Weight		Assays, g/t	% Distribution
	grams	%	Au	Au
Mozley Tailing	90.7	0.91	17.9	22.6
Knelson Concentrate	95.8	0.96	58.7	78.3

Company	Lakefield Research Size Distribution Analysis	LR-5148

Sample: Knelson Tail **Test No.:** G 2

Size		Weight	% Retained		% Passing
Mesh	μm	grams	Individual	Cumulative	Cumulative
48	300	2.6	1.9	1.9	98.1
65	212	9.0	6.5	8.3	91.7
100	150	16.1	11.6	19.9	80.1
150	106	19.4	13.9	33.9	66.1
200	75	17.4	12.5	46.4	53.6
270	53	13.7	9.8	56.2	43.8
400	38	10.2	7.3	63.6	36.4
Pan	-38	50.7	36.4	100.0	0.0
Total	-	**139.1**	**100.0**	-	-
K80	**149**				



Lakefield Research
Cyanidation Test

Test: CN01 **Project No: 5148** **Date: July 28, 1997** **Operator: DI**

Purpose: To investigate the extraction of gold from Composite 1 by cyanidation.

Procedure: The sample was pulped with water to 33% solids in a 2.5L bottle. Lime and NaCN were added and the cyanidation was carried out for 48 hours on mechanical rolls. A solution subsample was taken at 24 hours and assayed for Au. At the end of the leach period the pulp was filtered and the residue was washed several times. The residue and final pregnant/wash solution was submitted for Au analysis.

Feed: 501 g of -10 mesh Composite 1 Ore

Solution Volume: 1000 mL

Pulp Density: 33 % Solids

Solution Composition: 1.0 g/L NaCN

pH Range: 10.5-11.0 with Ca(OH)2

Grind: 20 min/1 kg @ 50% solids in ball mill (NB), K_{80}= 68μm.

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.30
Ca(OH)2: 0.48

Time	Added, Grams				Residual		Consumed		
	Actual		Equivalent		Grams		Grams		pH
Hours	NaCN	Ca(OH)2	NaCN	CaO	NaCN	CaO	NaCN	CaO	8.4
0.0 - 2.0	1.01	0.22	1.00	0.17	0.90		0.10		11.1 - 10.7
2.0 - 24.0	0.10	0.09	0.10	0.06	1.00		0.00		11.1 - 10.7
24.0 - 48.0	0.00	0.03	0.00	0.02	0.95	0.01	0.05	0.24	10.9 - 10.3
Total	1.11	0.34	1.10	0.26	0.95	0.01	0.15	0.24	

Metallurgical Balance

Product	Amount mL, g	Assays, mg/L, g/t Au	%Distribution Au
24 hr. Preg'n Sol'n	*15*	*0.57*	*84.7*
48 hr. Wash/Preg'n Sol'n	1583	0.41	97.8
48 hr. Residue	500.7	0.03	2.2
Head (calc.)	500.7	1.34	100.0
Head (direct)		1.37	

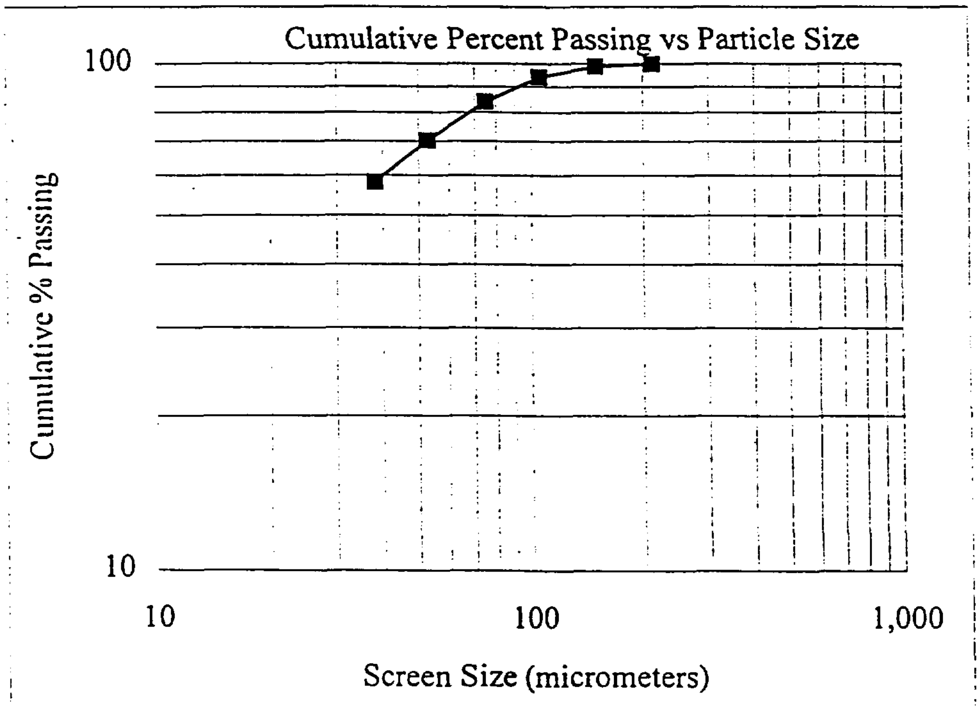
NOTE: Values in italics represent actual assays and indicated recovery at the elapsed time.

Company **Lakefield Research** **LR-5148**

Size Distribution Analysis

Sample: 48hr Residue **Test No.:** CN01

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.2	0.1	0.1	99.9
100	150	1.6	1.1	1.2	98.8
150	106	7.0	4.9	6.1	93.9
200	75	14.4	10.0	16.1	83.9
270	53	19.8	13.7	29.8	70.2
400	38	17.5	12.1	42.0	58.0
Pan	-38	83.7	58.0	100.0	0.0
Total	-	**144.2**	**100.0**	-	-
K80	**68**				



Lakefield Research
Cyanidation Test

Test: CN02 **Project No: 5148** **Date: July 28, 1997** **Operator: DI**

Purpose: To investigate the extraction of gold from Composite 2 by cyanidation.

Procedure: The sample was pulped with water to 33% solids in a 2.5L bottle. Lime and NaCN were added and the cyanidation was carried out for 48 hours on mechanical rolls. A solution subsample was taken at 24 hours and assayed for Au. At the end of the leach period the pulp was filtered and the residue was washed several times. The residue and final pregnant/wash solution was submitted for Au analysis.

Feed: 500 g of -10 mesh Composite 2 Ore

Solution Volume: 1000 mL

Pulp Density: 33 % Solids

Solution Composition: 1.0 g/L NaCN

pH Range: 10.5-11.0 with Ca(OH)2

Grind: 20 min/1 kg @ 50% solids in ball mill (NB), K_{80}= 69µm.

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.37
Ca(OH)2: 0.57

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Hours	NaCN	Ca(OH)2	NaCN	CaO	NaCN	CaO	NaCN	CaO	8.3
0.0 - 2.0	1.01	0.28	1.00	0.21	0.93		0.07		11.1 - 10.7
2.0 - 24.0	0.08	0.08	0.08	0.06	0.95		0.05		11.1 - 10.7
24.0 - 48.0	0.05	0.04	0.05	0.03	0.94	0.02	0.06	0.28	10.9 - 10.3
Total	1.14	0.40	1.13	0.30	0.94	0.02	0.18	0.28	

Metallurgical Balance

Product	Amount mL, g	Assays, mg/L, g/t Au	%Distribution Au
24 hr. Preg'n Sol'n	*15*	*0.31*	*82.6*
48 hr. Wash/Preg'n Sol'n	1622	0.21	92.0
48 hr. Residue	499.5	0.06	8.0
Head (calc.)	499.5	0.75	100.0
Head (direct)		0.96	

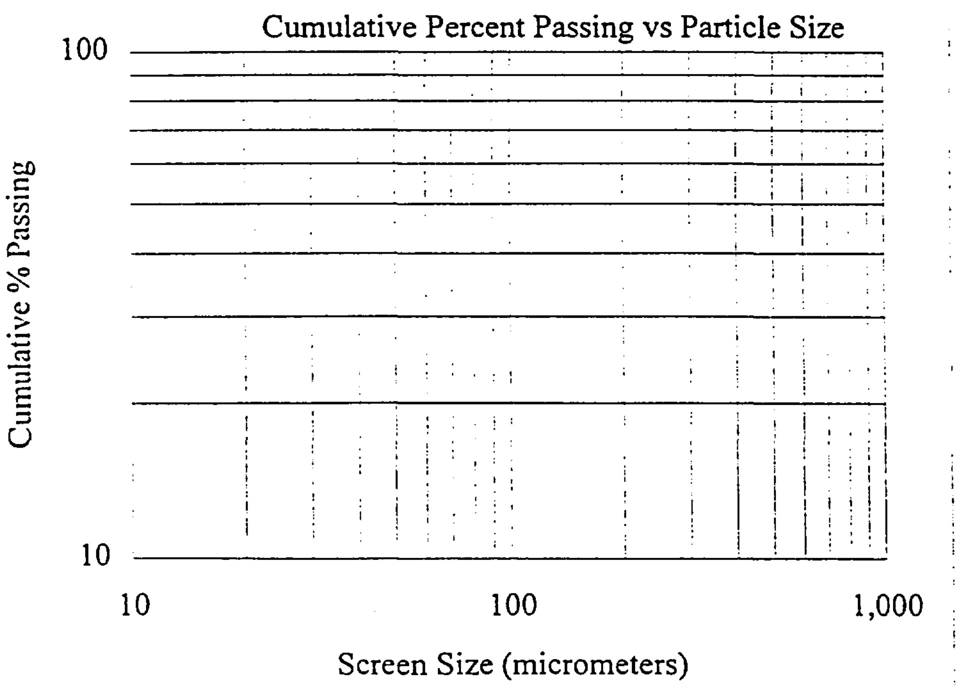
NOTE: Values in italics represent actual assays and indicated recovery at the elapsed time.

Company **Lakefield Research** **LR-5148**

Size Distribution Analysis

Sample: Cn Res 48 Hr **Test No.:** 2

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
65	212	0.3	0.2	0.2	99.8
100	150	2.2	1.5	1.7	98.3
150	106	7.7	5.1	6.8	93.2
200	75	13.8	9.2	16.0	84.0
270	53	22.5	15.0	31.0	69.0
400	38	19.4	13.0	44.0	56.0
Pan	-38	83.9	56.0	100.0	0.0
Total	-	**149.8**	**100.0**	-	-
K80	**69**				



Lakefield Research
Cyanidation Test

Test: CN03 **Project No: 5148** **Date: August 20, 1997** **Operator: DI**

Purpose: To investigate the effect of a coarser grind on gold extraction.

Procedure: The sample was pulped with water to 33% solids in a 2.5L bottle. Lime and NaCN were added and the cyanidation was carried out for 48 hours on mechanical rolls. A solution subsample was taken at 24 hours and assayed for Au. At the end of the leach period the pulp was filtered and the residue was washed several times. The residue and final pregnant/wash solution was submitted for Au analysis.

Feed: 503 g of -10 mesh Composite 1 Ore

Solution Volume: 1000 mL

Pulp Density: 33 % Solids

Solution Composition: 0.5 g/L NaCN

pH Range: 10.5-11.0 with Ca(OH)2

Grind: 15 min/1 kg @ 50% solids in ball mill (NB), K_{80}= 93 μm.

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.13
Ca(OH)2: 0.46

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Hours	NaCN	Ca(OH)2	NaCN	CaO	NaCN	CaO	NaCN	CaO	8.4
0.0 - 2.0	0.51	0.28	0.50	0.21	0.48		0.03		11.1 - 10.9
2.0 - 24.0	0.03	0.06	0.02	0.04	0.50		0.00		11.1 - 11.0
24.0 - 48.0	0.00	0.00	0.00	0.00	0.46	0.03	0.04	0.23	11.0 - 10.7
Total	0.53	0.34	0.53	0.26	0.46	0.03	0.07	0.23	

Metallurgical Balance

Product	Amount mL, g	Assays, mg/L, g/t Au	%Distribution Au
24 hr. Preg'n Sol'n	*15*	*0.39*	*75.2*
48 hr. Wash/Preg'n Sol'n	1749	0.27	92.2
48 hr. Residue	502.6	0.08	7.8
Head (calc.)	502.6	1.03	100.0
Head (direct)		1.37	

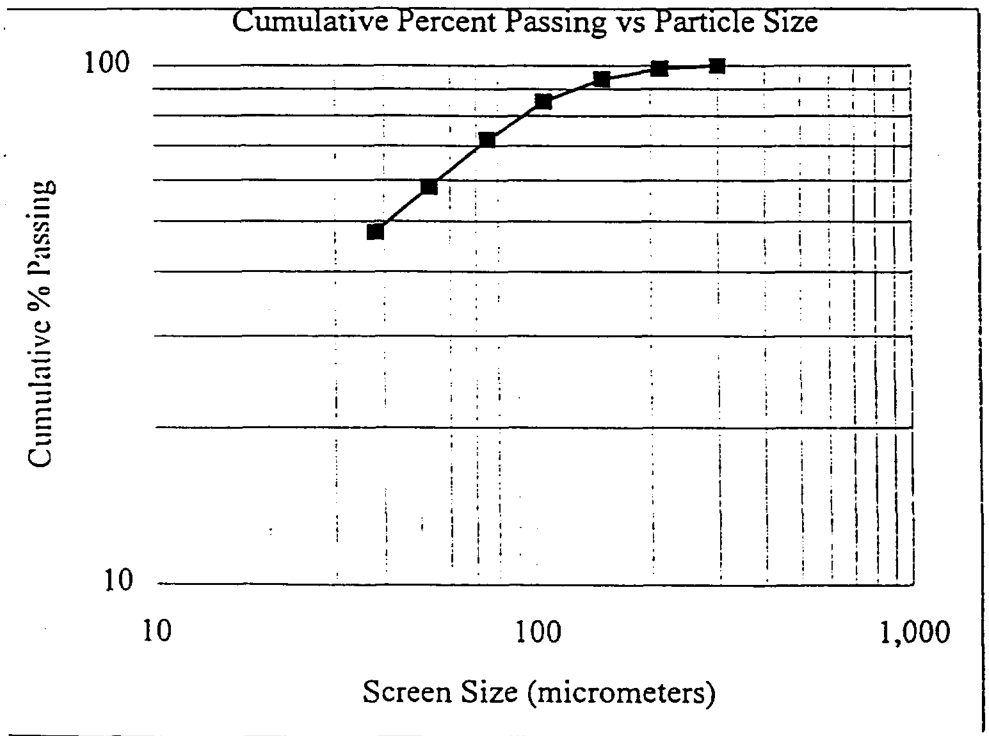
NOTE: Values in italics represent actual assays and indicated recovery at the elapsed time.

Company **Lakefield Research** **LR-5148**

Size Distribution Analysis

Sample: 48 hr Res **Test No.:** CN 03

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	2.2	1.4	1.4	98.6
100	150	7.3	4.5	5.9	94.1
150	106	14.7	9.1	14.9	85.1
200	75	21.5	13.3	28.2	71.8
270	53	22.0	13.6	41.8	58.2
400	38	17.2	10.6	52.4	47.6
Pan	-38	77.1	47.6	100.0	0.0
Total	-	**162.0**	**100.0**	-	-
K80	**93**				



Lakefield Research
Cyanidation Test

Test: CN04 **Project No: 5148** **Date: August 20, 1997** **Operator: DI**

Purpose: To investigate the effect of a coarser grind on gold extraction.

Procedure: The sample was pulped with water to 33% solids in a 2.5L bottle. Lime and NaCN were added and the cyanidation was carried out for 48 hours on mechanical rolls. A solution subsample was taken at 24 hours and assayed for Au. At the end of the leach period the pulp was filtered and the residue was washed several times. The residue and final pregnant/wash solution was submitted for Au analysis.

Feed: 491 g of -10 mesh Composite 2 Ore

Solution Volume: 1000 mL

Pulp Density: 33 % Solids

Solution Composition: 0.5 g/L NaCN

pH Range: 10.5-11.0 with Ca(OH)2

Grind: 15 min/1 kg @ 50% solids in ball mill (NB), K_{80}= 95 µm.

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.15
Ca(OH)2: 0.48

Time	Added, Grams				Residual		Consumed		
	Actual		Equivalent		Grams		Grams		pH
Hours	NaCN	Ca(OH)2	NaCN	CaO	NaCN	CaO	NaCN	CaO	8.4
0.0 - 2.0	0.51	0.32	0.50	0.24	0.48		0.03		11.1 - 10.9
2.0 - 24.0	0.03	0.03	0.02	0.02	0.48		0.03		11.1 - 11.0
24.0 - 48.0	0.03	0.00	0.02	0.00	0.48	0.03	0.02	0.24	11.0 - 10.7
Total	0.56	0.35	0.55	0.26	0.48	0.03	0.07	0.24	

Metallurgical Balance

Product	Amount mL, g	Assays, mg/L, g/t Au	%Distribution Au
24 hr. Preg'n Sol'n	*15*	*0.36*	*81.2*
48 hr. Wash/Preg'n Sol'n	1742	0.24	95.6
48 hr. Residue	490.8	0.04	4.4
Head (calc.)	490.8	0.90	100.0
Head (direct)		0.96	

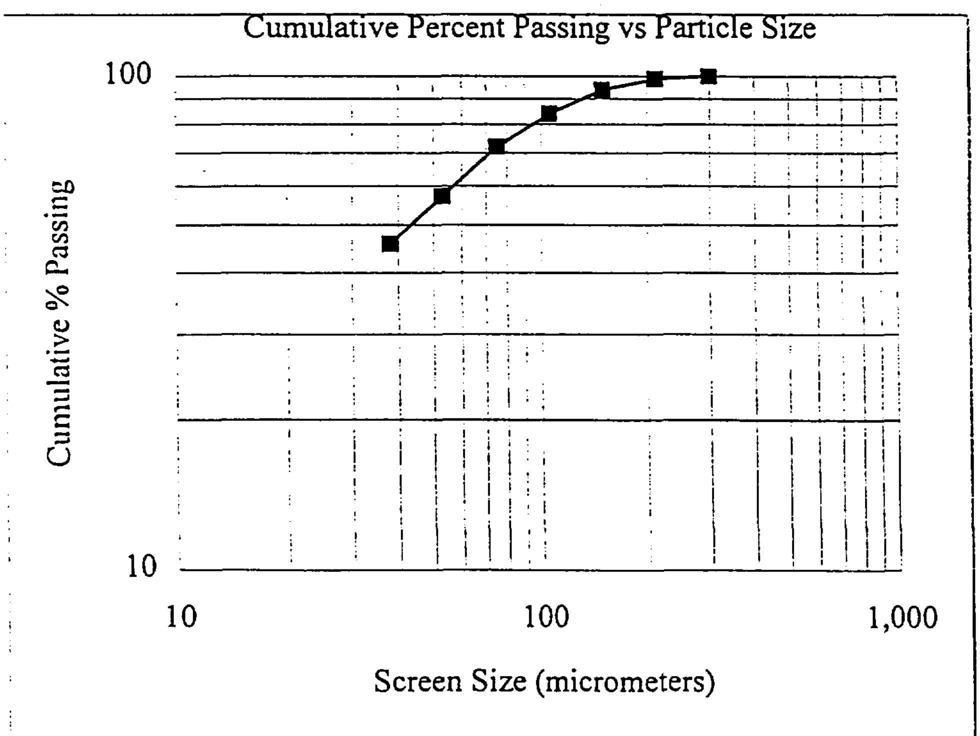
NOTE: Values in italics represent actual assays and indicated recovery at the elapsed time.

Company | **Lakefield Research** | **LR-5148**

Size Distribution Analysis

Sample: 48 hr Res **Test No.:** CN 04

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	0.0	0.0	0.0	100.0
65	212	2.3	1.4	1.4	98.6
100	150	8.0	4.8	6.2	93.8
150	106	16.5	9.9	16.1	83.9
200	75	19.8	11.9	28.0	72.0
270	53	24.9	14.9	42.9	57.1
400	38	18.9	11.3	54.2	45.8
Pan	-38	76.3	45.8	100.0	0.0
Total	-	**166.7**	**100.0**	-	-
K80	95				



Lakefield Research
Cyanidation Test

Test: CN05 **Project No: 5148** **Date: August 20, 1997** **Operator: DI**

Purpose: To investigate the effect of a coarser grind on gold extraction.

Procedure: The sample was pulped with water to 33% solids in a 2.5L bottle. Lime and NaCN were added and the cyanidation was carried out for 48 hours on mechanical rolls. A solution subsample was taken at 24 hours and assayed for Au. At the end of the leach period the pulp was filtered and the residue was washed several times. The residue and final pregnant/wash solution was submitted for Au analysis.

Feed: 502 g of -10 mesh Composite 1 Ore

Solution Volume: 1000 mL

Pulp Density: 33 % Solids

Solution Composition: 0.5 g/L NaCN

pH Range: 10.5-11.0 with $Ca(OH)_2$

Grind: 10 min/1 kg @ 50% solids in ball mill (NB), K_{80}= 132 µm.

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.13
$Ca(OH)_2$: 0.50

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Hours	NaCN	Ca(OH)2	NaCN	CaO	NaCN	CaO	NaCN	CaO	8.3
0.0 - 2.0	0.51	0.33	0.50	0.25	0.48		0.03		11.2 - 11.1
2.0 - 24.0	0.03	0.00	0.02	0.00	0.50		0.00		11.1 - 11.0
24.0 - 48.0	0.00	0.00	0.00	0.00	0.46	0.00	0.04	0.25	11.0 - 10.8
Total	0.53	0.33	0.53	0.25	0.46	0.00	0.07	0.25	

Metallurgical Balance

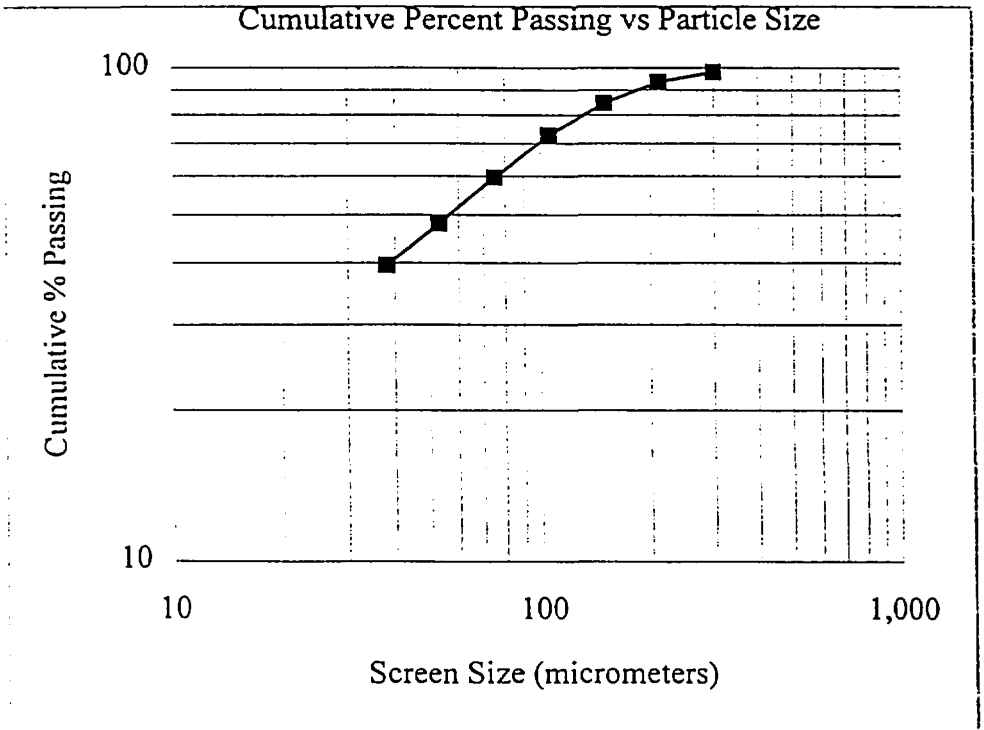
Product	Amount mL, g	Assays, mg/L, g/t Au	%Distribution Au
24 hr. Preg'n Sol'n	*15*	*0.34*	*71.2*
48 hr. Wash/Preg'n Sol'n	1750	0.25	92.6
48 hr. Residue	501.8	0.07	7.4
Head (calc.)	501.8	0.95	100.0
Head (direct)		1.37	

NOTE: Values in italics represent actual assays and indicated recovery at the elapsed time.

Company **Lakefield Research** **LR-5148**
Size Distribution Analysis

Sample: 48 hr Res **Test No.:** CN 05

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	3.6	2.0	2.0	98.0
65	212	8.0	4.5	6.5	93.5
100	150	16.1	9.0	15.5	84.5
150	106	21.1	11.8	27.3	72.7
200	75	23.3	13.0	40.4	59.6
270	53	20.7	11.6	52.0	48.0
400	38	15.2	8.5	60.5	39.5
Pan	-38	70.6	39.5	100.0	0.0
Total	-	**178.6**	**100.0**	-	-
K80	**132**				



Lakefield Research
Cyanidation Test

Test: CN06 **Project No: 5148** **Date: August 20, 1997** **Operator: DI**

Purpose: To investigate the effect of a coarser grind on gold extraction.

Procedure: The sample was pulped with water to 33% solids in a 2.5L bottle. Lime and NaCN were added and the cyanidation was carried out for 48 hours on mechanical rolls. A solution subsample was taken at 24 hours and assayed for Au. At the end of the leach period the pulp was filtered and the residue was washed several times. The residue and final pregnant/wash solution was submitted for Au analysis.

Feed: 500 g of -10 mesh Composite 2 Ore

Solution Volume: 1000 mL

Pulp Density: 33 % Solids

Solution Composition: 0.5 g/L NaCN

pH Range: 10.5-11.0 with Ca(OH)2

Grind: 10 min/1 kg @ 50% solids in ball mill (NB), K_{80}= 133 µm.

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.14
Ca(OH)2: 0.51

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Hours	NaCN	Ca(OH)2	NaCN	CaO	NaCN	CaO	NaCN	CaO	8.3
0.0 - 2.0	0.51	0.29	0.50	0.22	0.48		0.03		11.2 - 10.9
2.0 - 24.0	0.03	0.05	0.02	0.04	0.50		0.00		11.1 - 11.0
24.0 - 48.0	0.00	0.00	0.00	0.00	0.46	0.00	0.04	0.25	11.0 - 10.8
Total	0.53	0.34	0.53	0.26	0.46	0.00	0.07	0.25	

Metallurgical Balance

Product	Amount mL, g	Assays, mg/L, g/t Au	%Distribution Au
24 hr. Preg'n Sol'n	*15*	*0.29*	*76.8*
48 hr. Wash/Preg'n Sol'n	1741	0.20	93.4
48 hr. Residue	499.6	0.05	6.6
Head (calc.)	499.6	0.76	100.0
Head (direct)		0.96	

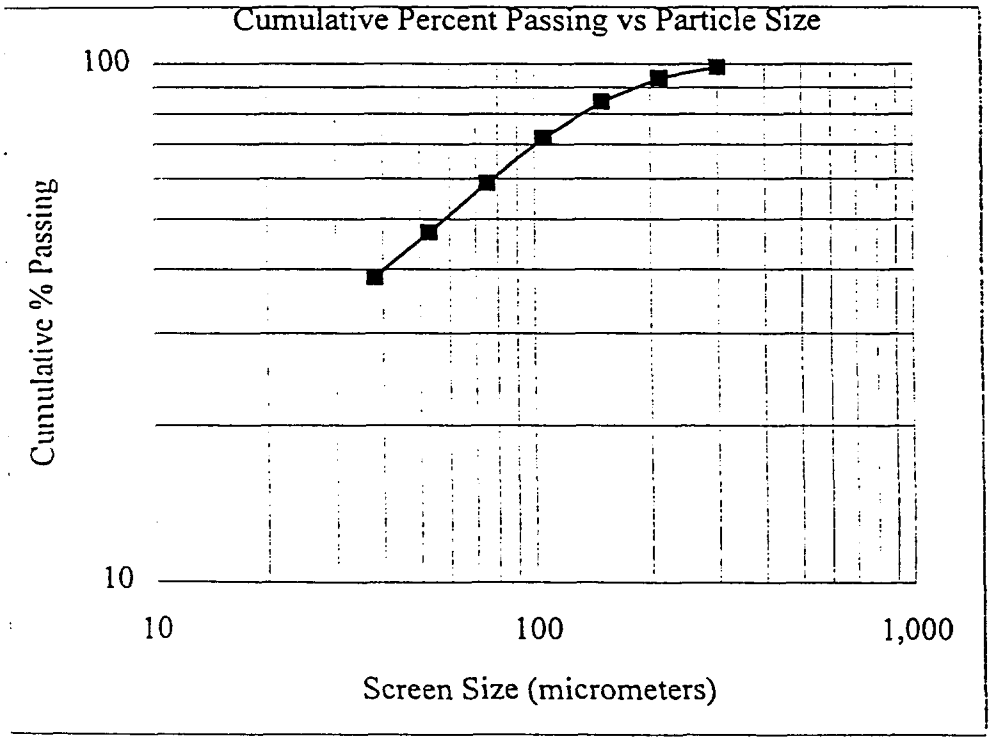
NOTE: Values in italics represent actual assays and indicated recovery at the elapsed time.

Company **Lakefield Research** **LR-5148**

Size Distribution Analysis

Sample: 48 hr Res **Test No.:** CN 06

Size		Weight	% Retained		% Passing
Mesh	µm	grams	Individual	Cumulative	Cumulative
48	300	2.8	1.6	1.6	98.4
65	212	8.0	4.6	6.2	93.8
100	150	16.6	9.5	15.6	84.4
150	106	21.6	12.3	28.0	72.0
200	75	23.2	13.2	41.2	58.8
270	53	20.3	11.6	52.8	47.2
400	38	15.2	8.7	61.5	38.5
Pan	-38	67.4	38.5	100.0	0.0
Total	-	**175.1**	**100.0**	-	-
K80	**133**				



Test No. HL1 | **Project No. 5148** | **BCB** | **July 30, 1997**

Purpose: To evaluate heap leaching of -1/2" Composite 1 ore.

Procedure: Ten kilograms of ore was placed in a 4 inch (diameter) column. Cyanide solution at pH 11.0 was pumped to the top of the column at a rate of 1.3 mL/minute. The discharging pregnant leach solution was passed through a small column containing 10g of Activated Carbon in order to recover the Au. The carbon was removed for assay and replaced with fresh carbon after 1, 3, 7, 14, and 21 days. Throughout the test, solution pH and NaCN concentrations were monitored and maintained. The test was terminated when the recovery rate had dropped to a sufficiently low or predictable predictable level. At the end of the test the column was allowed to drain and the residue was washed with fresh water. The combined barren and wash solution was collected. The barren/wash solution and the residue were submitted for Au analysis.

Feed: 10 Kg of minus 1/2" Composite 1 ore

Solution Volume: 8000 ml

Ore Height: Initial: 80.6 cm
Final: 78.7 cm

Sol'n Composition: 1.0 g/L NaCN

pH Range: 11.0 with $Ca(OH)_2$

Solution Flowrate: 1.3 mL/minute

Carbon: 10 g

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.87 CaO: 0.46

Time	Added, Grams				Residual Grams		Consumed Grams		pH
	Actual		Equivalent						
Days	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0 - 1	8.07	1.20	8.00	0.91	6.40		1.60		11.0-9.9
1 - 2	1.62	0.64	1.60	0.49	7.60		0.40		11.0-10.6
2 - 4	0.40	0.12	0.40	0.09	7.60		0.40		11.0-10.5
4 - 7	0.40	0.40	0.40	0.30	7.00		1.00		11.0-10.5
7 - 12	1.01	1.54	1.00	1.17	7.70		0.30		11.0-10.4
12 - 14	0.30	1.30	0.30	0.98	7.60		0.40		11.3-10.7
14 - 16	0.40	0.00	0.40	0.00	8.00		0.00		10.8-10.8
16 -21	0.00	0.00	0.00	0.00	7.60		0.40		10.8-10.5
21 - 28	0.40	0.23	0.40	0.17	6.80		1.20		10.8-10.5
28 - 35	1.21	0.66	1.20	0.50	6.80		1.20		10.9-10.2
35 - 42	1.21	1.31	1.20	1.00	6.24	0.99	1.77	4.63	11.1-10.3
Total	15.04	7.39	14.90	5.62	6.24	0.99	8.67	4.63	

Results.

Product	Amount g, mL	Assays, mg/L, g/t Au		% Distribution Au	Au (cum.)
Day 1 Carbon	8.9	146	1 Day Extraction =	17.3	17.3
Day 3 Carbon	10.1	73.7	3 Day Extraction =	9.9	27.3
Day 7 Carbon	10.2	69.2	7 Day Extraction =	9.4	36.7
Day 14 Carbon	10.2	66.8	14 Day Extraction =	9.1	45.8
Day 21 Carbon	10.2	39.5	21 Day Extraction =	5.4	51.1
Day 28 Carbon	10.0	30.7	28 Day Extraction =	4.1	55.2
Day 35 Carbon	10.4	22.9	35 Day Extraction =	3.2	58.4
Day 42 Carbon	10.3	16.9	42 Day Extraction =	2.3	60.7
Barren/Wash	14500.0	0.01		1.9	62.7
CN Residue	10000.0	0.28		37.3	37.3
Head (calc.)	10000.0	0.75		100.0	100.0
Head (direct)		1.37			
			Final Recovery =		62.7

Size Analysis with Assay Results:

Screen Size	Weight g	Assay A g/t	Assay B g/t	Assay Check g/t
+ 3m	5401.4	0.4	0.19	
+ 6m	1675.2	0.31	0.43	
+ 10m	879.6	0.29	0.21	
+ 35m	759.4	0.11	0.12	0.13
+ 100m	285.2	0.18	0.15	
- 100m	455.5	0.08	0.08	
Head	9456.3			0.28

Test No. HL2	Project No. 5148	BCB	July 30, 1997

Purpose: To evaluate heap leaching of -1/2" Composite 2 ore.

Procedure: Ten kilograms of ore was placed in a 4 inch (diameter) column. Cyanide solution at pH 11.0 was pumped to the top of the column at a rate of 1.3 mL/minute. The discharging pregnant leach solution was passed through a small column containing 10g of Activated Carbon in order to recover the Au. The carbon was removed for assay and replaced with fresh carbon after 1, 3, 7, 14, and 21 days. Throughout the test, solution pH and NaCN concentrations were monitored and maintained. The test was terminated when the recovery rate had dropped to a sufficiently low or predictable predictable level. At the end of the test the column was allowed to drain and the residue was washed with fresh water. The combined barren and wash solution was collected. The barren/wash solution and the residue were submitted for Au analysis.

Feed: 10 Kg of minus 1/2" Composite 2 ore

Solution Volume: 8000 ml

Ore Height: Initial: 80.7 cm; Final: 78.4 cm

Sol'n Composition: 1.0 g/L NaCN

pH Range: 11.0 with $Ca(OH)_2$

Solution Flowrate: 1.3 mL/minute

Carbon: 10 g

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.84 CaO: 0.54

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Days	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
0 - 1	8.07	1.20	8.00	0.91	6.40		1.60		11.0-9.9
1 - 2	1.62	0.64	1.60	0.49	7.60		0.40		11.0-10.6
2 - 4	0.40	0.12	0.40	0.09	7.60		0.40		11.0-10.5
4 - 7	0.40	0.40	0.40	0.30	7.00		1.00		11.0-10.5
7 - 12	1.01	1.54	1.00	1.17	7.60		0.40		11.3-10.4
12 - 14	0.40	1.23	0.40	0.94	7.90		0.10		11.3-10.7
14 - 16	0.10	0.00	0.10	0.00	8.00		0.00		10.8-10.8
16 -21	0.00	0.00	0.00	0.00	6.80		1.20		10.8-10.5
21 - 28	1.21	0.23	1.20	0.18	8.00		0.00		10.8-10.4
28 - 35	0.00	1.63	0.00	1.24	6.40		1.60		11.2-10.6
35 - 42	1.62	1.07	1.60	0.81	6.34	0.69	1.66	5.44	11.4-10.6
Total	14.84	8.07	14.70	6.13	6.34	0.69	8.37	5.44	

Results:

Product	Amount g, mL	Assays, mg/L, g/t Au		% Distribution Au	Au (cum.)
Day 1 Carbon	8.8	94.6	1 Day Extraction =	10.0	10.0
Day 3 Carbon	10.2	74.1	3 Day Extraction =	9.0	19.0
Day 7 Carbon	10.1	53.8	7 Day Extraction =	6.5	25.5
Day 14 Carbon	10.2	81.7.	14 Day Extraction =	10.0	35.5
Day 21 Carbon	10.3	40.7	21 Day Extraction =	5.0	40.5
Day 28 Carbon	10.0	26.1	28 Day Extraction =	3.1	43.6
Day 35 Carbon	10.4	19.7	35 Day Extraction =	2.5	46.1
Day 42 Carbon	10.3	15.1	42 Day Extraction =	1.9	47.9
Barren/Wash	15400.0	0.01		1.8	49.8
CN Residue	10000.0	0.42		50.2	50.2
Head (calc.)	10000.0	0.84		100.0	100.0
Head (direct)		0.96			
			Final Recovery =		49.8

Size Analysis with Assay Results

Screen Size	Weight g	Assay A g/t	Assay B g/t	Assay Check g/t
+ 3m	5667.2	0.14	0.42	
+ 6m	1683.5	1.14	1.14	
+ 10m	804.7	0.66	0.35	
+ 35m	729.4	0.1	0.09	
+ 100m	273.6	0.09	0.09	
- 100m	362	0.06	0.07	
Head	9520.4			0.42

Test No. HL3 | Project No. 5148 | BCB | August 14, 1997

Purpose: To evaluate heap leaching of agglomerated minus 6 mesh Composite 1 ore.

Procedure: Ten kilograms of ore was agglomerated with 20kg/t Portland dry cement and 0.5kg/t lime (0.66kg/t $Ca(OH)_2$). The agglomerated ore was allowed to cure for ~ 4 days. Ten kilograms of ore was placed in a 4 inch (diameter) column. Cyanide solution at pH 11.0 was pumped to the top of the column at a rate of 1.3 mL/minute. The discharging pregnant leach solution was passed through a small column containing 10g of Activated Carbon in order to recover the Au. The carbon was removed for assay and replaced with fresh carbon after 1, 3, 7, 14, and 21 days. Throughout the test, solution pH and NaCN concentrations were monitored and maintained. The test was terminated when the recovery rate had dropped to a sufficiently low or predictable predictable level. At the end of the test the column was allowed to drain and the residue was washed with fresh water. The combined barren and wash solution was collected. The barren/wash solution and the residue were submitted for Au analysis.

Feed: 10 Kg of minus 6 mesh Composite 1 ore

Solution Volume: 8000 ml — Ore Height: Initial: 106.2 cm; Final: 104 cm

Sol'n Composition: 1.0 g/L NaCN

pH Range: 11.0 with $Ca(OH)_2$

Solution Flowrate: 1.3 mL/minute

Carbon: 10 g

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.60 CaO: 0.47

Time	Added, Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Days	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
Agglomeration:		6.579		5.00					
0 - 1	8.07	1.20	8.00	0.91	8.00		0.00		11.0-11.1
1 - 3	0.00	0.00	0.00	0.00	7.20		0.80		11.1-11.5
3 -7	0.81	0.00	0.80	0.00	8.00		0.00		11.5-11.4
7 - 14	0.00	0.00	0.00	0.00	7.00		1.00		11.4-11.7
14 - 21	1.01	0.00	1.00	0.00	8.00		0.00		11.7-11.9
21 - 28	0.00	0.00	0.00	0.00	7.60		0.40		11.9-11.6
28 - 35	0.40	0.00	0.40	0.00	5.60		2.40		11.6-11.4
35 - 42	2.42	0.00	2.40	0.00	6.56	1.18	1.44	4.73	11.4-11.3
Total	12.72	7.78	12.60	5.91	6.56	1.18	6.04	4.73	

Results:

Product	Amount g, mL	Assays, mg/L, g/t Au		% Distribution Au	Au (cum.)
Day 1 Carbon	10.2	59.6	1 Day Extraction =	6.9	6.9
Day 3 Carbon	10.1	107	3 Day Extraction =	12.2	19.1
Day 7 Carbon	10.4	91.0	7 Day Extraction =	10.7	29.8
Day 14 Carbon	10.3	89.1	14 Day Extraction =	10.4	40.2
Day 21 Carbon	10.1	45.2	21 Day Extraction =	5.2	45.4
Day 28 Carbon	10.1	42.6	28 Day Extraction =	4.9	50.3
Day 35 Carbon	10.4	22.4	35 Day Extraction =	2.6	52.9
Day 42 Carbon	10.1	19.6	42 Day Extraction =	2.2	55.1
Barren/Wash	16400.0	0.01		1.9	57.0
CN Residue	10000.0	0.38		43.0	43.0
Head (calc.)	10000.0	0.88		100.0	100.0
Head (direct)		1.37			
			Final Recovery =		57.0

Size Analysis with Assay Results:

Screen Size	Weight g	Assay A g/t	Assay B g/t	Assay Check g/t
+ 1/2	7509	0.28	0.53	
+ 1/4	803.1	0.12	0.28	
+ 6m	162.1	0.32	0.62	0.73
+ 10m	189.7	0.1	0.35	
+ 35m	406.2	0.39	0.5	
+ 100m	179.7	0.2	0.16	
- 100m	250.7	0.09		
Head	9500.5			0.38

Test No. HL4	Project No. 5148	BCB	August 14, 1997

Purpose: To evaluate heap leaching of agglomerated minus 6 mesh Composite 2 ore.

Procedure: Ten kilograms of ore was agglomerated with 20kg/t Portland dry cement and 0.5kg/t lime (0.66kg/t $Ca(OH)_2$). The agglomerated ore was allowed to cure for ~ 4 days. Ten kilograms of ore was placed in a 4 inch (diameter) column. Cyanide solution at pH 11.0 was pumped to the top of the column at a rate of 1.3 mL/minute. The discharging pregnant leach solution was passed through a small column containing 10g of Activated Carbon in order to recover the Au. The carbon was removed for assay and replaced with fresh carbon after 1, 3, 7, 14, and 21 days. Throughout the test, solution pH and NaCN concentrations were monitored and maintained. The test was terminated when the recovery rate had dropped to a sufficiently low or predictable predictable level. At the end of the test the column was allowed to drain and the residue was washed with fresh water. The combined barren and wash solution was collected. The barren/wash solution and the residue were submitted for Au analysis.

Feed: 10 Kg of minus 6 mesh Composite 2 ore

Solution Volume: 8000 ml — **Ore Height:** Initial: 117.0 cm; Final: 114.1 cm

Sol'n Composition: 1.0 g/L NaCN

pH Range: 11.0 with $Ca(OH)_2$

Solution Flowrate: 1.3 mL/minute

Carbon: 10 g

Reagent Consumption (kg/t of cyanide feed) NaCN: 0.68 CaO: 0.53

Time	Added Grams				Residual		Consumed		pH
	Actual		Equivalent		Grams		Grams		
Days	NaCN	$Ca(OH)_2$	NaCN	CaO	NaCN	CaO	NaCN	CaO	
Agglomeration:		6.579		5.00					
0 - 1	8.07	1.20	8.00	0.91	8.00		0.00		11.0-11.1
1 - 3	0.00	0.00	0.00	0.00	6.80		1.20		11.1-11.4
3 - 7	1.21	0.00	1.20	0.00	7.60		0.40		11.4-11.4
7 - 14	0.40	0.00	0.40	0.00	8.00		0.00		11.4-11.6
14 - 21	0.00	0.00	0.00	0.00	8.00		0.00		11.6-12.0
21 - 28	0.00	0.00	0.00	0.00	7.20		0.80		12.0-11.8
28 - 35	0.81	0.00	0.80	0.00	5.28		2.72		11.8-11.4
35 - 42	2.75	0.00	2.72	0.00	6.35	0.60	1.65	5.31	11.4-11.3
Total	13.24	7.78	13.12	5.91	6.35	0.60	6.77	5.31	

Results:

Product	Amount g, mL	Assays, mg/L, g/t Au		% Distribution Au	Au (cum.)
Day 1 Carbon	10.0	45.9	1 Day Extraction =	6.5	6.5
Day 3 Carbon	10.1	100	3 Day Extraction =	14.2	20.7
Day 7 Carbon	10.3	103	7 Day Extraction =	14.9	35.6
Day 14 Carbon	10.3	114	14 Day Extraction =	16.5	52.1
Day 21 Carbon	10.2	52.5	21 Day Extraction =	7.5	59.7
Day 28 Carbon	10.1	25.5	28 Day Extraction =	3.6	63.3
Day 35 Carbon	10.4	19.3	35 Day Extraction =	2.8	66.1
Day 42 Carbon	10.2	13.7	42 Day Extraction =	2.0	68.1
Barren/Wash	16700.0	<0.01		2.4	70.4
CN Residue	10000.0	0.21		29.6	29.6
Head (calc.)	10000.0	0.71		100.0	100.0
Head (direct)		0.96			
			Final Recovery =		70.4

Size Analysis with Assay Results:

Screen Size	Weight g	Assay A g/t	Assay B g/t	Assay Check g/t
+ 1/2	8465.6	0.19	0.25	
+ 1/4	230.4	0.09	0.11	
+ 6m	86.7	0.05	0.06	
+ 10m	215.6	0.08	0.08	
+ 35m	380.1	0.25	0.21	
+ 100m	170.4	0.08	0.08	0.12
- 100m	318.5	0.06	0.06	0.05
Head	9867.3			0.21

CORE SAMPLE BULK DENSITY

Date 22-Jul-97
Technician D Imeson

Project Number 5148
Project Name Golden Goose
Sample Description Various Core Samples

Wax	SG	0.8913	g/cm³
Water	Temp	25	°C
	Density	0.997	g/cm³

Sample		Weight (g)			Volume (cm³)			Rock Density	
No.	Description	Dry Rock	Rock Coated with wax	Water Displacement	Rock Coated with wax	Wax	Rock	SG	Density (lbs/ft³)
1	Iron Formation	322.6	331.7	126.9	127.3	10.2	117.1	2.76	172
2	Iron Formation	299.0	304.1	113.0	113.3	5.7	107.6	2.78	173
3	Iron Formation	207.7	212.3	79.8	80.0	5.1	74.9	2.77	173
4	Iron Formation	660.5	669.4	244.4	245.1	10.0	235.1	2.81	175
5	Iron Formation	247.7	253.5	95.3	95.6	6.5	89.0	2.78	174
	Average							**2.78**	**174**
6	Granodiorite	355.4	364.1	141.3	141.7	9.8	132.0	2.69	168
7	Granodiorite	343.7	349.1	131.6	132.0	6.0	125.9	2.73	170
8	Granodiorite	323.1	329.8	127.5	127:9	7.6	120.3	2.69	168
9	Granodiorite	314.3	320.7	123.2	123.6	7.1	116.4	2.70	169
10	Granodiorite	342.4	349.3	133.8	134.2	7.8	126.4	2.71	169
	Average							**2.70**	**169**
11	Intermediate Tuff	301.8	306.0	115.1	115.4	4.7	110.7	2.73	170
12	Intermediate Tuff	233.4	236.8	89.7	90.0	3.8	86.2	2.71	169
13	Intermediate Tuff	799.1	811.9	295.4	296.3	14.4	281.9	2.83	177
14	Intermediate Tuff	335.1	341.3	128.6	129.0	7.0	122.0	2.75	172
15	Intermediate Tuff	349.7	353.9	134.1	134.5	4.8	129.7	2.70	168
	Average							**2.74**	**171**
16	Felsite	345.6	352.1	135.7	136.1	7.3	128.8	2.68	168
17	Felsite	357.8	364.5	140.5	140.9	7.5	133.4	2.68	167
18	Felsite	351.6	358.0	137.5	137.9	7.2	130.7	2.69	168
	Average							**2.69**	**168**
19	Mafic Volcanic	587.5	603.1	231.4	232.1	17.5	214.5	2.74	171
20	Mafic Volcanic	696.6	710.9	264.9	265.7	16.0	249.7	2.79	174
21	Mafic Volcanic	958.9	978.4	367.3	368.4	21.9	346.5	2.77	173
22	Mafic Volcanic	708.2	718.2	266.9	267.7	11.2	256.5	2.76	172
23A	Mafic Volcanic	347.2	354.0	130.5	130.9	7.6	123.3	2.82	176
23B	Mafic Volcanic	317.7	323.4	120.8	121.2	6.4	114.8	2.77	173
	Average							**2.77**	**173**

APPENDIX B

Metallurgical Report by Knappes, Cassiday and Associates

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Magino Project
Report of Metallurgical Tests
January 1999

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18 January 1999

Magino Project
Report of Metallurgical Tests

1.0 Summary of Laboratory Testwork

This report presents the data from metallurgical tests performed by Kappes, Cassiday & Associates (KCA) on core from the Magino project in Canada. Four (4) separate column leach tests were completed on two composites of core material. Column tests were conducted at crushed sizes of minus 22.4 and minus 9.5 millimeters.

1.1 Sample Receipt

On 17 August 1998, fourteen large bags of split NQ core were delivered to Kappes, Cassiday & Associates (KCA) in Reno, Nevada. The core samples were identified as intervals from Mafic Volcanics area and as intervals from the Granodiorite area.

The core intervals received by KCA were identified as outlined in Section 2.0.

1.2 Head Analyses

Head analyses were completed in duplicate as well as via a metallic screen assay procedure on each sample. Head screen analyses with assays being completed via a metallic screen assay procedure were also completed on a portion of the material prepared for column leach testing. Table 1-1 contains the summary of these results. For completeness, this table also includes data for the calculated head assays obtained from the metallurgical tests.

Table 1-1.
Fire Assays on Head Material and Calculated Head Results

KCA Sample No.	Magino I.D.	Average Head Assay, gms Au/MT	Metallic Head Assay, gms Au/MT	Metallic Screen Head -22.4mm, gms Au/MT	Metallic Screen Head -9.5mm, gms Au/MT	Overall Average Head, gms Au/MT
27088	Mafic Volcanics	0.88	0.85	0.93	1.64	1.08
27089	Granodiorite	0.96	0.93	1.56	1.82	1.32

KCA Sample No.	Magino I.D.	Bottle Calc. Hd., -0.150mm gms Au/MT	Bottle Calc. Hd., -9.5mm gms Au/MT	Column Calc. Hd., -22.4mm, gms Au/MT	Column Calc. Hd., -9.5mm, gms Au/MT	Overall Average Calc. Head gms Au/MT
27088	Mafic Volcanics	0.73	0.85	0.94	1.60	1.03
27089	Granodiorite	1.57	1.61	1.72	1.41	1.58

Slight variations in overall grade were obtained over the test program but do not appear to be indicative of any problem in determining gold recovery for the Magino project.

1.3 Cyanide Bottle Leach Tests

Cyanide bottle roll tests were conducted on each sample at a grind size of minus 0.15mm. Additional bottle roll tests were conducted on each sample at a crush size of minus 9.5mm, which was the same crush size as utilized for one series of column leach tests in this test program. Table 1-2 contains a summary of these test results.

Table 1-2.
Summary of Bottle Leach Tests

KCA Sample No.	KCA Test No.	Magino I.D.	Crush Size, mm	Calculated Head, gms Au/MT	Average Tail, gms Au/MT	Metal Extracted, % Au	Days Leaching
27088	27116 A	Mafic Volcanics	-0.150	0.73	0.05	93.2	2
27088 B	27116 C	Mafic Volcanics	-9.5	0.85	0.54	36.5	4
27089	27116 B	Grandiorite	-0.150	1.57	0.05	96.8	2
27089 C	27185 A	Granodiorite	-9.5	1.61	1.12	30.4	4
		Average -	-0.150			95.0	2
		Average -	-9.5			33.5	4

The bottle leach tests indicated that both samples were amenable to cyanidation at a grind size of less than 0.15mm.

1.4 Cyanide Column Leach Tests

Column leach tests were initiated on both composite samples received from the Magino project. Tests were run at two separate crushed sizes: minus 22.4 and 9.5 millimeters. Results of the leach tests were summarized in Table 1-4.

Table 1-4.
Summary of Column Leach Tests

KCA Sample No.	KCA Test No.	Magino I.D.	Crush Size, mm	Days Leach	Calc. Head, gms Au/MT	Recovery, gms Au/MT	Recovery, %
27088 A	27120	Mafic Volcanics	- 22.4	63	0.94	0.35	37.2
27088 B	27123	Mafic Volcanics	- 9.5	63	1.60	0.79	49.5
27089 B	27126	Granodiorite	- 22.4	63	1.72	0.56	32.5
27088 C	27129	Granodiorite	- 9.5	63	1.41	0.79	56.0
		Average	- 22.4	63			34.9
		Average	- 9.5	63			52.8

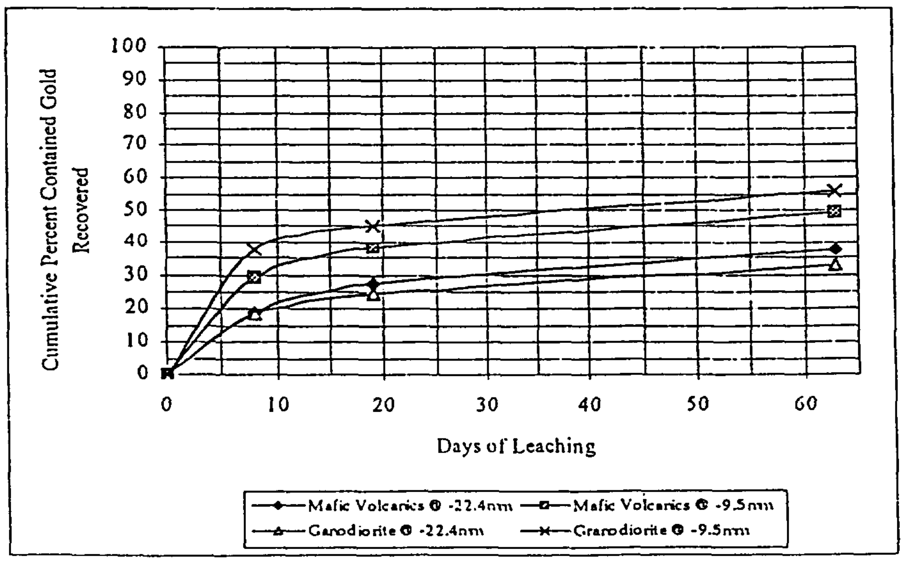
In order to determine if finer crushing would possibly increase the overall gold recovery achieved via column leaching, an analysis was conducted comparing the head and tail assays. Table 1-5 contains the data resulting from this analysis.

Table 1-5.
Results of Head vs. Tail Analysis
Cumulative Percent Gold Recovered

Crush Size, mm	Volcanic Mafics @ - 22.4mm	Volcanic Mafics @ - 9.5mm	Expected Recovery Mafic Volcanics	Granodiorite @ -22.4mm	Granodiorite @ -9.5mm	Expected Recovery Granodiorite	Overall Expected Recovery, %
- 22.4	32.5		33.	28.3		28.	30.
- 19.0	29.3		29.	33.5		34.	31.
- 12.5	26.0		26.	44.0		44.	35.
- 9.5	37.0	31.1	34.	62.9	59.6	61.	43.
- 6.3	46.4	38.3	42.	79.7	62.3	71	57.
- 4.75		49.5	50.		74.4	74.	62.
- 3.35	78.8	55.4	67.	81.7	68.9	75.	71.
- 1.70	84.4	87.4	86.	88.5	89.4	89.	87.
- 0.60	94.1	98.3	96.	95.6	94.1	95.	96.
- 0.212		97.9	98.		97.1	97.	98.
KCA Test No.	27120	27123		27126	27129		
Actual Column Recovery, % Au	37.2	49.5		32.5	56.0		

Results of the column leach tests were shown graphically in Figure 1-1.

Figure 1-1.
Column Test Program



Based upon the samples submitted by the client, KCA can estimate gold recovery for an orebody based upon the assumption that the orebody is similar to the samples tested. For feasibility study purposes, KCA normally discounts laboratory gold recoveries by three to five percent when estimating field recoveries.

Gold recovery from the column test completed on the Mafic Volcanic material at a crushed size of minus 9.5 millimeters indicated a calculated recovery of 49.5%. We would expect that field recovery from this material would average 45% if the heaps and material were managed correctly.

Gold recovery from the column test completed on the Granodiorite material at a crushed size of minus 9.5 millimeters indicated a calculated recovery of 56%. We would expect that field recovery from this material would average 51% if the heaps and material were managed correctly.

An evaluation of the head versus tails screen analysis for these column tests (Table 1-5) indicates that a higher gold recovery could be achieved with finer crushing. The analysis indicates that a gold recovery of approximately 80% could be achieved from the Mafic Volcanic material by crushing to minus 1.70 millimeters. A similar analysis for the Granodiorite material indicates that a gold recovery of approximately 84% could be achieved by crushing the material to minus 1.70 millimeters.

Crushing the material to this size would require four stages of crushing, most likely with the introduction of a fourth stage impact crusher (i.e. vertical shaft impact crusher).

Based upon KCA's experience with mostly clean non-reactive ores, cyanide consumption in production heaps is usually only 30 percent of laboratory column test consumptions. Hydrated lime additions in production heaps should be similar to those observed for laboratory tests. Sodium cyanide, cement and lime requirements for the material will have to be examined further if the material is to be treated at crushed sizes of less than 9.5 millimeters.

Table 1-6 contains a summary of the metallurgical tests. Recovery results contained in the body of this report were based upon carbon assays vs. the calculated head (carbon assays plus the weighted average tail assays). Recovery results contained in the attached appendix were based upon the daily solution assays vs. the calculated head (solution assays plus the weighted average tailings assays).

Table 1-6.
Magino Project
Summary of Metallurgical Tests

KCA Sample No.	Test Type	Magino I.D.	KCA Test No.	Average Head, Au g/MT	Metallic Head, Au g/MT	Wt., Avg. Screen, Au g/MT	Calculated Head, Au g/MT	Recov., Au g/MT	Tails, Au g/MT	Recov., % Au	Sample Weight, kg	Crush Size, mm	Leach Time, days	Cons. NaCN, kg/MT	Added $Ca(OH)_2$, kg/MT
27088	Bottle	Mafic Volcanic	27116 A	0.88	0.85	--	0.73	0.68	0.05	93.2	0.50	-0.150	2	0.49	1.00
27088 B	Bottle	Mafic Volcanic	27116 B	--	--	--	0.85	0.31	0.54	36.5	1.00	-9.5	4	0.12	0.50
27088 A	Column	Mafic Volcanic	27120	--	--	0.93	0.94	0.35	0.59	37.2	20.00	-22.4	63	0.60	0.50
27088 B	Column	Mafic Volcanic	27123	--	--	1.64	1.60	49.5	0.81	49.5	20.00	-9.5	63	0.70	0.50
27089	Bottle	Granodiorite	27116 B	0.96	1.03	--	1.57	1.52	0.05	96.8	0.50	-0.150	2	0.45	0.80
27089 C	Bottle	Granodiorite	27185 A	--	--	--	1.61	0.49	1.12	30.4	1.00	-9.5	4	0.23	0.30
27089 B	Column	Granodiorite	27126	--	--	1.56	1.72	0.56	1.16	32.5	40.00	-22.4	63	0.55	0.50
27089 C	Column	Granodiorite	27129	--	--	1.82	1.41	0.79	0.62	56.0	40.00	-9.5	63	0.54	0.50

2.0 Sample Receipt

On 17 August 1998, fourteen large bags of split NQ core were delivered to Kappes, Cassiday & Associates (KCA) in Reno, Nevada. The core samples were identified as intervals from Mafic Volcanics area and as intervals from the Granodiorite area.

In general, the core material received was gray to white in color with some black discoloration. The core appeared competent and did not breakdown easily by hand. The material did not break down when immersed in water.

Table 2-1.
Magino Project
Mafic Volcanics
Outline of Core Samples Received

Hole No.	Sample No.	From Feet	To Feet	Length Feet	Weight, kg	Assay, gms Au/MT
97-03	7523	206.69	209.97	3.28	2.12	2.71
	7524	209.97	213.25	3.28	2.14	0.44
97-04	7717	147.64	150.92	3.28	1.96	0.58
	7718	150.92	154.20	3.28	2.10	0.01
	7721	160.76	164.04	3.28	2.08	0.64
	7722	164.04	167.32	3.28	1.86	0.76
	7723	167.32	170.80	3.28	1.74	0.11
	7724	170.60	173.88	3.28	2.32	1.03
	7725	173.88	177.16	3.28	2.04	0.93
	7726	177.16	180.44	3.28	2.06	0.01
	7727	180.44	183.72	3.28	2.14	2.26
	7734	203.41	206.69	3.28	2.18	2.47
	7735	206.69	209.97	3.28	2.18	2.82
	7747	246.06	249.34	3.28	2.24	1.08
	7748	249.34	252.62	3.28	2.42	0.22
	7749	252.62	254.92	2.30	1.42	3.68
97-05	7965	85.30	88.58	3.28	1.96	0.41
	7966	88.58	91.86	3.28	2.10	0.51
	7967	91.66	95.14	3.28	1.94	7.16
	7968	95.14	97.44	2.30	1.38	3.02
97-10	8892	403.64	405.18	1.64	2.04	10.42
	8895	406.82	410.10	3.28	2.40	0.38
	8896	410.10	413.38	3.28	2.12	0.41
	8897	413.38	416.66	3.28	2.28	0.16
	8898	416.66	419.94	3.28	2.26	0.78

Table 2-2.
Magino Project
Granodiorite
Outline of Core Samples Received

Hole No.	Sample No.	From Feet	To Feet	Length Feet	Weight, kg	Assay, gms Au/MT
97-01	7108	472.44	476.72	3.28	2.08	0.52
	7109	475.72	479.00	3.28	2.16	0.47
	7110	479	482.28	3.28	2.20	1.61
	7111	482.28	485.56	3.28	2.10	1.2
	7112	485.56	488.84	3.28	2.06	0.54
	7113	488.84	492.12	3.28	2.04	0.89
	7114	492.12	485.40	3.28	2.14	0.14
	7115	495.4	498.68	3.28	1.90	7.37
	7116	498.68	501.96	3.28	2.28	0.4
	7117	501.96	505.24	3.28	1.98	0.71
	7118	505.24	508.52	3.28	1.98	0.37
	7119	508.52	511.80	3.28	2.02	0.2
	7120	511.8	515.08	3.28	2.14	0.15
	7121	615.08	518.36	3.28	2.16	2.27
	7122	518.36	521.64	3.28	2.04	11.43
	7123	521.64	524.92	3.28	2.26	0.59
	7124	524.92	528.20	3.28	1.88	0.68
	7125	528.2	531.48	3.28	2.04	2.37
	7126	531.48	534.76	3.28	2.10	2.26
	7127	534.76	538.04	3.28	1.90	0.69
	7128	638.04	541.32	3.28	2.00	1.21
97-02	7308	311.68	314.96	3.28	1.94	1.1
	7309	314.96	316.80	1.64	1.02	1.16
	7312	318.24	321.52	3.28	2.08	0.16
	7313	321.52	324.80	3.28	2.14	0.02
	7314	324.8	328.08	3.28	2.06	1.56
	7315	328.08	331.36	3.28	2.00	4.15
97-04	7788	380.57	383.85	3.28	1.92	2.3
	7789	383.85	387.13	3.28	2.06	2.47
	7790	387.13	390.41	3.28	2.22	3.27
	7791	390.41	383.69	3.28	2.10	0.57
	7792	393.69	396.97	3.28	2.02	0.48
	7793	396.97	400.25	3.28	2.12	6.47
	7794	400.26	403.53	3.28	1.98	0.49
	7795	403.63	406.81	3.28	2.10	0.24
	7796	406.81	410.09	3.28	2.28	0.68
	7797	410.09	413.37	3.28	2.00	0.17
	7798	413.37	418.65	3.28	2.08	0.22
	7799	416.65	419.93	3.28	2.10	0.62
	7800	419.93	423.21	3.28	2.00	0.68

Table 2-3.
Magino Project
Granodiorite
Outline of Core Samples Received

Hole No.	Sample No.	From Feet	To Feet	Length Feet	Weight, kg	Assay, gms Au/MT
97-05	7969	97.44	101.70	4.26	2.52	5.76
	7970	101.7	104.98	3.28	2.48	2.16
	7971	104.98	108.26	3.28	2.22	1.99
	7972	108.28	111.54	3.28	2.18	0.38
	7973	111.54	114.82	3.28	1.88	0.21
	7974	114.82	118.10	3.28	2.12	0.25
	7976	118.1	121.38	3.28	1.72	1.26
	7978	121.38	124.68	3.28	1.96	0.65
97-06	8285	236.22	239.50	3.28	2.30	1.165
	8286	239.5	242.78	3.28	1.98	0.22
	8287	242.78	246.06	3.28	2.04	0.54
	8288	246.06	249.34	3.28	2.06	8.34
	8289	249.34	252.62	3.28	2.16	0.83
	8290	252.82	255.90	3.28	2.48	0.76
	8291	255.9	269.18	3.28	2.36	2.74
	8292	259.18	262.46	3.28	1.62	3.19
	8293	282.46	265.74	3.28	1.84	0.03
	8294	265.74	269.02	3.28	1.78	0.04
	8295	269.02	272.30	3.28	2.08	0.39
	8296	272.3	275.58	3.28	2.16	0.6
	8297	275.58	276.86	3.28	2.06	0.35
	8298	278.86	282.14	3.28	2.04	0.19
	8299	282.14	285.42	3.28	2.02	0.02
	8301	285.42	288.70	3.28	2.00	0.77
97-07	8362	252.62	255.90	3.28	2.08	1.3
	8363	255.9	259.18	3.28	2.02	0.53
	8364	259.18	262.46	3.28	2.24	6.52
	8365	262.46	265.74	3.28	2.12	0.13
	8365	265.74	269.02	3.28	1.94	0.73
97-10	8803	134.61	137.79	3.28	2.18	0.99
	8804	137.79	141.07	3.28	2.34	0.19
	8805	141.07	144.35	3.28	2.26	1.07
	8806	144.35	147.63	3.28	2.10	1.83
	8807	147.63	150.91	3.28	2.34	3.04
	8808	150.91	154.19	3.28	2.10	1.28
97-09	5611	354.24	357.52	3.28	2.20	0.01
	5612	357.52	360.80	3.28	2.32	0.06
	5613	360.80	364.08	3.28	2.50	0.18
	5614	364.08	367.36	3.28	2.38	0.13
	5615	367.36	370.64	3.28	2.34	5.70
	5616	370.64	373.92	3.28	2.24	0.01
	5617	373.92	377.20	3.28	2.46	0.04

3.0 Sample Preparation

3.1 Mafic Volcanics Composite

Each individual sample identified as part of the Mafic Volcanic zone was weighed and then combined into a single composite sample (KCA Composite Sample No. 27088).

The composite sample was then prepared as follows:

1. The composite was stage crushed to minus 22.4mm.

2. The crushed material was coned three times and then quartered.

3. Two opposite quarters were combined and screened and size adjusted, as necessary, to obtain a standard crushed product. After size adjustment, the material was blended and a 20-kilogram portion was split out and the remainder was utilized for a head screen analysis. The material for head screen analysis was screened at 22.4, 19.0, 12.5, 9.5, 6.3, 3.35, 1.70 and 0.60mm. Each size fraction was weighed and then assayed for gold and silver.

4. The remaining two quarters were combined and stage crushed to minus 9.5mm. The crushed product was size adjusted, as necessary, to obtain a standard crushed product. After size adjustment, the material was blended, a 20-kilogram portion and a 3-kilogram portion were split out and the remainder was utilized for a head analysis. The material for head screen analysis was screened at 9.5, 6.3, 4.75, 3.35, 1.70 and 0.60mm. Each size fraction was weighed and then assayed for gold and silver. The material for the head analysis was blended and a 1,000-gram portion was split out for a coarse bottle leach test. The remainder was crushed to minus 1.70mm. From the minus 1.70mm material, two portions weighing 500-grams and one portion weighing 1,000-grams were split out and pulverized. From each of the 500-gram pulverized portions a pulp was cut out and submitted for assay of gold and silver. From the 1,000-gram portion, a 500-gram split was taken and utilized for a bottle leach test.

3.2 Granodiorite Composite

Each individual sample identified as part of the Granodiorite zone was weighed and then combined into a single composite sample (KCA Composite Sample No. 27089).

The composite sample was then prepared as follows:

1. The composite was stage crushed to minus 22.4mm.

2. The crushed material was coned three times and then quartered. One quarter was selected and stored.

3. The remaining three-quarters were combined, coned three times and then quartered.

4. Two opposite quarters were combined and screened and size adjusted, as necessary, to obtain a standard crushed product. After size adjustment, the material was blended and a 40-kilogram portion was split out and the remainder was utilized for a head screen analysis. The material for head screen analysis was screened at 22.4, 19.0, 12.5, 9.5, 6.3, 3.35, 1.70 and 0.60mm. Each size fraction was weighed and then assayed for gold and silver.

5. The remaining two quarters were combined and stage crushed to minus 9.5mm. The crushed product was size adjusted, as necessary, to obtain a standard crushed product. After size adjustment, the material was blended, a 20-kilogram portion and a 3-kilogram portion were split out and the remainder was utilized for a head analysis. The material for head screen analysis was screened at 9.5, 6.3, 4.75, 3.35, 1.70 and 0.60mm. Each size fraction was weighed and then assayed for gold and silver. The material for the head analysis was blended and a 1,000-gram portion was split out for a coarse bottle roll leach test. The remainder was crushed to minus 1.70mm. From the minus 1.70mm material, two portions weighing 500-grams and one portion weighing 1,000-grams were split out and pulverized. From each of the 500-gram pulverized portions a pulp was cut out and submitted for assay of gold and silver. From the 1,000-gram portion, a 500-gram split was taken and utilized for a bottle leach test.

4.0 Head Analyses

4.1 Precious Metal Analyses

Head analyses were completed in duplicate as well as via a metallic screen assay procedure on each sample. Tables 4-1 and 4-2 contain a summary of the results of these analyses.

Table 4-1.
Head Assays

KCA Sample No.	Magino Identification	Fire Assay Au, g/MT	Average Au, g/MT	Fire Assay Ag, g/MT	Average Ag, g/MT
27088	Mafic Volcanics	0.79	0.88	<1.7	<1.7
		0.96		<1.7	
27089	Granodiorite	0.96	0.96	2.1	3.6
		0.96		5.1	

Table 4-2.
Metallic Screen Analysis

KCA Sample No	Magino Identification	Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
27088	Mafic Volcanics	+0.106	73.33	12.89	0.55	0.55	<1.7	<1.7
		-0.106	495.40	87.11	0.89	0.89	<1.7	<1.7
					0.89		<1.7	
		Total:	568.73	100.00				
		Wt Avg.:				0.85		<1.7

KCA Sample No	Magino Identification	Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
27089	Granodiorite	+0.106	86.34	13.19	0.34	0.34	<1.7	<1.7
		-0.106	568.10	86.81	1.34	1.14	<1.7	2.6
					1.37		3.8	
					0.75		--	
					1.10		--	
		Total:	654.44	100.00				
		Wt Avg.:				1.03		2.4

Head screen analyses with metallic screen assays on each size fraction were conducted on each column feed sample. Table 4-3 summarizes the results of these analyses.

Table 4-3.
Precious Metal Head Screen Analyses

KCA Sample No.	Magino I.D.	Crush Size, Mm	Screen Average, gms Au/MT	Screen Average, gms Ag/MT
27088 A	Mafic Volcanics	-22.4	0.93	<1.7
27088 B	Mafic Volcanics	-9.5	1.64	<1.7
27089 B	Granodiorite	-22.4	1.56	<1.7
27089 C	Granodiorite	-9.5	1.82	<1.7

Tables 4-4 through 4-11 contain the complete results of the screen analyses with assays by size fraction for the two crush sizes utilized for the column leach tests in this test program.

Table 4-4.
Magino Project
Mafic Volcanics Composite
KCA Sample No. 27088 A
Minus 22.4 Millimeter Crushed Material
Head Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-22.4 +19.0	+0.106	59.86	9.38	0.45	0.45	<1.7	<1.7
	-0.106	578.55	90.62	0.55	0.57	<1.7	<1.7
				0.58		<1.7	
	Total:	638.41	100.00				
	Wt. Avg.:				0.56		<1.7
-19.0 +12.5	+0.106	67.32	8.01	2.67	2.67	<1.7	<1.7
	-0.106	773.08	91.99	1.75	1.68	<1.7	<1.7
				1.61		<1.7	
	Total:	840.40	100.00				
	Wt. Avg.:				1.76		<1.7
-12.5 +9.5	+0.106	58.27	7.59	1.17	1.17	<1.7	<1.7
	-0.106	709.29	92.41	0.89	0.81	<1.7	<1.7
				0.72		<1.7	
	Total:	767.56	100.00				
	Wt. Avg.:				0.84		<1.7
-9.5 +6.3	+0.106	60.36	9.25	0.69	0.69	<1.7	<1.7
	-0.106	592.50	90.75	0.79	0.74	<1.7	<1.7
				0.69		<1.7	
	Total:	652.86	100.00				
	Wt. Avg.:				0.74		<1.7
-6.3 +3.35	+0.106	56.00	14.06	0.31	0.31	<1.7	<1.7
	-0.106	342.26	85.94	0.27	0.29	<1.7	<1.7
				0.31		<1.7	
	Total:	398.26	100.00				
	Wt. Avg.:				0.29		<1.7
-3.35 +1.70	+0.106	42.29	17.75	1.27	1.27	<1.7	<1.7
	-0.106	195.93	82.25	0.65	0.65	<1.7	<1.7
				0.65		<1.7	
	Total:	238.22	100.00				
	Wt. Avg.:				0.76		<1.7
-1.70 +0.600	+0.106	19.93	11.13	0.99	0.99	<1.7	<1.7
	-0.106	159.13	88.87	0.62	0.67	<1.7	<1.7
				0.72		<1.7	
	Total:	179.06	100.00				
	Wt. Avg.:				0.91		<1.7
-0.600	+0.106	23.99	10.56	1.58	1.58	<1.7	<1.7
	-0.106	203.18	89.44	1.20	1.13	<1.7	<1.7
				1.06		<1.7	
	Total:	227.17	100.00				
	Wt. Avg.:				1.18		<1.7

Table 4-5.
Magino Project
Mafic Volcanics Composite
KCA Sample No. 27088 B
Minus 9.5 Millimeter Crushed Material
Head Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-9.5 +6.3	+0.106	31.88	5.52	1.03	1.03	<1.7	<1.7
	-0.106	545.48	94.48	0.75	0.87	<1.7	<1.7
				0.99		<1.7	
	Total:	577.36	100.00				
	Wt. Avg.:				0.88		<1.7
-6.3 +4.75	+0.106	31.07	6.31	2.37	2.37	<1.7	<1.7
	-0.106	461.30	93.69	0.51	0.50	<1.7	<1.7
				0.48		<1.7	
	Total:	492.37	100.00				
	Wt. Avg.:				0.62		<1.7
-4.75 +3.35	+0.106	15.76	3.57	5.83	5.83	<1.7	<1.7
	-0.106	425.25	96.43	0.48	0.48	<1.7	<1.7
				0.48		<1.7	
	Total:	441.01	100.00				
	Wt. Avg.:				0.67		<1.7
-3.35 +1.70	+0.106	31.18	5.85	1.30	1.30	1.7	1.7
	-0.106	502.22	94.15	0.72	0.76	<1.7	<1.7
				0.79		<1.7	
	Total:	533.40	100.00				
	Wt. Avg.:				0.79		<1.7
-1.70 +0.600	+0.106	38.22	10.21	1.71	1.71	<1.7	<1.7
	-0.106	336.28	89.79	0.93	0.84	<1.7	<1.7
				0.75		<1.7	
	Total:	374.50	100.00				
	Wt. Avg.:				0.93		<1.7
-0.600 +0.212	+0.106	23.87	13.40	83.08	83.08	<1.7	<1.7
	-0.106	154.28	86.60	1.30	1.20	<1.7	<1.7
				1.10		<1.7	
	Total:	178.15	100.00				
	Wt. Avg.:				12.17		<1.7
-0.212	+0.106	25.38	8.27	8.74	8.74	<1.7	<1.7
	-0.106	281.34	91.73	1.68	1.75	<1.7	<1.7
				1.82		<1.7	
	Total:	306.72	100.00				
	Wt. Avg.:				2.33		<1.7

Table 4-6.
Magino Project
Granodiorite Composite
KCA Sample No. 27089 B
Minus 22.4 Millimeter Crushed Material
Head Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-22.4 +19.0	+0.106	40.49	7.99	0.31	0.31	<1.7	<1.7
	-0.106	466.07	92.01	0.27	0.28	<1.7	<1.7
				0.31		<1.7	<1.7
				0.27		<1.7	
	Total:	506.56	100.00				
	Wt. Avg.:				0.28		<1.7
-19.0 +12.5	+0.106	48.33	9.22	6.21	6.21	<1.7	<1.7
	-0.106	475.68	90.78	2.81	2.68	<1.7	<1.7
				2.54		<1.7	
	Total:	524.01	100.00				
	Wt. Avg.:				3.01		<1.7
-12.5 +9.5	+0.106	37.57	7.06	2.67	2.67	<1.7	<1.7
	-0.106	494.32	92.94	0.75	0.81	<1.7	<1.7
				0.86		<1.7	
	Total:	531.89	100.00				
	Wt. Avg.:				0.94		<1.7
-9.5 +6.3	+0.106	39.60	7.47	2.09	2.09	<1.7	<1.7
	-0.106	490.53	92.53	1.34	1.36	<1.7	<1.7
				1.37		<1.7	
	Total:	530.13	100.00				
	Wt. Avg.:				1.41		<1.7
-6.3 +3.35	+0.106	42.49	7.72	1.61	1.61	<1.7	<1.7
	-0.106	507.90	92.28	1.78	1.56	<1.7	<1.7
				1.34		<1.7	
	Total:	550.39	100.00				
	Wt. Avg.:				1.56		<1.7
-3.35 +1.70	+0.106	43.53	8.49	0.69	0.69	<1.7	<1.7
	-0.106	468.95	91.51	1.10	0.98	<1.7	<1.7
				0.86		<1.7	
	Total:	512.48	100.00				
	Wt. Avg.:				0.96		<1.7
-1.70 +0.600	+0.106	41.62	8.23	2.06	2.06	<1.7	<1.7
	-0.106	463.97	91.77	1.10	1.03	<1.7	<1.7
				0.96		<1.7	
	Total:	505.59	100.00				
	Wt. Avg.:				1.11		<1.7
-0.600	+0.106	52.63	9.82	3.29	3.29	<1.7	<1.7
	-0.106	483.23	90.18	2.33	2.44	<1.7	<1.7
				2.57		<1.7	<1.7
				2.43		<1.7	
	Total:	535.86	100.00				
	Wt. Avg.:				2.52		<1.7

Table 4-7.
Magino Project
Granodiorite Composite
KCA Sample No. 27089 C
Minus 9.5 Millimeter Crushed Material
Head Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-9.5 +6.3	+0.106	46.29	8.67	3.98	3.98	<1.7	<1.7
	-0.106	487.89	91.33	1.99	2.04	<1.7	<1.7
				2.09		<1.7	
	Total:	534.18	100.00				
	Wt. Avg.:				2.21		<1.7
-6.3 +4.75	+0.106	37.81	7.53	1.03	1.03	<1.7	<1.7
	-0.106	464.22	92.47	1.23	1.14	<1.7	<1.7
				1.17		<1.7	<1.7
				1.03		<1.7	
	Total:	502.03	100.00				
	Wt. Avg.:				1.13		<1.7
-4.75 +3.35	+0.106	50.07	8.89	3.43	3.43	<1.7	<1.7
	-0.106	513.43	91.11	2.06	2.98	<1.7	<1.7
				1.89		<1.7	
	Total:	563.50	100.00				
	Wt. Avg.:				3.02		<1.7
-3.35 +1.70	+0.106	42.67	8.18	3.33	3.33	1.7	1.7
	-0.106	479.00	91.82	1.20	1.12	<1.7	<1.7
				1.03		<1.7	
	Total:	521.67	100.00				
	Wt. Avg.:				1.30		<1.7
-1.70 +0.600	+0.106	30.36	5.96	6.51	6.51	<1.7	<1.7
	-0.106	479.10	94.04	1.34	1.34	<1.7	<1.7
				1.34		<1.7	
	Total:	509.46	100.00				
	Wt. Avg.:				1.65		<1.7
-0.600 +0.212	+0.106	39.57	7.59	1.96	1.96	<1.7	<1.7
	-0.106	481.84	92.41	1.47	1.44	<1.7	<1.7
				1.41		<1.7	
	Total:	521.41	100.00				
	Wt. Avg.:				1.48		<1.7
-0.212	+0.106	35.64	6.82	2.82	2.82	<1.7	<1.7
	-0.106	486.63	93.18	2.30	2.39	<1.7	<1.7
				2.40		<1.7	<1.7
				2.47		<1.7	
	Total:	522.27	100.00				
	Wt. Avg.:				2.42		<1.7

Table 4-8.
Magino Project
Mafic Volcanics Composite
Minus 22.4 Millimeter Crushed Material
KCA Sample No. 27088 A
Head Screen Analysis and Assays

Size Fraction, mm	Weight, grams	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-22.4 +19.0	648.04	16.23	100.00	0.56	9.81	100.00	<1.7
-19.0 +12.5	849.62	21.28	83.77	1.76	40.41	90.19	<1.7
-12.5 +9.5	761.30	19.07	62.49	0.84	17.28	49.78	<1.7
-9.5 +6.3	664.40	16.65	43.42	0.74	13.30	32.50	<1.7
-6.3 +3.35	405.99	10.17	26.77	0.29	3.18	19.20	<1.7
-3.35 +1.70	243.30	6.10	16.60	0.76	5.00	16.02	<1.7
-1.70 +0.600	184.78	4.63	10.50	0.71	3.55	11.02	<1.7
-0.600	234.38	5.87	5.87	1.18	7.47	7.47	<1.7
Total:	3991.81	100.00			100.00		
Wt Average:				0.93			<1.7

Table 4-9.
Magino Project
Mafic Volcanics Composite
Minus 9.5 Millimeter Crushed Material
KCA Sample No. 27088 B
Head Screen Analysis and Assays

Size Fraction, mm	Weight, grams	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-9.5 +6.3	589.62	19.96	100.00	0.88	10.73	100.00	<1.7
-6.3,+4.75	498.90	16.88	80.04	0.62	6.39	89.27	<1.7
-4.75 +3.35	450.40	15.24	63.16	0.67	6.24	82.88	<1.7
-3.35 +1.70	539.18	18.25	47.92	0.79	8.80	76.64	<1.7
-1.70 +0.600	385.41	13.04	29.67	0.93	7.41	67.84	<1.7
-0.600 +0.212	180.83	6.12	16.63	12.17	45.48	60.43	<1.7
-0.212	310.67	10.51	10.51	2.33	14.95	14.95	<1.7
Total:	2955.01	100.00			100.00		
Wt Average:				1.64			<1.7

Table 4-10.
Magino Project
Granodiorite Composite
Minus 22.4 Millimeter Crushed Material
KCA Sample No. 27089 B
Head Screen Analysis and Assays

Size Fraction, mm	Weight, kilograms	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-22.4 +19.0	1.90	12.94	100.00	0.28	2.32	100.00	<1.7
-19.0 +12.5	3.35	22.82	87.06	3.01	43.92	97.68	<1.7
-12.5 +9.5	3.23	22.00	64.24	0.94	13.22	53.76	<1.7
-9.5 +6.3	2.40	16.35	42.24	1.41	14.74	40.54	<1.7
-6.3 +3.35	1.67	11.38	25.89	1.56	11.35	25.80	<1.7
-3.35 +1.70	0.80	5.45	14.51	0.96	3.35	14.45	<1.7
-1.70 +0.600	0.57	3.88	9.06	1.11	2.75	11.10	<1.7
-0.600	0.76	5.18	5.18	2.52	8.35	8[illegible].35	<1.7
Total:	14.68	100.00			100.00		
Wt Average:				1.56			<1.7

Table 4-11.
Magino Project
Granodiorite Composite
Minus 9.5 Millimeter Crushed Material
KCA Sample No. 27089 C
Head Screen Analysis and Assays

Size Fraction, mm	Weight, kilograms	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-9.5 +6.3	2.35	13.98	100.00	2.21	16.99	100.00	<1.7
-6.3 +4.75	4.09	24.33	86.02	1.13	15.11	83.01	<1.7
-4.75 +3.35	2.74	16.30	61.69	3.02	27.06	67.90	<1.7
-3.35 +1.70	3.09	18.38	45.39	1.30	13.14	40.84	<1.7
-1.70 +0.600	2.18	12.97	27.01	1.65	11.76	27.70	<1.7
-0.600 +0.212	0.89	5.30	14.04	1.48	4.31	15.94	<1.7
-0.212	1.47	8.74	8.74	2.42	11.63	11.63	<1.7
Total:		100.00			100.00		
Wt Average:				1.82			<1.7

4.2 Multi-element Analyses

Multi-element analyses were conducted on each of the composite bulk samples. Table 4-12 contains the result of these analyses.

Table 4-12.
Multi-element Head Analyses

Element	Mafic Volcanics	Granodiorite
Mo, ppm	3	4
Na, %	0.04	0.05
Ni, ppm	42	10
P, ppm	430	380
Pb, ppm	<2	<2
Sb, ppm	<2	<2
Sc, ppm	15	3
Sr, ppm	66	43
Ti, %	0.03	<0.01
Tl, ppm	<10	<10
U, ppm	<10	<10
V, ppm	129	38
W, ppm	<10	20
Zn, ppm	80	44
Total Carbon, %	1.22	0.85
Total Sulfur, %	0.52	0.52
Sulfate Sulfur, %	<0.01	0.01
Sulfide Sulfur, %	0.52	0.51

5.0 Cyanide Bottle Roll Leach Tests

5.1 Cyanide Bottle Tests on Pulverized (-0.015mm) Material

Cyanide bottle leach test were performed on pulverized portions of bulk and composite samples. The procedure utilized for the bottle roll tests was as follows:

1. A 500-gram portion of pulverized material was placed into a 2.5-liter bottle and the material was slurried with 1,000 mLs of distilled water.

2. The slurry was mixed thoroughly and the pH of the slurry was checked. The pH of the slurry was adjusted, as required, to between 10 and 10.5 with hydrated lime.

3. To the slurry sodium cyanide was added equal to 1.0 grams of sodium cyanide per liter of distilled water added. The bottle was then placed onto a set of laboratory-rolls. The slurry was mixed by rolling throughout the duration of the test.

4. The slurry was checked at 2, 4, 8, 24, 48 and 72 hours for pH, NaCN, Au, Ag and Cu.

5. After completion of the leach period, the slurry was filtered, washed and the final tailings were oven dried. The dry tailings were pulverized and split in half, the two splits were submitted for gold and silver analysis by fire assay.

Tables 5-1 through 5-4 contain the complete results of the bottle leach tests completed for this test program.

Table 5-1.
Magino Project
Mafic Volcanics Composite
Cyanide Bottle Roll Leach Test
Pulverized Material (Minus 0.015 Millimeters)
(500 grams + 1,000 mLs)

KCA Test No.	KCA Sample No.	Hours	pH*	DO_2 mg/L	Free NaCN, gpL	Total NaCN, gpL	NaCN Add, grams	$Ca(OH)_2$ Add, grams	Solution Volume (1), mLs	Soln. Au, mg/L	Soln. Ag, mg/L	Soln. Cu, mg/L	Leach Au, g/MT	Leach Ag, g/MT
27116 A	27088	0	8.6	--	---	---	1.00	0.40	1,000	---	---	---	---	---
		2	10.3	4.8	0.98	0.98	0.00	0.00	1,000	0.19	0.04	2.55	0.38	<0.1
		4	10.3	5.3	0.85	0.85	0.15	0.10	1,000	0.28	0.04	2.97	0.57	<0.1
		8	10.8	5.9	0.98	0.98	0.00	0.00	1,000	0.28	0.03	3.60	0.58	<0.1
		24	10.6	6.0	0.88	0.88	0.00	0.00	1,000	0.33	0.02	6.19	0.69	<0.1
		48	10.5	6.0	0.83	0.83			1,000	0.33	0.03	8.52	0.70	<0.1
Filtrate + Wash:									1,720	0.18	0.01	---	0.68	<0.1
Chemical Consumptions										Tail Assays, g/MT:			0.03	1.4
Sodium cyanide, kilograms NaCN per dry metric tonne of ore:									0.49				0.07	1.4
Hydrated lime, kilograms $Ca(OH)_2$ per dry metric tonne of ore:									1.00	Avg. Tail Assay, g/MT:			0.05	1.4
Notes:														
* - Before chemical additions										Calculated Hd., g/MT:			0.73	1.4
(1) - 20 mLs removed at each sampling interval.										Extracted, %:			93.2	

Table 5-2.
Magino Project
Mafic Volcanics Composite
Cyanide Bottle Roll Leach Test
Minus 9.5 Millimeter Crushed Material
(1.000 grams + 1,500 mLs)

KCA Test No.	KCA Sample No.	Hours	pH*	DO_2 mg/L	Free NaCN, gpL	Total NaCN, gpL	NaCN Add, grams	$Ca(OH)_2$ Add, grams	Solution Volume (1), mLs	Soln. Au, mg/L	Soln. Ag, mg/L	Soln. Cu, mg/L	Leach Au, g/MT	Leach Ag, g/MT
27116 C	27088 B	0	8.4	--	---	---	1.50	0.50	1,500	---	---	---	---	---
		2	11.3	5.3	0.95	0.95	0.00	0.00	1,500	0.07	0.02	1.45	0.11	<0.1
		4	11.3	5.3	0.95	0.95	0.00	0.00	1,500	0.13	0.02	1.86	0.20	<0.1
		8	11.3	5.5	0.92	0.92	0.00	0.00	1,500	0.15	0.04	2.39	0.23	<0.1
		24	11.2	5.6	0.90	0.90	0.00	0.00	1,500	0.16	0.04	2.66	0.25	<0.1
		48	11.2	5.6	0.88	0.88	0.00	0.00	1,500	0.17	0.05	3.05	0.27	<0.1
		72	11.0	6.0	0.85	0.85	0.00	0.00	1,500	0.21	0.05	3.68	0.33	<0.1
		96	10.9	6.0	0.85	0.85			1,500	0.19	0.05	3.98	0.30	<0.1
Filtrate + Wash:									2,860	0.10	0.02	---	0.31	<0.1
Chemical Consumptions										Tail Assays, g/MT:			0.62	1.4
Sodium cyanide, kilograms NaCN per dry metric tonne of ore:									0.12				0.51	1.4
Hydrated lime, kilograms $Ca(OH)_2$ per dry metric tonne of ore:									0.50				0.48	1.4
										Avg. Tail Assay, g/MT:			0.54	1.4
Notes:														
* - Before chemical additions										Calculated Hd., g/MT:			0.85	1.4
(1) - 20 mLs removed at each sampling interval.										Extracted, %:			36.5	

Table 5-3.
Magino Project
Granodiorite Composite
Cyanide Bottle Roll Leach Test
Pulverized Material (Minus 0.015 Millimeters)
(500 grams + 1,000 mLs)

KCA Test No.	KCA Sample No.	Hours	pH*	DO_2 mg/L	Free NaCN, gpL	Total NaCN, gpL	NaCN Add, grams	$Ca(OH)_2$ Add, grams	Solution Volume (1), mLs	Soln. Au, mg/L	Soln. Ag, mg/L	Soln. Cu, mg/L	Leach Au, g/MT	Leach Ag, g/MT
27116 B	27089	0	8.6	--	---	---	1.00	0.40	1,000	---	---	---	---	---
		2	10.8	4.7	0.85	0.85	0.15	0.00	1,000	0.29	0.06	2.06	0.39	0.1
		4	10.8	5.3	1.00	1.00	0.00	0.00	1,000	0.55	0.08	2.35	1.11	0.2
		8	10.6	5.9	0.98	0.98	0.00	0.00	1,000	0.67	0.08	2.80	1.37	0.2
		24	10.5	6.0	0.93	0.93	0.00	0.00	1,000	0.71	0.07	4.40	1.48	0.1
		48	10.5	5.9	0.85	0.85			1,000	0.70	0.07	6.01	1.49	0.2
Filtrate + Wash:									1,760	0.40	0.04	---	1.52	0.2
Chemical Consumptions										Tail Assays, g/MT:			0.03	1.4
Sodium cyanide, kilograms NaCN per dry metric tonne of ore:									0.45				0.07	1.4
Hydrated lime, kilograms $Ca(OH)_2$ per dry metric tonne of ore:									0.80	Avg. Tail Assay, g/MT:			0.05	1.4
Notes:														
* - Before chemical additions										Calculated Hd., g/MT:			1.57	1.6
(1) - 20 mLs removed at each sampling interval.										Extracted, %:			96.8	

Table 5-4.
Magino Project
Granodiorite Composite
Cyanide Bottle Roll Leach Test
Minus 9.5 Millimeter Crushed Material
(1.000 grams + 1,500 mLs)

KCA Test No.	KCA Sample No.	Hours	pH*	DO_2 mg/L	Free NaCN, gpL	Total NaCN, gpL	NaCN Add, grams	$Ca(OH)_2$ Add, grams	Solution Volume (1), mLs	Soln. Au, mg/L	Soln. Ag, mg/L	Soln. Cu, mg/L	Leach Au, g/MT	Leach Ag, g/MT
27185 A	27089 C	0	8.5	--	---	---	1.50	0.30	1,500	---	---	---	---	---
		2	11.1	5.4	0.93	0.93	0.00	0.00	1,500	0.07	0.04	0.69	0.11	<0.1
		4	11.0	5.5	0.90	0.90	0.00	0.00	1,500	0.15	0.04	0.78	0.23	<0.1
		8	10.9	6.0	0.88	0.88	0.00	0.00	1,500	0.19	0.05	0.94	0.29	<0.1
		24	10.9	5.8	0.85	0.85	0.23	0.00	1,500	0.30	0.07	1.47	0.46	0.1
		48	10.8	5.8	0.98	0.98	0.00	0.00	1,500	0.35	0.06	1.72	0.54	0.1
		72	10.8	5.9	0.95	0.95	0.00	0.00	1,500	0.33	0.06	1.63	0.52	0.1
		96	10.8	6.0	0.93	0.93			1,500	0.34	0.05	1.87	0.54	0.1
Filtrate + Wash:									3,020	0.15	0.04	---	0.49	0.1
Chemical Consumptions										Tail Assays, g/MT:			1.6	<1.7
Sodium cyanide, kilograms NaCN per dry metric tonne of ore:									0.23				1.17	<1.7
Hydrated lime, kilograms $Ca(OH)_2$ per dry metric tonne of ore:									0.30	Avg. Tail Assay, g/MT:			1.12	<1.7
Notes:														
* - Before chemical additions										Calculated Hd., g/MT:			1.61	<1.7
(1) - 20 mLs removed at each sampling interval.										Extracted, %:			30.4	

6.0 Laboratory Scale Cyanide Column Leach Tests

6.1 Precious Metal Recovery

Cyanide column leach tests were completed on the core composite samples at several different crushed sizes. Table 6-1 contains the parameters for the column leach tests.

Table 6-1.
Column Leach Test Parameters

KCA Sample No.	KCA Test No.	Magino I.D.	Crush Size, mm	Weight of Sample in Column, kg	$Ca(OH)_2$ Added, kg/MT
27088 A	27120	Mafic Volcanics	- 22.4	20.0	0.50
27088 B	27123	Mafic Volcanics	- 9.5	20.0	0.50
27089 B	27126	Granodiorite	- 22.4	40.0	0.50
27088 C	27129	Granodiorite	- 9.5	40.0	0.50

Table 6-2 contains a summary of the gold recovery results for the four column leach tests completed in this test program.

Table 6-2.
Results of Column Leach Tests

KCA Sample No.	KCA Test No.	Magino I.D.	Crush Size, mm	Days Leach	Calc. Head, gms Au/MT	Recovery, gms Au/MT	Recovery, %
27088 A	27120	Mafic Volcanics	- 22.4	63	0.94	0.35	37.2
27088 B	27123	Mafic Volcanics	- 9.5	63	1.60	0.79	49.5
27089 B	27126	Granodiorite	- 22.4	63	1.72	0.56	32.5
27088 C	27129	Granodiorite	- 9.5	63	1.41	0.79	56.0
		Average	- 22.4	63			34.9
		Average	- 9.5	63			52.8

Tables 6-3 through 6-6 contain the complete results of the individual column leach tests.

Recovery results contained in the body of this report were based upon carbon assays vs. the calculated head (carbon assays + tail assays). Recovery results contained in the attached appendix, were based upon the daily solution assays vs. the calculated head (solution assays + tailings assays).

Table 6-3.
Magino Project
Mafic Volcanics Composite
Minus 22.4 Millimeters Crushed Material
KCA Sample No. 27088 A
KCA Cyanide Column Leach Test No. 27120
Metal Recoveries and Chemical Consumptions

Days Leaching	Cumulative, t_s / t_o	Recov., gm Au/MT	Recov., gm Ag/MT	Recov., % Au	NaCN Cons., kg/MT	$Ca(OH)_2$ Added, kg/MT
0 – 8	0.52	0.18	<0.1	19.1	0.10	0.50
9 – 19	1.34	0.08	<0.1	8.5	0.16	0.00
20 – 63	4.38	0.09	<0.1	9.6	0.34	0.00
	Total -	0.35	<0.3	37.2	0.60	0.50
	Tail -	0.59				
	Calc. Head -	0.94				

ts / to = Tonnes of solution effluent per tonne of dry ore leached.

Column Parameters

Ore Weight:	20.00	kilograms
Initial, Ore Height:	1.518	meters
Final, Ore Height	1.511	meters
Percent Slump:	0.5	%
Column I.D.:	0.102	meters
Hydrated Lime Blended In:	0.50	kilograms per dry metric tonne
Final, Apparent Bulk Density:	1.62	metric tonnes per cubic meter
96-Hour Draindown:	21.7	kilograms per dry metric tonne
Final, Maximum Percolation Rate:	12,512	liters per hour per square meter of column surface area
Final, Retained Moisture:	31.1	kilograms per dry metric tonne

Table 6-4.
Magino Project
Mafic Volcanics Composite
Minus 9.5 Millimeters Crushed Material
KCA Sample No. 27088 B
KCA Cyanide Column Leach Test No. 27123
Metal Recoveries and Chemical Consumptions

ays Leaching	Cumulative, t_s / t_o	Recov., gm Au/MT	Recov., gm Ag/MT	Recov., % Au	NaCN Cons., kg/MT	$Ca(OH)_2$ Added, kg/MT
0 – 8	0.52	0.47	<0.1	29.4	0.07	0.50
9 – 19	1.33	0.14	<0.1	8.8	0.17	0.00
20 – 63	4.27	0.18	0.1	11.3	0.46	0.00
	Total -	0.79	<0.3	49.5	0.70	0.50
	Tail -	0.81				
	Calc. Head -	1.60				

ts / to = Tonnes of solution effluent per tonne of dry ore leached.

Column Parameters

Ore Weight:	20.00	kilograms
Initial, Ore Height:	1.454	meters
Final, Ore Height	1.435	meters
Percent Slump:	1.3	%
Column I.D.:	0.102	meters
Hydrated Lime Blended In:	0.50	kilograms per dry metric tonne
Final, Apparent Bulk Density:	1.71	metric tonnes per cubic meter
96-Hour Draindown:	35.1	kilograms per dry metric tonne
Final, Maximum Percolation Rate:	4,579	liters per hour per square meter of column surface area
Final, Retained Moisture:	59.1	kilograms per dry metric tonne

Table 6-5.
Magino Project
Granodiorite Composite
Minus 22.4 Millimeters Crushed Material
KCA Sample No. 27089 B
KCA Cyanide Column Leach Test No. 27126
Metal Recoveries and Chemical Consumptions

Days Leaching	Cumulative, t_s / t_o	Recov., gm Au/MT	Recov., gm Ag/MT	Recov., % Au	NaCN Cons., kg/MT	$Ca(OH)_2$ Added, kg/MT
0 – 8	0.61	0.32	0.1	18.6	0.08	0.50
9 – 19	1.53	0.10	<0.1	5.8	0.12	0.00
20 – 63	5.12	0.14	<0.1	8.1	0.35	0.00
	Total -	0.56	<0.3	32.5	0.55	0.50
	Tail -	1.16				
	Calc. Head -	1.72				

ts / to = Tonnes of solution effluent per tonne of dry ore leached.

Column Parameters

Ore Weight:	40.00	kilograms
Initial, Ore Height:	1.391	meters
Final, Ore Height	1.384	meters
Percent Slump:	0.5	%
Column I.D.:	0.152	meters
Hydrated Lime Blended In:	0.50	kilograms per dry metric tonne
Final, Apparent Bulk Density:	1.59	metric tonnes per cubic meter
96-Hour Draindown:	23.8	kilograms per dry metric tonne
Final, Maximum Percolation Rate:	25,652	liters per hour per square meter of column surface area
Final, Retained Moisture:	26.1	kilograms per dry metric tonne

Table 6-6.
Magino Project
Granodiorite Composite
Minus 9.5 Millimeters Crushed Material
KCA Sample No. 27089 C
KCA Cyanide Column Leach Test No. 27129
Metal Recoveries and Chemical Consumptions

Days Leaching	Cumulative, t_s / t_o	Recov., gm Au/MT	Recov., gm Ag/MT	Recov., % Au	NaCN Cons., kg/MT	$Ca(OH)_2$ Added, kg/MT
0 – 8	0.58	0.53	0.1	37.6	0.10	0.50
9 – 19	1.50	0.11	<0.1	7.8	0.07	0.00
20 – 63	5.07	0.15	<0.1	10.6	0.37	0.00
	Total -	0.79	<0.3	56.0	0.54	0.50
	Tail -	0.62				
	Calc. Head -	1.41				

ts / to = Tonnes of solution effluent per tonne of dry ore leached.

Column Parameters

Ore Weight:	40.00	kilograms
Initial, Ore Height:	1.372	meters
Final, Ore Height	1.359	meters
Percent Slump:	0.9	%
Column I.D.:	0.152	meters
Hydrated Lime Blended In:	0.50	kilograms per dry metric tonne
Final, Apparent Bulk Density:	1.62	metric tonnes per cubic meter
96-Hour Draindown:	29.2	kilograms per dry metric tonne
Final, Maximum Percolation Rate:	11,518	liters per hour per square meter of column surface area
Final, Retained Moisture:	48.1	kilograms per dry metric tonne

6.3 Description of Cyanide Column Leach Test Apparatus

6.3.1 Drip Leach Test Apparatus

The column tests were run as continuously-drained drip leach tests. This type of test most accurately reflects actual heap leach conditions and is normally run when the ore contains enough fines to prevent channeling of solution down individual rock faces.

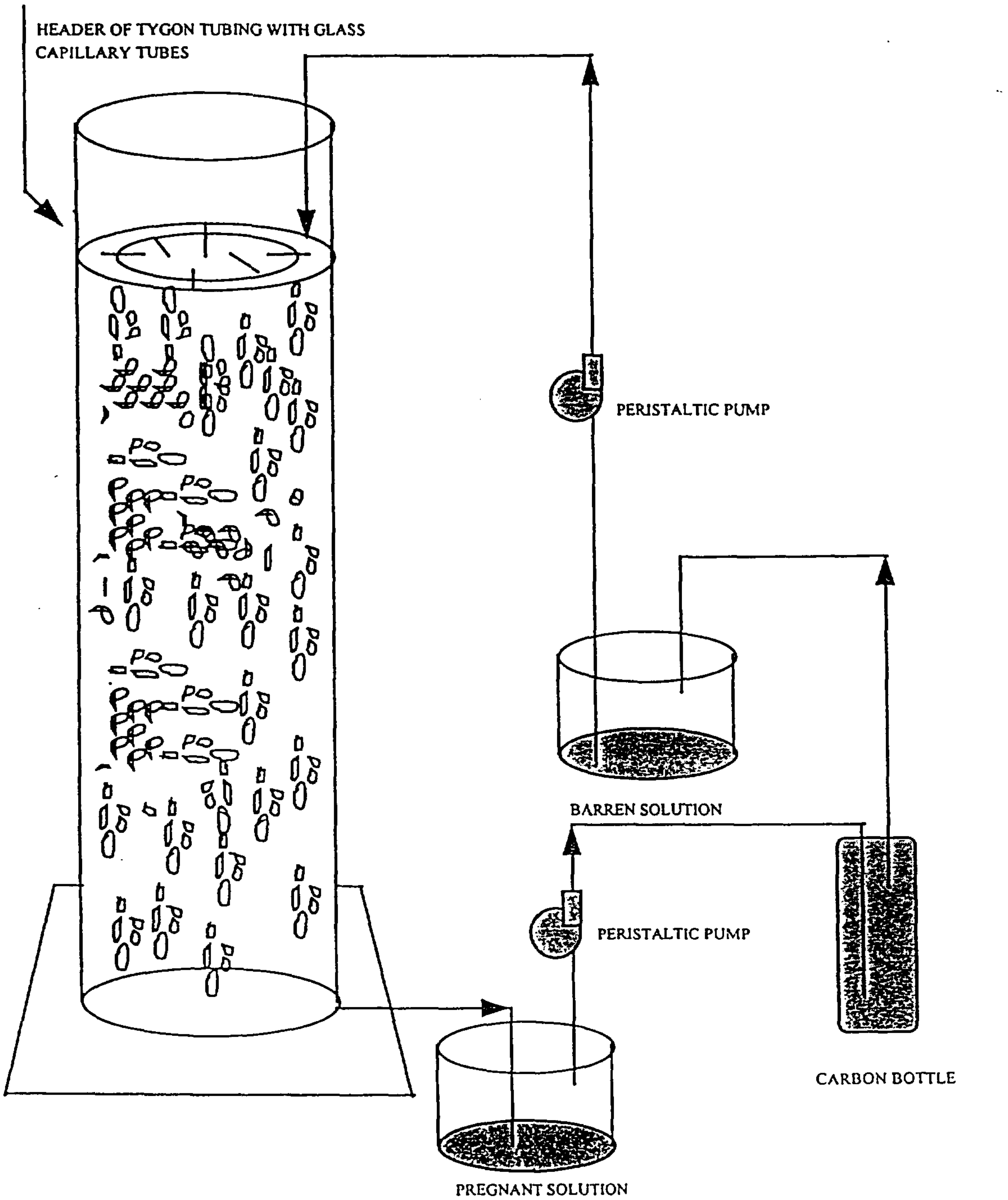
The apparatus used for this test is shown schematically in Figure 6-1.

6.3.2 Column Set-up

The ore to be leached was placed into a clear leach column as shown in Figure 6-1. Alkaline cyanide solution was continuously distributed onto the ore through a header of tygon tubing with glass-capillary drip tubes. Flowrate of solution dripping onto the ore was controlled with a peristaltic pump, to approximately 10 – 12 liters per hour per cubic meter of column surface area (typical application rate for a production heap).

The solution exiting the leach column was collected in the bottom (floor) tank. Leach solution was checked each cycle for pH, NaCN, Au, and Ag. Copper was checked periodically. The solution was then passed through a bottle of activated carbon over a period of 24 hours to recover the gold and silver in solution. After passing through the bottle of activated carbon, the solution was re-assayed for pH, NaCN, Au, and Ag. Sodium cyanide was then added, if necessary, to maintain the solution at "target" levels (discussed in the Test History section). The leach solution was then recycled to the ore for another 24-hour leach period. Two batches of leach solution were used so that while one batch was being applied to the column, the other was run through the carbon.

Figure 6-1.
Column Test Apparatus



6.4 History of Cyanide Column Leach Tests

6.4.1 Start-up of Tests

The initial leach solutions for the column tests contained 1.0 grams sodium cyanide per liter of solution.

6.4.2 Solution Clarity and Color

The initial and final solution clarity and color were monitored. Table 6-7 contains comments on solution color and clarity for the column tests.

Table 6-7.
Column Test Solution Color and Clarity

KCA Test No.	Magino I.D.	Crush Size, mm	Color and Clarity of the Initial Column Effluent	Color and Clarity of the Final Column Effluent
27120	Mafic Volcanics	-22.4	Yellow and clear.	Light gray and clear.
27123	Mafic Volcanics	-9.5	Yellow and clear.	Light gray and clear.
27126	Granodiorite	-22.4	Yellow and clear.	Light gray and clear.
27129	Granodiorite	-9.5	Yellow and clear.	Light gray and clear.

The solution color and clarity do not indicate a problem with percolation or fines migration in any of the four column tests.

6.4.3 Copper Analyses in Solution

Interim pregnant (effluent) cyanide leach solutions were assayed (A.A.S. solution analysis) periodically for copper content. Table 6-8 summarizes the lowest and highest copper in solution data obtained over the leach period.

Table 6-8.
Copper Concentration in Column Leach Solutions

KCA Test No.	Magino I.D.	Crush Size, mm	Low Copper, mg/L	High Copper, mg/L
27120	Mafic Volcanics	-22.4	5.96	14.8
27123	Mafic Volcanics	-9.5	5.20	23.3
27126	Granodiorite	-22.4	2.22	6.8
27129	Granodiorite	-9.5	3.94	7.9

Copper values are low enough (at the crush sizes tested), that copper in solution should not be a problem during operations at Magino.

6.4.4 Mercury Analyses

The initial carbon sample from the column tests were air dried and assayed for mercury content. Table 6-9 contains the results of the mercury analyses on the (C-1) initial column carbon samples.

Table 6-9.
Mercury Analysis of C-1 Carbon Sample

KCA Test No.	Magino I.D.	Crush Size, mm	C-1 Wt., grams	Period Days	Assay mg Hg / kg Carbon
27120	Mafic Volcanics	- 22.4	282.98	0-8	0.12
27123	Mafic Volcanics	- 9.5	282.20	0-8	0.07
27126	Granodiorite	- 22.4	305.55	0-8	0.05
27129	Granodiorite	- 9.5	308.97	0-8	0.22

Mercury analyses on carbon were low for each of the four column leach tests.

6.4.5 Cyanide Strength and Alkalinity

The initial leach solutions for the column tests contained 1.0 grams sodium cyanide and 0.50 grams of hydrated lime per liter of leach solution. Cyanide strength of the onflow solutions was then maintained in the range 0.4 - 0.6 gpL sodium cyanide.

Protective alkalinity in the tests was maintained with hydrated lime, if necessary, in the pH range of 9.5 - 10.5.

Table 6-10 summarizes the data obtained for reagent consumptions for the column leach tests.

Table 6-10.
Column Test Reagent Consumptions

KCA Sample No.	KCA Column Test No.	Magino I.D.	Crush Size, mm	NaCN Consumed, kg/MT	$Ca(OH)_2$ Added, kg/MT
27088 A	27120	Mafic Volcanics	- 22.4	0.60	0.50
27088 B	27123	Mafic Volcanics	- 9.5	0.70	0.50
27089 B	27126	Granodiorite	- 22.4	0.55	0.50
27089 C	27129	Granodiorite	- 9.5	0.54	0.50

6.4.6 Percent Slump

The overall slump for each column over the test period was calculated. Table 6-11 contains a summary of the percent slump data for the column leach tests.

Table 6-11.
Column Test Percent Slump

KCA Test No.	Magino I.D.	Crush Size, mm	Initial Ht., meters	Final Ht., meters	Percent Slump
27120	Mafic Volcanics	- 22.4	1.518	1.511	0.5
27123	Mafic Volcanics	- 9.5	1.454	1.435	1.3
27126	Granodiorite	- 22.4	1.391	1.384	0.5
27129	Granodiorite	- 9.5	1.372	1.359	0.9

The percent slump of a column gives an indication of potential permeability problems in production heaps. KCA typically classifies slumps larger than 10% as high. As indicated in the table, the percent slumps obtained in the four-column leach tests were all much less than 2%.

6.5 Tailings Analyses

The final tailings from each of the column tests were dumped, weighed wet and then oven dried. Table 6-12 contains a summary of the retained moistures for the four-column leach tests.

Table 6-12.
Retained Moisture in Column Leach Tests

KCA Test No.	Magino I.D.	Crush Size, mm	Retained Moisture, Kilograms per dry Metric tonne
27120	Mafic Volcanics	- 22.4	31.1
27123	Mafic Volcanics	- 9.5	59.1
27126	Granodiorite	- 22.4	26.1
27129	Granodiorite	- 9.5	48.1

The tailings from the column tests were screened in the same manner as the feed (head) material. Tables 6-13 through 6-20 contains the tailings screen analyses.

Table 6-13.
Magino Project
Mafic Volcanics Composite
KCA Sample No. 27088 A
KCA Column Leach Test No. 27120
Minus 22.4 Millimeter Crushed Material
Tail Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-22.4 +19.0	+0.106	24.83	2.46	0.17	0.17	<1.7	<1.7
	-0.106	983.70	97.54	0.24	0.28	<1.7	<1.7
				0.31		<1.7	
	Total:	1008.53	100.00				
	Wt. Avg.:				0.28		<1.7
-19.0 +12.5	+0.106	6.29	0.62	19.71	19.71	<1.7	<1.7
	-0.106	1006.00	99.38	0.96	0.96	<1.7	<1.7
				0.96		<1.7	
	Total:	1012.29	100.00				
	Wt. Avg.:				1.08		<1.7
-12.5 +9.5	+0.106	5.05	0.51	10.11	10.11	<1.7	<1.7
	-0.106	994.60	99.49	0.72	0.79	<1.7	<1.7
				0.86		<1.7	
	Total:	999.65	100.00				
	Wt. Avg.:				0.84		<1.7
-9.5 +6.3	+0.106	6.85	0.68	11.38	11.38	<1.7	<1.7
	-0.106	1004.60	99.32	0.55	0.52	<1.7	<1.7
				0.48		<1.7	
	Total:	1011.45	100.00				
	Wt. Avg.:				0.59		<1.7
-6.3 +3.35	+0.106	10.61	1.06	2.37	2.37	<1.7	<1.7
	-0.106	989.00	98.94	0.31	0.33	<1.7	<1.7
				0.34		<1.7	
	Total:	999.61	100.00				
	Wt. Avg.:				0.35		<1.7
-3.35 +1.70	+0.106	8.12	0.81	1.23	1.23	<1.7	<1.7
	-0.106	997.00	99.19	0.17	0.22	<1.7	
				0.27		<1.7	
	Total:	1005.12	100.00				
	Wt. Avg.:				0.23		<1.7
-1.70 +0.600	+0.106	4.22	0.48	2.85	2.85	<1.7	<1.7
	-0.106	882.60	99.52	0.17	0.19	<1.7	<1.7
				0.21		<1.7	
	Total:	886.82	100.00				
	Wt. Avg.:				0.20		<1.7
-0.600	+0.106	22.19	2.21	0.14	0.14	<1.7	<1.7
	-0.106	982.00	97.79	<0.01	0.07	<1.7	<1.7
				0.14		<1.7	
	Total:	1004.19	100.00				
	Wt. Avg.:				0.07		<1.7

Table 6-14.
Magino Project
Mafic Volcanics Composite
KCA Sample No. 27088 B
KCA Column Leach Test No. 27123
Minus 9.5 Millimeter Crushed Material
Tail Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-9.5 +6.3	+0.106	23.29	2.36	26.95	26.95	<1.7	<1.7
	-0.106	964.00	97.64	1.27	1.15	<1.7	<1.7
				1.03		<1.7	
	Total:	987.29	100.00				
	Wt. Avg.:				1.76		<1.7
-6.3 +4.75	+0.106	5.68	0.58	4.94	4.94	<1.7	<1.7
	-0.106	982.00	99.42	0.86	0.96	<1.7	<1.7
				1.06		<1.7	
	Total:	987.68	100.00				
	Wt. Avg.:				0.98		<1.7
-4.75 +3.35	+0.106	23.98	2.40	0.38	0.38	<1.7	<1.7
	-0.106	976.70	97.60	0.48	0.47	<1.7	<1.7
				0.45		<1.7	
	Total:	1000.68	100.00				
	Wt. Avg.:				0.47		<1.7
-3.35 +1.70	+0.106	2.38	0.24	6.89	6.89	<1.7	<1.7
	-0.106	1007.80	99.76	0.89	1.06	<1.7	<1.7
				1.23		<1.7	
	Total:	1010.18	100.00				
	Wt. Avg.:				1.07		<1.7
-1.70 +0.600	+0.106	5.79	0.57	0.69	0.69	<1.7	<1.7
	-0.106	1003.00	99.43	0.24	0.24	<1.7	<1.7
				0.24		<1.7	
	Total:	1008.79	100.00				
	Wt. Avg.:				0.24		<1.7
-0.600 +0.212	+0.106	5.74	0.57	0.17	0.17	<1.7	<1.7
	-0.106	994.00	99.43	<0.01	0.12	<1.7	<1.7
				0.24		<1.7	
	Total:	999.74	100.00				
	Wt. Avg.:				0.12		<1.7
-0.212	+0.106	4.03	0.41	<0.01	<0.01	<1.7	<1.7
	-0.106	990.50	99.59	<0.01	0.05	<1.7	<1.7
				0.10		<1.7	
	Total:	994.53	100.00				
	Wt. Avg.:				0.05		<1.7

Table 6-15.
Magino Project
Granodiorite Composite
KCA Sample No. 27089 B
KCA Column Leach Test No. 27126
Minus 22.4 Millimeter Crushed Material
Tail Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-22.4 +19.0	+0.106	1.19	0.21	7.58	7.58	<1.7	<1.7
	-0.106	1003.0	99.88	0.69	0.83	<1.7	<1.7
				0.96		<1.7	
	Total:	1004.19	100.00				
	Wt. Avg.:				0.84		<1.7
-19.0 +12.5	+0.106	2.18	0.22	124.32	124.32	<1.7	<1.7
	-0.106	1002.50	99.78	2.64	2.63	<1.7	<1.7
				2.54		<1.7	
				2.71		<1.7	
	Total:	1004.68	100.00				
	Wt. Avg.:				2.90		<1.7
-12.5 +9.5	+0.106	1.55	0.15	22.59	22.59	<1.7	<1.7
	-0.106	1002.60	99.85	0.62	0.81	<1.7	<1.7
				0.99		<1.7	
	Total:	1004.15	100.00				
	Wt. Avg.:				0.84		<1.7
-9.5 +6.3	+0.106	2.13	0.21	91.54	91.54	<1.7	<1.7
	-0.106	997.00	99.79	0.55	0.69	<1.7	<1.7
				0.82		<1.7	
	Total:	999.13	100.00				
	Wt. Avg.:				0.88		<1.7
-6.3 +3.35	+0.106	3.97	0.39	4.05	4.05	<1.7	<1.7
	-0.106	1002.80	99.61	0.31	0.35	<1.7	<1.7
				0.38		<1.7	
	Total:	1006.77	100.00				
	Wt. Avg.:				0.36		<1.7
-3.35 +1.70	+0.106	7.43	0.74	3.77	3.77	<1.7	<1.7
	-0.106	991.00	99.26	0.17	0.26	<1.7	<1.7
				0.34		<1.7	
	Total:	998.43	100.00				
	Wt. Avg.:				0.29		<1.7
-1.70 +0.600	+0.106	2.51	0.25	1.57	1.57	<1.7	<1.7
	-0.106	1006.30	99.75	0.21	0.23	<1.7	<1.7
				0.24		<1.7	
	Total:	1008.81	100.00				
	Wt. Avg.:				0.23		<1.7
-0.600	+0.106	6.03	0.60	0.34	0.34	<1.7	<1.7
	-0.106	992.80	99.40	<0.01	0.11	<1.7	<1.7
				0.21		<1.7	
	Total:	998.83	100.00				
	Wt. Avg.:				0.11		<1.7

Table 6-16.
Magino Project
Granodiorite Composite
KCA Sample No. 27089 C
KCA Column Leach Test No. 27129
Minus 9.5 Millimeter Crushed Material
Tail Metallic Screen Analysis and Fire Assays

Size Fraction, mm	Metallic Size Fraction, mm	Weight, grams	Weight, Percent	Assay, gms Au/MT	Avg., gms Au/MT	Assay, gms Ag/MT	Avg., gms Ag/MT
-9.5 +6.3	+0.106	10.18	1.03	4.32	4.32	<1.7	<1.7
	-0.106	973.60	98.97	1.23	1.17	<1.7	<1.7
				1.10		<1.7	
	Total:	983.78	100.00				
	Wt. Avg.:				1.20		<1.7
-6.3 +4.75	+0.106	3.80	0.38	2.64	2.64	<1.7	<1.7
	-0.106	1007.00	99.62	0.65	0.74	<1.7	<1.7
				0.82		<1.7	
	Total:	1010.80	100.00				
	Wt. Avg.:				0.75		<1.7
-4.75 +3.35	+0.106	34.90	3.47	0.45	0.45	<1.7	<1.7
	-0.106	972.00	96.53	0.24	0.36	<1.7	<1.7
				0.48		<1.7	
	Total:	1006.90	100.00				
	Wt. Avg.:				0.36		<1.7
-3.35 +1.70	+0.106	18.32	1.85	3.43	3.43	<1.7	<1.7
	-0.106	970.00	98.15	0.69	0.71	<1.7	<1.7
				0.72		<1.7	
	Total:	988.32	100.00				
	Wt. Avg.:				0.76		<1.7
-1.70 +0.600	+0.106	12.03	1.19	0.24	0.24	<1.7	<1.7
	-0.106	1000.00	98.81	0.31	0.26	<1.7	<1.7
				0.21		<1.7	
	Total:	1012.03	100.00				
	Wt. Avg.:				0.26		<1.7
-0.600 +0.212	+0.106	2.49	0.25	0.41	0.41	<1.7	<1.7
	-0.106	991.00	99.75	0.17	0.16	<1.7	<1.7
				0.14		<1.7	
	Total:	993.49	100.00				
	Wt. Avg.:				0.16		<1.7
-0.212	+0.106	8.04	0.80	0.14	0.14	<1.7	<1.7
	-0.106	998.40	99.20	<0.01	0.07	<1.7	<1.7
				0.14		<1.7	
	Total:	1006.44	100.00				
	Wt. Avg.:				0.07		<1.7

Table 6-17.
Magino Project
Mafic Volcanics Composite
Minus 22.4 Millimeter Crushed Material
KCA Sample No. 27088 A
KCA Cyanide Column Leach Test No. 27120
Tail Screen Analysis and Fire Assays

Size Fraction, mm	Weight, Kilograms	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-22.4 +19.0	3.32	16.73	100.00	0.28	7.90	100.00	<1.7
-19.0 +12.5	4.28	21.57	83.27	1.08	39.30	91.10	<1.7
-12.5 +9.5	3.62	18.25	61.70	0.84	25.86	52.80	<1.7
-9.5 +6.3	3.12	15.73	43.45	0.59	15.65	26.94	<1.7
-6.3 +3.35	2.26	11.39	27.72	0.35	9.72	11.29	<1.7
-3.35 +1.70	1.22	6.15	16.33	0.23	2.39	4.57	<1.7
-1.70 +0.600	0.88	4.44	10.18	0.20	1.50	2.18	<1.7
-0.600	1.44	5.74	5.74	0.07	0.68	0.68	<1.7
Total:	19.84	100.00			100.00		
Wt Average:				0.59			<1.7

Table 6-18.
Magino Project
Mafic Volcanics Composite
Minus 9.5 Millimeter Crushed Material
KCA Sample No. 27088 B
KCA Cyanide Column Leach Test No. 27123
Tail Screen Analysis and Fire Assays

Size Fraction, mm	Weight, Kilograms	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-9.5 +6.3	3.72	18.71	100.00	1.76	40.49	100.00	<1.7
-6.3 +4.75	3.66	18.41	81.29	0.98	22.18	59.51	<1.7
-4.75 +3.35	2.88	14.49	62.88	0.47	8.37	37.33	<1.7
-3.35 +1.70	3.52	17.71	48.39	1.07	23.30	28.96	<1.7
-1.70 +0.600	2.76	13.88	30.68	0.24	4.09	5.66	<1.7
-0.600 +0.212	1.22	6.14	16.80	0.12	0.91	1.57	<1.7
-0.212	2.12	10.66	10.66	0.05	0.66	0.66	<1.7
Total:	19.88	100.00			100.00		
Wt Average:				0.81			<1.7

**Table 6-19.
Magino Project
Granodiorite Composite
Minus 22.4 Millimeter Crushed Material
KCA Cyanide Column Leach Test No. 27126
KCA Sample No. 27089 B
Tail Screen Analysis and Fire Assays**

Size Fraction, mm	Weight, Kilograms	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-22.4 +19.0	6.20	15.60	100.00	0.84	11.26	100.00	<1.7
-19.0 +12.5	8.74	21.99	84.40	2.90	54.82	88.74	<1.7
-12.5 +9.5	8.94	22.50	62.41	0.84	16.25	33.92	<1.7
-9.5 +6.3	6.34	15.95	39.91	0.88	12.06	17.67	<1.7
-6.3 +3.35	4.02	10.12	23.96	0.36	3.13	5.61	<1.7
-3.35 +1.70	1.98	4.98	13.84	0.29	1.24	2.48	<1.7
-1.70 +0.600	1.54	3.88	8.86	0.23	0.77	1.24	<1.7
-0.600	1.98	4.98	4.98	0.11	0.47	0.47	<1 7
Total:	39.74	100.00			100.00		
Wt Average:				1.16			<1.7

Table 6-20.
Magino Project
Granodiorite Composite
Minus 9.5 Millimeter Crushed Material
KCA Cyanide Column Leach Test No. 27129
KCA Sample No. 27089 C
Tail Screen Analysis and Fire Assays

Size Fraction, mm	Weight, Kilograms	Weight, Percent	Cum. Wt. Passing, %	Metallic Screen Assay, gms Au/MT	Weight % Gold	Cum. Gold % Passing	Metallic Screen Assay, gms Ag/MT
-9.5 +6.3	6.28	15.79	100.00	1.20	30.62	100.00	<1.7
-6.3 +4.75	9.98	25.10	84.21	0.75	30.42	69.38	<1.7
-4.75 +3.35	6.76	17.00	59.11	0.36	9.89	38.96	<1.7
-3.35 +1.70	7.16	18.01	42.11	0.76	22.12	29.07	<1.7
-1.70 +0.600	4.58	11.52	24.10	0.26	4.84	6.95	<1.7
-0.600 +0.212	1.90	4.78	12.58	0.16	1.23	2.11	<1.7
-0.212	3.10	7.80	7.80	0.07	0.88	0.88	<1.7
Total:	39.76	100.00			100.00		
Wt Average:				0.62			<1.7

6.6 Gold Recovery versus Grain Size

Tables 6-21 through 6-24 contains the results of gold recovery vs. grain size for each of the column leach tests. The cumulative percent gold recovery reported in the table was determined as follows:

1. Calculate the percent gold recovery for each size fraction. This value would be calculated as a percent difference between the head size fraction assays and the tail size fraction assay.

2. Multiply the percent gold recovery calculated for the individual size fraction by the weight percent represented by that size fraction in the tailings screen analysis.

3. Sum the values determined in step (2) below and including the size fraction for which the calculation of the cumulative percent gold recovered is being made.

4. The cumulative percent gold recovered value would then be determined by dividing the value determined in step (3) by the cumulative average weight percent of the tailings below and including that size fraction.

In order to clarify this calculation, a sample calculation was outlined from the following table:

	A	B	C	D	E	F	G	H
	Size Fraction, mm	Tail Wt., %	Cum. Pass Wt., %	Head, Au g/MT	Tail, Au g/MT	Percent Gold Recovered	Product of B.. X F..	Cumulative Recovered, %
1	- 22.4 + 19.0	16.73	100.00	0.56	0.28	48.3	808.06	32.5
2	- 19.0 + 12.5	21.57	83.27	1.76	1.08	38.6	832.6	29.3
3	- 12.5 + 9.5	18.25	61.70	0.84	0.84	0.0	0.0	26.0
4	- 9.5 + 6.3	15.73	43.45	0.74	0.59	20.3	319.3	37.0
5	- 6.3 + 3.35	11.39	27.72	0.29	0.35	0.0	0.0	46.4
6	- 3.35 + 1.70	6.15	16.33	0.76	0.23	69.7	428.7	78.8
7	- 1.70 + 0.60	4.44	10.18	0.71	0.20	71.8	318.8	84.4
8	- 0.60	5.74	5.74	1.18	0.07	94.1	540.1	94.1

Examples of Calculations

1. The value contained in cell H1 was obtained by summing G1 through G8 and then dividing this product by the value in cell C1.

2. The value contained in cell H3 was obtained by summing G3 through G8 and then dividing this product by the value in cell C3.

Table 6-21.
Magino Project
Mafic Volcanic Composite
Minus 22.4 Millimeter Crushed Material
KCA Sample No. 27088 A
KCA Column Leach Test No. 27120
Head Screen Assays vs. Tail Screen Assays

Size Fraction, mm	Tail Wt., %	Cumulative Pass Wt., %	Head Au g/MT	Tail Au g/MT	Percent Gold Recovered	Cumulative Recovered, % (1)
- 22.4 + 19.0	16.73	100.00	0.56	0.28	48.3	32.5
- 19.0 + 12.5	21.57	83.27	1.76	1.08	38.6	29.3
- 12.5 + 9.5	18.25	61.70	0.84	0.84	0.0	26.0
- 9.5 + 6.3	15.73	43.45	0.74	0.59	20.3	37.0
- 6.3 + 3.35	11.39	27.72	0.29	0.35	0.0	46.4
- 3.35 + 1.70	6.15	16.33	0.76	0.23	69.7	78.8
- 1.70 + 0.60	4.44	10.18	0.71	0.20	71.8	84.4
- 0.60	5.74	5.74	1.18	0.07	94.1	94.1

(1) – Based on tail screen analysis

Table 6-22.
Magino Project
Mafic Volcanic Composite
Minus 9.5 Millimeter Crushed Material
KCA Sample No. 27088 B
KCA Column Leach Test No. 27123
Head Screen Assays vs. Tail Screen Assays

Size Fraction, mm	Tail Wt., %	Cumulative Pass Wt., %	Head Au g/MT	Tail Au g/MT	Percent Gold Recovered	Cumulative Recovered, % (1)
- 9.5 + 6.3	18.71	100.00	0.88	1.76	0.0	31.1
- 6.3 + 4.75	18.41	81.29	0.62	0.98	0.0	38.3
- 4.75 + 3.35	14.49	62.88	0.67	0.47	29.9	49.5
- 3.35 + 1.70	17.71	48.39	0.79	1.07	0.0	55.4
- 1.70 + 0.60	13.88	30.68	0.93	0.24	74.2	87.4
- 0.60 + 0.212	6.14	16.80	12.17	0.12	99.0	98.3
- 0.212	10.66	10.66	2.33	0.05	97.9	97.9

(1) – Based on tail screen analysis

Table 6-23.
Magino Project
Granodiorite Composite
Minus 22.4 Millimeter Crushed Material
KCA Sample No. 27089 A
KCA Column Leach Test No. 27126
Head Screen Assays vs. Tail Screen Assays

Size Fraction, mm	Tail Wt., %	Cumulative Pass Wt., %	Head Au g/MT	Tail Au g/MT	Percent Gold Recovered	Cumulative Recovered, % (1)
- 22.4 + 19.0	15.60	100.00	0.28	0.84	0.0	28.3
- 19.0 + 12.5	21.99	84.40	3.01	2.90	3.7	33.5
- 12.5 + 9.5	22.50	62.41	0.94	0.84	10.6	44.0
- 9.5 + 6.3	15.95	39.91	1.41	0.88	37.6	62.9
- 6.3 + 3.35	10.12	23.96	1.56	0.36	76.9	79.7
- 3.35 + 1.70	4.98	13.84	0.96	0.29	69.8	81.7
- 1.70 + 0.60	3.88	8.86	1.11	0.23	79.3	88.5
- 0.60	4.98	4.98	2.52	0.11	95.6	95.6

(1) – Based on tail screen analysis

Table 6-24.
Magino Project
Granodiorite Composite
Minus 9.5 Millimeter Crushed Material
KCA Sample No. 27089 B
KCA Column Leach Test No. 27129
Head Screen Assays vs. Tail Screen Assays

Size Fraction, mm	Tail Wt., %	Cumulative Pass Wt., %	Head Au g/MT	Tail Au g/MT	Percent Gold Recovered	Cumulative Recovered, % (1)
- 9.5 + 6.3	15.79	100.00	2.21	1.20	45.7	59.6
- 6.3 + 4.75	25.10	84.21	1.13	0.75	33.6	62.3
- 4.75 + 3.35	17.00	59.11	3.02	0.36	88.1	74.4
- 3.35 + 1.70	18.01	42.11	1.30	0.76	41.5	68.9
- 1.70 + 0.60	11.52	24.10	1.65	0.26	84.2	89.4
- 0.60 + 0.212	4.78	12.58	1.48	0.16	89.2	94.1
- 0.212	7.80	7.80	2.42	0.07	97.1	97.1

(1) – Based on tail screen analysis

7.0 Assaying Procedures

7.1 Heads and Tailings

All heads and tailings assays were run as one assay ton fire assays. The samples for fire assay were submitted to two independent commercial laboratories for fire assaying.

7.2 Carbon Assays

The loaded activated carbon was dried and weighed. Two samples were split out and assayed and the remainder saved for reference. The carbon for assay was roasted to convert it to ash, then conventionally fire assayed.

7.3 Solution Assays

Approximate solution assays were made every cycle on an atomic absorption spectrophotometer, using gold and silver standards that had been calibrated by fire assay. The solution assays were used merely to check on the progress of the column tests, since actual recoveries were based on fire assays of the activated carbon.

7.4 Cyanide Assays

Sodium cyanide concentration in the leach solutions was determined using a colorimetric titration using a silver nitrate titrant and 5-[p-(Dimethylamino)- benzylidene]-rhodanine as the indicator. Free cyanide was determined by titrating 25 mL of the leach solution to the colorimetric end point. A few drops of 1N sodium hydroxide solution were then added to break up any base metal cyanide complexes and the titration continued until the end point was reached again to determine the 'total' cyanide in solution.

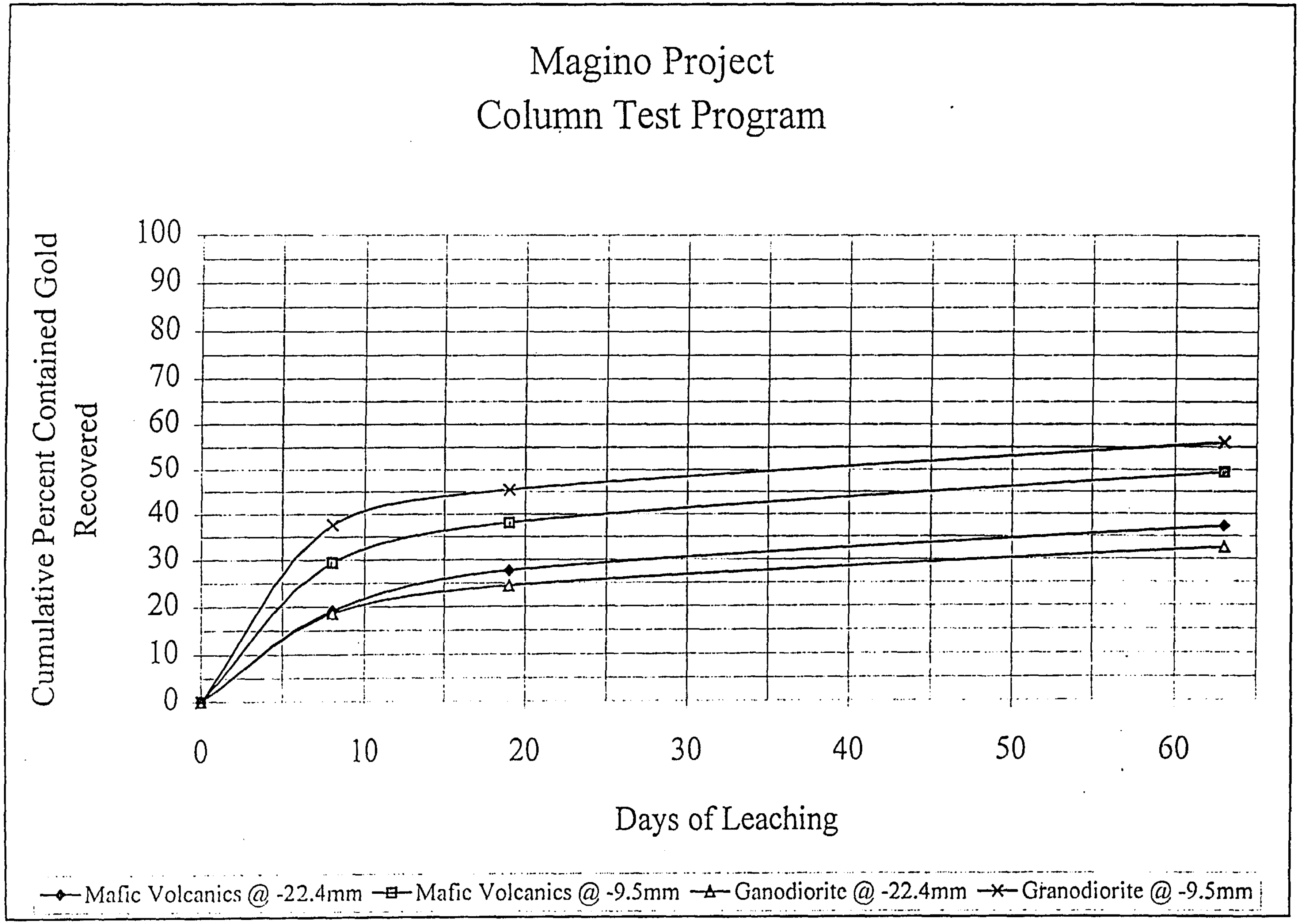
APPENDIX B.1
COLUMN TEST LOGS

APPENDIX B.1
COLUMN TEST LOGS

Daily log sheets for the leach tests are included in this appendix. The recoveries are based on solution assays determined by atomic absorption (The recoveries in the body of the report are based on carbon fire assays).

The data given in the tables alternate daily between pregnant and barren solutions. The gold and silver values not recovered by the carbon are recorded as negative recoveries. Each log sheet contains the following daily information:

Column	Description of Data
1.	Date
2.	pH level
3.	NaCN concentration - free/total (gpL)
4.	Lime addition (grams)
5.	NaCN addition (grams)
6.	Days (run time)
7.	Solution added to system (mL)
8.	Carbon bottle used
9.	Gold solution assay (mg/L)
10.	Silver solution assay (mg/L)
11.	Copper solution assay (mg/L)
12.	Solution volume (mL)
13.	Flowrate, Liters per hour per square meter
14.	Cumulative tonnes of solution effluent per tonne of ore
15.	Daily gold recovery based on solution assays (gms/MT)
16.	Cumulative gold recovery based on soln. assays (gms/MT)
17.	Daily percent gold recovery
18.	Cumulative percent gold recovery
19.	Percent of gold extracted
20.	Daily silver recovery based on solution assays (gms/MT)
21.	Cumulative silver recovery based on soln. assays (gms/MT)
22.	Daily percent silver recovery
23.	Cumulative percent silver recovery



Magino Project
Column Test Program
Cumulative Percent Contained Gold Recovered
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
Days of Leaching
Mafic Volcanics @ -22.4mm
Mafic Volcanics @ -9.5mm
Ganodiorite @ -22.4mm
Granodiorite @ -9.5mm

PROJECT: Magino
TEST No.: 27120
SAMPLE I.D.: 27088 A
SAMPLE HT (meters): 1.518
ORE SIZE (mm): Minus 22.4
COL DIAM (meters): 0.102

Mafic Volcanics

TAILS ASSAY: Au gpt: 0.59 Ag gpt 1.4
CALC. HEAD: Au gpt: 0.92 Ag gpt 1.5
WT OF SAMPLE (kg.): 20.00

COLUMN SURFACE AREA (square meters): 0.008

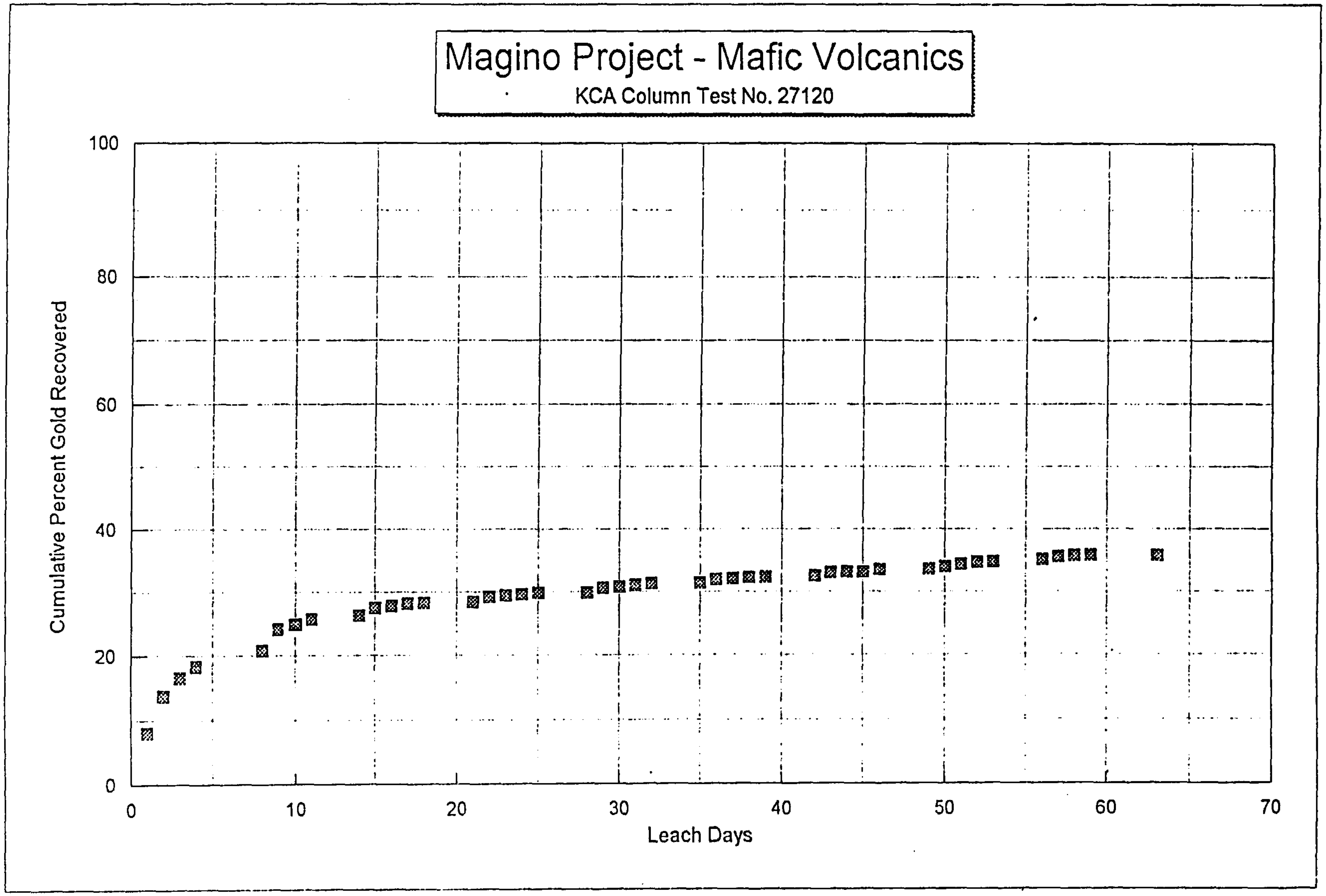
DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
31 Aug	--	--	10.00	3.00	0	3,000																
01 Sept	--	--	0.00	2.30	1	2,300																
01 Sept	11.9	0.95/0.95			1		C-1	0.86	0.31	6.0	1,718	8.830	0.09	0.07	0.07	8.04	8.04	22.45	0.0	0.0	1.78	1.78
02 Sept	10.3	0.05/0.05	0.00	1.30	2	600		0.00	0.00		1,718			0.00	0.07	0.00	8.04		0.0	0.0	0.00	1.78
02 Sept	12.0	0.95/0.95			2			0.46	0.10		2,306	11.849	0.20	0.05	0.13	5.77	13.81	38.57	0.0	0.0	0.77	2.56
03 Sept	11.8	0.85/0.85	0.00	0.00	3			0.00	0.00		2,306			0.00	0.13	0.00	13.81		0.0	0.0	0.00	2.56
03 Sept	12.0	0.80/0.80			3			0.23	0.05		2,195	11.281	0.31	0.03	0.15	2.75	16.56	46.24	0.0	0.0	0.37	2.93
04 Sept	11.7	0.70/0.70	0.00	0.00	4			0.00	0.00		2,195			0.00	0.15	0.00	16.56		0.0	0.0	0.00	2.93
04 Sept	11.5	0.80/0.80			4			0.16	0.05		2,010	10.328	0.41	0.02	0.17	1.75	18.31	51.13	0.0	0.0	0.34	3.26
08 Sept	10.6	0.35/0.35	0.00	0.60	8			0.00	0.00		2,010			0.00	0.17	0.00	18.31		0.0	0.0	0.00	3.26
08 Sept	10.7	0.70/0.70			8			0.21	0.03		2,124	10.914	0.52	0.02	0.19	2.43	20.73	57.91	0.0	0.1	0.21	3.48
09 Sept	11.0	0.55/0.55	0.00	0.00	9		XC-1	0.00	0.00		2,124			0.00	0.19	0.00	20.73		0.0	0.1	0.00	3.48
09 Sept	11.0	0.45/0.45			9		C-2	0.38	0.05	12.2	1,630	8.376	0.60	0.03	0.22	3.37	24.10	67.32	0.0	0.1	0.27	3.75
10 Sept	10.4	0.10/0.10	0.00	1.20	10	700		0.00	0.00		1,630			0.00	0.22	0.00	24.10		0.0	0.1	0.00	3.75
10 Sept	10.9	0.45/0.45			10			0.08	0.02		1,775	9.119	0.69	0.01	0.23	0.77	24.87	69.48	0.0	0.1	0.12	3.87
11 Sept	10.6	0.20/0.20	0.00	1.00	11	600		0.00	0.00		1,775			0.00	0.23	0.00	24.87		0.0	0.1	0.00	3.87
11 Sept	10.6	0.35/0.35			11			0.06	0.01		2,353	12.094	0.81	0.01	0.24	0.77	25.64	71.62	0.0	0.1	0.08	3.95
14 Sept	10.2	0.15/0.15	0.00	1.20	14			0.00	0.00		2,353			0.00	0.24	0.00	25.64		0.0	0.1	0.00	3.95
14 Sept	10.2	0.40/0.40			14			0.05	0.01		2,264	11.634	0.92	0.01	0.24	0.62	26.26	73.34	0.0	0.1	0.08	4.02
15 Sept	10.4	0.25/0.25	0.00	0.90	15			0.00	0.00		2,264			0.00	0.24	0.00	26.26		0.0	0.1	0.00	4.02
15 Sept	10.3	0.45/0.45			15			0.10	0.02		2,226	11.439	1.03	0.01	0.25	1.21	27.47	76.73	0.0	0.1	0.15	4.17
16 Sept	10.2	0.25/0.25	0.00	0.90	16			0.00	0.00		2,226			0.00	0.25	0.00	27.47		0.0	0.1	0.00	4.17
16 Sept	10.2	0.50/0.50			16			0.03	0.01	9.4	2,111	10.850	1.14	0.00	0.26	0.34	27.81	77.69	0.0	0.1	0.07	4.24
17 Sept	10.3	0.30/0.30	0.00	0.00	17			0.00	0.00		2,111			0.00	0.26	0.00	27.81		0.0	0.1	0.00	4.24
17 Sept	10.3	0.50/0.50			17			0.03	0.02		2,218	11.396	1.25	0.00	0.26	0.36	28.18	78.70	0.0	0.1	0.15	4.39
18 Sept	10.3	0.35/0.35	0.00	0.70	18			0.00	0.00		2,218			0.00	0.26	0.00	28.18		0.0	0.1	0.00	4.39
18 Sept	10.2	0.40/0.40			18			0.01	0.01		1,957	10.054	1.34	0.00	0.26	0.11	28.28	79.00	0.0	0.1	0.07	4.46
21 Sept	10.3	0.10/0.10	0.00	1.00	21		XC-2	0.00	0.00		1,957			0.00	0.26	0.00	28.28		0.0	0.1	0.00	4.46
21 Sept	10.2	0.40/0.40			21		C-3	0.01	0.01		2,183	11.217	1.45	0.00	0.26	0.12	28.40	79.33	0.0	0.1	0.07	4.53
22 Sept	10.1	0.15/0.15	0.00	1.00	22			0.00	0.00		2,183			0.00	0.26	0.00	28.40		0.0	0.1	0.00	4.53
22 Sept	10.3	0.45/0.45			22			0.10	0.02		1,497	7.694	1.53	0.01	0.27	0.81	29.22	81.60	0.0	0.1	0.10	4.63
23 Sept	10.4	0.15/0.15	0.00	1.20	23	900		0.00	0.00		1,497			0.00	0.27	0.00	29.22		0.0	0.1	0.00	4.63
23 Sept	10.5	0.35/0.35			23			0.02	0.01	5.3	2,314	11.890	1.64	0.00	0.27	0.25	29.47	82.31	0.0	0.1	0.08	4.71
24 Sept	10.4	0.30/0.30	0.00	0.70	24			0.00	0.00		2,314			0.00	0.27	0.00	29.47		0.0	0.1	0.00	4.71
24 Sept	10.4	0.30/0.30			24			0.01	0.01		1,975	10.147	1.74	0.00	0.27	0.11	29.58	82.61	0.0	0.1	0.07	4.77
25 Sept	10.4	0.15/0.15	0.00	1.00	25			0.00	0.00		1,975			0.00	0.27	0.00	29.58		0.0	0.1	0.00	4.77
25 Sept	10.5	0.60/0.60			25			0.02	0.01		2,235	11.487	1.85	0.00	0.27	0.24	29.82	83.29	0.0	0.1	0.07	4.85
28 Sept	10.5	0.20/0.20	0.00	0.90	28			0.00	0.00		2,235			0.00	0.27	0.00	29.82		0.0	0.1	0.00	4.85
28 Sept	10.4	0.40/0.40			28			0.00	0.00		1,951	10.025	1.95	0.00	0.27	0.00	29.82	83.29	0.0	0.1	0.00	4.85
29 Sept	10.5	0.30/0.30	0.00	0.60	29			0.00	0.00		1,951			0.00	0.27	0.00	29.82	·	0.0	0.1	0.00	4.85
29 Sept	10.5	0.40/0.45			29			0.07	0.01		2,030	10.432	2.05	0.01	0.28	0.77	30.59	85.44	0.0	0.1	0.07	4.92
30 Sept	10.4	0.40/0.40	0.00	0.00	30			0.00	0.00		2,030			0.00	0.28	0.00	30.59		0.0	0.1	0.00	4.92
30 Sept	10.4	0.65/0.65			30			0.02	0.01	10.8	1,894	9.733	2.15	0.00	0.28	0.21	30.80	86.02	0.0	0.1	0.06	4.98
01 Oct	10.4	0.40/0.40	0.00	0.00	31			0.00	0.00		1,894			0.00	0.28	0.00	30.80		0.0	0.1	0.00	4.98
01 Oct	10.4	0.60/0.60			31			0.03	0.01		1,901	9.770	2.24	0.00	0.29	0.31	31.11	86.89	0.0	0.1	0.06	5.04
02 Oct	10.6	0.60/0.60.	0.00	0.00	32			0.00	0.00		1,901.			0.00	0.29	0.00	31.11		0.0	0.1	0.00	5.04
02 Oct	10.4	0.40/0.40			32			0.02	0.01		1,705	8.761	2.33	0.00	0.29	0.19	31.29	87.41	0.0	0.1	0.06	5.10
05 Oct	10.4	0.20/0.20	0.00	1.00	35	600		0.00	0.00		1,705			0.00	0.29	0.00	31.29		0.0	0.1	0.00	5.10
05 Oct	10.3	0.45/0.45			35			0.01	0.00		1,874	9.632	2.42	0.00	0.29	0.10	31.40	87.69	0.0	0.1	0.00	4.98
06 Oct	10.5	0.20/0.20	0.00	0.70	36			0.00	0.00		1,874			0.00	0.29	0.00	31.40		0.0	0.1	0.00	4.98
06 Oct	10.5	0.55/0.55			36			0.05	0.00		2,041	10.487	2.52	0.01	0.29	0.56	31.95	89.24	0.0	0.1	0.00	4.98
07 Oct	10.4	0.30/0.30	0.00	0.60	37			0.00	0.00		2,041			0.00	0.29	0.00	31.95		0.0	0.1	0.00	4.98
07 Oct	10.4	0.55/0.55			37			0.02	0.00	10.7	1,718	8.830	2.61	0.00	0.30	0.19	32.14	89.76	0.0	0.1	0.00	5.10

PROJECT: Magino
TEST No.: 27120
SAMPLE I.D.: 27088 A
SAMPLE HT (meters): 1.518
ORE SIZE (mm): Minus 22.4
COL DIAM (meters): 0.102

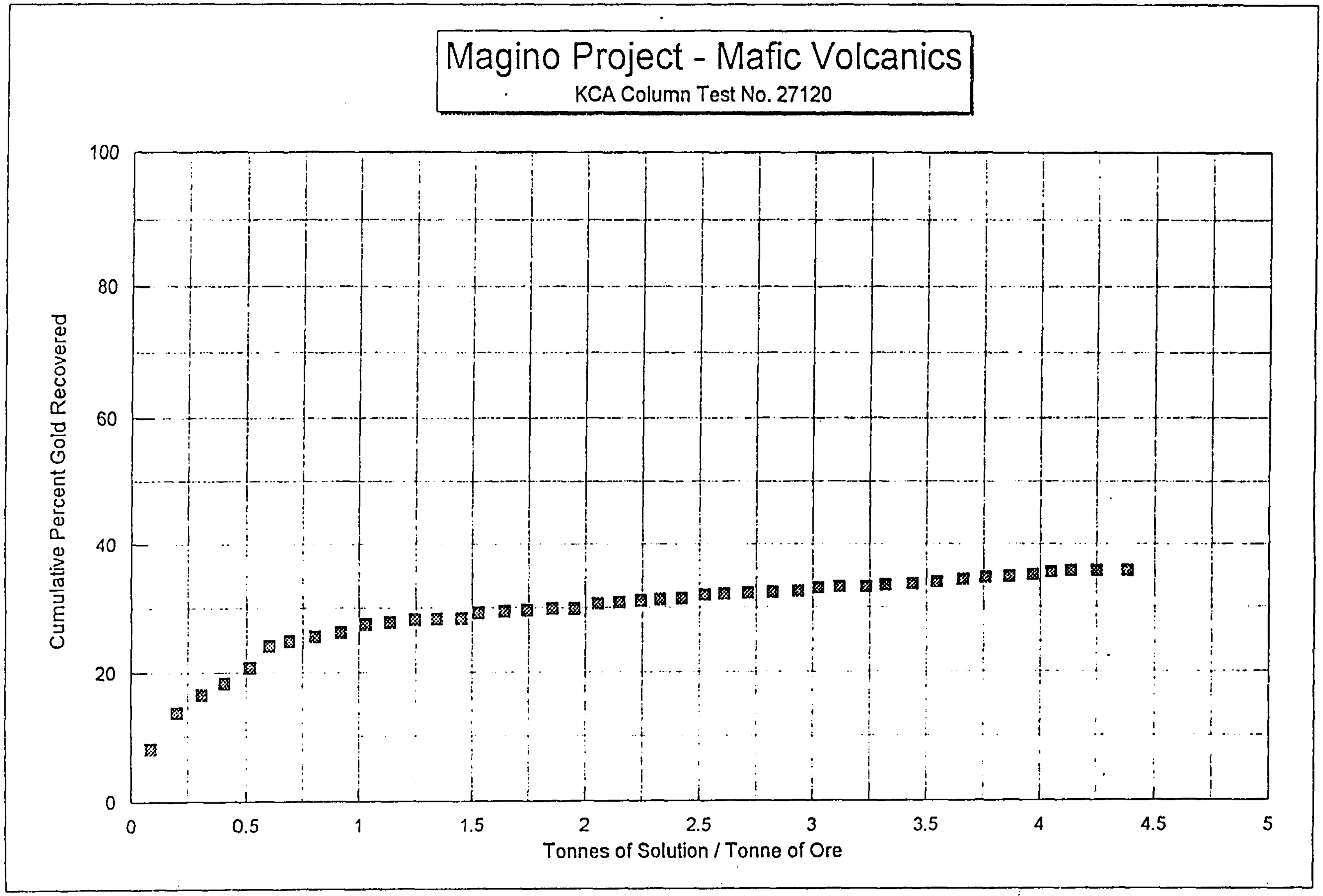
Mafic Volcanics

TAILS ASSAY: Au gpt: 0.59 Ag gpt 1.4
CALC. HEAD: Au gpt: 0.92 Ag gpt 1.5
WT OF SAMPLE (kg.): 20.00
COLUMN SURFACE AREA (square meters): 0.008

DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
08 Oct	10.5	0.35/0.35	0.00	0.80	38	600		0.00	0.00		1,718			0.00	0.30	0.00	32.14		0.0	0.1	0.00	5.10
08 Oct	10.4	0.60/0.60			38			0.01	0.01		2,105	10.816	2.72	0.00	0.30	0.11	32.25	90.08	0.0	0.1	0.07	5.17
09 Oct	10.5	0.35/0.35	0.00	0.60	39			0.00	0.00		2,105			0.00	0.30	0.00	32.25		0.0	0.1	0.00	5.17
09 Oct	10.5	0.60/0.60			39			0.01	0.00		2,145	11.024	2.82	0.00	0.30	0.12	32.37	90.41	0.0	0.1	0.00	5.17
12 Oct	10.5	0.25/0.25	0.00	0.90	42			0.00	0.00		2,145			0.00	0.30	0.00	32.37		0.0	0.1	0.00	5.17
12 Oct	10.3	0.55/0.55			42			0.01	0.00		2,242	11.522	2.93	0.00	0.30	0.12	32.49	90.75	0.0	0.1	0.00	5.17
13 Oct	10.4	0.35/0.35	0.00	0.70	43			0.00	0.00		2,242			0.00	0.30	0.00	32.49		0.0	0.1	0.00	5.17
13 Oct	10.4	0.55/0.55			43			0.06	0.02		1,780	9.147	3.02	0.01	0.30	0.58	33.07	92.37	0.0	0.1	0.12	5.29
14 Oct	10.4	0.30/0.30	0.00	0.80	44	600		0.00	0.00		1,780			0.00	0.30	0.00	33.07		0.0	0.1	0.00	5.29
14 Oct	10.4	0.65/0.65			44			0.01	0.01	13.1	1,911	9.818	3.12	0.00	0.30	0.10	33.18	92.66	0.0	0.1	0.06	5.35
15 Oct	10.5	0.40/0.40	0.00	0.00	45			0.00	0.00		1,911			0.00	0.30	0.00	33.18		0.0	0.1	0.00	5.35
15 Oct	10.6	0.50/0.50			45			0.00	0.01		2,321	11.926	3.24	0.00	0.30	0.00	33.18	92.66	0.0	0.1	0.08	5.43
16 Oct	10.8	0.30/0.30	0.00	0.00	46			0.00	0.00		2,321			0.00	0.30	0.00	33.18		0.0	0.1	0.00	5.43
16 Oct	10.7	0.50/0.50			46			0.04	0.00		1,695	8.711	3.32	0.00	0.31	0.37	33.54	93.69	0.0	0.1	0.00	5.43
19 Oct	10.5	0.15/0.15	0.00	1.20	49	700		0.00	0.00		1,695			0.00	0.31	0.00	33.54		0.0	0.1	0.00	5.43
19 Oct	10.5	0.25/0.25			49			0.01	0.00		2,418	12.424	3.44	0.00	0.31	0.13	33.68	94.06	0.0	0.1	0.00	5.43
20 Oct	10.4	0.20/0.20	0.00	1.00	50			0.00	0.00		2,418			0.00	0.31	0.00	33.68		0.0	0.1	0.00	5.43
20 Oct	10.4	0.20/0.20			50			0.03	0.01		2,086	10.721	3.55	0.00	0.31	0.34	34.02	95.01	0.0	0.1	0.07	5.50
21 Oct	10.3	0.25/0.25	0.00	0.80	51			0.00	0.00		2,086			0.00	0.31	0.00	34.02		0.0	0.1	0.00	5.50
21 Oct	10.3	0.55/0.55			51			0.03	0.01		2,286	11.745	3.66	0.00	0.32	0.37	34.39	96.05	0.0	0.1	0.08	5.58
22 Oct	10.4	0.35/0.35	0.00	0.70	52			0.00	0.00		2,286			0.00	0.32	0.00	34.39		0.0	0.1	0.00	5.58
22 Oct	10.3	0.50/0.50			52			0.03	0.01		1,951	10.025	3.76	0.00	0.32	0.32	34.71	96.94	0.0	0.1	0.07	5.64
23 Oct	10.2	0.35/0.35	0.00	0.60	53			0.00	0.00		1,951			0.00	0.32	0.00	34.71		0.0	0.1	0.00	5.64
23 Oct	10.3	0.65/0.65			53			0.01	0.00		2,074	10.658	3.86	0.00	0.32	0.11	34.82	97.26	0.0	0.1	0.00	5.64
26 Oct	10.4	0.22/0.22	0.00	0.80	56			0.00	0.00		2,074			0.00	0.32	0.00	34.82		0.0	0.1	0.00	5.64
26 Oct	10.3	0.52/0.52			56			0.03	0.00		2,115	10.868	3.97	0.00	0.32	0.35	35.17	98.22	0.0	0.1	0.00	5.64
27 Oct	10.3	0.34/0.34	0.00	0.60	57			0.00	0.00		2,115			0.00	0.32	0.00	35.17		0.0	0.1	0.00	5.64
27 Oct	10.3	0.55/0.55			57			0.05	0.00		1,595	8.194	4.05	0.00	0.33	0.43	35.60	99.43	0.0	0.1	0.00	5.64
28 Oct	10.4	0.35/0.35	0.00	0.80	58	700		0.01	0.00		1,595			-0.00	0.33	-0.09	35.51		0.0	0.1	0.00	5.64
28 Oct	10.4	0.52/0.52			58			0.03	0.00	14.8	1,775	9.122	4.14	0.00	0.33	0.29	35.80	100.00	0.0	0.1	0.00	5.64
29 Oct	10.3	0.30/0.30	0.00	0.80	59	600		0.00	0.00		1,775			0.00	0.33	0.00	35.80		0.0	0.1	0.00	5.64
29 Oct	10.3	0.50/0.50			59			0.00	0.00		2,301	11.822	4.25	0.00	0.33	0.00	35.80	100.00	0.0	0.1	0.00	5.64
02 Nov	10.4	0.20/0.20	0.00	0.00	63			0.00	0.00		2,301			0.00	0.33	0.00	35.80	-	0.0	0.1	0.00	5.64
02 Nov	10.3	0.60/0.65			63			0.00	0.00	10.6	2,602	13.370	4.38	0.00	0.33	0.00	35.80	100.00	0.0	0.1	0.00	5.64
03 Nov	10.3	0.45/0.45			64		XC-3	0.00	0.00	10.9	2,602			0.00	0.33	0.00	35.80	.	0.0	0.1	0.00	5.64



Magino Project - Mafic Volcanics
KCA Column Test No. 27120
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
10
20
30
40
50
60
70
Leach Days



Magino Project - Mafic Volcanics
KCA Column Test No. 27120
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Tonnes of Solution / Tonne of Ore

PROJECT: Magino
TEST No.: 27123
SAMPLE I.D.: 27088 B
SAMPLE HT (meters): 1.454
ORE SIZE (mm): Minus 9.5
COL DIAM (meters): 0.102

Mafic Volcanics

TAILS ASSAY: Au gpt: 0.81 Ag gpt 1.4
CALC. HEAD: Au gpt: 1.58 Ag gpt 1.5
WT OF SAMPLE (kg.): 20.00

COLUMN SURFACE AREA (square meters): 0.008

DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
31 Aug	--	--	10.00	3.00	0	3,000																
01 Sept	--	--	0.00	2.30	1	2,300																
01 Sept	11.9	0.70/0.70			1		C-1	3.50	1.03	5.2	618	3.178	0.03	0.11	0.11	6.87	6.87	14.12	0.0	0.0	2.08	2.08
02 Sept	10.0	0.05/0.05	0.00	1.20	2	1,700		0.00	0.00		618			0.00	0.11	0.00	6.87		0.0	0.0	0.00	2.08
02 Sept	12.0	0.90/0.90			2			1.64	0.25		2,802	14.401	0.17	0.23	0.34	14.58	21.44	44.12	0.0	0.1	2.28	4.36
03 Sept	11.7	0.60/0.60	0.00	0.00	3			0.01	0.00		2,802			-0.00	0.34	-0.09	21.36		0.0	0.1	0.00	4.36
03 Sept	12.0	0.80/0.80			3			0.71	0.09		2,124	10.915	0.28	0.08	0.41	4.78	26.14	53.77	0.0	0.1	0.62	4.98
04 Sept	11.7	0.60/0.60	0.00	0.00	4			0.00	0.00		2,124			0.00	0.41	0.00	26.14		0.0	0.1	0.00	4.98
04 Sept	11.7	0.80/0.80			4			0.34	0.05		2,643	13.580	0.41	0.04	0.46	2.85	28.99	59.64	0.0	0.1	0.43	5.41
08 Sept	10.6	0.40/0.40	0.00	0.00	8			0.00	0.00		2,643			0.00	0.46	0.00	28.99		0.0	0.1	0.00	5.41
08 Sept	10.7	0.55/0.55			8			0.25	0.03		2,158	11.089	0.52	0.03	0.48	1.71	30.70	63.16	0.0	0.1	0.21	5.62
09 Sept	11.0	0.40/0.40	0.00	0.00	9		XC-1	0.00	0.00		2,158			0.00	0.48	0.00	30.70		0.0	0.1	0.00	5.62
09 Sept	11.1	0.55/0.55			9		C-2	0.56	0.07	17.1	1,937	9.953	0.61	0.05	0.54	3.44	34.14	70.24	0.0	0.1	0.44	6.07
10 Sept	10.5	0.05/0.10	0.00	1.20	10			0.00	0.00		1,937			0.00	0.54	0.00	34.14		0.0	0.1	0.00	6.07
10 Sept	11.0	0.35/0.35			10			0.10	0.02		1,798	9.238	0.70	0.01	0.55	0.57	34.71	71.41	0.0	0.1	0.12	6.18
11 Sept	10.6	0.20/0.20	0.00	1.00	11	600		0.00	0.00		1,798			0.00	0.55	0.00	34.71		0.0	0.1	0.00	6.18
11 Sept	10.7	0.30/0.30			11			0.09	0.01		2,017	10.364	0.80	0.01	0.56	0.58	35.29	72.60	0.0	0.1	0.07	6.25
14 Sept	10.1	0.10/0.10	0.00	1.00	14			0.00	0.00		2,017			0.00	0.56	0.00	35.29		0.0	0.1	0.00	6.25
14 Sept	10.2	0.45/0.45			14			0.12	0.01		2,320	11.921	0.92	0.01	0.57	0.88	36.17	74.41	0.0	0.1	0.08	6.33
15 Sept	10.4	0.25/0.25	0.00	0.90	15			0.00	0.00		2,320			0.00	0.57	0.00	36.17		0.0	0.1	0.00	6.33
15 Sept	10.3	0.37/0.37			15			0.21	0.03		2,034	10.454	1.02	0.02	0.59	1.36	37.53	77.20	0.0	0.1	0.20	6.52
16 Sept	10.2	0.20/0.20	0.00	0.80	16			0.00	0.00		2,034			0.00	0.59	0.00	37.53		0.0	0.1	0.00	6.52
16 Sept	10.2	0.45/0.45			16			0.07	0.01	14.7	2,198	11.294	1.13	0.01	0.60	0.49	38.01	78.20	0.0	0.1	0.07	6.60
17 Sept	10.3	0.25/0.25	0.00	0.00	17			0.00	0.00		2,198			0.00	0.60	0.00	38.01		0.0	0.1	0.00	6.60
17 Sept	10.3	0.35/0.35			17			0.08	0.01		1,942	9.979	1.23	0.01	0.61	0.49	38.51	79.22	0.0	0.1	0.06	6.66
18 Sept	10.3	0.30/0.30	0.00	0.60	18			0.00	0.00		1,942			0.00	0.61	0.00	38.51		0.0	0.1	0.00	6.66
18 Sept	10.2	0.30/0.30			18			0.05	0.00		1,969	10.116	1.33	0.00	0.61	0.31	38.82	79.86	0.0	0.1	0.00	6.66
21 Sept	10.2	0.15/0.15	0.00	1.00	21		XC-2	0.00	0.00		1,969			0.00	0.61	0.00	38.82		0.0	0.1	0.00	6.66
21 Sept	10.1	0.25/0.25			21		C-3	0.04	0.01		1,995	10.252	1.43	0.00	0.62	0.25	39.07	80.38	0.0	0.1	0.07	6.72
22 Sept	10.1	0.10/0.10	0.00	1.00	22			0.00	0.00		1,995			0.00	0.62	0.00	39.07		0.0	0.1	0.00	6.72
22 Sept	10.3	0.35/0.35			22			0.21	0.03		1,437	7.386	1.50	0.02	0.63	0.96	40.03	82.35	0.0	0.1	0.14	6.86
23 Sept	10.3	0.10/0.10	0.00	1.20	23	900		0.00	0.00		1,437			0.00	0.63	0.00	40.03		0.0	0.1	0.00	6.86
23 Sept	10.4	0.40/0.40			23			0.07	0.01	12.0	1,899	9.758	1.59	0.01	0.64	0.42	40.45	83.22	0.0	0.1	0.06	6.93
24 Sept	10.4	0.25/0.25	0.00	0.80	24			0.00	0.00		1,899			0.00	0.64	0.00	40.45		0.0	0.1	0.00	6.93
24 Sept	10.3	0.25/0.25			24			0.04	0.02		2,244	11.531	1.71	0.00	0.64	0.28	40.74	83.80	0.0	0.1	0.15	7.07
25 Sept	10.3	0.20/0.20	0.00	0.90	25			0.00	0.00		2,244			0.00	0.64	0.00	40.74		0.0	0.1	0.00	7.07
25 Sept	10.4	0.45/0.45			25			0.05	0.01		1,816	9.331	1.80	0.00	0.65	0.29	41.02	84.40	0.0	0.1	0.06	7.13
28 Sept	10.4	0.15/0.15	0.00	0.90	28			0.00	0.00		1,816			0.00	0.65	0.00	41.02		0.0	0.1	0.00	7.13
28 Sept	10.4	0.35/0.35			28			0.04	0.01		2,139	10.994	1.90	0.00	0.65	0.27	41.30	84.95	0.0	0.1	0.07	7.20
29 Sept	10.5	0.25/0.25	0.00	0.90	29			0.00	0.00		2,319			0.00	0.65	0.00	41.30		0.0	0.1	0.00	7.20
29 Sept	10.4	0.30/0.30			29			0.13	0.02		1,635	8.404	1.99	0.01	0.66	0.67	41.97	86.34	0.0	0.1	0.11	7.31
30 Sept	10.4	0.25/0.25	0.00	1.40	30	700		0.00	0.00		1,635			0.00	0.66	0.00	41.97		0.0	0.1	0.00	7.31
30 Sept	10.3	0.45/0.45			30			0.06	0.01	13.5	2,110	10.843	2.09	0.01	0.67	0.40	42.37	87.17	0.0	0.1	0.07	7.38
01 Oct	10.3	0.35/0.35	0.00	0.60	31			0.00	0.00		2,110			0.00	0.67	0.00	42.37		0.0	0.1	0.00	7.38
01 Oct	10.3	0.50/0.50			31			0.04	0.01		2,009	10.324	2.19	0.00	0.67	0.25	42.63	87.69	0.0	0.1	0.07	7.44
02 Oct	10.5	0.20/0.20	0.00	0.80	32			0.00	0.00		2,009			0.00	0.67	0.00	42.63		0.0	0.1	0.00	7.44
02 Oct	0.5	0.65/0.65			32			0.06	0.01		2,153	11.063	2.30	0.01	0.68	0.41	43.04	88.54	0.0	0.1	0.07	7.51
05 Oct	10.5	0.30/0.30	0.00	0.60	35			0.00	0.00		2,153			0.00	0.68	0.00	43.04		0.0	0.1	0.00	7.51
05 Oct	10.3	0.55/0.55			35			0.03	0.01		1,990	10.227	2.40	0.00	0.68	0.19	43.23	88.93	0.0	0.1	0.06	7.58
06 Oct	10.5	0.30/0.30	0.00	0.60	36			0.00	0.00		1,990			0.00	0.68	0.00	43.23		0.0	0.1	0.00	7.58
06 Oct	10.4	0.55/0.55			36			0.11	0.01		1,885	9.686	2.49	0.01	0.69	0.66	43.88	90.28	0.0	0.1	0.06	7.64
07 Oct	10.4	0.35/0.35	0.00	0.60	37			0.00	0.00		1,885			0.00	0.69	0.00	43.88		0.0	0.1	0.00	7.64
07 Oct	10.4	0.50/0.50			37			0.05	0.00	18.1	1,710	8.785	2.58	0.00	0.70	0.27	44.16	90.84	0.0	0.1	0.00	7.51

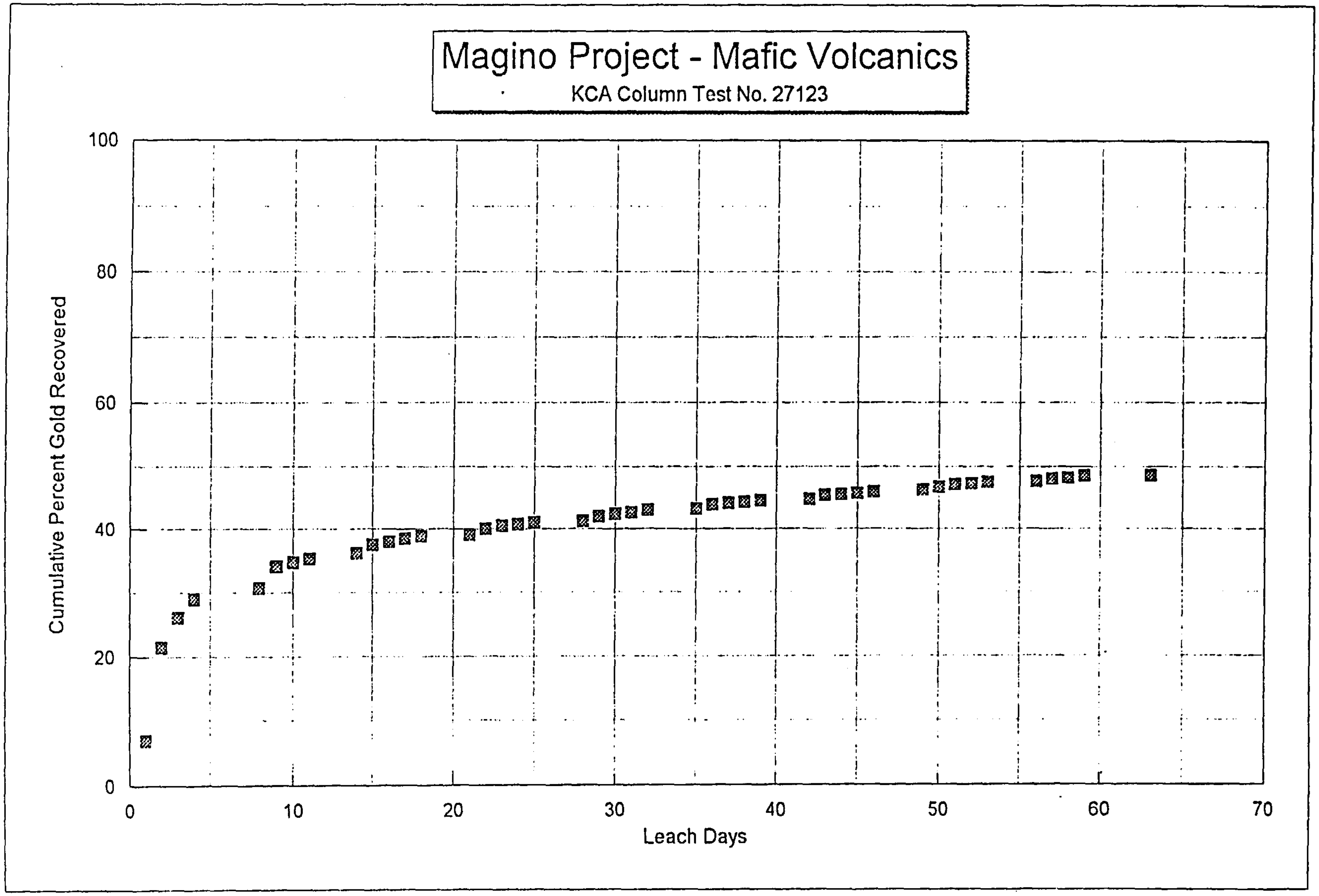
PROJECT: Magino
TEST No.: 27123
SAMPLE I.D.: 27088 B
SAMPLE HT (meters): 1.454
ORE SIZE (mm): Minus 9.5
COL DIAM (meters): 0.102

Mafic Volcanics

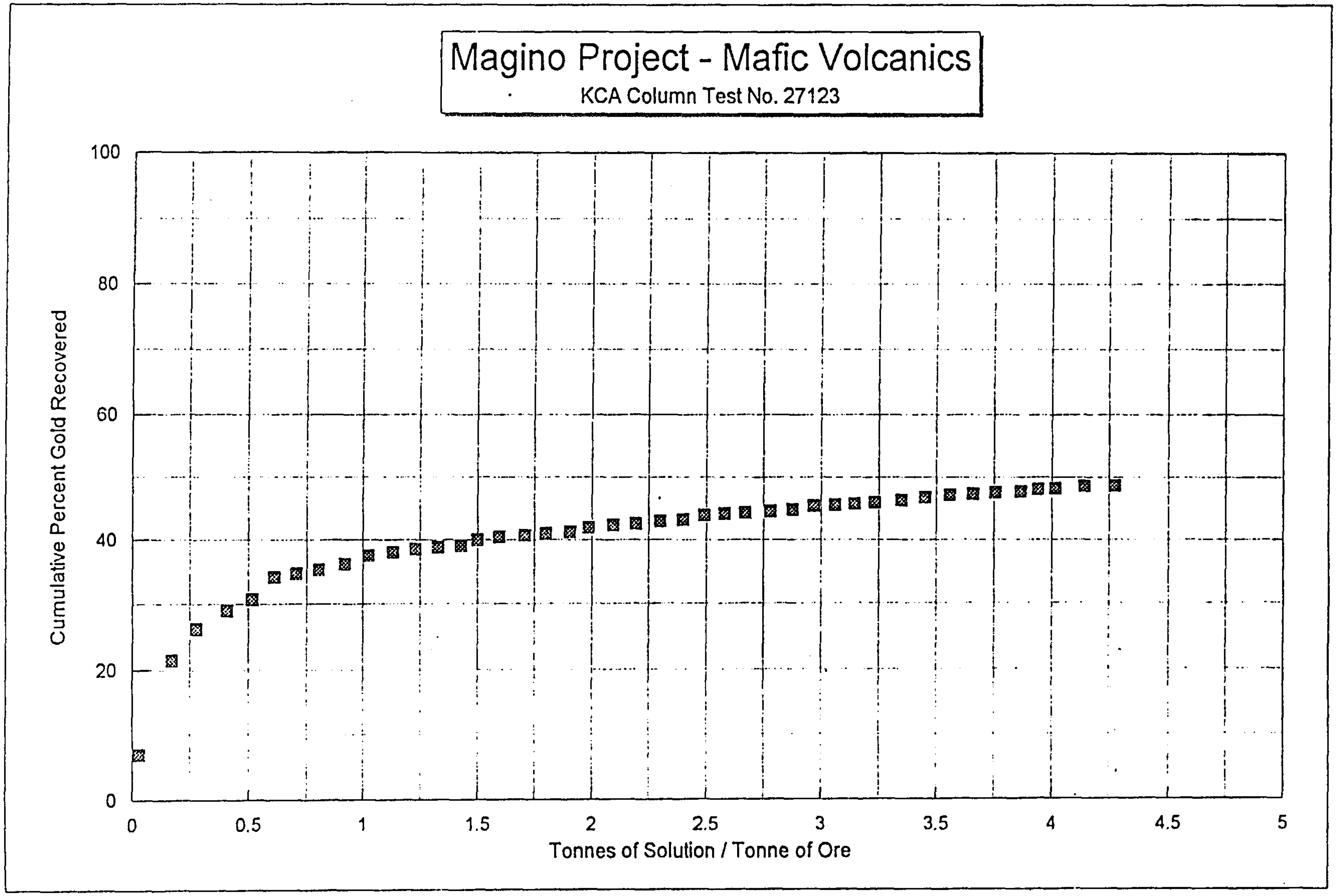
TAILS ASSAY: Au gpt: 0.81 Ag gpt 1.4
CALC. HEAD: Au gpt: 1.58 Ag gpt 1.5
WT OF SAMPLE (kg.): 20.00

COLUMN SURFACE AREA (square meters): 0.008

DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
08 Oct	10.5	0.30/0.30	0.00	0.80	38	600		0.00	0.00		1,710			0.00	0.70	0.00	44.16		0.0	0.1	0.00	7.51
08 Oct	10.4	0.60/0.60			38			0.03	0.00		1,814	9.320	2.67	0.00	0.70	0.17	44.33	91.19	0.0	0.1	0.00	7.51
09 Oct	10.5	0.35/0.35	0.00	0.50	39			0.00	0.00		1,814			0.00	0.70	0.00	44.33		0.0	0.1	0.00	7.51
09 Oct	10.5	0.55/0.55			39			0.03	0.00		2,205	11.330	2.78	0.00	0.70	0.21	44.54	91.62	0.0	0.1	0.00	7.51
12 Oct	10.5	0.25/0.25	0.00	0.90	42			0.00	0.00		2,205			0.00	0.70	0.00	44.54		0.0	0.1	0.00	7.51
12 Oct	10.3	0.45/0.45			42			0.04	0.00		1,940	9.967	2.88	0.00	0.71	0.25	44.78	92.13	0.0	0.1	0.00	7.51
13 Oct	10.4	0.35/0.35	0.00	0.60	43			0.00	0.00		1,940			0.00	0.71	0.00	44.78		0.0	0.1	0.00	7.51
13 Oct	10.4	0.50/0.50			43			0.11	0.01		1,809	9.295	2.97	0.01	0.72	0.63	45.41	93.43	0.0	0.1	0.06	7.70
14 Oct	10.4	0.35/0.35	0.00	0.50	44			0.00	0.00		1,809			0.00	0.72	0.00	45.41		0.0	0.1	0.00	7.70
14 Oct	10.4	0.65/0.65			44			0.03	0.00	19.0	1,867	9.596	3.06	0.00	0.72	0.18	45.59	93.79	0.0	0.1	0.00	7.70
15 Oct	10.6	0.45/0.45	0.00	0.00	45			0.00	0.00		1,867			0.00	0.72	0.00	45.59		0.0	0.1	0.00	7.70
15 Oct	10.5	0.55/0.55			45			0.03	0.01		1,691	8.692	3.15	0.00	0.72	0.16	45.75	94.12	0.0	0.1	0.06	7.75
16 Oct	10.7	0.35/0.35	0.00	0.40	46	700		0.00	0.00		1,691			0.00	0.72	0.00	45.75		0.0	0.1	0.00	7.75
16 Oct	10.7	0.50/0.50			46			0.04	0.01		1,745	8.966	3.23	0.00	0.72	0.22	45.97	94.58	0.0	0.1	0.06	7.81
19 Oct	10.6	0.20/0.20	0.00	1.00	49	600		0.00	0.00		1,745			0.00	0.72	0.00	45.97		0.0	0.1	0.00	7.81
19 Oct	10.4	0.40/0.40			49			0.04	0.01		2,323	11.937	3.35	0.00	0.73	0.29	46.27	95.19	0.0	0.1	0.08	7.89
20 Oct	10.4	0.25/0.25	0.00	0.90	50			0.00	0.00		2,323			0.00	0.73	0.00	46.27		0.0	0.1	0.00	7.89
20 Oct	10.4	0.25/0.25			50			0.07	0.02		2,042	10.493	3.45	0.01	0.74	0.45	46.72	96.12	0.0	0.1	0.13	8.02
21 Oct	10.3	0.25/0.25	0.00	0.80	51			0.00	0.00		2,042			0.00	0.74	0.00	46.72		0.0	0.1	0.00	8.02
21 Oct	10.3	0.50/0.50			51			0.06	0.01	16.7	2,137	10.979	3.56	0.01	0.74	0.41	47.13	96.96	0.0	0.1	0.07	8.09
22 Oct	10.4	0.35/0.35	0.00	0.60	52			0.00	0.00		2,137			0.00	0.74	0.00	47.13		0.0	0.1	0.00	8.09
22 Oct	10.3	0.55/0.55			52			0.03	0.01		1,978	10.163	3.66	0.00	0.75	0.19	47.32	97.34	0.0	0.1	0.06	8.15
23 Oct	10.3	0.35/0.35	0.00	0.60	53			0.00	0.00		1,978			0.00	0.75	0.00	47.32		0.0	0.1	0.00	8.15
23 Oct	10.3	0.60/0.60			53			0.03	0.00		1,979	10.171	3.76	0.00	0.75	0.19	47.51	97.73	0.0	0.1	0.00	8.15
26 Oct	10.4	0.20/0.20	0.00	0.80	56			0.00	0.00		1,979			0.00	0.75	0.00	47.51		0.0	0.1	0.00	8.15
26 Oct	10.3	0.55/0.55			56			0.03	0.00		2,148	11.037	3.86	0.00	0.75	0.20	47.71	98.15	0.0	0.1	0.00	8.15
27 Oct	10.3	0.35/0.35	0.00	0.50	57			0.00	0.00		2,148			0.00	0.75	0.00	47.71		0.0	0.1	0.00	8.15
27 Oct	10.3	0.55/0.55			57			0.08	0.01		1,490	7.655	3.94	0.01	0.76	0.38	48.09	98.93	0.0	0.1	0.05	8.20
28 Oct	10.4	0.31/0.31	0.00	0.80	58	800		0.01	0.00		1,490			-0.00	0.76	-0.05	48.04		0.0	0.1	0.00	8.20
28 Oct	10.4	0.52/0.52			58			0.05	0.00	23.3	1,523	7.828	4.01	0.00	0.76	0.24	48.28	99.33	0.0	0.1	0.00	8.20
29 Oct	10.3	0.35/0.35	0.00	0.90	59	800		0.00	0.00		1,523			0.00	0.76	0.00	48.28		0.0	0.1	0.00	8.20
29 Oct	10.3	0.50/0.50			59			0.03	0.00		2,553	13.117	4.14	0.00	0.76	0.24	48.53	99.83	0.0	0.1	0.00	8.20
02 Nov	10.4	0.20/0.20	0.00	0.00	63			0.00	0.00		2,553			0.00	0.76	0.00	48.53	.	0.0	0.1	0.00	8.20
02 Nov	10.3	0.60/0.60			63			0.01	0.00	16.4	2,639	13.563	4.27	0.00	0.77	0.08	48.61	100.00	0.0	0.1	0.00	8.20
03 Nov	10.3	0.40/0.40			64		XC-3	0.00	0.00	20.5	2,639			0.00	0.77	0.00	48.61		0.0	0.1	0.00	8.20



Magino Project - Mafic Volcanics
KCA Column Test No. 27123
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
10
20
30
40
50
60
70
Leach Days


Magino Project - Mafic Volcanics
KCA Column Test No. 27123
Cumulative Percent Gold Recovered
Tonnes of Solution / Tonne of Ore
0
20
40
60
80
100
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5

PROJECT: Magino
TEST No.: 27126
SAMPLE I.D.: 27089 A
SAMPLE HT (meters): 1.391
ORE SIZE (mm): Minus 22.4
COL DIAM (meters): 0.152

Granodiorite

TAILS ASSAY: Au gpt: 1.16 Ag gpt 1.4
CALC. HEAD: Au gpt: 1.66 Ag gpt 1.6
WT OF SAMPLE (kg.): 40.00

COLUMN SURFACE AREA (square meters): 0.018

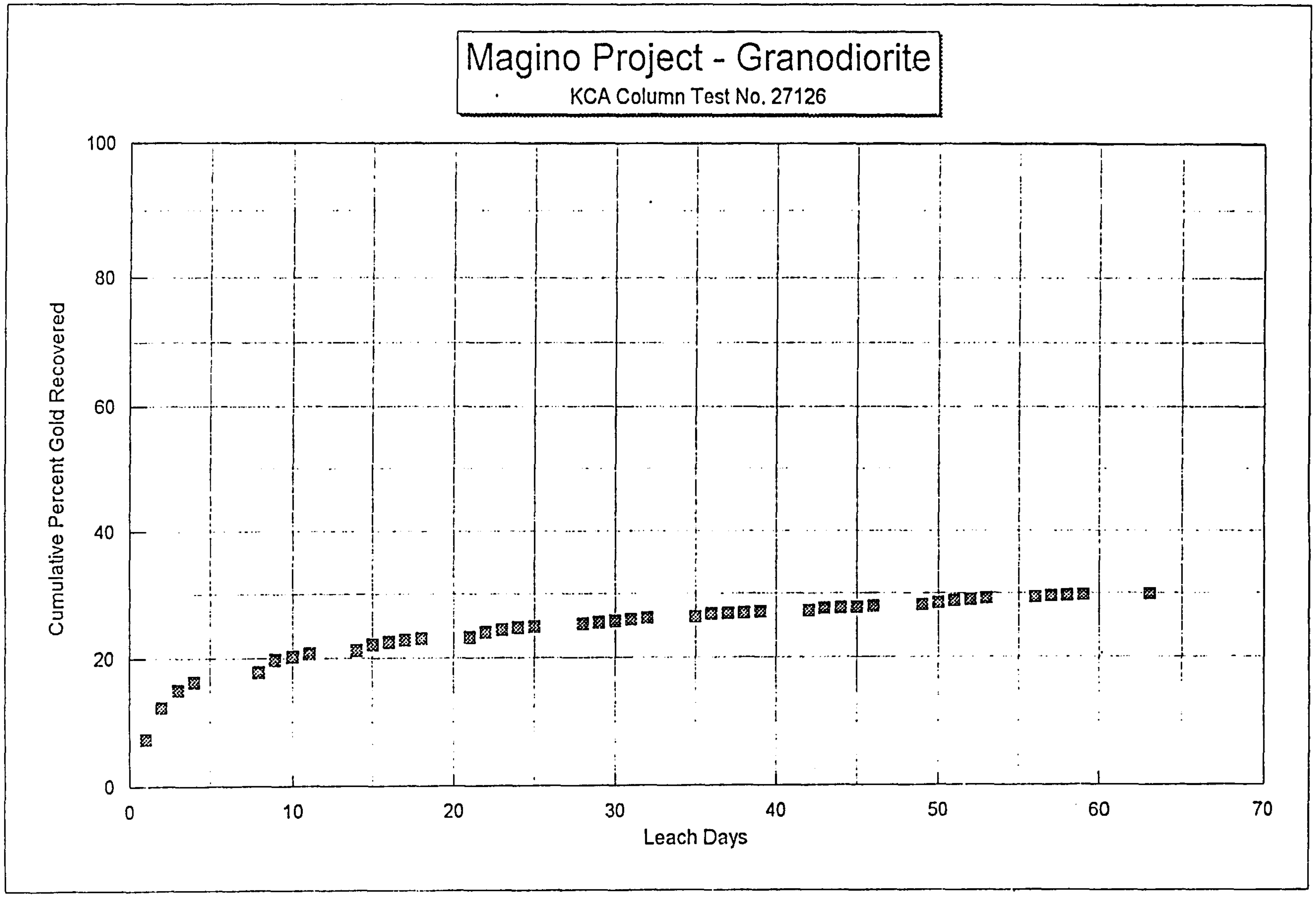
DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
31 Aug	--	--	20.00	6.00	0	6,000																
01 Sept	--	--	0.00	5.30	1	5,300																
01 Sept	11.9	0.90/0.90			1		C-1	1.10	0.39	4.0	4,380	10.004	0.11	0.12	0.12	7.28	7.28	24.32	0.0	0.0	2.75	2.75
02 Sept	12.0	0.66/0.66	0.00	0.00	2			0.00	0.00		4,380			0.00	0.12	0.00	7.28		0.0	0.0	0.00	2.75
02 Sept	12.1	0.85/0.85			2			0.66	0.16		5,140	11.739	0.24	0.08	0.21	5.12	12.40	41.45	0.0	0.1	1.32	4.07
03 Sept	12.1	0.83/0.83	0.00	0.00	3			0.00	0.00		5,140			0.00	0.21	0.00	12.40		0.0	0.1	0.00	4.07
03 Sept	12.0	0.62/0.62			3			0.34	0.08		5,160	11.785	0.37	0.04	0.25	2.65	15.05	50.31	0.0	0.1	0.66	4.73
04 Sept	11.8	0.62/0.62	0.00	0.00	4			0.00	0.00		5,160			0.00	0.25	0.00	15.05		0.0	0.1	0.00	4.73
04 Sept	11.9	0.73/0.73			4			0.17	0.05		4,840	11.054	0.49	0.02	0.27	1.24	16.29	54.46	0.0	0.1	0.39	5.12
08 Sept	11.1	0.68/0.68	0.00	0.00	8			0.00	0.00		4,840			0.00	0.27	0.00	16.29		0.0	0.1	0.00	5.12
08 Sept	11.4	0.69/0.69			8			0.20	0.05		5,060	11.557	0.61	0.03	0.29	1.53	17.82	59.57	0.0	0.1	0.41	5.53
09 Sept	11.5	0.59/0.59	0.00	0.00	9		XC-1	0.00	0.00		5,060			0.00	0.29	0.00	17.82		0.0	0.1	0.00	5.53
09 Sept	11.4	0.64/0.64			9		C-2	0.31	0.06	4.36	4,040	9.227	0.72	0.03	0.33	1.89	19.71	65.89	0.0	0.1	0.39	5.92
10 Sept	10.9	0.32/0.32	0.00	1.50	10	1,000		0.00	0.00		4,040			0.00	0.33	0.00	19.71		0.0	0.1	0.00	5.92
10 Sept	11.3	0.60/0.60			10			0.07	0.02		4,680	10.689	0.83	0.01	0.33	0.49	20.21	67.55	0.0	0.1	0.15	6.07
11 Sept	11.0	0.54/0.54	0.00	0.00	11			0.00	0.00		4,680			0.00	0.33	0.00	20.21		0.0	0.1	0.00	6.07
11 Sept	11.1	0.49/0.49			11			0.06	0.02		4,880	11.146	0.95	0.01	0.34	0.44	20.65	69.02	0.0	0.1	0.16	6.22
14 Sept	10.5	0.34/0.34	0.00	1.50	14			0.00	0.00		4,880			0.00	0.34	0.00	20.65		0.0	0.1	0.00	6.22
14 Sept	10.5	0.51/0.51			14			0.07	0.02		4,760	10.872	1.07	0.01	0.35	0.50	21.15	70.71	0.0	0.1	0.15	6.38
15 Sept	10.7	0.49/0.49	0.00	0.00	15			0.00	0.00		4,760			0.00	0.35	0.00	21.15		0.0	0.1	0.00	6.38
15 Sept	10.7	0.54/0.54			15			0.13	0.04		4,220	9.638	1.18	0.01	0.36	0.83	21.98	73.47	0.0	0.1	0.27	6.65
16 Sept	10.5	0.41/0.41	0.00	0.50	16	1,000		0.00	0.00		4,220			0.00	0.36	0.00	21.98		0.0	0.1	0.00	6.65
16 Sept	10.5	0.44/0.44			16			0.06	0.02	3.92	4,540	10.369	1.29	0.01	0.37	0.41	22.39	74.85	0.0	0.1	0.15	6.79
17 Sept	10.5	0.34/0.34	0.00	0.00	17			0.00	0.00		4,540			0.00	0.37	0.00	22.39		0.0	0.1	0.00	6.79
17 Sept	10.4	0.37/0.37			17			0.05	0.01		5,020	11.465	1.42	0.01	0.38	0.38	22.77	76.12	0.0	0.1	0.08	6.87
18 Sept	10.5	0.29/0.29	0.00	2.00	18			0.00	0.00		5,020			0.00	0.38	0.00	22.77		0.0	0.1	0.00	6.87
18 Sept	10.3	0.40/0.40			18			0.03	0.01		4,280	9.775	1.53	0.00	0.38	0.19	22.97	76.77	0.0	0.1	0.07	6.94
21 Sept	10.4	0.16/0.16	0.00	2.50	21	1,000	XC-2	0.00	0.00		4,280			0.00	0.38	0.00	22.97		0.0	0.1	0.00	6.94
21 Sept	10.3	0.47/0.47			21		C-3	0.02	0.02		5,100	11.648	1.65	0.00	0.38	0.15	23.12	77.28	0.0	0.1	0.16	7.11
22 Sept	10.3	0.29/0.29	0.00	2.00	22			0.00	0.00		5,100			0.00	0.38	0.00	23.12		0.0	0.1	0.00	7.11
22 Sept	10.5	0.50/0.50			22			0.11	0.03		4,660	10.643	1.77	0.01	0.40	0.77	23.90	79.87	0.0	0.1	0.22	7.33
23 Sept	10.6	0.35/0.35	0.00	1.50	23			0.00	0.00		4,660			0.00	0.40	0.00	23.90		0.0	0.1	0.00	7.33
23 Sept	10.6	0.52/0.52			23			0.06	0.01	2.22	4,740	10.826	1.89	0.01	0.40	0.43	24.32	81.30	0.0	0.1	0.08	7.41
24 Sept	10.6	0.43/0.43	0.00	0.00	24			0.00	0.00		4,740			0.00	0.40	0.00	24.32		0.0	0.1	0.00	7.41
24 Sept	10.5	0.54/0.54			24			0.04	0.01		4,620	10.552	2.00	0.00	0.41	0.28	24.60	82.24	0.0	0.1	0.07	7.48
25 Sept	10.5	0.28/0.28	0.00	2.00	25			0.00	0.00		4,620			0.00	0.41	0.00	24.60		0.0	0.1	0.00	7.48
25 Sept	10.5	0.47/0.47			25			0.02	0.01		4,600	10.506	2.12	0.00	0.41	0.14	24.74	82.70	0.0	0.1	0.07	7.56
28 Sept	10.6	0.28/0.28	0.00	2.00	28			0.00	0.00		4,600			0.00	0.41	0.00	24.74		0.0	0.1	0.00	7.56
28 Sept	10.5	0.46/0.46			28			0.05	0.01		5,380	12.288	2.25	0.01	0.42	0.41	25.15	84.06	0.0	0.1	0.09	7.64
29 Sept	10.6	0.38/0.38	0.00	0.00	29			0.00	0.00		5,380			0.00	0.42	0.00	25.15		0.0	0.1	0.00	7.64
29 Sept	10.6	0.57/0.57			29			0.05	0.02		4,180	9.547	2.36	0.01	0.42	0.32	25.46	85.11	0.0	0.1	0.13	7.78
30 Sept	10.5	0.47/0.47	0.00	0.50	30	1,000		0.00	0.00		4,180			0.00	0.42	0.00	25.46		0.0	0.1	0.00	7.78
30 Sept	10.5	0.41/0.41			30			0.03	0.01	5.0	5,140	11.739	2.49	0.00	0.43	0.23	25.70	85.89	0.0	0.1	0.08	7.86
01 Oct	10.4	0.33/0.33	0.00	1.50	31			0.00	0.00		5,140			0.00	0.43	0.00	25.70		0.0	0.1	0.00	7.86
01 Oct	10.4	0.40/0.40			31			0.03	0.01		4,900	11.191	2.61	0.00	0.43	0.22	25.92	86.63	0.0	0.1	0.08	7.94
02 Oct	10.4	0.31/0.31	0.00	1.50	32			0.00	0.00		4,900			0.00	0.43	0.00	25.92		0.0	0.1	0.00	7.94
02 Oct	10.5	0.48/0.48			32			0.03	0.01		4,660	10.643	2.72	0.00	0.43	0.21	26.13	87.34	0.0	0.1	0.07	8.01
05 Oct	10.5	0.28/0.28	0.00	2.00	35			0.00	0.00		4,660			0.00	0.43	0.00	26.13		0.0	0.1	0.00	8.01
05 Oct	10.4	0.55/0.55			35			0.02	0.01		5,140	11.739	2.85	0.00	0.44	0.16	26.29	87.86	0.0	0.1	0.08	8.10
06 Oct	10.5	0.42/0.42	0.00	0.00	36			0.00	0.00		5,140			0.00	0.44	0.00	26.29		0.0	0.1	0.00	8.10
06 Oct	10.5	0.60/0.60			36			0.07	0.01		4,040	9.227	2.95	0.01	0.44	0.43	26.71	89.29	0.0	0.1	0.06	8.16
07 Oct	10.5	0.47/0.47	0.00	0.50	37	1,000		0.00	0.00		4,040			0.00	0.44	0.00	26.71		0.0	0.1	0.00	8.16
07 Oct	10.5	0.46/0.46			37			0.02	0.00	5.9	5,000	11.420	3.08	0.00	0.44	0.15	26.86	89.79	0.0	0.1	0.00	8.01

PROJECT: Magino
TEST No.: 27126
SAMPLE I.D.: 27089 A
SAMPLE HT (meters): 1.391
ORE SIZE (mm): Minus 22.4
COL DIAM (meters): 0.152

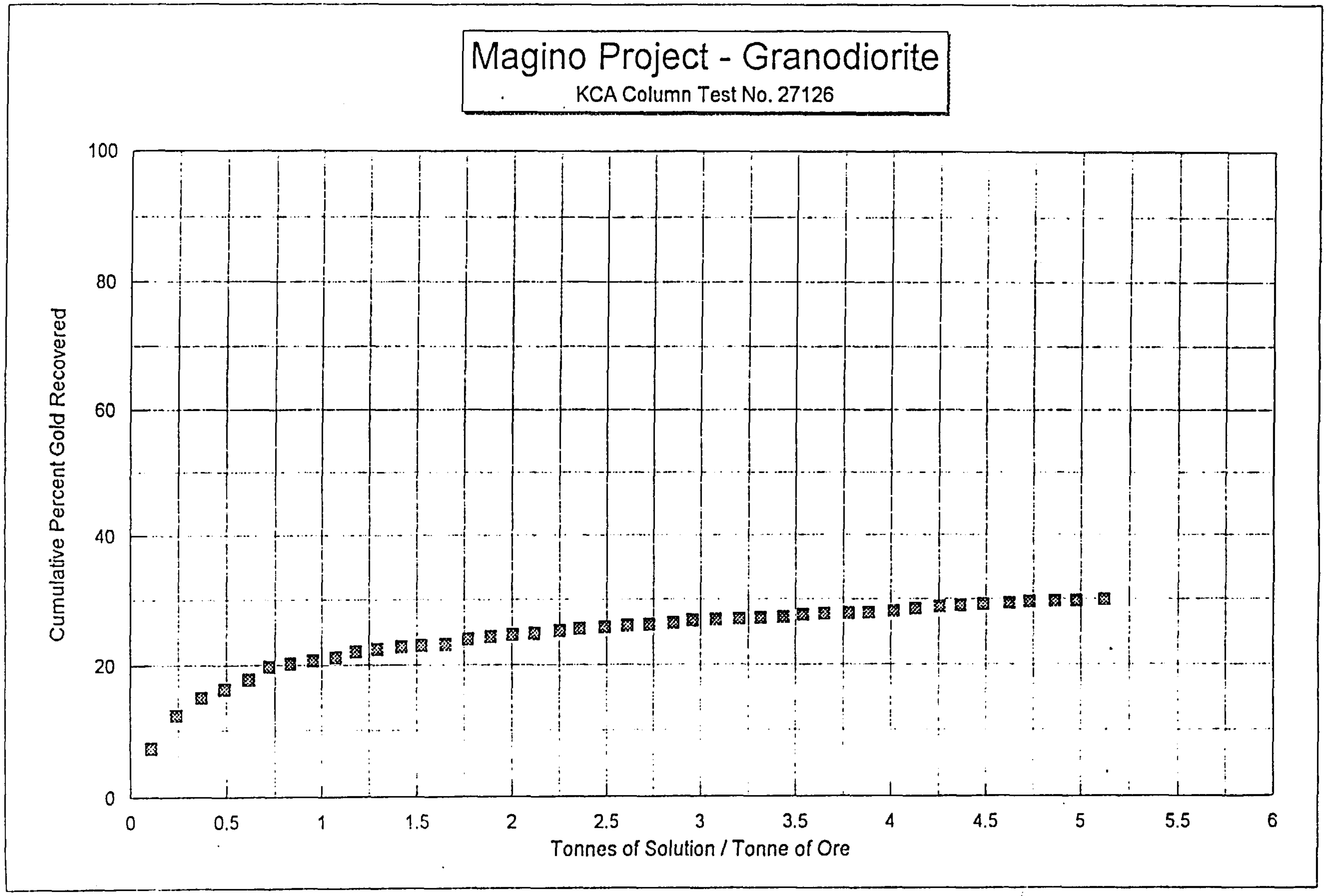
Granodiorite

TAILS ASSAY: Au gpt: 1.16 Ag gpt 1.4
CALC. HEAD: Au gpt: 1.66 Ag gpt 1.6
WT OF SAMPLE (kg.): 40.00
COLUMN SURFACE AREA (square meters): 0.018

DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
08 Oct	10.5	0.37/0.37	0.00	1.50	38			0.00	0.00		5,000			0.00	0.44	0.00	26.86		0.0	0.1	0.00	8.01
08 Oct	10.5	0.43/0.43			38			0.01	0.00		4,840	11.054	3.20	0.00	0.45	0.07	26.94	90.04	0.0	0.1	0.00	8.01
09 Oct	10.5	0.34/0.34	0.00	1.50	39			0.00	0.00		4,840			0.00	0.45	0.00	26.94		0.0	0.1	0.00	8.01
09 Oct	10.5	0.54/0.54			39			0.02	0.00		4,620	10.552	3.32	0.00	0.45	0.14	27.08	90.50	0.0	0.1	0.00	8.01
12 Oct	10.5	0.33/0.33	0.00	1.50	42			0.00	0.00		4,620			0.00	0.45	0.00	27.08		0.0	0.1	0.00	8.01
12 Oct	10.4	0.54/0.54			42			0.02	0.00		4,780	10.917	3.44	0.00	0.45	0.14	27.22	90.99	0.0	0.1	0.00	8.01
13 Oct	10.4	0.45/0.45	0.00	0.00	43			0.00	0.00		4,780			0.00	0.45	0.00	27.22		0.0	0.1	0.00	8.01
13 Oct	10.5	0.52/0.52			43			0.06	0.02		4,080	9.318	3.54	0.01	0.46	0.37	27.59	92.22	0.0	0.1	0.13	8.29
14 Oct	10.5	0.42/0.42	0.00	0.50	44	1,000		0.00	0.00		4,080			0.00	0.46	0.00	27.59		0.0	0.1	0.00	8.29
14 Oct	10.4	0.47/0.47			44			0.02	0.00	6.8	4,500	10.278	3.65	0.00	0.46	0.14	27.73	92.68	0.0	0.1	0.00	8.29
15 Oct	10.6	0.37/0.37	0.00	1.50	45			0.00	0.00		4,500			0.00	0.46	0.00	27.73		0.0	0.1	0.00	8.29
15 Oct	10.5	0.39/0.39			45			0.01	0.00		5,120	11.694	3.78	0.00	0.46	0.08	27.80	92.93	0.0	0.1	0.00	8.29
16 Oct	10.9	0.29/0.29	0.00	1.50	46			0.00	0.00		5,120			0.00	0.46	0.00	27.80		0.0	0.1	0.00	8.29
16 Oct	10.8	0.51/0.51			46			0.02	0.00		4,200	9.593	3.88	0.00	0.46	0.13	27.93	93.36	0.0	0.1	0.00	8.29
19 Oct	10.7	0.31/0.31	0.00	2.00	49	1,000		0.00	0.00		4,200			0.00	0.46	0.00	27.93		0.0	0.1	0.00	8.29
19 Oct	10.5	0.56/0.56			49			0.03	0.01		5,180	11.831	4.01	0.00	0.47	0.23	28.17	94.14	0.0	0.1	0.08	8.38
20 Oct	10.5	0.42/0.42	0.00	0.00	50			0.00	0.00		5,180			0.00	0.47	0.00	28.17		0.0	0.1	0.00	8.38
20 Oct	10.5	0.54/0.54			50			0.05	0.03		4,620	10.552	4.13	0.01	0.47	0.35	28.51	95.31	0.0	0.2	0.22	8.60
21 Oct	10.4	0.44/0.44	0.00	0.00	51			0.00	0.00		4,620			0.00	0.47	0.00	28.51		0.0	0.2	0.00	8.60
21 Oct	10.3	0.45/0.45			51			0.04	0.01	5.2	5,060	11.557	4.25	0.01	0.48	0.31	28.82	96.33	0.0	0.2	0.08	8.68
22 Oct	10.5	0.37/0.37	0.00	1.50	52			0.00	0.00		5,060			0.00	0.48	0.00	28.82		0.0	0.2	0.00	8.68
22 Oct	10.4	0.40/0.40			52			0.02	0.01		4,420	10.095	4.36	0.00	0.48	0.13	28.95	96.78	0.0	0.2	0.07	8.75
23 Oct	10.3	0.31/0.31	0.00	2.00	53	1,000		0.00	0.00		4,420			0.00	0.48	0.00	28.95		0.0	0.2	0.00	8.75
23 Oct	10.3	0.54/0.54			53			0.03	0.00		4,820	11.009	4.49	0.00	0.48	0.22	29.17	97.51	0.0	0.2	0.00	8.75
26 Oct	10.5	0.27/0.27	0.00	2.00	56			0.00	0.00		4,820			0.00	0.48	0.00	29.17		0.0	0.2	0.00	8.75
26 Oct	10.3	0.54/0.54			56			0.02	0.00		5,600	12.790	4.63	0.00	0.49	0.17	29.34	98.07	0.0	0.2	0.00	8.75
27 Oct	10.4	0.43/0.43	0.00	0.00	57			0.00	0.00		5,600			0.00	0.49	0.00	29.34		0.0	0.2	0.00	8.75
27 Oct	10.3	0.63/0.63			57			0.04	0.01		4,180	9.547	4.73	0.00	0.49	0.25	29.59	98.92	0.0	0.2	0.07	8.82
28 Oct	10.5	0.46/0.46	0.00	0.50	58	1,000		0.00	0.00		4,180			0.00	0.49	0.00	29.59		0.0	0.2	0.00	8.82
28 Oct	10.4	0.45/0.45			58			0.01	0.00	5.9	5,300	12.105	4.86	0.00	0.49	0.08	29.67	99.18	0.0	0.2	0.00	8.82
29 Oct	10.4	0.37/0.37	0.00	1.50	59			0.00	0.00		5,300			0.00	0.49	0.00	29.67		0.0	0.2	0.00	8.82
29 Oct	10.3	0.40/0.40			59			0.01	0.00		4,520	10.323	4.98	0.00	0.49	0.07	29.74	99.41	0.0	0.2	0.00	8.82
02 Nov	10.5	0.17/0.17	0.00	0.00	63			0.00	0.00		4,520			0.00	0.49	0.00	29.74	·	0.0	0.2	0.00	8.82
02 Nov	10.4	0.51/0.51			63			0.02	0.00	6.6	5,820	13.292	5.12	0.00	0.50	0.18	29.92	100.00	0.0	0.2	0.00	8.82
03 Nov	10.4	0.41/0.41			64		XC-3	0.00	0.00	6.0	5,820			0.00	0.50	0.00	29.92		0.0	0.2	0.00	8.82



Magino Project - Granodiorite
KCA Column Test No. 27126
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
10
20
30
40
50
60
70
Leach Days


Magino Project - Granodiorite
KCA Column Test No. 27126
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
Tonnes of Solution / Tonne of Ore

PROJECT: Magino
TEST No.: 27129
SAMPLE I.D.: 27089 B
SAMPLE HT (meters): 1.372
ORE SIZE (mm): Minus 9.5
COL DIAM (meters): 0.152

Granodiorite

TAILS ASSAY: Au gpt: 0.62 Ag gpt 1.4
CALC. HEAD: Au gpt: 1.37 Ag gpt 1.6
WT OF SAMPLE (kg.): 40.00

COLUMN SURFACE AREA (square meters): 0.018

DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
31 Aug	--	--	20.00	6.00	0	6,000																
01 Sept	--	--	0.00	5.30	1	5,300																
01 Sept	11.9	0.85/0.85			1		C-1	2.45	0.86	3.94	3,080	7.035	0.08	0.19	0.19	13.82	13.82	25.32	0.1	0.1	4.18	4.18
02 Sept	12.2	0.59/0.59	0.00	0.50	2	2,000		0.00	0.00		3,080			0.00	0.19	0.00	13.82		0.0	0.1	0.00	4.18
02 Sept	12.1	0.88/0.88			2			1.43	0.26		5,260	12.013	0.21	0.19	0.38	13.77	27.59	50.55	0.0	0.1	2.16	6.34
03 Sept	12.1	0.84/0.84	0.00	0.00	3			0.01	0.00		5,260			-0.00	0.38	-0.10	27.50		0.0	0.1	0.00	6.34
03 Sept	12.1	0.66/0.66			3			0.58	0.10		4,940	11.283	0.33	0.07	0.45	5.25	32.74	59.99	0.0	0.1	0.78	7.12
04 Sept	11.9	0.64/0.64	0.00	0.00	4			0.00	0.00		4,940			0.00	0.45	0.00	32.74		0.0	0.1	0.00	7.12
04 Sept	11.7	0.62/0.62			4			0.25	0.05		4,980	11.374	0.46	0.03	0.48	2.28	35.02	64.17	0.0	0.1	0.39	7.52
08 Sept	10.8	0.51/0.51	0.00	0.00	8			0.00	0.00		4,980			0.00	0.48	0.00	35.02		0.0	0.1	0.00	7.52
08 Sept	11.5	0.73/0.73			8			0.26	0.04		5,000	11.420	0.58	0.03	0.51	2.38	37.41	68.53	0.0	0.1	0.32	7.83
09 Sept	11.6	0.65/0.65	0.00	0.00	9		XC-1	0.00	0.00		5,000			0.00	0.51	0.00	37.41		0.0	0.1	0.00	7.83
09 Sept	11.6	0.57/0.57			9		C-2	0.43	0.06	7.79	4,160	9.501	0.69	0.04	0.56	3.28	40.68	74.53	0.0	0.1	0.39	8.23
10 Sept	11.0	0.30/0.30	0.00	2.00	10	1,000		0.00	0.00		4,160			0.00	0.56	0.00	40.68		0.0	0.1	0.00	8.23
10 Sept	11.4	0.57/0.57			10			0.09	0.02		4,620	10.552	0.80	0.01	0.57	0.76	41.44	75.93	0.0	0.1	0.15	8.37
11 Sept	11.0	0.49/0.49	0.00	0.00	11			0.00	0.00		4,620			0.00	0.57	0.00	41.44		0.0	0.1	0.00	8.37
11 Sept	11.3	0.56/0.56			11			0.07	0.02		4,660	10.643	0.92	0.01	0.57	0.60	42.04	77.02	0.0	0.1	0.15	8.52
14 Sept	10.5	0.41/0.41	0.00	0.00	14			0.00	0.00		4,660			0.00	0.57	0.00	42.04		0.0	0.1	0.00	8.52
14 Sept	10.5	0.55/0.55			14			0.10	0.02		4,880	11.146	1.04	0.01	0.59	0.89	42.93	78.66	0.0	0.1	0.15	8.67
15 Sept	10.7	0.45/0.45	0.00	0.00	15			0.00	0.00		4,880			0.00	0.59	0.00	42.93		0.0	0.1	0.00	8.67
15 Sept	10.9	0.40/0.40			15			0.13	0.03		4,120	9.410	1.14	0.01	0.60	0.98	43.91	80.45	0.0	0.1	0.20	8.87
16 Sept	10.5	0.33/0.33	0.00	2.00	16	1,000		0.00	0.00		4,120			0.00	0.60	0.00	43.91		0.0	0.1	0.00	8.87
16 Sept	10.5	0.40/0.40			16			0.06	0.01	5.64	4,660	10.643	1.26	0.01	0.61	0.51	44.43	81.39	0.0	0.1	0.07	8.94
17 Sept	10.5	0.32/0.32	0.00	0.50	17			0.00	0.00		4,660			0.00	0.61	0.00	44.43		0.0	0.1	0.00	8.94
17 Sept	10.5	0.46/0.46			17			0.05	0.01		4,940	11.283	1.38	0.01	0.61	0.45	44.88	82.22	0.0	0.1	0.08	9.02
18 Sept	10.5	0.38/0.38	0.00	0.00	18			0.00	0.00		4,940			0.00	0.61	0.00	44.88		0.0	0.1	0.00	9.02
18 Sept	10.3	0.37/0.37			18			0.08	0.04		4,580	10.460	1.50	0.01	0.62	0.67	45.55	83.45	0.0	0.1	0.29	9.31
21 Sept	10.4	0.34/0.34	0.00	1.50	21		XC-2	0.00	0.00		4,580			0.00	0.62	0.00	45.55		0.0	0.1	0.00	9.31
21 Sept	10.3	0.35/0.35			21		C-3	0.04	0.01		5,100	11.648	1.62	0.01	0.63	0.37	45.92	84.14	0.0	0.1	0.08	9.39
22 Sept	10.2	0.22/0.22	0.00	2.00	22			0.00	0.00		5,100			0.00	0.63	0.00	45.92		0.0	0.1	0.00	9.39
22 Sept	10.4	0.40/0.40			22			0.14	0.03		3,820	8.725	1.72	0.01	0.64	0.98	46.90	85.93	0.0	0.2	0.18	9.57
23 Sept	10.6	0.29/0.29	0.00	1.50	23	1,500		0.00	0.00		3,820			0.00	0.64	0.00	46.90		0.0	0.2	0.00	9.57
23 Sept	10.6	0.48/0.48			23			0.05	0.01	4.25	4,680	10.689	1.84	0.01	0.65	0.43	47.33	86.71	0.0	0.2	0.07	9.65
24 Sept	10.5	0.41/0.41	0.00	0.00	24			0.00	0.00		4,680			0.00	0.65	0.00	47.33		0.0	0.2	0.00	9.65
24 Sept	10.6	0.50/0.50			24			0.05	0.01		5,300	12.105	1.97	0.01	0.65	0.49	47.82	87.60	0.0	0.2	0.08	9.73
25 Sept	10.6	0.40/0.40	0.00	0.00	25			0.00	0.00		5,300			0.00	0.65	0.00	47.82		0.0	0.2	0.00	9.73
25 Sept	10.6	0.49/0.49			25			0.03	0.01		4,280	9.775	2.08	0.00	0.66	0.24	48.05	88.03	0.0	0.2	0.07	9.80
28 Sept	10.6	0.32/0.32	0.00	2.00	28	1,000		0.00	0.00		4,280			0.00	0.66	0.00	48.05		0.0	0.2	0.00	9.80
28 Sept	10.4	0.31/0.31			28			0.06	0.01		4,680	10.689	2.19	0.01	0.66	0.51	48.57	88.98	0.0	0.2	0.07	9.87
29 Sept	10.6	0.27/0.27	0.00	2.00	29			0.00	0.00		4,680			0.00	0.66	0.00	48.57		0.0	0.2	0.00	9.87
29 Sept	10.6	0.39/0.39			29			0.09	0.01		5,000	11.420	2.32	0.01	0.67	0.82	49.39	90.49	0.0	0.2	0.08	9.95
30 Sept	10.5	0.35/0.35	0.00	1.50	30			0.00	0.00		5,000			0.00	0.67	0.00	49.39		0.0	0.2	0.00	9.95
30 Sept	10.4	0.39/0.39			30			0.03	0.01	4.78	4,540	10.369	2.43	0.00	0.68	0.25	49.64	90.94	0.0	0.2	0.07	10.02
01 Oct	10.4	0.30/0.30	0.00	1.50	31			0.00	0.00		4,540			0.00	0.68	0.00	49.64		0.0	0.2	0.00	10.02
01 Oct	10.4	0.46/0.46			31			0.04	0.01		4,700	10.734	2.55	0.00	0.68	0.34	49.98	91.57	0.0	0.2	0.07	10.10
02 Oct	10.6	0.35/0.35	0.00	1.50	32			0.00	0.00		4,700			0.00	0.68	0.00	49.98		0.0	0.2	0.00	10.10
02 Oct	10.5	0.60/0.60			32			0.02	0.01		4,580	10.460	2.66	0.00	0.68	0.17	50.15	91.88	0.0	0.2	0.07	10.17
05 Oct	10.5	0.38/0.38	0.00	0.00	35			0.00	0.00		4,580			0.00	0.68	0.00	50.15		0.0	0.2	0.00	10.17
05 Oct	10.4	0.60/0.60			35			0.02	0.00		4,700	10.734	2.78	0.00	0.69	0.17	50.32	92.20	0.0	0.2	0.00	10.02
06 Oct	10.5	0.47/0.47	0.00	0.00	36			0.00	0.00		4,700			0.00	0.69	0.00	50.32		0.0	0.2	0.00	10.02
06 Oct	10.5	0.44/0.44			36			0.07	0.00		3,900	8.907	2.88	0.01	0.69	0.50	50.82	93.11	0.0	0.2	0.00	10.02
07 Oct	10.5	0.36/0.36	0.00	1.50	37	1,000		0.00	0.00		3,900			0.00	0.69	0.00	50.82		0.0	0.2	0.00	10.02
07 Oct	10.4	0.38/0.38			37			0.02	0.00	6.7	4,540	10.369	2.99	0.00	0.70	0.17	50.99	93.42	0.0	0.2	0.00	10.17

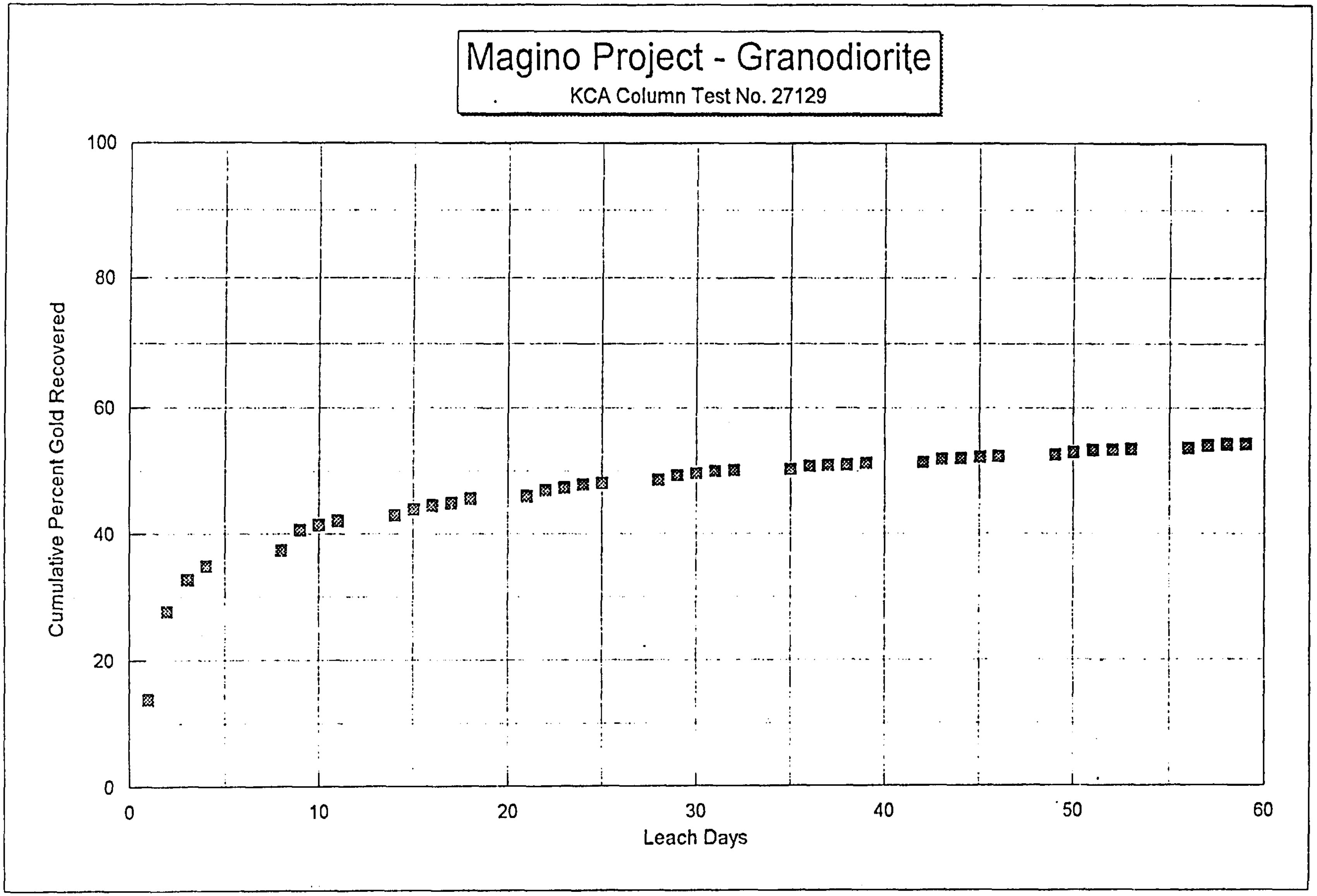
PROJECT: Magino
TEST No.: 27129
SAMPLE I.D.: 27089 B
SAMPLE HT (meters): 1.372
ORE SIZE (mm): Minus 9.5
COL DIAM (meters): 0.152

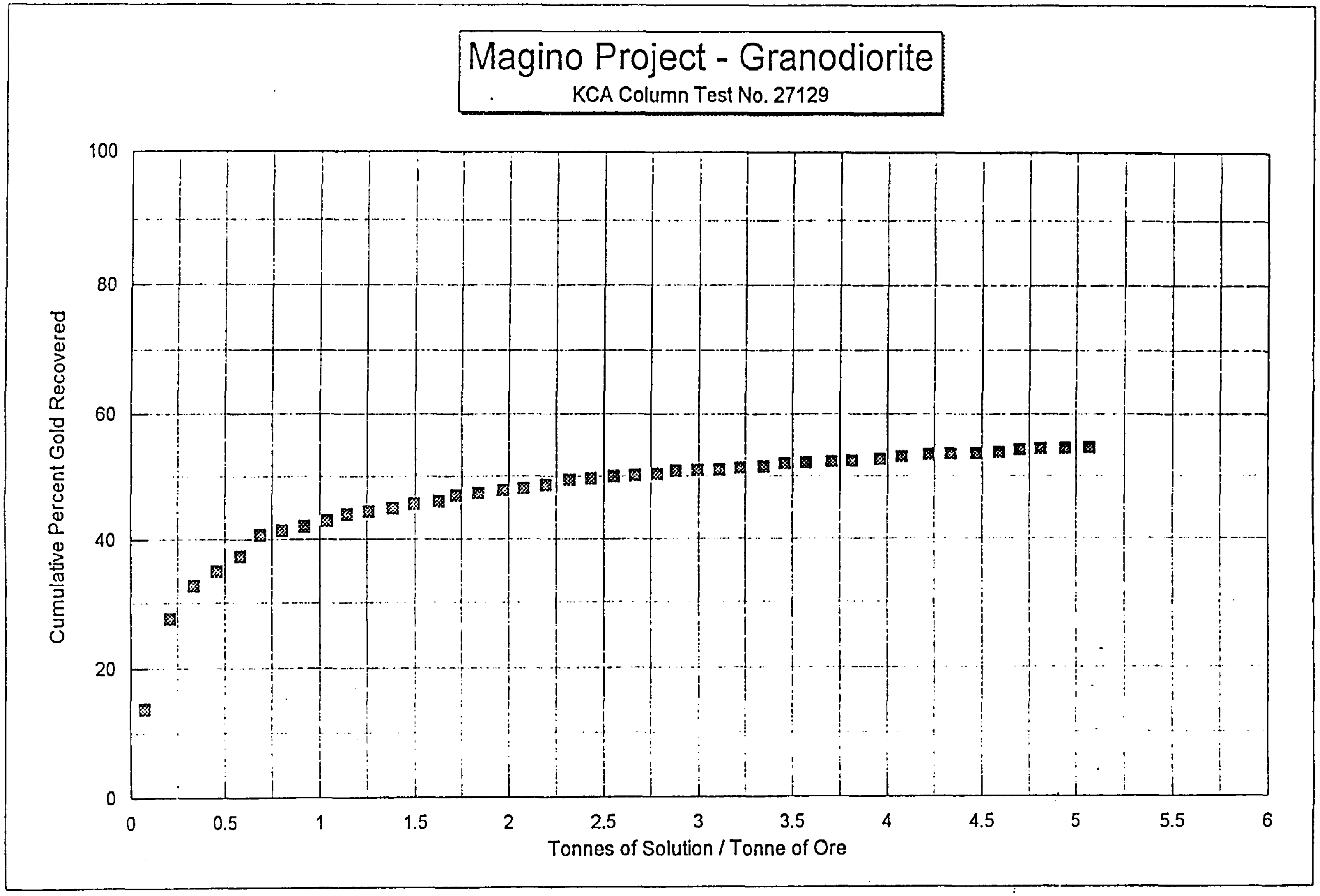
Granodiorite

TAILS ASSAY: Au gpt: 0.62 Ag gpt 1.4
CALC. HEAD: Au gpt: 1.37 Ag gpt 1.6
WT OF SAMPLE (kg.): 40.00

COLUMN SURFACE AREA (square meters): 0.018

DATE	pH	NaCN gpl FREE/TOT	LIME GMS	NaCN GMS	DAYS RUN	WATER ADDED grams	CARBON BOTTLE	Au PPM	Ag PPM	Cu PPM	VOLUME mLs	Flow Rate L/Hr./Sq. M.	CUM. T. SOL'N/ T. ORE	AA Au gpt	AA CUM. REC. Au gpt	Au SOLN % REC.	Au SOLN CUM % REC.	Percent of Total Recov. Au	AA Ag gpt	AA CUM. REC. Ag gpt	Ag SOLN % REC.	Ag SOLN CUM. % REC.
08 Oct	10.5	0.30/0.30	0.00	1.50	38			0.00	0.00		4,540			0.00	0.70	0.00	50.99		0.0	0.2	0.00	10.17
08 Oct	10.4	0.49/0.49			38			0.01	0.00		4,780	10.917	3.11	0.00	0.70	0.09	51.08	93.58	0.0	0.2	0.00	10.17
09 Oct	10.5	0.38/0.38	0.00	0.00	39			0.00	0.00		4,780			0.00	0.70	0.00	51.08		0.0	0.2	0.00	10.17
09 Oct	10.5	0.55/0.55			39			0.03	0.00		4,380	10.004	3.22	0.00	0.70	0.24	51.32	94.02	0.0	0.2	0.00	10.17
12 Oct	10.5	0.34/0.34	0.00	2.00	42	1,000		0.00	0.00		4,380			0.00	0.70	0.00	51.32		0.0	0.2	0.00	10.17
12 Oct	10.4	0.43/0.43			42			0.02	0.00		4,900	11.191	3.34	0.00	0.70	0.18	51.50	94.35	0.0	0.2	0.00	10.17
13 Oct	10.4	0.35/0.35	0.00	1.50	43			0.00	0.00		4,900			0.00	0.70	0.00	51.50		0.0	0.2	0.00	10.17
13 Oct	10.4	0.41/0.41			43			0.06	0.01		4,420	10.095	3.45	0.01	0.71	0.49	51.98	95.24	0.0	0.2	0.07	10.24
14 Oct	10.4	0.34/0.34	0.00	2.00	44	1,000		0.00	0.00		4,420			0.00	0.71	0.00	51.98		0.0	0.2	0.00	10.24
14 Oct	10.4	0.59/0.59			44			0.02	0.00	6.2	4,560	10.415	3.57	0.00	0.71	0.17	52.15	95.54	0.0	0.2	0.00	10.24
15 Oct	10.6	0.46/0.46	0.00	0.00	45			0.00	0.00		4,560			0.00	0.71	0.00	52.15		0.0	0.2	0.00	10.24
15 Oct	10.5	0.58/0.58			45			0.02	0.00		5,520	12.607	3.71	0.00	0.71	0.20	52.35	95.91	0.0	0.2	0.00	10.24
16 Oct	10.8	0.45/0.45	0.00	0.00	46			0.00	0.00		5,520			0.00	0.71	0.00	52.35		0.0	0.2	0.00	10.24
16 Oct	10.8	0.47/0.47			46			0.02	0.00		4,140	9.455	3.81	0.00	0.72	0.15	52.50	96.19	0.0	0.2	0.00	10.24
19 Oct	10.6	0.30/0.30	0.00	2.00	49	1,000		0.00	0.00		4,140			0.00	0.72	0.00	52.50		0.0	0.2	0.00	10.24
19 Oct	10.5	0.38/0.38			49			0.02	0.01		5,960	13.612	3.96	0.00	0.72	0.22	52.72	96.59	0.0	0.2	0.09	10.33
20 Oct	10.5	0.33/0.33	0.00	2.00	50			0.00	0.00		5,960			0.00	0.72	0.00	52.72		0.0	0.2	0.00	10.33
20 Oct	10.5	0.45/0.45			50			0.05	0.01		4,620	10.552	4.07	0.01	0.73	0.42	53.15	97.37	0.0	0.2	0.07	10.40
21 Oct	10.3	0.33/0.33	0.00	1.50	51			0.00	0.00		4,620			0.00	0.73	0.00	53.15		0.0	0.2	0.00	10.40
21 Oct	10.3	0.58/0.58			51			0.03	0.00	6.4	5,660	12.927	4.22	0.00	0.73	0.31	53.46	97.94	0.0	0.2	0.00	10.40
22 Oct	10.5	0.48/0.48	0.00	0.00	52			0.00	0.00		5,660			0.00	0.73	0.00	53.46		0.0	0.2	0.00	10.40
22 Oct	10.4	0.36/0.36			52			0.01	0.00		4,580	10.460	4.33	0.00	0.73	0.08	53.54	98.09	0.0	0.2	0.00	10.40
23 Oct	10.3	0.47/0.47	0.00	0.00	53			0.00	0.00		4,580			0.00	0.73	0.00	53.54		0.0	0.2	0.00	10.40
23 Oct	10.3	0.55/0.55			53			0.01	0.00		5,460	12.470	4.47	0.00	0.73	0.10	53.64	98.27	0.0	0.2	0.00	10.40
26 Oct	10.3	0.47/0.47	0.00	0.00	56			0.00	0.00		5,460			0.00	0.73	0.00	53.64		0.0	0.2	0.00	10.40
26 Oct	10.3	0.55/0.55			56			0.02	0.00		4,720	10.780	4.59	0.00	0.73	0.17	53.81	98.59	0.0	0.2	0.00	10.40
27 Oct	10.4	0.34/0.34	0.00	1.50	57			0.00	0.00		4,720			0.00	0.73	0.00	53.81		0.0	0.2	0.00	10.40
27 Oct	10.3	0.49/0.49			57			0.05	0.00		4,560	10.415	4.70	0.01	0.74	0.42	54.23	99.35	0.0	0.2	0.00	10.40
28 Oct	10.4	0.38/0.38	0.00	1.50	58	1,000		0.00	0.00		4,560			0.00	0.74	0.00	54.23		0.0	0.2	0.00	10.40
28 Oct	10.4	0.57/0.57			58			0.02	0.00	7.7	4,520	10.323	4.81	0.00	0.74	0.17	54.40	99.66	0.0	0.2	0.00	10.40
29 Oct	10.4	0.43/0.43	0.00	0.00	59			0.00	0.00		4,520			0.00	0.74	0.00	54.40		0.0	0.2	0.00	10.40
29 Oct	10.3	0.53/0.53			59			0.01	0.00		5,120	11.694	4.94	0.00	0.74	0.09	54.49	99.83	0.0	0.2	0.00	10.40
02 Nov	10.4	0.29/0.29	0.00	0.00	63			0.00	0.00		5,120			0.00	0.74	0.00	54.49		0.0	0.2	0.00	10.40
02 Nov	10.3	0.42/0.42			63			0.01	0.00	7.7	5,080	11.602	5.07	0.00	0.75	0.09	54.58	100.00	0.0	0.2	0.00	10.40
03 Nov	10.4	0.34/0.34			64		XC-3	0.00	0.00	7.4	5,080			0.00	0.75	0.00	54.58		0.0	0.2	0.00	10.40


Magino Project - Granodiorite
KCA Column Test No. 27129
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
10
20
30
40
50
60
Leach Days


Magino Project - Granodiorite
KCA Column Test No. 27129
Cumulative Percent Gold Recovered
100
80
60
40
20
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
5.5
6
Tonnes of Solution / Tonne of Ore

Ontario Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Transaction Number (office use): W9950.00053
Assessment Files Research Imaging

FINAL REVISED

...and 66(3), R.S.O. 1990

...66(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, work and correspond with the Mining land holder. Questions about this ...velopment and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury.

42C08SW2009 2.19607 FINAN 900

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240.
- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name: Golden Goose Resources	Client Number: 174165
Address: PO Box 200, Dubreuilville, Ontario	Telephone Number: 705-884-2911
	Fax Number: 705-884-2916
P0S 1B0	
Name	Client Number
Address	Telephone Number
	Fax Number

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

☒ Geotechnical: prospecting, surveys, assays and work under section 18 (regs) | Physical: drilling stripping, trenching and associated assays | Rehabilitation

Work Type: Metalurgical sampling and study	**Office Use**
	Commodity
	Total $ value of Work Claimed $55,842
Dates Work Performed From 17 (Day) Jun (Month) 1998 (Year) To 30 (Day) Dec (Month) 1998 (Year)	NTS Reference
Global Positioning System Data (if available) / Township/Area: Finan	Mining Division: SSM
M or G-Plan Number: M-1504	Resident Geologist District: SSM

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Michael Perkins, PO Box 42, Coboconk, Ontario, K0M 1K0	Telephone Number: 705-454-3587
Address	Fax Number: 705-454-2797
Name: Lakefield Reasearch Laboratory	Telephone Number: 705-652-2000
Address: 185 Concession St, Lakefield, Ont	Fax Number: 705-652-6365
Name: Kappes, Cassiday and Associates	Telephone Number: 702-972-7575
Address: 7950 Security Circle, Reno, Nevada, USA, 89506	Fax Number: 702-972-4567

4. Certification by Recorded Holder or Agent

I, F.W. Nielsen (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: [signature] | Date: 23...
Agent's Address: AS ABOVE | Telephone Number | Fax Number

0241 (03/97)

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RECEIVED JUL - 7 1999 GEOSCIENCE ASSESSMENT OFFICE

4. Certification by Recorded Holder or Agent

I, F.W. Nielsen (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: [signature] | Date: 23-6-99
Agent's Address: AS ABOVE | Telephone Number | Fax Number

0241 (03/97)

JUL - 7 1999 10.45

Deemed October 5 '99

Sheet1

FINAL REVISED

Ontario Ministry of Northern Development and Mines

Schedule for Declaration of Assessment Work on Mining Land

Transaction Number (office use) W9950.00053

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.		Number of Claim Units. For other mining land, list hectares	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date
1	6000001 2048	19.68		$0		
2	6000002 2049	19.62	$5,580	$0	$5,580	$0
3	6000138 2050	21.80	$33,504	$0	$32,145	$1,359
4	6000136 2051	17.36		$0		
5	2052	14.58	MP	$0		
6	6000003 2053	26.92	$16,750	$0		
8	6000137 581948	19.44	~~$18,740~~	$0	$18,740	187 MP
9	591040	27.25		$0		
10	581950	10.18		$0		
11	581951	4.78		$0		
12	591062	17.07		$0		
13	591063	7.87		$0		
16	698645	1		$800		
17	698646	1		$800		
18	698647	1		$800		
19	698648	1		$800		
20	[illegible]	1		$800		
21	698650	1		$800		
22	698651	1		$800		
23	698652	1		$800		
24	698653	1		$800		
25	698654	1		$800		
26	698655	1		$800		
27	698656	1		$800		
[illegible]	[illegible]	1		$800		
29	698659	1		$800		
30	698660	1		$800		
31	698661	1		$800		
32	698662	1		$800		
33	698664	1		$800		
34	698665	1		$800		
35	698666	1		$800		
36	698667	1		$800		
37	698668	1		$800		
38	698669	1		$800		
39	698670	1		$800		
40	698671	1		$800		
41	711129	1		$800		
42	711131	1		$800		
43	711132	1		$800		
44	711133	1		$800		
45	711134	1		$800		
46	711135	1		$800		
47	809963	1		$800		
48	[illegible]	1		$800		
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54	827520	1		$1,200		
55	841257	1		$800		
56	841258	1		$800		
57	841259	1		$800		
58	841270	1		$800		
59	847804	1		$400		
60	847805	1		$400		
61	847806	1		$400		
62	847807	1		$800		

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2.19602

[illegible]	[illegible]	1		[illegible]		
53	809972	1		$800		
54	827520	1		$1,200		
55	841257	1		$800		
56	841258	1		$800		
57	841259	1		$800		
58	841270	1		$800		
59	847804	1		$400		
60	847805	1		$400		
61	847806	1		$400		
62	847807	1		$800		

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W9950.00053

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.		Number of Claim Units. For other mining land, list **hectares.**	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributedat a future date.
63	847814	1		$800		
64	884901	1		$800		
65	884902	1		$800		
66	884903	1		$800		
67	884904	1		$800		
68	1110086	2		$800		
69	1118352	1		$800		
70	1174399	4		$4,800		
71	1174400	6		$2,400		
72	1174401	1		$400		
73	1174402	9		$4,465		
74	1174403	2				
75	1174404	2				
76	1174405	6				
77	1174846	1				
78	1174847	1				
79	1174848	2				
80	1174849	1				
81	1174854	1				
Column Totals			$55,824	$54,465	$54,465	$1,359

2 . 19607

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Ontario — Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on Mining Land

Mining Act, Subsection 65(2) and 66(3), R.S.O. 1990

Transaction Number (office use)
W9950.00054
Assessment Files Research Imaging

Personal information collected on this form is obtained under the authority of subsection 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assesment work and correspond with the mining land holder. Questions about this collection should be directed to a Provincial Mining Recorder, Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Instructions: - For work performed on Crown Lands before **recording** a claim, use form 0240.
- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name: Golden Goose Resources	Client Number: 174165
Address: PO Box 209, Dubreuilville, Ontario	Telephone Number: 705-884-2911
P0S 1B0	Fax Number: 705-884-2916
Name	Client Number
Address	Telephone Number
	Fax Number

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

Geotechnical: prospecting, surveys, assays and work under section 18 (regs)

[X] Physical: drilling stripping, trenching and associated assays

Rehabilitation

		Office Use
Work Type: Trenching and Structural Mapping		Commodity
		Total $ Value of Work Claimed **$18,827**
Dates Work Performed From 17 (Day) Jun (Month) 1997 (Year) To 18 (Day) July (Month) 1997 (Year)		NTS Reference
Global Positioning System Data (if available)	Township/Area: Finan	Mining Division: Sault Ste Marie
	M or G-Plan Number: m-1584	Resident Geologist District: Timmins

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Michael Perkins, PO Box 42, Coboconk, Ontario, KOM 1K0	Telephone Number: 705-454-3587
Address	Fax Number: 705-454-2797
Name: Bruce C. Wilson, Structural Geologist	Telephone Number: 613-544-2171
Address: 347 Albert St., Kingston, Ont	Fax Number: same
Name	Telephone Number
Address	Fax Number

4. Certification by Recorded Holder or Agent

I, **F.W. Nielsen** (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent		Date 23/6/99
Agent's Address: AS ABOVE	Telephone Number	Fax Number

0241 (03/97)

Deemed October 5, 1999

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Ontario

Sheet1

FINAL REVISED

Ontario

Schedule for Declaration of Assessment Work on Mining Land

Transaction Number (office use): W9950.00054

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.		Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date.
1	2048	19.68				
2	2049	19.62				
3	[illegible] 2050	21.80	$1[illegible]227 [illegible]			$48,227 [illegible]
4	2051	17.35				
5	2052	14.68				
6	2053	26.92				
8	581948	19.44				
9	581949	27.25				
10	581950	10.16				
11	581951	4.78				
12	581952	17.07				
13	581953	7.87				
16	698645	1				
17	698646	1				
18	698647	1				
19	698648	1				
20	698649	1				
21	698650	1				
22	698651	1				
23	698652	1				
24	698653	1				
25	698654	1				
26	698655	1				
27	698656	1				
28	698657	1				
29	698658	1				
30	698660	1				
31	698661	1				
32	698662	1				
33	698664	1				
34	698665	1				
35	698666	1				
36	698667	1				
37	698668	1				
38	698669	1				
39	698670	1				
40	698671	1				
41	711129	1				
42	711131	1				
43	711132	1				
44	711133	1				
45	711134	1				
46	711135	1				
47	809963	1				
48	809967	1				
49	809968	1				
50	809969	1				
51	809970	1				
52	809971	1				
53	809972	1				
54	827520	1				
55	841257	1				
56	841258	1				
57	841259	1				
58	841270	1				
59	847804	1				
60	847805	1				
61	847806	1				
62	847807	1				

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2.19607

53	809972	1				
54	827520	1				
55	841257	1				
56	841258	1				
57	841259	1				
58	841270	1				
59	847804	1				
60	847805	1				
61	847806	1				
62	847807	1				

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GEOSCIENCE ASSESSMENT OFFICE

Page 1

W9950.00054

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.		Number of Claim Units. For other mining land, list **hectares.**	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributedat a future date.
63	847814	1				
64	884901	1				
65	884902	1				
66	884903	1				
67	884904	1				
68	1110086	2				
69	1118352	1				
70	1174399	4				
71	1174400	6				
72	1174401	1				
73	1174402	9				
74	1174403	2				
75	1174404	2				
76	1174405	6				
77	1174846	1				
78	1174847	1				
79	1174848	2				
80	1174849	1				
81	1174854	1				
Column Totals			$18,227	$0	$0	$18,227

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9846
Fax: (877) 670-1555

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

September 24, 1999

F.W. Nielson
RESSOURCES GOLDEN GOOSE INC.
PO Box 209
Dubreuilville, Ontario
P0S 1B0

Submission Number: 2.19607

Dear Sir or Madam:

		Status
Subject: Transaction Number(s):	W9950.00053	Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Lucille Jerome by e-mail at lucille.jerome@ndm.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 14173
Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.19607

Date Correspondence Sent: September 24, 1999 **Assessor:** Lucille Jerome

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9950.00053	5000001	FINAN	Approval	September 23, 1999

Section:
17 Assays ASSAY

Correspondence to:
Resident Geologist
South Porcupine, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):
F.W. Nielson
RESSOURCES GOLDEN GOOSE INC.
Dubreuilville, Ontario

Correspondence ID: 14173

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9845
Fax: (877) 670-1555

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

November 9, 1999

RESSOURCES GOLDEN GOOSE INC.
PO Box 209
Dubreuilville, Ontario
P0S 1B0

Dear Sir or Madam:

Submission Number: 2.19607

		Status
Subject: Transaction Number(s):	W9950.00054	Approval After Notice

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact LUCILLE JEROME by e-mail at lucille.jerome@ndm.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 14297
Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.19607

Date Correspondence Sent: November 09, 1999 **Assessor:** LUCILLE JEROME

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9950.00054	5000138	FINAN	Approval After Notice	November 09, 1999

Section:
10 Physical PSTRIP
12 Geological GEOL

The 45 days outlined in the Notice dated September 24, 1999 have passed.

Assessment work credit has been approved as outlined on the attached Distribution of Assessment Work Credit sheet.

The assessment credit is being reduced by $13,445.00. The TOTAL VALUE of assessment credit that will be allowed, based on the information provided in this submission, is $5382.00.

Correspondence to:
Resident Geologist
South Porcupine, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):
RESSOURCES GOLDEN GOOSE INC.
Dubreuilville, Ontario

Correspondence ID: 14297

Distribution of Assessment Work Credit

The following credit distribution reflects the value of assessment work performed on the mining land(s).

Date: November 09, 1999

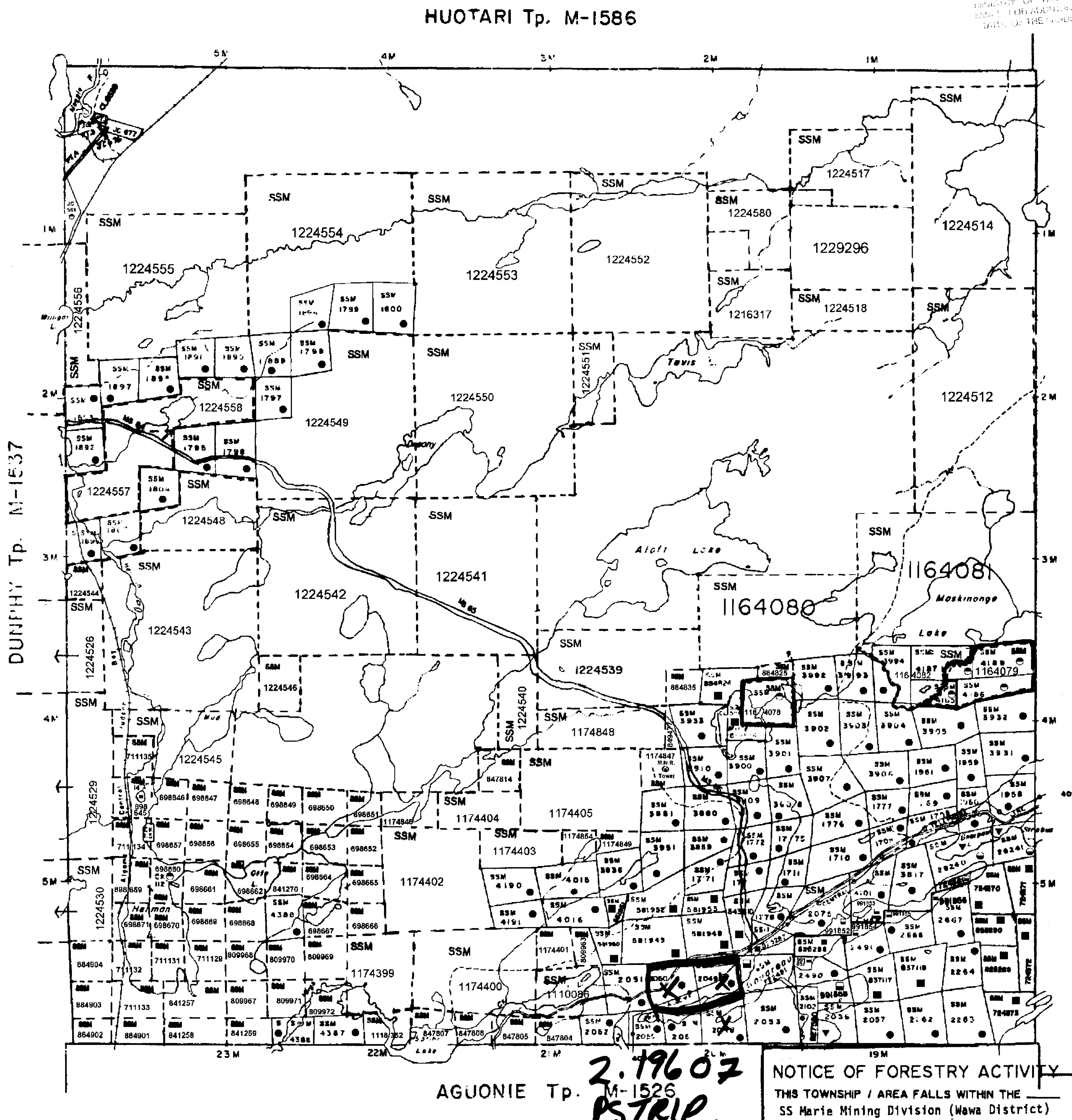
Submission Number: 2.19607

Transaction Number: W9950.00054

Claim Number	Value Of Work Performed
5000138	5,382.00
Total: $	5,382.00

Correspondence ID: 14297

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED.



THE TOWNSHIP OF

FINAN

DISTRICT OF ALGOMA

SAULT STE. MARIE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

DISPOSITION OF CROWN LANDS

PATENT, SURFACE AND MINING RIGHTS
" , SURFACE RIGHTS ONLY
" , MINING RIGHTS ONLY
LEASE, SURFACE AND MINING RIGHTS
" , SURFACE RIGHTS ONLY
" , MINING RIGHTS ONLY
LICENCE OF OCCUPATION

ROADS
IMPROVED ROADS
KING'S HIGHWAYS
RAILWAYS
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED C.

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

TOWNSHIP SUBJECT TO FORESTRY OPERATIONS

MS 84 85 86 TRAVELLED ROAD (SEE LANDROLL) GOUDREAU TWP.

MINING RIGHTS (SEE ONTARIO GAZETTE) open for prospecting, staking out, sale, OR LEASE AT 7:00 AM STANDARD TIME JUNE 1/94.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

DEC -7 19

PLAN NO. M.1584

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE SS Marie Mining Division (Wawa District)
AND MAY BE SUBJECT TO FORESTRY OPERATIONS.
THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT:
P.O. Box 1160
Highway 101
Wawa, Ontario POS 1KO
(705) 856-2396
RE: Forest Management Activities

The 1975 Magnetic Bearing Approx. 5°W Annual Change increasing 2'.

42C08SW2009 2.19607 FINAN 200